



EUROSOCIENCE OPEN FORUM  
 (ESOF2022) REPORT  
 Leiden 2022

# Evaluation Report EuroScience Open Forum (ESOF2022)

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**ESOF2022 LEIDEN** 13-16  
 EUROSOCIENCE OPEN FORUM JULY  
 CROSSING BORDERS, ENGAGED SCIENCE, RESILIENT SOCIETIES



## Table of contents

1. Introduction .....	4
2. Leiden, European City of Science 2022 .....	5
3. ESOF2022 .....	6
4. Conclusion .....	7
5. Organisation, Committees and Conference Management .....	7
5.1. The Local Champions .....	8
5.2 ESOF2022 Executive Board consists of: .....	8
5.3 Leiden Supervisory Board / Founding Partners Leiden2022 .....	9
5.4 ESOF2022 Scientific Advisory Board .....	9
5.5 Programme Selection Committee .....	10
5.6 Media Advisory Committee .....	10
5.7 The ESOF Project Team .....	11
5.8 Volunteers .....	12
5.9 Crisis Management Team .....	13
5.10 Professional Congress Organizer (PCO) .....	13
5.10.1 Delegate and registration management .....	14
5.10.2 Programme and speaker management .....	14
5.10.3 Venue management .....	14
5.10.4 Accommodation .....	15
5.11 Lessons learned and recommendations .....	15
6. Hybrid format .....	16
6.1 Lessons learned and recommendations .....	19
7. ESOF2022 Scientific Programme, social programme and satellite events .....	20
7.1. Theme and Tracks .....	20
7.2 Selection process .....	20
7.3 Conference Programme .....	23
7.4 Posters .....	24
7.5 Keynote Speakers and plenary panels .....	25
7.6 Opening & Closing Ceremonies .....	26
7.7 World Programme .....	28
7.9 Pre-conference workshops and field trips .....	29
7.10 Science and Business .....	30
7.11 Sponsored Sessions .....	31
7.12 Satellite events .....	31
7.13 Socials and Networking .....	33

7.14 Studio ESOF2022.....	34
7.15 Science in the City Festival .....	35
7.16 Lessons learned and recommendations.....	37
8. Regional site Katowice .....	38
Lessons learned and recommendations.....	39
9. Finances, fees and vouchers .....	40
9.1 Budget.....	40
9.2 Ticket Fees .....	40
9.3 Promotional Voucher Scheme.....	41
9.4 Lessons learned and recommendation .....	42
10. Sponsoring and Exhibition.....	42
10.1 Exhibition in Pieterskerk .....	44
10.2 Online Exhibition .....	46
10.3 Our strategy to create exhibition footfall.....	47
10.4 Lessons learned and recommendations.....	48
11. Venues & Logistics.....	48
11.1 Online.....	49
11.1.1 The Virtual Platform.....	49
11.2 Onsite.....	52
11.2.1 Venues.....	52
11.2.2 Venue Management and AV support .....	53
11.2.3 Sustainability.....	53
11.2.4 The Conference App .....	54
11.2.5 Slido Interaction .....	55
11.3 Lessons learned and recommendations.....	55
12. Marketing and Communication .....	56
12.1 Our target audience and attendees .....	56
12.2 Conference Branding .....	57
12.3 Marketing and Communication.....	58
12.4 The ESOF2022 Website.....	61
12.5 Social Media.....	64
12.6 Media.....	66
12.7 Lessons learned and recommendations.....	68
13. Delegate Data, Survey & Feedback .....	69
13.1 ESOF2022 delegate numbers .....	69

13.2. Delegate demographics ESOF2022 Leiden .....	70
13.3 Speaker demographics .....	72
13.4 Virtual platform and app demographics .....	73
13.5 Delegate survey results .....	77
13.6 Lessons learned and recommendations.....	79
14. Appendix:.....	81



## 1. Introduction

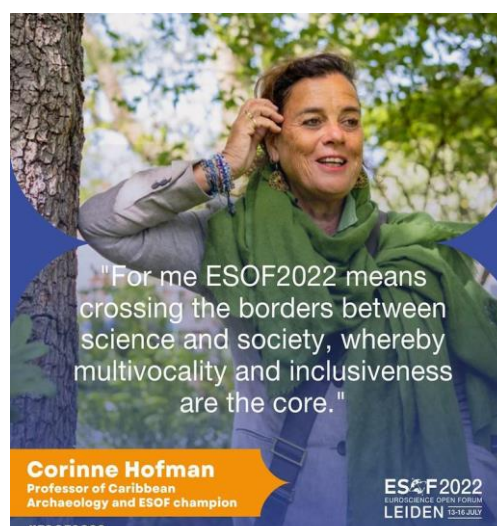
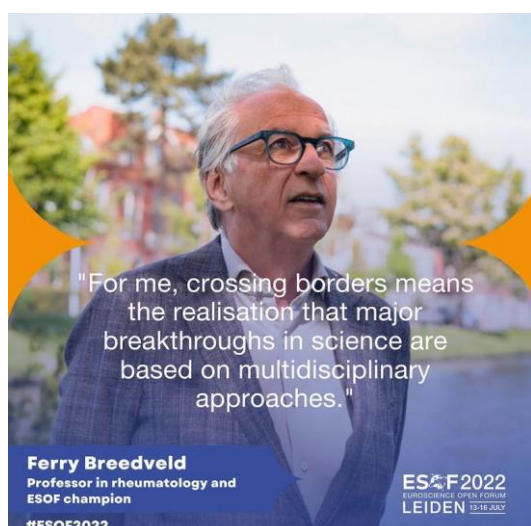
EuroScience Open Forum (ESOF) 2022, the conference where we look at today's world through a multidisciplinary lens.

The organisation of ESOF2022 brought us an inspiring summer. During 3 days speakers of the highest international standards and delegates from 87 countries met in the heart of our medieval city of Leiden in The Netherlands, European City of Science 2022. We welcomed over 1500 delegates in our city, and 900 delegates participated online. Another 700 participated simultaneously in the regional site Katowice, Poland. We were especially pleased to also welcome large numbers of citizens that visited the Science in the City Festival at the Pieterskerk, one of the ESOF2022 venues, to be fascinated by what they learned of recent findings and truly connect science and society.

The main theme of this 10th edition of ESOF2022 was *"Crossing Borders, Engaged Science, Resilient Societies"*. The theme was designed to cross all borders: not only between countries and cultures but also between the humanities, the social sciences and the natural, medical and physical sciences. The conference provided an opportunity for all stakeholders of science to engage in open discussions and debate on science itself and how it can contribute to tackling the grand challenges of tomorrow.

This exquisite scientific event could not have taken place without careful preparations and the allocation of sufficient resources. With this report we seek to capture the results, impact and learnings of ESOF2022. The details given should serve to provide insight into the nature of ESOF. We hope this report will benefit cities that will host ESOF in the future, as we on our turn have valued the guidance sprouting from earlier editions in Manchester, Toulouse and Trieste. We want to express our gratitude to all the volunteers and of course to the sponsors and founding partners of Leiden2022, and we are grateful to the European Commission and to EuroScience who gave us the opportunity to host ESOF2022. It was great to have the largest interdisciplinary scientific congress of Europe in town, as a highlight of the 365 days-program of Leiden European City of Science. ESOF 2022 allowed us to refresh scientific contacts, make new friends and, most of all, to spread enthusiasm for science.

*Ferry Breedveld, Professor in Rheumatology and ESOF2022 Champion*  
*Corinne Hofman, Professor of Caribbean Archeology and ESOF2022 Champion*



*Remark: In this handover report to EuroScience we focus on ESOF2022 in Leiden and only briefly mention the regional site Katowice, since EuroScience was more involved in the regional site programme and communication than the Leiden2022 team.*

## 2. Leiden, European City of Science 2022

Leiden received the honor of organizing and hosting the first year-round European City of Science in 2022.

The European City of Science (ECS) label intends to celebrate the richness and diversity of the European scientific landscape. It enhances the European and international profile of the scientific community in a particular city or region, increases engagement of citizens with the scientific community locally, triggers public investments in regional scientific infrastructures and aims to boost tourism. Moreover, it aims to foster mutual learning, scientific integration, interest for science among younger generations and the development of a borderless European research community across the continent. The objective of the European City of Science 2022 is to bridge the gap between science and society.



Leiden European City of Science 2022 offered a 365-day programme aimed at anyone with a curious mind. The Leiden2022 365-day programme was launched under the overarching narrative of ‘Who Knows’.

‘Who Knows’ is a provocative, but also a striking summary of the current time frame. It alludes to the ‘post-truth’- condition, the ‘deep fakes’ and ‘filter bubbles’ of our time and demonstrates the need for a close-knit connection between science and society.

‘Who Knows’ can be read as a question, an observation, an exclamation, a concept and as a wink to the future. It stands for the eternal quest, driven by curiosity, for science, knowledge and skills, for the importance of asking questions and the universal hunger for knowledge.

The European City of Science 2022 is an initiative of Leiden University, the Leiden University Medical Centre (LUMC), Leiden University of Applied Sciences and the Municipality of Leiden (the ‘founding partners’).

### 3. ESOF2022

One of the highlights of the European City of Science programme is the EuroScience Open Forum (ESOF), Europe's largest and most prestigious multidisciplinary science conference. It presents cutting-edge scientific and technological developments in all scientific areas, including natural and medical sciences, life sciences, physical sciences, social sciences, and humanities.

ESOF is created by EuroScience to provide the European research and innovation community with a multidisciplinary forum. It allows for discussion about new discoveries and stimulates lively debate about the direction that research is taking in the sciences, humanities, and social sciences, and it provides a focus for attracting global researchers and innovators to Europe. ESOF aims to foster dialogue and exchange between stakeholders on science, but also covers a wide range of targeted topical sessions on science practice, science communication, science policy, science careers, science-society dialogue, and science with, and for business.

ESOF2022 took place from 13 to 16 July 2022 in Leiden, The Netherlands. For the first time, ESOF2022 also presented a regional site in Katowice, Poland as part of the conference to showcase the next European City of Science, and introduce the host of ESOF2024. It was the 10th edition of ESOF with a new hybrid format and positioning within the Leiden European City of Science Year.

The theme of ESOF2022 was ***Crossing Borders, Engaged Science, Resilient Societies***. In more than 100 sessions, divided over seven tracks (see image below), interdisciplinary groups of scholars, policy makers and societal partners could engage in discussions and debates on climate change, migration, sustainable future, chronic diseases or contested heritage - major themes addressing the Sustainable Development Goals of the United Nations



The main objective of ESOF2022 was to strengthen the trust in the various ways society is influenced by science and, on the other hand, how science is influenced by choices, dilemmas and responsibilities that arise in society.

#### 4. Conclusion

If we look at the final result of ESOF2022 we look back with pride. During the week of ESOF we saw many happy faces and many excellent scientific sessions took place. We feel we really created positive delegate experiences for our onsite and online participants. The road to get to the end result could have been without less hurdles though and we wished that we would have had more online participants.

For future editions it is advisable to map out the direction EuroScience wants to head with ESOF. It has a huge potential if you find your niche. It should also appeal to EuroScience members. Perhaps it is time to do market research, to get feedback from the EuroScience members and review the EuroScience license in order to operate and update the vision and mission and make it future forward.

#### Most important take-aways of ESOF2022

- With the ESOF-program, many meaningful connections between science and society have been shared and highlighted.
- A positive legacy is the attention for European science and the interface ESOF has proven to provide between science and governance.
- Adding the Katowice regional site has proven to be successful, and adding the World Programme and Studio ESOF has revealed new potential.
- A challenge is to attract enough interest for conferences of such an international, diverse and multidisciplinary character. Is the ESOF concept in its current shape still resonating with the market's needs and developments? As such, ESOF might require more (thematic) focus. It should certainly develop a better profile as a high-profile scientific event.
- It is advisable to reassess the hybrid model of ESOF. It could be considered to have a 1-day online event and 2 days onsite.
- It is advisable to establish an International Scientific Board, representing different scientific (national)) institutions from Europe, in order to secure high-profile scientific programming and substantial international outreach.
- In order to secure a more solid basis for future editions of ESOF, EuroScience would need to update and develop their databases and membership's structure, and it is strongly advised to adjust the website in order to better sustain conference programming.
- Every ESOF contract is different, which leads to different management-, and organisational arrangements and financing structures. This has a considerable impact on governance and decision-making processes. Since ESOF as such is already a complex process and concept, it is very important to have clear agreements on this.
- It is (of course) advisable to start in time, with enough funding and a complete team, while making sure knowledge and experiences of the previous edition(s) are being properly transferred.

#### 5. Organisation, Committees and Conference Management

Being part of the European City of Science 2022, Leiden2022 was the legal entity which had the responsibility for the organisation and execution of the EuroScience Open Forum 2022 in close cooperation with EuroScience.

The relationship between Leiden2022 and EuroScience was formalized by means of a contract. The contract, among others, stipulated rights and obligations in relation to trademarking and license agreements and the division of tasks between EuroScience and Leiden2022. The administrative and financial management, as well the event and its facilitatory aspects were the responsibility of Leiden2022. EuroScience also formalized the relationship with the regional site Katowice by means of a contract.

ESOF2022 was co-created by Leiden2022, EuroScience and the two Local Champions of ESOF2022. The Local Champions led the Scientific Advisory Board and were mainly responsible, in cooperation with EuroScience, for the shaping and development of the ESOF2022 programme.

### **5.1. The Local Champions**

- Prof. Dr. Ferry Breedveld, the former chair of the Board of Directors of LUMC and specialist in internal medicine and rheumatology.
- Prof. Dr. Corinne Hofman, professor of Caribbean Archaeology at Leiden Faculty of Archaeology and the KITLV.

Representatives of the three bodies (Leiden2022, EuroScience and Local Champions) form the Executive Board of ESOF. This set-up ensured a balance between the European nature of ESOF and the involvement of local stakeholders as well as representation. The Executive Board monitored the progress of ESOF2022 and supervised the programme development. The Executive Board also ensured that the organisation of Leiden2022 regularly met up with EuroScience to coordinate tasks and activities. Below the members are listed.

### **5.2 ESOF2022 Executive Board consists of:**

- Michael Matlosz, EuroScience, President / Chemical process engineering and process intensification (France)
- Matthias Girod, EuroScience, Secretary General /Chemistry (Italy and France)
- Lorna Hughes, Member of the Governing Board and Vice Chair of EuroScience / Digital humanities (UK)
- Gail Cardew, The Royal Institutions / Science, culture and society (UK)
- Meta Knol, Leiden2022, Director / Art history, artscience (NL)
- Lucien Geelhoed, Leiden2022, Intendant / Homo universalis (NL)
- Ferry Breedveld, Local Champion ESOF2022, former chair of the Board of Directors LUMC / Internal medicine and rheumatology
- Corinne Hofman, Local Champion ESOF2022, Leiden University / Caribbean Archaeology

Key conference decisions were taken by the Executive Board.

### 5.3 Leiden Supervisory Board / Founding Partners Leiden2022

Leiden2022 was financially responsible/liable for the organisation of ESO2022 and therefore Leiden2022 reported to the Leiden Supervisory Board, which consists of representatives of the four founding partners of Leiden2022 (municipality of Leiden, Leiden University, Leiden University of Applied Science and Leiden University Medical Center (LUMC)). The Supervisory Board was able to overrule Executive Board decisions based on (financial) risks for Leiden as host city.

The Leiden Supervisory Board had no influence on the content of ESO2022. The Leiden Scientific Advisory Board was the advisory board for content towards the Local Champions (themes conference, keynotes, etc).

The Scientific Advisory Board consisted of high-profile scientists from many different disciplines (from STEM to archaeology to law). The primary task of the Scientific Advisory Board was to provide substantive advice to the Local Champions on the development and shape of the ESO2022 programme. The involved scientists were not only distinguished by the practical experience that was necessary to shape a programme, but also by their expertise and networks that were necessary to attract more participants. The Scientific Advisory Board was led by the Local Champions. The composition of the scientific advisory board is listed below:

### 5.4 ESO2022 Scientific Advisory Board

- Prof. Dr. Ewine van Dishoeck, Professor of Molecular Astrophysics at Leiden Observatory, and the president of the International Astronomical Union.
- Prof. Dr. Pieter ter Keurs, cultural anthropologist and Professor Museums, Collections and Society at Leiden University.
- Prof. Dr. Frits Koning, Professor in Immunology, a member of the daily management team as well as the Chairman of the Scientific Advisory Board of the LUMC.
- Prof. Dr. Rick Lawson, Professor of European Law at Leiden University
- Prof. Dr. Hannah Swaab, Professor of Neurocognitive Development and Developmental Disorders at Leiden University. Currently Director of Leiden University's Ambulatorium.
- Prof. Dr. Kutsal Yesilkagit, Professor of International Governance at the Institute of Public Administration.
- Prof. Dr. Robert Zwiijnenberg, Professor emeritus of Art and Science Interactions at Leiden University.
- Prof. Dr. Wim van den Doel, Professor of Contemporary History.
- Dr. Suzan van der Pas, lector Social Innovation and Entrepreneurship of the Leiden University of Applied Sciences (joined the Scientific Advisory Board in November 2021)
- Prof. Nicole de Voogd, Senior Researcher Marine Biodiversity at Naturalis Biodiversity Centre & Professor Global Change and Marine Ecosystems at the institute of environmental Sciences at Leiden University (joined the Scientific Advisory Board in November 2021)
- Dr. Noel de Miranda, Associate Professor and principal investigator of the Immunogenomics group at the department of Pathology of the Leiden University Medical Centre. Also board member of Young Academy Leiden (joined the Scientific Advisory Board in November 2021)



### 5.5 Programme Selection Committee

All reviewed proposals were evaluated by the ESOF selection committee. They selected the final ESOF programme. This committee was composed as follows:

- Prof. Dr. Ferry Breedveld, Local Champion
- Prof. Dr. Corinne Hofman, Local Champion
- Matthias Girod, Secretary General EuroScience
- Prof. Anne Cambon-Thomsen, former ESOF Champion 2018

This committee was supported by the ESOF programme coordinator, Joanna Szostakowska-Naidoo and the programme coordinator of EuroScience, Marie Suchanova.

### 5.6 Media Advisory Committee

The Media Advisory Committee (MAC) was a group of experienced science journalists and communicators, and its main purpose was to go through the list of accepted sessions/posters for the ESOF conference. They used their insights in current developments in science to help us, as organisers, to identify sessions of special scientific and public interest, give advice on keynotes and topics of public and media interest that were missing.

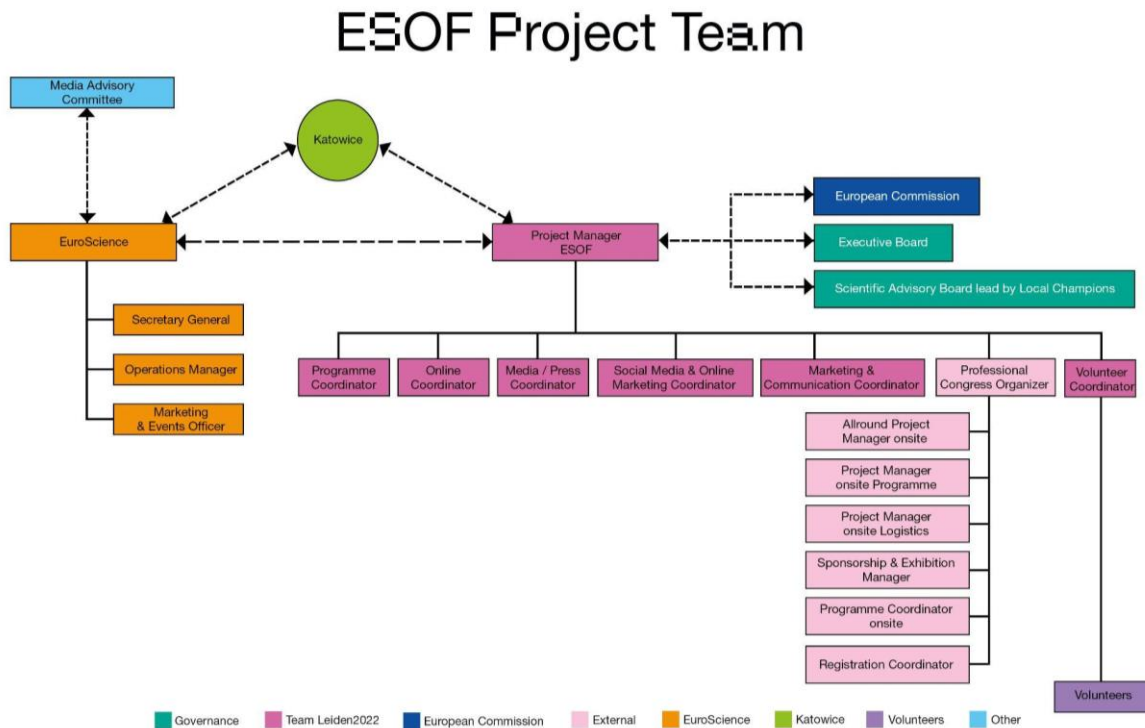
The MAC acted strictly in advisory capacity without any decision-making responsibility and its members were not remunerated. Three members were put forward by Leiden2022/ESOF2022 organisation and three members were suggested by EuroScience.

- Krijn Soeteman (Science Journalist, Chair of the Dutch Association of Science Journalists, organizer of European Conference of Science Journalism)
- Tony Lockett (Head of Communication at the European Research Council)
- Renée Merckx (Director Strategic Communication & Marketing, Leiden University)
- Clive Cookson (Science Editor FT)
- Ben Deighton (Editor in chief SciDev.net)
- Milica Momcilovic (Science Journalist from Belgrade, President of the World Federation of Science Journalists)

The MAC was established relatively late in the process. Matthias Girod from EuroScience was leading in communicating with the MAC. MAC members gave constructive feedback on the programme, highlighted sessions that would be interesting for journalists and made a gap analysis. In the programme we reserved a few time slots for new sessions based on the MAC gap analysis, like the James Webb Space Telescope session. Other suggestions became part of the questions asked at the plenary panel 'Living in a world with pandemics'. A session on the 'Exclusion of the UK and Switzerland from Horizon Europe' was suggested as well, but unfortunately, we didn't manage to find an organisation who wanted to lead this session at short notice.

## 5.7 The ESOF Project Team

The diagram below illustrates the structure and set-up of the ESOF Project Team. The ESOF project team fell under the responsibility of the director of Leiden2022.



This team was managed by the ESOF Project Manager, Wendy Frigge, who was responsible for the organisation, coordination and finance management of ESOF2022. The ESOF Project Manager was also responsible for the social and networking activities and monitoring the planning and execution of the ESOF2022 programme and supervising the PCO.

EuroScience was the owner of the ESOF2022 website and initially handled and organised the call for proposals and abstracts, amongst other things.

### The ESOF Organizing Team

The team consisted of a core of 12 staff, including a representative of EuroScience and excluding the two Local Champions and the PCO team (six more team members).

- Wendy Frigge                      Project manager
- Joanna Szostakowska          Programme coordinator and linking pin to Katowice (based in Warsaw)
- Gerdie Schreuders              Online coordinator (platform, app, talkshow)
- Pien Chrispijn                    Communication & marketing coordinator
- Karin van den Boogaert        Media coordinator
- Oliver de Leeuw                 Social media & online marketing coordinator
- Nicky Redmond                 Communication & branding support
- Ariel Slaughter                 Website and newsletter support
- Gerbrand Oudenaarden        Technical producer
- Bart Klaver                        Volunteer coordinator
- Amy van Maarsveen            Finance support
- Julie Morestin                    Marketing and Events Officer EuroScience (based in Strasbourg)



Supporting this team we had a team of suppliers for conference branding, promotion videos and venue representatives that mostly acted as partners, like the virtual platform, AV company and Stadsgehoorzaal. During ESOF more than 50 people were involved in the execution of the organisation, including stage managers, technical teams to support the hybrid and studio sessions, virtual room assistants, moderators, Slido coordinators, photographers and videographers. In addition, we had onsite support of 40 volunteers.

Although we had a linking pin within our team for Katowice (also Polish) the contractual agreement was made between EuroScience and Katowice and this contract was not known to the ESOF2022 team in Leiden. Julie Morestin remained their main contact person from EuroScience.

Planning and execution of sponsored travel grants (for delegates to attend ESOF) are not mentioned in above team structure. This was entirely organised and executed by Maria Suchanova of Euroscience. This has been the sole responsibility of EuroScience for many years and they have an existing relationship with several sponsors in this regard.

## 5.8 Volunteers

To run the ESOF organisation, onsite volunteers were required. A voluntary volunteer coordinator joined our team in May 2022 to recruit and coordinate the ESOF2022 volunteers.

We started a recruitment campaign together with EuroScience, Leiden2022, our Founding Partners and Leiden & Partners and shared this also via social media. We were looking for:

- Students, who were interested in multidisciplinary science and innovation in Europe;
- Hospitality and events industry students, who would be able to gain an exceptional experience of working on an international, high-profile event;
- Community members with curious minds (schools, companies, associations, etc.), who wanted to contribute to Europe's biggest multidisciplinary and prestigious science conference;
- Inhabitants of the city of Leiden and its surroundings, who love the city and were willing to give our delegates the real Leiden experience.

Our Volunteer Programme was based on a 50% time involvement basis. You volunteered 50% of your time (half day) to the conference and in exchange you got the other 50% of the conference for free – volunteers could attend all sessions, meet peers and leaders, network and experience an international conference.

Our aim was to help our volunteers to gain useful (job) experience and satisfaction and meet new like-minded people, as well as leading experts within the world of science. Lastly it offered a unique chance to develop personal skills and maybe even strengthen CV's. The 10th ESOF2022 event offered a unique opportunity to make a contribution to the city of Leiden and its community and it also guaranteed an insider's view on being part of a high-profile international event.



Some examples of support given by volunteers were: Registration support, Workshop room support, Delegate support, Poster sessions support, Exhibition support, Speaker room support, Media Centre support. We prepared a briefing for all volunteers and organised an onsite briefing and site inspection on Tuesday 12 July. The volunteer coordinator was their main point of contact together with the venue coordinators. We received a good amount of positive feedback from volunteers about their experience.

### 5.9 Crisis Management Team

Before the start of ESOF a Crisis Management Team (CMT) was created. The purpose of the Crisis Management Team was to mobilize the appropriate individuals within the organisation in the event of extreme risk or crisis related to the EuroScience Open Forum (ESOF2022). The CMT was also responsible for ensuring that appropriate responses to the crisis are implemented and communication was disseminated within the organisational team and to external stakeholders at the right time. The CMT was chaired by the project manager and the key decision makers were the director of leiden2022, Meta Knol and Matthias Girod, Secretary General EuroScience.

The CMT further consisted of a Communications lead (communication to delegates), sponsor liaison, media liaison, finance liaison, EuroScience liaison (reporting CMT), operational liaison (PCO) and online liaison (studio, platform, app).

A Crisis Management and Communications Plan was shared with all CMT members a week before ESOF and at the start of ESOF a whatsapp group was launched that only was to be used if the CMT needed to be activated. Fortunately, this wasn't necessary.

### 5.10 Professional Congress Organizer (PCO)

The ESOF project team was supported by a Professional Congress Organizer (PCO). Contractual issues prohibited signing the contract of the initially selected PCO, therefore we needed to start conversations with the second and third choice of the tender. Congress by Design became our PCO. They started in December 2021 with a small team. Due to changes in their organisation between the initial tender (they were declined at first) and the start of the ESOF2022 organisation, the initial team was no longer available. Charlotte van Solingen was our third project leader and only joined on 5 June. The two previous project leaders remained part of the team, but became our venue manager and programme manager. ESOF2022 was a more difficult project than Congress by Design had initially envisioned, as it required a team with specific scientific conference expertise, in a hybrid format.

The PCO team consisted of:

- Charlotte van Solinge      Project manager (PCO)
- Malou Meuffels            Programme and speaker management coordinator (PCO)
- Esther Kastelein          Speaker support (PCO)
- Mieke Put                    Venue management coordinator (PCO)
- Paul Gruijthuisen          Sponsor and Exhibition manager (PCO)
- Gabor Vereb                Registration (PCO)

In collaboration with the Leiden2022 fundraising coordinator, the PCO took care of the formalization of contracts with the ESOF2022 commercial partners. The PCO, in collaboration with the communication team, was responsible for drafting the exhibitor manual and coordinating both the delivery and construction of the virtual stands, and the logistics for the physical stands in the Pieterskerk.

### 5.10.1 Delegate and registration management

The PCO managed all aspects of the registration including single, groups, discounted voucher codes and complementary tickets, and all the services related to registrations that included:

- Conference Secretariat
- Invitation and visa letters
- Creating a flexible online registration system to be embedded in the existing ESOF website (also mobile friendly), that included early bird registrations, pre and on-site registration, different categories of fees
- Providing a secured system for electronic payment submission, collection of fees through all major credit cards, issuing and providing receipts, immediate confirmations, responding to any follow-up necessary with delegates directly in time
- Sending delegate information, like QR code badge collection, venue logistics or information about online participation.

Since we didn't know the full programme when the registration opened it was suggested by the PCO to create a login registration page that had a 'new user account' and an 'existing log-in account', so delegates could return to their own registration and adjust information or complete it when new options (like workshops) were added. Media needed to upload their media credentials to be accepted and students and artists were asked to upload their student ID or proof of their profession of being an artist.

The PCO had a different registration process for speakers and poster presenters (which wasn't communicated at the start). This caused frustration with speakers and led to unclear delegate data at the end.

### 5.10.2 Programme and speaker management

The general management of the programme was handled internally by the ESOF Programme team, consisting of the programme coordinator, Local Champions and EuroScience. After the initial selection process, the confirmed list of speakers that had been received from the call for proposals went to EuroScience to officially invite them.

Thereafter, speaker management and communication were handed over to the PCO for the next stage of the process. Coordination of timings and online/onsite arrangements was made by the PCO with every speaker. The PCO supported the Project Team in the management of correspondence with the speakers and in the collection of the materials necessary for the finalization of the programme. Within the ESOF project team the online coordinator and technical producer liaised with the PCO to make sure all necessary speaker arrangements (like stage management) were made for online and hybrid sessions.

### 5.10.3 Venue management

The PCO was responsible for onsite venue management and drafted the logistical scripts per venue. They selected and briefed the logistical staff on site and took care of assigning the roles, the duties and coordinated their allocation in the positions and tasks. All contracts with venues and suppliers had to go via the ESOF project manager, since contracts needed to be drawn up between Leiden2022 and the supplier. This process was different than envisioned in the grant agreement. According to Dutch law all contracts with venues and suppliers for ESOF2022 needed to be issued in the name of Leiden2022, therefore the PCO could not facilitate this logistical aspect fully. The PCO reviewed and provided advice over the larger contracts.

Next to the logistical scripts written by the PCO a staff guide was created by the ESOF2022 team and the project manager gave the initial overall briefing onsite for all involved staff.

#### 5.10.4 Accommodation

The PCO was responsible for hotel allocation for speakers and the organizing team (contract was between hotel and Leiden2022). For delegates the PCO suggested working with their preferred supplier for hotel bookings. The ESOF organisation didn't need to pay for this service. The commission from the hotels covered the cost for the support services of the Hotel platform. Delegates were able to book their own accommodation or use the selected Preferred Hotel platform. Details of this were mentioned on the ESOF2022 website. Since hotel accommodation is limited in Leiden itself the ESOF organisation secured hotel rooms within Leiden and surrounding cities to make sure all ESOF delegates would be able to find suitable and affordable accommodation. For speakers and the ESOF team we had a block booking at a hotel in Leiden and this allocation was managed by the PCO.

### 5.11 Lessons learned and recommendations

#### Committees

- ❖ We would recommend having an *international* Scientific Advisory Board for ESOF, with representatives of the local host city, EuroScience board members and a few representatives of key European partner organisations. This way access to renowned international speakers and international promotion of ESOF is better secured.
- ❖ The Media Advisory Committee was installed very late and we could have made more use of their expertise and networks. They did make a gap analysis of the programme and suggestions to strengthen the programme, but they were not actively involved to promote ESOF.
- ❖ It would be recommendable to have an advisory board made up from *previous organizers*.

#### Organisation

- ❖ From a logistic perspective we started too late with the organisation of ESOF2022. This was due to budget restraints.

#### Project Team

- ❖ Project manager, Wendy Frigge, started in October 2021. Before her there had been another project manager for ESOF within Leiden2022, who started in June 2021 (earlier than envisioned in the grant agreement), but due to shifts within the Leiden2022 team she changed position. The rest of the team joined later. The late start of team members had a knock-on effect. A strong recommendation is to have enough funds available to assign a complete team from the start and start earlier (before the call for proposals is launched).
- ❖ Within the ESOF2022 organisation there was not one person that actually had organised ESOF before which led to having no continuity whatsoever. At EuroScience, some staff were new and some had been at ESOF conferences before, but no-one had first-hand experience of what was needed. Leiden2022 did not receive a handover report from Trieste. The rationale behind certain decisions and the process was not shared beforehand. Therefore, Leiden2022 made their own evaluation report of Trieste based on interviews with the Trieste-team and their own onsite experiences. So, we had to learn along the way. Without the knowledge, expertise and perseverance of the team we wouldn't have been successful. This looks set to recur. The Leiden team did prepare a full hand-over report with lessons learned for Euroscience and Katowice. This was already shared and discussed with Katowice in December 2022.
- ❖ We would recommend to assign a programme manager of ESOF next to the project manager. The programme manager should be responsible to manage the programme on all levels and support the local champions. This time we had a (parttime) programme coordinator, but she supported only from a practical level and not from a content perspective. We feel this is really necessary for future editions.

#### The PCO

- ❖ We recommend to have a clear event structure and requirements for the PCO, in order to contract the right PCO to organize the event you envision with the right experience to support the project manager.

- ❖ Contract a PCO a lot earlier, so the call for proposals submission process can go via them. This time the submission was done via another company (ESF). This was a process started before PCO was contracted. The PCO and the submission platform (ESF) were not able to support the selection committee. Luckily our programme coordinator had experience in this field, but it caused a lot of extra work.

## 6. Hybrid format

At this 10th edition, a renewed and innovative hybrid format of ESOF was desired. Although Trieste was a hybrid event as well, it had a different rationale behind it (Covid-19 restrictions) and different format to the Leiden edition.

There are many different forms of hybrid conferences. A hybrid conference is one which combines the elements of attending in-person *and* online. For the purpose of ESOF, the hybrid conference allowed participants to decide if they could travel to the Netherlands, or from a cost or other perspective, remain in their own country, and engage virtually. From the organisation perspective, a hybrid conference meant not just the cost of venues in Leiden and the technical complexity of staging the live event, but also the technology and professionalism of streaming out live and pre-recorded sessions on a virtual platform.

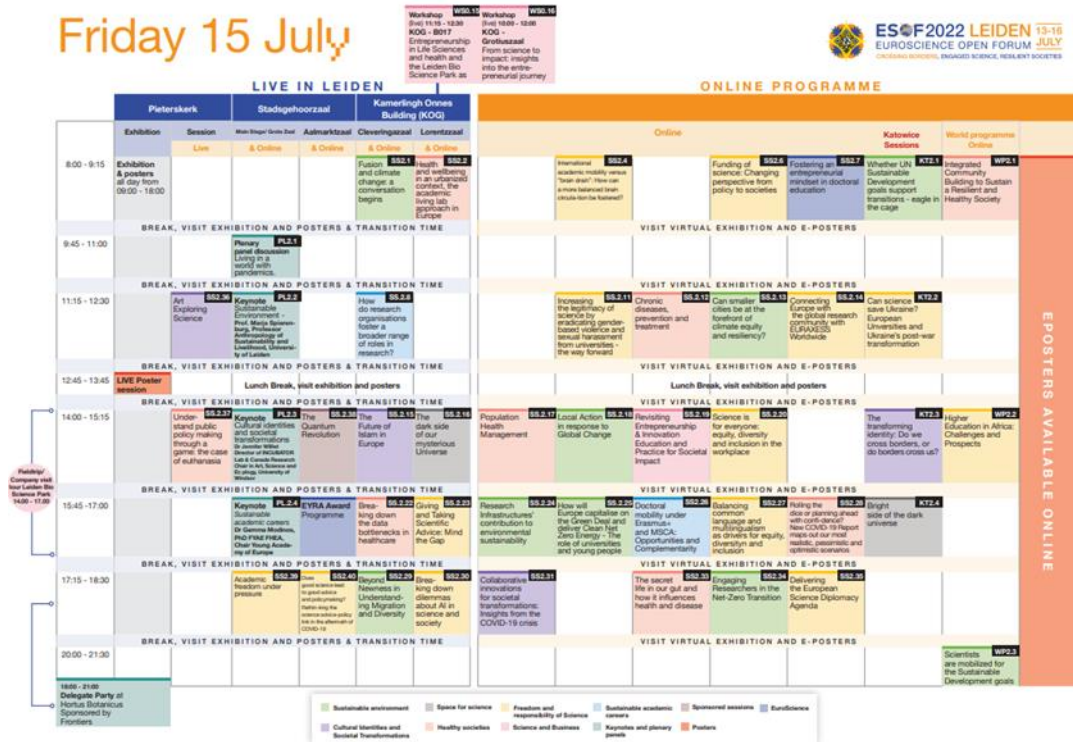
The ESOF2022 edition was created as a hybrid event for multiple reasons.

1. Most importantly we wanted to host a more sustainable and inclusive event. By offering an online conference, more delegates from around the world could join, without having to travel to Leiden. Our aim was to have more online delegates (3500) than onsite delegates (1500).
2. We started the organisation of ESOF2022 in insecure Covid-19 times, with multiple lockdowns and event restrictions in The Netherlands. Also travel restrictions within Europe and organisation guidelines/principles to attend physical events had to be taken into account. We needed to organize an event that, in case we were not allowed to host a physical event, could be transformed at the last minute to a fully online event.
3. We were hosting the conference in multiple historic venues that were in the city center and within walking distance of each other. At the same time these venues were not suited for an audience of more than 2000 delegates. Given the hybrid option we aimed to boost participation with online delegates to spread the opportunity to attend far and wide.
4. A hybrid programme involved designing a conference format that would attract an onsite and online audience. There was a wish to have hubs and/or viewing parties of ESOF in other European countries.



Showing some of the technology necessary for streaming online for the Hybrid event.

We planned a conference with an onsite programme in Leiden, with a crossover to online and an online platform which would crossover to onsite. Most sessions in Leiden were hybrid, and online delegates could join the discussions onsite. We also had sessions that only took place in Leiden (for example, in the Pieterskerk) and were also open to the general public. And we had online-only sessions for which speakers and attendees could join from their computer. The programme at a glance clearly shows the structure of ESOF2022.



We planned a fully live event, onsite and online. This meant we didn't just broadcast our onsite sessions to online, but made sure they were truly hybrid and the online delegates could really interact with the onsite speakers. Online participants could also interact with all attendees (via the virtual platform), since ALL onsite participants automatically also had access to the virtual platform to be able to connect with online delegates and attend the online sessions.



Each ESOF conference aims to deliver stimulating content using a wide range of creative and interactive session formats meant to foster a lively exchange of ideas through debate and other interactions. We tried to achieve this by offering many different types of sessions to different audiences.

We proposed three sessions rooms onsite for hybrid sessions (parallel programme), one session room for sponsored sessions and if needed an unlimited number of online sessions. We chose to have six parallel online session rooms, this included the World Programme (three sessions per day on Thursday and Friday only) and the Katowice programme (Friday 15 July only). The Pieterskerk stage (speakers corner) was used for onsite only sessions which were open access and linked to our public engagement programme. We didn't plan any events to take place parallel to the plenary sessions (opening, closing and plenary panel discussions). During all other sessions, other events took place simultaneously.

Providing full delegate interactivity and engagement both online and onsite brought about a fresh way of thinking and some considerable planning to combine the structure, content and visibility for optimum inclusion.

This hybrid format added challenges to both the preparations and the budget as well as to ensuring that the team of professionals and technology would make it happen.

ESOF2022 hybrid event comprised of several components:

- **The main programme (onsite and online)** with lectures, seminars, workshops, debates and poster presentations on the latest advancements in scientific research, scientific practice and related policy issues, structures around a series of keynote speakers and interactive sessions.
- **An exhibition (onsite and online)** that showcased the best in European scientific activity and research whether academic or industrial, from both the public and private sectors.
- **A public engagement programme (onsite)** to connect science with society
- **A wide variety of other meetings (onsite)**, satellite events and networking opportunities.

Next to scientific sessions for the seven tracks we had:

- Plenary sessions, including opening and closing ceremony, plenary panel discussions and keynote sessions (all onsite and streamed into the virtual platform)
- World programme sessions (online only) on Thursday and Friday to link European Scientists with scientists from other continents. Early morning we had a time slot for Asia audience, Mid day, Africa audience and evening for North and South America.
- A cross over with the regional site in Katowice (onsite in Katowice and online)
- Posters (onsite and online)
- Exhibition (onsite and online)
- Meet the expert (online and onsite in EuroScience booth)
- Studio ESOF, a talk show onsite in the Pieterskerk that was streamed live into the virtual platform (interactive) and to the ESOF website ([www.esof.eu](http://www.esof.eu))
- Field Trips to companies at the BioScience park (Business and Science programme) (onsite)
- Workshops (onsite and online)
- On-demand cinema (online only)
- Photo booth (online only)
- Networking area (onsite in the Pieterskerk and online)
- social events, like the welcome reception and the delegate party (onsite)

Our aim was to reduce the number of sessions in the main programme. We also went from a four-day event to a three-day event.

We designed the look and feel of the virtual platform to closely replicate some of the key buildings of Leiden. It aimed to create an online environment that appealed to curious people and invited them to explore the possibilities of online. This way we hoped to combine the best of both worlds and create a unique experience for onsite and online delegates.

*“I used to be sceptical about hybrid events until I joined the EuroScience Open Forum (ESOF2022) last week. Powerful content, top-level management and interactivity - much attention had been paid to keeping the audience engaged. Thank you to the organisers of ESOF2022 Leiden for this experience! Impressive”*

**Tatjana Pladre** PhD., Project Leader, University of Latvia (Via LinkedIn)

## 6.1 Lessons learned and recommendations

- ❖ The hybrid format was the best decision at the time when we created the programme of ESOF2022, since this format offered us the flexibility to be able to host ESOF2022 at all times. Under the same circumstances we would make the same decision.
- ❖ Organising a hybrid event is a lot more work than just an onsite or virtual event. It also requires more funding and another skill set of (part of) the team. We recommend going this route again only if you have enough staff and funding.
- ❖ We have learned from the feedback received after the programme selection process and delegate survey that mainly the speakers of online sessions were unhappy with the chosen format. This had to do with the fact that most speakers wanted to come to Leiden and were unhappy with the fact that their session was selected to be online only and next to that the online attendance of ESOF was too low. Our initial idea was that onsite delegates would also log-in during ESOF to attend online sessions. This was not the case. Onsite delegates preferred to choose from onsite sessions. We assumed most would re-watch sessions after ESOF, but this didn't appear to be the trend.
- ❖ The studio ESOF programme (talk show) was a valued addition to ESOF2022 and gave us more sponsor opportunities and it was a real link between the onsite and online delegates.
- ❖ Carefully consider the choice of dates for the future. This time it was scheduled for the first week of the summer school holidays in The Netherlands, so the Leiden university buildings could be used.
- ❖ Brainstorm how to make ESOF more inclusive and accessible.
- ❖ Establishing a 3 days-conference instead of a 4 days-conference proved to be a wise decision.
- ❖ Consider the format of the entire conference to potentially have one online-only day, followed by a 2- or 3-days onsite conference. This would remove the competition between whether to attend something onsite or watch online and would increase online participation and have exclusively onsite days.



## 7. ESOF2022 Scientific Programme, social programme and satellite events

### 7.1. Theme and Tracks

The main theme of the 10th edition of ESOF2022 was “**Crossing Borders, Engaged Science, Resilient Societies**”.

ESOF2022 stimulates the (multidisciplinary) exchange of ideas and thus contributes to the innovation and development of new research agendas. These exchanges may lead to the emergence of new research topics, they stimulate new discoveries and lead to possible scientific publications and innovations. In today’s global context, in order to tackle the complex issues facing the environment and our societies, we need multiple collaborations between scientific disciplines, and between science and society. Geographical borders have relative meaning since we are all on the same planet and dealing with many of the same problems. Therefore, this year’s conference theme was all about unity and bridging gaps - not just between the humanities, the social sciences, the natural, medical and physical sciences but also between scientists, policy makers, the media and the general public. We need all stakeholders of science and society from all over the world to cross knowledge and geographical borders and come together to discuss, adapt, collaborate and innovate. This is reflected in the conference theme and its seven tracks. As mentioned in the grant agreement we started with a preliminary programme divided in five main themes, but added Science and Business and Sustainable Academic Careers later on:

1. **Sustainable environment** (e.g., climate change, human rights, a sustainable way of living, green energy, citizen science, future mobility, future cities, economy)
2. **Cultural Identities and Societal Transformation** (e.g., migration, fortress Europe, missions of museums and collections, contested heritage, art, protest movements)
3. **Space for science** (e.g., search for earth, construction in space and on the moon, finding extra-terrestrial life, dark matter research, quantum computing)
4. **Healthy societies** (e.g., chronic diseases, digital tools, increasing costs, interplay between industrial research and academic research, global inequalities, data protection, artificial intelligence)
5. **Freedom and responsibility of science** (e.g., integrity in science advice, dialogue between science and policy, funding in freedom of science, responsible research and innovation, science diplomacy, conflicts of interests)
6. **Science and Business** (e.g., entrepreneurial education, research performed in academia and industry, value-driven innovation, innovation out of the humanities)
7. **Sustainable Academic Careers** (e.g., new career paths, research quality vs. quantity, the role of team science)

*"The motto of ESOF 2022 "Crossing Borders, Engaged Science, Resilient Societies." cannot be more appropriate than in the current period. Science needs society as well as society needs science and ESOF 2022, as all ESOFs so far, will be a privileged opportunity to discuss the role of science in fostering dialogue, solidarity and solutions to the challenges of today."*

*Anne Cambon-Thomsen, former ESOF Champion 2018*

### 7.2 Selection process

On 27 September 2021 the open call for proposals was launched. The call for proposals was initially open until 15 November 2021, but the deadline was extended until 30 November 2021. The reviewing process followed and lasted until early February. In the end, all session proposals received two scientific

reviews based on which the Scientific Committee were able to make decisions regarding inclusion in the programme.

The selection meeting took place in Leiden 19 and 20 February 2022 and resulted in the Committee selecting 92 sessions (note that this excludes plenary and keynote sessions, sponsored sessions, workshops, e-poster sessions) to be featured in the conference programme. 61 of them came from the call for proposals, 25 were selected from the Leiden Board submissions and six were mergers of sessions (two from the call, two from the Board or one from the call and one from the Board).

In total there are 284 submitted applications:

- Conference sessions: 228
- Poster sessions: 56

Experts from the Netherlands (59), Belgium (41) and Germany (37) submitted the most proposals

Conference session	<b>A sustainable environment</b>	<b>59</b>
	Back to Business: the way forward with action-based entrepreneurship education	11
	Cultural Identities and Societal Transformations	19
	Freedom and societal responsibility of science	62
	Healthy Societies	34
	Off the beaten track: new paths for Academic Careers	32
	Space for science	8
Poster session	A sustainable environment	18
	Back to Business: the way forward with action-based entrepreneurship education	4
	Cultural Identities and Societal Transformations	6
	Freedom and societal responsibility of science	12
	Healthy Societies	7
	Off the beaten track: new paths for Academic Careers	7
	Space for science	2

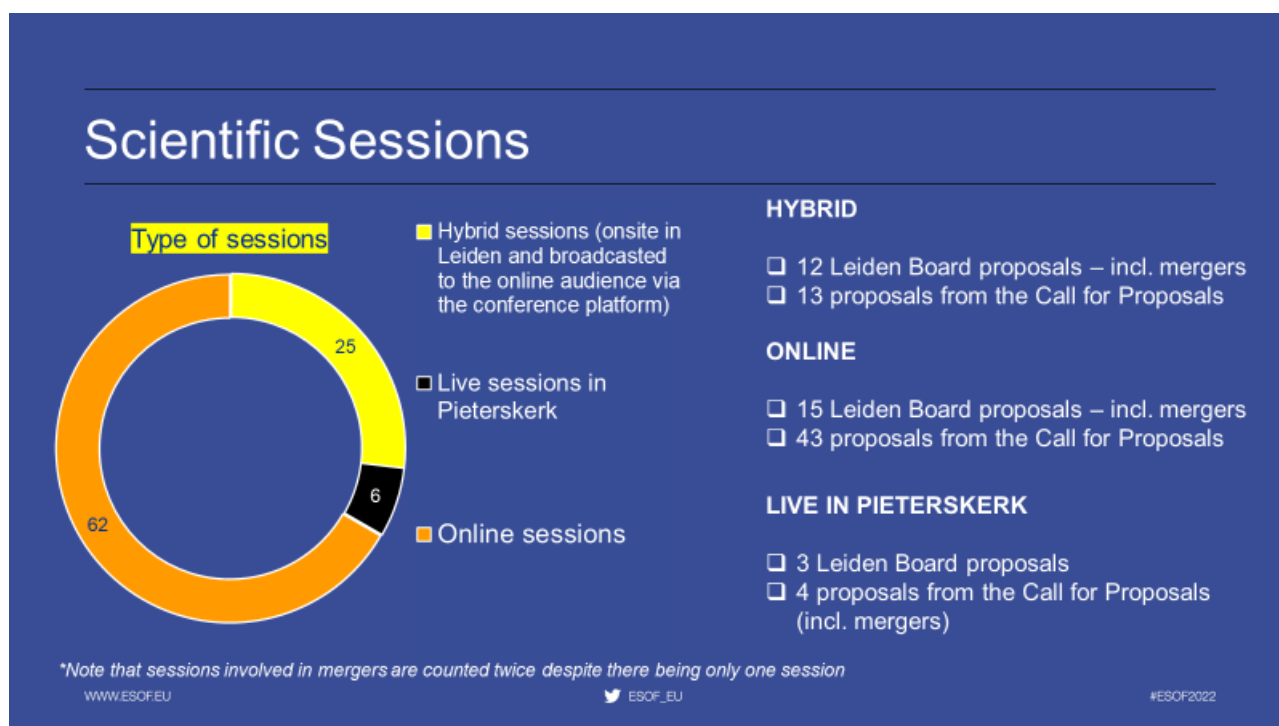
In addition to the sessions that were submitted via the open call for proposals, the Scientific Board of Leiden submitted approximately 30 sessions that were part of the final selection. At a later stage four sessions were added from Katowice and six sessions for the world programme. Part of those came from the call for proposals and others were invited organisations.

An important part of the programme planning process was deciding early on which elements of the programme sessions would be fully online, sessions that would be hybrid (taking place live but broadcast online via the conference platform) and sessions that would only take place physically without possibility to watch them online.

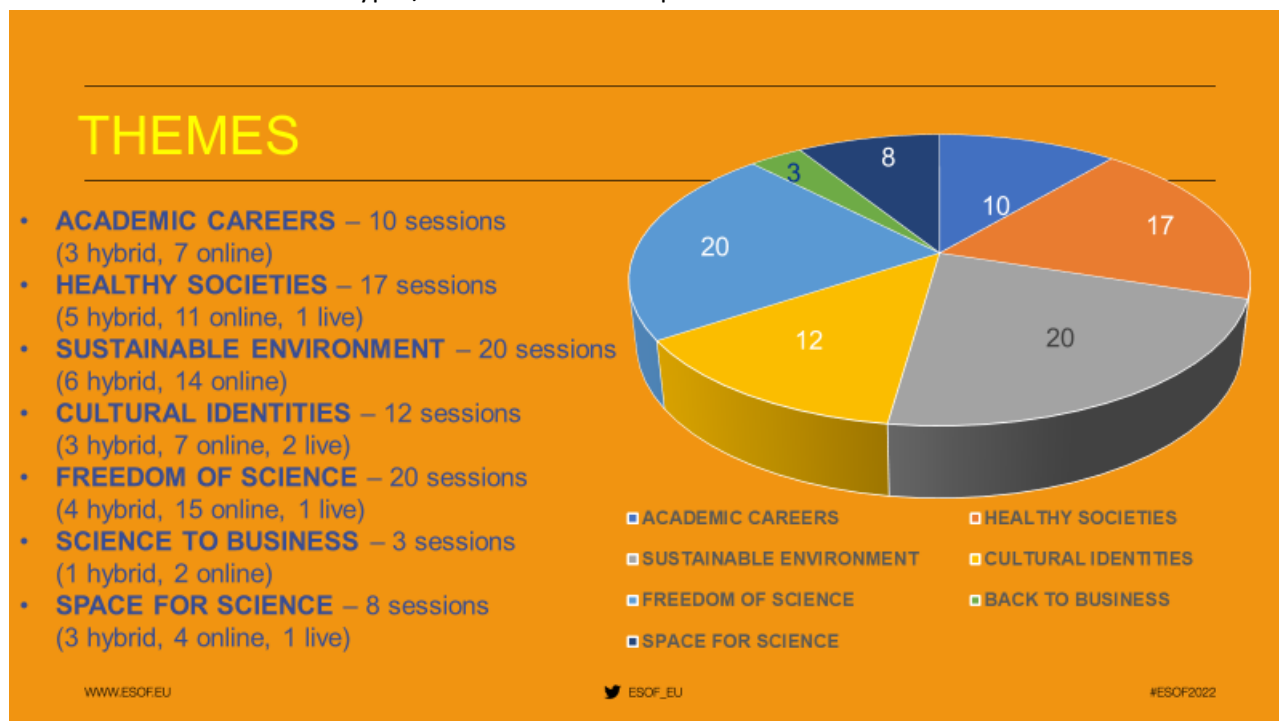
In the end, the Scientific Committee along with the organisers decided on the structure for the scientific sessions that included two session rooms dedicated to hybrid sessions (with broadcasting equipment), five online rooms for sessions conducted fully online, and one room for sessions that would be taking place only live. In addition to these session rooms, there were other hybrid conference elements, such as plenary sessions, keynote sessions, opening and closing ceremonies, and sponsored sessions.

During the selection meeting, the quality of the sessions as well as the topic of proposals, speakers' ability to travel and other factors were considered when deciding on the session format. The number of proposals submitted varied per theme, which resulted in some themes with many more sessions in the programme than others. Nevertheless, it was crucial for the Committee to ensure that all themes were represented on every conference day across different formats, and that if, and where feasible the sessions from the same theme would not be assigned to take place simultaneously. This was done in order to allow participants interested in a specific theme to attend as many sessions of interest as possible. Balance of sessions was challenging to achieve, but carefully examined and finally, was achieved.

Below is an overview of the sessions with their type/format assigned post selection meeting:



The distribution of different types/formats of sessions per theme looked as follows:



*\*Science and Business and Sustainable Academic Careers had more sessions (see chapter 6.9 and 6.12), but above number came from call for proposals. Also James Webb Space Telescope (first results) sessions were added at final stage.*

In the period following the programme selection meeting a number of changes to the initial programme were introduced. This resulted from scheduling clashes of presenters, cancellations, necessary change of session format, etc.

### 7.3 Conference Programme

The final Conference Programme was designed to start on Wednesday with workshops and an Opening Ceremony in the evening and continuing through Thursday and Friday with sessions from 8:00 am to the last session of World Programme ending at 9:30pm. On the final day of the conference (Saturday) the programme started with morning sessions at 8am and ended at 5pm after the Closing Ceremony.

The duration of most sessions was scheduled for 75 minutes. This way it would work for onsite and online. Our two plenary panels were scheduled for one hour.

#### The final conference programme was composed of (programme Facts & Figures):

- 14 workshops (some live only, some hybrid and a few online only). 12 workshops were planned on the first day of the conference before the Opening Ceremony and 2 workshops during the conference
- 98 scientific sessions, out of these 29 were hybrid sessions, 63 online, 6 live excluding keynotes and plenaries (107 incl plenaries and keynotes; 119 incl plenaries, keynotes and workshops). The number of scientific sessions ended up to be higher than envisioned at the time of the grant submission. This had to do with the quality of the submissions and the fact that we had 7 themes to be covered instead of the initial 5 themes.
- 7 keynote sessions (1 per theme)
- 2 plenary sessions
- Exhibition
- Opening and Closing ceremonies
- Live poster presentations at Pieterskerk and e-posters (including 10 from Katowice regional hub)
- 4 scientific sessions broadcast from the ESOF2022 Katowice hub
- Field Trips to Leiden Bio Science Park
- 5 sponsored sessions
- Welcome reception on 13th
- Delegate party on July 15th
- Satellite events 11-13 (listed in programme at a glance)
- Meet the expert sessions
- Studio ESOF2022 with live interviews, exhibition tours, art and music
- European Science in the City Festival (in front of Pieterskerk)
- European City of Science activities (inside Pieterskerk) (Leiden 2022 presentation, open podium, open social network cafe-area)

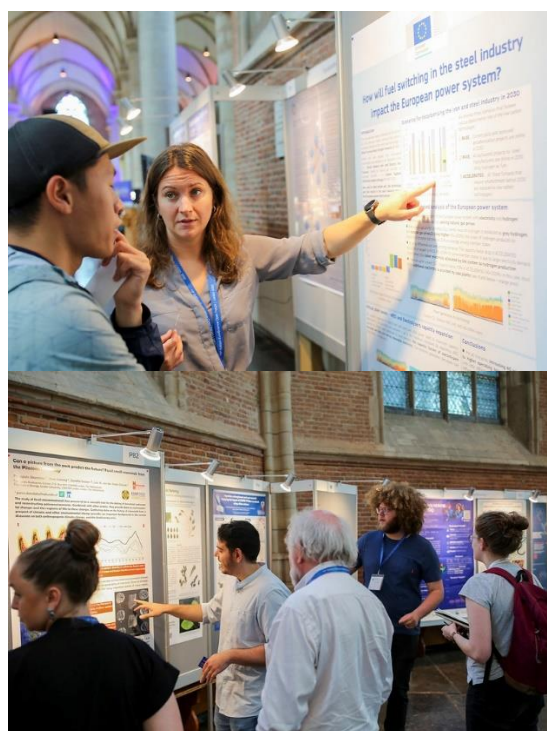
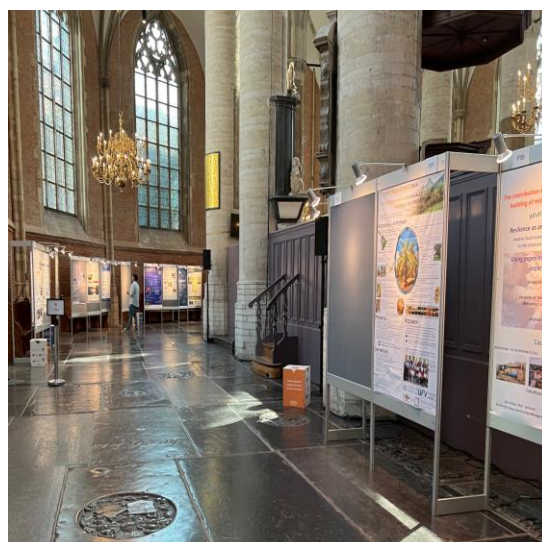
	Wednesday				Thursday			Friday				Saturday				Total	
	Workshop	LIVE	Hybrid	Online	LIVE	Hybrid	Online	Workshop	LIVE	Hybrid	Online	Workshop	LIVE	Hybrid	Online		
Cultural Identities and Societal Transformations					1	1	3			1	1	2		1	1	1	14
Sustainable Environment	4					3	2				2	7			2		20
Space for Science					2	2	1				2	1		1	1	3	13
Healthy Societies						3	4			1	2	5				2	17
Freedom and Responsibility of Science	1					1	7				4	9		1		5	28
Science and Business							2		2			1			1	1	7
Sustainable Academic Careers	3					1	4				1	1			1	2	13
Keynotes and plenary panels				1			4				4			3			12
Sponsored sessions					1		3										4
Young academy	1		1														2
EuroScience	1						1				1	1					4

The chart below shows the number of sessions by track were presented each day

## 7.4 Posters

In addition to the above breakdown of proposals and sessions, the remaining good quality proposals that did not get selected to be presented in oral sessions at the conference were given an option to present a poster in one of the conference venues along with an e-poster for those joining the conference online via the conference platform. Some presenters chose to only present their poster online.

In total 66 posters were presented physically in Leiden with corresponding e-posters in the virtual platform and another 23 were presented as e-posters only.



Overview of number of posters online and onsite.

	Onsite & Online	Online
Cultural Identities and Societal Transformations	3	1
Sustainable Environment	18	5
Space for Science	4	
Healthy Societies	8	2
Freedom and Responsibility of Science	21	4
Science and Business	5	1
Sustainable Academic Careers	7	
Katowice		10
	66	23



An example of an online poster presentation. Most online posters had a video explanation of the presenter linked to the pdf poster and delegates could ask direct questions to the poster presenter.



## 7.5 Keynote Speakers and plenary panels

For the seven tracks of the ESO2022 scientific programme, keynote speakers were challenged to address the most pressing issue of today's world within their field of expertise and provide an interdisciplinary and multifaceted perspective that will set the tone for the programme sessions.

- Sustainable Environment – Prof. Marja Spierenburg, Professor of Anthropology of Sustainability and Livelihood at University of Leiden
- Cultural Identities and Societal Transformations – Dr Jennifer Willet, Canada Research Chair in Art, Science, and Ecology; a professor in the School of Creative Arts at the University of Windsor; Director of INCUBATOR Art Lab
- Space for Science – Prof. Ben Feringa, Nobel Prize in Chemistry, Stratingh Institute for Chemistry, Centre for Systems Chemistry; Zernike Institute for Advanced Materials at University of Groningen
- Healthy Societies – Prof. Sir Peter Gluckman, President of the International Science Council; Professor at the Liggins Institute, New Zealand
- Freedom and Responsibility of Science – Prof. Dr Paul van der Heijden, Professor of International Labour Law at University of Leiden
- Science and Business – Mr Yousef Yousef, CEO of LG Sonic
- Sustainable Academic Careers – Dr Gemma Modinos, Chair of Young Academy of Europe

Some keynote presentations can be watched via the ESO2022 YouTube Channel [ESO2022 - EuroScience Open Forum - YouTube](#).

We also scheduled two high level plenary panel sessions. No other sessions took place during these sessions.

### Plenary session: Plenary Panel: Sustainable city

With a high-level panel, consisting of:

- **Henri Lenferink**, Mayor of Leiden
- **Mohamed Ridouani**, Mayor of Leuven
- **Hanna Gronkiewicz-Waltz**, Chair of the Mission Board for climate neutral and smart cities – an expert of the European Commission

## Plenary Session: Living in a World with Pandemics

With a distinguished set of panel members:

- **Jaap van Dissel**, Director of the RIVM Centre of Infectious Disease Control and professor of Internal Medicine at Leiden University Medical Center
- **Mark van Ranst**, a public health doctor in Belgium and a professor of Virology at the Catholic University Leuven and Raga Institute for Medical Research.
- **Prof. Nicole Grobert**, chief scientific advisor at the European Commission Dg Research and Innovation;
- **Prof. Petter Brodin**, a Garfield West Chair and professor of pediatric immunology at Imperial College London;
- **Prof. Salim S. Abdool Karim**, a clinical infectious diseases epidemiologist and a CAPRISA professor for Global Health in the Department of Epidemiology at the Mailman School of Public Health at Columbia University.



## 7.6 Opening & Closing Ceremonies

We hired a specialist production company (Xsaga) to help us design the opening and closing ceremony. They were responsible for the concept, storyline and scenario, integral preparation and execution of the opening and closing ESOF ceremony. This was done in close cooperation with the Leiden part of the Executive Board team of ESOF and the ESOF2022 project manager.

Xsaga's assignment was to develop a programme that was linked to the main aim of the conference: to build bridges and cross borders to tackle the big societal challenges we are currently facing. These could be borders between different scientific disciplines, such as medical science, natural sciences, humanities and social science, for example. But equally, they could be bridges between countries and stakeholders, between science and society, or bridges between today and the future: what are the major issues we need to address now to safeguard a safe, sustainable and healthy future?



Opening ceremony with many high-level speakers, e.g. DG RTD Jean-Eric Paquet and Maria Leptin, President ERC.



Closing ceremony with amongst others EU Commissioner for Innovation, Research, Culture, Education and Youth, Mariya Gabriel and the Dutch minister of Education, Culture and Science, Robbert Dijkgraaf.



Spoken word artist Sharon Harman who was present at opening and closing. Image of hand-over ceremony between host city Leiden, European City of Science 2022 and the next host of ESOF, Katowice, Poland. Showing on the picture are the mayor of Leiden, Henri Lenferink with the mayor of Katowice, Marcin Krupa and President of EuroScience, Michael Matlosz.

We wanted to make the opening and closing accessible and interesting. Our aim also not to exceed 1,5 hours was essential to keep it engaging for an online audience.

The opening and closing ceremony can be viewed on the ESOF YouTube Channel [ESOF - EuroScience Open Forum - YouTube](#).



## 7.7 World Programme

During ESOF2022 we launched a new programme element, called the World Programme to help connect scientists around the globe. Since it was a trial, we only scheduled six online World Programme sessions. The World Programme took place in different time zones compared to the main conference programme to facilitate different audiences on 14 and 15 July.

- Early morning sessions accommodated Asian and Australian audiences (JST time zone).
- Mid-day session focused on African and European audiences (CEST/SAST time zone)
- Evening session accommodated North and South American audiences (EDT time zone).

We hosted the following sessions:

### Thursday 14 July

- WP1.1 Meet my Lab focus on Green and Digital Transformation (Time in CEST: 8:00:00 AM - 9:15:00 AM)
- WP1.2 Science for Social Justice: Africa welcomes the World Science Forum (Time in CEST: 2:00:00 PM - 3:15:00 PM)
- WP1.3 Between Black and White: The power of visual imagery and negotiation of Identity (Time in CEST: 8:00:00 PM - 9:15:00 PM)

### Friday 15 July

- WP2.1 Integrated Community Building to Sustain a Resilient and Healthy Society (Time in CEST: 8:00:00 AM - 9:15:00 AM)
- WP2.2 Higher Education in Africa: Challenges and Prospects (Time in CEST: 2:00:00 PM - 3:15:00 PM)
- WP2.3 Scientists Are Mobilised for the Sustainable Development Goals? (Time in CEST: 8:00:00 PM - 9:30:00 PM)

The idea was welcomed by delegates and speakers. Unfortunately there was low attendance. However, we do know that the panelists of the 'Higher Education in Africa: Challenges and Prospects' sessions decided to make this panel the beginning of greater things to come. They are planning a full day conference on the same theme. And want to come up with a plan to ensure that the discussions during this panel find their way into the policy arena.

It's a great example of what ESOF can contribute to science and policy, and it deserves a place within future ESOF editions.

## 7.8 Meet the Expert

The meet the expert set-up differentiated from previous editions. This was done for three main reasons.

1. We wanted to try something new and different, so decided to go for the online route only.
2. We wanted to downsize the number of events taking place simultaneously in Leiden (spoiled for choice) and wanted to keep the lunchtime free to visit the exhibition area to mingle and network.
3. The project team had limited capacity therefore we didn't have the staff to successfully take on extra workload to add an onsite 'meet the expert'.

We focused on a new model of ‘meet the expert/meet-ups’ in the online networking area in the virtual platform (integrated Wander.me). At certain times certain audiences, like EuroScience members or Young Researchers, were invited to join and start discussions in the online networking area. This was done via push notifications on the platform. Delegates were free to start their own discussion groups. It should have worked really well, but it wasn’t very successful. We also believe it might require more moderation and key experts present (communicated in advance) to meet online instead of groups (meet fellow young researchers, meet fellow EuroScience members).

At a later stage EuroScience decided that they wanted to arrange a physical ‘meet the expert’ in their booth in the exhibition area. These sessions were well attended. The full organisation of these sessions was managed by Euroscience.

### **7.9 Pre-conference workshops and field trips**

Fifteen workshops were scheduled before the opening ceremony on Wednesday 13 July 2022. It was organised in this way to avoid programme clashes during the official conference days, especially since most workshop organisers also needed more time than the 75 minutes time slots we used for sessions during the conference. Some workshops were hybrid and could be followed online, but most were onsite to stimulate interaction between delegates.

Some workshops came via the call for proposals, but for the Science and Business track and the Sustainable Academic Careers track we developed an additional programme on top of the selected sessions via the Open Call for proposals. Leiden University of Applied Sciences designed the Business and Science programme, including the field trips. The Young Academy Leiden (YAL) organised several Sustainable Academic Career pre-conference workshops. Both organisations had representation in the Leiden Scientific Advisory Board and were asked by the local champions to take on this responsibility.

List of all pre-conference workshops

1. WS0.12 Finding your career path outside Academia - Part 1: There’s more than meets the eye
2. WS0.8 New Genomic Techniques & Sustainability: Where Does the Public Stand?
3. WS0.2 Cities of the Future: Strategies to Engage Citizens in Reshaping Modern Cities through Sustainable Urban Mobility Solutions
4. WS0.3 Scientists as Science Communicators – What Do We Learn from Large-Scale Researchers’ Surveys for Improving Public Communication About Science and Research?
5. WS0.12A Finding your career path outside Academia - Part 2: Get the ball rolling
6. WS0.14 Recognition and rewards in academia
7. WS0.12B Finding your career path outside Academia - Part 2: Get the ball rolling
8. WS0.9 A Sustainable Future with Sustainable Plastics
9. WS0.11 Membership Engagement
10. WS0.6 Communication Competence in Doctoral Education – Enhancing Abilities to Reach Out and Bridge the Gap!
11. WS0.13 Optimising our Mental Health and Wellbeing for Sustainable Academic Careers
12. WS0.5 Decolonization and the 'Psychedelic Renaissance'
13. WS0.7 Leap-In-Time Patent Game: An Interactive Game-Based Learning Approach to Understanding and Decoding Patents
14. WS0.1 Educational Research to Improve Education As a Driving Force for Empowerment, Inclusion and Equality
15. WS0.10 How Basic Sciences Design the Future of Sustainable Development

## 7.10 Science and Business

The Science and Business programme deserves some additional explanation, since this entailed more than pre-conference workshops.

A core question throughout ESOF2022 was how could science improve its role of being a transformative agent for societal change? Scientists and universities are increasingly being asked about impact. Not just scientific impact in terms of publications and citations, but economic impact in terms of transfer of knowledge leading to innovation and business generation, and also societal impact where science helps to solve the societal problems of today and tomorrow. We not only saw this in demands from a variety of stakeholders, but also in research funding- both on a national and European level. For instance, with societal challenges and mission-oriented innovation policies being a driver for scientific policy and funding.

In the Science to Business track, we explored how scientists could create such economic and societal impact, and how universities can help them do that. This track had a special focus on early-stage career researchers. Activities in this track looked at impact from three perspectives:

1. Research perspective: What do scientists need to think of when doing research that aims to create impact in society? What are the possible implications for research design, e.g. when starting from a social need or problem, or from a mission? How to organize your research when collaborating or even co-creating with stakeholders and partners?
2. Valorization perspective: How can scientists create impact from their research through knowledge transfer and/or entrepreneurship. What are practical, legal and financial issues?
3. Policy perspective: What policies and programmes can be created to help scientists create impact in economic and societal terms? What can universities do themselves, and where are private and public partners involved? What challenges lie ahead to ensure and enable a continuous, effective and productive chain from science to impact?

This resulted in five sessions/activities:

1. Addressing global challenges through international scientific consortia; The case of nuclear fusion (Research) - online session
2. From science to impact: insights into the entrepreneurial journey (Valorisation) - hybrid session
3. Entrepreneurship in Life Sciences and health and the Leiden Bio Science Park as the place to be (Valorisation) - hybrid session
4. Science to Impact: Debate on policies and programmes to help scientists to create impact. (Policy) - hybrid session
5. Company visits Leiden Bio Science Park (fieldtrip). A 3-hour tour of Leiden Bio Science Park and some of its companies which is developing into an innovation district. (tour/visits) (Valorisation and Policy) - onsite

The field trips took place on Wednesday and Friday afternoon (14.00 – 17.00 hrs) and were limited to 30 participants per company visit, with those wishing to attend needing to pre-register. It consisted of a visit to three companies - Charles River, Biopartner and BaseClear – all within one visit to the Leiden BioScience Park. The field trips offered young scientists the opportunity to meet partners from the Leiden BioScience Park, the largest Life Science Health (LSH) cluster in The Netherlands. This visit brought participants into contact with scientists who are starting a life science company as well as with entrepreneurs who have an established company. They shared their knowledge on what they do and

how they achieved it. This tour was especially interesting for young scientists who wished to create impact with their knowledge by establishing their own start-up.

Both field trips were fully booked and very well received.

### 7.11 Sponsored Sessions

We had five sponsored sessions during ESOF. One of these sessions (from Frontiers) was submitted via the call for proposals and selected, but afterwards upgraded to a sponsored session slot, to enable the allocation of a better time slot for the sponsor involved.

- SP1.1 NWO Meet-up: journalists & researchers
- SP1.2 The braided river: women in science, careers and recognition (Elsevier)
- SP1.3 Biodiversity as an opportunity - Nature as the basis for our society and economy (Naturalis Biodiversity Center/BiodiversityXL)
- SP1.6 Lunch Symposium: Antimicrobial Resistance (AMR) and Bacterial Vaccines (Janssen Pharmaceutical Companies of Johnson & Johnson)
- SS2.40 Does Good Science Lead to Good Advice and Policy Making? Rethinking the Science Advice-Policy After COVID-1

We had expected a higher demand for sponsored sessions. Within our hybrid structure we allocated one session room at the Stadsgehoorzaal (Aalmarktzaal) to sponsored sessions. However, we didn't sell all slots, so some became late breaker sessions (like James Webb Space Telescope). We converted a few online sessions to onsite sessions, and changed some early scheduled sessions to more convenient time slots for the session organisers.

### 7.12 Satellite events

During ESOF we had several satellite events.

- **The European Conference of Science Journalism (ECSJ)** (10-13 July, Kamerlingh Onnes Building, Leiden)  
Organised by the Association for Science Journalism and Communication Netherlands or VWN in association with the European Federation for Science Journalism (EFSJ). This event was created for and by science journalists, and was also important for those active in science communication to know what is going on in the field of science journalism. Science journalists from all over the world, but especially those active in Europe, were encouraged to join the European conference titled 'Investigating Science'. Apart from renowned speakers, the conference hosted a great variety of workshops, social activities and field trips to enhance the knowledge of the profession itself.
- **Marie Skłodowska-Curie Actions Symposium** (12 and 13 July, Kamerlingh Onnes Building in Leiden and online). Over 120 MSCA fellows, supervisors, coordinators, alumni, and policy makers gathered to debate and contribute to priority topics for the research ecosystem, interact, and network. The programme included panel discussions, practical workshops, social events, and networking opportunities. The main panel discussions addressed the topics of science diplomacy; the links between careers and sustainable research in strengthening the European research ecosystem; and values in research and academic freedom.



- **ERC Public Engagement with Research Award Ceremony** (14 July, Stadsgehoorzaal, Leiden, Onsite and Online) The Award aims to recognize ERC grantees who make the effort to engage with audiences beyond the scientific community and do so in effective and original ways. During this ceremony, a prize of €10,000 was awarded to the best applicant in each of three different categories:

- Involve (citizen science)
- Inspire (public outreach)
- Influence (media and policy)



- **European Young Researchers Award – EYRA** (Friday, July 15, 16:00 – 17:00 CEST, Aalmarkt stage (Stadsgehoorzaal), Onsite and Online)  
EYRA is a prize-giving ceremony granted every two years by EuroScience to young researchers showing exceptional research achievement and leadership.
- **More-than-Planet symposium** (11 July 2022 between 09:00 – 18:00 at the Old Observatory in Leiden)  
The symposium showcased some of the iconic art-driven transdisciplinary collaborations addressing the shared understanding of socio-environmental troubles and discussed the necessary next steps. More-than-Planet was part of a collaboration between the S+T+ARTS initiative (Waag and Ars Electronica) and Leiden University.

Of the above-mentioned satellite events, only the Marie Skłodowska-Curie Actions Symposium was a paid satellite event for which the ESOFF team assisted with logistical arrangements (meeting room and use of onsite technical facilities). The ERC Public Engagement with Research Award Ceremony and EYRA award ceremony were integrated within the official ESOFF2022 programme. The EYRA award was logistically supported by the ESOFF team, the programme was managed by EuroScience. The ERC were giving the facilities (meeting rooms, press conference support and use of all present AV facilities per room). The organisation was their own responsibility. They had a livestream connection of the award ceremony to the ERC website.

We offered ECSJ meeting facilities free of charge via Leiden University. They organised the event themselves. To link the science journalists of ECSJ and ESOFF we offered a network reception at ECSJ (Boerhaave museum). Local Champion, Ferry Breedveld, spoke at this reception. The More-than-Planet symposium was added to the list of satellite events at a late stage (on request by organisers of this event). It was agreed to add them to the official list of satellite events under the agreement that they would promote ESOFF amongst their delegates and even consider arranging access (paid tickets) for all their attendees to participate in ESOFF.





### 7.13 Socials and Networking



We had two important social events during ESO2022. Both social events were free of charge for all delegates. Our main social event of ESO2022 was the opening reception at the Pieterskerk, which followed the opening ceremony in the Stadsgehoorzaal.

The other social event was the ESO2022 delegate party, which took place on Friday 15 July. Delegates were invited to the Hortus Botanicus in Leiden, the oldest botanical garden of The Netherlands where they could join an evening of drinks and light bites. Fortuitously, the evening coincided with a magical natural event occurring only once every ten years- and for only 48 hours.



The flowering of the Titan Arum, also known as the Giant Penis Plant, graced the evening with an unexpected spectacle and great national coverage and seemed a fitting contribution to our tenth edition conference. Also, the weather worked in our favor, so it became a magical and fun evening where many delegates met old friends and made new friends, laughed and danced.

Both social events were well attended.

The Founding partners of Leiden2022 contributed financially to the welcome reception. The delegate party was (partly) sponsored by Frontiers.

Normally the ESOF delegate party takes place later in the evening. This time, also for the fact that not all delegates stayed in hotels in Leiden, but in surrounding cities, we decided to make it an event to start directly after the core programme ended. The delegate party was scheduled between 18:00 - 21:00 hrs at the Hortus Botanicus. The venue was within walking distance from the venues used for ESOF2022 and this was well received. We chose a venue that was suitable for all weather circumstances but happily, the sun shone, which was an advantage. Many delegates enjoyed the outdoor reception.



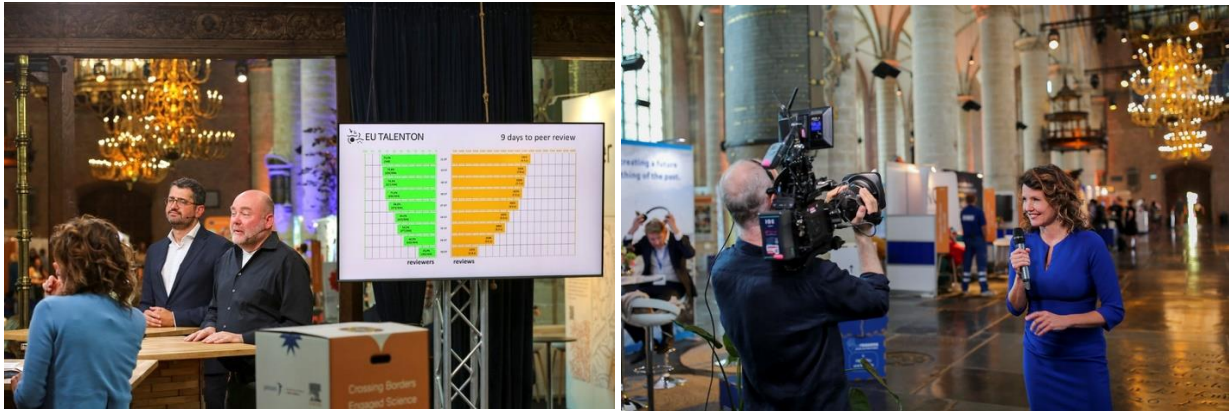
Another important social event that took place was the EuroScience Presidents Reception on Wednesday evening after the welcome reception. This was by invitation only. Organized by EuroScience, hosted at the Faculty Club of Leiden University (Academy Building).

Aside from what we had organised ourselves, a wide variety of other meetings, satellite events and networking opportunities were organised around ESOF. The ERC hosted a reception after their Award Ceremony in the Stadsgehoorzaal. Elsevier and the South African government ran a VIP dinner and the International Science Council held a VIP lunch. EuroScience hosted a 'Friends of EuroScience' reception and a media reception took place at the Boerhaave museum during ECSJ. Most of these events were hosted at the Academy building and Faculty Club of Leiden University. At this facility we also offered VIP rooms and offices for our key partners. The use of the Faculty Club for these networking events was offered by the ESOF2022/Leiden2022 organisation free of charge to enhance the networking opportunities during ESOF.

#### **7.14 Studio ESOF2022**

To link onsite and online we decided to develop a programme element, called 'Studio ESOF2022', which was an actual open space studio located in the Café of the Pieterskerk in Leiden. During the conference a lively talk show format programme was broadcast and played automatically on the virtual platform. It comprised interviews, Q&A, live reports from the exhibition and the poster presentations. In the studio we covered many inspiring topics that were part of the conference. These were presented in different forms including 'Meet the Expert' interviews, discussion with speakers following their presentation, short panel discussions and we welcomed exhibitors and sponsors to start conversations regarding for instance, the importance of "Open Science" and "Science & Society".

Our reporter invited sponsors and exhibitors to join the conversation and be part of the Studio ESOF2022 programme. The Studio truly connected onsite with online. The programme was managed by the online coordinator and was overseen by the local Champions. On Saturday 16 July the selected participants of the first ever EU TalentOn were announced in Studio ESOF.



### 7.15 Science in the City Festival

The European Science in the City festival - organised by Leiden2022 - took place from 17 June till 17 July 2022, with the main event taking place during ESOF2022 from Thursday, July 14 to Sunday, July 17 from 12.00 - 18.00 hours. This event was for everyone with a curious mind.

In previous editions this festival was organised by the same team as ESOF, but in Leiden it was executed by the overall Leiden2022-team and therefore wasn't the responsibility of the ESOF team. A full evaluation report of the Science in the City Festival is part of work package 4.

The public engagement programme of ESOF2022 was linked to the festive programme of the Science in the City Festival. Mobile exhibitions, art, pop up museums, workshops and city walks on the Pieterskerk Plein were available for the general public and ESOF delegates. Entrance was free. The Science in the City Festival was located in front of the Pieterskerk (church). To connect science and society we opened up the doors to ESOF on Thursday and Friday afternoon and the whole of Saturday. ESOF delegates could also join the Science in the City programme.

We hosted sessions in the Pieterskerk that were open to the public to stimulate public engagement. The most popular session was on the James Webb Space Telescope (first results came out in the week of ESOF). The Pieterskerk was the location of the exhibition, posters and Studio ESOF and the (networking) heart of ESOF2022.





Artist impression Science in the City Festival.



Images of The Science in the City Festival and one of our volunteers in her branded T-Shirt.

## 7.16 Lessons learned and recommendations

### Theme and tracks

- ❖ In today's world of scientific challenges, the urgent need to collaborate across all borders is certainly recognized. In that respect, the ESOF2022 theme was well chosen. But at the same time, the plurality of the target groups and the very extensive programme made it difficult to focus, to establish an effective recruitment and to define a clear campaign message. ESOF's wide angle might also have hindered the effectiveness of the output. Did we really contribute to the transformation of global challenges, the intent behind the call for proposal? In other words, what about accountability? For future editions it might be better to narrow down the scope and specify the overall goal.

### Selection Process

- ❖ The fact that we had sessions submitted via the open call and via the scientific board of Leiden University caused problems. Because the process started too late, the scientific board started to create sessions before the open call was launched. The university invited speakers to be part of their sessions and therefore found it important that travel and accommodation of those speakers were covered. All sessions submitted via the open call didn't get this financial support, except free access to ESOF2022.
- ❖ The call for session proposals should be streamlined with a single submission process (one submission form) to ensure fairness and help improve the programme creation (proposals from the Leiden Board included less details and information on speakers compared to those submitted via the call).

### Programme

- ❖ We intended to organize a smaller ESOF (60 sessions, 3 days, 1500 onsite delegates) but the program turned out to be very ambitious after all. The number of live sessions might have had a negative effect on the attendance of online sessions.
- ❖ It is hard to select the best of the best when the quality of the session is so good. We aimed to reduce sessions, but in combination with cutting down a day, we didn't reduce enough. We still had too many parallel sessions taking place, which resulted in lower attendance per session.
- ❖ It is important to consider the number of parallel sessions and other conference activities taking place simultaneously in the programme. While a rich programme with numerous sessions available is generally considered positive, it may also create an issue of being "spoilt by choice". The significant risk is low session attendance.
- ❖ Date and time are also important to consider. While sessions on the first couple days of the conference were much better attended, the final sessions scheduled on Saturday had much lower attendance. This is due to some attendees already travelling back home on the final day, but also choosing other activities on their final day. Due to low attendance, it would be wise to rethink having the conference take place on a Saturday.
- ❖ It is advised not to start at 8am. Speakers and session organisers particularly were not happy with this time slot.
- ❖ It would be worthwhile considering how to 'safeguard' all the valuable outcomes and become a real science/research-keeper. Offering research and information to members of EuroScience after ESOF has passed.

### Posters

- ❖ Although there was a search functionality it was hard locating the posters online - perhaps they could have been better grouped.
- ❖ Create a social event (maybe in the early evening) around the poster presentations to enhance engagement and participation with delegates (potentially with free catering).

### Opening & Closing ceremony

- ❖ We strongly recommend having a dedicated team to organize the opening and closing with TV production experience. For Leiden2022 the cooperation with Xsaga worked really well.



- ❖ The opening achieved the aim of being kept to 1.5 hours which was appreciated and we recommend following this formula in future years. It contained a good balance of talk, science and creativity.

#### **Sponsored Sessions**

- ❖ We believe the idea to have one meeting room allocated to sponsored sessions works well. This gives the organizer the opportunity to add sponsored sessions to the programme until the last moment, without interfering with the rest of the programme.

#### **Satellite events**

- ❖ It would be advisable to draw up a contract for satellite event organisers with communication regulations in order to make sure they also promote ESOF.

#### **Social and Networking**

- ❖ Keep the new timing of the delegate party for future editions and choose a venue within walking distance of your session location.

#### **Science in the City Festival**

- ❖ The fact that we opened up the Pieterskerk to the public and held a few scientific sessions (like All-you-want-to-know-about-James-Webb) that were publicly accessible was a very good decision and worth repeating in the future.
- ❖ Organisations expected the Science in the City Programme to be part of ESOF2022 or more integrated. In case the organisations of these two events remain separated in the future it is wise to communicate this clearly from the start.

## **8. Regional site Katowice**

At the same time as the ESOF conference was live in Leiden, a special regional hub was set up at the International Congress Centre in Katowice. The one-day event was the first activity organised by Katowice, Poland, who take on the next European City of Science 2024 and future host of ESOF2024.

The regional programme included twelve 75-minute on-site sessions, four of which were streamed online to the virtual platform of ESOF2022, while some of the meetings held in the Netherlands were made available as an online live broadcast for participants at the International Congress Centre in Katowice.

Nearly 500 people attended the International Congress Centre in Katowice, and almost 200 delegates participated in the regional event online (separate from virtual platform ESOF2022).

The sessions were hosted by the universities from the Katowice consortium of the European City of Science 2024, the representatives of Polish and foreign science centers, experts representing business, cultural institutions, and the media who were invited to the event.

The ESOF2022 Scientific Committee and the Leiden Board wanted the four Katowice sessions featured in the main ESOF programme to complement the sessions already selected in Leiden. Katowice sessions had their own space on the conference platform and were broadcast from a separate channel making them more visible.

ESOF2022 Katowice hub had its dedicated space on the ESOF2022 website where the programme and any logistical information was included and regularly updated. This was managed by the Katowice team.

Registration to the ESOF2022 regional hub programme was free of charge. Those wishing to join the ESOF2022 programme in Leiden via the conference platform needed to register for the event separately at a regular conference fee.



The full day conference in Katowice was rich with various meetings. As well as Polish scientists and experts, it was also attended by foreign researchers and specialists representing, among others, the European Commission, Science Europe, CoalitionS, EOSC, and UNESCO.

The next conference EuroScience Open Forum will be held in Katowice in two years' time. It will be organised as part of the European City of Science 2024, a

title awarded to the capital of Upper Silesia. Aside from the conference itself, other additional events are planned to take place in connection with Katowice receiving this title. Some are focused on promoting science and art (as part of future editions of the Silesian Science Festival KATOWICE, among others).

A delegation of Katowice, led by the mayor of Katowice and representatives of the universities in Katowice, came to Leiden for the official hand-over during the closing ceremony.

During a site visit in May 2022 the ESOF team in Leiden already shared relevant insights with Katowice and in December 2022 a full handover report with conclusions was shared with EuroScience and Katowice. Meta Knol and Lucien Geelhoed visited Katowice in person to discuss this hand-over report.

### Lessons learned and recommendations

- ❖ Making arrangements about Katowice's participation lay with EuroScience. We were involved in the implementation, but the contractual arrangements were made with EuroScience. Although this turned out well, more transparency and collaboration would be advisable. It is important that the host city of ESOF is aware of the agreement that is in place between EuroScience and regional sites, so they have the same expectations.
- ❖ EuroScience had the intention to involve more regional sites. Leiden2022 was not involved in the selection process. In the end only Katowice became a regional site. It was unclear till the very last stage what was happening in Katowice. In case there will be regional sites in the future, integration must be better planned and conceptualized.
- ❖ It is recommended to evaluate the position of having a regional site for future editions. It was decided that everyone who registered for Katowice had to register separately for ESOF2022 in Leiden to gain access to the virtual platform and most unfortunately didn't. That is a huge pity and definitely something to reconsider for a next edition.

## 9. Finances, fees and vouchers

### 9.1 Budget

A full budget accountability for ESOF is part of the budget accountability of the European City of Science Year (ECS). One remark worth mentioning in this evaluation report is the fact that funding was secured and received at a very late stage. This resulted in organizational challenges and extra pressure on fundraising and accountability of the founding partners of Leiden2022.

The Founding Partners of Leiden2022 were financially liable for any deficit and therefore needed to be updated on a regular basis, and we needed to get their approval before spending money. This made it necessary to proceed with the organisation of ESOF2022 with financial brakes on.

Worth mentioning is that contract and financial management (except ticket fees) were the responsibility of Leiden2022 and not the PCO. Initially this was part of the RPF, but since all contracts needed to be issued by Leiden2022 and payments needed to be made direct from Leiden2022 to suppliers, it was not possible for the PCO to take on this task. This added an enormous workload on the project manager (filing all contracts, invoicing sponsors, following up on payments). We therefore recruited a new team member to manage the financial administration and support the project manager in this regard. The project manager remained responsible for budget management and control.

### 9.2 Ticket Fees

The delegate fees didn't differentiate much from the previous edition. This was also strongly recommended by EuroScience and based on the feedback of Trieste, there was no room to raise the fees. We even lowered the online participation fee to meet the feedback received from Trieste delegates. At a later stage we added the option 'artists' as registration group type at the same tariff as students to make it more accessible to that group to join ESOF.

The fees, laid out below include VAT. Since Leiden2022 is a foundation we needed to be VAT compliant and deduct VAT when seen as income.

FULL PROGRAMME FEES (Leiden + online access)	Early Bird	Regular	On site
	February 2 to April 30	May 1 to July 12	July 13 to July 16
EuroScience Members	250,00 €	350,00 €	400,00 €
Non members	300,00 €	450,00 €	550,00 €
Young / Post doc EuroScience Member	125,00 €	125,00 €	150,00 €
Young / Post doc Non Member	150,00 €	150,00 €	200,00 €
Students and artists	50,00 €	50,00 €	50,00 €
<b>DAILY PROGRAMME FEES</b>			
EuroScience Members	150,00 €	150,00 €	150,00 €
Non members	175,00 €	175,00 €	175,00 €
<b>ONLINE PARTICIPATION FEES (virtual)</b>			
Virtual conference only (incl on-demand access)	€ 125,00	€ 125,00	€ 125,00
Students and Artists	€ 50,00	€ 50,00	€ 50,00

All speakers, session organisers and poster presenters currently have free access to ESOF. Next to this group there was a group of EuroScience (e.g. board members) and Leiden2022 that were given complimentary tickets. During the process it became clear that many people wanted to attend ESOF, but were expecting complimentary tickets. Some agreements are also in place for EU institutes (EU/ERC) to be granted free access.

### 9.3 Promotional Voucher Scheme

We realized from the start that we aimed high with our target compared to the ticket sales income from previous editions. It turned out not to be realistic. EuroScience informed us that ticket sales for ESOF normally pick up late, but when registration numbers were not rising rapidly one month before the conference we knew we needed to act fast and come up with a plan.

In order to try selling more tickets, we started a voucher campaign so certain groups could invite their networks to buy tickets at a discounted rate. We had generic and unique company discount codes for onsite and online, and for different percentages. The voucher discount was valid on all delegate fees, except the student and artist rate.

- 10% discount (generic voucher code, general media partners Leiden2022)
- 20% discount (issued to ESOF media partners, sponsors, speakers and ESOF website subscribers to distribute amongst their own networks)
- 50% discount (specific target groups, like students, post-docs, LeRu)
- 100% discount (invitees only, like EU TalentOn participants)

We communicated these voucher codes in a personalized email sent out to our contacts at certain companies and organisations. It urged them to promote their participation in the programme and support other speakers by talking about the topics and themes that their network relations, peers, colleagues would find interesting. By using a special speaker voucher code they could offer a 20% discount of the regular rates to their relations.

It goes without saying that ESOF cannot be financed by the income made from ticket sales. All speakers, including session organisers and poster presenters have free access to ESOF. We noticed that many people and organisations want to contribute to ESOF and attend the conference, but hardly anyone wants to pay for tickets.

Why tickets sales fell behind could have been influenced by the following:

- The fact that we announced the programme late, since the whole organisation started late. People want to know what they buy into.
- EuroScience does not maintain a full and correct database of people interested in ESOF, and hardly succeeded in attracting supporters. Only 30 EuroScience members registered.
- Covid. Some people are (still) afraid to join large groups. Infection rates were increasing towards the summer and therefore some just couldn't come due to the fact that they had covid or a family member with covid. Although it would not explain very low virtual registrations.
- Competition: For the fact that nobody was able to host physical events for a long time there was a lot happening in 2022 and we experienced some competition from other events taking place within the Leiden European City of Science year, like The European Space Week and LifeScience and Health week.
- World circumstances (war Ukraine). It makes people rethink priorities. Attending conferences is not at the top of their list. We looked at the registration numbers and we hardly had any



representation from Eastern Europe, besides those attending the one day regional site event in Katowice.

- A global point to take into account is sustainability; more and more people are rethinking the status quo of how things are run and realising there is #NoPlanetB.. Leiden already made efforts in this direction, but they could have been highlighted more beforehand.
- Financial restrictions. The last two years a lot of organisations and people had to reorganise and cut budgets. Also on personal levels due to inflation and higher costs for living some people can't afford to join. Also flights, hotels, etc – everything got more expensive.
- Holiday season. Many people were not able to travel for 2 years and school holidays have started in some countries or part of some counties. A lot of people were enjoying quality family time and went on holiday instead of joining the conference.

#### 9.4 Lessons learned and recommendation

- ❖ Make sure your budget does not depend on ticket sales.
- ❖ We would advise for a next edition to make sure you have enough funding available at an early stage.
- ❖ We would advise EuroScience to update and expand the number of memberships.

### 10. Sponsoring and Exhibition

In January 2022 we launched the sponsorship and promotion brochure offering many opportunities for organisations and companies to contribute to ESOF and be visible onsite in Leiden and online.

After consultation with EuroScience we decided to keep a similar structure and prices in sponsor packages to previous editions to not differentiate too much from previous editions.

We had the following sponsor packages:

- Key Partner
- Gold Sponsor
- Silver Sponsor
- Bronze Sponsor
- Supporter

These sponsorship and exhibition packages had matching marketing communication packages, promising various branding/logo exposure deliveries and endorsement/social media commitments. Alongside sponsor packages, it was also possible to become an onsite or online exhibitor. The full sponsorship packages can be found in the sponsorship and promotion brochure. All prices mentioned were without VAT. VAT was added before invoicing.

It is worth mentioning that most sponsors wanted to be involved in the content or social events. Our key sponsors had speaking time in the opening ceremony and were also part of the Studio ESOF (talk show) line-up. We gave all our key sponsors the opportunity to upload a corporate video into the on-demand cinema in the virtual platform, but they didn't make use of this.

Although we reached our sponsorship targets, it was not easy to secure funding at this late stage. In previous editions the budget included a lot of institutional funding. We also received some last-minute institutional support, but most of this support was given for the full European City of Science year and

not specifically for ESOF. Being part of a full year of events also made it more difficult to find exclusive sponsors for ESOF.

The ESOF2022 sponsors and exhibitors were:

#### **Key Partners**

Janssen Pharmaceutical Companies of Johnson & Johnson  
Elsevier

#### **Gold Partner**

Frontiers

#### **Bronze Partners**

Naturalis  
Estonian Research Council  
Baden Württemberg International  
German Academic Exchange Service (DAAD)  
RSA Department of Science and Technology

#### **Special contributions from**

European Union (including a satellite event from European Union MSCA)  
Ministry of Economic Affairs and Climate Policy  
Ministry of Education, Science and Culture  
Province of South Holland  
Dutch Research Council (NWO)  
Founding Partners of Leiden2022 (municipality, Leiden University, Leiden University of Applied Science and Leiden University Medical Centre)

#### **Exhibitors**

EuroScience	Booth (onsite and online)
Katowice	Booth (onsite and online)
Europlanet 2024 RI	Booth (onsite and online)
ITER	Booth (onsite and online)
Lithuanian RDI Liaison Office LINO	Booth (onsite and online)
Coalition S	Booth (onsite and online)
International Science Council (ISC)	Virtual Standard Booth
AlphaGalileo	Virtual Standard Booth

Elsevier and Frontiers sponsored partly in kind (50%). Their in-kind sponsorship was meant to create more exposure for ESOF. Frontiers was the exclusive sponsor of the delegate party. Janssen Pharmaceutical Companies of Johnson & Johnson, Elsevier and Frontiers all received a corporate after movie of ESOF to upload on their own channels. All sponsors were also provided with exclusive voucher codes to be distributed within their own networks, so they could buy tickets at discounted rates, but this was not embraced by many sponsors.

Not all sponsors wanted to have a booth (onsite and/or online).

## 10.1 Exhibition in Pieterskerk

The exhibition spaces were located in the central area of the Pieterskerk, a 900 year old historic venue, which was entirely dedicated to the conference. This area was at the heart of the action, with networking areas and meeting spaces located around the exhibition, catering areas, posters, a stage for sessions and our online studio. The exhibition opened on Wednesday during the Welcome reception which took place after the opening ceremony in the Stadsgehoorzaal.

### Exhibition hours

- Wednesday 13 July 18:00 – 20:00 hrs (during Welcome Reception)
- Thursday 14 July 09:00 – 18:00 hrs
- Friday 15 July 09:00 – 18:00 hrs
- Saturday 16 July 09:00 – 16:00 hrs

On Thursday and Friday from 14:00 – 18:00 hrs and Saturday full day, the Pieterskerk was open for the general public to connect Science and Society. As part of the Science in the City Festival, ESOF wanted to welcome people with a curious mind to visit the exhibition.

We had one sponsor and exhibition manager, Paul Gruijthuijsen, who was responsible for the sales and support of sponsors and exhibitors. This worked well. Sponsors knew whom to contact if they had questions.

We worked with standard shell scheme booths 3 x 3 m<sup>2</sup>. We decided to use a more open booth type and built it from an aluminium frame with canvas. This was a conscious decision for 2 reasons:

1. The open character of the exhibition was enhanced by the set-up
2. This type of booth is the most sustainable booth option available on the (Dutch) market. The Alu frames require less volume to transport and the canvas can be easily recycled.

In our original exhibition set-up we envisioned regular booths (3 x 3 m<sup>2</sup>), 3 x 6 m<sup>2</sup> for silver sponsors and 25m<sup>2</sup> square booths for key sponsors. In the end our Silver Sponsor, Frontiers decided they didn't want to have an onsite booth.



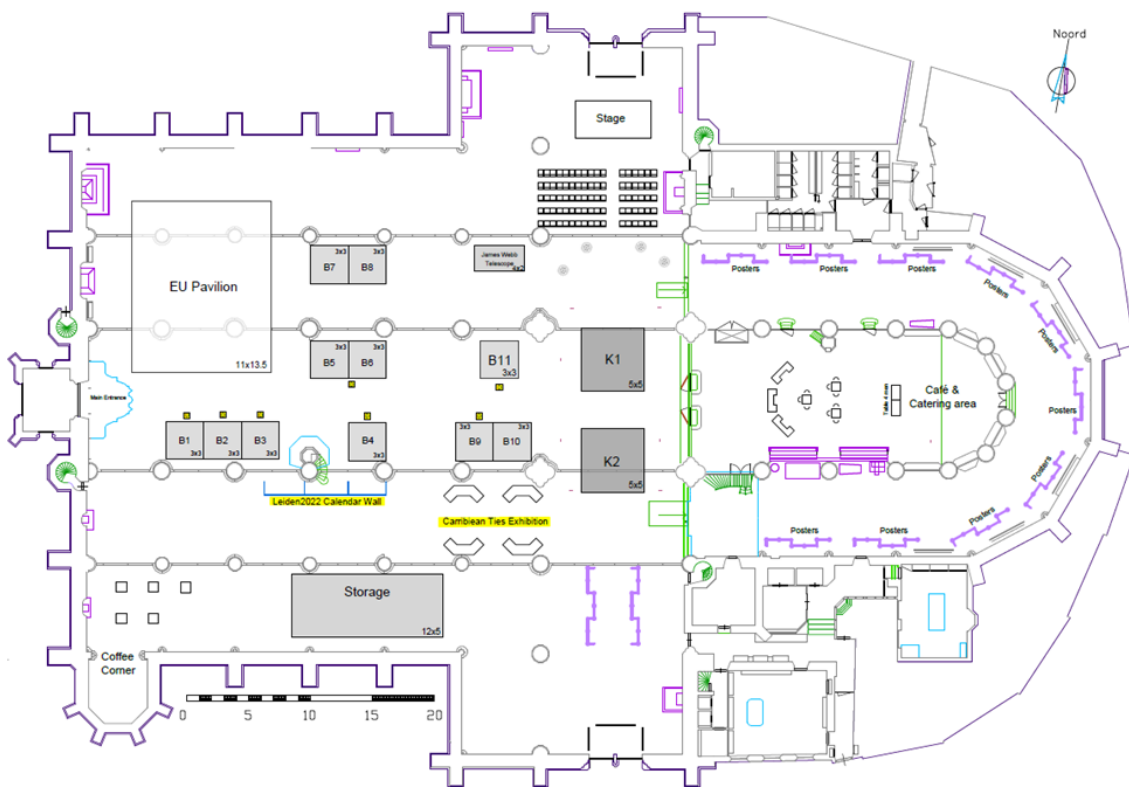
For an additional cost, exhibitors could order a printed mesh canvas background. Most exhibitors made use of this option.





In advance of ESOF, exhibitors received an exhibitor manual which provided all necessary logistical information for their onsite (and online) booth.

**Onsite exhibition Floor plan and list of onsite exhibitors**



Company	Package	Location
Elsevier	Key partner	K1
Janssen Pharmaceutical Companies of Johnson & Johnson	Key partner	K2
European Union	Key partner	EU Pavilion
Leiden European City of Science 2022	Booth	B1
EuroScience	Booth	B2
Katowice	Booth	B3
Estonian Research Council	Bronze partner	B4
Baden Württemberg International	Bronze partner	B5

German Academic Exchange Service (DAAD)	Bronze partner	B6
Europlanet 2024 RI	Booth	B7
RSA Department of Science and Innovation	Bronze partner	B8
ITER	Booth	B9
Lithuanian RDI Liaison Office LINO	Booth	B10
Naturalis	Bronze partner	B11
James Webb Space Telescope	No package	Pieterskerk
Leiden2022 Calendar wall	No package	Pieterskerk
Dutch Research Council (NWO)	Satellite Event	Stadsgehoorzaal
European Union MSCA	Satellite Event	KOG
AlphaGalileo	Virtual standard booth	in platform
Coalition S	Virtual standard booth	in platform
International Science Council	Virtual standard booth	in platform
Frontiers	Gold partner (delegate party)	Hortus Botanicus



The EU had a large onsite pavilion. This was part of their EU Grant/financial contribution and not paid for separately. We were very happy with their presence, since they really added value to the onsite exhibition.

We tried to also arrange a 'Space Pavilion', but due to the fact that there was a 'Dutch Space Week' in September at ESA/ESTEC, the space organisations were not willing to sign up for ESOF.

## 10.2 Online Exhibition

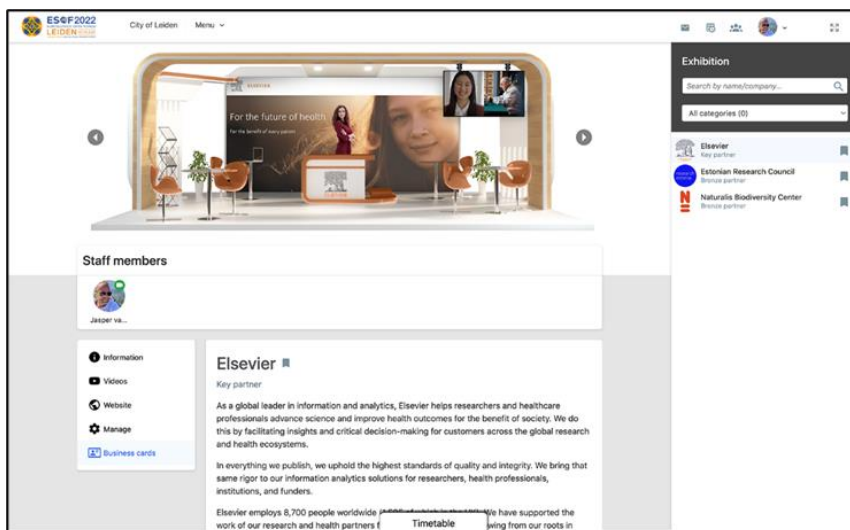
Depending on the level of the Partnership Package sponsors and exhibitors had either a Premium Virtual Booth or a Standard Virtual Booth included. The difference had to do with the number of online staff members and number of videos and documents you could upload. We also made it clear in the design that some sponsors had more exposure than others. Sponsors and exhibitors could upload their own materials.

For the online exhibition we organised a training to explain to exhibitors what the online possibilities were and familiarize them with the virtual platform. They received log-in details at the end of June so they could start with their creative booth design and upload logos, brochures and videos into their Booth.

On the virtual platform, the exhibition could be accessed by clicking on an exhibitor logo.



### Example of an online booth



### 10.3 Our strategy to create exhibition footfall

We all know it's important for exhibitors to meet the delegates. Therefore we made the Pieterskerk the 'heart of ESOF' to attract delegates to the exhibition. We did this by locating our main catering area, our poster area, a speaker's corner (with its own programme) and Studio ESOF inside the Pieterskerk as part of the exhibition area. We added The Caribbean Ties exhibition to the ESOF exhibition and a scale model of the James Webb Space Telescope. We also linked to the Science in the City festival on the square in front of the Pieterskerk. By doing this, and opening up part of the exhibition to the general public we hoped to create footfall to the exhibition.

Studio ESOF2022 (talk show) and sessions in the Pieterskerk without doubt added an audience to the onsite exhibition (talk shows could be attended) and created attention for exhibitors in the online exhibition. Our reporter invited sponsors and exhibitors to join the conversation and be part of the Studio ESOF2022 programme. The Studio truly connected onsite with online (and showed the onsite exhibition to the online audience).

The European Union had, as mentioned before, a large EU Pavilion. They organised many activities within their pavilion. They also decided to organize the first ever European Talent Fair on Saturday 16



July. The European Talent Fair brought together students, early career researchers, scholars, start-ups, industry and investors to promote young people's talent and job opportunities in the research sector across the EU. They offered workshops/trainings within the EU booth and online on Saturday for which delegates needed to register in advance. This was managed by the EU/EURAXESS. They kick-started the EU Talent Fair with an 'official opening' on Saturday morning, before the first live ESOF session in the Pieterskerk. Launching the European Talent Fair at ESOF was decided and announced at a very late stage by the EU (2 weeks before ESOF). There is definitely a demand for such an event at ESOF, especially in the combination to create more footfall to the exhibition on the last day. We believe if decided and announced earlier it would have been more successful.



*"Having the JWST scale model in the beautiful Pieterskerk for the entire Leiden population to visit in exactly the week that the first images of this flagship mission were released, was a highlight that we could not have planned for!"*

**Quote Ewine van Dishoeck,**  
Professor of Molecular  
Astrophysics, Leiden University

#### 10.4 Lessons learned and recommendations

- ❖ We anticipated a better potential sponsor-database from EuroScience with contact data of sponsors and exhibitors of previous editions. This unfortunately wasn't the case. It is highly recommended to invest in this for future editions and assign a partnership coordinator within EuroScience that builds more sustainable relationships with sponsors.
- ❖ It is advisable to start a lot earlier with fundraising activities and have a clear vision how ESOF fundraising is integrated with the fundraising for the whole European City of Science Year or have clear from the start which sponsors will be contacted exclusively to support ESOF.
- ❖ We see future funding opportunities from knowledge institutes (national science institutes) from all EU countries, but then it is important that there is an established relationship. This year that was not the case. It's worth investing in that relationship (for content submission, delegate representation and funding).

#### 11. Venues & Logistics

The hybrid format brought about two audiences to be considered in all of the logistics, those attending onsite in Leiden, and those attending online or virtually. Within these two areas, many production, practical and programming preparation had to be done.

## 11.1 Online

Delegates who signed up for the conference to attend online only needed to know that they were part of the ESOF experience. We were keen to ensure that they felt immersed in the overall experience and would be able to benefit from excellent quality of content in the way it was received onsite and to be able to share in all the resources available to them.

To achieve this, it was necessary to look at the technology that we would use and create it in a way that would engage *and* be interactive. The main tool for online only delegates was through the platform – so we had to consider the best way to present this and without using gimmicks, deliver an exceptional and innovative platform.



### 11.1.1 The Virtual Platform

Being a hybrid conference, a good number of the scientific sessions were delivered online through the virtual platform.

The virtual platform was created by a Dutch organisation, called Elevent.ly (now called Appendee). They were selected following an RFP. In our selection criteria it was important from a cost perspective that it was possible to record presentations within the platform (to save on AV costs) and that a conference app was integrated with the virtual platform, since we were hosting a hybrid event, with hybrid sessions that required simultaneous interaction with online and onsite delegates. Elevent.ly was the most cost effective solution, but also the most creative design solution and was able to create an environment that connected onsite and online, by replicating the onsite venues into online locations. They also incorporated a networking tool (Wander.me) as an online networking area where delegates could interact and start discussion groups. Next to that we had fun elements, like the on-demand cinema and photobooth. By adding studio ESOF to the virtual platform (a talk show that was recorded live at the Pieterskerk and broadcast on the virtual platform and the ESOF website) we really bridged the gap and truly connected onsite with online. This was well received by all virtual delegates.



This image shows the homepage of the Virtual Platform and below, an explanation of what delegates could find in each area within it.

- **Main Stage and Aalmarkt Stage (Stadsgehoorzaal)**  
Opening and Closing Ceremonies, Keynotes and plenary sessions (Main stage) Sponsored sessions took place in the Aalmarkt Stage
- **Cleveringa Stage (KOG) Lorentz Stage (KOG)**  
Hybrid sessions were streamed live from the (KOG) Kamerlingh Onnes Building.
- **The Observatory**  
This opened up all of the online rooms for scientific sessions, the World Programme (14-15 July) and Katowice (Regional Site on 15 July).
- **Exhibition**  
The virtual exhibition booths could be found here where collateral, videos and links to sponsored sessions could be found. Dropping business cards enabled delegates to connect with the staff members of the exhibitors.
- **Posters**  
Posters were located in the virtual Pieterskerk area beside the exhibition area. They were individually displayed on the virtual wall of the poster area, along with a short presentation video. Delegates could leave questions and comments anytime for presenter response.
- **Connecting and Networking**  
The Network area was located in the Piazza of the virtual platform. Delegates could drag and drop their avatar into the Network area beside another participant, or in a subject area, to start a video call, group discussion or join a Meetup during the conference.
- **Studio ESOF2022**  
Studio ESOF2022 was an actual open space studio located in the Café of the Pieterskerk in Leiden. During the conference a lively programme in talk show format, with interviews, Q&A, live reports from the exhibition and the poster presentations was broadcast. Studio ESOF2022 played automatically on the virtual platform.
- **On-demand cinema**  
Here delegates could watch a selection of pre-selected scientific movies. Within the platform we have created a cinema. Sponsors and exhibitors were invited to let us know if they had non-commercial scientific movies or documentaries that could be of interest to the delegates. They could send us their materials. We carried out an assessment, for suitability and if accepted uploaded your movie or documentary in the online cinema.

- **Photo booth**  
The Photo Booth was an opportunity to have some fun. Delegates could follow the online instructions, take a selfie and combine it with a series of pre-designed and ESOF2022-related templates and then upload it to be part of a giant combined mosaic of everyone's images.
- **Online Helpdesk**  
During the event we had an online support helpdesk assisting delegates having difficulties entering the platform. If this was the case it mostly was due to browser settings and could be resolved.

From a design perspective it was a great success. Also, technically it ran smoothly during the event itself. In the run up towards the event we mainly experienced issues with the calendar functionality (delay was mainly due to API issues with the PCO software), the more limited sponsor opportunities than initially envisioned and speakers found it difficult to feel comfortable with the virtual platform.

The ESOF2022 team organised information sessions for online speakers and session organisers. About 50% of the online speakers and sessions organisers attended these training sessions. Those who attended were very positive about the virtual platform and support provided. During the event we had virtual room assistants ('angels') who would check the presence of all speakers, connections, camera and sound before a session started. They managed the 'green room' of a session where speakers and moderators could connect online and ask questions. It was decided that the speakers would manage their own presentations online and not ask the virtual room assistant to do this, since then they needed to upload scripts. It was possible to pre-record presentations (as a built-in security in case there were technical glitches), but only a few speakers chose to do this.

We also arranged a training session for the online exhibitors. This training session was well attended and we didn't experience many problems with sponsors. Their only disappointment was with the number of onsite delegates.

The programme was hosted on the virtual platform and made publicly available on the ESOF website. The programme was managed by the PCO. All registration, speaker and session information came towards the virtual platform via an API. This way late bookers had direct access to the virtual platform and programme changes were directly updated on all channels (platform, app and website).

Before the conference, all attendees received delegate information packages and we shared an onboarding video, which explained all available features and functionalities of the virtual platform. To watch the virtual platform onboarding video which highlighted its functions, [use the following link](#). At an earlier stage of pre-production, we also made a promotion video of ESOF2022, highlighting the hybrid character and virtual platform as well.

Unfortunately the online sessions were not well attended. Most onsite delegates did not make use of the virtual platform. The virtual platform remained open to all registered delegates for two months following ESOF (closing date 30 September 2022). Only a limited number of delegates (approximately 300) made use of the platform or viewed sessions via the virtual platform.

From October 2022, we opened the platform free of charge to the public. This promotes open science and connects science and society until the end of the year of Leiden European City of Science and importantly, gives people a 'taste of ESOF'. Potentially this would stimulate viewers to register for a next edition.



## 11.2 Onsite

Delegates attending on site in Leiden required different considerations. Venues that had good capacity, accommodation available to them, and a well-organised event that would run efficiently and technically be perfect.

### 11.2.1 Venues

There were 3 main venues used by the conference in Leiden, all in close proximity and all showcasing different facilities that were beneficial for the delegates and the structure of the programme.

**Stadsgehoorzaal** – With a great stage and auditorium seating 800 people, this seemed the most appropriate place to center the conference for the Opening and Closing ceremonies and the keynote presentations, the main stage was a fantastic purpose-built location to showcase ESOF. In this theatre, the main events were live streamed using multi cameras. Aside from the main stage, the venue offered large capacity rooms for sponsored sessions, press briefings each day and for the organisation to have welcome desks, Help desks and delegate registration.



**The Pieterskerk** is a 900-year-old church, now an event location which offered unusual and historical space to have a unique exhibition, poster setting and ‘Speaker’s corner’ as well as a stage for studio ESOF to broadcast. Outside the church, on the Pieterskerk square, the Festival of Science in the City combined took place.

### **Kamerlingh Onnes Gebouw (KOG)**

Part of the University of Leiden, the KOG building (Faculty of Law) was a practical and versatile space offering lecture halls and classroom-style spaces for small and medium sized hybrid and satellite sessions.



Next to these three conference venues we also used the Hortus Botanicus for the delegate party and the Academy building/Faculty Club to accommodate VIP offices for our main partners and sponsors and host VIP events.

To make sure delegates had a very worthwhile onsite experience the ESOF organisation also arranged free access to many museums in Leiden. This was well received.

### **11.2.2 Venue Management and AV support**

Planning at these venues was coordinated by the PCO, Congress by Design. During the conference, three members of the team took responsibility to manage the venues with a main point of contact at each. These were responsible for the management of catering, AV and logistics within the venue and were able to support delegates with any venue-related queries.

It is worth mentioning that at each venue we had onsite venue management support, provided by the venue itself. The AV supplier used at the Stadsgehoorzaal and Pieterskerk was an extremely experienced and professional partner. Within the ESOF team we had a very experienced technical producer who liaised with the onsite AV team and online supplier (providing links to be added in the virtual platform).

For most onsite sessions technical scripts were prepared to ensure a smooth organisation. Stagemanagers coordinated this per session room. This required more preparation from our speakers and sessions organisers in providing this information, but it assured a very professional onsite (broadcast) experience.

### **11.2.3 Sustainability**

The objective for ESOF2022 was to organize as far as possible a sustainable event. On one hand there were elements we couldn't influence, but where possible, we made certain that our options were considerate of carbon footprint, recycling and materials. This started with our hybrid conference set-up, preventing many delegates having to travel (fly) to Leiden, The Netherlands.

But also in many other elements of the conference organisation we stimulated and incorporated this way of thinking. For example:

- We selected several suppliers that already embrace the Sustainable Development Goals (SDG's) and have implemented sustainability measures within their own organisations.
- We decided not to have a printed programme book, but work with a conference app to access programme details. Normally ESOF has a very extensive programme book.
- We only provided vegetarian food choices for delegates in Leiden.
- We promoted travelling to Leiden by public transport (train) if possible and arranged discounted bus fares (with Arriva) for ESOF delegates for travelling within the Leiden vicinity.
- In our conference branding materials, we choose for materials that could either be recycled or reused. Like recyclable cardboard Festival Chairs and cardboard sponsor signs, and beach flags for which the stands were reused at EUCYS and the EU TalentOn and the beach flags themselves were given to a company in Leiden to make other products from them.
- In selecting the booth structure from our suppliers, we chose one for its sustainable quality and characteristics. It consisted of an alu frame with canvas. This required less transportation and the canvas was recycled.
- Tap water points were available onsite free of charge (this was communicated beforehand to delegates) to avoid delegates buying bottled water.





#### 11.2.4 The Conference App

The app provided delegates with the full programme, allowing them to 'favorite' and personalize their agenda. It gave details of all speakers with bios, provided maps to help delegates get from A to B, had a full list of registered attendees who were able to upload their profile, and had details of partners and sponsors.

There was also general and practical information as well as some interactivity through the photo booth, which was accessible via the virtual platform and here on the app.

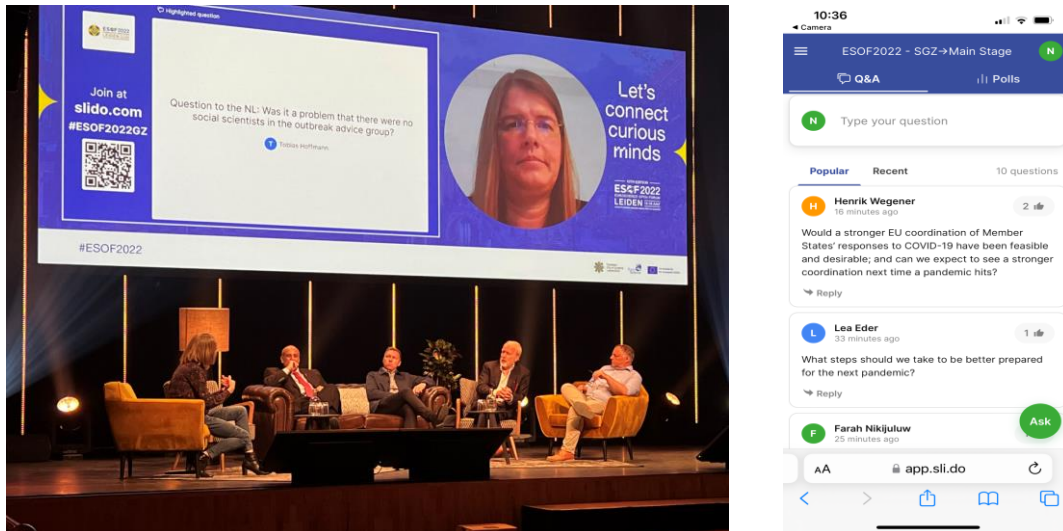


Onsite delegates were encouraged to download the app, both during pre-communication and onsite. A technical helpdesk was offered at the Registration/Information area in the venue for anyone with any app-related difficulties.

From time to time, notifications were sent out to inform of sessions, highlights and opportunities not to be missed.

### 11.2.5 Slido Interaction

To connect onsite and online delegates, and to add an interactive element across the whole conference, we used an application called Slido. Slido is an interactive Q&A and live polling platform. It gave presenters the opportunity to make their hybrid presentations more memorable by involving their audiences, both in the room and online. By using this platform, presenters were encouraged to gather instant input and feedback.



This image shows an online presenter along with the Slido app being used in the panel Q&A session. We used Slido (via app) for interaction of hybrid sessions. Once a question is selected, it is displayed on screen. As you see in the image, the side bar with QR code remains on screen throughout, so anyone wishing to join can access the app using their smart camera at any point during the session.

Audiences could post questions via the app, see all the questions that others had posed, and vote instantly against them (see the ‘thumbs up’ icon in the image above) which would enable the presenter to instantly identify important questions that they could then address in the Q&A session.

Onsite, we had a Slido coordinator who managed the platform.

*“All the sessions were good but interactive elements were a very impressive session among them”.*  
From Delegate Survey Feedback

### 11.3 Lessons learned and recommendations

#### Online:

##### Virtual Platform

- ❖ The virtual platform looked great and worked very well.
- ❖ The virtual platform didn’t work on mobile phones (browsers wouldn’t support it). For future editions it is something to reconsider.

#### Onsite:

##### Venues

- ❖ The venues offered excellent space for our conference and showed Leiden at its best. However, some delegates felt that there was too much distance between them. Locating the conference in a single venue appears to be preferred based on the feedback we received.

### Onsite management

- ❖ It is recommendable to have a very experienced onsite management team. This went very well in Leiden and made it a very pleasant onsite experience (for delegates and organisation).

### Sustainability

- ❖ Most sustainable measures were well received, except not all delegates appreciated the vegetarian catering.
- ❖ Keep a conference app instead of a printed programme book.
- ❖ Choose green key-suppliers.

### Conference App

- ❖ The conference app needed to be integrated with the virtual platform, therefore we automatically went for the app offered by the virtual platform.
- ❖ The app we chose had little flexibility in the styling and design, or creativity we could adopt to best suit our needs. The decision to use this app was budget driven, and in hindsight, it would have been a good investment to spend more and to provide a better delegate experience.

### Slido

- ❖ Many onsite delegates didn't like to use Slido. They wanted to have direct interaction with the speaker (stand up in the session room). We would recommend reviewing interactivity because it certainly has a place in this event.

## 12. Marketing and Communication

To promote ESOF2022 and make it the success we envisioned we developed a strategic framework as a foundation for all marketing and communication activities. The primary objective for communication and marketing of ESOF2022 was to build up awareness for and position ESOF, stimulate delegates to sign up, promote the sponsorship and exhibiting opportunities, encourage volunteers and promote other activities taking place during ESOF2022.

The conference offered a rich on- and offline programme allowing visitors to build their network and expand their know-how. This also meant that we needed to take on-and offline communication and marketing into account.

We aimed to ensure that stakeholders were well informed, including our partners, network and media relations, delegates, ESOF sponsors/supporters and those who were yet to learn about ESOF2022. By extending marketing across social media we engaged with potential parties who would find something relevant and join the event.

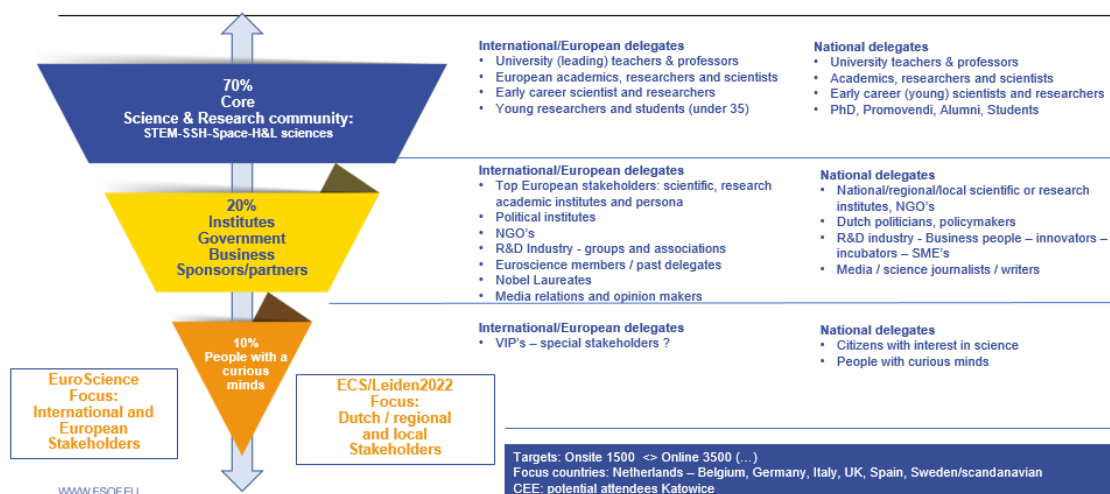
### 12.1 Our target audience and attendees

ESOF routinely brings together leading thinkers, innovators, policy makers, journalists, educators from more than 50 countries to discuss current and future breakthroughs in contemporary science. This year, delegates from 87 countries participated. We had anticipated 5000 delegates of which 1500 would be onsite and a potential 3500 online.

ESOF is interesting for anyone with a curious mind, but especially for; (young) researchers and scientists, (university) teachers and professors, politicians and business people with a background in R&D. During ESOF2022 we found it important to add the category 'people with a curious mind' to truly connect science with society.

We broke down audience types as follows;

## Target audiences & stakeholders



### 12.2 Conference Branding

The company GH+O in Leiden designed the overall Leiden2022 branding and identity and the initial ESOF2022 conference branding. The Leiden2022 branding was driven by QR codes and all projects during the European City of Science Year are characterized with a specific QR code and colour scheme to enhance the visual identity of Leiden European City of Science.

The design agency for ESOF2022 changed in the first quarter of 2022 to the company GDandP. GDandP created a brand guide which could be shared with partners. When Katowice became a confirmed regional site our designer created a logo and brand guide for Katowice.



To emphasize and distinguish the seven theme topics/tracks, additional shades of colour were added to the brand style scheme and used across the programme-at-a glance and online platform. Each track was also represented by a special icon. Icons were used on the website track page as well.





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## MarCom strategy – 3 stages

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### Website branding

In the past, each ESOF-edition delivered their own website. For the 2022 edition, EuroScience delivered a 'new' ESOF website in order to provide a more sustainable approach for the Leiden2022 and future editions. However, branding and endorsement on the website proved to be difficult throughout the whole project. It was done very late and there were quite a few difficulties showcasing and linking Leiden2022, EuroScience, the EC-co-funded signage and later, the regional Katowice site.

In the final months, the branding was resolved by combining all necessary logos as seen in the visual below.



### 12.3 Marketing and Communication

Marketing the conference as a hybrid event, at a very late stage in the overall process of the conference execution was a challenge, but one nevertheless taken by the communication team to achieve the best in the time available.

At the start of 2021, GH+O, the Leiden2022 communication agency, developed a communication strategy framework for ESOF2022. This was partly based on the strategic documents as defined in the Leiden2022 project, and partly on the reports and lessons learned from reports from previous ESOF editions. It described the positioning, core message, the intended target groups and laid the foundation for the marcom strategy. Using the communication framework and strategy that had already been developed by GH+O as a starting point, the newly appointed MarCom coordinator defined the key strategic starting points. The key strategic pillars were created in stages.

## Stage One

- The priority in stage one was to create awareness and interest as ESOF was hardly known in the Netherlands, to recruit delegates (the ambitious targets were under discussion from the start. It was key to support sponsorship in order to realise their commitments.
- The main activities in stage one included the development of the brand guide which had an impact on all marcom activities. This included designing the look and feel of the website including the Katowice regional site. We reviewed and oversaw the redesign of the ESOF2022 newsletter and concentrated on developing copy with key messages.
- Because ticket sales had the highest priority, it was very important to create and design the registration application and process through the PCO and make it available as quickly as possible on the website, including the associated communication such as registration confirmations mails to the different types - online/onsite/media - participants.
- At the same time and to announce that ESOF2022 was open for registration' a special promotional and [positioning video animation](#) (45") was developed. It was distributed via the website, social channels, newsletter of ESOF and Leiden2022 and shared with stakeholders.
- Many marketing and communication tools were created within this phase which included;
  - Brand guide, incl EC co-funded usage
  - Copy platform
  - Logo variants - Online (logo) banners
  - Roll-up banners, posters & flyers
  - Postcard series (8)
  - Digital backgrounds and digital signatures
  - Ready-to-use social media grids
  - Social media headers
  - Social media, testimonial and other promotion videos
  - Theme & Seven topics visuals
  - Track icons
  - Key Visuals hybrid platform
  - PPT slides
  - Promotional event animation (opening registration)
  - Promotional video platform
  - Online marketing banners
  - Outdoor posters
  - Venue and directional Leiden Signage
  - Digital Programme at a glance (download and used as signage/posters)



- A social media specialist and a media/press coordinator were recruited to support the team. Social media became key to delivering messages. A series of posts across Facebook, Twitter and LinkedIn positioned the conference and subject areas. The hashtag was #ESOF2022 and referred to on every social media post. Their activities are detailed in the individual sections below.
- Media, press & journalist contacts were contacted for generating free publicity (interviews, articles) and to get exposure into the agendas of science related institutes.
- In order to realise ticket sales locally and at a European level online, social media was used as far as possible and additionally a 'member-get-member' approach was promoted. We focused on facilitating all partners/stakeholders, media partners (incl EC/ERC), sponsors and speakers to



promote ESOF2022 in their networks with a call to action to join the conference, create website traffic, and buy tickets.

## MarCom strategy – Member-get-Member approach



- During this critical stage, and throughout the whole project process, the four founding-partners, media partners and other engaged stakeholders were regularly informed and requested to support/promote ESOF2022 by mentioning/announcing the conference on their website, agenda/calendar, news section, newsletters and social media channels. To encourage and facilitate this, a downloadable toolkit with a variety of promotional resources was developed and available through the ESOF2022 website. This included a ready-made copy platform, logo's, animations, and artwork for a number of ready-made materials including roll-up banners, flyers/posters, ready-to-use social media visuals, promo video, PPT-slides, Word template, theme visual, the track icons and other hybrid images.
- Newsletters were created at regular intervals from March and with greater regularity from June. They were sent out from Mailchimp to a database of 15,000 (ESOF/EuroScience database). It was a good target audience who were already interested in ESOF and it provided an opportunity to attract additional delegates. We promoted the newsletter via social media channels where we referred to the newsletter. The newsletter was rich with links to the website. It covered subjects that were relevant to the ESOF programme, actions needed or new keynote speakers. The re-design of the newsletter was more closely aligned with the branding of ESOF2022 [See a Newsletter example here.](#)
- Local transport Arriva gave us the chance to promote their service to all delegates by offering special rates for their buses, and at the same time allowed us to run a poster campaign on their buses during the conference.

### Stage Two

- During the conference, with the full team onsite, communication was more focused on direct communication with the delegates through the app and virtual platform. Here, notifications informed delegates whether onsite or online of what was taking place along with key messages or notices.
- Social media at this time was stepped up to reflect the activities on the ground using the hashtag #ESOF2022. The Social Media Coordinator was constantly monitoring and moderating

social media posts, and responding to these and resharing/retweeting or commenting to keep the conversation active.

- Media was monitored by the Media Coordinator who worked on daily press conferences and maintained regular communications with the 136 strong media representatives who attended in Leiden and onsite.
- The video team created a daily video of the activities taking place across all the venues in Leiden to showcase what had taken place. The video was edited on site and was launched each day on the website for everyone to see. It was posted daily across social media.
- The photographers placed their photo material of ESOF on [EuroScience Open Forum | Flickr](#), so delegates and journalists could use it.

### Stage Three

- The social media coordinator continued to follow up on all social media mentions, retweets and shares
- The delegate survey went out to every registered delegate on Saturday afternoon, directly following the closing ceremony.
- An email followed on Tuesday with the after-movie of ESOF2022 which contained a link to the virtual platform to encourage delegates to re watch sessions, with encouragement and a reminder to complete the delegate survey
- A final newsletter, which also included a link to the after-movie and the Flickr conference photo album, was sent out on the 21st July to the full list of subscribers on the ESOF newsletter database.
- We finalised and shared three individual corporate after-movies for Janssen, Elsevier and Frontiers for them to share on their own social media channels.
- The media coordinator continued connecting with the journalists to get a picture of the media follow-up actions and media exposure.
- Registered delegates had access to all content for two months after the event and were still able to interact with other delegates. After that time it was decided to open up the virtual platform to the public to get a 'taste of ESOF'. This was done to share the knowledge with a larger audience, but also to create more awareness about ESOF (and a larger database) which potentially could lead to new delegates for future editions.

The ESOF2022 communication team was disbanded soon after the conference. We strongly believe that it would be in the best interest of ESOF to make sure Stage 3 will be continued by EuroScience and the ESOF2022 audience remain actively involved in future EuroScience endeavours.

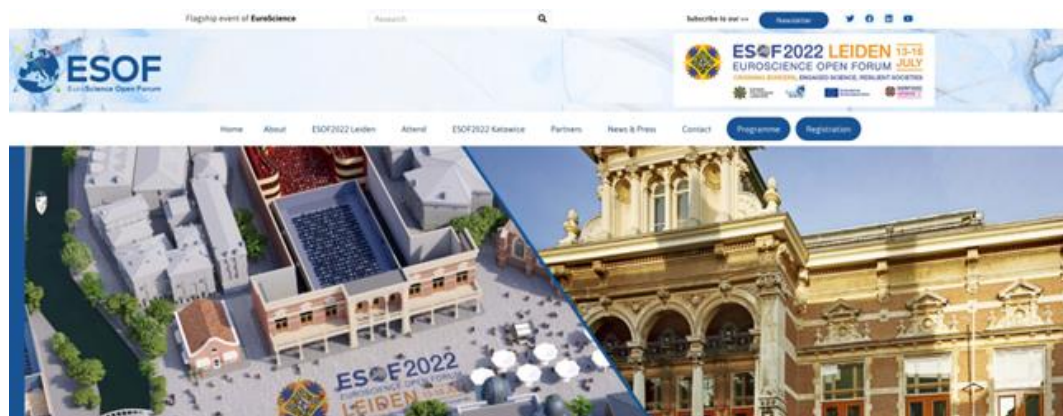
Leiden2022 will monitor the interest in the virtual platform until the end of 2022 and will share the new 'database' with EuroScience, since everyone who signs up for the 'taste of ESOF' automatically gives permission to share their e-mail address with EuroScience to be invited for the next ESOF edition.

### 12.4 The ESOF2022 Website

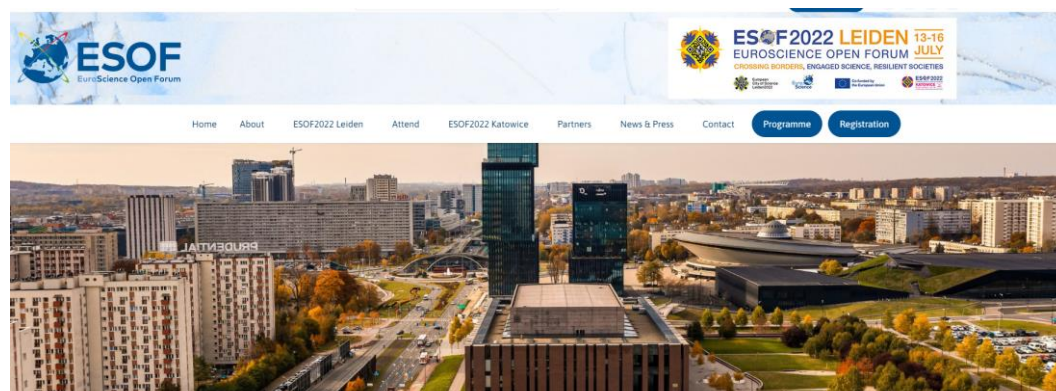
The main repository for information regarding ESOF2022 was certainly the (EuroScience) [ESOF website](#). Built and designed in 2021 by EuroScience, with the idea to create a specific/sustainable website for all upcoming ESOF-conferences and to be the focal point for every potential delegate and curious mind.

The website provided information on the purpose and objective of ESOF, practical information about the conference/format, contained information for sponsors and showcased/promoted all sponsors and partners. It offered practical information and a link to the registration application (plugin of the PCO), and showcased Leiden, accommodation and ESOF2022 venues.

To promote and express the Leiden signature, characteristic images of the city of Leiden were used in the website page headers from the start.



Katowice was also providing input to the website for their participation in ESOF2022 (from Katowice) and on the launch of ESOF2024. Given the workload for EuroScience, their decision was made to provide Katowice with their own access to the website and rights to populate pages themselves, whilst respecting the ESOF parameters.



From the perspective of the Communication team, the new website was missing a clear structure. It wasn't fully linked to the conference branding, nor functioning as conference website. Instead, it was more akin to a corporate site.

When the ESOF communications & marketing coordinator joined in February 2022, many flaws in the design and structure of the site were identified. Arranging content into a structure that was really practical for the event proved difficult, and while some changes were implemented (adding buttons, sub-header colours, header, menus and some iframes for the programme) EuroScience decided - also because of budget, staffing and time restraints, that a full overhaul was not possible to create and implement a more user-friendly and practical website.

The biggest issue with the website proved to be displaying the conference programme in a practical way. The complexity was having integration between the ESOF website, the virtual platform and the conference app, all working together seamlessly with a single-entry point. In the end, the website didn't provide an optimal search functionality, nor a good overview of the full conference programme.



Thu, Jul 14						
VIRTUAL	HYBRID	HYBRID	HYBRID	HYBRID	ON-SITE	ON-SITE
World programme	Cleveringa stage (KOG)	Lorentz stage (KOG)	Aalmarkt stage (Stadsgehoor...	Main stage (Stadsgehoorzaal)	Aalmarkt stage (Stadsgehoor...	Pieterskerk Leiden
	SS1.8 The Role of Universities in Boosting Innovation through Entrepreneurship	SS1.9 Sustainable Forestry and Bioenergy? A Fishbowl Debate	SPONSORED SP1.2 The braided river: women in science, careers and recognition (Elsevier)	PL1.2 Keynote: Academic Freedom: Concept, Framework, Challenges		SS1.36 Museums and Identity
			SP1.6 Lunch Symposium: Antimicrobial Resistance (AMR) and Bacterial vaccines (Janssen)			Poster Session
Science for Social Justice: welcomes the World Science	SS1.15 The Lancet, Health & Climate - Are We on Track for a Healthy Society?	SS1.16 Research Assessment Reform - What Does Good Look Like?	SPONSORED SP1.3 Biodiversity as an opportunity - Nature as the basis for our society and economy (Naturalis Biodiversity Center/BiodiversityXL)	PL1.3 Keynote: Space for Science		SS1.37 To Mars and Beyond
	SS1.22 Vaccine development in Europe: fast and for all	SS1.23 First results from Webb: a new exploration of the cosmos	SS1.38 Contested Heritage	PL1.4 ERC Public Engagement with Research Award Ceremony		
	SS1.29 Social Uncertainties in Post-corona Cities: The Role of Diversity and Social Inequalities	SS1.30 Fly me to the Moons!	SS1.39 The Future of Work: Opportunities and challenges of digitalization, the platform economy and flexibilization of European labour markets			

Throughout the lead up to the conference, the news section was used to inform potential delegates through sharing interesting news and appealing content about the programme, keynotes, special and social events, the hybrid/virtual platform. There was also practical information including things to expect and information about sponsors and exhibitors.

Most importantly, during the event, the website provided the link to the virtual platform and the live broadcast of Studio ESOF2022. Because the development, choreography and scheduling of the final programme appeared to be a complex process that took more time than expected, it couldn't be presented - completely - on the esof.eu website. The decision was taken to provide information about what to expect using a 'Programme-at-a-glance'-format document.

This document played a key role in being able to communicate the ESOF2022-proposition and supporting elements in terms of 'What's in it for you'. It was updated regularly (5 times) and was available as a free downloadable file on the esof.eu website.

Onsite, it was printed as a poster, and a daily version was displayed at every venue. The full and final document is included in the appendix.

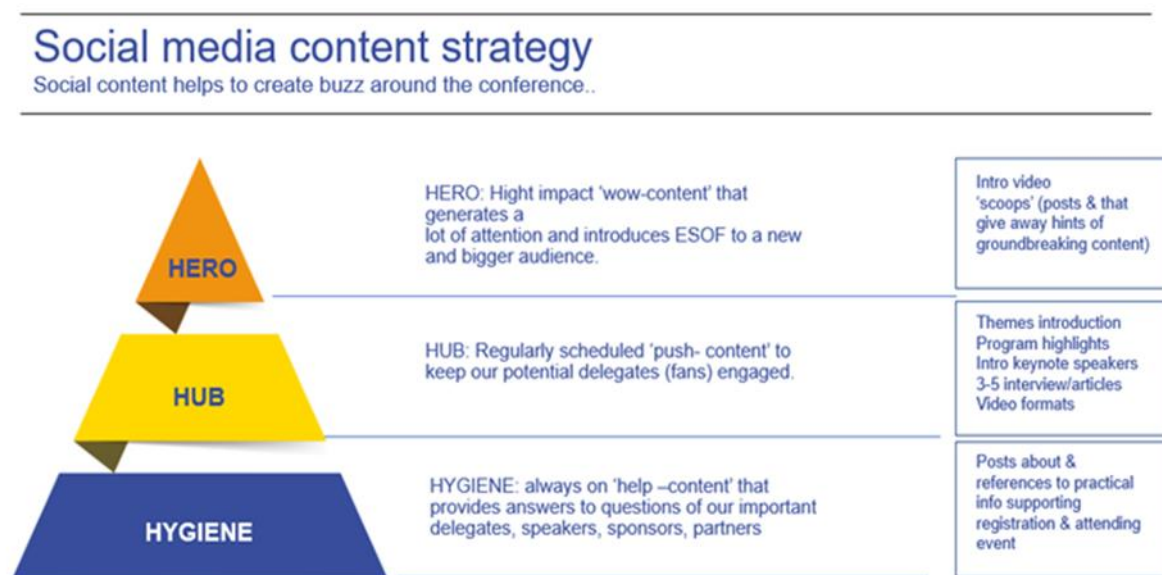


Thursday 14 July									
LIVE IN LEIDEN					ONLINE PROGRAMME				
Platform	Stage	Hybrid/On-site	Keynote/On-site	Online	Platform	Stage	Hybrid/On-site	Keynote/On-site	Online
8:00-9:15	Exhibition opening	8:00-9:15	8:00-9:15	8:00-9:15	8:00-9:15	8:00-9:15	8:00-9:15	8:00-9:15	8:00-9:15
9:00-11:00	BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME	9:00-11:00	9:00-11:00	9:00-11:00	9:00-11:00	9:00-11:00	9:00-11:00	9:00-11:00	9:00-11:00
11:00-12:00	BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME	11:00-12:00	11:00-12:00	11:00-12:00	11:00-12:00	11:00-12:00	11:00-12:00	11:00-12:00	11:00-12:00
12:00-13:00	Lunch Break, visit exhibition and posters	12:00-13:00	12:00-13:00	12:00-13:00	12:00-13:00	12:00-13:00	12:00-13:00	12:00-13:00	12:00-13:00
13:00-14:15	BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME	13:00-14:15	13:00-14:15	13:00-14:15	13:00-14:15	13:00-14:15	13:00-14:15	13:00-14:15	13:00-14:15
14:00-15:15	BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME	14:00-15:15	14:00-15:15	14:00-15:15	14:00-15:15	14:00-15:15	14:00-15:15	14:00-15:15	14:00-15:15
15:00-17:00	BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME	15:00-17:00	15:00-17:00	15:00-17:00	15:00-17:00	15:00-17:00	15:00-17:00	15:00-17:00	15:00-17:00
17:00-18:00	BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME	17:00-18:00	17:00-18:00	17:00-18:00	17:00-18:00	17:00-18:00	17:00-18:00	17:00-18:00	17:00-18:00
20:00-21:30	BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME	20:00-21:30	20:00-21:30	20:00-21:30	20:00-21:30	20:00-21:30	20:00-21:30	20:00-21:30	20:00-21:30



## 12.5 Social Media

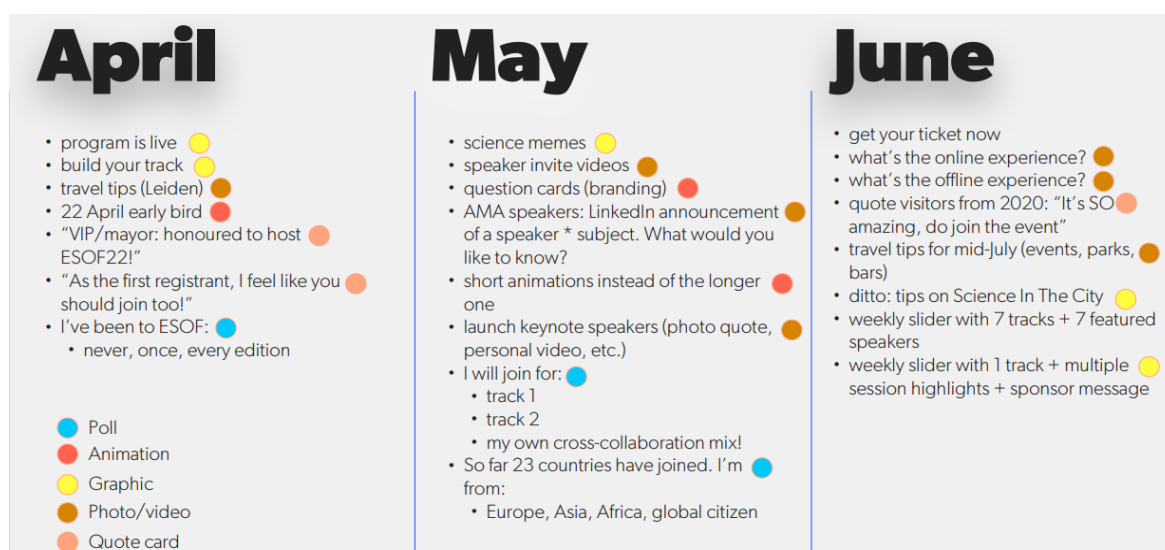
Our social media strategy to create awareness around ESOF2022 worked well. Some objectives were created for rationale on social media.



The objective for LinkedIn was to create more website traffic and sharpen target groups. For Twitter, the objective was to generate a wider audience and outreach. On Facebook, the goal was to generate more interest in ESOF. However, our main targets were LinkedIn and Twitter. There was a small budget for paid online campaigns.

Although ESOF had an Instagram account, EuroScience advised us not to use it as they were not active on this site, so this was not included in the plan for social media.

The image below shows an extract from the social media strategy which was shaped as the programme and campaign evolved.



We could conclude from the metrics that the real momentum was just before and during the conference. LinkedIn and Twitter were the two most successful social media channels for the campaign.

### LinkedIn

We sent out 46 messages between 1 January and 31 July 2022 which led to a doubling of the number of followers (600 > 1200), 1,800 clicks and about 1,000 other interactions.

Some of the messages were part of a paid campaign which targeted scientists in Europe, a group of about 450,000 and which generated more interest from France and Italy.

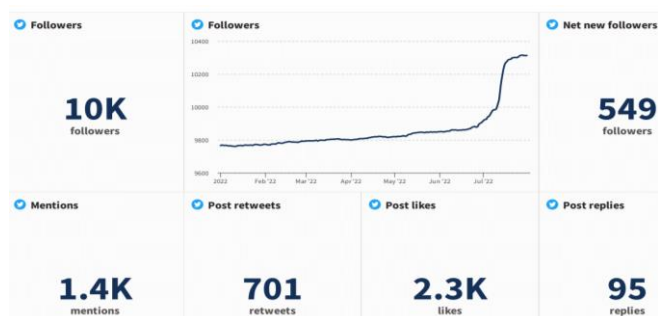
We posted the daily video summary during the conference, and in the lead up to the conference shared information about speakers and tickets to generate interest and last-minute ticket sales.

There were more than 40,000 impressions with the highest page reach during the conference days and almost 800 reactions received to posts.



### Twitter

The ESO2022 Twitter account has over 10K followers with an additional 549 new followers between



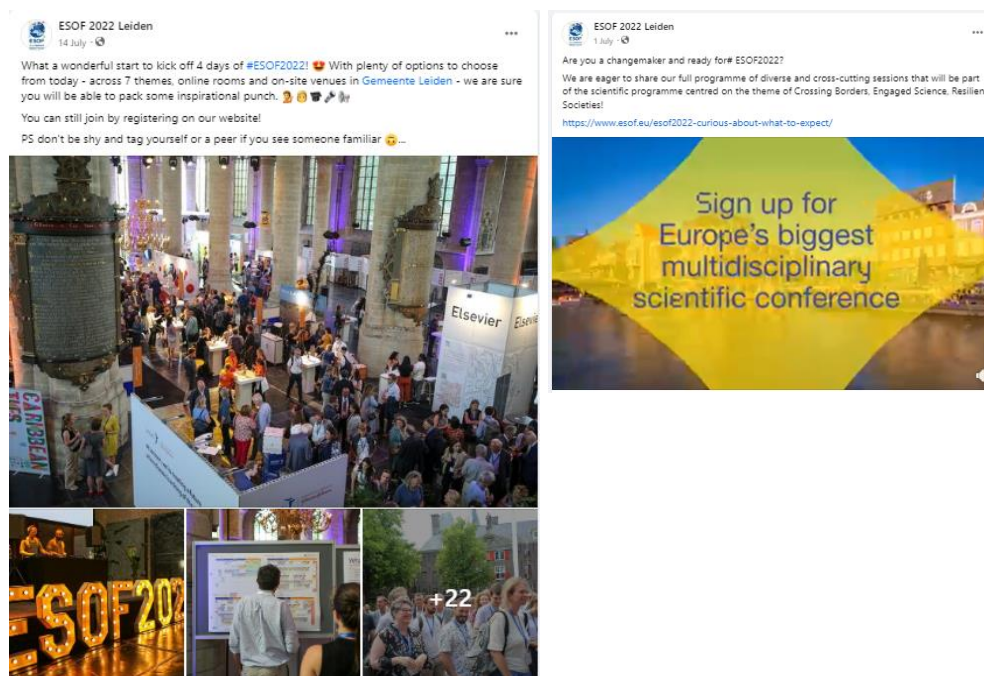
1 January and 31 July. There were 351 tweets in this time generating 1,400 mentions of



@ESOF-eu, 2,300 likes and just over 700 retweets. Our topics included joining, science, programme and ESOF.

### Facebook

Posts on Facebook reached 4,800 fans. We generated 103 new fans in the time period with the majority in Italy, France and the UK. Our audience are mainly female with an age range of between 25-44 . Even following the conference, engagement was good.



### 12.6 Media

Besides the approach of relevant media representatives to register for ESOF a media strategy was created to make sure communication managers from the Leiden founding partners were all aligned with the ESOF2022 team and EuroScience in the key messages. We wanted to ensure a consistent messaging towards journalists.

Media could register for the conference free of charge. A media accreditation system was put into place where they could upload their media credentials and when approved by the media coordinator, they received free access to ESOF.

An ESOF-press mailbox was created to provide journalists with a direct contact within the ESOF coordination team. The Media coordinator contacted all registered science communicators and journalists ahead of ESOF to offer her support or to help connect them with scientists.

The media coordinator also liaised with the organisation of The European Conference of Science Journalism (ECSJ) to align programmes. During that event, a media reception was hosted by ESOF2022 to link both events, enhance networking and highlight the ESOF conference.

For the journalists and media representatives, ESOF started with a press conference. This was followed by a daily press briefing, hosted by Matthias Girod from EuroScience, where researchers highlighted their research and their sessions later that day.

A daily email was sent to journalists to inform them of all the day's speakers and briefings. Throughout the day, specific communications for the press were posted in the ESOF conference app.



In the press conference room (located at Stadsgehoorzaal) next to our own ESOF2022 press conference, several other press conferences were facilitated by ESOF as well (Sense about Science, European Research Council, John Hopkins University). The press releases were sent from the ESOF-press mailbox, but we emphasized the fact that this was a partner press release, to avoid confusion. These meetings were very well visited. All press briefings and conferences could be attended online as well. There was also a press workroom set up in the KOG building, providing useful facilities as well as refreshments.

### Media Facts and figures

Media registrations: 136 (Onsite 107/Online 29)

Representation from:

Netherlands: 16	Germany: 3	US: 3
Sweden: 1	Poland: 1	India: 2
France: 4	Finland: 6	Pakistan: 1
Serbia: 1	Lituania: 1	Japan: 2
UK: 9	Montenegro: 1	Iraq: 1
Romania: 2	Spain: 2	Iran: 1
Denmark: 1	Italy: 1	Kenya: 1
Hungary: 1	Belgium: 3	

A full list of all articles mentioning ESOF is not available, mainly because many journalists and science communicators informed us that the most important reason for them to come to ESOF is to meet colleagues, interesting researchers they don't know already and pick up new ideas. The news value is in the content and building long term relations with scientists and journalists, not the fact that ESOF takes place. Journalists do value ESOF a lot to connect directly with scientists.

*"I picked up a few good quotes and ideas from researchers. I'd say I wrote 3-4 articles based on them, and I'm still working on a couple of longforms."*

*Andrei Mihai, journalist (onsite delegate)*

ESOF was mentioned in:

**Press conference in Jan 2022 Leiden2022** organised a premiere announcement of the special European City of Science year incl promoting [ESOF2022 as one the highlights of Leiden2022](#).

**Dec2021/Jan2022** - New scientist [special magazine about Leiden2022](#) including promotional info about ESOF2022.

**14 January 2022** - Volkskrant – insert/magazine [special about Leiden2022](#) incl one full page about ESOF2022 (only Dutch version/audience)

**14 August 2022** - Clive Cookson (Financial Times) wrote an article in response to the news on the John Hopkins University press conference: ‘How science is getting closer to a world without animal testing’, <https://www.ft.com/content/7c35e08a-4931-4401-b27e-acabf974bff8>.

*“The Press organisation side ran very smoothly. From my perspective it was a great success. It was an inspiring and a thoroughly enjoyable experience.”*

Julie Charlesworth, journalist (online delegate)

## 12.7 Lessons learned and recommendations

### Target audience

- ❖ The target audience was too broad and therefore it was hard to create a clear approach to reach and interest them all.

### Branding

- ❖ It was difficult to combine the visual identity of Leiden2022, EuroScience and ESOF into one logo that worked for all parties. At a later stage Katowice needed to get its own ESOF logo as well. It is advisable to rethink the positioning of regional sites in the event branding.
- ❖ The fact that Leiden2022 and EuroScience wanted to be visible as well (with logo's) made it almost impossible to use the ESOF logo by itself. We agreed to add the Leiden2022, EuroScience and EU co-funded logo standard on all ESOF visuals. When later on Katowice and key sponsors logo's needed to be added it was necessary to make a firm decision which logo combination to use where. It is recommendable to take partner and sponsor logo use into consideration into the conference branding from the start.

### Marketing and communication

- ❖ There was no real clear and defined subject for this conference. There were so many topics and target stakeholders that it was hard to create a clear approach to reach and interest them all. Clarifying key messages, specific target audience and purpose should be the goal for the next edition.
- ❖ The database of about 45k delegates from EuroScience, including previous delegates, was not usable as they didn't comply with GDPR so we could only use the database of 15k of those who had subscribed to the ESOF newsletter. Direct mailing was not an option.
- ❖ Invest more in media partnerships and print magazines, on top of social media, to reach the target audience.

**Website**

- ❖ We recommend that the ESOF website is reconsidered and created to be more aligned for conference purposes.
- ❖ It is essential that in order to promote excellent communication about the conference, that the content on the website is well managed, designed, integrated and considered.

**Social Media**

- ❖ We believe that more partner involvement in marketing across their independent channels and networks would have supported the social media engagement and could have promoted their own contributions at an earlier stage.
- ❖ Greater investment into paid adverts would have increased reach, built and benefited the awareness and promotion of ESOF2022

**Media**

- ❖ Providing clear programme information well in advance allows the media to see who's coming, review the topics of interest and value and know what is worthwhile attending.
- ❖ The early morning daily press briefings were useful for journalists.
- ❖ Encourage researchers to give recap presentations at a press briefing, so journalists have the opportunity to ask direct questions to the presenters without disturbing a live session.
- ❖ It is recommended for future editions to have the press conference room and press workroom located in the same building.
- ❖ Recommend the media coordinator continues, for future editions, to contact journalists in advance of the conference to be a support contact and to facilitate onsite and online journalists in one press briefing as these two elements were very successful this year.
- ❖ ESOF is a congress with sessions where people share their ideas and research. With such a broad subject matter, there is no deep interest by science journalists.
- ❖ Do not expect the media to publish immediately from or about ESOF (other than: ESOF has started); they mainly attend to meet interesting researchers and colleagues. It should be expected that articles will be created long after ESOF ends and most likely without any mention of ESOF.

**13. Delegate Data, Survey & Feedback****13.1 ESOF2022 delegate numbers**

In reality, numbers were way lower than hoped. We expected 5000 delegates to attend of which 1500 present in Leiden and 3500 online, but just over 3000 people attended ESOF2022. Interestingly the delegates came from 87 countries, which is more than at previous ESOF editions and most of them visited ESOF for the first time (almost 70% according to the delegate survey). Below you find some detailed information about the delegates received from the registration data and the delegate survey, giving a representative sample.

- Grand total: 3,138 delegates (of which 700 registered via the regional site Katowice)
- 2,006 registered delegates onsite (1506 in Leiden and 500 in Katowice, Poland)
- 1,132 delegates attending online (932 via the ESOF2022 virtual platform and 200 online in Katowice)

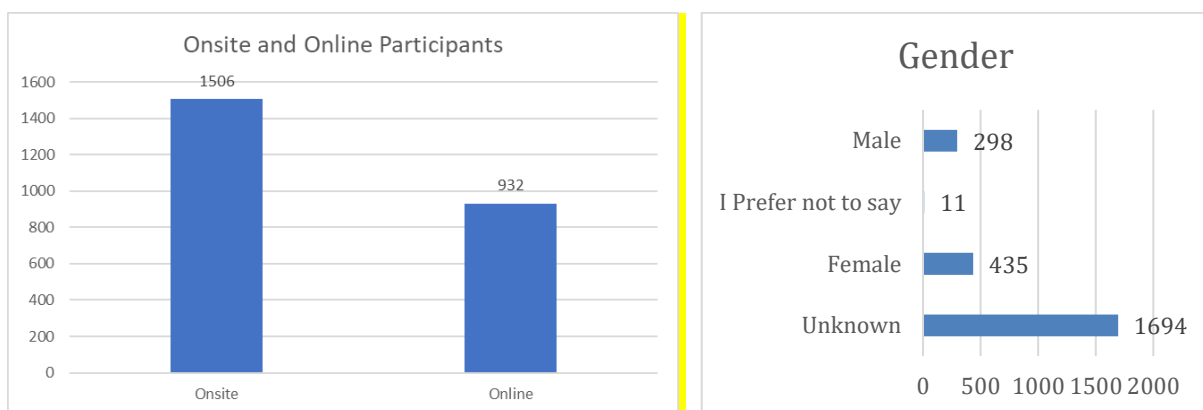
The majority of delegates were female, and had not participated before 2022. Those who had, had attended either Toulouse 2018 or Trieste2020. When asked how they heard about ESOF2022, the majority were recommended by colleagues but a high proportion heard via either EuroScience or Leiden2022, City of Science. Many heard through their University.

We believe the decline in numbers is caused by multiple factors:

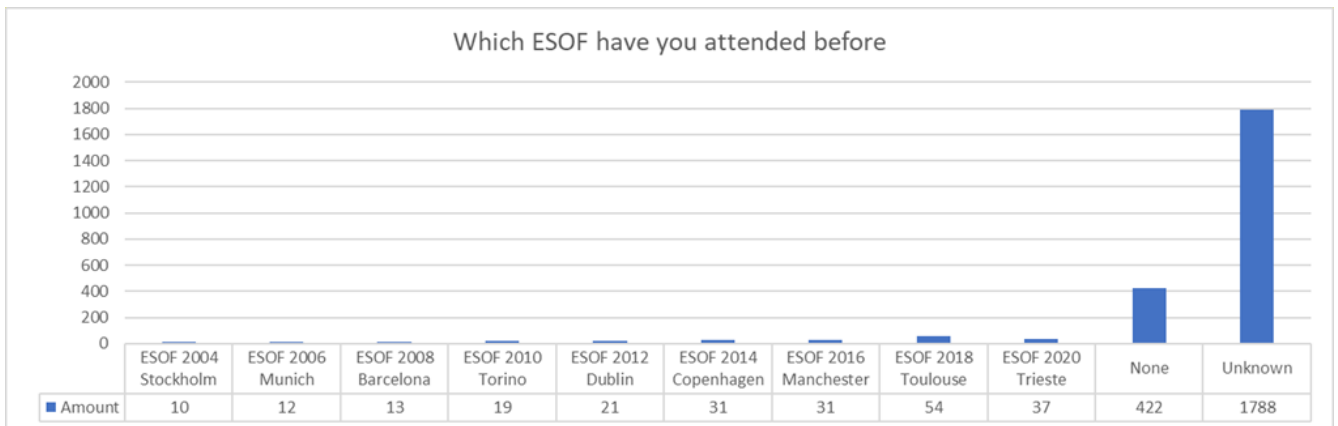
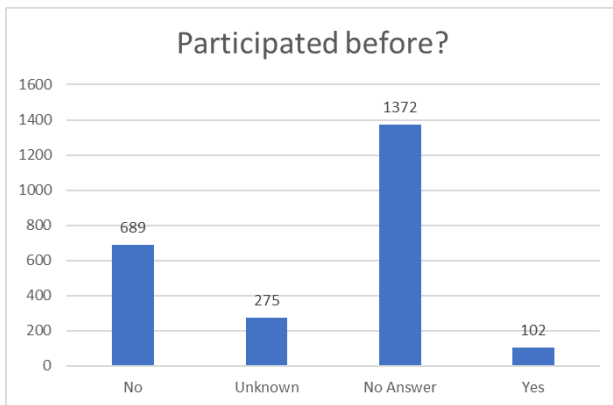
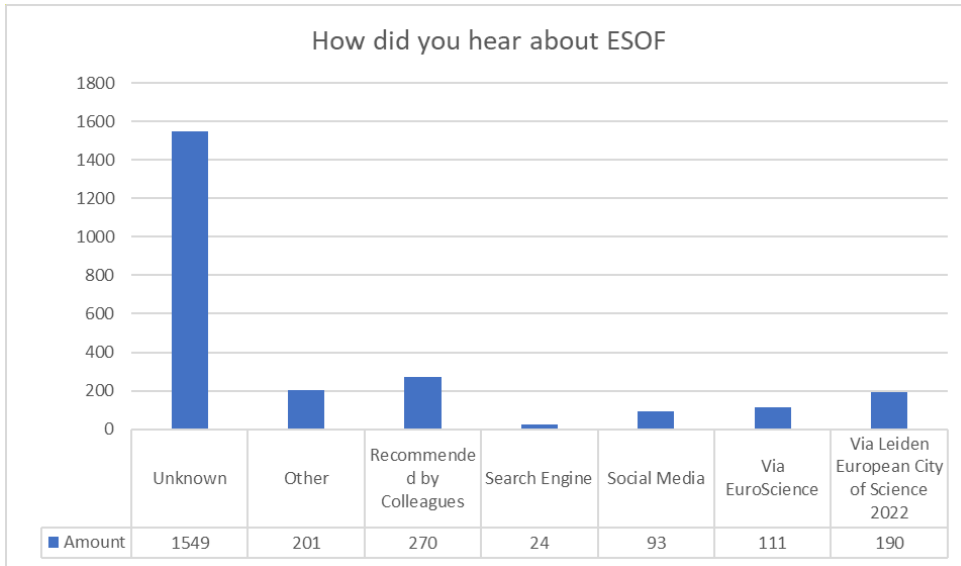
- Covid-19 (uncertainty infection rates in The Netherlands and countries of residence, people being unwilling to travel due to higher infection risks, non-refundable costs for travel & accommodation when you have to cancel, infected themselves and/or in quarantine because of family members)
- Financial restrictions (many people & organisations had a difficult time the last 2 years, which led to budget costs/restraints, also travel became more expensive)
- Timing: (ESOF was held during the summer school holidays in The Netherlands. Many choose family over ESOF (especially since it was the first year after the start of the pandemic that travel was possible again).
- Current international trend is a reduction in registration numbers in conference attendance.
- Some competition for other events. For example, the Space Week was scheduled for 25 September - 3 October 2022. Space for Science was a topic at ESOF, but besides the high interest in the first results of the James Webb Space Telescope, we didn't have many space sessions (not submitted and therefore limited number of sessions and low attendance from that target group).

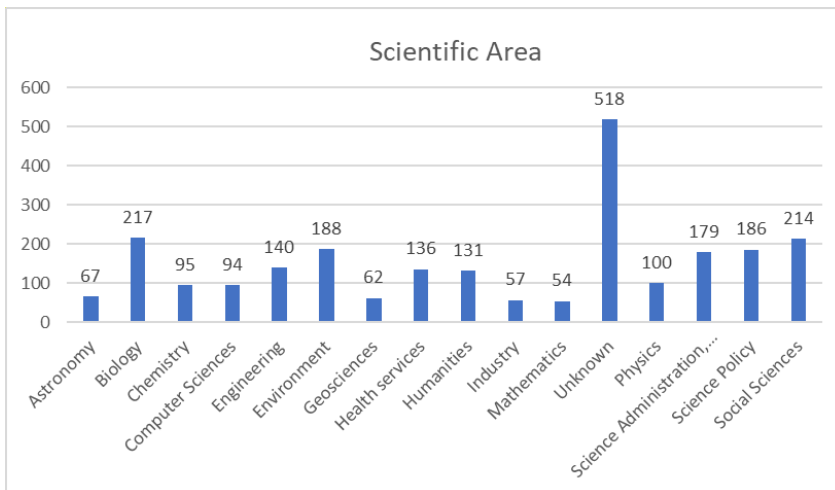
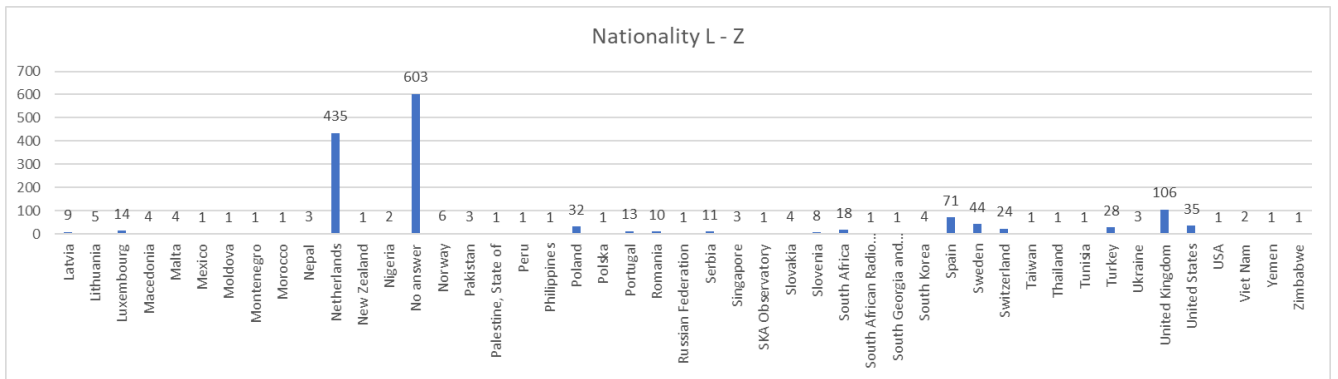
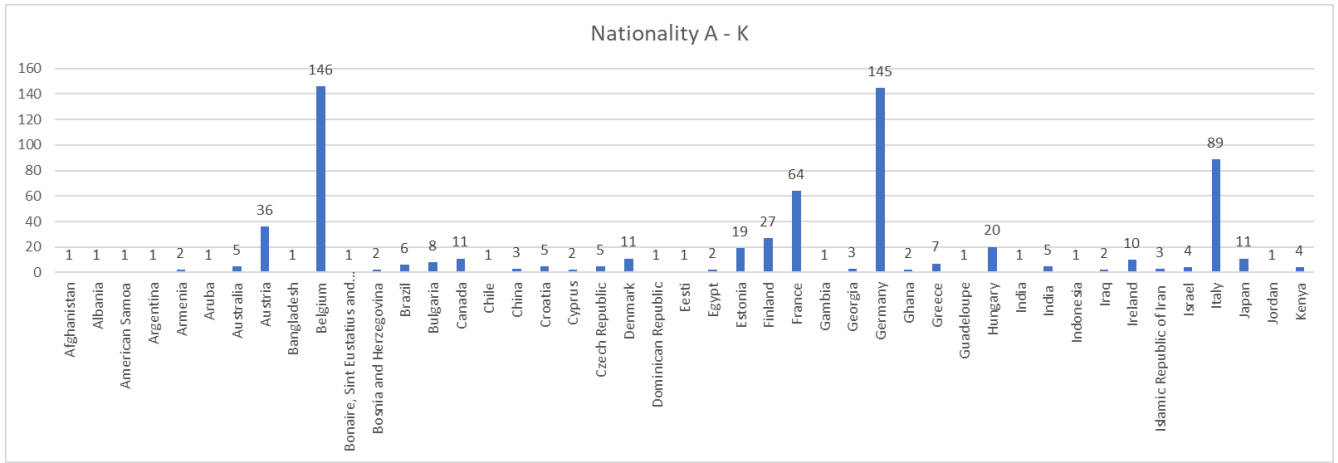
### 13.2. Delegate demographics ESOF2022 Leiden

Not all delegates completed the full registration form therefore we do not have comprehensive delegate demographics of all ESOF delegates. Speaker registration was a separate process and for group bookings and complimentary tickets not all fields were completed. Next to that in The Netherlands it is not allowed to make certain fields mandatory in the registration system, like e.g. if someone is male or female. It clearly shows not everyone wanted to answer all questions. We do feel we have a good impression of the ESOF2022 participants.









### 13.3 Speaker demographics

Although all speakers were known we do not have very detailed speaker demographics, since many speakers did not complete their registration profile. A link was sent to all speakers by the PCO to complete, but since their basic details were already in the abstract/programme management system of the PCO via the call for proposals many decided not to answer all questions.

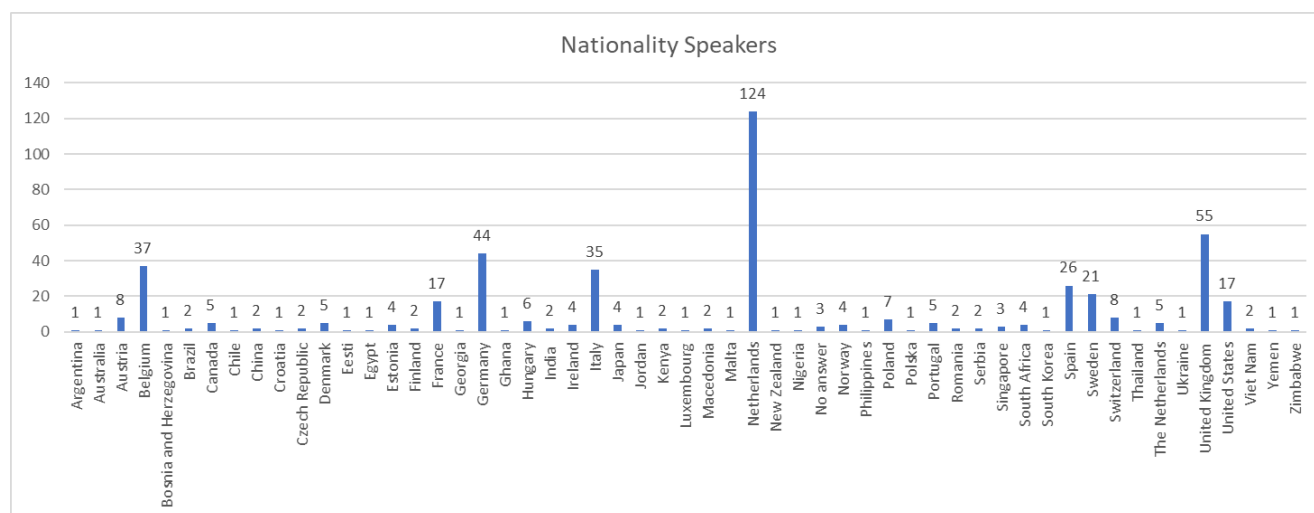
Total number online speakers: 293\*

Total number onsite speakers: 248\*

Number of speakers for which it was unclear if they were onsite or online: 10\*

\* Note: the actual total number of speakers is 494, but several speakers have multiple speaker categories (some are part of several sessions), therefore the total comes to 551.

Below infographic shows clearly that we had many speakers from different nationalities.



#### Top 10 countries speakers came from:

1. The Netherlands (124)
2. United Kingdom (55)
3. Germany (44)
4. Belgium (37)
5. Italy (35)
6. Spain (26)
7. Sweden (21)
8. France (17)
9. United States (17)
10. Switzerland/Austria (8)

### 13.4 Virtual platform and app demographics

#### General

The basic numbers about ESOF (measured from July 8 – Sept 30 2022)

- 2.398 attendees uploaded in the platform (all ESOF delegates had access to the platform)
- 1.158 created an account
- 113 logged in the conference APP

#### Virtual Platform

- 795\* users logged in the online platform during the event
- 64 countries
- 26.265 pageviews
- 5.873 visits
- 20m5s average visit duration
- 13 actions per visit average (page views, downloads, external links, etc.)

- 7.4 visits per user on average
- 454 downloads (documents)

*\* This is an underestimation. Due to browser (privacy) settings of individual users, these users are tracked anonymously and therefore can't be uniquely identified.*

### **Top 10 active countries on the virtual platform (visits | avg time on website)**

Country is determined based on browser language and IP address

1. 🇺🇸 United States: 1.363 | 16m57s
2. 🇳🇱 Netherlands: 1.103 | 24m30s
3. 🇬🇧 UK: 977 | 20m56s
4. 🇩🇪 Germany: 358 | 17m51s
5. 🇮🇹 Italy: 264 | 21m19s
6. 🇪🇸 Spain: 205 | 19m31s
7. 🇧🇪 Belgium: 177 | 20m38s
8. 🇫🇷 France: 149 | 18m27s
9. 🇦🇹 Austria: 143 | 14m51s
10. 🇯🇵 Japan: 141 | 21m28s

### **Media consumption**

- 11.515 videoplays
- 113 days 14 hrs of video consumed
- 13% finish rate (= watched to the end of the video)
- 48% play rate (= % of users that watched if a page contained a video)

### **Conference App**

- 113\* users logged in the app
- 84.871 pageviews
- 6.093 visits
- 10m26s average visit duration
- 14 actions per visit (page views, downloads, outlinks, etc.)
- 53,9 visits per user on average
- 3 downloads (documents)
- 772 external links clicked

*\* This is an underestimation. Due to browser (privacy) settings of individual users, these users are tracked anonymously and therefore can't be uniquely identified.*

### **Top 10 active countries on the app (visits | avg time on app)**

Country is determined based on browser language and IP address)

1. 🇳🇱 Netherlands: 1.642 | 9m41s
2. 🇬🇧 UK: 1.492 | 10m3s
3. 🇩🇪 Germany: 668 | 11m42s
4. 🇺🇸 United States: 445 | 10m58s
5. 🇸🇪 Sweden: 285 | 9m41s
6. 🇮🇹 Italy: 223 | 12m19s
7. 🇪🇸 Spain: 148 | 13m37s
8. 🇧🇪 Belgium: 140 | 6m43s
9. 🇦🇹 Austria: 115 | 11m1s

10. 🇨🇪 Czechia: 97 | 11m2s

**Top 10 most attended hybrid sessions (hybrid session in Leiden - attended via virtual platform)****By number of attendees**

	<b>Total time</b>	<b>Attendees</b>
Lunch Talk	04:11:36	51
PL0.1 Opening Ceremony	19:14:25	45
WS0.9 A Sustainable Future with Sustainable Plastics	03:59:49	29
WS0.5 Decolonization and the 'Psychedelic Renaissance'	05:18:26	27
PL2.1 Plenary Panel: Living in a world with pandemics	04:20:24	26
PL2.2 Keynote Sustainable Environment	03:24:49	26
PL3.4 Closing Ceremony	08:02:25	26
PL1.2 Keynote: Academic Freedom: Concept, Framework, Challenges	03:41:55	25
SP1.3 Biodiversity as an opportunity - Nature as the basis for our society and economy (Naturalis Biodiversity Center/BiodiversityXL)	05:12:42	25
SS1.30 Fly me to the Moons!	03:14:39	25
SS2.39 Academic freedom under pressure	06:55:40	24

**Top 10 most attended online only sessions**

<b>Session Title</b>	<b>User role</b>		
	<b>Audience</b>	<b>Speakers</b>	<b>Endtotal</b>
WS0.9 A Sustainable Future with Sustainable Plastics	57	11	68
WS0.10 How Basic Sciences Design the Future of Sustainable Development	47	8	55
SS1.3 The Science Divide within the European Union	39	10	49
WS0.12B Finding your career path outside Academia - Part 2: Get the ball rolling	38	7	45
SS1.18 Reforming Academic Assessment: The Impact on Early-Stage Researchers and Their Careers	34	9	43
WS0.8 New Genomic Techniques & Sustainability: Where Does the Public Stand?	33	10	43
SS1.24 Researchers' Perspectives Are Crucial to Reform the Research Assessment Problem	29	9	38
WS0.2 Cities of the Future: Strategies to Engage Citizens in Reshaping Modern Cities through Sustainable Urban Mobility Solutions	28	10	38
SS2.4 International Academic Mobility Versus "Brain Drain": How Can a More Balanced Brain Circulation Be Fostered? Part II: The Role of International Researcher Networks	27	11	38
SS1.11 Creating Research Environments that Foster Mental Health and Wellbeing	26	9	35



**Top 10 most visited online booths**

1. European Union	85
2. Elsevier	75
3. Founding Partners Leiden2022	68
4. Johnson-Johnson	64
5. Coalition-s	58
6. Frontiers	52
7. Katowice	52
8. Euroscience	49
9. Naturalis-biodiversity-center	46
10. Baden-Wurttemberg-int.	45

Total booth visits: were 906 of which the top 10 made up for 594 visits.

**Top 10 most downloaded online posters**

Total poster downloads: 402

	<b>Downloads</b>
P47 Evaluating Science Communication - Current Practices and Pathways Forward	13
P02 Empowering policymakers and consumers towards sustainable lifestyles through Consumption Footprint-based approaches	11
P01 Fusion Mobility: A transparent model connecting science and society for Sustainable Mobilities development to meet the targets of the European Green Deal. A systemic model towards transformational change – Hands-on participation for Future Mobilities	11
P32 Public engagement and science communication for tackling misinformation and promoting trust in science	11
P08 The contribution of experiencescapes to the building of resilience in communities	11
P35 TOWARDS AN ENGAGED, INCLUSIVE AND RESPONSIBLE SCIENCE COMMUNICATION	10
P42 Re-thinking Science Communication to Increase Engagement with Policy Makers	10
P21 "STEM to the rescue - how to build a strong future for Europe"	10
P05 decarbonisation of the iron and steel sector in the EU: a model-based analysis	10
P54 International academic mobility versus "brain drain": How can a more balanced brain circulation be fostered? Part I: The role of research funding agencies	9
	<b>106</b>

**After the event: July 17th – Dec 31th****Platform**

- 292 users logged in the online platform
- 47 countries
- 3.956 pageviews
- 1.395 visits
- 9m30s average visit duration
- 8.4 actions per visit average (page views, downloads, external links, etc.)
- 5.3 visits per user on average
- 48 downloads (documents)
- 26 cinema visits

- 154 session replays
- 14 posters viewed

### Top 10 active countries (visits | avg time on website)

Country is determined based on browser language and IP address

1. 🇺🇸 United States: 320 | 7m37s
2. 🇳🇱 Netherlands: 296 | 15m29s
3. 🇬🇧 UK: 155 | 10m19s
4. 🇦🇹 Austria: 83 | 3m50s
5. 🇩🇪 Germany: 77 | 8m10s
6. 🇮🇹 Italy: 69 | 9m30s
7. 🇧🇪 Belgium: 64 | 6m31s
8. 🇯🇵 Japan: 35 | 17m28s
9. 🇫🇷 France: 30 | 10m58s
10. 🇪🇸 Spain: 24 | 8m1s

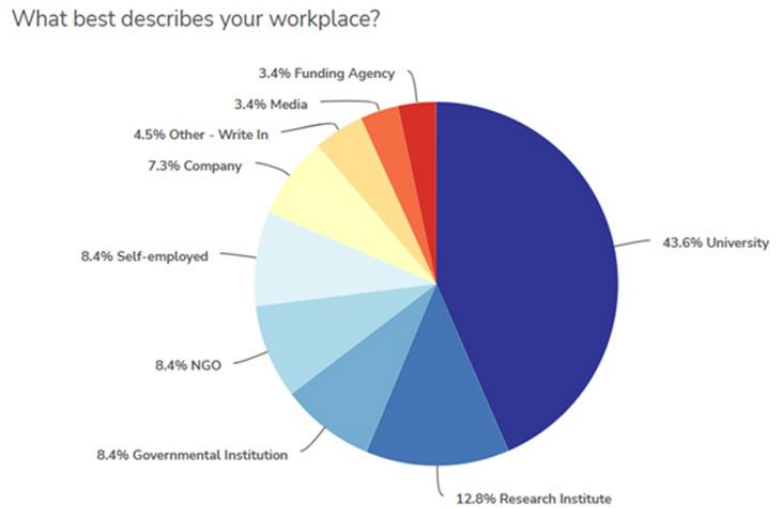
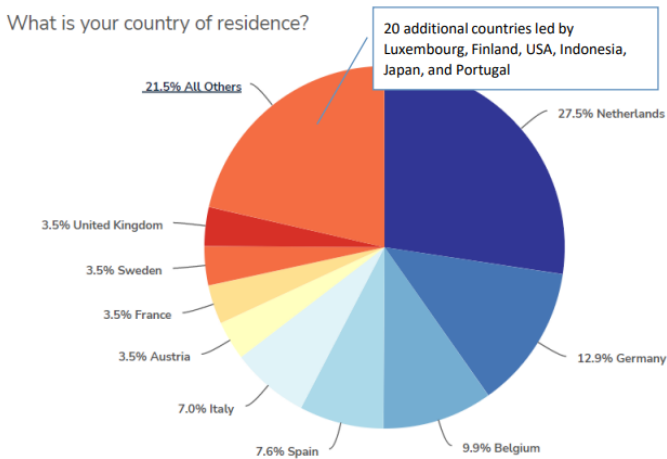
### 13.5 Delegate survey results

Every registered attendee, whether a sponsor, exhibitor, online or onsite received the delegate survey following the closing ceremony of the conference. All attendees of the conference, in whatever capacity (excluding the ESOF teams) were emailed a link to the online survey. It included questions for delegates (general attendees), speakers, sponsors and exhibitors and volunteers.

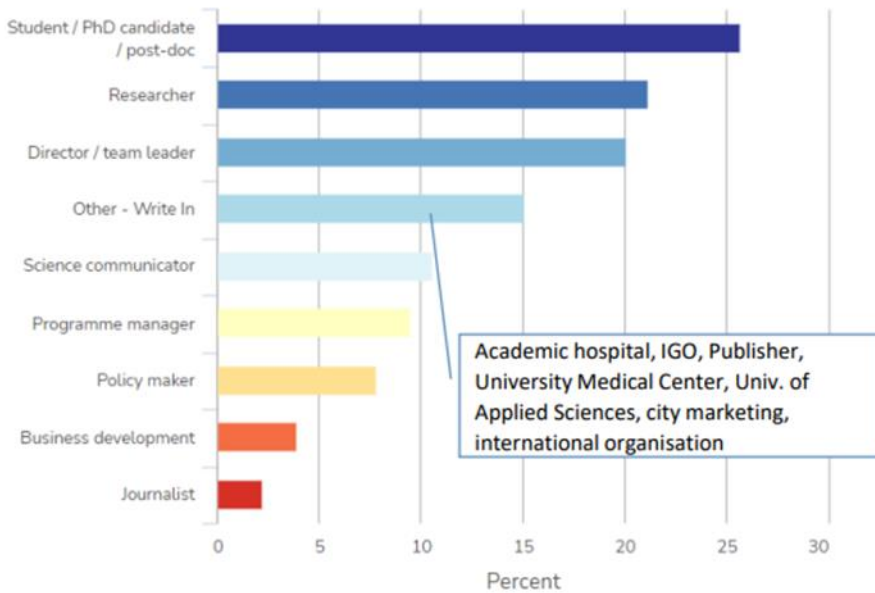
The survey was managed by a specialist supplier (CIGARBOX) who took our suggested questions and topics and devised a survey to meet the needs of EuroScience, ESOF2022 and Leiden2022. The full survey report can be found in the appendix.

The survey received 197 responses. The survey results are not fully representative as the participation was too low. Most important take-aways from the survey:

- Participants expressed general appreciation for ESOF 2022. Satisfaction overall was 7.5/10.
  - By registration type overall satisfaction was nearly equal between online only attendees and hybrid participants.
  - By participants segment general attendees reported above satisfaction (7.7), while speakers or contributors reported the lowest satisfaction level (7.07).
  - Volunteers and 'other' reported very high satisfaction (8.56 and 7.88 respectively). Because the 'n' for these respondents was low (N <10) it is not representative.
- Average age was 42 years (youngest 21, oldest 78)
- The online-only sessions created frustration for many presenters and in-person attendees
- In addition to the value of content, smart use of interactivity and prepared presenters were main satisfaction influencers
- Participants who made use of all the functionality within the online platform were generally positive.
- Half of the hybrid participants used the virtual platform for scientific sessions
- The online-only participants were more enthusiastic about the platform than the hybrid group (36% excellent ease of use vs. 12% for hybrid participants and 32% excellent delivery vs. 12% for hybrid).
- We didn't receive adequate responses regarding sponsors and exhibitors in the survey to draw reliable conclusions.



What is your current position?



A full delegate survey report is included in the appendix.

**Some quotes from the delegate survey**

*"Meeting the experts" was a very useful activity as it let me engage more openly with the press on a number of activities related to my work."*

*"I would highlight three points actually: - The opening was inspiring, very well organised and entertaining. - The poster session was very useful and I connected to researchers and also policy officers."*

*“The whole proceedings were excellent. Well prepared.”*

*“The career discussions in breakout groups were really amazing followed by a great talk by Ben Feringa. The diversity of topics and attendees was simply amazing.”*

### 13.6 Lessons learned and recommendations

#### Overall

- ❖ Have clear from the start which data are required for the evaluation and demographics of the event, so they are taken into account with the collected data (mandatory fields) via registration, survey, virtual platform. Make sure this is part of the agreement with suppliers.
- ❖ Set parameters for the quality of the data to be received by suppliers and set deadlines to supply them.

#### Delegate demographics

- ❖ If you look at the statistics almost 70% were first timers to ESOF and from more countries than previous editions. It is recommended to re-evaluate the target groups from ESOF.

#### Virtual platform and app demographics

- ❖ If you look at the statistics from the total of participants who had access to the virtual platform only about 1/3 actually participated online. Hardly any onsite delegates decided to join online sessions. From which we conclude the virtual platform was only beneficial to the online delegates.
- ❖ From a sustainability perspective and in line with the hybrid format (onsite and online audience) we decided not to have a printed programme. All related information for our delegates could be found in the app and virtual platform. However, of the 1506 delegates attending in Leiden, only 113\* used the conference app (this is underestimated due to privacy settings, exact number is unknown). We surmise that it wasn't user friendly, or perhaps the Programme at a Glance posters displayed at each location was sufficient. We didn't however, receive any negative feedback on replacing the previously printed programme with the app. We recommend investing in a more user-friendly conference app, but not return to a printed programme from sustainability perspective.

#### Delegate survey results

- ❖ We hired a professional survey company to assist with creating and evaluating the delegate survey. We would recommend to do this for future editions as well.
- ❖ We believe that the lower rating of speakers and contributors was mainly due to the low attendance of sessions and exhibition footfall.
- ❖ ESOF should assess the required outcomes of the delegate survey that would help to make improvements of future editions and then create evaluation questions to generate the responses that will facilitate these answers.

*“I attended some pretty great lectures and panels but the most valuable aspect for me has been the contacts I made with other attendees. Very insightful conversations were generated during the session that continued during social time”.*

Delegate Survey feedback

*“As an early career researcher, I had the chance to make new connections in research and funding organisations. ESOF2022 helped me to explore the different career opportunities from academic to industrial sectors. I will cherish the guidance I got from the expert panel for my future career. I want to thank you again for giving me the invitation.”*

Quote Paul Debasish

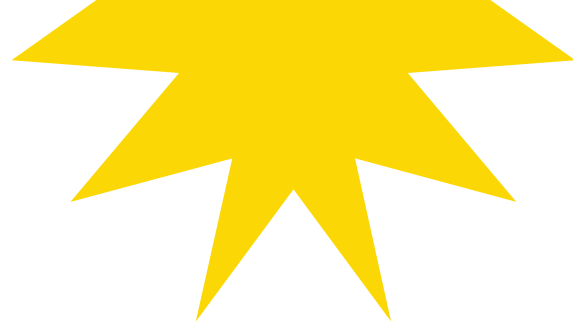
**The project team of ESOF2022 wishes EuroScience and the Katowice teams the best of luck for ESOF2024!**





**14. Appendix:**

1. Programme at a glance
2. Abstract book
3. Delegate Survey report (CIGARBOX)



**ESOF2022 LEIDEN** 13-16  
EUROSCIENCE OPEN FORUM **JULY**  
CROSSING BORDERS, ENGAGED SCIENCE, RESILIENT SOCIETIES

# Programme at a glance



# Programme at a glance

Crossing Borders,  
Engaged Science,  
Resilient Societies

The latest programme is shared at [esof.eu](https://esof.eu)

## EuroScience Open Forum - a must-join-event

The programme at a glance provides you with a clear overview what to expect when you register for the 10th edition of ESOF2022, Europe's largest multidisciplinary scientific conference.

### Hybrid Programme

Entitled Crossing Borders, Engaged Science, Resilient Societies, ESOF2022 is designed to help delegates build academic bridges between the humanities, natural sciences, medicine, and social sciences. ESOF2022 will leverage all the benefits of a hybrid format. It offers the opportunity to collaborate – online and in-person – to tackle society's greatest challenges and create new insights, approaches, and alliances. It enables all delegates to expand their know-how, build their networks and discuss and discover a huge range of topics, while making new connections that yield new insights. So, what are you waiting for? Let's connect curious minds.

### Hybrid: Onsite & Online (virtual platform)

Approx 120 scientific sessions including the sessions of the regional site Katowice, the World programme (3 timezones), approx. 80 (e-)poster sessions, 7 keynote presentations, 2 plenary panel discussions, 4 sponsored sessions, several satellite and events award ceremonies, special workshops, virtual booth exhibition, Studio ESOF2022 and access to an open Networking area.

**Onsite only** (Leiden, the Netherlands incl free access to the virtual platform)

Approx. 50 scientific sessions, 75 live poster presentations, exhibition (in the renowned Pieterskerk/church), 2 award ceremonies, business to science fieldtrips, (pre-conference) workshops, all kinds of social events, opening ceremony, welcome reception, delegate party and other networking sessions. And you can visit the European City of Science festival.

All session recordings and on-demand content is accessible up to two months after the conference.

- Programme subject to change
- Programme updates are shared at [esof.eu](https://esof.eu)
- Scheduling a personal programme will be two weeks in advance in the virtual conference platform and mobile app.
- Subscribe to the ESOF2022 newsletter to get regular updates on the programme and the speakers.
- The ESOF2022 conference follows Central European Summer Time (CEST)
- As for the World programme sessions, the topics/sessions are accommodating other world time zones.

## LEGEND

Sessions have been allocated to one of these 7 scientific topics, called tracks:

### Sustainable Environment

(e.g. climate change, human rights, a sustainable way of living, green energy, citizen science, future mobility, future cities, economy)

### Cultural Identities and Societal Transformations

(e.g. migration, fortress Europe, missions of museums and collections, contested heritage, art, protest movements)

### Space for Science

(e.g. search for earth, construction in space and on the moon, finding extra-terrestrial life, dark matter research, quantum computing)

### Healthy Societies

(e.g. chronic diseases, digital tools, increasing costs, interplay between industrial research and academic research, global inequalities, data protection, artificial intelligence)

### Freedom and Responsibility of Science

(e.g. integrity in science advice, dialogue between science and policy, funding in freedom of science, responsible research and innovation, science diplomacy, conflicts of interests)

### Science and Business

(e.g. new career paths, research quality vs. quantity, the role of team science  
cid:43f9ae83-e108-4072-b491-e74762d51f47)

### Sustainable Academic Careers

(e.g. entrepreneurial education, research performed in academia and industry, value-driven innovation, innovation out of the humanities)

### Keynotes and plenary panels

### Sponsored sessions

### Posters

### EuroScience

# What to Expect

Around ESO2022, interesting events will take place:

## Satellite events

- 11 July:** **More Than Planet Symposium** (Leiden University in cooperation with S+T+ARTS)
- 10 - 13 July:** **European Conference of Science Journalism (ECSJ)**
- 12 - 13 July:** **Marie Skłodowska-Curie Actions (MSCA) Symposium**

Exhibition in **Pieterskerk** (virtual booths 24/7 accessible through conference platform)

## EXHIBITION OPENING HOURS

Wednesday 13 July	18:00 – 20:00
	Welcome Reception
Thursday 14 July	09:00 – 18:00
Friday 15 July	09:00 – 18:00
Saturday 16 July	09:00 – 16:00

## General public access

Thursday 14 July	14:00 – 18:00
Friday 15 July	14:00 – 18:00
Saturday 16 July	09:00 – 16:00

## Meet the Expert

EuroScience Booth, Exhibition Hall at Pieterskerk

Thursday 14 July	12:45 – 13:45
Friday 15 July	12:45 – 13:45
Saturday 16 July	13:00 – 14:00

## EC booth - pavilion will include a wide range of activities, like:

- TED-style talks,
- virtual reality experiences,
- live sketching with young artists,

- virtual escape games on sustainability and space,
- European Talent Fair with 4 training sessions (16 July)

## Poster live presentations and Q&A

Come and meet presenters in person and listen to their poster presentations. They will be there to share their research and answer your questions. Check out the schedule of sessions and the location of posters at Pieterskerk.

## All posters are centred around one of the 7 tracks:

- **Thursday 14 July - from 12:45 to 13:45**
  - Freedom and Responsibility of Science **P31-P59**
  - Space for Science **P78-P81**
- **Friday 15 July – from 12:45 to 13:45**
  - Sustainable Environment **P01-P20; P82-P85**
  - Cultural Identities and Societal Transformations: **P27-P30**
  - Sustainable Academic Careers **P70-P77**
- **Saturday 16 July – from 13:00 – 14:00**
  - Healthy Societies **P61-P69**
  - Science and Business **P21-P26**

## E-posters

All posters will be - 24/7 hrs- accessible in the online virtual conference platform as e-posters.

## European City of Science activities

### Leiden2022 presentation

- European City of Science presents 365 year-round Public Engagement programme

## Open Podium

- Open scientific sessions
- Scientific movies

## Open social network Cafe-area

### Studio ESO2022

- A live (and online) talkshow studio from which different parts of the conference will be covered.
- Interviews, discussions with speakers, short panel discussions, delegate interviews, exhibition tours, art & music.

### European Science in the City festival (in front of the Pieterskerk)

- During ESO2022 the city of Leiden hosts a festive programme for all curious minds. It offers mobile expositions, art, pop up musea, music, conventions, city tours and more.

### Model James Webb Telescope Satellite (JWTS)

- Model available for viewing throughout the conference at Pieterskerk Exhibition Hall

## 13 July

### EuroScience

- General Assembly, LIVE only, 10:30-12:30, Stadsgehoorzaal: Breezaal – EuroScience members only

### Science and Business

- Fieldtrip/company tour. Company visit tour Leiden Bio Science Park. The tour leaves from the Stadsgehoorzaal at 14:00, return at 17:00.

## 14 July

### NWO

- Meet-up: journalists & researchers from 08:00 - 09:15, Stadsgehoorzaal, Aalmarktfoyer

### Elsevier

- Session on: The Braided River: Women in Science, Careers and Recognition from 11:15 - 12:30 at the Stadsgehoorzaal, Aalmarktzaal.

The latest programme is shared at [esof.eu](https://esof.eu)

## Janssen Pharmaceutical Companies of Johnson &

**Johnson** from 12:45 - 13:45, Stadsgehoorzaal, Aalmarktzaal.

- Session on Antimicrobial Resistance (AMR)

### Naturalis

- Session on: Biodiversity as an opportunity - Nature as the basis for our society and economy from 14:00 - 15:15, Stadsgehoorzaal, Aalmarktzaal.

### EuroScience

- Grantees Gathering, LIVE only from 11:15 - 12:30 Stadsgehoorzaal: Breezaal / Invitation only

## 15 July

### Research in Germany

With Live networking event from 16:30-17:30,

Stand B5 & B6 with following institutions at the booth:

- Baden-Württemberg International – Careers in Baden-Württemberg
- Fraunhofer-Gesellschaft
- German Academic Exchange Service (DAAD)
- Technische Universität Braunschweig
- University of Stuttgart

### Delegate party from 18:00 - 21:00 at Hortus Botanicus

- Sponsored exclusively by Frontiers

### EuroScience

- EYRA Award Ceremony, online & onsite, on 15 July, 16:00-17:00 Stadsgehoorzaal, Aalmarktzaal

### Science and Business

- Company visit tour Leiden Bio Science Park. Fieldtrip/company tour. The tour leaves from the Stadsgehoorzaal at 14:00, return at 17:00.

# Wednesday 13 July

## LIVE IN LEIDEN

## ONLINE PROGRAMME

	Pieterskerk	Stadsgehoorzaal	Kamerlingh Onnes Building (KOG)			Online		
	Exhibition	Breezaal	Main Stage/ Grote Zaal	Cleveringazaal	C006 Nelson Mandelazaal	B017		
9:30 - 12:30				<b>Workshop (Live &amp; Online)</b> <b>WS0.12</b> Your career path outside Academia Part 1: 9:00 -10:30 Part 2: 11:00 -12:30 - Young Academy Leiden	<b>Workshop (Live)</b> <b>WS0.14</b> 11:00 - 12:30 Recognition and Rewards Young Academy Leiden	<b>Workshop (Live)</b> <b>WS0.3</b> Scientists as science communicators – What do we learn from large-scale researchers' surveys for improving public communication about science and research?	<b>Workshop</b> <b>WS0.8</b> New genomic techniques & sustainability: where does the public stand?	<b>Workshop</b> <b>WS0.2</b> Cities of the future: Strategies to engage citizens in reshaping modern cities through sustainable urban mobility solutions.
NETWORK AND TRANSITION TIME								
13:00 - 16:00		<b>Membership Engagement - (live)</b>		<b>Workshop (Live)</b> <b>WS0.5</b> Decolonization and the 'psychedelic renaissance'	<b>Workshop (Live)</b> <b>WS0.13</b> Optimising our mental health and wellbeing for sustainable academic careers		<b>Workshop</b> <b>WS0.7</b> Leap In Time: A Patent game. An interactive game-based learning approach to understanding and decoding patents.	
				<b>Workshop (Live)</b> <b>WS0.6</b> Communication competence in doctoral education – enhancing the abilities to reach out and bridging the gap!	<b>Workshop (Live)</b> <b>WS0.1</b> Educational research to improve education as a driving force for empowerment, inclusion and equality.	<b>Workshop</b> <b>WS0.10</b> How basic sciences design the future of Sustainable Development		
NETWORK AND TRANSITION TIME								
16:30 - 18:00			<b>Opening Ceremony</b>					
NETWORK AND TRANSITION TIME								
18:00 - 20:00	<b>Exhibition Open from</b>  <b>Welcome Reception</b>							

Fieldtrip/  
Company visit  
tour Leiden Bio  
Science Park  
14.00 - 17.00

Sustainable Environment	Space for Science	Freedom and Responsibility of Science	Sustainable Academic Careers	Sponsored Sessions	EuroScience
Cultural Identities and Societal Transformations	Healthy Societies	Science and Business	Keynotes and Plenary Panels	Posters	



# Thursday 14 July



## LIVE IN LEIDEN

	Pieterskerk		Stadsgehoorzaal		Kamerlingh Onnes Building (KOG)	
	Exhibition	Session	Main Stage/ Grote Zaal	Aalmarktzaal	Cleveringazaal	Lorentzzaal
		Live	& Online	& Online	& Online	& Online
8:00 - 9:15	Exhibition & posters all day from 09:00 - 18:00			Dutch Research Council (NWO) <b>SP1.1</b>	The role of Team Science for a more inclusive and interdisciplinary European Research Area <b>SS1.1</b>	
BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME						
9:45 - 11:00			Plenary panel discussion: Sustainable city <b>PL1.1</b>			
BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME						
11:15 - 12:30	Museums and Identity <b>SS1.36</b>	Keynote <b>PL1.2</b> <i>Freedom and responsibility of science</i> , Prof. Paul van der Heijden, Professor of international law and chairman of KNAW	The Braided River: Women in Science, Careers and Recognition (Elsevier) <b>SP1.2</b>	The role of universities in boosting innovation through entrepreneurship <b>SS1.8</b>	Sustainable forestry and bioenergy? A fishbowl debate <b>SS1.9</b>	
BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME						
12:45 - 13:45	LIVE Poster session	Lunch Break, visit exhibition and posters	Lunch Session (Janssen Pharmaceutical Companies of Johnson & Johnson) <b>SP1.6</b>	Lunch Break, visit exhibition and posters		
BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME						
14:00 - 15:15	To Mars and Beyond <b>SS1.37</b>	Keynote <b>PL1.3</b> <i>Space for science</i> : Prof. Ben Feringa, Distinguished Professor of Molecular Sciences, University of Groningen & Winner Nobel Prize in Chemistry	Naturalis Biodiversity Center: Biodiversity as an opportunity - Nature as the basis for our society and economy <b>SP1.3</b>	The Lancet Health & Climate - Are we on track for a healthy society? <b>SS1.15</b>	Research assessment reform - what does good look like? <b>SS1.16</b>	
BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME						
15:45 - 17:00		ERC Public Engagement with Research Award ceremony	Contested heritage <b>SS1.38</b>	Vaccine development in Europe: fast and for all <b>SS1.22</b>	First results from Webb: a new exploration of the cosmos <b>SS1.23</b>	
BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME						
17:15 - 18:30			Future of work opportunities & challenges of digitalization, the platform economy and flexibilization of European labour markets <b>SS1.39</b>	Social uncertainties in post-corona cities: the role of diversity and social inequalities <b>SS1.29</b>	Fly me to the moons! <b>SS1.30</b>	
BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME						
20:00 - 21:30						Between Black and White: The power of visual imagery and negotiation of Identity <b>WP1.3</b>

<span style="color: green;">■</span> Sustainable Environment	<span style="color: grey;">■</span> Space for Science	<span style="color: yellow;">■</span> Freedom and Responsibility of Science	<span style="color: lightblue;">■</span> Sustainable Academic Careers	<span style="color: brown;">■</span> Sponsored Sessions	<span style="color: blue;">■</span> EuroScience
<span style="color: purple;">■</span> Cultural Identities and Societal Transformations	<span style="color: pink;">■</span> Healthy Societies	<span style="color: lightpink;">■</span> Science and Business	<span style="color: teal;">■</span> Keynotes and Plenary Panels	<span style="color: orange;">■</span> Posters	

## ONLINE PROGRAMME

Online						World programme Online
The science divide within the European Union <b>SS1.3</b>			Tax Justice in Europe and beyond <b>SS1.6</b>	Addressing global challenges through international scientific consortia; The case of nuclear fusion <b>SS1.7</b>		Meet my Lab focus on Green and Digital Transformation <b>WP1.1</b>
VISIT VIRTUAL EXHIBITION AND E-POSTERS						
VISIT VIRTUAL EXHIBITION AND E-POSTERS						
New Wine in Old Wineskins? Risks and resilience in online transgressive behaviours <b>SS1.10</b>	Creating Research Environments that foster Mental Health and Wellbeing <b>SS1.11</b>	Data with burning impact - fires seen from space <b>SS1.12</b>	Working on a Healthy Society: prevention and maintenance of health and well-being during the life cycle <b>SS1.13</b>	The agricultural sector and greenhouse gas emissions: perspectives from science, law and governance <b>SS1.14</b>		
VISIT VIRTUAL EXHIBITION AND E-POSTERS						
Lunch Break, visit exhibition and posters						
VISIT VIRTUAL EXHIBITION AND E-POSTERS						
	Reforming academic assessment. The impact on early-stage researchers and their careers <b>SS1.18</b>	Health Inequality Through the Ages: Interdisciplinary Perspectives <b>SS1.19</b>	The New Drug Policy Commission for Central & Eastern Europe & Central Asia: Why Europe must lead drug policy reform & decriminalisation <b>SS1.20</b>			Science for social justice: Africa welcomes the World Science Forum <b>WP1.2</b>
VISIT VIRTUAL EXHIBITION AND E-POSTERS						
Researchers' perspectives are crucial to reform research assessment <b>SS1.24</b>	Europe as a geopolitical stabilizer after the Russian invasion in Ukraine <b>SS1.25</b>	The deep past of future society: Questioning the western perspective on the reconstruction of human history <b>SS1.26</b>	Closing the gap for early-career researchers' policy engagement <b>SS1.27</b>	Can we make informed decisions without risk know-how? <b>SS1.28</b>	The Rights Retention Strategy: Academic freedom and responsibility for researchers <b>SS1.40</b>	
VISIT VIRTUAL EXHIBITION AND E-POSTERS						
	Climate change: a global view <b>SS1.32</b>	Tales of five inspiring women navigating today's life-career minefield! <b>SS1.33</b>	Legal Technologies <b>SS1.34</b>	Science Policy Career Paths: From lab to legislation <b>SS1.35</b>		
VISIT VIRTUAL EXHIBITION AND E-POSTERS						

EPOSTERS AVAILABLE ONLINE

# Friday 15 July



**Workshop WS0.15**  
(live) 11:15 - 12:30  
**KOG - B017**  
Entrepreneurship in Life Sciences and health and the Leiden Bio Science Park as

**Workshop WS0.16**  
(live) 10:00 - 12:00  
**KOG - Grotiuszaal**  
From science to impact: insights into the entrepreneurial journey

## LIVE IN LEIDEN

	Pieterskerk		Stadsgehoorzaal		Kamerlingh Onnes Building (KOG)	
	Exhibition	Session	Main Stage/ Grote Zaal	Aalmarktzaal	Cleveringazaal	Lorentztaal
8:00 - 9:15	Exhibition & posters all day from 09:00 - 18:00	Live	& Online	& Online	Fusion and climate change: a conversation begins <b>SS2.1</b>	Health and wellbeing in an urbanized context, the academic living lab approach in Europe <b>SS2.2</b>
BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME						
9:45 - 11:00			Plenary panel discussion Living in a world with pandemics. <b>PL2.1</b>			
BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME						
11:15 - 12:30	Art Exploring Science <b>SS2.36</b>	Keynote Sustainable Environment - Prof. Marja Spiereburg, Professor Anthropology of Sustainability and Livelihood, University of Leiden <b>PL2.2</b>		How do research organisations foster a broader range of roles in research? <b>SS2.8</b>	Connecting Europe with the global research community with EURAXESS Worldwide <b>SS2.14</b>	
BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME						
12:45 - 13:45	LIVE Poster session	Lunch Break, visit exhibition and posters				
BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME						
14:00 - 15:15	Understand public policy making through a game: the case of euthanasia <b>SS2.37</b>	Keynote Cultural identities and societal transformations Dr Jennifer Willet Director of INCUBATOR Lab & Canada Research Chair in Art, Science and Ecology, University of Windsor <b>PL2.3</b>	The Quantum Revolution <b>SS2.38</b>	The Future of Islam in Europe <b>SS2.15</b>	The dark side of our mysterious Universe <b>SS2.16</b>	
BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME						
15:45 - 17:00		Keynote Sustainable academic careers Dr Gemma Modinos, PhD FYAE FHEA, Chair Young Academy of Europe <b>PL2.4</b>	EYRA Award Programme	Breaking down the data bottlenecks in healthcare <b>SS2.22</b>	Giving and Taking Scientific Advice: Mind the Gap <b>SS2.23</b>	
BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME						
17:15 - 18:30		Academic freedom under pressure <b>SS2.39</b>	Does good science lead to good advice and policymaking? Rethinking the science advice-policy link in the aftermath of COVID-19 <b>SS2.40</b>	Beyond Newness in Understanding Migration and Diversity <b>SS2.29</b>	Breaking down dilemmas about AI in science and society <b>SS2.30</b>	
BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME						
20:00 - 21:30						Scientists are mobilized for the Sustainable Development goals <b>WP2.3</b>

## ONLINE PROGRAMME

Online				Katowice Sessions	World programme Online
International academic mobility versus "brain drain": How can a more balanced brain circulation be fostered? <b>SS2.4</b>		Funding of science: Changing perspective from policy to societies <b>SS2.6</b>	Fostering an entrepreneurial mindset in doctoral education <b>SS2.7</b>	Whether UN Sustainable Development goals support transitions - eagle in the cage <b>KT2.1</b>	Integrated Community Building to Sustain a Resilient and Healthy Society <b>WP2.1</b>
VISIT VIRTUAL EXHIBITION AND E-POSTERS					
Increasing the legitimacy of science by eradicating gender-based violence and sexual harassment from universities - the way forward <b>SS2.11</b>	Chronic diseases, prevention and treatment <b>SS2.12</b>	Can smaller cities be at the forefront of climate equity and resiliency? <b>SS2.13</b>		Can science save Ukraine? European Universities and Ukraine's post-war transformation <b>KT2.2</b>	
VISIT VIRTUAL EXHIBITION AND E-POSTERS					
Lunch Break, visit exhibition and posters					
VISIT VIRTUAL EXHIBITION AND E-POSTERS					
Population Health Management <b>SS2.17</b>	Local Action in response to Global Change <b>SS2.18</b>	Revisiting Entrepreneurship & Innovation Education and Practice for Societal Impact <b>SS2.19</b>	Science is for everyone: equity, diversity and inclusion in the workplace <b>SS2.20</b>	The transforming identity: Do we cross borders, or do borders cross us? <b>KT2.3</b>	Higher Education in Africa: Challenges and Prospects <b>WP2.2</b>
VISIT VIRTUAL EXHIBITION AND E-POSTERS					
Research Infrastructures' contribution to environmental sustainability <b>SS2.24</b>	How will Europe capitalise on the Green Deal and deliver Clean Net Zero Energy - The role of universities and young people <b>SS2.25</b>	Doctoral mobility under Erasmus+ and MSCA: Opportunities and Complementarity <b>SS2.26</b>	Balancing common language and multilingualism as drivers for equity, diversity and inclusion <b>SS2.27</b>	Rolling the dice or planning ahead with confidence? New COVID-19 Report maps out our most realistic, pessimistic and optimistic scenarios <b>SS2.28</b>	Bright side of the dark universe <b>KT2.4</b>
VISIT VIRTUAL EXHIBITION AND E-POSTERS					
Collaborative innovations for societal transformations: Insights from the COVID-19 crisis <b>SS2.31</b>	The secret life in our gut and how it influences health and disease <b>SS2.33</b>	Engaging Researchers in the Net-Zero Transition <b>SS2.34</b>	Delivering the European Science Diplomacy Agenda <b>SS2.35</b>		
VISIT VIRTUAL EXHIBITION AND E-POSTERS					

EPOSTERS AVAILABLE ONLINE

Fieldtrip/ Company visit tour Leiden Bio Science Park 14.00 - 17.00

18:00 - 21:00  
**Delegate Party** at Hortus Botanicus Sponsored by Frontiers

<span style="color: green;">■</span> Sustainable Environment	<span style="color: grey;">■</span> Space for Science	<span style="color: yellow;">■</span> Freedom and Responsibility of Science	<span style="color: lightblue;">■</span> Sustainable Academic Careers	<span style="color: brown;">■</span> Sponsored Sessions	<span style="color: blue;">■</span> EuroScience
<span style="color: purple;">■</span> Cultural Identities and Societal Transformations	<span style="color: orange;">■</span> Healthy Societies	<span style="color: pink;">■</span> Science and Business	<span style="color: teal;">■</span> Keynotes and Plenary Panels	<span style="color: red;">■</span> Posters	

# Saturday 16 July



## LIVE IN LEIDEN

	Pieterskerk		Stadsgehoorzaal		Kamerlingh Onnes Building (KOG)	
	Exhibition	Session	Main Stage/ Grote Zaal	Aalmarktzaal	Cleveringazaal	Lorentztaal
			& Online	& Online	& Online	& Online
8:00 - 9:15	Exhibition & posters all day from 09:00 - 16:00					Musica universalis: from brains to stars <b>SS3.2</b>
BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME						
9:45 - 11:00		Should policy-makers listen to scientists? <b>SS3.30</b>	<b>Keynote PL3.1</b> <i>Healthy Societies</i> - Prof. Sir Peter Gluckman, President of the International Science Council	Healthy soils for liveable cities - Towards an urban Soil Biodiversity Strategy <b>SS3.12</b>	Opening alternative academic career paths - breaking bottlenecks and existing norms that perpetuate precarity <b>SS3.8</b>	Reclaiming your own voice: humanities methods to address the fluidity and complexity of identities in (post)colonial contexts <b>SS3.9</b>
BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME						
11:30 - 12:45			<b>Keynote PL3.2</b> <i>Science and Business</i> - Yousef Yousef, CEO LG Sonic, Ambassador of the European Innovation Council, Young Global Leader of the WEF, chairperson of "Greenups"			
BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME						
13:00 - 14:00	LIVE Poster session	Lunch Break, visit exhibition and posters				
BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME						
14:15 - 15:30		What can be the role of heritage for society? <b>SS3.31</b>		Science to Impact: Debate on policies and programmes to help scientist to create impact. <b>SS3.29</b>		Climate change, social inequality and conflict <b>SS3.23</b>
BREAK, VISIT EXHIBITION AND POSTERS & TRANSITION TIME						
15:45 - 17:00			Closing Ceremony			

## ONLINE PROGRAMME

Online					
	From research to the world: careers in industry and politics <b>SS3.4</b>		Open Data for healthier societies: a virtuous cycle? <b>SS3.6</b>	The Science in Exile initiative: Displacement, Gender, and the Right to Science in the Global South. <b>SS3.7</b>	
VISIT VIRTUAL EXHIBITION AND E-POSTERS					
The Cape Town Declaration 2022: Announcing a New Blueprint for Global Ethics & Principles of Science & Society Informed Policy-Making <b>SS3.10</b>	Responsible Research and Innovation in the Western Balkans. <b>SS3.11</b>		Game-based Entrepreneurship Education for STEM Students - Can we simply apply business school teaching methods for science students? <b>SS3.13</b>	Current Research Trends towards solving Antimicrobial Resistance <b>SS3.14</b>	
VISIT VIRTUAL EXHIBITION AND E-POSTERS					
Renewed Call for "Track II" dialogues in Science Diplomacy <b>SS3.17</b>				Good Living: the art of preserving and extending eco-centric knowledges to nurture a sustainable world <b>SS3.21</b>	
VISIT VIRTUAL EXHIBITION AND E-POSTERS					
Lunch Break, visit exhibition and posters					
VISIT VIRTUAL EXHIBITION AND E-POSTERS					
Searching for life beyond Earth - the whys and hows of our quest for life in the universe <b>SS3.24</b>	Apocalypse tomorrow: what should scientists do to prepare for the next major crisis? <b>SS3.25</b>	The Chair: Fact or Fiction? Addressing the challenges faced by women leaders in academia <b>SS3.26</b>	Astronomy and Space Science in the Age of Satellite Constellations: A Case for a Shared Stewardship of the Sky <b>SS3.27</b>		
VISIT VIRTUAL EXHIBITION AND E-POSTERS					

EPOSTERS AVAILABLE ONLINE

<span style="color: green;">■</span> Sustainable Environment	<span style="color: grey;">■</span> Space for Science	<span style="color: yellow;">■</span> Freedom and Responsibility of Science	<span style="color: lightblue;">■</span> Sustainable Academic Careers	<span style="color: lightgrey;">■</span> Sponsored Sessions	<span style="color: blue;">■</span> EuroScience
<span style="color: purple;">■</span> Cultural Identities and Societal Transformations	<span style="color: pink;">■</span> Healthy Societies	<span style="color: lightpink;">■</span> Science and Business	<span style="color: teal;">■</span> Keynotes and Plenary Panels	<span style="color: orange;">■</span> Posters	

## Content

<b>11 July 2022</b> .....	<b>11</b>
More-than-Planet symposium .....	11
<b>12 July 2022</b> .....	<b>11</b>
European Conference of Science Journalism Leiden 2022 (ECSJ) .....	11
Marie Skłodowska-Curie Actions.....	11
<b>13 July 2022</b> .....	<b>12</b>
WS0.12 Finding your career path outside Academia - Part 1: There's more than meets the eye.....	12
WS0.8 New Genomic Techniques & Sustainability: Where Does the Public Stand? .....	12
WS0.2 Cities of the Future: Strategies to Engage Citizens in Reshaping Modern Cities through Sustainable Urban Mobility Solutions .....	13
WS0.3 Scientists as Science Communicators – What Do We Learn from Large-Scale Researchers' Surveys for Improving Public Communication About Science and Research? .....	13
WS0.12A Finding your career path outside Academia - Part 2: Get the ball rolling.....	14
WS0.14 Recognition and rewards in academia.....	15
WS0.12B Finding your career path outside Academia - Part 2: Get the ball rolling.....	15
WS0.9 A Sustainable Future with Sustainable Plastics .....	16
WS0.11 Membership Engagement.....	16
WS0.6 Communication Competence in Doctoral Education – Enhancing Abilities to Reach Out and Bridge the Gap!.....	17
WS0.13 Optimising our Mental Health and Wellbeing for Sustainable Academic Careers .....	17
WS0.5 Decolonization and the 'Psychedelic Renaissance'.....	18
WS0.7 Leap-In-Time Patent Game: An Interactive Game-Based Learning Approach to Understanding and Decoding Patents .....	18
WS0.1 Educational Research to Improve Education As a Driving Force for Empowerment, Inclusion and Equality .....	19
WS0.10 How Basic Sciences Design the Future of Sustainable Development.....	19
PL0.1 Opening Ceremony .....	20
<b>14 July 2022</b> .....	<b>20</b>
SP1.1 NWO Meet-up: journalists & researchers.....	20



SS1.1 The Role of Team Science for a More Inclusive and Interdisciplinary European Research Area.....	21
SS1.3 The Science Divide within the European Union .....	21
SS1.6 Tax Justice in Europe and Beyond .....	22
SS1.7 Addressing global challenges through international scientific consortia; The case of nuclear fusion .....	23
WP1.1 Meet my Lab focus on Green and Digital Transformation .....	24
PL1.1 Plenary Panel: Sustainable city.....	24
SP1.2 The braided river: women in science, careers and recognition (Elsevier).....	24
SS1.8 The Role of Universities in Boosting Innovation through Entrepreneurship .....	25
SS1.9 Sustainable Forestry and Bioenergy? A Fishbowl Debate .....	26
SS1.10 The effect of the online world on adolescents.....	26
SS1.11 Creating Research Environments that Foster Mental Health and Wellbeing .....	27
SS1.12 Data with Burning Impact - Fires Seen from Space .....	28
SS1.13 Working on a Healthy Society: Prevention and Maintenance of Health and Well-being During the Life Cycle.....	28
SS1.14 The Agricultural Sector & Greenhouse Gas Emissions: Perspectives from Science, Law & Governance .....	29
SS1.36 Museums and Identity.....	29
PL1.2 Keynote: Academic Freedom: Concept, Framework, Challenges .....	30
SP1.6 Lunch Symposium: Antimicrobial Resistance (AMR) and Bacterial Vaccines (Janssen Pharmaceutical Companies of Johnson & Johnson).....	30
SP1.3 Biodiversity as an opportunity - Nature as the basis for our society and economy (Naturalis Biodiversity Center/BiodiversityXL).....	31
SS1.15 The Lancet, Health & Climate - Are We on Track for a Healthy Society?.....	32
SS1.16 Research Assessment Reform – What Does Good Look Like? .....	32
SS1.18 Reforming Academic Assessment: The Impact on Early-Stage Researchers and Their Careers .....	33
SS1.19 Health Inequality Through the Ages: Interdisciplinary Perspectives .....	33
SS1.20 The New Drug Policy Commission for Central & Eastern Europe & Central Asia: Why Europe Must Lead Drug Policy Reform & Decriminalisation .....	34
WP1.2 Science for Social Justice: Africa welcomes the World Science Forum .....	35
PL1.3 Keynote: Space for Science.....	36
SS1.38 Contested Heritage.....	37





SS1.22 Vaccine development in Europe: fast and for all .....	37
SS1.23 First results from Webb: a new exploration of the cosmos .....	38
SS1.24 Researchers’ Perspectives Are Crucial to Reform the Research Assessment Problem .....	38
SS1.25 Europe as a Geopolitical Stabilizer After the Russian Invasion in Ukraine.....	39
SS1.26 The Deep Past of Future Society. Questioning the Western Perspective on the Reconstruction of Human History .....	39
SS1.27 Closing the Gap for Early-Career Researchers’ Policy Engagement .....	40
SS1.28 Can We Make Informed Decisions Without Risk Know-How? .....	40
SS1.40 The Rights Retention Strategy: Academic freedom and responsibility for researchers .....	41
PL1.4 ERC Public Engagement with Research Award Ceremony .....	42
SS1.39 The Future of Work: Opportunities and challenges of digitalization, the platform economy and flexibilization of European labour markets .....	42
SS1.29 Social Uncertainties in Post-corona Cities: The Role of Diversity and Social Inequalities .....	43
SS1.30 Fly me to the Moons! .....	44
SS1.32 Climate Change: A Global View .....	44
SS1.33 Tales of five inspiring women navigating today’s life-career minefield! .....	45
SS1.34 Legal Technologies.....	46
SS1.35 Science Policy Career Paths: From lab to legislation .....	46
WP1.3 Between Black and White: The power of visual imagery and negotiation of Identity .....	47
<b>15 July 2022 .....</b>	<b>48</b>
SS2.1 Fusion and Climate Change: A Conversation Begins .....	48
KT2.1 Whether UN Sustainable Development Goals support transitions – eagle in the cage .....	48
SS2.2 Health and Well-being in a Urbanized Context: The Academic Living Lab Approach in Europe .....	49
SS2.4 International Academic Mobility Versus “Brain Drain”: How Can a More Balanced Brain Circulation Be Fostered? Part II: The Role of International Researcher Networks	49
SS2.6 Funding of Science: Changing Perspective from Policy to Societies .....	50
SS2.7 Fostering an entrepreneurial mindset in doctoral education .....	50
WP2.1 Integrated Community Building to Sustain a Resilient and Healthy Society.....	51
PL2.1 Plenary Panel: Living in a world with pandemics .....	51



WS0.16 From science to impact: insights into the entrepreneurial journey.....	52
WS0.15 Entrepreneurship in Life Sciences and health and the Leiden Bio Science Park as the place to be.....	52
SS2.8 How Do Research Organizations Foster a Broader Range of Roles in Research? ..	52
KT2.2 Can Science Save Ukraine? European Universities and Ukraine’s Post-War Transformation.....	53
SS2.14 Connecting Europe with the global research community with EURAXESS Worldwide .....	54
SS2.11 A Way Forward to Increase Science Legitimacy by Eradicating Gender-based Violence and Sexual Harassment from Universities .....	54
SS2.12 Chronic Diseases, Prevention and Treatment .....	54
SS2.13 Can Smaller Cities be at the Forefront of Climate Equity and Resiliency? .....	55
SS2.36 Art Exploring Science .....	56
PL2.2 Keynote Sustainable Environment .....	56
SS2.38 The Quantum Revolution .....	56
SS2.15 The Future of Islam in Europe .....	57
KT2.3 The Transforming Identity: Do we cross borders, or do borders cross us? .....	58
SS2.16 The Dark Side of Our Mysterious Universe .....	58
SS2.17 Population Health Management .....	59
SS2.18 Local Action in Response to Global Change .....	59
SS2.19 Revisiting Entrepreneurship & Innovation Education and Practice for Societal Impact.....	60
SS2.20 Science is for everyone: equity, diversity and inclusion in the workplace.....	60
SS2.37 Understand Public Policy Making Through A Game: The Case Of Euthanasia.....	61
WP2.2 Higher Education in Africa: Challenges and Prospects .....	61
PL2.3 Keynote: This is Bioart’s Moment! Pandemic reflections on radical interdisciplinarity in the Arts and Sciences .....	62
SS2.22 Breaking Down the Data Bottlenecks in Healthcare .....	63
KT2.4 Bright side of the dark Universe.....	64
SS2.23 Giving and Taking Scientific Advice: Mind the Gap .....	64
SS2.24 Research Infrastructures’ Contribution to Environmental Sustainability .....	65
SS2.25 How will Europe Capitalize on the Green Deal and Deliver Clean Net Zero Energy - The Role of Universities and Young People .....	66



SS2.26 Doctoral Mobility Under Erasmus+ and MSCA: Opportunities and Complementarity.....	66
SS2.27 Balancing Common Language and Multilingualism as Drivers for Equity, Diversity and Inclusion .....	67
SS2.28 Rolling the Dice or Planning Ahead With Confidence? New COVID-19 Report Maps Out Our Most Realistic, Pessimistic and Optimistic Scenarios.....	67
PL2.5 European Young Researchers Award – EYRA .....	68
PL2.4 Keynote: Sustainable Academic Careers: Young Scholars’ Perspective .....	68
SS2.40 Does Good Science Lead to Good Advice and Policy Making? Rethinking the Science Advice-Policy After COVID-19 .....	69
SS2.29 Beyond Newness in Understanding Migration and Diversity .....	69
SS2.30 Breaking Down Dilemmas About AI In Science and Society.....	70
SS2.39 Academic freedom under pressure .....	71
SS2.31 Collaborative Innovations for Societal Transformations: Insights from the COVID-19 crisis.....	71
SS2.33 The Secret Life in Our Gut and How It Influences Health and Disease .....	72
SS2.34 Engaging Researchers in the Net-Zero Transition .....	72
SS2.35 Delivering the European Science Diplomacy Agenda.....	73
WP2.3 Scientists Are Mobilized for the Sustainable Development Goals? .....	74
<b>16 July 2022 .....</b>	<b>74</b>
SS3.2 Musica Universalis: From Brains to Stars .....	74
SS3.4 From Research to the World: Careers in Industry and Politics .....	75
SS3.6 Open Data for Healthier Societies: A Virtuous Cycle?.....	75
SS3.7 The Science in Exile Initiative: Displacement, Gender, and the Right to Science in the Global South.....	76
European Talent Fair Official Opening + Panel Discussion.....	76
SS3.12 Healthy soils for liveable cities - Towards an urban Soil Biodiversity Strategy ....	77
SS3.8 Opening Alternative Academic Career Paths – Breaking Bottlenecks and Existing Norms that Perpetuate Precarity .....	78
SS3.9 Reclaiming Your Own Voice: Humanities Methods to Address the Fluidity and Complexity of Identities in (Post)colonial Contexts .....	78
SS3.11 Responsible Research and Innovation in the Western Balkans .....	79
SS3.13 Game-Based Entrepreneurship Education for STEM Students – Can We Simply Apply Business School Teaching Methods for Science Students? .....	79
SS3.14 Current Research Trends towards solving Antimicrobial Resistance.....	80





SS3.30 Should Policy-Makers Listen to Scientists? .....	81
PL3.1 Keynote Healthy Societies .....	82
PL3.2 Keynote Science and Business.....	82
SS3.17 Renewed Call for “Track II” dialogues in Science Diplomacy .....	82
SS3.21 Good Living: The Art of Preserving and Extending Eco-Centric Knowledges to Nurture a Sustainable World.....	83
SS3.29 Science to Impact: Debate on policies and programmes to help scientist to create impact.....	83
SS3.23 Climate Change, Social Inequality and Conflict .....	84
SS3.24 Searching for Life Beyond Earth — The Whys and Hows of Our Quest for Life in the Universe .....	84
SS3.25 Apocalypse Tomorrow: What Should Scientists Do to Prepare for the Next Major Crisis?.....	85
SS3.26 The Chair: Fact or Fiction? Addressing the Challenges Faced By Women Leaders in Academia .....	86
SS3.27 Astronomy and Space Science in the Age of Satellite Constellations: A Case for a Shared Stewardship of the Sky.....	86
SS3.31 What Can Be the Role of Heritage in Society? .....	87
PL3.4 Closing Ceremony .....	87
<b>Posters.....</b>	<b>89</b>
<b>Theme: Sustainable Environment .....</b>	<b>89</b>
P01 Fusion Mobility: A transparent model connecting science and society for Sustainable Mobilities development to meet the targets of the European Green Deal. A systemic model towards transformational change – Hands-on participation for Future Mobilities.....	89
P02 Empowering policymakers and consumers towards sustainable lifestyles through Consumption Footprint-based approaches .....	90
P03 Battery research for a green future .....	90
P04 To be mothers and female researchers of water contamination in Veneto Region: the role of citizen science and epistemic citizens .....	91
P05 decarbonisation of the iron and steel sector in the EU: a model-based analysis.....	92
P06 Sustainability and the Synchrotron: How can a large basic research facility be greener? .....	92
P08 The contribution of experiences to the building of resilience in communities .....	93
P09 Oilseed palm Acrocomia: A novel crop for a sustainable vegetable oil production?.....	94





P10 Gene editing for sustainable food production across species and borders .....	94
P11 The Activities & Dimensions Grid of Citizen Science.....	95
P12 Build. Connect. Live! Solar Decathlon Europe, the solar-powered think tank for our future living .....	95
P13 The INCREASE project - a participatory research approach to characterize genetic resources in food legumes. ....	96
P14 Nanotechnologies targeting zero-toxic water (NANOZERO-ep).....	96
P15 Blue-Cloud: Exploring and demonstrating the potential of Open Science for ocean sustainability.....	97
P16 Climate change and European power systems .....	98
P17 How can synthetic biology be the solution for the ever-growing water contamination? .....	98
P18 Critical raw materials: mining, circular economy and resource valorization.....	99
19 Fusion Mobility: A transparent model connecting science and society for Sustainable Mobilities development to meet the targets of the European Green Deal. Subtitle: A systemic model towards transformational change.....	100
P20 Mission science has taken us to the moon, but can we use it to stay within planetary boundaries? The Global Commission on Science Missions for Sustainability – will we have lift off? .....	100
P82 Can a picture from the past predict the future? Fossil small mammals from the Pliocene of Turkey .....	101
P83 Artificial botany: studying fake plastic plants used as nesting material by birds ...	102
P84 Ingestion, entanglement and nest material: mapping the impact of COVID-19 litter on animals using citizen science.....	103
P85 Probing into Mott-Schottky heterojunctions of covalent triazine frameworks/mesoporous carbon as metal-free electrocatalysts for CO2-reduction ...	103
<b>Science and Business .....</b>	<b>104</b>
P21 "STEM to the rescue - how to build a strong future for Europe".....	104
P22 Education and innovation practices and opportunities for a sustainable bioeconomy .....	104
P23 Gravitational wave waves: opportunities for science, industry, and education. ...	105
P24 Fostering student engagement for sustainability: the specifically dedicated Swiss funding program «U Change» .....	105
P25 Knowledge Transfer: From Basic Research in Chemistry to Entrepreneurship .....	106
P26 Researchers' charter for greenness and transdisciplinarity in a pandemic scenario. Right-timing for results.....	107





<b>Cultural Identities and Societal Transformation .....</b>	<b>107</b>
P27 ENIBB: a way for accessibility in the field of art.....	107
P28 Positive Energy Districts and energy poverty.....	108
P29 International migrations and refugee flows in the 21st century: Societal transformations arising from the Mediterranean Crisis .....	108
P30 Who does the EU listen to and when? Utilizing Machine learning to understand EU policy responsiveness.....	109
<b>Freedom and Responsibility of Science.....</b>	<b>110</b>
P31 Experiments in research funding: lessons from partial randomisation .....	110
P32 Public engagement and science communication for tackling misinformation and promoting trust in science .....	110
P34 Biosecurity for All: The Role of Scientists.....	111
P35 TOWARDS AN ENGAGED, INCLUSIVE AND RESPONSIBLE SCIENCE COMMUNICATION .....	112
P37 European Strategy to Accelerator-based Photon Sources for answering societal challenges.....	112
P38 Being a Independent scientist - a third way in personal and societal scientific development .....	113
P39 An open discussion on the right to science.....	114
P40 Fostering evidence-based policy making by research infrastructures: the RISIS experience and legacy.....	114
P41 Paving the way for a SESAME - African Light Source partnership .....	115
P42 Re-thinking Science Communication to Increase Engagement with Policy Makers .....	115
P43 Innovative ways to communicate climate action to citizens, diverse stakeholders and policy makers across Europe: challenges and experiences .....	116
P44 Scientific freedom and the RRING Community working with UNESCO on RSSR ....	117
P45 Creating a truly inclusive research landscape for the Global South: reflections and ways forward as Research4Life turns twenty .....	118
P46 Expectations vs. Reality in the discourse about Science Diplomacy for peace: the case of the Middle East Conflict.....	118
P47 Evaluating Science Communication - Current Practices and Pathways Forward ...	119
P48 How inclusive is research funding? An Analysis of Funders and Funding.....	120
P49 Horizon Europe: How can the application, evaluation and consortium-building process be improved? .....	120



P50 Citizen Science for Policy Making.....	121
P51 Nordic mess-ups in Science Communication – the mistakes we made and lessons learned.....	121
P52 Let's make Science more reproducible, together!.....	122
P53 Design-thinking as bridge between science, policy and civil society: Co-creating “better stories” of responding to the pandemic.....	123
P54 International academic mobility versus “brain drain”: How can a more balanced brain circulation be fostered? Part I: The role of research funding agencies.....	123
P55 Stronger together: Can Africa and Europe achieve their shared vision through research and innovation?.....	124
P56 Involving society in science - exploring ways to achieve impactful stakeholder engagement.....	124
P57 What does it mean to have confidence in research? .....	125
P58 BRIDGES - Building Reflexivity and response-ability Involving Different narratives of knowledGE and Science .....	126
P59 The role of open science in driving responsible research culture. ....	126
<b>Healthy Societies .....</b>	<b>127</b>
P60 Adverse Events as a Source of Emotional Disturbance for Healthcare Providers: The Second Victim Phenomenon .....	127
P61 Wider benefits of research infrastructures: Astronomy’s contribution to the global covid-19 pandemic response .....	128
P62 From lab to communities: is the way we regulate medicines future-proof? .....	128
P63 Understanding the African Microbiome: Implications on One Health .....	129
P64 The power of predictive genomics: should polygenic risk scores be routinely used within the healthcare system? .....	129
P65 Chemical profiling of saliva: A window into human health .....	129
P66 Bioart, New Reproductive Technology and Human Germline Gene Editing .....	130
P67 How will the role of a stem cell donor be in the future and how can stem cell donors contribute to health inequalities in diverse communities?.....	131
P68 Challenges and strategies to promote a comprehensive research, development and communication plan to support the control, elimination and eradication of neglected tropical diseases. ....	131
P69 Is Repurposing of Medicines the new “El Dorado” for curbing the increased cost of healthcare and drug development?.....	132
<b>Sustainable Academic Careers .....</b>	<b>132</b>
P70 Carla: a mind opener for career development .....	132



P71 Zero tolerance for bullying in practice through the redefinition of success criteria in science .....	133
P72 CAREEROMICS: Innovations in career support for early career researchers - THE INSIDE STORY.....	134
P74 Mind the Social Security Gap .....	134
P75 Engaging science: leveraging behavioural science to model and support researcher-legislator engagement.....	135
P76 Skills for resilient researchers .....	136
P77 Comparative analysis of career pathways and determinants of international mobility for Spanish researchers in and outside Spain.....	136
<b>Space for Science.....</b>	<b>138</b>
P78 G2net: Gravitational Waves, Geophysics, Machine Learning and Robotics, a perfect team.....	138
P79 How will increased access to space and a new global in-space infrastructure support the pursuit of science?.....	138
P80 Universe inside – how computational astrophysics has changed traditional astronomy .....	139
P81 Regional Food at the Goethe Universität Frankfurt.....	140
<b>Katowice Posters .....</b>	<b>141</b>
P86 Comparison of the toxicity of forest and agri-food biomass ashes .....	141
P91 Mental disorders in a criminal trial .....	141

## 11 July 2022

### More-than-Planet symposium

Date: 7/11/2022

Time in CEST: 9:00:00 AM - 6:00:00 PM



European  
City of Science  
Leiden2022



Co-funded by  
the European Union



Location: Old Observatory in Leiden, the Netherlands.

**Description:**

In a world with 75% of the planet's land surface experiencing measurable human pressure, the way people imagine their social whole substantially impacts the planetary environment itself. However, tools used for portraying the Earth's environment are neither neutral nor societally inclusive. To overcome that, transdisciplinary artworks and methods showcased by More-than-Planet aim to open a discussion on how technologies and drivers behind their development matter at reducing pressure on the environment.

The symposium will showcase some of the iconic art-driven transdisciplinary collaborations addressing the shared understanding of socio-environmental troubles and discuss the necessary next steps.

More-than-Planet is part of a collaboration between S+T+ARTS initiative (Waag and Ars Electronica) and the Leiden University.

## 12 July 2022

### European Conference of Science Journalism Leiden 2022 (ECSJ)

Date: 7/12/2022

Time in CEST: 9:00:00 AM - 4:30:00 PM

Location: Cleveringa stage (KOG)

**Description:**

ECSJ 2022 is organised by the Association for Science Journalism and Communication Netherlands or VWN in association with the European Federation for Science Journalism or EFSJ.

This event is for and by science journalists, and also important for those active in science communication to know what is going on in the field of science journalism.

Science journalists from all over the world, but especially those active in Europe, are encouraged to join the European conference titled 'Investigating Science'.

Apart from renowned speakers, the conference will host a great variety of workshops, social activities and field trips to enhance the knowledge of the profession itself. More information about this ESOF satellite event can be found at ECSJ 2022 Leiden 10 – 13 July – European Conference of Science Journalism Leiden 2022

### Marie Skłodowska-Curie Actions

Date: 7/12/2022

Time in CEST: 9:00:00 AM - 5:00:00 PM

Location: Lorentz stage (KOG)

**Description:**

More information on the website: <https://corporate.idloom.events/msca-satellite-event-online>



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**13 July 2022**

## **WS0.12 Finding your career path outside Academia - Part 1: There's more than meets the eye**

Date: 7/13/2022

Time in CEST: 9:00:00 AM - 10:30:00 AM

Location: Cleveringa stage (KOG)

### *Speakers:*

*Sarah Blackford, Lancaster University*

*Esther Bongenaar, Sabbatical*

*Barbara Janssens, Dkfz*

*Tina Persson, Passage2Pro AB / CARE*

*Noel de Miranda, LUMC*

### **Description:**

The majority of early career researchers progress their career into the non-academic sector, according to numerous surveys, reports and accounts conducted in recent years. Despite this, academic support structures that appreciate or guide an informed and smooth transition to the job market are still largely insubstantial.

In this workshop CARE (Careers Advisers supporting Researchers in Europe) as well as an industrial recruitment expert and faculty will first provide an overview of career options outside academia and, importantly, provide practical advice regarding how they can best position themselves in relation to a diverse job market. During the second and more interactive part, participants will be encouraged to identify careers that best fit their competences and preferences, so to develop a personal career strategy.

Part I (9.00 to 10:30) – Finding your career path outside Academia: There's more than meets the eye.

Following a short introduction by Young Academy Leiden members, presentations and a Q&A session will include a guide to planning and managing your career, and information about options in the wide-ranging non-academic job market. Outside of academia, job titles and jobs themselves can seem more confusing and inaccessible, however the presenters will help you to navigate your way so that you feel more confident on how to orient yourself, to conduct informational interviews and to transition to different types of non-academic careers.

## **WS0.8 New Genomic Techniques & Sustainability: Where Does the Public Stand?**

Date: 7/13/2022

Time in CEST: 9:00:00 AM - 10:30:00 AM

Location: Online room 1

### *Speakers:*

*Angela Bearth, ETH Zurich*

*Michela Candotti, INSociety*

*Andreas Weber, Heinrich Heine Universität Düsseldorf*

### **Description:**

Today, in the European Union, any product resulting from genetic editing techniques is strictly treated as GMO or genetically modified organism. However New Genetic Techniques (NGT) have emerged in



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the last years. Several scientists in Europe are asking for a new policy framework for GMOs that reflects the nuances of its biology and its diverse applications.

New frames to present and discuss genetic engineering and synthetic biology applied to agriculture are needed to better assess the public opinion on such topics and discern their concern on the technology itself to the ones related to the application of the technology. For example, could informing consumers about the role of this technology in addressing the sustainability and crop-protection lead them to better accept its application in agriculture?

During the proposed session we will first conduct a live survey together with the public on the efficacy of different narratives about the use of NGTs in agriculture and then revise the results considering a larger study conducted in other countries in Europe.

## **WS0.2 Cities of the Future: Strategies to Engage Citizens in Reshaping Modern Cities through Sustainable Urban Mobility Solutions**

Date: 7/13/2022

Time in CEST: 9:00:00 AM - 10:30:00 AM

Location: Online room 2

### *Speakers:*

*Marcello Bardellini, Icons*

*Deanna Brasolin, ICONS*

*Elena Garcia, Grupo Etra*

*Silvia Raimondi, Icons*

*Charlotte Smit-Rietveld,*

### **Description:**

How to involve citizens in encouraging the uptake of sustainable mobility solutions?

To answer this, European projects will share concrete insights and best practices for engaging better with people and users. The workshop will highlight the need for projects to involve citizens before going ahead with solutions. ICONS will show how social media can help in this respect. The discussion panel will draw on the lessons learnt in order to help the POCITYF project explore how citizen engagement may support its e-car solution planned for 2023.

The conference session will be divided into four sections, each building on the previous one:

1. Strategies and activities developed by EU projects to involve citizens
2. Showcase of the MAtchUP solution to reduce CO2 emissions by increasing the use of electric vehicles
3. The importance of science communication in citizen engagement with an emphasis on social media
4. Insights from the POCITYF project.

## **WS0.3 Scientists as Science Communicators – What Do We Learn from Large-Scale Researchers' Surveys for Improving Public Communication About Science and Research?**

Date: 7/13/2022

Time in CEST: 11:00:00 AM - 12:30:00 PM

Location: B017 (KOG)

### *Speakers:*



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*Gustav Bohlin, Public & Science, VA*  
*Marta Entradas, Iscte-Instituto Universitário de Lisboa*  
*Liliann Fischer, Wissenschaft Im Dialog*  
*Jack Harrington, Wellcome Trust*  
*Ricarda Ziegler, Wissenschaft im Dialog*

**Description:**

Throughout the coronavirus pandemic, science and researchers received unprecedented attention from the public and politicians in many countries. The public and political need for orientation by science and researchers in the pandemic also fueled ongoing discussions and prevailing demands for scientists to take on more societal responsibility and actively engage in public science communication.

But what do the scientists themselves think about science communication? How do they perceive their relation with and role within society and what is the reality they are confronted with within academia and scientific institutions?

This session will provide insights and findings from large-scale surveys on researchers' experiences in and attitudes towards science communication as well as their perceptions of the public and audiences beyond academia.

## **WS0.12A Finding your career path outside Academia - Part 2: Get the ball rolling**

Date: 7/13/2022

Time in CEST: 11:00:00 AM - 12:30:00 PM

Location: C004 (KOG)

*Sarah Blackford, Lancaster University*

*Esther Bongenaar, Sabbatical*

*Barbara Janssens, Dkfz*

*Tina Persson, Passage2Pro AB / CARE*

*Noel de Miranda, LUMC*

**Description:**

The majority of early career researchers progress their career into the non-academic sector, according to numerous surveys, reports and accounts conducted in recent years. Despite this, academic support structures that appreciate or guide an informed and smooth transition to the job market are still largely insubstantial.

In this workshop CARE (Careers Advisers supporting Researchers in Europe) as well as an industrial recruitment expert and faculty will first provide an overview of career options outside academia and, importantly, provide practical advice regarding how they can best position themselves in relation to a diverse job market. During the second and more interactive part, participants will be encouraged to identify careers that best fit their competences and preferences, so to develop a personal career strategy.

Part II (11:00 to 12:30) – Finding your career path outside Academia: Get the ball rolling

Facilitators will lead small groups in round table activities and discussions, where participants will be able to actively engage in the process of career planning to define their strengths and interests. They will have the opportunity to put the advice from Part I into action, discover more in-depth knowledge about themselves, hear from their peers through interactive discussions and be guided by European careers advisers to help to match themselves to potential careers of interest. By the end of the workshop, all participants will have formulated their own “elevator pitch” and started a personal action plan to keep the ball rolling.





## WS0.14 Recognition and rewards in academia

Date: 7/13/2022

Time in CEST: 11:00:00 AM - 12:30:00 PM

Location: C006 Nelson Mandelazaal (KOG)

### Speakers:

*Karen Stroobants, Marie Curie Alumni Association*

*Hilde Verbeek, Maastricht University*

### Description:

In recent decades, institutional and governmental systems of academic evaluation have become increasingly desynchronized from the tasks that are associated to an academic career. Much of this divergence can be explained by an ever-increasing diversification of tasks that are imposed on (early-career) academics. While the professional profile of an academic has mutated substantially, evaluation practices remain primarily focused on research related output (e.g., papers and funding) and fail to acknowledge a significant proportion of work performed by academics, such as teaching, public outreach and leadership. This mismatch results in disillusion and frustration by many academics and also thwarts the ability to adequately plan an academic career. Ultimately, the lack of well-informed and transparent evaluation practices that synchronize goals and rewards during academic progression compromise the sustainability of academic institutions.

During this workshop, Hanneke Hulst (Prof. of Neuropsychology in Health and Disease at Leiden University and member of the Dutch Young Academy, <https://www.linkedin.com/in/hanneke-hulst-b0a94750/>) and Karen Stroobants (Lead policy advisor at the Royal Society of Chemistry, freelance consultant, and co-founder of MetisTalk <https://www.linkedin.com/in/karen-stroobants-b3314155/>) will discuss problems of the current recognition and rewards practices and propose ways forward for reforming academic evaluation.

After a brief introduction, an interactive session with the audience will take place in order to evaluate how participants experience current evaluation practices of academic careers and participants will be asked to comment on potential solutions.

## WS0.12B Finding your career path outside Academia - Part 2: Get the ball rolling

Date: 7/13/2022

Time in CEST: 11:00:00 AM - 12:30:00 PM

Location: Online room 1

### Speakers:

*Barbara Janssens, DKFZ – German Cancer Research Center*

*Marion Gürth, DKFZ – German Cancer Research Center*

*Chiat Cheong, DKFZ – German Cancer Research Center*

### Description:

Part II (11:00 to 12:30) – Finding your career path outside Academia: Get the ball rolling

Facilitators will lead small groups in round table activities and discussions, where participants will be able to actively engage in the process of career planning to define their strengths and interests. They will have the opportunity to put the advice from Part I into action, discover more in-depth knowledge about themselves, hear from their peers through interactive discussions and be guided by European careers advisers to help to match themselves to potential careers of interest. By the end of the workshop, all participants will have formulated their own “elevator pitch” and started a personal action plan to keep the ball rolling.



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## WS0.9 A Sustainable Future with Sustainable Plastics

Date: 7/13/2022

Time in CEST: 11:00:00 AM - 12:30:00 PM

Location: Online room 2

### Speakers

*Miguel Alcalde, EvoEnzyme SME*

*Gary James Ellis, CSIC*

*Lara Escudero, Aitiip*

*Lidia García, AITIIP Technology Center*

*Lidia García, AITIIP Technology Center*

*Alejandro Ibrahim, Teruel Airport*

*Andrea Pipino, Centro Ricerche Fiat - Stellantis*

### Description:

Plastic waste is one of the major threats to our ecosystems and the current end-of-life given to plastics negatively affects the environment. Circular economy needs an optimal waste management to create an effective after-use plastic economy as a main strategy to promote recycling rates of plastics to avoid further plastic littering and to reduce plastic waste diverted to landfill or incineration. The use of composite materials and other hybrid structures have gained interest in recent years due to their unique properties such as high mechanical strength, good chemical resistance, long durability; however, they still have many limitations.

This session aims to shed light by showing recent solutions that tackle the problem all along the value chain, with a particular emphasis on novel technologies to dismantle (large composite parts) and separate (multi-layer/multi-materials) plastics and other materials for their reuse, remanufacture and recycling. Other breakthrough technologies are also arising that mimic nature such as the enzymatic degradation.

## WS0.11 Membership Engagement

Date: 7/13/2022

Time in CEST: 1:00:00 PM - 2:30:00 PM

Location: Breezaal (Stadsgehoorzaal)

*Speaker: Christine Heller del Riego, EuroScience*

### Description:

The role of science-based knowledge in society is essential for its development. For this purpose, we need engaged individuals of member-based collective groups and associations such as EuroScience, EARMA1, EIRMA, AE, EUSJA, EFSJ, MCAA, EURODOC, ERT, etc. The purpose of this session is to analyze and understand the motivation, areas of engagement, and proven mechanisms to welcome participation in useful activities. The session is targeted towards science-engaged professionals from the scientific community and in all areas in which science is produced and/or used, as well as other groups such as journalists, teachers, politicians etc. The session will be organized around two broad themes: (A) What strategies can attract potential members? Examples of these are: (i) to raise awareness of the importance of scientific knowledge; (ii) to encourage society to consider facts before values and opinions; and (iii) to create positive change for society. (B) Which initiatives should be developed or supported? Examples of these are: (i) interactive networks with new perspectives; (ii) platforms to influence concrete aspects like science policy and politicians, careers and work conditions, and society's use of science; (iii) activities suggested by participants.



## **WS0.6 Communication Competence in Doctoral Education – Enhancing Abilities to Reach Out and Bridge the Gap!**

Date: 7/13/2022

Time in CEST: 1:00:00 PM - 2:30:00 PM

Location: C004 (KOG)

### *Speakers:*

*Sara Arvidson, Orebro University*

*Sarah Davies, University Of Vienna*

*Anna Maria Fleetwood, Swedish Research Council*

*Anna Jonsson, Lund University/Stockholm University*

*Jonas Stier, Mälardalen University*

### **Description:**

The role of the researcher is undergoing change: researchers are now asked to engage in open science and to support transparency and inclusivity in their research. At the same time, and for a number of different reasons, scholars are increasingly looking for careers outside academia.

This session speaks to these issues by focusing on the development of science communication skills as part of doctoral education.

For science to be a transformative agent for societal change, universities and financing bodies need to work together to create conditions that better enable researchers to communicate, interact and initiate dialogue with citizens outside academia. Indeed, we know that many researchers wish to talk about their research and reach out, but we also know that many are asking for tools and training in order to feel confident when meeting the media and other important target group

## **WS0.13 Optimising our Mental Health and Wellbeing for Sustainable Academic Careers**

Date: 7/13/2022

Time in CEST: 1:00:00 PM - 3:00:00 PM

Location: C006 Nelson Mandelazaal (KOG)

### *Speakers:*

*Eiko Fried, Leiden University*

*Darragh Mccashin, Dcu*

### **Description:**

Mental health issues including anxiety, depression, and burnout are highly prevalent within academia, especially during early career phases. Several key factors are associated with such issues, including: ever-increasing work pressures, problematic recognition and reward systems, mental health stigma, hypermobility, and the absence of multilevel supportive resources. While such systemic factors can only be addressed through significant changes at institutional and governance levels, at the individual level, there are many tools and strategies that can be utilised in the present moment to support and empower academics, build peer-to-peer networks, and envision more sustainable academic environments.

This interactive During the first part of this workshop, we will discuss the evidence for common mental health and wellbeing challenges within academia. Using best practices emerging from the European COST Action Researcher Mental Health Observatory (ReMO), some of the ongoing strategies to address mental health challenges will be presented. This will be followed by an interactive breakout discussion exercise to respond to the presented evidence, offer personal and professional



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perspectives, and share experiences. Finally, the workshop will close with a summary and critical reflection on the overall workshop outcomes, and a presentation of actionable next steps for stakeholders.

This workshop will be led by Dr Darragh McCashin (Assistant Professor, School of Psychology at Dublin City University; Working Group Chair, ReMO) <https://www.linkedin.com/in/darragh-mccashin-59771a28/>; and members of the Young Academy Leiden (<https://www.universiteitleiden.nl/en/yal>) will act as facilitators during the breakout discussion session.

## **WS0.5 Decolonization and the 'Psychedelic Renaissance'**

Date: 7/13/2022

Time in CEST: 1:00:00 PM - 2:30:00 PM

Location: Cleveringa stage (KOG)

### **Speakers:**

*Ede Frecska, Head of Psychiatry Department, University of Debrecen*

*Christine Hauskeller, Department of Sociology and Philosophy, University of Exeter*

*Luis Eduardo Luna, Wasiwaska Research Center, Brazil*

### **Description:**

This session will discuss the kinds of psychedelic medicine and the ways in which current clinical science builds on and draws on indigenous knowledge and practices.

After centuries of religious and medically based persecution, the use of sacred plants (psychedelic plants in today's general parlance), has made a dramatic comeback during the last decades. This is causing a stir among certain medical institutions, raises hopes for new ways to tackle illnesses of civilization, and alerts avid financial actors. This happens in parallel to debates over the reappraisal of traditional cultures, intellectual property rights, biopiracy, and a general metaphysical unease as the world is undergoing serious environmental degradation, the specter of new pandemics, and rising of antidemocratic forces in several parts of the world.

The aim is to inform and discuss indigenous and clinical uses of psychedelic medicines, emphasizing a decolonizing approach - i.e., focusing on ethics of evaluating different knowledge and healing practices.

## **WS0.7 Leap-In-Time Patent Game: An Interactive Game-Based Learning Approach to Understanding and Decoding Patents**

Date: 7/13/2022

Time in CEST: 1:00:00 PM - 2:30:00 PM

Location: Online room 2

### **Speakers:**

*Rajiv Vaid Basaiawmoit, Aarhus University*

*Milena Corredig,*

*Taru Deva, Biosymfonix*

### **Description:**

The ability to understand Intellectual Property (IP) as well as learn how to use it commercially is an integral part of Entrepreneurship Education and especially highly relevant for students from STEM disciplines who generally work with technology more than say business students. Understanding IP and especially patents as the dominant form of IP in the Science and Technology context and the



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ability to decode patents is an essential skill to master. However, IP can be rather cumbersome topic to teach owing to its heavy reliance on legal jargon and limited access to information.

The Leap-In-Time Patent Game tries to address this issue by lowering the barrier of entry to understanding and decoding patents.

The proposed workshop will allow players to try out the game live in diverse teams and after which be taken through what they learnt and if they think patents are now an accessible form of information for most. Experienced educators will drive the post-game discussion.

## **WS0.1 Educational Research to Improve Education As a Driving Force for Empowerment, Inclusion and Equality**

Date: 7/13/2022

Time in CEST: 2:45:00 PM - 4:15:00 PM

Location: B017 (KOG)

### *Speakers:*

*Eddie Denessen, Leiden University*

*Christine Espin, Leiden University*

*Annemarijke Jolmers, Netherlands Initiative for Education Research (NWO-NRO)*

*Sascha Schroeder, Universität Göttingen*

*Paul Van den Broek, University Leiden*

*Jochanan Veerbeek, Leiden University*

### **Description:**

Symposium about the value of educational research for development of educational policies and practices addressing the challenges of contemporary European contexts. Educational professionals face these challenges in practice, and educational research is aimed at understanding the mechanisms underlying these challenges and in translating research findings into programs, interventions, and practical recommendations. Three challenges are addressed.

Teachers' data-based decision-making in education

We describe factors affecting teachers' (in)ability to use data to guide and inform instructional decisions, and discuss methods for improving data-based decision making.

Equal opportunities in education

Inequality of educational opportunities is one of the biggest challenges in education. We present the state of art regarding research on educational inequalities in the Netherlands and how research is translated into guidance reports for schools and teachers.

Fostering children's literacy skills

Scores on national and international tests show that comprehension skills amongst youngsters are declining. We present on the state-of-the-art knowledge about the development of reading and reading comprehension skills and the determination of 'pressure points.'

## **WS0.10 How Basic Sciences Design the Future of Sustainable Development**

Date: 7/13/2022

Time in CEST: 2:45:00 PM - 4:15:00 PM

Location: Online room 2



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**Speakers:**

*Emmanuel Asante, Kwame Nkrumah University of Science and Technology*  
*Anindita Bhadra, Indian Institute of Science Education and Research Kolkata*  
*Marian Nkansah, Kwame Nkrumah University of Science and Technology*  
*Jeff Daniel Nze Memiaghe, Agriculture And Agri-food Canada (aafc)*  
*Bolanle Ojokoh, Federal University Of Technology, Akure, Nigeria*  
*Karla Peña Ramírez, Universidad De Antofagasta*  
*Michel Spiro, IUPAP*

**Description:**

The year 2022 has been proclaimed the International Year of Basic Sciences for Sustainable Development by the United Nations General Assembly. It is an opportunity to focus on the links between all basic sciences and the Sustainable Development Goals (SDGs). Agenda 2030 and its 17 SDGs, is an integrated vision for the sustainable development of all the world's populations towards which we should collectively strive. Basic sciences have an important contribution to make to the implementation of this programme. They provide the essential means to meet crucial challenges such as universal access to food, energy, health coverage and communication technologies. They enable us to understand the impact of the currently nearly 8 billion people on the planet and to act to limit, and sometimes even to reduce it: depletion of the ozone layer, climate change, depletion of natural resources, extinction of living species.

This session will promote discussion and reflection among scientists about how their own work and practice are coherent with Agenda 2030, and help them to articulate this for the general public and policy makers.

## **PL0.1 Opening Ceremony**

Date: 7/13/2022

Time in CEST: 4:30:00 PM - 6:30:00 PM

Location: Main stage (Stadsgehoorzaal)

**Speakers:**

*Aniek Moonen, Chair Young Climate Movement*  
*Jean-Eric Paquet, Director-General EC*  
*Michael Matlosz, President EuroScience*  
*Pavlo Bazilinskyy, Ass Prof TU Eindhoven, European Young Researchers Award (EYRA) winner 2017*  
*Marja Spierenburg, Leiden University*  
*Yousef Yousef, LG Sonic*  
*Annetje Ottow, President of the Executive Board Leiden University*  
*Henri Lenferink, Mayor of Leiden*  
*Kathleen Ferrier, Chair NL UNESCO Commission*  
*Michel van Agthoven, Lead Janssen Campus The Netherlands & Director External Affairs Netherlands.*  
*Maria Leptin, President, European Research Council*  
*Salim S. Abdool Karim, CAPRISA, Columbia University*  
*Elisabeth van Nimwegen, Host*

## **14 July 2022**

### **SP1.1 NWO Meet-up: journalists & researchers**

Date: 7/14/2022

Time in CEST: 8:00:00 AM - 9:15:00 AM

Location: Aalmarkt stage (Stadsgehoorzaal)



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### **Description:**

In the NWO Meet-up session, the Dutch Research Council (NWO) gives journalists and researchers a kick start of their day by connecting them through speed dates. With this, we offer a unique opportunity for researchers to present their story in just ten minutes to different journalists. For journalists, this session is a chance to get inspired by carefully selected research projects and brand new scientific insights. The researchers work in a diverse range of disciplines, and are in various stages of their career. With the meet-up session, NWO has the ambition to strengthen the ties between researchers and journalists and to stimulate societal impact through science communication

## **SS1.1 The Role of Team Science for a More Inclusive and Interdisciplinary European Research Area**

Date: 7/14/2022

Time in CEST: 8:00:00 AM - 9:15:00 AM

Location: Cleveringa stage (KOG)

### *Speakers*

*Maria Cruz, NWO - Dutch Research Council*

*Annika Jenmalm Jensen, Karolinska Institutet, Scilifelab*

*Janne Lehtiö, Scientific Director, SCILIFELAB, Karolinska Institute*

*Slaven Misljencevic, European Commission, DG Research & Innovation*

*Andrew Plume, Elsevier Ltd*

*Arian Steenbruggen, Director, NWO (Nederlandse Organisatie voor Wetenschappelijk Onderzoek)*

*Geert Van Der Veen, Technopolis Group The Netherlands*

### **Description:**

Enhancing the attractiveness of research careers across the Union is a vital element of the new European Research Area (ERA). In this respect, the Council Conclusions from May 2021 focuses on the creation of an inclusive and supportive working environment for researchers, strengthened by the use of more talent-based and diversity-sensitive quality measurement which includes, among others, management and leadership skills, entrepreneurship, team science and collaboration.

This interactive session will reflect on the value and opportunities related to strengthening an academic infrastructure that supports and recognizes the role of inclusive and interdisciplinary team Science. Policy and academic experts, as well as funders, will be invited to discuss a variety of core questions, ranging from socio-economic impacts, key features of successful funding models, modes of research inclusivity, and more. Mentimeter will be used to survey the audience and derive key outcomes from the discussions.

## **SS1.3 The Science Divide within the European Union**

Date: 7/14/2022

Time in CEST: 8:00:00 AM - 9:15:00 AM

Location: Online room 1

### *Speakers:*

*Jasminka Boljević, Croatian Science Foundation*

*Mariana Chioncel, UEFISCDI*

*Malwina Gębalska, National Science Centre, Poland*

*Miklós Györffi, Eötvös Loránd Research Network*

*Steffi Heinecke, Max Planck Society*

*Jorg Hellwig, Elsevier*

*Zsolt Pataki, European Parliament*



**Description:**

Within the EU, there is a research gap, a science divide. This has been partly recognised within the research and technological development framework programme (RTD FP, currently Horizon Europe) through the Widening programme part, but the issue is far not new: already in 2000 in FP5 there was a call addressing this issue <https://cordis.europa.eu/programme/id/FP5-IST-2000-8.1.5>, for those basically Eastern European countries which later became the EU-13 – the “new” Member States – the call was for the Newly Associated States – NAS – they were associated to FP5 since 1999. The fact that HE still contains a dedicated chapter clearly shows that the research gap, or science divide yet exists.

The issue of underperformance by the EU13 MSs in terms of their participation in the RTD FPs has been debated at academic and political level, through several reports and analyses, more recently in findings of two studies of the European Parliament’s Panel for the Future of Science and Technology (STOA): Overcoming innovation gaps in the EU-13 Member States and Exploring the performance gap in EU Framework Programmes between EU13 and EU15 Member States. These studies provided an insight on the possible reasons why this gap exists, as well as certain policy solutions to the problem. Similarly, the ERA-LEARN project included a task dedicated to widening participation of less-performing countries in EU-funded programs involving networks of research funding agencies, such as ERA-NET and EJP Cofunds in Horizon 2020 or European Partnerships in Horizon Europe. A report Inclusion in European R&I Partnership Programmes, was published by ERA-LEARN in June 2020. This presents activities supporting EU13 and less performing countries, undertaken by ERA-NET and EJP Cofund networks.

The reason why proposing such a session is that the knowledge that is produced within the RTD FP and beyond needs to be applied in national contexts. The FPs also aim to increase cohesion and promote social responsibility. This is why uneven participation, as an expression of the research gap is an issue that influences the achievement of the higher objectives of the EU FPs, and ultimately of the EU integration as such.

The aim of the session is primarily to give floor for a discussion of the methodology of analyses of the performance gap and of the validity of possible conclusions.

The session will first consist of a presentation of the main findings of the above studies, followed by a relevant overview based on publication data. This will be followed by a round table discussion of some of the relevant stake holders primarily from widening countries, including also questions raised by the audience. A further aim is to raise awareness among the audience to share the lessons learned on a larger scale.

## **SS1.6 Tax Justice in Europe and Beyond**

Date: 7/14/2022

Time in CEST: 8:00:00 AM - 9:15:00 AM

Location: Online room 4

*Speakers:*

*Julien Chaisse, Professor at the City University of Hong Kong (CityU), School of Law,*

*Frederik Heitmuller,*

*Irma Mosquera Valderrama, Leiden University*

*Ana Paula Dourado, Professor of Tax Law and International and European Tax Law at the University of Lisbon, Director of the Centre for Rese*

*Attia Waris, University Of Nairobi*

**Description:**



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Tax avoidance by multinational enterprises and tax competition between countries is still the subject of wide public attention and debate around the world. In particular, the tax behavior of multinational firms has come under fire from politicians and NGOs in recent years, especially since the 2008 financial crisis. Often an appeal is made to multinational firms to pay their "fair share" of tax. However, it is up to the countries to eliminate the tax avoidance opportunities of multinational enterprises.

Although cooperation in the European Union is particularly appropriate for this purpose, it is proving very difficult to take joint action against tax avoidance and harmful tax competition. EU Member States are reluctant to give up their tax sovereignty, thus the resulting tax competition creates opportunities for tax avoidance for multinational corporations. Meanwhile the globalization of business and the rise of big data and big tech, has meant that business models evolve globally, while taxation has remained primarily local.

The problem of tax competition is currently debated at EU Commission and EU Parliament (FISC Committee) level. Taking into account this debate, this panel will focus on Europe and beyond in order to analyze experiences of European and non-European countries.

## **SS1.7 Addressing global challenges through international scientific consortia; The case of nuclear fusion**

Date: 7/14/2022

Time in CEST: 8:00:00 AM - 9:15:00 AM

Location: Online room 5

### *Speakers:*

*Leonardo Biagioni, Fusion For Energy*

*Simcha Jong Kon Chin, Leiden University*

*Francesco Volpe, Renaissance Fusion*

### **Description:**

International scientific consortia are ever more central in efforts to address global challenges such as how to respond to major health emergencies, develop clean sources of energy, and preserve our environment. Such consortia are complex organisations and realising the ambitions of these consortia requires the involvement of stakeholder groups beyond the scientific realm such as policy makers and industry participants. This session will discuss the challenges of organising international scientific consortia. We will bring together leaders from science, policy, and industry, involved in one of the world's largest international scientific consortia: ITER. ITER is a EUR 20 billion project in the nuclear fusion field, which promises to provide a source of safe, non-carbon emitting and virtually limitless energy. ITER's aim is to be the experimental step between today's fusion research machines and tomorrow's fusion power plants. Speakers will address challenges they face in building a consortium that connects cutting-edge science with societal impact.



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## WP1.1 Meet my Lab focus on Green and Digital Transformation

Date: 7/14/2022

Time in CEST: 8:00:00 AM - 9:15:00 AM

Location: World programme

### Speakers:

*Glenn Banaguas, Environmental And Climate Change Research Institute*

*Huang Jingfeng, Republic Polytechnic*

*Jenny Lind Elmaco, Euraxess Worldwide*

*Hoang Nam Nguyen, National Economics University, Vietnam*

*Susanne Rentzow-Vasu, Euraxess Worldwide - Asean*

*Kampanart Silva, National Energy Technology Center (entec)*

### Description:

CLIMATE change has been deemed to be an environmental pandemonium that has accosted political, economic, social and human systems. It has created a daunting challenge and dismal innervation to humanity. However, its catastrophic impacts and risks have been staved off either by adaptation solutions using digitalisation or mitigation approaches conducted by different institutions, agencies and centers through collaboration and partnerships.

In this session, you get to meet ASEAN science diplomats and climate scientists, who are also members of the EU-ASEAN Scientific Network initiated by EURAXESS ASEAN, and their work to address sustainability challenges through science diplomacy and cooperative initiatives. Get to know the Environmental and Climate Change Research Institute and their platform that provides elucidations in reducing disaster risks and preventing potential damage and losses through scientific wide-ranging assessment, capacity development, project management and multilateral cooperation among actors. Find ways to engage and collaborate in future projects. Join us!

## PL1.1 Plenary Panel: Sustainable city

Date: 7/14/2022

Time in CEST: 9:45:00 AM - 11:00:00 AM

Location: Main stage (Stadsgehoorzaal)

### Speakers:

*Hanna Gronkiewicz-Waltz, Chair of the EC Mission Board for Climate Neutral and Smart Cities – an expert of the European Commission*

*Mohamed Ridouani, Mayor of Leuven*

*Henri Lenferink, Mayor of Leiden*

### Moderator:

*Wim Voermans, Professor of Constitutional and Administrative law, LUMC*

### Description:

In this session mayors of European cities and Chair of the Mission Board for climate neutral and smart cities in the European Commission will take a closer look at how sustainability initiatives can be effectively implemented and what are the next steps in achieving the goals of cities becoming truly sustainable.

## SP1.2 The braided river: women in science, careers and recognition (Elsevier)

Date: 7/14/2022

Time in CEST: 11:15:00 AM - 12:30:00 PM

Location: Aalmarkt stage (Stadsgehoorzaal)



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**Speakers:**

*Domiziana Francescon, The Elsevier Foundation*  
*Ylann Schemm, Elsevier*

**Description:**

Moving from the concept of “braided river”, used to describe the multi-threaded journeys that define the careers of many women researchers, this session will explore the system of awards that are specifically aimed at recognizing women in STEM. Women researchers’ careers often don’t follow a linear path: in many cases they’re defined by impediments, take non-traditional routes, and are impacted by duties and expectations in their personal lives. What does it mean then to award exceptional women scientists? What criteria are best used to define and recognize achievements within unexpected career frameworks? This session aims to start a conversation about what it takes to truly reward women in STEM, highlight their contributions to the advancement of knowledge, and build a more inclusive research landscape.

This session will feature speakers from the Elsevier Foundation, the Organization for Women in Science for the Developing World (OWSD) and UNESCO – along with winners of the Elsevier Foundation-OWSD Awards for Early-Career Women Scientists in the Developing World, and UNESCO-L’Oréal for Women in Science fellows. It will be preceded by a special award ceremony for the Elsevier Foundation-OWSD Awards, featuring speeches from the 2022 winners.

## **SS1.8 The Role of Universities in Boosting Innovation through Entrepreneurship**

Date: 7/14/2022

Time in CEST: 11:15:00 AM - 12:30:00 PM

Location: Cleveringa stage (KOG)

**Speakers:**

*Stephane Berghmans, European University Association*  
*Adam Gajek, Eurochambres*  
*Federica Garbuglia, European University Association*  
*Donato Iacobucci, Donato Iacobucci*  
*Sondre Kvam, Cohere XR*  
*Slaven Misljencevic, European Commission, DG Research & Innovation*

**Description:**

The session will discuss how universities contribute to enhancing innovation ecosystems through the development of entrepreneurship and how to strengthen this important role.

European University Association (EUA) intends to organize this session as a continuation of its activities on university innovation and entrepreneurship. The EUA has conducted a variety of studies, workshops, focus groups and surveys that have helped analyze the role of universities in innovations, and the challenges they face support student entrepreneurship. EUA made recommendations on how to enhance universities’ contribution to innovation ecosystems, such as to increase integration of entrepreneurship training into all study programmes. This recommendation would address a broad range of entrepreneurial and transversal skills, including in interdisciplinary contexts, thus bringing added value for a wide range of career paths.

The proposed session aims to consolidate the previous work of EUA by bringing together different perspectives to discuss how to address the university challenges in developing entrepreneurial skills. It will also showcase best practices, and reflect on ways forward with a panel of experts representing different actors, i.e., the university leadership, young university graduates and entrepreneurs, business, and policy makers.



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## SS1.9 Sustainable Forestry and Bioenergy? A Fishbowl Debate

Date: 7/14/2022

Time in CEST: 11:15:00 AM - 12:30:00 PM

Location: Lorentz stage (KOG)

### Speakers

*Gary Austin, Circleindigo*

*Luc Pelkmans, IEA Bioenergy*

*Mirjam Röder, Supergen Bioenergy Hub, Aston University*

### Description:

Tackling the challenge of decarbonising our energy systems is crucial to combating climate change. However, one renewable energy which is helping to achieve that seems to be more controversial than the rest: bioenergy. Despite biomass being our only source of renewable carbon and bioenergy being the dominant renewable energy type globally, it is often portrayed negatively in the media and in public debate.

This participant-driven 'fishbowl' debate hosted by the Supergen Bioenergy Hub will explore a wide range of perspectives on forestry and bioenergy, to provide a clear and balanced forum which will inform evidence-based policymaking. Participants will be able to swap in and out of the debating circle, enabling a wide range of viewpoints and perspectives to be heard.

The debate will be structured around three key questions:

Topic 1: What is a sustainable forest?

Topic 2: How can forests help with climate change?

Topic 3: What could a forest of the future look like?

Participants are invited to contribute during the 'fishbowl' by engaging in the debate about this complex and controversial topic, seeking to clarify what role forests should play in a net zero world.

## SS1.10 The effect of the online world on adolescents

Date: 7/14/2022

Time in CEST: 11:15:00 AM - 12:30:00 PM

Location: Online room 1

### Speakers:

*Eveline Crone, Leiden University*

*Ton Liefwaard, Leiden University, Leiden Law School*

*Amy Orban,*

*Jan Sleutels, Faculty of Humanities, Leiden University*

*Anne - Laura van Harmelen, Leiden University*

*Sterre van Riel, Leiden University*

### Description:

How do digital technologies affect adolescent mental health and resilience? How do we foster a secure online environment? How should we deal with increasing rates of online crimes and other forms of online transgressive behavior among adolescents? During the mini-symposium 'The effect of the online world on adolescents', presented by the interdisciplinary programme Social Resilience & Security, we dive into the online world of adolescents from an academic as well as a societal perspective.



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It is estimated that 97% of Dutch adolescents (aged between 12-24 years) frequently use at least one social media platform (e.g., WhatsApp, Instagram, YouTube, Facebook, or Snapchat). While the online world allows adolescents to connect with peers it also entails online crimes and other forms of online undesirable behaviour. In 2019, three out of every ten adolescents reported engaging in what they considered to be online transgressive behaviour. As such, a greater understanding of online (transgressive) behavior is urgently needed.

Previous research into online (transgressive) behaviour has been fragmented. Depending on its type and context, it is studied in law, public administration, pedagogy, psychology, and criminology. One of the aims of the interdisciplinary focus area, a consortium representing a total of five Leiden University faculties, is to integrate insights from these different fields into a cross-disciplinary framework of online (transgressive) behaviour.

Learn, discuss and cross the borders of scientific research

The current mini-symposium will provide a state-of-the-art overview of research on online safety and resilience for youth from an academic and societal perspective. (Inter)national experts with a background in psychology, philosophy, and law will present the latest insights and will be joined by experts from cognitive neuroscience and pedagogy for a follow-up panel discussion with the audience. In three 10-minute presentations, the speakers will address the topics of online versus offline norms, how digital technologies affect adolescent psychological well-being and mental health, and children's right to protection against exploitation in the digital world. The panel will also zoom in on both risks and protective factors for engaging in online transgressions as offender, and on the role of these factors in online victimization.

## **SS1.11 Creating Research Environments that Foster Mental Health and Wellbeing**

Date: 7/14/2022

Time in CEST: 11:15:00 AM - 12:30:00 PM

Location: Online room 2

### *Speakers*

*Neda Bebiroglu, Observatory of Research and Scientific Careers*

*Brian Cahill, Leibniz Information Centre For Science And Technology /euroscience*

*Joan Camilleri, University Of Malta*

*Gábor Kismihók, TIB Leibniz Information Centre for Science and Technology*

*Janet Metcalfe, Vitae*

### **Description:**

Increasing awareness of Researcher Mental Health has emerged through journalistic articles in the most prominent science journals, from discussions among early-career researchers on social media and bottom-up initiatives of early-career researchers. Recent research findings on the prevalence of mental illness among academics and early career researchers, such as, the seminal paper of Levecque et al. (Research Policy, 2017), have received much attention.

Although much work remains to be done to destigmatize mental health among research stakeholders, many research institutions and research funders are beginning to take action to design institutional practices that support researcher well-being and ensure a positive research culture within the research environment. This session will include speakers, who have formulated clear policy recommendations about how to foster supportive and inclusive research environments as well as a practitioner within an academic institution who provides psychological, psychotherapeutic and psychiatric services to academic staff and students based on evidence-based interventions.



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## SS1.12 Data with Burning Impact - Fires Seen from Space

Date: 7/14/2022

Time in CEST: 11:15:00 AM - 12:30:00 PM

Location: Online room 3

### Speakers:

*Jos de Laat, Royal Netherlands Meteorological Institute*

*Federico Fierli, Eumetsat*

*Mark Parrington, ECMWF*

*Cathelijne Stoof, Wageningen University*

*Isabel Trigo, IPMA, Portugal*

### Description:

The summer 2021 was literally burning hot in some countries: Canada, Siberia, but also Greece, Turkey and Italy suffered from severe wildfires. Wildfires are a crucial component for the Earth ecosystem, however their occurrence and severity is increasingly influenced by climate change. Thanks to sensors placed on a network of satellites, the heat, impact on the vegetation, pollutants and micro-particles emitted by such extreme fires are visible from space 24/7.

The data captured by the satellites are analyzed and translated into information on the wildfire risks that can generate an alert when there is a threat to houses, cities, infrastructures, and people. From data to action: the procedures to set up alerts and save lives and livelihoods from destructive fires have become more efficient. We will present a panel of experts representing the entire value chain from the satellite data to the fire alert, and further down the line outlining some recent findings on the impacts of wildfires on the global climate. Via an interactive presentation of the challenges at every step, you will be able to learn and question how the combination of different sciences are crucial to alert on the danger of wild fires and understand their consequences.

## SS1.13 Working on a Healthy Society: Prevention and Maintenance of Health and Well-being During the Life Cycle

Date: 7/14/2022

Time in CEST: 11:15:00 AM - 12:30:00 PM

Location: Online room 4

### Speakers:

*D Atsma, Leiden University Medical Center*

*L.D. Breeman, Leiden University*

*David De Buissonjé, Leiden University*

*Andrea Evers, Leiden University*

*V Janssen, Leiden University*

*J Rosen, Waybetter*

### Description:

Healthcare will face major challenges in the coming years. Life expectancy is rising, the demand for care is increasing, and the costs of care rise correspondingly. At the same time, health differences are increasing. The Ministry of Health, Welfare and Sport (VWS) aims for the Dutch to live in good health for at least five years longer. Aging, isolation, health inequalities and the costs of the healthcare system are major concerns. More and more voices are being raised to finance health in advance (i.e., prevention) instead of financing illness afterwards. Therefore, there is a growing need for 1) digital solutions to promote a healthy lifestyle; 2) smart technology adapted to the home situation; and 3) decreasing the risk of chronic disease.



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These developments come together in this symposium in which we present projects concerning promoting a healthy society from different perspectives. The focus of this symposium is on citizen health, prevention and health promotion, and resilience during all phases of the life cycle.

## **SS1.14 The Agricultural Sector & Greenhouse Gas Emissions: Perspectives from Science, Law & Governance**

Date: 7/14/2022

Time in CEST: 11:15:00 AM - 12:30:00 PM

Location: Online room 5

### *Speakers:*

*Luis Arbelaez, Enel*

*Fons Janssen, Eu Climate Pact*

*Margarita Nieves, PhD researcher University of Groningen*

### **Description:**

During this session the panelists will analyze the role of law and governance to reduce the impact of the agricultural sector on greenhouse gas emissions from both the production and the consumption side. Livestock and its byproducts contribute to 9-14% of global greenhouse gas emissions and their contribution is expected to increase between 30-40% by 2050. Methane and Nitrous Oxide are the two main greenhouse gases produced by livestock, being the second and third largest contributors to climate change after Carbon Dioxide.

From the production side, policy makers in Europe have implemented regulations to reduce the use of nitrogen fertilizers but faced significant backlash resulting in the farmer's protests in the Netherlands between 2019 and 2021. While on the consumption side, they will discuss whether the promotion of plant-based diets have helped reduce emissions.

In this way, the panel will present up-to date and provoking insights on the intersection among science, regulation and governance to tackle a complex societal challenge such as climate change.

## **SS1.36 Museums and Identity**

Date: 7/14/2022

Time in CEST: 11:15:00 AM - 12:30:00 PM

Location: Pieterskerk Leiden

### *Speakers:*

*Mariana Francozo,*

*Pieter ter Keurs, Leiden University*

### **Description:**

The 19th century has been called 'the museum age'. It was the time of the 'birth of the public museum' as Tony Bennett called it in his influential book of 1995. Everywhere in the world, in Europe as well as in the (former) colonies, the rapid growth of the public museum was closely linked to a strong sense of national unity and identity. The ideas of the founding fathers of the museums were clearly influenced by Enlightenment humanism, but towards the end of the century imperialism and colonialism became dominant factors as well.

Museums have long tried to strengthen feelings of (national) identity and have tried to appeal to the public in terms of 'belonging'. Feelings of pride of one's own background and of the achievements of (national) ancestors were integrally woven into museum policies. Nowadays, however, these 19th century principles are no longer taken for granted and are even challenged on a fundamental level.



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Museums have taken a long time to react to these new developments and some are even now still struggling with it.

This session aims to analyze in what way museums can or should still live up to their original mission statements and how we can tackle new societal circumstances to find new ways of functioning for old institutions. In recent years a more fragmented perspective on identity became dominant, resulting in a diverse field of discussions on museum issues, both in collection care as well as in presentations (permanent and temporary exhibitions). Restitution claims are part and parcel of this process.

How do museums deal with the changing field of identities in an open, pluralistic society?

The keynote speaker and the Session Chair will be asked to formulate some statements for a discussion, with the panel and with the public.

## **PL1.2 Keynote: Academic Freedom: Concept, Framework, Challenges**

Date: 7/14/2022

Time in CEST: 11:30:00 AM - 12:30:00 PM

Location: Main stage (Stadsgehoorzaal)

*Speaker: Prof. dr. Paul F. van der Heijden, Professor Emeritus International Labour Law, Leiden University Law School, Editor-in-Chief International Labor Rights Case Law Journal (Brill), Editor Website on Business Ethics and International Labor Rights, dbbe.org, Honorary Professor International Labor Law, Ghent University, Belgium*

*Moderator: A/Prof. Mariet Feltkamp, Associate Professor; Leiden Medical Center (LUMC)*

### **Description:**

Academic freedom is a core value of higher education in Europe, also formulated as a fundamental right in the EU Charter.

Without academic freedom a university simply cannot exist. Academic freedom means freedom from interference in research and teaching by governments. It also means freedom in teaching and research to question and test received wisdom, to put forward new ideas and to state controversial opinions. Academic freedom however comes with responsibilities for academic staff and students.

Academic freedom faces nowadays many challenges, like authoritarianism, erosion of curiosity driven research funding, de-platforming/cancellation of speakers, threatening scientists/scholars on social media, etc.. Academic freedom is not a fixed fact, but needs permanent inhouse and external maintenance and discussion.

## **SP1.6 Lunch Symposium: Antimicrobial Resistance (AMR) and Bacterial Vaccines (Janssen Pharmaceutical Companies of Johnson & Johnson)**

Date: 7/14/2022

Time in CEST: 1:00:00 PM - 1:45:00 PM

Location: Aalmarkt stage (Stadsgehoorzaal)

### **Speakers:**

*Ed J. Kuijper, LUMC*

*Jan Poolman, Johnson & Johnson*

*Jaap A. Wagenaar, Utrecht University*

### **Description:**



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During the session, each speaker will present their own research on the topic of antimicrobial resistance, recognized by the World Health Organization as one of the top 10 threats to global health. The session will aim to raise awareness of AMR and the stewardship of antimicrobials – addressing ways scientific community can help reverse the trend of increasing AMR infections through discovery, prevention and treatment. Following presentation, Jan will moderate a Q&A with the speakers.

### **SP1.3 Biodiversity as an opportunity - Nature as the basis for our society and economy (Naturalis Biodiversity Center/BiodiversityXL)**

Date: 7/14/2022

Time in CEST: 2:00:00 PM - 3:15:00 PM

Location: Aalmarkt stage (Stadsgehoorzaal)

#### *Speakers:*

*Koos Biesmeijer, Naturalis Biodiversity Center*

*Tessa Dool, Jonge Klimaatbeweging*

*Ida Kubiszewski, University College London*

*Marco Roos, Naturalis Biodiversity Center*

*Kirsten Schuijt, WWF*

*Wim Van der Putten, Netherlands Institute of Ecology*

*Karin van Dijk, ASN Bank*

*Caroline van Impelen, Naturalis*

#### **Description:**

Nature and biodiversity are rapidly declining on a global scale, while species shift due to climate change. Habitat change, overexploitation, urbanisation, pollution and climate change are heavily impacting nature and biodiversity. Our current way of living and producing is a threat to biodiversity. “Almost three quarters of the Earth’s surface have been altered, squeezing untouched nature into an ever-smaller corner of the planet.” At the same time the EU Biodiversity strategy for 2030 states as key message that “We need nature in our lives”. Humans depend on nature for food, water, fresh air, mental health and physical wellbeing. And we become increasingly aware that society needs nature to cope with health threats, global change and disasters. From the smallest microbe to the largest organism, we increasingly start to understand that each of them has its own role to play via the many interactions between them. So this raises the question: how can we use biodiversity as an opportunity to create a climate-proof economic healthy future society? We discuss this topic, using the heavily engineered Dutch delta as case study. The Netherlands is threatened by climate change and has lost most of its biodiversity. Several problems are currently high on the Dutch societal agenda: nitrogen pollution, air pollution, poor water quality, PFAS pollution, virus diseases, and flooding-related climate change problems. These problems are not limited to the Netherlands and also play in many parts of Europe and even the rest of the globe. But in the densely populated Dutch delta they are extremely explicit. So can we address these problems and at the same time protect and restore biodiversity? In this session we will bring together experts from the areas of ecology, economy, policy making, corporate business and non-governmental organizations. We will challenge the speakers to discuss the following questions: How are these problems interconnected? Can we resolve these problems and strengthen nature and biodiversity at the same time? Or even better, can we perhaps even use nature and biodiversity to address these problems? What nature-based solutions can we use to tackle these problems? What knowledge and research do we need for better understanding and better informed decision making? And if we do have the knowledge needed, how can we effectively influence policy and decision making? Do we need to develop a different economy and culture in order to truly value and appreciate biodiversity? How can we develop a trans-disciplinary vision to solve the problems at hand? What are the lessons to be learned from the problems in the Netherlands, for the rest of Europe and the rest of the world? By combining the visions from different backgrounds we will offer a rich perspective on lessons and challenges for the future.



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## SS1.15 The Lancet, Health & Climate - Are We on Track for a Healthy Society?

Date: 7/14/2022

Time in CEST: 2:00:00 PM - 3:15:00 PM

Location: Cleveringa stage (KOG)

### Speakers:

*Alastair Brown, The Lancet Planetary Health*

*Giulio Gallo, Deputy Head of Unit European Commission - Directorate-General for Health and Food Safety European Commission*

*Stefan Swartling Peterson, Professor of Global Transformation for Health, Karolinska Institute*

*Nicky Philpott, Deputy Director Greener NHS Programme, and Director of The UK Health Alliance on Climate Change*

*Marina Romanello, Lancet Countdown*

### Description:

It is assumed that as social and economic development continues, health will continue to improve. Yet, the reality is that we are living in an era where the future health of our society is increasingly influenced by disrupting trends in our economic, social, technological and environmental worlds. At the start of 2020, the world was not on track to achieve any of the 17 goals.

But where to start? In 2015, The Lancet defined tackling climate change as the greatest global health opportunity of the 21st century and launched a research collaboration. By annually monitoring the evolving health profile of climate change, the collaboration aims at providing an independent assessment of the delivery of commitments made by governments worldwide under the Paris Agreement. The 2021 report issues a code red for a healthy future and outlines the growing risks from climate change to health. These risks are particularly exacerbating the health hazards already faced by many, particularly in communities exposed to food and water insecurity, heatwaves, and the spread of infectious diseases. The authors call for urgent, globally coordinated action to mitigate climate change and build a healthier, sustainable future for all.

## SS1.16 Research Assessment Reform – What Does Good Look Like?

Date: 7/14/2022

Time in CEST: 2:00:00 PM - 3:15:00 PM

Location: Lorentz stage (KOG)

### Speakers:

*Stephane Berghmans, European University Association*

*Lidia Borrell-Damian, Science Europe*

*Kostas Glinos, European Commission*

*Kim Huijpen, Programme Manager Recognition & Rewards, VSNU*

*Karen Stroobants, Marie Curie Alumni Association*

### Description:

A decade after the publication of the San Francisco Declaration on Research Assessment, we have arrived, at least in Europe, in the year of research assessment reform. Increasing numbers of universities, funders and governments are releasing position papers and strategies towards a new balance in the recognition of academics; publishing case studies on how institutions are rethinking research career assessment; and trialing new tools such as narrative CVs for researchers to do so.

However, depending on the goals that different stakeholders aim for at the outset of a reform exercise, the outcomes of that exercise will be different. Currently it is unclear to what extent stakeholders across the system e.g., governments, funders, institutions, and researchers are truly aligned in terms of the goals they have in mind.







In this interactive session, we will explore current thinking from stakeholders across the research landscape on goals and anticipated outcomes of research assessment reform.

## **SS1.18 Reforming Academic Assessment: The Impact on Early-Stage Researchers and Their Careers**

Date: 7/14/2022

Time in CEST: 2:00:00 PM - 3:15:00 PM

Location: Online room 2

### *Speakers:*

*Neda Bebiroglu, Observatory of Research and Scientific Careers*

*Véronique De Herde, Université catholique de Louvain - ELIA/Rotterdam School of Management, Erasmus University Rotterdam*

*Luke Georghiou, University Of Manchester*

*Irma Grdzeldze, Ivane Javakhishvili Tbilisi State University*

*Alexander Hasgall, European University Association*

### **Description:**

The number of early career researchers significantly exceeds the number of available positions in academia. While not all of them remain in academia, it still leads to massive competition among them. The number of high-impact factor publications is still the primary factor that determines whether a researcher has a chance of obtaining a permanent position.

This situation is repeatedly criticized as it limits the potential of researchers and their academic activities. Therefore, there is a growing call to change academic assessment to address the whole breadth of the academic career.

To successfully reform the academic assessment and career system, it is absolutely necessary to address the intended and unintended consequences of current and foreseen changes. In this session, panelists will address the question of the extent to which such fears are justified and how they should be addressed. The audience and early career researchers will be asked to interact with the panel to raise some of their hopes and fears. This will generate discussion about how assessment can be reformed to better reflect diverse academic careers and enable them.

## **SS1.19 Health Inequality Through the Ages: Interdisciplinary Perspectives**

Date: 7/14/2022

Time in CEST: 2:00:00 PM - 3:15:00 PM

Location: Online room 3

### *Speakers:*

*Johan Mackenbach, Rotterdam*

*Tim Riswick, Radboud University*

*Sarah Schrader, Faculty Of Archaeology*

### **Description:**

Health differs dramatically between socioeconomic groups. People of lower socioeconomic status are more likely to be sick, to experience reoccurring infections, and to die earlier. A multitude of factors contribute to this disparity, including access to healthcare, education, and physical environment. Recent research has found that this effect might even be inherited and multi-generational. But how far back in time have these health inequalities existed? Has health inequality become worse with time? How can our knowledge of health in the past help address inequalities that exist today?



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This session aims to look at health inequality through time to examine (1) how we study health in the archaeological and historical records, (2) how health inequality has changed through time, and (3) how we can use this information to inform modern policy regarding disparities in health.

## **SS1.20 The New Drug Policy Commission for Central & Eastern Europe & Central Asia: Why Europe Must Lead Drug Policy Reform & Decriminalisation**

Date: 7/14/2022

Time in CEST: 2:00:00 PM - 3:15:00 PM

Location: Online room 4

### **Speakers:**

*Ricardo Baptista, Member of the Portuguese National Parliament; Founder, Global Parliamentarians Network to end HIV/Aids, Viral Hepatitis*

*Clive Cookson, Financial Times*

*Tetina Deshko, Director, International Programmes at the Alliance for Public Health, Ukraine.*

*Michael Golichenko, Senior Policy Analyst responsible for Research & Advocacy work in Russian-speaking countries, HIV Legal Network*

*Thomas Hartung, Panel Co-organiser: Professor & Chair of Toxicology, The Johns Hopkins University Bloomberg School of Public Health*

*Michel Kazatchkine, Global Commission On Drug Policy*

*Aleksander Kwaśniewski, Panel Organiser: Chair, Eastern/Central European & Central Asian Commission on Drug Policy; Former President of Poland.*

### **Description:**

Moderated by the FT, this panel assesses how the goal of a 'drug-free world' backed by a 'war on drugs' anchored in 'science' and enshrined in international drug control treaties is naïve and dangerous. Naïve, in that prohibition has little impact on drug use, up 45% in twenty years. Dangerous, in that prohibition fuels coerced drug treatments, incarcerations, extrajudicial killings, the death penalty, drives human rights abusers for profit, and contributes to record drug-related deaths. Strict drug laws stoke blood-borne viruses and escalate health epidemics such as HIV, hepatitis C and tuberculosis, or the overdose crisis. Prohibition also limits access to life-saving harm reduction treatments, limits research on medical uses of illicit substances and blocks the prescription of pain relief and palliative medication.

Speakers include elected politicians past and present, leaders of global funding and public health institutions, policy-change experts, medical doctors, pioneering researchers and importantly, activists in the field. They will first challenge why, despite surging drug use and infections, EU policies remain dissonant and under the radar. Brussels is simply not prioritising tackling this health crisis, nor allocating sufficient funding, nor leading globally on the issue like it did in the past. The panel will issue a call to action at ESOF for greater take-up by all EU27 of compelling harm reduction science, sadly non-existent in some member states.

Secondly, against the backdrop of the war in Ukraine and the yet to be fully appreciated dire consequences this will have on the whole region's public health infrastructure, the panel will spotlight some inconvenient truths. Put simply, despite admirable responses to attacks on LGBTQIA+ rights and judicial and media freedoms, the EU does not grasp the dynamics at-play between Central and Eastern European Countries (CEECs, 11 EU members) and their historic Central Asian partners. Today, one in four people injecting drugs worldwide lives there. The region is experiencing a sustained increase in HIV infections, of which close to half occur in people injecting drugs. One in seven people injecting drugs is living with HIV and one in three is infected with hepatitis C.

Direct testimonies from the Ukrainian Alliance for Public Health, the HIV Legal Network and the Warsaw-based, Eastern/Central European & Central Asian Commission on Drug Policy, will be given. This will include the latest data on populist crackdowns and high rates of imprisonments orchestrated



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against people who use drugs. Inexplicably, more national and indirect EU resources are devoted to prohibition law enforcement than to prevention and care. This contrasts with powerful grassroots, knowledge-based support and direct-action lobbying demanding greater empathy for people injecting drugs and greater understanding of the science.

### SS1.37 To Mars and Beyond

Date: 7/14/2022

Time in CEST: 2:00:00 PM - 3:15:00 PM

Location: Pieterskerk Leiden

#### Speakers:

*Barbara Cavalazzi, University of Bologna*

*Stefaan De Mey, European Space Agency*

*Julie Nováková, Charles University / European Astrobiology Institute*

*Angelo Pio Rossi, Jacobs University Bremen*

#### Description:

We're explorers, lured by the promise of space beyond our Earth. Let us imagine that we have just landed on Mars – what technology and science has taken us there and what do we need now that we've arrived? In this interactive session, we'll virtually take the audience to the planets of the Solar System with particular focus on the Moon and Mars, through state-of-the-art mapping and visualization. We'll also show how the same technology can help us monitor and protect our own planet, fragile and resilient at the same time. Speaking of resilience of life, Earth-based planetary analogue sites show us extreme environments life can withstand, ways it could have emerged on early Earth, and chances for life on other planets such as Mars. We'll explore analogue sites virtually and see how we can test technology for space there. When we actually land a crewed mission on Mars one day, we'll need lots of currently emerging technology, including in-situ resource utilization. How are space agencies around the world going about the development of these technologies and how might they prove useful on Earth as well? What's the timeline for planned explorations of the planet? Are we going to find any signs of life? Extinct or still flourishing, even in the extreme conditions? We're going to let the audience experience what it might be like to do science on Mars, showcasing how interactive presentation formats and storytelling can assist outreach and education and increase public interest in science and understanding of it.

## WP1.2 Science for Social Justice: Africa welcomes the World Science Forum

Date: 7/14/2022

Time in CEST: 2:00:00 PM - 3:15:00 PM

Location: World programme

#### Speakers:

*Daan du Toit, Deputy Director-General: International Cooperation and Resources at the South African Department of Science and Innovation*

*Mmampei Chaba, Chief Director: Multilateral Cooperation and Africa at the South African Department of Science and Innovation*

*Gergely Bohm, Head of the Department of International Relations at the Secretariat of the Hungarian Academy of Sciences*

*Dr Lidia Brito, UNESCO Regional Director for Southern Africa*

*Mammo Muchie, senior member of the African Academy of Sciences and Research Chair in Innovation Studies at the Tshwane University of Technology*

#### Description:

The first UNESCO World Conference on Science took place in 1999 in Budapest. As a series of follow-up events of this initial gathering, following the initiative of the Hungarian Academy of Sciences, since 2003 the World Science Forum series has played a prominent role in bringing leaders of the



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world of science and policy together. The biennial WSF series aims to discuss about the roles, responsibilities and challenges of science and presents issues of common interest to the scientific community and the public.

In 2011, WSF partner organisations agreed that the Forum should alternate between Budapest, Hungary and another host country. For the first time the Forum was hosted by Brazil in 2013 and then by Jordan in 2017. In 2022, Africa will host the WSF for the first time. As host country, South Africa will strive to make the 2022 event, due to take place in Cape Town from 6 to 9 December 2022, a truly African event. The values of Ubuntu, which promotes the social nature of humanity, will guide the organisation of the 2022 WSF, ensuring an event, which is inclusive and where the voices of those often ignored will actively participate in debates responsive to the challenges of developing countries.

In these unprecedented times, marked by global challenges such as the COVID-19 pandemic, climate change and persistent poverty, science is called upon to make a critical contribution to create a more equal, fair and just world. This call for action informed the theme proposed by South Africa for the 2022 Forum as "Science for Social Justice". Debates at WSF 2022 will therefore interrogate what role science should play in ensuring resources, opportunities and privileges in society are accessible to all, and distributed in a fair manner.

The WSF 2022 will therefore discuss how the production and application of new knowledge could and should challenge inequality, injustice, environmental destruction and marginalization. The Forum will not only consider the role of science in advancing social justice, but also how the values of social justice, such as greater transparency and inclusivity, should transform the nature of the scientific enterprise to make it more responsive to the needs of society. Topics such as Open Science, research integrity as well as ethics and technology governance will be in the spotlight at the Forum.

International cooperation will be crucial to advance the cause of science for social justice, as it is for the response to all societal challenges. Science Diplomacy will therefore as is traditional be an important focus of the WSF 2022. In this regard, the WSF 2022 will pay special attention to the African agenda for science and the promotion of greater participation by developing countries in global science.

This session will serve to present the World Science Forum 2022 to ESOF 2022 participants making the connection between the "Science for Social Justice" theme of the WSF and the Crossing Borders, Engaged Science and Resilient Societies focus of ESOF 2022.

### **PL1.3 Keynote: Space for Science**

Date: 7/14/2022

Time in CEST: 2:15:00 PM - 3:15:00 PM

Location: Main stage (Stadsgehoorzaal)

*Speaker: Prof. Ben L. Feringa, Nobel Prize in Chemistry (2016), Stratingh Institute for Chemistry, Center for Systems Chemistry & Zernike Institute for Advanced Materials University of Groningen*  
*Moderator: Dr Noel de Miranda, Leiden University Medical Center (LUMC)*

#### **Description:**

The universe is the greatest of all imaginable physics laboratories. Cosmologists study how the universe expands and evolves under the laws of physics, using ever more powerful satellites and telescopes. Rapid advances in planetary sciences promise to shed light on the prevalence of biological activity in the universe within our lifetime. Humanity is now opening a new chapter in space missions, with a much larger and more diverse set of countries having space ambitions. The most ambitious plans include establishing bases and villages on the moon as well as the first manned landing on the planet Mars. There are technical challenges to design and construct the necessary



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ground-based and space-based instrumentation to characterise potential habitats and discern signs of life, but unequivocal proof of biological activity will require a synthesis among many disciplines.

### **SS1.38 Contested Heritage**

Date: 7/14/2022

Time in CEST: 3:45:00 PM - 5:00:00 PM

Location: Aalmarkt stage (Stadsgehoorzaal)

*Speakers:*

*Mariana Francozo, Leiden University*

*Michael Rowlands, UCL Anthropology*

*Pieter ter Keurs, Leiden University*

**Description:**

Many heritage and museum discussions are now centered around contested heritage. Various (minority) groups appropriate heritage and collections, and sometimes even monopolize the right to say something sensible about it. These sentiments run contrary to the dominant discourse of the 19th and 20th centuries, in which western scholars were seen as beholding the 'ultimate truth' in interpreting heritage and collections (although anthropologists always knew that there were alternative ways of interpreting reality). In addition, the heritage discourse was largely based on Enlightenment, so European, thought. Recently, dominant ideas and practices on the importance and interpretation of heritage are severely scrutinized and criticized. This has already led to new regulations on both national (more awareness and stricter legal frameworks) as well as international levels (UNESCO, ICOMOS, etc.).

As a framework for this session it is proposed to address the subject of contested heritage in terms of identity, resentment and ownership (see also Fukuyama 2018). Contestation is not only a legal matter. It also has to do with alternative, often non-European, ideas of ownership as well as psychological attachments between objects and human beings.

The invited speaker will be asked to reflect on these issues and to present some statements, in consultation with the Session Chair, that will be leading for the discussion.

### **SS1.22 Vaccine development in Europe: fast and for all**

Date: 7/14/2022

Time in CEST: 3:45:00 PM - 5:00:00 PM

Location: Cleveringa stage (KOG)

*Speakers:*

*Ramon Arens, LUMC*

*Benjamin Petsch, CureVac*

*Rino Rappuoli, GSK*

*Meta Roestenberg, LUMC*

**Description:**

How can Europe lead the way in vaccine development which is fast and for all? We will look at emerging and endemic infectious diseases from a global perspective and address the challenges in moving fundamental research to reach policy recommendation. We will discuss the innovations at hand to cut time and costs to develop vaccines against infectious diseases, including novel partnership models. We will also touch upon strengths and weaknesses of Europe in this field and dilemmas around vaccine equity. The end product will be a report/publication that will propose concrete steps that will address the gaps in vaccine development by Europe and its partners.



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## SS1.23 First results from Webb: a new exploration of the cosmos

Date: 7/14/2022

Time in CEST: 3:45:00 PM - 5:00:00 PM

Location: Lorentz stage (KOG)

### Speakers:

*Bernhard Brandl, Leiden University*

*Marina Rachid, Leiden University*

*Ewine van Dishoeck van Dishoeck,*

*Rens Waters, Radboud University*

### Description:

Looking at the night sky makes one wonder. How did we get here? Are we alone in the universe? How does the universe work? The James Webb Space Telescope, launched on Christmas day 2021, is the new flagship space telescope of NASA/ESA designed to answer these questions. It is the most ambitious and complex mission ever built, pushing the boundaries of human knowledge even further to the formation of the first galaxies and the horizons of other worlds. Two of the four instruments on Webb were developed and built in Europe.

Over the past 6 months, the telescope has successfully unfolded in space, cruised to its operating position beyond the Moon, and had its instruments commissioned. The first scientific results will become public in the week of ESOF. This session will tell the story of the building and engineering of Webb and how it will help astronomers unravel the secrets of both the near and distant universe. Come and see the first hot-off-the-press images, explained by experts intimately involved with Webb!

## SS1.24 Researchers' Perspectives Are Crucial to Reform the Research Assessment Problem

Date: 7/14/2022

Time in CEST: 3:45:00 PM - 5:00:00 PM

Location: Online room 1

### Speakers:

*Martin Andler, Initiative For Science In Europe*

*Michele Garfinkel, Embo*

*Monica Heintz, University of Paris Nanterre*

*Gabi Lombardo, European Alliance for SSH*

*Frank Postberg, Freie Universitaet Berlin*

*Toma Susi, University Of Vienna*

### Description:

The current transition to Open Science (OS) – a broad strategy to improve the reproducibility, transparency, and robustness of research – has made the reliance of bibliometrics more evident, as no bibliometric indicators can measure the true impact of performing research within the OS framework.

The European Commission and many other stakeholders, including the Initiative for Science in Europe (ISE), have recently embarked on identifying policies to reform research assessment systems. While the top-down approach from policymakers is welcome to drive much-needed reforms, it is crucial that researchers be in the driver's seat on how the transition to OS should be conducted.

Diverse research communities should concretely consider how they wish evaluation systems to be adapted to reward Open Science practices, and that decision-makers engage with such communities





in planning the reforms. In this session, we will discuss the challenges and responsibilities that researchers from different disciplines and countries face in a transition to a new assessment culture.

## **SS1.25 Europe as a Geopolitical Stabilizer After the Russian Invasion in Ukraine**

Date: 7/14/2022

Time in CEST: 3:45:00 PM - 5:00:00 PM

Location: Online room 2

### *Speakers:*

*Dimitar Bechev, The Europaeum*

*Sonia Lucarelli, University of Bologna*

*Hartmut Mayer, Europaeum*

*Wim Van Den Doel, Leiden-delft-erasmus Universities*

*Maija Vilson, Johan Skytte Institute Of Political Studies, University Of Tartu*

### **Description:**

The EU's power is rooted in its' values, the vibrancy and diversity as well as the economic strength of the internal market. However, the soft power landscape is changing. Those who challenge the values of democratic societies do so through investing heavily in global power projection and information operations increasingly shaped in the digital space. The fact that China and Russia are authoritarian states might present the biggest state-based threat to the EU's security. The instability in many of the neighboring countries in the South-East of Europe, Eastern Europe and the MENA region adds to turbulence in which the EU finds itself.

Open societies are crucial building blocks in a sustainable international order. However, they are coming under growing pressure in the physical world and online. The need for the EU and the US to work together as "Western' bloc" in a geopolitical sense seems to be clear.

The panel of leading European scholars will discuss how Europe could act as a stabilizer in a fluid world order and yet stand up for its' values and interests where they are threatened.

## **SS1.26 The Deep Past of Future Society. Questioning the Western Perspective on the Reconstruction of Human History**

Date: 7/14/2022

Time in CEST: 3:45:00 PM - 5:00:00 PM

Location: Online room 3

### *Speakers:*

*Leela Gandhi, Brown University*

*Rosemary Joyce, University Of California, Berkeley*

*Dan-el Padilla Peralta,*

*Marie Soressi, Leiden University*

*Miguel John Versluys, Leiden University*

*Hub Zwart, Erasmus School of Philosophy*

### **Description:**

The deep past is an invaluable source of data with which to prepare for the future. Yet, the reconstruction of the human past is especially sensitive to the societal context upon which it is built. Almost all discussions of a sustainable future for our planet share a worldview grounded in the idea of modernity that was constructed in western institutions over the past centuries.



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Within several of the key concepts used in our current construction of the human past we place ourselves in a superior position: we seek to uncover the invention of agriculture and its spread to other continents; we envision the Greeks and the Romans as (culturally) superior to others from Antiquity; and we want to perceive the history of the world since 1492 as a story of the rise of the West alone. Each of these thresholds for human history has been interpreted in terms of modernity.

In this session, we argue for the importance of alternative worldviews to shape our future and assert that it is possible to find such 'ontologies' in our deep past.

## **SS1.27 Closing the Gap for Early-Career Researchers' Policy Engagement**

Date: 7/14/2022

Time in CEST: 3:45:00 PM - 5:00:00 PM

Location: Online room 4

### **Speakers:**

*Alessandro Allegra, Journal of Science Policy & Governance (JSPG)*

*Adriana Bankstone, Journal of Science Policy and Governance*

*Jacek Kolanowski, Young Academies Science Advice Structure (YASAS)*

*Lorenzo Melchor, Joint Research Center, European Commission*

*Henriette Ruhmann, University College London (UCL)*

### **Description:**

Engagement between researchers and policymakers is ever more important, and early career researchers bring radical creative potential for transforming the way academia operates and engages with policy and society. However, they face several challenges in developing the right skills and being taken seriously when engaging with policymakers. In this session, early career researchers discuss how innovative structures and initiatives can support them in engaging with policymaking and society at large and becoming agents of societal change.

Support for this change can and should be as diverse as the experiences of early career researchers. The session will be moderated by Alessandro Allegra, early career science policy professional and researcher, and an international outreach advisor at the Journal of Science Policy and Governance (JSPG), and will focus on providing infrastructure for three levels of support: (1) within research organizations, (2) within the peer community of researchers, and (3) within policy organizations.

## **SS1.28 Can We Make Informed Decisions Without Risk Know-How?**

Date: 7/14/2022

Time in CEST: 3:45:00 PM - 5:00:00 PM

Location: Online room 5

### **Speakers:**

*Tracey Brown, Sense About Science*

*Sarah Cumbers, Lloyd's Register Foundation*

*Cristina Del Real, Institute Of Security And Global Affairs, Leiden University*

*Meaghan Kall, Lead Epidemiologist at UK HSA*

*Jan Marco Müller, European Commission*

*Katherina Schueller, Stat-up Statistical Consulting & Data Science GmbH*

### **Description:**

From dwindling fishing stocks to increasing rainfall, from emerging diseases to new types of mining and power generation, the need for communities to make new tradeoffs and develop risk know-how is growing. Risk know-how is about informed decision-making. Policymakers need to not only make well



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informed decisions but to also explain these decisions to citizens: how were the benefits and costs of action or inaction weighed up? The panel will introduce the risk know-how framework which sets out key elements of understanding risk that have the strongest practical application in day-to-day life and discuss the aspects of risk know-how that are especially key for policymakers. They will focus on how statisticians, scientists, advisors, journalists and even citizens can support and engage with policymakers to ensure that communities are equipped to navigate risk information and empowered to make decisions that are right for them.

## **SS1.40 The Rights Retention Strategy: Academic freedom and responsibility for researchers**

Date: 7/14/2022

Time in CEST: 3:45:00 PM - 5:00:00 PM

Location: Online room 6

### *Speakers:*

*Stephane Berghmans, European University Association*

*Lidia Borrell-Damian, Science Europe*

*Simone Dr. Rehm, University of Stuttgart*

*Vinciane Gaillard, European University Association*

*Nora Papp-Le Roy, European Science Foundation/ cOAlition S*

*Johan Rooryck, cOAlition S*

*Sally Rumsey, Jisc*

### **Description:**

Academic freedom is usually defined as the right to freely perform research and communicate insights and facts. This session will focus on a key aspect of this freedom: the need for authors to retain rights allowing the free dissemination of their research results.

Current copyright practices often mean that researchers heedlessly sign copyright transfer agreements and licences to publish that severely restrict the right of researchers to reuse and share their own work. This means that the author must ask the publisher's permission to reuse or share material from their own publications. This practice severely hampers academic communication and does not allow the largest possible set of researchers to build on that work.

cOAlition S is pioneering a policy initiative by which all peer-reviewed papers financed by their funders grants are to be published Open Access with a CC BY licence and without embargoes. The Rights Retention Strategy (RRS) was developed to make sure that researchers retain sufficient intellectual rights on their work to freely reuse and share it. It requires researchers to apply a CC BY licence to the Author Accepted Manuscript (AAM) of their publication. This licence will take precedence over any later copyright agreement with the publisher and allow for sharing and reuse of that AAM.

Beyond academic freedom, this session also connects to ESOF's theme on the social responsibility of science. Using the RRS is not just a way to ensure that researchers can reuse and share work that is published behind a paywall. It is also a matter of societal responsibility: any potential reader has the right to have full and immediate access to newly published research. Immediate access is part and parcel of academic freedom.

Publishers have put up fierce opposition to the RRS since its inception in July 2019 using various tactics, such as redirecting researchers away from their journal of choice towards paying Open Access options and asking researchers to sign publisher contracts conflicting with their cOAlition S grant conditions. On 25 May 2021, more than 880 universities and organisations united within CESAER, EUA, and Science Europe called on publishers to stop requiring researchers to sign over their rights.



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Early 2022 cOAlition S launched an online campaign to raise the awareness amongst researchers about their rights and to encourage them to retain those. In addition to funders, a growing number of universities have also started adopting institutional rights retention strategies.

This session will focus on how researchers can effectively use the RRS and why it is in the interest of the entire academic community to do so. We will also explore how universities and other research performing organisations can integrate the RRS in their contracts and agreements with employees.

### **PL1.4 ERC Public Engagement with Research Award Ceremony**

Date: 7/14/2022

Time in CEST: 4:00:00 PM - 5:00:00 PM

Location: Main stage (Stadsgehoorzaal)

#### **Description:**

The European Research Council's (ERC) Public Engagement with Research Award aims to recognise ERC grantees who make the effort to engage with audiences beyond the scientific community and do so in effective and original ways.

During this ceremony, a prize of €10,000 will be awarded to the best applicant in each of three different categories:

Involve (citizen science)  
Inspire (public outreach)  
Influence (media and policy)  
Speakers:

Dr Robbert Dijkgraaf, Minister of Education, Culture and Science, Netherlands  
Mariya Gabriel, European Commissioner for Innovation, Research, Culture, Education and Youth (video message)  
Prof. Maria Leptin, ERC President  
Prof. Eveline Crone, ERC Vice President  
Master of ceremonies: Tony Lockett, Head of Communication, ERC Executive Agency  
Stay tuned and find more information about the Award.

### **SS1.39 The Future of Work: Opportunities and challenges of digitalization, the platform economy and flexibilization of European labour markets**

Date: 7/14/2022

Time in CEST: 5:15:00 PM - 6:30:00 PM

Location: Aalmarkt stage (Stadsgehoorzaal)

#### **Speakers:**

*Hanneke Bennaars,*  
*Ron Diris, Leiden University*  
*Ferry Koster, Erasmus School of Social and Behavioural Sciences*  
*Lars Van Doorn, Universiteit Leiden*  
*Olaf van Vliet, Leiden University*

#### **Description:**

Work has changed rapidly. Over the past years, many jobs have been replaced by new technologies, like artificial intelligence and robotics. In addition, digitalization has enabled the upsurge of the platform economy, with companies like Deliveroo and Uber as examples. As a result of these developments, traditional jobs and occupations have been in decline whereas new jobs and occupations have risen. For many workers across European countries, these developments have



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major implications. These structural labor market shifts are associated with enormous economic and societal consequences, which require new policy solutions. In this panel, we will present and discuss novel insights on the impact of new technologies on European labor markets from various disciplinary angles, namely economics, sociology, law and political science. From an economic and sociological perspective, we will analyze labor market developments across European countries. Which types of jobs have disappeared, which types of jobs have increased and how can we explain the variation in these patterns across countries? Furthermore, why do some workers easily switch from a decline to a growth sector whereas other workers become unemployed? How do factors such as skills, labor market policies and education play a role here and what lessons can be learnt for the future? Interestingly, the rise of new technologies is not only related to the question of more or less work, but also to the notion of more flexible work. An increasing share of workers has been employed on flexible or temporary contracts or as a self-employed workers. We will discuss how these labor market developments have affected the subjective social status of workers. Because the described labor market developments have substantial and unequal effects across societies, labor market reforms have featured prominently on the policy agendas of many European governments. From a legal perspective, we will discuss what type of labor law and social policy reforms would be required to facilitate structural shifts on the labor market and to mitigate the negative social effects of these developments such as increased unemployment and poverty levels. As labor law and social policy reforms are politically very sensitive, these reforms will not only be challenging from a substantive legal or economic perspective, but also from a political perspective. Hence, we will conclude our panel with a political science analysis of the political feasibility of certain policy reforms. For instance, under what conditions would voters accept shifts in the government budget from unemployment benefits to training and education?

## **SS1.29 Social Uncertainties in Post-corona Cities: The Role of Diversity and Social Inequalities**

Date: 7/14/2022

Time in CEST: 5:15:00 PM - 6:30:00 PM

Location: Cleveringa stage (KOG)

### *Speakers:*

*Moritz Jesse, University Of Leiden*

*Reinout Kleinhans, Delft University of Technology*

*Mark Van Ostaïjen, Erasmus University Rotterdam*

### **Description:**

Cities have always been places of encounter where people from all walks of life, backgrounds, views and lifestyle come together to live, work, learn, recreate and build an existence. Being sites of frequent encounters, cities are also often the epicenter of pandemic outbreaks. Such outbreaks may lead to profound social and political changes when they take place at a time of widespread social unrest. When we consider the confluence of growing intra-national inequalities in the most-wealthy countries, the grave difficulties experienced by the most vulnerable groups during the pandemic, the rising discontent embodied by global social movements such as Black Lives Matter and the anti-globalization movement, and reactions to the European Union such as Brexit, many experts envision short-and long-term social changes, rapidly spurred on by the COVID-19 pandemic. However, urban diversity may also act as a valuable resource, providing ideas for novel coping mechanisms and social innovation.

This panel explores how cities have met similar challenges in the past, the challenges and opportunity played by social diversity at times of social change, and the role played by EU, national and local legal frameworks in stimulating social innovation and mitigating potential drawbacks.



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### SS1.30 Fly me to the Moons!

Date: 7/14/2022

Time in CEST: 5:15:00 PM - 7:00:00 PM

Location: Lorentz stage (KOG)

#### Speakers:

*Henriette Bier, TU Delft*

*Stephanie Cazaux, Tu Delft*

*Bernard Foing, Euromoonmars Earth Space Innovation , Leiden/EPFL/ISU*

*Tanja Masson-Zwaan, International Institute for Air & Space Law*

*Taavi Raadik, Tallinn University Of Technology*

*Olivier Witasse, European Space Agency*

#### Description:

Just over 50 years ago, humanity first set foot on the Moon. Since then, an armada of space missions has explored our solar system, with highlights including the historic Voyager missions, Mars missions, and the Rosetta landing on a comet.

We enter a new chapter in space missions, with a larger and diverse set of countries and space actors. This millennium saw a fleet of lunar orbiters and landers already, and many missions are planned in the coming years. Plans include establishing outposts and Moon villages. What technologies are needed, how can we bring robots and humans sustainably and what are the challenges? How can we prepare and simulate Moonbase human operations? Which laws will regulate how to use resources or establish societies on the Moon?

Besides Mars, potential places to find extraterrestrial life in our solar system are far from the sun, covered by ices. The Cassini mission showed that Enceladus, a small icy moon orbiting Saturn, is active, with a warm interior heated by tidal forces, allowing the presence of an ocean under its icy crust and the formation of geysers. This ocean is salty and could be right for life to thrive. Europa and Ganymede, icy moons of Jupiter, also present signs of a subsurface ocean. These moons will be visited by ESA and NASA missions, planned for launch in 2022 and 2024, and arriving around 2030. Laboratory experiments on earth are being developed to better understand these environments and how to search for life there.

### SS1.32 Climate Change: A Global View

Date: 7/14/2022

Time in CEST: 5:15:00 PM - 6:30:00 PM

Location: Online room 2

#### Speakers:

*Jochen Landgraf, SRON*

*Yasjka Meijer, European Space Agency*

*Toni Tolker-Nielsen, ESA*

*Tim Van Kempen, Sron Netherlands Institute For Space Research*

*Daniel Zavala-araiza, Environmental Defense Fund*

#### Description:

The climate on Earth is undeniably changing, slowly affecting every continent. Satellites in orbit provide us with an unprecedented view of our changing atmosphere. With these modern eyes from the skies, scientists study atmospheric variations, first at a global scale and subsequently down towards individual sources. Understanding the differences between natural and anthropogenic origins of greenhouse gasses is key in addressing 21st century challenges such as climate change and human-



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nature relationships. It can even be used to measure the impact of the recent global pandemic on human activity. European efforts within the Copernicus program have a world leading role in atmospheric research, with several satellites launched in the past five years and many more planned.

### **SS1.33 Tales of five inspiring women navigating today's life-career minefield!**

Date: 7/14/2022

Time in CEST: 5:15:00 PM - 6:30:00 PM

Location: Online room 3

#### *Speakers:*

*Lidia Arthur Brito, UNESCO*

*Irena Bokova, Co-chair of the Global Commission on Science Missions for Sustainability, International Science Council (ISC); former Di*

*Ruth Francis, Ruth Francis Strategic Communication*

*Dominique Leglu, Sciences Et Avenir - La Recherche*

*Lena Smirnova, Johns Hopkins University*

*Yuko Tsuda, Session Organiser: Deputy Director of the Japanese Science & Technology Agency's (JST), Washington D.C. Office*

#### **Description:**

As of 2020, women represent less than 30% of researchers worldwide, with well-documented bias built-in to a STEM career, top positions often beyond their reach and pay gaps, particularly for women of colour. Women have won only 5.4% of Nobel Prizes in physiology or medicine, 3.8% in chemistry, and 1.9% in physics. Even in fields with greater gender-balance, the pipeline 'leaks' as women leave and more men reach the top. Multiple barriers stymie the careers of women, particularly those that decide to have children. These include everyday work-place sexism, role stereotyping, devaluing, appearance judging, micro-aggressions and harassment dressed up as banter. The disappearance of older women at work is a visible trend. And in today's pandemic, women are impacted the most, citing forced unemployment and negative impacts in mental and physical well-being and work/life balance. This panel spotlights five truly inspiring women revealing their specific journeys in the world of science-related work. Interviewed by Prof. Pearl Dykstra, former Member of the EU's Science Advisory Mechanism and the International Science Council's Governing Board, we unravel their personal and career anecdotes, while distilling their best advice. We hear from a Japanese science diplomat navigating the corridors of power and trade in Washington and a former car-company comms and bio-banking guru, now directing science communication at Estonia's Research Council. We experience the start-up joys and woes of a Canadian doctorate candidate building perhaps the first globally significant science policy-making network from Auckland. We see life through the eyes and words of a French award-winning journalist, a champion of mentoring 'global south' science communicators, now driving board-level change in the media sector from Paris. On the flipside, we meet a Belarusian bench scientist researching autism and the brain, now throwing her entire team at pandemic responses for JHU in Baltimore. We experience how these remarkable women have zigzagged around the world. They moved abroad for education, work and love. They raised families while leaving others behind. They won promotions and demotions, awards and slap-downs in equal measure. They just keep going. With no slides nor corporate logos, only unflinching honesty, we learn about these conscious choices made. The common thread is that each, in her own way, has overcome and continues to overcome the seen and unseen challenges of gender discrimination and lack of recognition in what remains a who-you-know, male-dominated world. Some women pull the ladder up after them too! These challenges equally apply to science journalism and communication, business and the not-for-profit, academia and the direct and indirect civil service. The common objective of our 'momprenuers' and 'sheroes' is to accentuate the positive. These five straight-talking, role-models want to engage and encourage today's ESOF generation of young researchers, YouTubers and feisty feminists!





## SS1.34 Legal Technologies

Date: 7/14/2022

Time in CEST: 5:15:00 PM - 6:30:00 PM

Location: Online room 4

### Speakers:

*Henk C Naves, Raad voor de Rechtspraak*

*Pavan Duggal, India, Founder & Chairman of the International Commission on Cyber Security Law*

*Jaap Van den Herik, Universiteit Leiden*

*Pieter van Riemsdijk, Erasmus University Rotterdam*

### Description:

The presentation will discuss the topic of Legal Technologies and is moderated by prof. dr. H.J. van den Herik (professor of Computer Science and Law).

The presentation will cover the topic The education of lawyers by Legal Technologies. The presentation will be in line with the core question of ESOF 2022: How will science be conducted in the future and how can science be a transformative agent for societal change? Innovative data science methodologies offer new possibilities (1) to study the legal system's behavior, (2) to gain new possibilities to enhance the quality of legal decision-making and (3) to give new insights into the complex interaction between legal actors. For example, all legal systems in the world can be divided into either a system of common law or a system of statutory law. With the increasing influence of data science, there are endless possibilities to analyze court cases and old verdicts and to use the assembled information to substantiate a new verdict. Over time, for the Netherlands this can lead to a shift from a system of statute law to a system of case law. Future lawyers should be able to apply these new technologies and techniques. Therefore, future lawyers must be educated on legal technologies.

The presentation will be held in the format of a panel discussion. After the introduction of the topic by prof. dr. Jaap van den Herik (Leiden University, LCDS-CPL), the panel starts. The first presentation for approximately 20-25 minutes will be given by the keynote speaker dr. Pavan Duggal (India, Founder & Chairman of the International Commission on Cyber Security Law). The other two panel members, mr. Pieter van Riemsdijk (Senior judge, lead ODR Dutch judiciary, the Council for the Judiciary) and prof. mr. dr. Gijs van Dijck (professor of Private Law, Technolawgist, Empirical Legal Researcher, Law & Tech, Maastricht University) will reflect on the presentation by dr. Pavan Duggal, for approximately 15 minutes each.

After the panel, there will be time for an interactive discussion between the audience and the panel members. The discussion topic will be: How will legal technologies change international courts? Dr. Pavan Duggal will lead this discussion.

## SS1.35 Science Policy Career Paths: From lab to legislation

Date: 7/14/2022

Time in CEST: 5:15:00 PM - 6:30:00 PM

Location: Online room 5

### Speakers:

*Chloe Hill, EuroScience*

*Ivana Kurecic, —*

*Lorenzo Melchor, Joint Research Center, European Commission*

*Iain Stewart,*







### **Description:**

Policy challenges in the 21st century are interconnected and complex, and the amount of information needed to make a decision that adequately considers policy options continues to increase. Despite the exponential acceleration of scientific advancement, its contributions to technological and societal progress do not always happen frictionlessly.

Scientists and researchers are needed to provide scientific advice and the bases of policy solutions to policymakers, but many find themselves unsure about the most effective path to transcend from science to policy. Familiarity with the special dimensions of science policy and the finer nuances of communicating with policymakers may not come naturally, nor does the understanding of the crucial role of research ethics and integrity in making a meaningful contribution to the science–policy interface.

For early-career researchers who may be facing many career challenges and uncertainties, the science–policy interface can provide exciting and rewarding career opportunities outside of academia.

This panel discussion moderated by Ivana Kurečić explores how science and scientists make their way from the lab to legislation. Panelists Chloe Hill, the Policy Manager of the European Geosciences Union, Iain Stewart, Professor of Geoscience Communication at the University of Plymouth, and Lorenzo Melchor, a Policy Analyst at the European Commission, will discuss their work that enables scientists to engage with policymakers and international organisations alike.

## **WP1.3 Between Black and White: The power of visual imagery and negotiation of Identity**

Date: 7/14/2022

Time in CEST: 8:00:00 PM - 9:15:00 PM

Location: World programme

### *Speakers:*

*Marlena Antczak, KITLV, CaribTRAILS*

*Zak Ové, Artist*

### **Description:**

Encounters with provocative imagery can be powerful experiences in our lives. Although images can cross borders of time and space, they do not stop having their expressive and persuasive power and archaeological images are proof of this.

This session seeks to examine how important imagery is and how significant encounters and re-encounters are with the images in different contexts to communicate or even ‘scream’ messages about identity. We will explore two separate present-day examples of the purposeful use of imagery to convey messages about the complexities of contemporary identity.

The first case is the monumental installation made by British-Trinidadian artist Zak Ové, entitled “Black and Blue: The Invisible Man and the Masque of Blackness” (2018), and the second is the figure of the Taino Diosa de la Luna (Goddess of the Moon) in the contemporary craft market of the Dominican Republic.

Comparing these two examples is important because it reveals how imagery travels across the Atlantic and the Caribbean and challenges assumptions of authenticity. While Ové’s installation is inspired in the figure of the African totem, masking rituals and Trinidadian carnival to highlight the pride in black identity, the figure of Diosa de la Luna is an embodiment of the image taken from a precolonial figurine from Venezuela and the invented Taino tradition to (indirectly) highlight the ‘whiteness’ of Dominican identity.



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This also allows us to gain an insight into two different perspectives in approaching imagery: one of the artist as a creator of images, and the other of the archaeologist trying to make sense of them.

## 15 July 2022

### SS2.1 Fusion and Climate Change: A Conversation Begins

Date: 7/15/2022

Time in CEST: 8:00:00 AM - 9:15:00 AM

Location: Cleveringa stage (KOG)]

Speakers:

*Sabina Griffith, Iter Organization*

#### Description:

The promise of hydrogen fusion as a safe, environmentally friendly, and virtually unlimited source of energy has motivated scientists and engineers for decades. For the general public, the pace of fusion research and development may at times appear to be slow; but for those on the inside, who understand both the technological challenges involved and the transformative impact that fusion can bring to human society in terms of the security of the long-term world energy supply, the extended investment is well worth it. And given recent progress, enthusiasm about the future of fusion is greater than ever. A quote from a panel at COP26: "We are, right now, witnessing fusion energy's involvement in the climate discussion, and until now that's never happened."

### KT2.1 Whether UN Sustainable Development Goals support transitions – eagle in the cage

Date: 7/15/2022

Time in CEST: 8:00:00 AM - 9:15:00 AM

Location: Katowice

Speakers

*Prof. Sebastian Werle – the Silesian University of Technology, the Head of Priority Research Area: Climate and Environmental Protection*

*Prof. Jerzy Buzek – a Member of the European Parliament*

*Prof. Józef Dubiński – the Central Mining Institute, Katowice, Poland*

*Prof. Denis-Didier Rousseau – the Silesian University of Technology; the Centre National de la Recherche Scientifique, France*

*Prof. Peter MOSER – Montanuniversität Leoben (EURECA-PRO Leader), Austria*

*Prof. Giampaolo Manfrida – the University of Florence, Italy*

*Prof. Michael Lepech – Stanford University, USA*

#### Description:

Demographic changes, climate changes, intensive pressure of global production and consumption on the environment are only selected reasons why new agreements at the international level on climate, energy, food security, access to clean water and protection of other natural resources are needed. Effective coordination of actions taking into account such issues as human existential problems and needs, equity, access to information, social participation as well as indicators for sustainable development and a green economy are necessary. The United Nations Sustainable Development Goals were adopted in 2015 to "inspire multiple levels of government to embark on the transformation to sustainable development". After pursuing the goals for eight years, can we say that the SDGs are living up to these high expectations? What steering effects of the SDGs can we see so far, and what is



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their transformative potential? How can the EURECA-PRO European University on Responsible Consumption and Production contribute to a better understanding of sustainability for protecting the environment and the climate?

To find an answer to these questions, we invited six experts to discuss these issues for the Silesian Region, Poland, European Union and the entire world.

## **SS2.2 Health and Well-being in a Urbanized Context: The Academic Living Lab Approach in Europe**

Date: 7/15/2022

Time in CEST: 8:00:00 AM - 9:15:00 AM

Location: Lorentz stage (KOG)

### *Speakers:*

*Marc Bruijnzeels, Leiden University Medical Center*

*Rachel Jordan, University Of Birmingham, UK*

*Frédéric Le Blay, Nantes Université*

*Mattijs Numans, LUMC, Dept Public Health & Primary Care, Campus Den Haag*

*Maryse Wiewel, Academic Medical Center, University of Amsterdam*

### **Description:**

Improving overall population health and allowing healthy ageing to take place can only be achieved with a transdisciplinary, proactive clinical approach. This also requires action to reduce health inequities, both in urban and diverse or otherwise complex communities. It requires a special emphasis on the role of society on tackling both multimorbidity and chronic diseases. Our university consortium is ideally placed to offer the courses/modules which will create a framework that establishes ourselves as a European transnational university for health. Our courses/modules will create a unique interactive curriculum and a path in which the different disciplines/topics are taught, empowering young people to tackle future health problems.

## **SS2.4 International Academic Mobility Versus “Brain Drain”: How Can a More Balanced Brain Circulation Be Fostered? Part II: The Role of International Researcher Networks**

Date: 7/15/2022

Time in CEST: 8:00:00 AM - 9:15:00 AM

Location: Online room 2

### *Speakers:*

*Sarah Blackford, Lancaster University*

*Markéta Kubánková, Czexpats In Science*

*Nicolai Netz, Dzhw*

*Oksana Seumenicht, UKRAINET/ German-Ukrainian Academic Society*

*Mostafa Moonir Shawrav, Marie Curie Alumni Association (mcaa)*

### **Description:**

International academic mobility plays an important role in career development of early-career researchers (ECRs). Several studies have concretely documented a positive correlation between career progression and international mobility. Governments and their research funding agencies as well as non-governmental foundations offer a myriad of fellowship schemes targeted at the ECRs. However, it is no secret that the fierce competition for international talent may also result in “brain-drain” for home countries of mobile researchers. In its Conclusions on the New European Research



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Area (ERA) Council of the European Union stated (2020) that the “the phenomenon of “brain drain”... contributes to the research and innovation divide within the EU” and called on the European Commission and Member States “to monitor and recommend measures to address unbalanced brain circulation”.

In Part II, we shall discuss the effects international academic mobility can have both on researchers' careers and the home countries of mobile researchers. We aim to stimulate the discussion on the most promising approaches that can effectively offset some of the negative effects of “brain drain” and foster a more balanced brain circulation and return of “social capital” back to home countries of mobile researchers.

## SS2.6 Funding of Science: Changing Perspective from Policy to Societies

Date: 7/15/2022

Time in CEST: 8:00:00 AM - 9:15:00 AM

Location: Online room 4

### Speakers:

*Emilie Blotiere, Cnrs (huma-num)*

*Leonie Disch, Know-center GmbH*

*Suzanne Dumouchel, Cnrs/operas*

### Description:

Science funding is increasingly linked to the impact of research on society at large. This means that calls are increasingly focused on what research can contribute to civil society, industry, etc. It is also a way of justifying the good use of public money, since it allows for increased benefits for society as a whole. However, this poses two main problems: the time and energy needed to monitor impact indicators is no longer available for research. And the fact that research is clearly oriented, conducted in a funnel that eliminates all topics that have not been identified as useful or necessary to society. This leads to an impoverishment of scientific practices, to a standardization that also harms serendipity or innovation. At the same time, it is essential that research also serves the citizen. There is therefore a double injunction, which is understandable, but which raises a certain number of questions in an attempt to resolve it or to provide elements for reflection. This is the issue that the session will focus on.

## SS2.7 Fostering an entrepreneurial mindset in doctoral education

Date: 7/15/2022

Time in CEST: 8:00:00 AM - 9:15:00 AM

Location: Online room 5

### Speakers:

*Fiorella Altruda, University Of Torino, Italy*

*Max Brigonzi, Mind The Bridge*

*Teresa Fernandez Zafra, Gradientech*

*Miklós Györfi, Eötvös Loránd Research Network*

*Birgitte Wraae, UCL University College Lillebælt Denmark*

### Description:

The academic job market has gradually become more competitive for PhD graduates and the opportunities for attaining a tenure track position are limited. A large number of PhD graduates exit academia and develop their professional careers in an industry setting. It is argued that such transition could be facilitated by fostering an entrepreneurial mindset during doctoral education.



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The entrepreneurial mindset is a way of thinking that encourages the ability to take initiative, be more adaptable, find creative solutions to overcome challenges and be more comfortable with taking risks. This mindset is useful well beyond basic business ventures, and can also be beneficial to PhD graduates who pursue careers either in academia or in commercial industry.

Developing entrepreneurial training that integrates both academic and industrial perspectives has the potential to significantly impact the complete innovation ecosystem. However, at many institutions, entrepreneurial education is often looked at simply from the point of view of academia.

The proposed session will be a panel discussion that aims to bring together the perspectives of experts from several academic and industry sectors to explore how to promote the development of the entrepreneurial mindset as part of doctoral education. The discussion will explore topics such as: the role that entrepreneurial training has in the context of career development, the advantages and disadvantages of existing programs, which features are most valuable from an industry point of view, and how to make such programs easily available and more attractive to PhD students.

## **WP2.1 Integrated Community Building to Sustain a Resilient and Healthy Society**

Date: 7/15/2022

Time in CEST: 8:00:00 AM - 9:15:00 AM

Location: World programme

### **Speakers:**

*Walter Ammann,*

*Atsushi Arakawa, Director of the Department for Promotion of Science in Society, Japan Science and Technology Agency (JST)*

*Yuichi Ono, Tohoku University*

*Katja Sjöholm, City Of Espoo*

*Risa Yanagiya, Sendai City Hall*

### **Description:**

Building resilient societies is a shared societal challenge for each country in the world, and more integrated and effective efforts are needed today to achieve the 2030 Agenda.

In this session, we will focus on the nature of communities needed for a resilient society, by taking as an example challenges that have been identified in the efforts to develop local disaster evacuation systems in the wake of the Great East Japan Earthquake (March 11) that Japan experienced 10 years ago. The discussion will consider how changes in communication caused by the rapid progress of digitalization after the COVID-19 pandemic are affecting the building of communities, as well as social isolation and loneliness that have emerged as new societal issues. Furthermore, we will discuss how citizens, governments, and experts such as scientists can work together to realize a resilient society with healthy communities where no one is left behind in times of crisis.

The goal is to deepen the dialogue of this theme considering the differences among countries, regions, and cultures.

## **PL2.1 Plenary Panel: Living in a world with pandemics**

Date: 7/15/2022

Time in CEST: 9:45:00 AM - 11:05:00 AM

Location: Main stage (Stadsgehoorzaal)

### **Speakers:**

*Mark van Ranst, Katholieke Universiteit Leuven, Belgium*



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*Petter Brodin, Karolinska Institute, Sweden; Immunologist at Science for Life Laboratory  
Jaap van Dissel, Leiden University Medical Center (LUMC).  
Nicole Grobert, Chair of the Group of Chief Scientific Advisors to the European Commission  
Salim S. Abdool Karim, CAPRISA, Columbia University  
Moderator:  
Mariet Feltkamp, Consultant Medical Virology, Associate Professor at Leiden University Medical Center (LUMC)*

**Description:**

The recent COVID pandemic has transformed the way we have lived over the past two years and brought about new questions about preparedness of the world for future pandemics. The rapid development of vaccines offered hope for an end to the viral carnage, however we need to re-examine how we prevent and address challenges with which we will be faced in the coming years and decades. This session will explore how these issues can be tackled successfully on a local scale and global scale.

**WS0.16 From science to impact: insights into the entrepreneurial journey**

Date: 7/15/2022  
Time in CEST: 10:00:00 AM - 12:00:00 PM  
Location: Grotiuszaal (KOG)

*Speaker: Hans Westerhof, Faculty Of Impact*

**Description:**

In an interactive workshop we will look at differences between scientific research and building an startup. What is similar, what is different? What skills do you need to be successful as entrepreneur? Why is it that scientific innovations do not necessarily lead to successful commercialisation? What makes customers tick?

Group discussions, small break out groups combined with mini-lectures will give you a taste of what to expect in any kind of entrepreneurial journey and in the Faculty of Impact program.

**WS0.15 Entrepreneurship in Life Sciences and health and the Leiden Bio Science Park as the place to be**

Date: 7/15/2022  
Time in CEST: 11:15:00 AM - 12:30:00 PM  
Location: B017 (KOG)

*Speaker: Stefan Ellenbroek, unlock\_*

**Description:**

The Leiden Bio Science Park is the most important LSH hub of the Netherlands and of the most important in the world. In this session its profile will be discussed as well as the reasons why it is also the place to be for entrepreneurs in LSH. Furthermore during a short interactive workshop, the basic steps to take for all those that consider a career (step) as an entrepreneur in the LSH sector are discussed with the audience as well as the facilities present in Leiden to support start-and scaleups

**SS2.8 How Do Research Organizations Foster a Broader Range of Roles in Research?**

Date: 7/15/2022  
Time in CEST: 11:15:00 AM - 12:32:00 PM



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Location: Cleveringa stage (KOG)

**Speakers:**

*Noémie Aubert Bonn, Hasselt University and Amsterdam UMC*  
*Giorgio Chiarelli, Istituto Nazionale di Fisica Nucleare*  
*James Morris, Science Europe*  
*Jo O'Leary, UK Research And Innovation*  
*Sean Sapcariu, Luxembourg National Research Fund*

**Description:**

On 25 November 2021, in parallel to a High Level Workshop on the topic, Science Europe presented a vision for research culture in the European Research Area where; a) all participants in the research endeavor are appropriately recognized for their diverse contributions, b) the broad skills and competencies of researchers are fostered and supported by suitable training, appropriate infrastructure, and responsible management and governance, c) research integrity and high ethical standards are promoted effectively, and d) careers in research are attractive and sustainable.

Working towards this vision, Science Europe made commitments to recognize a broader range of roles in research and act as leaders in convening the voice of the research community to enable positive change.

The goal of the session is to introduce the state-of-the-art and examine opportunities and key challenges around recognizing a broader diversity of roles in research. To do this, we propose an interactive, fast-paced session with a focus on gathering input from the ESOF community on what actionable changes can be made by research organizations.

## **KT2.2 Can Science Save Ukraine? European Universities and Ukraine's Post-War Transformation**

Date: 7/15/2022

Time in CEST: 11:15:00 AM - 12:30:00 PM

Location: Katowice

**Speakers:**

*Ryszard Koziółek, University of Silesia in Katowice, Poland*  
*Olena Bulatova, First Vice-Rector at Mariupol State University*  
*Jerzy Lis, AGH University of Science and Technology, Poland*  
*Jerzy Duszyński, The Polish Academy of Sciences*  
*Iryna Degtyarova, Polish Rectors Foundations*

**Description:**

The aggressive war against Ukraine entailed a tragedy for millions of Ukrainians and the destruction of large parts of the country (including scientific and educational infrastructure in many cities). But it may also mark a turning point in the future development of the country. The coming reconstruction of Ukraine will have to engage most of the Western world, particularly the European Union, the membership of which is a strategic aim of the Ukrainian policy. Poland and other EU countries have provided Ukraine with immediate help during the worst weeks of military combat. It offered temporary shelter to numerous students, teachers, researchers, and other members of the Ukrainian academic community. Can the experience, trust, and partnership that emerged from this period be helpful in further, long-term processes of reconstructing post-war Ukraine? What may and should be the role of European universities and scientific institutions in assisting their Ukrainian counterparts in overcoming the legacy of the war and making their ties a driver of modernisation and Europeanisation of the Ukrainian economy, society, and administration? To what extent may comprehensive and close cooperation between the academic communities of Ukraine and the rest of Europe become a key to an accelerated transformation of the country toward a full-fledged EU member state?



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## **SS2.14 Connecting Europe with the global research community with EURAXESS Worldwide**

Date: 7/15/2022

Time in CEST: 11:15:00 AM - 12:30:00 PM

Location: Lorentz stage (KOG)

### *Speakers:*

*Halldor Berg Hardarson, Euraxess Worldwide*

*Isabelle Demolin, Pracsis*

*Anna Facchinetti, Euraxess China*

*Jenny Lind Elmaco, Euraxess Worldwide*

*Ahmed Maalel, Euraxess Worldwide*

*Susanne Rentzow-Vasu, Euraxess Worldwide*

*Samrat Schmiem Kumar, Euraxess India*

*Tomasz Wierzbowski, Euraxess Worldwide*

## **SS2.11 A Way Forward to Increase Science Legitimacy by Eradicating Gender-based Violence and Sexual Harassment from Universities**

Date: 7/15/2022

Time in CEST: 11:15:00 AM - 12:30:00 PM

Location: Online room 2

### *Speakers:*

*Anne Laure Humbert, Oxford Brookes University*

*Marcela Linková, Institute Of Sociology, Czech Academy Of Sciences*

*Lut Mergaert, YellowWindow*

*Sofia Strid, Örebro University*

### **Description:**

The aim of the panel is to explore how (social) science can “improve its role of being a transformative agent for societal change”, and how institutional structures can “be changed to foster diversity, equity and inclusion”, thereby addressing two of the core and cross-cutting questions of the conference.

Gender-based violence and sexual harassment (GBV) are societal problems, connected to health, capital, crime and inequality. It is prevalent in research organizations as in other organizations. While universities – as societal institutions – can and should set an example for society, they are also responsible for knowledge production and implementation of new approaches to share this knowledge with society at large, and ultimately to enable societal change. The panel discusses how the so called 7P model can contribute to this end. The model is designed to research variations in GBV and for designing and implementing solutions to eradicate it along 7Ps: prevalence, prevention, protection, prosecution, provision of services, partnerships, and policies. When applied holistically in universities or research organizations it may lead to structural change and ultimately to the eradication of GBV.

The interactive roundtable consists of three brief presentations followed by space for questions, answers and reactions. It includes real time engagement with the audience using digital tools (word cloud, polls).

## **SS2.12 Chronic Diseases, Prevention and Treatment**

Date: 7/15/2022



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Time in CEST: 11:15:00 AM - 12:30:00 PM  
Location: Online room 3

*Speakers:*

*Niels Geijsen, LUMC*

*Tom Huizinga, LUMC*

*George Schett, University Clinic Erlangen*

*Annette van der Helm - van Mil, LUMC*

**Description:**

Chronic immune mediated inflammatory disorders (IMID) affect at least 10% of the European population, are often difficult to treat and most cannot be prevented or cured. They have a negative effect on quality of life and constitute a considerable burden to both patients and society. Long-term consequences of such diseases have a significant impact on life expectancy as well. Several of these diseases develop early in life and thus cause a lifelong burden.

There is an urgent need to improve the management of these diseases as current treatment regimens are still associated with primary and secondary therapy failure, debilitating side effects and treatment related comorbidities.

In the current session we will address current and future options to treat and prevent chronic diseases and explore the potential and limitations of novel behavioral approaches as well as biologicals and cell-based options.

## **SS2.13 Can Smaller Cities be at the Forefront of Climate Equity and Resiliency?**

Date: 7/15/2022

Time in CEST: 11:15:00 AM - 12:30:00 PM

Location: Online room 4

*Speakers:*

*Paolo Bertoldi, European Commission, Joint Research Centre*

*Petya Pishmisheva, Covenant of Mayors - Europe Office*

*Diana Reckien, University Of Twente*

*Aldo Treville, European Commission, Joint Research Centre*

**Description:**

Large cities and metropolitan areas have been the main target of global initiatives and climate policies. Small cities are often neglected because of their lack of financial resources, lack of technical and scientific knowledge and their challenges in developing effective small-scale actions. Additionally, in the climate mitigation discourse large cities play a significant bigger role in emission reductions and the overall climate neutrality target.

However, in the climate adaptation discourse, small cities are impacted by climate hazards and react to them, regardless of their population size, but according to their local condition. Additionally, thanks to global climate networks such as the Global Covenant of Mayors for Energy and Climate, small cities are empowered to act against climate change, benefiting from the methodological support provided.

The session will discuss the experience coming from small cities in Covenant of Mayors Europe, an initiative scientifically supported by JRC, in their effort to tackle the major climate hazards and vulnerabilities. A debate with the invited speakers from academia and local governments, will challenge the presented results and discuss whether smaller cities, compared to large cities, can play as a vital role at the forefront of climate resiliency



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## SS2.36 Art Exploring Science

Date: 7/15/2022

Time in CEST: 11:15:00 AM - 12:30:00 PM

Location: Pieterskerk Leiden

### Speakers:

*Stijn Huijts, Bonnefanten Museum*

*Frans-willem Korsten, Leiden University Center For The Arts In Society*

*Marion Laval-Jeantet, Artist*

*Lauryn Mannigel, Artist*

*Lauryn Mannigel, Artist*

*Jacob van der Beugel, Jacob van der Beugel*

*Agnieszka Wolodzko, Artez University of the Arts*

*Rob Zwijnenberg, Leiden University*

### Description:

In Krzysztof Ziarek's book, "The Force of Art", he explains that "Art's importance today cannot be explained simply in aesthetic or cultural terms but has to take into consideration how artworks question the technological character of modern power." This will be the starting point for addressing the question can and does art question and challenge science and technology.

There is a large number of contemporary artists who are concerned with developments within science and technology, in different ways and from different angles. To be relevant in the social debate, works of art are needed, as Ziarek argues, that expose and complicate the ambition of science, or resist it. Art must create new realities, new ways of practicing science and technologies, and life.

This session will examine whether it is indeed necessary for art to engage with the sciences and if so, which forms of art bring about such social relevance. And if not, in that case, what is the relevance and urgency of contemporary art?

## PL2.2 Keynote Sustainable Environment

Date: 7/15/2022

Time in CEST: 11:30:00 AM - 12:32:00 PM

Location: Main stage (Stadsgehoorzaal)

*Keynote Speaker: Prof. Marja Spienburg, Professor Anthropology of Sustainability and Livelihood, University of Leiden*

*Moderator: A/Prof Cristiana Strava, University of Leiden*

### Description:

A sustainable environment is an environment in which human society and the biosphere of the planet are able to co-exist over the long term. This long-term co-existence has been endangered in various ways since the early stages of the development of modern human culture, but only now has the situation come to affect human society as a whole on a global scale. To ensure viable long-term co-existence, the United Nations adopted in 2015 its Sustainable Development Goals as universal public values. The goals concern the quality of the biosphere of the planet (including a stable climate, clean water and air, healthy food, sufficient energy and rich biodiversity) along with targets for human society (including peace, freedom, inclusion, equality and diversity) as the basis for a value-driven systems approach for the transition to a sustainable environment.

## SS2.38 The Quantum Revolution

Date: 7/15/2022



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Time in CEST: 2:00:00 PM - 3:20:00 PM  
Location: Aalmarkt stage (Stadsgehoorzaal)

**Speakers:**

*Carlo Beenakker, Leiden University*  
*Dirk Bouwmeester,*  
*Julia Cramer, Leiden University*  
*Tom O'Brien, Leiden & Google*  
*Barbara Terhal, Qutech/EEMCS Dept. Delft University Of Technology*  
*Kian van der Enden,*

**Description:**

Europe has launched large initiatives to make society benefit from the second quantum revolution, with huge investments over the next years and decades. The vision is that the exploitation of quantum effects will enable fundamental breakthroughs and new technologies in a number of fields, including quantum computers that can solve problems which are currently completely intractable, use quantum processors to understand and design molecules for medicine and the energy transition, enable quantum-secure encryption and authentication throughout Europe, and enable quantum-enhanced measurements in a large number of fields from astronomy to time synchronization. These visionary goals can only be reached by large investments in the education of next-generation researchers who will bring fundamental quantum concepts to reality, “quantum apps”.

The session will start by covering the foundations of future quantum technologies and breakthroughs enabled by quantum processors. Near-future quantum processors can help to design molecules in cases where evolution required millions of years. Subsequently the “quantum internet” and “quantum teleportation” will be discussed and it will be shown how the quantum revolution will help to better understand our classical world from a quantum perspective. The session closes with a panel discussion on how to prepare society for the impact of quantum technologies with all speakers.

## SS2.15 The Future of Islam in Europe

Date: 7/15/2022  
Time in CEST: 2:00:00 PM - 3:20:00 PM  
Location: Cleveringa stage (KOG)

**Speakers:**

*Maurits Berger, Leiden University*  
*Samira Ibrahim, student*  
*Alin Jabbari, student*  
*Amna Mirza, student*  
*Asri Prasadani, student*  
*Nourhene Mahmoudi, Femyso, Forum Of European Muslim Youth And Student Organisations*

**Description:**

In the past two decades, this academic domain has been dominated by issues of security and integration, whereby the 'relevance' of such research was mostly determined by non-Muslim societies. By posing the question how Muslims see their future in Europe, we might get a more in-depth insight in motives, ideas, and desires of Muslims in Europe: what are the questions they raise in a European context, what are the issues they are struggling with, what do they find important, and how do they (want to) address these issues?

This session addresses the question how Muslims see their future in Europe and what role Islam plays in that future. It will not have a simple or single answer. But it is expected that it will direct research in new directions. And these directions will by definition be multi- and interdisciplinary, whereby



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academics of Islamic Studies will have to look for cooperation with academics like medics, political scientists, jurists, climatologists, and many others.

### **KT2.3 The Transforming Identity: Do we cross borders, or do borders cross us?**

Date: 7/15/2022

Time in CEST: 2:00:00 PM - 3:15:00 PM

Location: Katowice

*Speakers:*

*Bogna Świątkowska, Bęc Zmiana Foundation*

*Zofia Oslislo-Piekarska (PhD in fine arts), Academy of Fine Arts in Katowice, Poland*

*Agnieszka Nowok-Zych, Karol Szymanowski Academy of Music in Katowice, Poland*

*Aleksander Nowak, Karol Szymanowski Academy of Music in Katowice, Poland*

*Marcin Trzesiok, Karol Szymanowski Academy of Music in Katowice, Poland*

**Description:**

The contemporary identity of Upper Silesia is characterised by constant change. Being permanently in the process of change has brought into existence the figure of a Silesian – a settled nomad that identifies with the land, but not necessarily with its imposed political boundaries. Zbigniew Kadłubek, PhD, DSc, a researcher of Silesian culture, says that "we did not cross the borders, it was the borders that crossed us". Our existence continues on this, metaphorically speaking, shifting ground, and every now and then perceptible bumps result in another transformation. Nowadays, the identity based on the image of the industrial region is fading away. The leading role has been taken by the social and cultural potential of Silesia. The seismograph that first recorded the changes beneath the surface was art and design. Currently, those are the instruments setting a new direction. An excellent example of this can be seen in Katowice's attempt to win the title of European Capital of Culture 2016 – the moment when ideas from the field of culture began to resonate with other areas of social life. It does not seem that this new identity is to be solidified in some permanent form – it is the constant change that you can surely expect here. Being accustomed to change makes Silesia a special place, open to social transformations and with growing diversity, not only at the local level. Artists, through their actions that fit into the idea of constant change, help us to find our feet in this dynamic, new reality. The discussion within the session will be dedicated to the subject of cultural identity expressed in contemporary visual arts, literature, and music as well as in artistic forms that integrate all of the above, such as the opera. The subject will be reflected on from a global and local perspectives, in relation to perceptions of Silesian identity, which recently received a lot of interest from the artistic community. The considerations will be enriched by a discussion on the role of the arts in building cultural identity awareness and an added value – to the scientific perspective - provided by a work of art to the science. The search for individual and collective identity in the life of every person, including an artist entangled in the dynamics of history, will become the starting point for the presented considerations. The musical traditions of Silesia, which serve as the foundations for identity and might be a tool for social integration, along with their new manifestations, such as the works of Henryk Mikołaj Górecki and other Silesian composers, or the latest operas by Aleksander Nowak to librettos by Szczepan Twardoch, will allow us to look at the changes in art which, on the one hand, are growing from social transformation, and on the other hand, can be its driving force.

### **SS2.16 The Dark Side of Our Mysterious Universe**

Date: 7/15/2022

Time in CEST: 2:00:00 PM - 3:20:00 PM

Location: Lorentz stage (KOG)

*Speakers:*

*David Albert, Columbia University*



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*Marika Asgari, University of Hull*  
*Laura Baudis, University of Zurich*  
*Luigi Guzzo, Universita' Di Milano - Physics Department*  
*Henk Hoekstra, Leiden University*  
*Koen Kuijken, Leiden Observatory*  
*Sudobh Patil, Leiden University*

**Description:**

The universe is the greatest physics laboratory imaginable. Cosmologists study how it expands and evolves under the laws of physics, using ever more powerful satellites and telescopes. The picture that has emerged is unexpected. Besides the atoms and molecules that make up the stars and galaxies that we can see, over 95% of the universe consists of ingredients we are only beginning to understand: dark matter and dark energy. Understanding their nature through a combination of theoretical physics, cosmological observation and particle physics experiments is a major research focus.

Building on a series of large projects with ground-based telescopes, 2022 will see the launch of the ESA Euclid mission, which was specifically designed to map out this 'dark sector' of the universe. Euclid is expected to provide crucial pointers towards the resolution of this mystery.

The speakers will introduce these fascinating topics at a level that is accessible for a broad non-expert audience.

**SS2.17 Population Health Management**

Date: 7/15/2022  
Time in CEST: 2:00:00 PM - 3:15:00 PM  
Location: Online room 1

*Speakers:*  
*Tim Althoff, University Of Washington*  
*Niels Chavannes, Leiden University Medical Centre*  
*Wilfried Guyselaars, Hospital Oost-Limburg*  
*Jessica Kieffe, Leiden University Medical Centre*  
*Marian Knight, University Of Oxford*  
*Marco Spruit, Leiden University Medical Centre*  
*Viktoria Stein, Leiden University Medical Centre*  
*Stephen Sutch, Leiden University Medical Centre*

**Description:**

In this lively and interactive session, several renowned international speakers will first zoom in on key topics within population health management, like: methodologies for effective health planning and resource allocation; use of population data registries and how to narrow down the societal gap that leads to health inequity; how data-driven methods using behavioral data can be deployed for

interventions; how telemonitoring can be applied to prioritize care for high-risk groups; and how to realize synergy and long-term impact of population health management in current healthcare settings?

Finally, in a panel discussion of all speakers plus interaction with audience, based on provocative statements on population health management, several professors on eHealth, data science and Population Health from Leiden will join the debate.

**SS2.18 Local Action in Response to Global Change**

Date: 7/15/2022



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Time in CEST: 2:00:00 PM - 3:15:00 PM  
Location: Online room 2

**Speakers:**

*Adrienne Cool, San Francisco State University*  
*Margaret Gold, Institute of Biology Leiden*  
*Pilar Paneque, Universidad Pablo De Olavide*  
*Tim Van Kempen, Sron Netherlands Institute For Space Research*  
*Hester Volten, RIVM*  
*Mel Woods, University Of Dundee*

## **SS2.19 Revisiting Entrepreneurship & Innovation Education and Practice for Societal Impact**

Date: 7/15/2022  
Time in CEST: 2:00:00 PM - 3:15:00 PM  
Location: Online room 3

**Speakers:**

*Henning Breuer, UXBerlin Innovation Consulting & HMKW*  
*Csaba Deak, Miskov*  
*Anne-laure Mention, Rmit Australia*  
*Kyriaki Papageorgiou, Ispim*  
*Berta Vizcarra Mir, European Commission - Research Executive Agency*

**Description:**

Delivering societal impact out of research and science is at the forefront of science, technology and innovation policies across Europe and globally. Increasing our capabilities to convert science into innovations for the benefits of society as a whole, requires revisiting our ways of 1) working (targeting early and more mature researchers and practitioners across industry and academic settings alike and implementing innovative instruments and cooperation practices); 2) studying (targeting the upcoming generation of professionals in the context of their initial university curriculum) and; 3) educating (from early childhood to lifelong learning with a focus on upskilling through leveraging digitally-enabled education programs and micro credentialling).

This session aims to cover those three pillars (working, studying, and educating) by bringing together fresh and topical insights and perspectives from four complementary EU-funded schemes covering digital, human, and societal dimensions.

## **SS2.20 Science is for everyone: equity, diversity and inclusion in the workplace**

Date: 7/15/2022  
Time in CEST: 2:00:00 PM - 3:15:00 PM  
Location: Online room 4

**Speakers:**

*Alfredo Carpineti, Pride In Stem*  
*Esther Kanduma, University of Nairobi*  
*Marjolein Oorsprong, Partnership For Advanced Computing In Europe (prace)*

**Description:**



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Science has a diversity problem. Groups including women, LGBT+, ethnic minorities, people with disabilities and people from deprived social backgrounds are underrepresented both in overall numbers and at top-level positions.

Diverse teams create more value all around. Inclusion, diversity, and equity are important, but our biases, both conscious and unconscious, mean we find people similar to us easier to connect with, excluding those who are different. So, how can we make science more inclusive, diverse and equal for all? We must address these biases with training to make people aware of their own biases and institutional measures that minimize them, as well as outreach initiatives that promote diversity and inclusion values to people and society.

This session will showcase initiatives addressing equity, diversity and inclusion across borders, minority groups and areas of science.

## **SS2.37 Understand Public Policy Making Through A Game: The Case Of Euthanasia**

Date: 7/15/2022

Time in CEST: 2:00:00 PM - 3:15:00 PM

Location: Pieterskerk Leiden

### *Speakers:*

*Marco Cappato, Science For Democracy*

*Virginia Fiume, Eumans*

*Claudio Maria Radaelli, University College London*

*Antonella Succurro, Science for Democracy*

*Gaia Taffoni, Eui/stg*

### **Description:**

“Healthy societies” should care about every single individual’s health and well-being from birth to end of life, which includes ensuring the right to a peaceful and dignified death. Scientific progress over time has completely changed the notions of “living” and “dying”. Often, patients and/or their caregivers are refused the right “not to choose” to undergo such treatments, as legislation classifies such choice as a crime. However, evidence shows clear difference between suicide and the motivated, reasonable, free decision to opt for euthanasia (assisted dying). Assisted dying is thus intertwined with the progress of science, but the political and legislative debate is dominated by ethical-religious overtones, and many countries are still far from revising their legislation concerning euthanasia.

The EU-funded project Playing Public Policy (P-Cube) developed an educational game to simulate public policy processes in which different interdependent actors have to design their strategies for reaching their goal (innovation of policies, maintenance of the status quo, etc.).

In this session, participants will learn about public policy in the context of healthcare through gamification, using the timely example of euthanasia regulations.

## **WP2.2 Higher Education in Africa: Challenges and Prospects**

Date: 7/15/2022

Time in CEST: 2:00:00 PM - 3:15:00 PM

Location: World programme

### *Speakers:*

*Ayokunu Adedokun,*

*Ahmed Bawa,*

*Nienke Buisman, European Commission DG RTD*



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David Ehrhardt,  
Omano Ekeanyanwu,  
Nico Elema,  
Nkem Khumbah,  
Adebayo Olukoshi,  
Maja Vodopivec,

**Description:**

There is widespread recognition that higher education is key to economic prosperity, social well-being, and technological development. Available data show that most African universities in the 1960s and 1970s were generally of good quality and greatly contributed to nation-building efforts. As a result, for the past 40 years, Africa experienced the fastest growth in its tertiary gross enrollment ratio than other regions of the world. Despite this rapid growth, many higher education systems in Africa nowadays face some unprecedented challenges to fully play their role in development.

Firstly, most African universities face shortages of human resources and capacity, insufficient public expenditures and poor educational facilities. Secondly, many young people with university education do not have the basic skills necessary to thrive in a diverse and changing labour market. Lastly, as in other parts of the world, women are still underrepresented in higher education, especially within science, technology, engineering, and mathematics (STEM) as well as agriculture. Overcoming these challenges is essential for the sector's contribution to the socio-economic development process of Africa.

This panel will discuss key challenges and prospects of Africa's higher education, including the skills needed by new generation of students in Africa to compete in today's global economy as well as the role of industry-university collaboration.

**PL2.3 Keynote: This is Bioart's Moment! Pandemic reflections on radical interdisciplinarity in the Arts and Sciences**

Date: 7/15/2022

Time in CEST: 2:15:00 PM - 3:20:00 PM

Location: Main stage (Stadsgehoorzaal)

*Speaker: Dr. Jennifer Willet, Canada Research Chair in Art, Science, and Ecology, a Professor in the School of Creative Arts at the University of Windsor and the Director of INCUBATOR Art Lab*  
*Moderator: Prof. Kitty Zijlmans, Leiden University Centre for the Arts in Society*

**Description:**

Since March 2020, STEM communities have worked around the clock in extraordinary ways to help our planet's population mitigate the effects of the COVID-19 Pandemic. Given the situation, mainstream debates about science, medicine, and technology are at an all-time high in public forums. However, the quality of public scientific discourse has proven challenging, counter-productive, and in some instances harmful to the self-preservation of individuals and populations. Science denial is not new. We have a long history of science denial mitigating our collective response to the global climate crisis, a slow creeping emergency. What is new, is the very public rejection of scientific data and medical directives in the face of an acute crisis, with the possibility of imminent harm or death. Dr. Willet will present propositional solutions to mitigate the challenges of poor public scientific discourse and science denial, through radical interdisciplinarity methodologies in the arts and sciences, diversity, community engagement, and education that she has developed in over 20+ years working as an artist in scientific laboratories.



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Dr Willet will introduce ESOF audiences to a contemporary artform called bioart. Bioartists use living biological materials, and scientific protocols, towards the production of art, rather than scientific research. In 2009, Willet founded INCUBATOR Art Lab, a bioart research and teaching facility in the School of Creative Arts at University of Windsor in Canada. In 2018, INCUBATOR Art Lab launched a state-of-the-art BSL2 laboratory dedicated to bioart research, that also serves as a multi-media theatre and art venue where audiences can view living biological artworks through a glass wall. In 2022, INCUBATOR Art Lab opened an art studio and community engagement lab in downtown Windsor, Ontario, Canada. INCUBATOR Art Lab houses ongoing student and faculty bioart projects, and science and technology studies research and special events investigating the intersection of biotechnology, art and the ecological sciences.

Bioart has experienced a significant increase in mainstream media attention, institutional recognition, and audience engagement since March 2020. Bioartists are uniquely skilled in audience engagement, and the production of meaning, questions, and narratives surrounding difficult scientific concepts. Our field is often defined by interdisciplinary collaborative research methodologies, hands-on experiences with biotech species, and community engagement workshops for non-specialist audiences. This truly is an important moment for the bioart community to share our unique skillset with scientific, medical, governmental, and communications experts grappling with the myriad of challenges affiliated with the COVID-19 pandemic.

## SS2.22 Breaking Down the Data Bottlenecks in Healthcare

Date: 7/15/2022

Time in CEST: 3:45:00 PM - 5:05:00 PM

Location: Cleveringa stage (KOG)

### Speakers:

*Elke Grooten, Novartis*

*Vincent Keunen, Andaman7*

*Anna Nilsson Vindefjord, Research! Sweden*

*David Pringle, Science Business*

*Carl Sundberg, Karolinska Institutet*

### Description:

In May 2020, an online panel organised by Science|Business concluded that artificial intelligence (AI) had so far struggled to demonstrate its worth in the fight against COVID-19. Speakers pointed to a lack of data infrastructure and interoperability, together with weak quality control, as key factors behind AI's lacklustre showing.

To explore how researchers, businesses and policymakers can better realise the potential of data and AI, Science|Business launched its Data Rules initiative – an expert forum of partner organisations from around the world seeking to inform the European and global dialogue on policy for fast-developing data and AI technologies. In July this year, as part of the EuroScience Open Forum (ESOF) 2022 taking place in Leiden, we will return to the question of data and healthcare, and address ways in which critical blockages and bottlenecks might be removed through a combination of smarter policy and practice. Among the key issues and challenges to be explored in this interactive, public panel discussion:

Too many silos, not enough sharing - what needs to be done to improve data flows?

Privacy versus personalisation - how to get the balance right

Effective aggregation and anonymisation - combining multiple data sources, while still protecting sensitive data

Creating an effective EU health common data space - the need for incentives and assurances



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## KT2.4 Bright side of the dark Universe

Date: 7/15/2022

Time in CEST: 3:45:00 PM - 5:00:00 PM

Location: Katowice

### Speakers:

*Agnieszka Pollo – Jagiellonian University / the National Centre for Nuclear Research, Poland*

*Rien van de Weijgaert - the University of Groningen, the Netherlands*

*Dorota Skowron, PhD, DSc – the University of Warsaw, Poland*

*Przemysław Mróz, PhD – the University of Warsaw, Poland*

### Description:

Cosmology is one of the scientific fields that have rapidly evolved during the last decades, and our understanding of the properties of our Universe is ever-growing. However, big mysteries remain unknown. According to the best models we have today, we live in the Universe, which in 95% is made of things whose nature remains a mystery - namely, the dark matter and dark energy. What are they? What is their origin? How can they be traced based on observations we have today? In the nearest decade, we expect the amount of available astronomical data to increase enormously, thanks to new big observational projects, which may bring us some answers but most likely also add new riddles to solve.

In this session, we will discuss why it is important to study the Universe, what are its hidden ingredients, and how the future progress might suffer from the development of the satellite constellations.

## SS2.23 Giving and Taking Scientific Advice: Mind the Gap

Date: 7/15/2022

Time in CEST: 3:45:00 PM - 5:05:00 PM

Location: Lorentz stage (KOG)

### Speakers:

*Irena Bokova, Co-chair of the Global Commission on Science Missions for Sustainability, International Science Council (ISC); former Di*

*Pearl Dykstra, Chair in Empirical Sociology, Erasmus University, Rotterdam; Deputy Chair of the European Commission's Group of Chief Sc*

*Rémi Quirion, Government of Canada*

*Paul Rübig, European Economic & Social Committee, Former Member of the European Parliament (1996 – 2019), Member of the Committee on*

*Derrick Swartz, Special Adviser to the Minister of Higher Education, Science and Innovation of South Africa & Chief Strategy Advisor, Oc*

### Description:

This panel unites politicians, presidents of science advisory bodies and science diplomats from Africa, Europe and North America to examine how scientific advice feeds into effective policymaking, or not, as the case might be. On the one hand, we have internationally significant researchers making daily contributions to the advisory processes of governments and international organisations. It is as if 'evidence' comes seamlessly down a big, long tube. On the other, we have policy makers / politicians charged with procuring and applying science advice. In theory, they just must go with the 'best' and most 'cost-effective' arguments.

To start, we unpick how both science and politics operate at the boundaries of knowledge and uncertainty, but approach problems differently. Scientists question and challenge assumptions, searching for empirical evidence to determine better options. Uncertainty is part of the process.



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Alternatively, politicians need to take decisions despite the uncertainty. They are often guided by the demands of voters and ideology, or simply the funding they may or may not have. What is changing is that a third force is coming to the fore. Grass-roots citizens are no longer passive bystanders. The complex contradictions between knowledge and uncertainty, evidence and ideology are increasingly in the public eye. It is a high stakes game.

For those believing in the integrity of science, recent years have been challenging. Information, correct and incorrect, spreads like a virus. The panel will critique if, like the often-quoted irreproducibility of scientific papers, science advice is equally a fairytale. Acknowledging the latest fad for hobbyists and academics alike and the explosion of conferences examining the processes and principles that should underpin 'optimal' science advice, speakers argue that these discussions all too often fail to address real case-studies on what went right and what went wrong and why. Drawing on their unique combination of experience and expertise, this moderated discussion is designed to do exactly that, push our panel to show don't tell.

For example, are national and international research systems and the 'experts' they provide only too happy to stay in the shadows, defending a semblance of neutrality, while elections and life and death goes on around them? Similarly, is it true or disingenuous to say that elected officials just do not have the 'capacity' to understand complex science? Is it all too easy that if they want it, they can call it an 'input' and if they don't, they can simply call it 'lobbying'?

Representing diverse continental views, speakers examine Covid-19 and the war in Ukraine's recent legacies as an exemplifier of humanity's inhumanities and interdependences. From vaccine inequity and the fault-lines between rich and poor countries, the strength of international cooperation is being tested. Without simply asking for more money, more science and better advisory systems, speakers are challenged to map-out what reformed or new regional or global institutions might be needed, where and why? Or must we accept the gap between 'giving and taking' advice, the dumbing-down of 'evidence' and a 'snapback to normal' in our post-pandemic politics?

## **SS2.24 Research Infrastructures' Contribution to Environmental Sustainability**

Date: 7/15/2022

Time in CEST: 3:45:00 PM - 5:00:00 PM

Location: Online room 1

### **Speakers:**

*Francisco Colomer, Joint Institute For Vibi Eric*

*Ornela De Giacomo, Ceric-eric*

*Juan Miguel GONZÁLEZ-ARANDA, LifeWatch ERIC*

*Jens Habermann, BBMRI-ERIC*

*Dominik Lermen, Fraunhofer Institute For Biomedical Engineering*

### **Description:**

Research infrastructures are considered one of the success stories and a major pillar of the European Research Area. Their importance is measured through the added value they bring to scientific research, and the opportunities they create by enabling access to large-scale facilities and data infrastructures to perform excellent and ground-breaking research.

Research infrastructures in general, and ERICs (European Research Infrastructure Consortia) in particular, play a significant role in tackling societal challenges and contributing to environmental sustainability. The ERIC Forum, which brings together more than 30 European Research Infrastructures (among which 22 are established ERICs, and 10 are in the preparatory phase), will organize a session to address the topic.

Among others, the session will highlight:



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1. examples of how the research supported by the ERICs contribute to improving environmental sustainability,
2. examples of how ERICs tackle the UN Sustainability Development Goals (SDGs) addressing the environment, and
3. examples of how scientific research is affected by environmental dynamics.

## **SS2.25 How will Europe Capitalize on the Green Deal and Deliver Clean Net Zero Energy - The Role of Universities and Young People**

Date: 7/15/2022

Time in CEST: 3:45:00 PM - 5:00:00 PM

Location: Online room 2

### *Speakers:*

*Vincent Berrutto, European Commission Directorate General For Energy*

*Dominic Bresser, Karlsruhe Institute Of Technology (kit) / Helmholtz Institute Ulm (hiu)*

*Agnieszka Rządowska, Chair, European Solar Network and Energy Researcher University of Wrocław*

*Lesley Thompson, Elsevier*

### **Description:**

Reaching Net Zero is a cornerstone of the EU Green Deal, which requires a broad engagement of corporates, government policies, intergovernmental agreements and buy-in from the public and young people. It also requires the rapid development and deployment of clean energy technologies, fundamental to achieving Net Zero emissions by 2050. The role of research and research organizations is essential to the success of this clean energy transition.

In this panel discussion we will address the central role universities and research centres should take on the realizing Clean Net Zero Energy and how the Green Deal will accelerate Europe's progress and the opportunity for young people in this transformation. Particularly this year which has been marked by the European Commission as the European Year of Youth, we will ask our esteemed speakers from policy and academia to reflect on the need to engage young people to build a greener Europe.

## **SS2.26 Doctoral Mobility Under Erasmus+ and MSCA: Opportunities and Complementarity**

Date: 7/15/2022

Time in CEST: 3:45:00 PM - 5:00:00 PM

Location: Online room 3

### *Speakers:*

*Svava B Finsen, European Commission, DG EAC*

*Claire Morel, European Commission*

*Mostafa Moonir Shawrav, Marie Curie Alumni Association (mcaa)*

### **Description:**

Both Erasmus+ and the Marie Skłodowska-Curie Actions (MSCA) offer opportunities for the mobility, training and career development of researchers.

Erasmus+ supports staff teaching and training mobility and offers even more opportunities under the new Programme (2021-2027) to doctoral candidates. While the Marie Skłodowska-Curie Actions is the



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EU flagship programme for researchers' mobility and training through the development of excellent doctoral programmes, collaborative research and fellowship schemes

These opportunities offered by the European Union for researchers and notably doctoral candidates in terms of training and career development through mobility are not always known. Researchers, university staff and faculties may not be aware of all the possibilities available under the two programmes, and the complementarity between the two.

The session will go beyond the presentation of the new Erasmus+ programme and the MSCA under Horizon Europe (new Research Framework Programme) by identifying possible bridges between the two programmes. It will connect all existing opportunities, for researchers and universities' representatives, with a view to make the best use of them.

## **SS2.27 Balancing Common Language and Multilingualism as Drivers for Equity, Diversity and Inclusion**

Date: 7/15/2022

Time in CEST: 3:45:00 PM - 5:00:00 PM

Location: Online room 4

### *Speakers:*

*Cissi Billgren Askwall, VA (Public & Science)*

*Marin Dacos, Ministry Of Higher Education And Research*

*Henriikka Mustajoki, Federation of Finnish Learned Societies*

*Johan Rooryck, cOAlition S*

*Laura Rovelli, CLACSO-FOLEC/CONICET*

### **Description:**

When we talk about multilingualism in research, we talk about human rights. The United Nations' Universal Declaration of Human Rights states that "everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits". The Charter of Fundamental Rights of the EU places an obligation on the Union to respect linguistic diversity and prohibits discrimination on grounds of language.

European policies for Responsible Research and Innovation and Open Science underscore the importance of broad access to research knowledge and interaction between science and society. While globalization of research benefits from use of common language (e.g. English as lingua franca), multilingualism in science is vital for interaction with society and sharing knowledge beyond academia. According to the European University Association (EUA), "Multilingualism is particularly relevant for Europe, as its research is characterized by geographic, cultural and linguistic diversity".

Panel discussion explores tensions between and ways to foster internationalization as well as multilingualism in "the practice of science, in scientific publications and in academic communications", as stated in the UNESCO Recommendation for Open Science (2021).

## **SS2.28 Rolling the Dice or Planning Ahead With Confidence? New COVID-19 Report Maps Out Our Most Realistic, Pessimistic and Optimistic Scenarios**

Date: 7/15/2022

Time in CEST: 3:45:00 PM - 5:00:00 PM

Location: Online room 5

### *Speakers:*

*Salim Abdool Karim, CAPRISA*



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*Lucia Dr Reisch, Cambridge Judge Business School, El-Erian Institute of Behavioural Economics And Policy*

*Peter Gluckman, International Science Council*

*Peter Piot, European Commission*

*Christiane Whoopen, Center for Life Ethics, University of Bonn*

**Description:**

This panel brings together experts from the COVID-19 Outcomes Scenarios project. Panelists will discuss the key findings of their high-level foresight report mapping out three important COVID-19 scenarios up until 2026. This exercise represents one of the largest global, multidisciplinary, joint efforts, to date. Speakers include former and current science advisors, chairpersons of national COVID-19 advisory bodies, and leading academics in horizon scanning.

Their common purpose is to help encourage local, national, regional and global science advisory and planning systems to step-away from the current crisis management mode and to think about short to medium-term actions that, when combined, can provide better shared longer-term outcomes.

Speakers will explain their methodology and elaborate their concrete findings on what the potential, wide-ranging, long-term scenarios and their impacts on the global community might be.

## **PL2.5 European Young Researchers Award – EYRA**

Date: 7/15/2022

Time in CEST: 4:00:00 PM - 4:40:00 PM

Location: Aalmarkt stage (Stadsgehoorzaal)

**Description:**

EYRA is a prize-giving ceremony granted every two years by EuroScience to young researchers showing exceptional research achievement and leadership.

Its aim is to encourage early-career researchers to integrate a European dimension and context in their research. The European dimension in the research must be very clear, either embedded in a collaboration of researchers on European level or the research is conducted in one European country, or it addresses a research topic of European dimension. The selection of the three Postdoc finalists has been made by the international EYRA Committee appointed by the EuroScience Board. In view of the remarkable level of the Postdoc candidates, the Committee has decided to again organize a European Young Researchers Popular Prize in addition to a Jury winner of the EYRA award. The present public both onsite and online will be invited to vote in order to select the winner of the Popular Prize. Both winners of the Jury and Popular prize will be announced during the award ceremony.

The winners will be rewarded with a medal, certificate, a grant covering travel, accommodation and ESOF registration costs as well as one year free EuroScience Membership and this year also a monetary prize!

Read more about the three finalists here: <https://www.euroscience.org/news/european-young-researchers-award-eyra-2022/>

## **PL2.4 Keynote: Sustainable Academic Careers: Young Scholars' Perspective**

Date: 7/15/2022

Time in CEST: 4:00:00 PM - 5:05:00 PM

Location: Main stage (Stadsgehoorzaal)





*Speaker: Dr. Gemma Modinos, Chair, Young Academy of Europe; Reader in Neuroscience & Mental Health Sir Henry Dale Fellow (Wellcome Trust & Royal Society) Institute of Psychiatry, Psychology & Neuroscience King's College London, UK*  
*Moderator: Dr Eiko Fried, Leiden University*

**Description:**

Academia is a hub of knowledge and innovation that hosts exceptional human resources, but it suffers in many cases from conservative and outdated models for academic careers. The current system in which academics - particularly early-career academics - often feel overburdened, unfulfilled and unappreciated is unsustainable and non-inclusive. There is a growing movement among the various stakeholders of science to rethink the academic system and to discover new, sustainable academic career paths that are inclusive and promote diversity.

## **SS2.40 Does Good Science Lead to Good Advice and Policy Making? Rethinking the Science Advice-Policy After COVID-19**

Date: 7/15/2022

Time in CEST: 5:15:00 PM - 6:35:00 PM

Location: Aalmarkt stage (Stadsgehoorzaal)

**Speakers:**

*Jean-Claude Burgelman, Free University of Brussels*

*Stephan Kusters, Head of Public Affairs, Frontiers*

*Ruth Morgan, University College London*

*Mamokghethi Phakeng, University of Cape Town*

*Rémi Quirion, Government of Canada*

*Caroline Wagner, The Ohio State University*

**Description:**

The panel will present and discuss the results of a series of interviews with seven selected top-level science advisors, experts and policy makers conducted in the frame of Frontiers Policy Labs during the timeframe 2020/2021. Our qualitative research addresses the questions of how to change the world with science and how to change science to better serve the world. What can we learn from policymaking around COVID-19 on how the world can better prepare for quick response to emergencies? We discuss how the science system, as it was set up globally pre-COVID, contributed to the failures or successes observed. The goal is targeted at real-world solutions to these systemic successes and failures and how to be better prepared in future health and environmental crises.

Interviews were conducted with top policymakers from Australia, Canada, Japan, Europe, and the United States.

## **SS2.29 Beyond Newness in Understanding Migration and Diversity**

Date: 7/15/2022

Time in CEST: 5:15:00 PM - 6:35:00 PM

Location: Cleveringa stage (KOG)

**Speakers:**

*Nadia Bouras, Leiden University*

*Anouk de Koning, Leiden University*

*Eithne Luibhéid, University Of Arizona*

*Marlou Schrover, Leiden University*

**Description:**



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Is the migration of today different from that in the past? Of course, it is. Are the effects of migration different from what they were in the past? Also, of course. There is merit in pointing out newness. There is, however, also merit in showcasing and explaining continuities in how migrants relate to their migrations, and to how societies (countries of origin, transit, and destination) respond to departure and arrival.

Societies change continuously and for multiple reasons. Some politicians and journalists present societies as static for strategic reasons (mainly to target migrants and their descendants as a cause of unwanted change), but today's society is different from that of, for instance, fifty years ago. Societies changed because of technological innovation, economic growth and decline, and other social changes. Migrations (to, from, and within countries) also play a role but that role is not as large as we are made to believe.

There is a related desire for new terms to describe how societies deal with the diversities resulting from migrations.

## **SS2.30 Breaking Down Dilemmas About AI In Science and Society**

Date: 7/15/2022

Time in CEST: 5:15:00 PM - 6:35:00 PM

Location: Lorentz stage (KOG)

### *Speakers:*

*Tracey Brown, Sense About Science*

*Maurits Kaptein, Scailable*

*Michiel Kolman, Elsevier*

*Leonard Lee, National University Of Singapore*

*Ilyaz Nasrullah, Rumified*

*Mariëtte Oosterwegel, KNAW*

*David Schley, Sense About Science*

*Susan Van Erp, KNAW*

### **Description:**

"AI is everywhere." "Truly intelligent AI does not exist." "AI is a threat to our society." "AI is a tool that is essential in our modern society."

What do you think and how do you make up your mind about what to think? At Samenweten, we believe that insight starts with asking questions. Easier said than done, because where do you start when the topic is as complex and multifaceted as AI? In this session, we bring together scientists and policy makers, publishers, journalists and communication experts, to talk with you. The goal is to break down those complex statements and peel off the layers, question by question in two steps:

#### Defining the dilemma(s)

- Using an online poll, we will lay bare the many controversies around AI. Then, we give the stage to our audience. The panelists will question the audience to hear their hopes and concerns regarding AI.

#### Using questions to break down the dilemma(s)

- The panel to guide us through the layers of questions that we can use to break down the complexity of the controversies.
- Finally, the panelists will hold a Q&A session from the audience (both online and physically present).



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## SS2.39 Academic freedom under pressure

Date: 7/15/2022

Time in CEST: 5:15:00 PM - 7:05:00 PM

Location: Main stage (Stadsgehoorzaal)

### Speakers:

*Stephane Berghmans, European University Association*

*Maura Hiney, Health Research Board Ireland*

*Ingeborg Meijer, CWTS, Leiden University*

*Ismael Rafols, Cwts, Leiden University*

*Andrea Saltelli, University of Bergen, Centre for the Study of the Sciences and the Humanities*

### Description:

Although formally and in theory there is academic freedom in many countries in the world, this freedom is always vulnerable to political and economic pressures that constrain it to different degrees. In some instances, academic freedom is threatened by authoritarian regimes or radical social groups that try to censor explicitly lecturers. In other cases, researchers are ostracised for supporting politically incorrect views on highly polarised topics such as climate change. Yet in other examples, private interests use academic freedom to support research lines that purposefully sow confusion on certain issues such as smoking (Oreskes & Conway, 2011). More often, the topical choices are shaped by public or private funding availability or the career prospects which discourage researchers to pursue non-mainstream topics without explicitly censoring them (Hess, 2007). Yet one can also argue that researchers should be accountable to respond to societal needs (Sarewitz and Pielke, 2007). Which forms of pressure are unacceptable while others constitute legitimate ways to acquaint researchers on societal demands? How can academic institutions support academic pluralism? And in what ways is academic pluralism conducive to scientific integrity (Mejlgaard et al., 2020), transparency and open scientific communication. This session aims to explore the conflicts, shadows and shenanigans of academic freedom from a variety of perspectives.

## SS2.31 Collaborative Innovations for Societal Transformations: Insights from the COVID-19 crisis

Date: 7/15/2022

Time in CEST: 5:15:00 PM - 6:30:00 PM

Location: Online room 1

### Speakers:

*Joao Borga, Ani*

*Muthu de Silva, Birkbeck University*

*Yuko Harayama, RIKEN Institute*

*Manish Parashar, National Science Foundation*

*Caroline Paunov, Oecd*

### Description:

Knowledge co-creation, the process of the joint production of innovation between industry, research, government and other stakeholders, notably civil society, to respond to societal challenges offers a testbed for new practices, technologies, operational models and partnership structures. The experience of the co-creation approach used increasingly during the pandemic is instructive for how similar initiatives using this approach could be mobilized to address a broader range of challenges, such as decarbonization and digitalization, as well as future emergencies requiring innovations.

The first session will explore the role of co-creation as a tool for achieving societal transitions, by examining the lessons and policy insights from the COVID-19 experiences of collaboration and how these can be used to shape future collaborations.



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The second session consists of a round table discussion with a panel of 4 representatives (one from each group of stakeholders: academia, government, industry, civil society) involved in promoting the use of co-creation for innovations or directly involved in a co-creation initiative.

A digital poll will follow, aimed at understanding the different societal perspectives on co-creation, and on its role as a tool for developing innovations.

### **SS2.33 The Secret Life in Our Gut and How It Influences Health and Disease**

Date: 7/15/2022

Time in CEST: 5:15:00 PM - 6:30:00 PM

Location: Online room 3

#### **Speakers:**

*Alexandre Almeida, University Of Cambridge*

*Rima Chakaroun, University of Gothenburg*

*Falk Hildebrand, Quadram Institute and Earlham Institute, Norwich*

*Lisa Olsson, University Of Gothenburg*

*Maria Zimmermann-Kogadeeva, EMBL*

#### **Description:**

Our gut harbors a wealth of microbes. They play a role in digestion, in protecting us from disease and in a multitude of processes and functions in our bodies throughout our lifetime. Using molecular and computational tools we are now able to study the microbiome as a whole as well as its interplay with the human body and external factors such as medical drugs in unprecedented detail. The understanding we gain has important relevance for the way we diagnose and treat disease, including personalized medicine approaches.

The panel will explore the following topics:

- How do the gut microbiome and common drugs impact each other and the role the microbiome plays in drug delivery, effectiveness and safety.
- Why and how does a person's gut microbiome change over the course of a lifetime and the relevance to personalized medicine.
- Using the immense datasets and computing powers available today to map the bacterial and viral gut microbiome in unprecedented detail.

Three short presentations will be followed by a panel discussion about how we can use the newly found understanding of the gut microbiome for developing diagnosis tools or treatment options.

### **SS2.34 Engaging Researchers in the Net-Zero Transition**

Date: 7/15/2022

Time in CEST: 5:15:00 PM - 6:30:00 PM

Location: Online room 4

#### **Speakers:**

*Tim Bedford, University Of Strathclyde*

*Melissa Brown Goodall, University Of Pennsylvania*

*Guillermo Cisneros Pérez,*

*Nicola Francesco Dotti, Science Europe*

*Louise Drogoul, CESAER*



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*Daniela Jacob, Climate Service Centre of Germany*  
*Mikael Östling, KTH Royal Institute of Technology in Stockholm*

**Description:**

This session aims to discuss how to engage researchers to achieve the Net-Zero Transition, as part of the ESOF2022 Theme 1 on 'A Sustainable Environment'. During the COP26 in Glasgow (UK), a Call to Action (#Sci4Net0) was launched as a joint initiative of research funding and performing

organizations and international university networks. Based on a shared vision of "a world where research and education communities work together and in interaction with industry and society at large to solve urgent global challenges", CESAER, the International Sustainable Campus Network (ISCN), Science Europe, and the University of Strathclyde (UK) propose to develop coordinated activities. To navigate the complex challenge of reducing emissions of research activities and universities, the promoters propose to adopt a systems-thinking approach engaging the different research and education communities. The proponents want to lead by example, presenting their practices and calling other research organizations to join this international, collective effort.

The ESOF 2022 forum is a relevant and timely opportunity to discuss the urgent, needed actions to be taken by the research communities at all levels. The rapid transformation of our societies requires new forms of research funding programmes, university activities and sustainable campuses across Europe and beyond. These experiences should be presented and critically discussed with the research community because business-as-usual can no longer be an option. In this context, research activities should directly reduce their emissions. Moreover, research communities should get organized to provide coherent science-informed advice to decision-makers, governments and the business sector.

The proposed session aims to gather different viewpoints, from universities to research funding and performing organizations.

## **SS2.35 Delivering the European Science Diplomacy Agenda**

Date: 7/15/2022

Time in CEST: 5:15:00 PM - 6:30:00 PM

Location: Online room 5

**Speakers:**

*Nienke Buisman, European Commission DG RTD*

*Ana Elorza Moreno, Spanish Foundation for Science and Technology (FECYT)*

*Martina Hartl, Austrian Ministry of Education, Science and Research*

*Dirk-Jan Koch, Ministry Of Foreign Affairs*

*Jan Marco Müller, European Commission*

**Description:**

Science diplomacy as a concept has gained a lot of traction in the last decade, with an increasing number of countries developing science diplomacy strategies. In parallel, we have seen the development of a vibrant community of science diplomacy scholars and practitioners in Europe. Following the adoption in May 2021 of the "Global Approach to Research and Innovation", the

European Union's strategy for international science and technology cooperation, EU Member States have demanded the European Commission and the European External Action Service in September 2021 to develop a "European Science Diplomacy Agenda" to ensure a coherent approach of the EU to science diplomacy. The session will take stock of this process and discuss with the audience the next steps in delivering the Agenda, which is happening against the background of an increasingly competitive, but also volatile and even hostile geopolitical environment. Becoming an integral part of the EU's diplomatic toolkit, science diplomacy has the power to keep communication channels with



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non-like-minded countries open, while ensuring that the EU's foreign and security policies are based on the best possible evidence.

### **WP2.3 Scientists Are Mobilized for the Sustainable Development Goals?**

Date: 7/15/2022

Time in CEST: 8:00:00 PM - 9:30:00 PM

Location: World programme

#### *Speakers:*

*Luc Allemand, IYBSS2022*

*Janice Bailey, Scientific Director, Fonds de Recherche du Québec - Nature et technologies*

*Rajesh Gopakumar, Director of the International Centre for Theoretical Physics/ tata Institute for Fundamental Research*

*Romain Murenzi, TWAS*

*Mamphela Ramphela, The Club Of Rome*

*Archana Sharma, Cern*

*Michel Spiro, IUPAP*

#### **Description:**

The year 2022 has been proclaimed the International Year of Basic Sciences for Sustainable Development (IYBSSD) by the United Nations General Assembly. It is an opportunity to focus on the links between all basic sciences and the Sustainable Development Goals.

Around the world, scientists and scientific organizations in basic sciences are already striving toward the achievement of Agenda 2030, the integrated vision for the sustainable development of all the

world's populations that was adopted in 2015 by the United Nations General Assembly. The basic sciences already provide the essential means to meet crucial challenges such as universal access to food, energy, health coverage and communication technologies. They enable us to understand the impact of the currently nearly 8 billion people on the planet and to act to limit, and sometimes even to reduce it: depletion of the ozone layer, climate change, depletion of natural resources, extinction of living species.

## **16 July 2022**

### **SS3.2 Musica Universalis: From Brains to Stars**

Date: 7/16/2022

Time in CEST: 8:00:00 AM - 9:20:00 AM

Location: Lorentz stage (KOG)

#### *Speakers:*

*Ádám Dénes, Institute of Experimental Medicine, Hungarian Academy of Sciences*

*Ágnes Kóspál, Research Centre for Astronomy and Earth Sciences, Hungarian Academy of Sciences*

*Janka Matrai, Ercea*

*Jaroslav Nesetřil, Charles University*

*Ingo Waldmann, University College London*



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#### **Description:**

Various types of networks are present in all areas of our life. They are essential to our cultural, social and economic systems, and all domains of science and technology. Network science has offered the means not only for data-based basic topological description of complex, but also for addressing their inherently dynamical nature. It lies at the foundations of network-medicine, a multidisciplinary medical research and clinical care framework and it has also been applied in cosmology. Network science has been proven to be useful in revealing the large-scale structure of the universe as a network, and in describing the history of galaxies, governed by the 'cosmic network', a kind of galactic ecosystem.

Based on this impressive track-record of transformative discoveries and achievements, wide-spread applications in multiple disciplines, one wonders what the future research directions for network science could be. Could we possibly further uncover, or even predict novel features of complex networks from the realms of astronomy or neuroscience?

### **SS3.4 From Research to the World: Careers in Industry and Politics**

Date: 7/16/2022

Time in CEST: 8:00:00 AM - 9:15:00 AM

Location: Online room 2

#### *Speakers:*

*Francois Busquet, Alvertox*

*Ines Crespo, Roslin Institute, University of Edinburgh*

*Rita Galhano, Merck KGaA*

*Björn Stockhausen, Greens/European Free Alliance, European Parliament*

#### **Description:**

While researchers usually work on a focused topic, skills they develop are valuable in roles outside academia. Moving to working in industry or policy-making may feel daunting though.

We aim to provide inspiration and advice to researchers considering new career paths by bringing together experts who have moved from research to industry and policy-making across different countries. They are alumni of the Joint Research Centre (JRC) – the European Commission's science and knowledge service.

The session will include brief presentations by each speaker followed by a discussion touching on aspects such as career advice and differences between research and other workplaces. We will use live polls to gauge whether audience members are considering career paths in the areas of work of the panel. Questions from the audience will be encouraged.

### **SS3.6 Open Data for Healthier Societies: A Virtuous Cycle?**

Date: 7/16/2022

Time in CEST: 8:00:00 AM - 9:15:00 AM

Location: Online room 4

#### *Speakers:*

*Isabelle Boscaro-clarke, Diamond Light Source - ExPaNDs*

*Andrew Harrison, Diamond Light Source*

*Sam Horrell, Diamond Light Source*

*Ben Perry, Drugs for Neglected Diseases initiative, DNDi*

*Claire Walsh, UCL, University College London*

#### **Description:**



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The COVID-19 pandemic illustrated the challenge the world faces in the fight against infectious diseases, and has further highlighted the challenges associated with data and its re-use. A fast, effective and coordinated science response has been critical to deliver such a fast turnaround of vaccines and novel therapies.

Health researchers need accessible data to support their endeavors from imaging of tissues to data about the basic building blocks of life in proteins. Sharing data for re-use is key to further improve diagnostics and health prevention, as well as develop new and more efficient medications, to be affordable and equally accessible to all countries worldwide. This session will showcase the needs and achievements so far for data to be open, but also the role of global mobilization in the face of challenges like pandemics, and will highlight some of the achievements, which have led to therapies being developed, including medication for low- and middle-income countries.

### **SS3.7 The Science in Exile Initiative: Displacement, Gender, and the Right to Science in the Global South**

Date: 7/16/2022

Time in CEST: 8:00:00 AM - 9:15:00 AM

Location: Online room 5

*Speakers:*

*Saja Al Zoubi, Saint Mary's University*

*Kleinsy Bonilla, University Of Campinas UNICAMP, Institute Of Geosciences IG, Department of Science and Technology Policy DPCT*

*Sena Galazzi, OWSD (UNESCO)*

*Peter McGrath, Interacademy Partnership (iap)*

*Francesca Menozzi, Unesco-twas*

*Phyu Phyu Thin Zaw, School Of Public Health, Hong Kong University*

**Description:**

Conflicts, violence, human rights violations and climate change displace untold numbers of people from their homes and countries. Among them are scientists, doctors, engineers and others with technical training.

This panel will start by providing an overview of the Science in Exile initiative launched in 2021 by UNESCO-TWAS, the International Science Council and the InterAcademy Partnership, which aims to create a network of like-minded organizations that work together to develop a global platform and roll out a coordinated advocacy campaign, in order to foster a cohesive response for the support and integration of refugee, displaced and at-risk scientists.

The panel will open by presenting key lessons, and then will look at the Right to Science in the context of global forced displacement and progress towards the Sustainable Development Goals (SDGs).

It will provide different regional and global perspectives on supporting displaced scientists in reaching safety, staying up to date in their field, maintaining meaningful careers, and being in a position to help rebuild their countries if and when conditions allow. The session will also have a special thematic focus on gender.

### **European Talent Fair Official Opening + Panel Discussion**

Date: 7/16/2022

Time in CEST: 9:00:00 AM - 9:30:00 AM

Location: Pieterskerk Leiden

*Speakers:*



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*Carmen Mendez de Castro, Bizkaia Talent, Spain*  
*Kristina Berkut, Association Bernard Gregory, France*  
*Slaven Misljencevic, European Commission, DG Research & Innovation*  
*Janka Kottulova, SAIA n.o, Slovakia*  
*Mary Kagendo Kobia, University of Copenhagen, Denmark*

**Description:**

The first ever European Talent Fair, launched as part of the EuroScience Open Forum 2022 in Leiden, brings together students, early career researchers, scholars, start-ups, industry and investors to promote young people's talent and job opportunities in the research sector across Europe.

The European Talent Fair wants to increase job opportunities in the research sector for the young generations, ensuring that the right opportunities match with the right talents, and improve employability of young researchers by equipping them with the necessary marketable skills.

The EU pavilion, main stage of the European Talent Fair, will host a range of activities, including physical and virtual trainings on 16 July 2022 to address topics such as career development for researchers, alternative professional paths beyond academia, transferable skills and much more.

More information: [https://ec.europa.eu/info/events/european-talent-fair-2022-jul-13\\_en](https://ec.europa.eu/info/events/european-talent-fair-2022-jul-13_en)

## **SS3.12 Healthy soils for liveable cities - Towards an urban Soil Biodiversity Strategy**

Date: 7/16/2022

Time in CEST: 9:45:00 AM - 11:00:00 AM

Location: Aalmarkt stage (Stadsgehoorzaal)

**Speakers:**

*Marleen De Ruiter, Ministry of the Interior and Kingdom Relations*  
*Miquel Martí, Forest Science and Technology Centre of Catalunya (CTFC) / Polytechnic University of Catalunya (UPC)*  
*Jorinde Nuytinck, Naturalis Biodiversity Center*  
*Reint Jan Renes, Hogeschool Amsterdam*  
*Joyce Van den Berg, City Of Amsterdam*

**Description:**

Soil biodiversity is fundamental for a large number of vital soil functions. Soil hosts more than 25% of all biodiversity on the planet and is the foundation of the food chains nourishing humanity and above ground biodiversity, according to the EU Soil Strategy for 2030. However, the Soil Strategy indicates that an estimated 60 to 70% of soils in the EU are not healthy. Land and soil continue to be subject to severe degradation processes such as erosion, compaction, organic matter decline, pollution, loss of biodiversity, salinization, and sealing.

Soil must be recognized as one of the most important pillars for a healthy living environment for citizens and a nature-inclusive and climate-adaptive city. Soil biodiversity should therefore be an integral part of the design and management of the urban public space.

In this panel discussion we will address the urgent questions that we face regarding soil biodiversity in the cities.



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## SS3.8 Opening Alternative Academic Career Paths – Breaking Bottlenecks and Existing Norms that Perpetuate Precarity

Date: 7/16/2022

Time in CEST: 9:45:00 AM - 11:00:00 AM

Location: Cleveringa stage (KOG)

### Speakers:

*Gordon Dalton, ICoRSA: International Consortium of Research Staff Associations*

*Anna Kuppuswamy, UCL*

*Joris Larik, Leiden University*

*Claudia Sarrico, University Of Minho*

*Clare Viney, Crac*

### Description:

In the late 20th century, the research component of the academic career was still small, especially outside the United States. The career of the researcher was a transition position, between the doctoral and the steady progression, or tenure track, to academic career. The intake of researchers matched the vacant positions in academia, guaranteeing career progression. Industry demand for researchers was small.

Since the 2000's, two changes have emerged:

1. The demand for core research has increased tremendously, and is used as a measure of economic progress.
2. The intake of PhDs has increased exponentially, whereas the number of academic positions remained constant or decreased.

These changes have contributed to the development of precarious employment conditions and the lack of perspectives for career advancement in academia.

This session will initiate and continue discussions on how to reinvent the academic career so that we can support a healthy and sustainable academic system.

## SS3.9 Reclaiming Your Own Voice: Humanities Methods to Address the Fluidity and Complexity of Identities in (Post)colonial Contexts

Date: 7/16/2022

Time in CEST: 9:45:00 AM - 11:00:00 AM

Location: Lorentz stage (KOG)

### Speakers:

*Sylvia Grassi, European Research Council Executive Agency*

*Margaret Rose Hunt, Uppsala University And European Research Council*

*Ananya Jahanara Kabir, King's College London*

*Justyna Agnieszka Olko, University of Warsaw*

*J. Griffith Rollefson, University College Cork, National University of Ireland*

*Khadija von Zinnenburg Carroll, University of Birmingham*

### Description:



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Colonialism and slavery have shaped our modern identities in many ways. Those processes entailed a complex network of political, social, cultural, and economic interactions. These transcontinental endeavors brought together multiple peoples and cultures which, voluntarily or not, took part in the elaboration of new cultural practices.

This roundtable, with participants from various disciplines in the humanities (history, musicology, museology, dance, literature) will discuss what methodological approaches can help scholars take into account the fluidity and complexity of identities in (post)colonial worlds.

The invited participants all challenge traditional narratives and create new tools to not only re-write colonial history from a different perspective, but also to offer insights into a future that would allow us to fully appreciate the richness and diversity of creole voices and their crucial place in our “modern” world.

### **SS3.11 Responsible Research and Innovation in the Western Balkans**

Date: 7/16/2022

Time in CEST: 9:45:00 AM - 11:00:00 AM

Location: Online room 2

**Speakers:**

*Adam Brandstetter-kunc, European Science Foundation*

*Elke Dall, Centre For Social Innovation*

*Ildiko Ipoly,*

*Biljana Kosanovic, University Of Belgrade*

*Katarina Kreceva, Fund For Innovation And Technology Development*

*Sinisa Marcic, Regional Cooperation Council*

*Ingeborg Meijer, CWTS, Leiden University*

*Esteban Pelayo, Alicante Science Park*

*Renata Petrevska Nechkoska, University St. Kliment Ohridski Bitola North Macedonia And Ghent University Belgium*

*Goran Stojanovic, University Of Novi Sad*

*Rudina Toto, Co-plan, Institute For Habitat Development*

**Description:**

The European Union strives for value-based leadership in its initiatives related to science diplomacy and research cooperation with non-EU Member States such as the Western Balkan countries. An important element is the discourse about “Responsible Research and Innovation” (RRI), which revolves around key concepts such as ethics, gender equality, openness, science education and public engagement, integrity, transparency, inclusiveness and academic freedom. In this session, the importance of cooperation involving representatives from the government, business and academic sectors as well as civil society is highlighted. The so-called Western Balkans are one of the geographical areas that highly benefit from the spreading of co-creation and responsible research and innovation principles and dimensions in cooperation with the EU.

The session explores the current state of play of RRI by highlighting good practices and success stories of the inclusion of the countries and their actors into the EU networks, and the steps the region takes to modernize its research and innovation systems and its economies in line with RRI pillars and dimensions.

### **SS3.13 Game-Based Entrepreneurship Education for STEM Students – Can We Simply Apply Business School Teaching Methods for Science Students?**

Date: 7/16/2022

Time in CEST: 9:45:00 AM - 11:00:00 AM



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Location: Online room 4

*Speakers*

*Rajiv Vaid Basaiawmoit, Aarhus University*  
*Nandakumar Krishnaswamy, Ausländer International*  
*John Murray, San José State University*  
*Djuke Veldhuis, Monash University*

**Description:**

Entrepreneurship Education (EEEd), once primarily the domain of business schools, has become mainstream globally and is also being actively pursued within Science, Technology, Engineering, and Mathematics (STEM) fields of study. Not only has the definition of entrepreneurship become broader, being seen not only as identifying the skills to create new businesses, but also to describe individuals who can solve complex problems in an entrepreneurial manner. It is increasingly accepted that the best way to provide such education is through Experiential Learning (EL). To this end, game-based learning (GBL), when integrated with traditional learning, encourages EL and problem solving. Game-based Entrepreneurship Education (GBEE) – enhances the experiential nature of EEEd by introducing heightened engagement & increased learning and impact. This is especially relevant in STEM classrooms that already have a significant experimental approach and mindset, but are confined to theoretical or lab-based activities.

This panel will explore several key aspects of GBL in the context of Entrepreneurial Education, including frameworks based on Design Thinking principles, role-playing collaborative games, and the pedagogical elements of game jams and hackathons.

### **SS3.14 Current Research Trends towards solving Antimicrobial Resistance**

Date: 7/16/2022

Time in CEST: 9:45:00 AM - 11:00:00 AM

Location: Online room 5

*Speakers:*

*Andras Badacsonyi, European Research Council Executive Agency (ERCEA)*  
*Li Deng, Helmholtz Centre Munich And Technical University Of Munich*  
*Eva Kondorosi, Biological Research Centre Szeged*  
*Csaba Pál, Biological Research Centre*

**Description:**

The World Health Organisation declared antimicrobial resistance (AMR) “a global health and development threat” that requires urgent multisectoral action. AMR is not only one of the top 10 global public health threats, but it has enormous economic and societal costs. The Sixty-eighth World Health Assembly made “strengthening the knowledge and evidence base through surveillance and research” one of the five objectives of the global action plan on antimicrobial resistance. A strong focus on a broad, coordinated approach is required that engages all, including the human, animal, plant and environmental health sectors. This “One Health” approach requires that scientists in various fields communicate and work together to achieve better public health results through continued basic research as well as through finding new treatment solutions against the already known resistant superbugs and developing novel means to prevent or manage newly emerging AMR.

In this context, bottom-up frontier research supported by the European Scientific Council brings important new insights on AMR research, generating breakthrough knowledge that could further translate into solutions to fight AMR. The session aims at giving a snapshot of this effort, providing insight from various angles into the main trends of current research on AMR along with its medical, societal and economic consequences. The speakers of the session will discuss these trends in four main directions of AMR research and their synergistic interactions, as well as they will demonstrate



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how bottom-up, curiosity-driven research originating from distant research areas can contribute to the above scientific goals. More concretely, they will present their promising research aiming at revealing the role of horizontal gene transfer in the emergence of AMR and at the identification of new effective synthetic or natural antimicrobials, the potential use of bacterial parasites, i.e. bacteriophages, and novel, Crispr-based gene editing approaches.

### **SS3.30 Should Policy-Makers Listen to Scientists?**

Date: 7/16/2022

Time in CEST: 9:45:00 AM - 11:00:00 AM

Location: Pieterskerk Leiden

#### *Speakers:*

*Johan Christensen, Leiden University*

*Cathrine Holst, University of Oslo*

*Jeroen Kerseboom, Netherlands House Of Representatives*

*Dorothe Kienhues, Center For Teaching In Higher Education, University Of Muenster*

*Valérie Pattyn, Leiden University, Institute of Public Administration*

*Mario Scharfbillig, JRC*

#### **Description:**

The role of science in democracies is subject to conflicting trends. Discourse about evidence-informed policy making has reached peak levels in recent decades. There are growing expectations that decision-makers defer to the best scientific knowledge when designing policies, and many decisions are left to independent expert bodies. However, two developments are challenging these expectations: For one thing, scholars are increasingly pointing to the problems of letting experts make decisions that touch upon values and ethical questions and that involve weighing different goals and interests. For another thing, we are increasingly witnessing purposeful attempts to delegitimize the importance of certain scientific evidence, sometimes combined with assertions that "scientific elites" are complicit in undermining democracy. The panel looks more closely at the complex relationship between science and democracy, bringing together perspectives from science studies and policy sciences, and from academics and practitioners.



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### PL3.1 Keynote Healthy Societies

Date: 7/16/2022

Time in CEST: 10:00:00 AM - 11:00:00 AM

Location: Main stage (Stadsgehoorzaal)

*Speaker: Sir Peter Gluckman, President of the International Science Council*

*Moderator: Prof. Carl Johan Sundberg, Karolinska Institute*

#### **Description:**

Health care is facing major challenges. Life expectancy is rising, and the demand and cost of health care are both increasing. Improving the overall health of the population and providing for healthy ageing can only be achieved with a transdisciplinary approach. Prevention and a healthy life style are as important as reducing health inequalities in diverse communities. There is a growing need both for new biomedical breakthroughs and digital solutions to promote health literacy and provide optimal care.

### PL3.2 Keynote Science and Business

Date: 7/16/2022

Time in CEST: 11:30:00 AM - 12:30:00 PM

Location: Main stage (Stadsgehoorzaal)

*Speaker: Yousef Yousef, CEO, LG Sonic*

*Moderator: Dr Camilla Modeer, Member of the Governing Board, EuroScience*

#### **Description:**

Science creates knowledge that has no boundaries, and the stock of knowledge produced is both a shared heritage and a basis for progress. Innovation is the capability of transforming knowledge into new solutions that stimulate progress and growth, while entrepreneurship is the capability of connecting science with the business environment and the ability to identify new opportunities in terms of new products, processes or services. This theme will explore the many ways in which societal value can be created from research, with a special emphasis on education and on the role and opportunities of the humanities in the process.

### SS3.17 Renewed Call for “Track II” dialogues in Science Diplomacy

Date: 7/16/2022

Time in CEST: 11:30:00 AM - 12:45:00 PM

Location: Online room 1

#### *Speakers:*

*Amy Flatten, American Physical Society*

*Robin Grimes, The Royal Society*

*Tereza Horejsova, Diplofoundation*

*Kim Montgomery, AAAS*

#### **Description:**

Informal diplomacy or “Track II” diplomacy can maintain relationships and communication channels between countries, including countries with severed official diplomatic relations. Even if official diplomatic channels exist, “Track II” dialogues can be valuable for learning the positions and views of other countries and establishing more diverse, expansive, and durable relationships between people in different countries. Additionally, informal diplomacy can support, foster, and lay the groundwork for future “Track I” diplomatic efforts.



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In recent years, the world has seen numerous changes. There have been significant political changes, which has resulted in a more uncertain official diplomatic environment. Additionally, there has been rapid advances in technologies that could impact economic and political power and require new international standards. These changes call for the increased emphasis on informal or “Track II” diplomacy and for those efforts to involve scientists and scientific organizations.

The proposed session will focus on the need for “Track II” diplomatic efforts involving scientific participants, the role for international scientific organizations in those efforts, and the impact of “Track II” dialogues in science diplomacy.

### **SS3.21 Good Living: The Art of Preserving and Extending Eco-Centric Knowledges to Nurture a Sustainable World**

Date: 7/16/2022

Time in CEST: 11:30:00 AM - 12:45:00 PM

Location: Online room 5

#### *Speakers:*

*Dan Baron, Instituto Transformance: Cultura & Educação*

*Jaime Jackson, Salt Road & Culture Declares Emergency*

*Baiba Prūse, Ca'Foscari University Of Venice*

*Renata Sōuknad, Ca' Foscari University Of Venice*

*Julie Ward, Culture Declares Emergency*

#### **Description:**

Anthropocene disconnection with the natural world has resulted in a devastating loss of Indigenous and Local Ecological Knowledge and loss of species as governments and business interests have increasingly sought to control and exploit natural resources putting all life at risk. However, all around the world communities are fighting back through grassroots popular education, gardening and research projects aimed at the recovery of knowledge and the promotion of a regenerative culture. Artists and cultural practitioners are at the heart of this movement.

‘Good Living’ brings together artists, researchers and activists to explore the creative practice of Indigenous artists in Europe and the Americas. Honoring the value of indigenous relationality in the time of ecological and climate crisis, the speakers will explore a sense of kinship that extends beyond human and individual relations to embrace more-than-human species of plants and other animals.

The session will explore how the unlearning of our separation from nature can illuminate our experience, and challenge western binary and human-centric thought.

### **SS3.29 Science to Impact: Debate on policies and programmes to help scientist to create impact.**

Date: 7/16/2022

Time in CEST: 2:15:00 PM - 3:30:00 PM

Location: Aalmarkt stage (Stadsgehoorzaal)

#### *Speakers:*

*Pieter Duisenberg, Chairman of the Association of Universities in the Netherlands*

*Davide Iannuzzi, Chief Impact Officer Vrije Universiteit*

*Elisabeth Minnemann, The Hague University*

*Joeri Steenhoven, van den, University of Applied Sciences Leiden*



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#### **Description:**

Across Europe we see increased emphasis on the value of science for society. Research evaluations nowadays not only assess scientific impact, but also the impact or change experienced by society from research. This is also referred to as societal impact. The shift towards societal impact is clearly visible in research funding programmes that are targeted towards global challenges as formulated in the SDG's (e.g. Horizon Europe). Also, a different type of research emerged known as 'mode 2 research'. Characteristics of this type of research are knowledge is generated within a context of application, several disciplines together study a real-world problem (i.e. transdisciplinary) and stakeholders are involved in the research process.

Against this background, this panel discussion will focus on the question how universities can promote and support science and scientists to create societal impact. Experts will share their experience and perspectives from the organizational level, the national level and the European level. Eg. What does a Chief Impact Officer at a university, but also what entails the Dutch national program Science to Impact or how Universities for Applied Sciences create impact. In essence, how does societal impact change what universities do and how they operate, what does this mean for scientists, what are critical points for policy making to stimulate societal impact, what opportunities lie ahead.

### **SS3.23 Climate Change, Social Inequality and Conflict**

Date: 7/16/2022

Time in CEST: 2:15:00 PM - 3:35:00 PM

Location: Lorentz stage (KOG)

#### *Speakers:*

*Carsten De Dreu, Leiden University*

*David Fontijn, Faculty Of Archaeology University Of Leiden*

*Maarten van Aalst, University of Twente*

*Erik van Dijk, Leiden University*

*Nina von Uexkull, Uppsala University*

#### **Description:**

With the risks of climate change being at the forefront of science and society, much attention and expertise has been directed to reducing emissions and halting the rise of surface temperatures. Less well-understood are the socioeconomic consequences of climate change both in the proximate and more distal future. Here we examine these consequences with a particular focus on the unequal distribution of and access to scarce resources and how climate change and concomitant inequalities can give rise to group polarization and conflict within and between sovereign nation states.

We approach these from theoretical and applied perspectives at both the macro- and micro-level of analysis. We examine collaboration and conflict in prehistoric societies during times of increasing vs decreasing levels of scarcity. Building on behavioral economics we study how environmental degradation can lead to parochialism within groups, providing a basis for political unrest and sectarian violence between groups and communities. From each contribution we derive global measures mitigating the adverse socioeconomic consequences of climate change and prevent violent conflict to disrupt societies and collective action.

### **SS3.24 Searching for Life Beyond Earth — The Whys and Hows of Our Quest for Life in the Universe**

Date: 7/16/2022

Time in CEST: 2:15:00 PM - 3:30:00 PM

Location: Online room 1



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**Speakers:**

*Michele Cirasuolo, European Southern Observatory*

*Kathryn Denning, York University*

*Lisa Kaltenegger, Carl Sagan Institute*

*Mariya Lyubenova, European Southern Observatory*

*Yamila Miguel, Leiden University / Sron*

**Description:**

Rapid advances in astronomy and planetary sciences promise to shed light on the prevalence of biological activity in the Universe within our lifetime. How common is a planet like Earth? Are there any other habitable worlds in our vicinity? And ultimately, what would it mean for humanity to find life elsewhere in the Universe? Is our society ready to know we are not alone? Would we recognize life if we spot it? The road ahead has many challenges. Technical challenges to design and construct the necessary ground-based and space instrumentation to characterize potential habitats and discern signs of life, and scientific challenges - unequivocal proof of biological activity will require a synthesis between many disciplines of the natural sciences and philosophy. This session gathers an interdisciplinary expert panel, consisting of astrophysicists, an anthropologist, and an astronomy instrumentation specialist, to discuss these questions and provoke the audience to reflect further on some of the most fundamental queries for humanity.

### **SS3.25 Apocalypse Tomorrow: What Should Scientists Do to Prepare for the Next Major Crisis?**

Date: 7/16/2022

Time in CEST: 2:15:00 PM - 3:30:00 PM

Location: Online room 2

**Speakers:**

*Tina Comes, University of Maastricht*

*Olimpia Imperiali, European Commission*

*Maarja Kruusmaa, Tallinn University of Technology*

*Marzia Mazzonetto, Stickydot*

**Description:**

In the autumn of 2022, the European Commission's Scientific Advice Mechanism (SAM) will publish a major piece of advice on strategic crisis management for the EU. Based on a broad and multidisciplinary understanding, the work will inform policymakers on how the EU can improve its strategic crisis management. This builds on previous work during the COVID-19 crisis on how to improve pandemic preparedness and management in the EU, conducted in partnership with the European Group on Ethics in Science and New Technologies.

In the build-up to this publication, an international conference organised by the SAM in the spring examined the issue of how scientists can best advise policymakers in high-pressure situations involving uncertainty, high stakes, and public scrutiny.

This ESOF session will bring together these two threads in a high-level discussion of Europe's state of crisis preparedness and the role of scientific advice and European values in it. If a major crisis hit tomorrow — be it natural disaster, geopolitical meltdown, public health emergency or economic shock — how prepared would our society be? What role should scientists from all disciplines play in advising policymakers on crisis preparedness, and in informing a rapid response? What different advisory mechanisms are needed to meet the different needs of rapid response and long-term horizon-scanning for future threats? How can we ensure that EU fundamental values and freedoms are upheld?



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### **SS3.26 The Chair: Fact or Fiction? Addressing the Challenges Faced By Women Leaders in Academia**

Date: 7/16/2022

Time in CEST: 2:15:00 PM - 3:30:00 PM

Location: Online room 3

*Speakers:*

*Sara Aguirre, Université Libre De Bruxelles*

*Marcelo Mora, Irb Barcelona*

*Mangala Srinivas, Wageningen University and Research, and Cerna Imaging*

*Susanne Täuber, University Of Groningen*

*Moniek Tromp, Young Academy Europe*

**Description:**

The popular Netflix series *The Chair*, shows overtly stereotypical characters in a conventional academic setting. The protagonist is the first female Chair of the department, as well as the youngest, and the first person of color. In addition, she is trying to achieve a work-life balance as a single mother to a young child. The show deals with her struggles as she tries to bring about positive transformation, in a department that is failing but where many colleagues are resistant to change, and real power rests elsewhere in the college.

The show is satirical, and is meant to entertain; but how far is this comedy-drama from reality? And, if it really is true, at least in part, what are we to do to create a brighter future for women aspiring to fulfilling academic careers and leadership positions, as well as an effective work-life balance?

Throughout, we aim to increase awareness, in an inclusive and accessible manner, of the gender biases that continue to pervade academia, and to develop ways forward to achieve change. Gender inequality, including unconscious bias, need to be addressed to allow the full participation of society in science, and science in society.

### **SS3.27 Astronomy and Space Science in the Age of Satellite Constellations: A Case for a Shared Stewardship of the Sky**

Date: 7/16/2022

Time in CEST: 2:15:00 PM - 3:30:00 PM

Location: Online room 4

*Speakers:*

*Anna Bonaldi, SKAO*

*Olivier Hainaut, European Southern Observatory*

*Sara Lucatello, INAF / EAS*

*Megan Perks, University of Leicester*

*Andrew Williams, European Southern Observatory*

**Description:**

Low Earth Orbit is set to become more and more crowded, with tens of thousands of commercial telecommunication satellites, the so-called satellite “mega-constellations”, planned to be launched in the next few years. Currently, about 2,000 satellites have been launched, doubling the number that were in place as recently as 2019.

Estimates of the impact of fully deployed constellations indicate that the access to the dark sky will be disrupted and that some of the most cutting-edge astronomical facilities will be heavily affected. In the last two years, the astronomical community has engaged with satellite operators and explored the



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development of a new policy and regulatory framework in an effort to devise mitigation measures to minimize the impact of the constellations on scientific facilities.

We need a framework of shared stewardship, in which all space stakeholders acknowledge and assume their responsibility to conserve Earth's pristine natural landscapes, sustainably grow national space industries and a global space economy, and support fundamental scientific research.

In this session we plan to have a number of experts come together and discuss the issue in a panel format.

### **SS3.31 What Can Be the Role of Heritage in Society?**

Date: 7/16/2022

Time in CEST: 2:15:00 PM - 3:30:00 PM

Location: Pieterskerk Leiden

#### *Speakers*

*Lorna Cruickshanks, Cultural Heritage Agency, Netherlands*

*Erik de Maaker, Leiden University*

*Hester Dibbits, Reinwardt Academy (amsterdam University Of The Arts)*

*Anna Mignosa, Erasmus University*

*Margriet Kim Nguyen, National Heritage Agency the Netherlands / Erasmus University Rotterdam*

#### **Description:**

The processes by which heritage evolves, receives recognition, and is challenged encompass a broad range of societal actors.

In Europe, top-down definitions of heritage tend to prevail; however, room is being created for more democratic and pluralistic approaches as seen in the 2005 Faro Convention and the European Commission (2018). These changes call for an 'integrated' approach to develop the skills and tools that acknowledge how interpretations of heritage can be diverse among its publics, and find ways to boost the potential of this diversity to stimulate reciprocal knowledge, understanding, and appreciation. Fostering a broad societal acknowledgment of the diverging values of cultural heritage, while boosting the skills and knowledge of professionals, is another fundamental step in the strategies to adopt. What type of knowledge and skills are required to ensure a broad societal engagement with heritage? How can heritage contribute to resolving current societal challenges in Europe, as well as in Europe's global relationships, relating to for example diversity, inequality and sustainability?

In this panel, four presenters with different disciplinary and professional backgrounds will present papers, sharing their insights on how creating, sustaining, and erasing heritage can have an impact in a variety of societal contexts.

### **PL3.4 Closing Ceremony**

Date: 7/16/2022

Time in CEST: 4:00:00 PM - 5:20:00 PM

Location: Main stage (Stadsgehoorzaal)

#### Moderator:

Elisabeth van Nimwegen, Host

#### Speakers:

Mariya Gabriel, *Commissioner EU*

Ferry Breedveld and Corinne Hofman, *Champions ESOF2022*

Robbert Dijkgraaf, *Minister of Education, Culture and Science*

Henri Lenferink, *Mayor of Leiden*



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Michael Matlosz, *President of EuroScience*  
Marcin Krupa, *Mayor of Katowice, European City of Science 2024*  
*Performers:*  
Sharon Harman, *spoken word artist*  
Marcin Wyrostek, *accordionist*

**Description:**

The Closing Ceremony will celebrate the achievements of ESOF2022 while providing a platform for a handover to Katowice, the next European City of Science in 2024.



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## Posters

### Theme: Sustainable Environment

#### **P01 Fusion Mobility: A transparent model connecting science and society for Sustainable Mobilities development to meet the targets of the European Green Deal. A systemic model towards transformational change – Hands-on participation for Future Mobilities**

*Speaker(s): Ida Sabelis*

##### **Description:**

Based on the introductory Fusion Mobility (FM) session “A systemic model towards transformational change”, we accepted the demand to “connect Science and Societies” as a participatory process. Consequently, we start from the current state of fragmentations in mobility debates and practices. We would like to question shared reasons behind that fragmentation, and explore if sustainable mobilities development (SMD) can become an example to solve these problems related to this assumption. In an ongoing field study we already understood that normal people are able to handle complex mobility questions when using FM structure. We discovered that this enables ‘Thinking-out-of-the-box’ of “normal” transport categories, while at the same time experiencing a “new-normal” using terms and happenstances of their own daily lives and mobility behaviour. Within the next few months we will intensify our efforts with case studies in a number of cities, as there is an increasing demand related to the urge by cities on the way to become climate neutral [7, 14].

Following that may conclude that transparency is core, in particular under these aspects:

- (1) Transparency by using FM structures as paradigm for accessibility to a new dimension in sustainable mobilities development.
- (2) Systemic participation as an integral part of sustainable mobilities and urban development, where we put normal people centre-stage.
- (3) Using the identical basic FM structures by researchers and politicians, decision makers and normal people.

This offers the perspective of democratising urban and mobilities planning. And this is what we like to discuss in an interdisciplinary manner with a broad audience in two consecutive ESOF sessions. By that, the FM approach is designed to cross all borders: not only between countries and cultures but also between the humanities, the social sciences and the natural, medical and physical sciences.

Many of these disciplines are represented in our interdisciplinary team.

This also represents progress since we started in 2017 (Taipei), followed by global exchange. It has already launched an expert discussion (ITS World Congress 2018, Velocity 2018 etc.) and received interdisciplinary and cultural boosts at the EuroScience Open Forum 2020 in Trieste [3].

What will pay off? FM can deliver the transparency we need for participation in future mobility planning and sustainable transformation combined [13]. If FM can be understood by people of almost all ages, and in parallel being introduced for research design, then we will systemically achieve in bridging these two world: Science and societies.

The increasing demand for sustainable mobility solutions [14] is key in these research activities, and FM provides an opportunity for researchers and practitioners to engage in open discussions and debate on sustainable mobilities, science and research itself and how we can contribute to tackling the grand challenges of now and tomorrow.

## **P02 Empowering policymakers and consumers towards sustainable lifestyles through Consumption Footprint-based approaches**

*Speaker(s): Esther Sanye Mengual*

### **Description:**

Current consumption patterns and lifestyles play a key role in global impacts beyond climate change, such as environmental pollution or resources use. As consumers, citizens can lead the transition to sustainable consumption and production by changing specific behaviours and promoting sustainable choices. However, we still need to quantify and identify the lifestyles and patterns that currently drive environmental impacts to allow promoting the most relevant changes in consumption patterns. The European Commission has developed a Life Cycle Assessment (LCA)-based framework to monitor the evolution of the overall environmental footprint of EU production and consumption and compare the footprint against planetary boundaries. The Consumption Footprint and Domestic Footprint indicators respond to key challenges posed by the need of a systemic and holistic assessment of transition towards sustainability and represent a key set of indicators to support the ambitions of the European Green Deal. Two different tools were developed based on this framework that can enhance the awareness of the environmental impacts of current consumption patterns towards sustainable lifestyles.

The Consumption Footprint Platform allows the general public to explore the Consumption Footprint and Domestic Footprint of the EU and Member States. The Consumption Footprint is a life cycle-based approach that considers the entire supply-chain of products in the estimation of the environmental impacts of the consumption patterns of citizens. It applies the Environmental Footprint method to estimate the potential environmental impacts, displaying the results in 16 impact categories (including aspects from climate change to human toxicity) and a single weighted score. This platform provides a macro-scale perspective on the environmental impacts of consumption, allowing to support decision-making processes.

The Consumer Footprint Calculator allows citizens to calculate the environmental impact of their individual consumption patterns by answering specific questions focused on five areas of consumption: food, mobility, appliances, household goods, and housing. Users can explore their resulting environmental impacts against the ecological limits of our planet or the Sustainable Development Goals framework, compare them with those of the average EU citizen, and understand how products contribute to their overall environmental impact. The calculator can show the potential effect of changes in the consumption patterns and includes links to sustainable actions, such as the individual pledges of the European Climate Pact, and the United Nations' "Anatomy of Action" project. This calculator provides an individual perspective on the potential lifestyle changes performed by citizens.

This session aims at presenting the framework and associated tools, focusing on the different scales: from the EU territory to the city level, as well as the individual citizen. Speakers representing different stakeholders (MS representative, environmental agencies, NGOs, researchers) aim at discussing on the potential role of the Consumption Footprint and associated tools in policy- and decision-making processes.

## **P03 Battery research for a green future**

*Speaker(s): Davide Montesarchio*

### **Description:**

Batteries will play an essential role in the energy transition towards a low-carbon economy, not only by replacing the thermal motor in electric vehicles, but also ensuring the continuous availability of energy from renewable but intermittent energy sources.



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The panel discussion will focus on the current scientific research aiming at finding solutions to enhance the performance and the sustainability of batteries, possibly through the use of cheap and widely available raw materials such as sodium or magnesium, and the reduction or replacement of debated elements, such as lithium and cobalt.

On the way towards the invention of the sustainable batteries of the future, the large-scale research initiative Battery2030+ (<https://battery2030.eu/>), which started in December 2018, plays a leading role. Thanks to the presence of one of the core members of Battery2030+, the audience will have the chance to get insights on the roadmap in place towards the implementation of high-performance, reliable, safe, sustainable and affordable batteries.

Moreover, scientists from renowned institutions in Austria, France and Slovenia, will present the latest results achieved in the field, and will showcase the scientific and geopolitical challenges that need to be tackled for a transition towards more sustainable energy storage solutions. Applications of advanced analytical techniques used in the study of the electrochemical mechanisms at the basis of batteries' operation, such as synchrotron light and Nuclear Magnetic Resonance, will also be highlighted.

In this tour throughout the battery value chain, the public will be invited to take part in the discussion through a Q&A session, and will be engaged with live questions through a dedicated online platform.

## **P04 To be mothers and female researchers of water contamination in Veneto Region: the role of citizen science and epistemic citizens**

*Speaker(s): Marialuisa Menegatto*

### **Description:**

The Italian Case, the Pfas contamination in Veneto Region, is one of the largest environmental disasters in Europe as regards water pollution that for its large extension of pollution of water and soil makes "it is the third-largest PFAS contamination event worldwide" (WHO, 2017). In fact, this ecological catastrophe involves the provinces of Vicenza, Verona, Padua, directly affecting 350 thousand citizens (85 thousand already subjected to biomonitoring), a figure destined to increase to 800 thousand, given the impossibility of stemming the water in the deep aquifers. Due to their unique properties, PFAS are used in a broad range of products such as outdoor clothing, cooking utensils, stain-resistant rugs and fire-fighting foams. The downside of the widespread use of PFAS is their stability ('forever chemicals'), which means that they can accumulate in the environment and enter the food chain. Scientific research related to environmental disasters (Edelstein, 2018; Gibbs, 1982; Hobfoll, 1989) indicates that the population living in places affected by contamination is subjected to high psychosocial stress and needs support. From 2019, at the University of Padova, is active a scientific project research named Community Health Resilience (CHR) with the aim to study psychosocial consequences of the disaster (Zamperini, Menegatto, 2021). The CHR project plans to: analyze community experiences through field research; prepare informative-training material on psychosocial stress from environmental contamination; develop tools for community resilience; coordinate stakeholder groups. This project is also an example of citizen science, that actively involves in the research contaminated community members (MothersNoPfas). First, this experience shows that citizen science projects foster participants' learning (that we called epistemic citizens). In fact, MothersNoPfas is a group of active citizen mothers that through scientific knowledge, in alliance with researchers, contributes to multi-level change: they raise awareness among citizens, ask for environmental protection, vulnerable groups such as children, present possibilities for soil and water remediation or future political actions and solutions, can contribute to educating the public, empowering themselves. The purpose of this panel discussion is to make three principal contributions. First, to present the project CHR as a great example of citizen science that increases scientific productivity while also connecting science with the general public. Second, to offer knowledge on the environmental impacts of per- and polyfluoroalkyl substances (PFAS) through closer integration of different disciplinary lenses. Finally, we outline a research agenda anchored on important underlying

organisational challenges of CS projects. This agenda can advance our understanding of Citizen Science, yield practical recommendations for project design, and contribute to the achievement of wider results in reference to environmental contamination. In this specific case, how to deal with a contamination disaster protecting the environment starting from the health and well-being of citizens from an ecological perspective.

## **P05 decarbonisation of the iron and steel sector in the EU: a model-based analysis**

*Speaker(s): Matteo De Felice*

### **Description:**

European steel manufacturers contributed in 2019 to over 8% of the world steel production and almost 6% of the total GHG emissions in the European Union that are mainly due to the large coal consumption that characterises the most common iron and steel manufacturing technology. By 2030, a large part of the European iron and steel production fleet will require major reinvestments, offering a window of opportunity to transform and decarbonize the sector in line with the targets of the European Green Deal. In this context, this study develops 2030 and 2050 scenarios for the European iron and steel industry that are based upon specific assumptions on technologies, reinvestment cycles and avoidance of stranded assets. The scenarios take into account various potential developments of the sector with differentiations on country basis. These include a reasonable increase of circularity that enhances the melting of scrap steel in electric arc furnaces, the deployment of the breakthrough technology hydrogen-based DRI, as well as the possibility to use methane-based DRI as transitioning technology. The decarbonisation of the iron and steel sector is expected to have significant impact on the European power system, due to a major switch from fossil fuels to direct electrification or (green) hydrogen. Therefore, the operations of the European energy system under the different scenarios proposed is assessed with the energy model METIS. METIS provides simulations of the European energy system for electricity, gas and heat at member state resolution. Energy systems and markets are modelled with hourly resolution over a year while taking into account weather uncertainties. Thus, this work first maps for each scenario the yearly demand of electricity, hydrogen and natural gas to hourly profiles. The results of the simulations are expected to contribute to the general research with insights on the expected increase or decrease of energy demand for the various energy carriers and the effects that these bring to the proper operation of the European energy system. Of particular interest is the analysis on electricity demand increase – both in relation to H2 production and to direct electrification – and how the power system can cope with this under different weather conditions. Furthermore, the study takes into account the potential for exploiting flexibility from the iron and steel sector, in terms of the ability of steel manufacturers to vary their electricity consumption loads in response to a price signal from electricity markets operators. Due to the considerable size of loads of these industries, they can provide valuable assistance to the proper operations of the power grid, for instance, by shifting their loads to allow peak shaving and valley filling

## **P06 Sustainability and the Synchrotron: How can a large basic research facility be greener?**

*Speaker(s): Joseph Piergrossi*

### **Description:**

In many parts of the world, large research infrastructures are a major resource for scientists to perform their research, as advanced tools that are difficult to transport, such as light sources, detectors, and



ultrafast data acquisition, are centrally located there. But there is a problem: large-scale facilities and the associated infrastructure, for example in the area of data processing, consume large amounts of valuable resources during construction and operation; from electricity and water to rare earths or helium. At DESY, several facilities are on offer, particularly using particle accelerators to probe physical phenomena or to generate X-rays to study the structure, function, and dynamics of materials at the atomic level. From green Hydrogen to electromobility, from COVID vaccines to smart materials and carbon capture technologies: to ensure that the ideas from basic research quickly find their way into application, DESY actively ensures the transfer of sustainable concepts to industry and society. We propose a fishbowl-style series of discussions based around three questions:

-How can largescale facilities be more sustainable?

-What strands of research at largescale facilities are focusing on the topic of sustainability, and what could the results bring?

-How can research infrastructures develop an environment for working on sustainability concepts as constructively as possible?

Each discussion lasts for ten minutes, at which time the full audience takes over for a further ten minutes. Then the discussion moves onto the next topic until all three topics have been covered.

Anybody may decide to participate briefly in the discussion. They may leave their place in the outer circle and take a seat on the free chair in order to directly take part.

At the end, we have a complete round-up of ideas and discussion with everyone involved. In this way we would like to involve the audience in showcasing our development as a facility, our research results, and how we plan to take on the challenges of the future.

## **P08 The contribution of experiencescapes to the building of resilience in communities**

*Speaker(s): Jorn Fricke*

### **Description:**

Citizens in urban areas are prone to increased levels of stress due to urbanization, inadequate and overburdened infrastructure and services and environmental degradation. Moreover, communities are fragile and subject to shocks and stresses through various social and political processes. A loss of (a sense of) community is often seen as related to increasing political and civic disintegration. Feelings of community can manifest themselves in various ways but underlying all these manifestations is the need for trust between people. One of the main drivers of trust between individuals is (shared) experiences. It is these shared experiences that may play an important role in building resilience, i.e., the ability of a community and its members to adapt to and deal with stresses as well as ensure the ongoing development of a community.

So far, experience design, as a discipline and academic field, has mainly focused on designing products or services. However, people-to-people experiences are the ones that play a pivotal role in building inclusiveness, safety and resilience in communities. These experiences represent challenging objects of design, as they develop in an interactive space of spontaneity, serendipity and uniqueness that is based on intuition, freedom of expression and interaction. Therefore, there is a need for research to identify which elements are required in designing the social and physical environment (or 'experiencescape') to increase the chance for people-to-people experiences to be successful and what elements are required for these experiences to help in building resilience in urban communities that can resist shocks and stresses.

By means of a comparative case study approach in urban areas in Germany and the Netherlands, using a range of qualitative research methods such as in-depth interviews, focus groups, participant observation, storytelling techniques, and life stories, this research identifies relevant actors and their roles in creating building blocks of optimal experiencescapes for building resilience in communities.

## **P09 Oilseed palm *Acrocomia*: A novel crop for a sustainable vegetable oil production?**

*Speaker(s): Catherine Meyer*

### **Description:**

Vegetable oils are an important international commodity in today's food and non-food industry. The African oil palm and soybean have the biggest share in the global vegetable oil production. The rapid expansion of oil palm and soybean plantations and industry has dramatic environmental and social impacts, especially in their major production centres. Deforestation, loss of habitat, loss of biodiversity, water and air pollution, conversion of peatlands and arable lands, loss of ecosystem services, conflicts over land rights and the impairment of smallholders' income are some of the negative effects of these industries. These detrimental effects of vegetable oil production will be aggravated in the next decades due to the fact that most of the suitable cultivation land is under protected rainforest, peatland or arable land, and that the demand for vegetable oil will increase.

The importance of a sustainable oil crop cultivation and vegetable oil production is undeniable. Besides implementing sustainability strategies into the existing cultivation practices and post-harvesting processes, the introduction of novel oil crops can be one solution to increase vegetable oil production in a sustainable way.

One promising novel oil crop is the oilseed palm species *Acrocomia*, endemic to the semi-humid tropical and subtropical regions of the Americas. *Acrocomia*'s productivity and oil composition are comparable to Oil palm. However, *Acrocomia* shows important ecological and agricultural advantages. Due to its high environmental plasticity and eco-physiological requirements, it is no competition for rainforest or fertile arable land. It can be grown on a wide range of soils, including nutrient poor and degraded soils, exhibiting a decent fruit bunch production. Additionally, *Acrocomia* is a suitable crop for a sustainable agricultural intensification as it can be grown in multi-species cropping systems from silvo-pastoral to agroforestry systems, so increasing the biodiversity of the cultivated land.

The processing of *Acrocomia*'s hard-shelled fruits results in diverse products with versatile uses, whereas the most important commodities are the kernel and mesocarp oils. The press cakes, the outer shell and the kernel shell can be further processed, respectively, into flour for human consumption, animal feed and biochar.

Even though highly promising, *Acrocomia* has up-to-now the status of a neglected crop and is only grown in small areas in South America. Research efforts on *Acrocomia* in various disciplines, from economy to agronomy, were increased in South-America and Europe in the last decade. In 2019, the *Acrocomia* HUB was founded by leading researchers from South America and Germany as a joint strategy to push research on planting material, genotype–environment interaction, crop management, and sustainable cropping systems. The aim: the development of sustainable *Acrocomia* based production systems on suitable land in South and Central America.

## **P10 Gene editing for sustainable food production across species and borders**

*Speaker(s): Ines Crespo*

### **Description:**

The United Nations' Food and Agriculture Organization estimates that, by 2050, the world's population will be almost 10 billion, and that consumption of animal products will rise considerably.

Meeting this demand for food in a sustainable way that helps mitigate climate change and meets societal expectations, poses the challenge of producing more food from farmed animals using fewer natural resources. If animals are healthier and more resilient, fewer will be needed to produce food, helping to protect the environment and adapting to a changing climate.

Scientists are working towards improving efficiency of food production by using gene-editing technologies to improve animals' resistance to disease and resilience to extreme climates.



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Gene editing involves altering an organism's genome at precise points to introduce characteristics of interest. Changes introduced could occur spontaneously in nature. The technique has been used by scientists at the Roslin Institute to produce pigs that are resistant to a deadly virus, and its potential to improve cattle, poultry and salmon breeding is being investigated by scientists in Norway, Kenya and the UK. Outcomes of the work could particularly benefit farmers in tropical low- and middle-income countries, where increased temperatures associated with climate change have negative impacts on animal welfare, productivity and immunity. This session will showcase how gene editing is being used in research institutions in different countries to develop healthier and more resilient animals, it will discuss how regulation differs across borders, and public opinion on these technologies. In an interactive session, we will give the audience scenarios and ask them to consider the perspective of different groups, such as farmers, consumers, policymakers, and low- and middle-income countries.

## **P11 The Activities & Dimensions Grid of Citizen Science**

*Speaker(s): Michael Strähle*

### **Description:**

There are now at least as many typologies and categorisations of citizen science as there are ideas and explanations of what citizen science is. What counts as citizen science is not a foregone conclusion. In the Horizon 2020 project CS Track, the authors systematically examined different approaches to categorising citizen science activities and created a grid of citizen science activities and their dimensions, the Activities & Dimensions Grid of Citizen Science. The grid was based on the European Commission's broad concept of citizen science. More detailed and systematic than previous categorisations, it shows the complexity and contexts of citizen science, namely what can be citizen science and on which dimensions such as the location of participation, the requirements for participating in a citizen science activity, demographic aspects of who is participating, funding schemes and others, citizen science activities depend.

The systematic consideration, the result of which is the grid, allows a better view of possible pitfalls and ethical questions, as well as questions of inclusion and exclusion in citizen science. Some of them only become visible through this, others only become sufficiently specific and thus accessible for an answer. The poster presents the above-mentioned grid, how the partly quite different categorisations of citizen science were incorporated and how it can be used for citizen science activities, for example, to identify possible pitfalls, ethical aspects as well as aspects of inclusion and exclusion of the respective citizen science activities.

The poster will be presented by Michael Strähle & Christine Urban, Wissenschaftsladen Wien - Science Shop Vienna

## **P12 Build. Connect. Live! Solar Decathlon Europe, the solar-powered think tank for our future living**

*Speaker(s): Oana Mihaescu*

### **Description:**

Change does not happen. Change is learnt, but who teaches that? Who makes us understand that it is in our power to shape the world and that we can also build the tools we need? Younger people usually lack the skills, while older people generally lack the hope. To build bridges, Solar Decathlon fosters dialogue. We aim to collectively find out what's next towards creating



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the world we dream to.

### **P13 The INCREASE project - a participatory research approach to characterize genetic resources in food legumes.**

*Speaker(s): Alice Pieri*

#### **Description:**

INCREASE (<https://www.pulsesincrease.eu/>) is an international project, involving 28 partners from 14 different Countries, funded by European Union's Horizon 2020 research and innovation programme. INCREASE aims at developing efficient and effective conservation tools and methods to foster agricultural biodiversity in Europe. To face the increasing demand for innovative products and to comply with citizens' demands for healthy and environmentally friendly food, novel crop varieties are needed and existing genetic resources in crop breeding must be properly exploited. Focusing on the food legumes chickpea, common bean, lentil and lupin, the INCREASE project implements a new approach to conserve, manage and characterize genetic resources through participatory research. To this end, INCREASE aims to: i) optimise databases and easily accessible tools to manage and share food legume genetic resources; ii) develop "Intelligent Collections" as a set of nested core collections of different sizes that represent the entire diversity of each crop; iii) generate new knowledge on genetic diversity, made easily available through a web-based searching and visualization tool to identify appropriate sources of germplasm; iv) promote ex-situ and on farm conservation involving in a participatory framework farmers, citizens and other stakeholders. INCREASE is guided by the European Commission principles "open science, open innovation and open to the world" and takes advantage of digital technologies to make science and innovation more collaborative and global. For this purpose, the project tests a decentralised approach to the conservation of genetic resources by setting up a Citizen Science Experiment (CSE). The project started to distribute in 2021 more than 1,000 different common bean landraces to European citizens to be evaluated in their field/garden or on their terraces/balconies. Through their voluntary engagement the 'Citizen Scientists' can gain knowledge about legumes biodiversity and get actively involved in evaluation and conservation activities, as well as in sharing and exchanging seeds in a new legal framework via the specifically developed 'INCREASE CSA' mobile app (available for download in the Apple iStore and Google Play Store). The app is designed to collect phenotypic data also by testing seed image recognition as the validating tool and to allow SMTA-based exchange of germplasm between citizens, to test the possibility to develop a decentralized network for genetic resources conservation. Given the success encountered in the 2021, registration is now open for the second round of CSE in 2022. In parallel, stakeholders as schools and botanical gardens participated in the field assessment of different germplasm accessions of chickpea, lentil and common bean evaluating their agronomic traits. This is a major innovation for the plant genetic resources community in sharing benefits and promoting the correct use of plant genetic resources.

### **P14 Nanotechnologies targeting zero-toxic water (NANOZERO-ep)**

*Speaker(s): Roberto Fernández de Luis*

#### **Description:**

Emerging Pollutants (EP) include substances such as polar organic compounds, pharmaceuticals, personal care products, perfluorinated and organo-silicon compounds, endocrine disruptors, disinfection by-products, antibiotic-resistant bacteria, viruses, cyanotoxins, microplastics, and nanomaterials. Up to 90% of oral drugs pass through human body and end up in the water supply. A better understanding of EPs' occurrence and fate in water cycles is needed, as well as strategies for monitoring, mitigation and removal, or the implementation of legal regulatory requirements promulgated after risk assessment. Throughout this session, targeting researchers, water sector value



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chain stakeholders, policy makers, society and students, representatives from EU-funded projects - INDESMOF, RECOPHARMA and SUSWATER – will share the perspective of the EU Action Plan Towards Zero Pollution in Water addressing EPs and novel integrative treatment solutions. INDESMOF project will disclose their approach to design, synthesize, and tune advanced composite adsorbents based on the immobilization of Metal Organic Frameworks (MOF) nanoparticles into polymeric matrixes to face heavy metal and phenolic compounds water pollution. RECOPHARMA will reveal a novel process by sequential integration of Molecular Imprinted Polymers, Reagentless Thermosorption, Nanocomposites Functional Materials, and Advanced Oxidation Processes, for an effective treatment of recalcitrant cytostatic drugs and degradation of corresponding transformation products or metabolites. SUSWATER project develops new environmentally sustainable and low-cost technologies to eliminate EPs and capture potentially toxic elements from water by combining adsorption, biotic/abiotic processes. This specific cluster of EU's Marie Skłodowska-Curie Research and Innovation Staff exchange (RISE) projects was set up to address different EPs and propose novel strategies for the decontamination of European and international water compartments. The specific RISE projects work towards the developments of novel nano-based approaches encompassing international and intersectoral partnerships between academy and private sector, connecting Europe to other world regions.

## **P15 Blue-Cloud: Exploring and demonstrating the potential of Open Science for ocean sustainability**

*Speaker(s): Federico Drago*

### **Description:**

The European Open Science Cloud (EOSC) initiative was launched by the European Commission to provide researchers with a virtual environment with open and seamless access to services for storage, management, analysis and re-use of research data, across borders and disciplines. The H2020 project Blue-Cloud, as the "Future of Seas and Oceans Flagship Initiative", is the thematic EOSC for ocean science.

Blue-Cloud delivers a collaborative virtual environment to enhance FAIR and Open Science. Started in October 2019, Blue-Cloud deployed a cyber platform via a federation of an unprecedented wealth of multidisciplinary data repositories, analytical tools, and computing facilities to explore and demonstrate the potential of cloud-based Open Science and address ocean sustainability.

Blue-Cloud federated leading European marine Research Infrastructures (SeaDataNet, EurOBIS, Euro-ARGO, ICOS, SOCAT, ENA, EMODnet, CMEMS) and e-Infrastructures (EUDAT, D4Science, WEKEO DIAS), allowing researchers to combine, reuse, and share quality data across disciplines and countries.

The project has developed three main technical outputs:

- The Blue-Cloud Data Discovery and Access Service (DD&AS) facilitates access to multi-disciplinary datasets. The DD&AS functions as a broker both for metadata and for data access, interacting with web services and APIs from each of the Blue Data Infrastructures federated in Blue-Cloud. This way, it facilitates users to discover first at the collection level which infrastructures might have data sets interesting for their use case, and next, to identify and download relevant data sets at granule level from those selected infrastructures, by means of a common interface.

- The Blue-Cloud Virtual Research Environment (VRE) enables collaborative research. Services include Data Analytics (Data Miner, Software and Algorithms Importer (SAI), RStudio, JupyterHub), Spatial Data Infrastructure to store, discover, access, and manage vectorial and raster georeferenced datasets, and services and components enabling users to document and then either share with selected colleagues or make available online any generated product (e.g. analytical methods, workflows, processes, notebooks).

- This innovation potential is explored and unlocked by a series of Virtual Labs developed by five real-life demonstrators, addressing societal challenges in the domains of genomics, fishery, aquaculture, biodiversity and environment.



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The demonstrators showcase how Blue-Cloud can enhance collaborative research in support of the EU Green Deal, the new EU Mission “Restore our ocean and waters”, and key international initiatives, such as the UN Decade of Ocean Science for Sustainable Development.

In addition, Blue-Cloud is developing a Strategic Roadmap to 2030 in collaboration with the wider marine research community, as a policy document guiding the evolution of Blue-Cloud into the future aligning with wider developments, such as EOSC and initiatives related to the EU Digital Strategy. The poster highlights the key services developed within the Blue-Cloud technical framework and their potential impact on marine research, ultimately fostering a sustainable and data-driven management of the ocean.

## P16 Climate change and European power systems

*Speaker(s): Matteo De Felice*

### Description:

Climate plays a critical role on today's power systems, and it will increase its relevance in the next decades. In fact, the EU Green Deal envisions a low-carbon Europe with a significant fraction of electricity provided by wind and solar power, power sources inherently affected by meteorological conditions. This means that future power systems must be flexible enough to adapt to the variability of climatic conditions, but global warming adds uncertainty to how this variability will change – in terms of frequency and intensity - in the future.

To build reliable, efficient and climate change-proof energy systems, we might need to 1) identify the most important vulnerabilities in our current power systems, 2) fill the knowledge & data gaps on the interaction between energy and climate systems and 3) improve the tools able to minimise the impact of the climate-induced uncertainty in our energy systems.

This round table will address the following questions:

- What are the main challenges posed by climate change to EU power systems?
- What are the best tools available that we have to face those challenges?
- What is the role of open data in design and improving those tools?

## P17 How can synthetic biology be the solution for the ever-growing water contamination?

*Speaker(s): Youssef Abdelmaksoud*

### Description:

The WHO estimates that over two billion people are lacking access to safely managed drinking water. Ensuring availability and sustainable management of water and sanitation is one of the United Nations Sustainable Development Goals.

Industrial, agricultural and human activities contribute to polluting water by introducing heavy metals, dyes, pesticides, fertilizers, antibiotics, microplastics, and other contaminants. With this great number of pollutants, water quality monitoring, as well as water treatment are evolving processes especially as new types of pollutants are being introduced.

This evolving and challenging situation requires flexible tools. Synthetic Biology, which is genetic engineering 2.0, is a field that makes it easier to edit or create genetic material from scratch and with some tweaks, become interchangeable parts. Such a concept makes Synthetic Biology convenient and reliable for various applications, thus, it is believed to be a perfect way to solve water problems. Using Synthetic Biology tools and principles, our team (Cairo University iGEM 2019) created Sea-, a biological system that is capable of tolerating and accumulating sodium and chloride ions by engineering yeast cells. To make that possible, we designed genetic circuits capable of overexpressing osmoprotectants to increase the cells' tolerance of high salt concentrations, increasing



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the sequestration of the ions into the cytoplasm and vacuoles, and at the end, modifying the cells not to release the ions into the surrounding water again by knocking down/out the extrusion channels. The team also worked on cell-free protein production, in which candidate proteins (from numerous organisms) that might be able to bind different salts, were tested in silico (using computer simulations), and then optimized, chemically synthesized, and tested using cell-free expression kits. This method is faster, safer and allows for mass testing of different proteins.

We are convinced that it's possible to harness the power of Synthetic Biology to create a single system that serves as a platform, adaptive to a myriad of pollutants.

Just like we worked with proteins that bind to certain salts, and used them to develop an approach for desalinating water, it's feasible to create similar systems that are able to bind to Arsenic (for example) or any other chemicals/ minerals.

The use of Synthetic Biology for water applications (both in detection and treatment) is still a novel approach, with concerns around applicability, ability to scale, and safety. We acknowledge those concerns and encourage everyone to engage in discussions around them and those around the safety of GMOs and the challenges and obstacles that act as barriers of entry to research in Synthetic Biology. Despite that, when designed properly, Synthetic Biology could be a safe option.

## **P18 Critical raw materials: mining, circular economy and resource valorization**

*Speaker(s): Liisi Rohtung*

### **Description:**

European Commission has underlined that “raw materials are crucial to Europe’s economy. Reliable and unhindered access to certain raw materials is a growing concern within the EU and across the globe.” Most of the critical raw materials in the EC list of the elements/materials of high importance to the EU economy and of high risk associated with their supply, are needed for achievement of the goals of the Green Deal. But there is a paradox in this. Turning towards green energy and sustainability does not translate well to the increasing mining for critical raw materials like Rare Earth Elements (REE), while these raw materials at the same time are closely linked to clean technologies. There is a lot of abuse involved in mining and processing, both towards people and the environment. An example: the most effective Li-ion batteries use cobalt, mainly mined in Congo, where the use of child labor has been reported; China buys this cobalt and makes batteries, which Europe then buys from China, who uses high share of “coal power” and moves towards CO2 emissions reduction at much slower pace than EU. In the end, “green” does not translate to “clean”.

- Our stance is, that if we must mine to satisfy the need for critical raw materials, it must be done sustainably and by valorizing all useful components in the ore. For example, Estonia holds the EU’s largest reserves of sedimentary phosphorite, one of the critical raw materials in the EC list. This phosphorite, that is characterized by remarkably low toxic heavy metal (and U) content, shows elevated concentration of REE, and can be considered as potential raw material for both high quality phosphoric acid/fertilizer and REE production. At the same time, one of the few REE refining factories outside China, Neo Performance Materials Silmet, is located in Estonia, holding unique competence in REE and Nb-Ta processing. However, lots of research and development is needed to find innovative ways for co-extraction of phosphoric acid/fertilizer and REE at industrial scale.

- The research of the Estonian Research Council’s resource valorization (ResTA) program covers the areas in which Estonia has the best opportunities to use the available resources more efficiently and to give them maximum added value. The aim of R&D activities related to mineral resources is to support research focusing on the retrieval, exploration and exploitation of mineral resources containing critical elements such as phosphorus, REE’s, but also vanadium and molybdenum. Currently, to our knowledge, there is no industrial scale co-production of phosphoric acid/fertilizer and REEs and we may well have an opportunity to be leaders in innovation in this field by advancing the research and development activities focusing on maximal valorization of mineral resources.

## **19 Fusion Mobility: A transparent model connecting science and society for Sustainable Mobilities development to meet the targets of the European Green Deal. Subtitle: A systemic model towards transformational change**

*Speaker(s): Manfred Neun*

### **Description:**

With two consecutive sessions on Fusion Mobility (FM) we deliver an interdisciplinary frame including all elements of human mobilities, predominantly enabling a systemic approach for sustainable mobilities, in full awareness that mobility is more than transport only [1]. We target the UN-Global-Goals (SDGs), which justify a significant shift to the prioritisation of Active Mobility (AM) – mostly walking and cycling. AM supports 15 of the 17 SDGs [2].

While systematically questioning ‘mobility systems’ for years, we observed that the current status of mobilities and still prevailing trends are unsustainable [3]. In particular, dominant current mobility systems are not-integrated but reduced to car-centred, with general fragmentation and competition between different travel modes. From science to societies mobility is observed as highly complex, hence a ‘black box’ for decision makers. On the one hand we analysed that this reinforces BAU (Business-As-Usual). On the other hand we question:

Which way out can we find towards a sustainable environment and mobility system?

There is a fundamental problem developing sustainability (by mobilities):

“The mere reduction of unsustainable technologies does not automatically lead to sustainability. Rebound effects often diminish the effects of technological innovations and can lead to unintended and unsustainable side effects. Sustainability must be understood and built from a systemic, encompassing perspective, rather than by focussing on isolated problems” [1].

This is a substantial impulse to increase our efforts for a systemic mobility approach to win the change and stakeholders’ support. We achieve this from different angles:

- (1) Starting with a basic understanding of mobilities for interdisciplinary research and for people and societies, caretaking risks and technologies [4, 5, 6];
- (2) Highlighting FM insights on how to contribute to the European Green Deal and related, for example the EU mission “100 Climate Neutral & Smart Cities” [7].;
- (3) Outlining the role of Public Space for mobility transformation [8], taking into account children as an indicator species [9];
- (4) Opening a digitisation dialog about the data we need alongside Fusion Mobility [10, 11, 12];
- (5) And questioning Fusion Mobility as a sustainability mobiliser.

The topics will be discussed in dialogs of an advocate and a complementary devil’s advocate followed by a Q&A discussion. Hence, step-by-step we will discover and explore the impact of the subsystems, of active and passive modes, of public space and infrastructure, of public and shared mobilities, and of digitised and smart mobilities. These findings will lead to a basic understanding of a holistic and systemic approach to overcome current fragmentations in mobility visions, where scientific research plans focus in the near and long-term future, and where FM enables a systemic implementation of the SDGs’ requirements [13].

Consequently, let’s continue with “Hands-on participation for Future Mobilities” in a 2nd session.

References:

[https://www.dropbox.com/s/qhk34usrhuo8idu/References\\_FusionMobility\\_doubleSession.pdf?dl=0](https://www.dropbox.com/s/qhk34usrhuo8idu/References_FusionMobility_doubleSession.pdf?dl=0)

## **P20 Mission science has taken us to the moon, but can we use it to stay within planetary boundaries? The Global Commission on Science Missions for Sustainability – will we have lift off?**



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*Speaker(s): Alison Meston*

**Description:**

A panel of experts will argue that advancing human development within planetary boundaries is the most important challenge for humanity and for science. They will further argue that the 2030 Agenda and its 17 Sustainable Development Goals (SDGs) represent the most ambitious attempt to respond to this challenge – but only through a mission-led science recovery. This need has given rise to a new Global Commission on Science missions for Sustainability, co-chaired by Irina Bokova, former Director General of UNESCO, and Helen Clark, former Prime Minister of New Zealand. Under their leadership sit more than twenty committed experts, from former ministers and financiers to research leaders and film makers, the Commission aims to build actionable mission-led pathways in the face of existential risks, in the critical areas of food, energy and climate, health and wellbeing, water, and urban areas. This ESOF panel will include the heads of research and sustainability organisations, former ministers, and publishers. They will share a common call of “code red” that emphasises the urgent need to intensify the pace of progress and realign funding priorities and resources towards more collaborative and drastically accelerated action. Albert van Jaarsveld, CEO of the International Institute for Applied Systems Analysis, and moderator for this session, will further contend that staying on course to realise the SDGs requires game-changing collective action within science systems and funding globally. Our panelists will engage with audience members on how we might practically deliver these missions, through bold and strategic action from a ‘coalition of the willing’– including governments, science policymakers, science funders, scientists, philanthropies, the private sector, and civil society, and within existing frameworks such as Horizon Europe.

To assist in framing the discussion, the ISC report ‘Unleashing Science’ argues for stepping out of business-as-usual approaches to structuring science, funding science, and doing science. How these missions will be adapted and fulfilled in different contexts will be defined with key stakeholders. ESOF delegates will therefore be invited to read the report’s recommendations prior to the session and challenge our panelists on how we may address systemic issues that prevent us from delivering mission science. Delegates will be challenged to consider how their science may contribute to the Global Commission, and how collectively we can produce new knowledge that opens the way to accelerated, transformational change.

In this decisive decade, science must be empowered to support societies that build a dignified future for humanity and the planet. This calls for courage, and it calls for commitment. Will ESOF delegates join the coalition of the willing and ensure the Global Commission has lift off?

## **P82 Can a picture from the past predict the future? Fossil small mammals from the Pliocene of Turkey**

*Speaker(s):*

*Panagiotis Skandalos 1\*, Koen Lansing 2, Daniëlle Snijders 2, Lars W. van den Hoek Ostende 1*  
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2 Institute of Biology, Leiden University, 2300 RA Leiden, Leiden, The Netherlands

**Description:**

The study of fossil small mammals (micromammals) has proven to be a valuable tool for the dating of terrestrial sediments and reconstructing palaeoenvironments. Their abundance in the fossil record, in numerous localities around the world, provide more than enough data, which combined with other proxies allow us to identify environmental changes and the response of life to them. As they are often found in large numbers, micromammals, and in particular rodents, allow for tracking changes in faunal composition in response to environmental changes. The diversity of this group is strongly affected by the environmental conditions and the different landscapes of their surroundings. As a result, gathering data on the history of mammals from a prospect of climatic and other environmental change provides an important background to the current discussion on both anthropogenic climate change and the biodiversity crisis.



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In the light of these discussions, we need to get a broad geographic overview on how these environmental changes affected different regions. The present coverage of the micromammalian record is very much focussed on Europe. Places like the eastern Mediterranean region and Anatolia, however, play an important role in the biogeography of mammals. Especially Turkey, given its strategic position between Africa, Europe and Asia, it provided a corridor for the migrations of many species, including our own ancestors. However, studies on Turkish fossil mammals are biased towards the Miocene and the Pleistocene. The Pliocene has received far less attention, even though in terms of climatic conditions, it provides a good proxy to the Holocene. Moreover, it is a period of vast tectonic changes in the eastern Mediterranean. Thus, the effect of climate change, isolation and migrations provide important insight in what we can expect from anthropogenic climate change, habitat destruction and exotic invasions.

Over the last decade, a large number of late Neogene localities were discovered by a team of MCA (Pamukkale University) in cooperation with Natural History Museum of Ege University and Naturalis Biodiversity Center, while creating a detailed stratigraphy of the southwestern Anatolian Basins. This study is focused on the micromammal remains of these localities. Distinguishing the different taxa of these localities will be a useful tool to examine Anatolia, Balkans and Central Europe during the Pliocene. Furthermore, it will be possible to observe important palaeoenvironmental or tectonic events that took place around 3 million years ago which may affect the lives of the various animals that colonised Anatolia and Europe. One locality of great importance to this research is that of Afşar, situated in western Turkey. This section includes various fossiliferous layers with a great variation in micromammal taxa and species. It provides a calibration point for the environment and climate in the eastern Mediterranean at the onset of the Ice Ages and the development of modern faunas.

### **P83 Artificial botany: studying fake plastic plants used as nesting material by birds**

*Speaker(s): Hiemstra, Auke-Florian<sup>1, 2</sup> Barbara Gravendeel <sup>1,3</sup> & Menno Schilthuizen <sup>1,2</sup>*

*1Naturalis Biodiversity Center, Leiden, the Netherlands*

*2Institute of Biology, Leiden University, Leiden, the Netherlands*

*3Radboud Institute for Biological and Environmental Sciences, Nijmegen, the Netherlands*

#### **Description:**

In our modern world there is more human-made material than living biomass (Elhacham et al., 2020). Wildlife is adapting to these changes resulting in birds who make their nest from artificial material, such as plastics. The common coots (*Fulica atra*) from Leiden, the Netherlands, are the first population of freshwater birds studied for its use of anthropogenic nest materials, and together with another report from the same year, the earliest case of an entire bird population with plastic in all nests. One striking category of litter found in these nests, is artificial plants. Here we present a pioneering study of artificial botany, and describe the first cases of birds using plastic fake plants as nest material. We report artificial plants in common coot nests from Leiden, the Netherlands in 2019 and 2020. And in addition to these findings, we present more recent observations of coot nests from Amsterdam (2021) and Delft (2022). We report the first artificial plants used as nesting material by birds, and discuss the implications of their usage as such. Common coot nests as these are illustrative examples of bird nests from the Anthropocene.



## **P84 Ingestion, entanglement and nest material: mapping the impact of COVID-19 litter on animals using citizen science.**

*Speaker(s): Rambonnet, L.1, Hiemstra, A.F.1,2, Land-Zandstra, A.M.1, Schilthuizen, M.1,2, Smeets, I.1*

*1Institute of Biology, Leiden University, Leiden, the Netherlands*

*2Naturalis Biodiversity Center, Leiden, the Netherlands*

### **Description:**

Since the start of the pandemic in March 2020, the usage of single-use face masks and gloves increased dramatically. It is estimated that 3.4 billion single-use face masks are discarded every day. Face masks and gloves, also known as personal protective equipment (PPE), frequently end up in the environment. For example, facemasks were found on 30% of the beaches that were cleaned-up during the Great British Beach Clean in 2020 and 32% in 2021. These materials will remain in the environment where it will take hundreds of years to break down in micro- and nanoplastics. Besides the effects these particles can have on the environment, the PPE already impacts animals directly as macroplastic. To learn more about the impact of these newly introduced and recognisable PPE on animals, we are monitoring all interactions between animals and PPE using citizen science. An online search was conducted on social media platforms Twitter, Facebook, Instagram, Youtube and Reddit. Also news media were explored with a Google search and we collected observations via our website [www.covidlitter.com](http://www.covidlitter.com). Observations were shared online by for example amateur photographers, nature visitors, wildlife rescuers, veterinarians, and ecologists. Our overview currently consists of 86 observations of animals worldwide who got entangled in facemasks, trapped in gloves, ingested face masks, used it as nesting material with the risk of getting entangled or other interactions with PPE. Observations come from all continents, except for the Antarctic and most of the observations (n=59) are from Europe. The largest number of interactions concerned birds (n=54) and mammals (n=23). Seagulls (n=11) and dogs (n=10) were the most reported animals. Regarding the type of interaction, 37 were entanglements, and 17 animals ingested or were ingesting PPE. And not only wild animals but also cats and dogs (n=12). Our research shows how these newly introduced single-use materials can directly impact animals, when they end up in our environment. This in addition to the effects the nano- and microplastics of the COVID-19 litter material will have in the future. This knowledge can inform stakeholders like policy makers and industry, who are responsible for the introduction of single-use plastic products in society. A more sustainable solution is required, like reusable PPE, made from natural resources. Also our research shows the potential of using online observations, both shared actively via our citizen science platform and passively via social media and the news.

## **P85 Probing into Mott-Schottky heterojunctions of covalent triazine frameworks/mesoporous carbon as metal-free electrocatalysts for CO<sub>2</sub>-reduction**

*Speaker(s): Amrita Chatterjee*

### **Description:**

The recently developed reticular and porous covalent triazine frameworks (CTFs) have shown promising performance for CO<sub>2</sub> capture due to their high content of pyridinic nitrogen sites. However, their application for electrocatalytic reduction of CO<sub>2</sub> (CO<sub>2</sub>-RR) is limited by their poor electrical conductivity. To circumvent this dilemma, we have developed CTF/mesoporous carbon nanohybrids using CMK-3 as the conductive 3D carbon substrate. Strategic interfacial engineering by introduction of heteroatoms like nitrogen, sulfur, and boron, at the interface of CTFs and CMK-3, resulted in Mott-Schottky type heterojunctions that facilitate the electron transport during CO<sub>2</sub>-RR followed by their effective delocalization in the conjugated CTF structure. The manipulation of electronic structure by

formation of heterojunctions could enhance electron transfer at the interfaces of CTFs and CMK-3 leading to higher charge transfer rate, optimized reaction intermediates, faster reaction kinetics, and suppressed hydrogen evolution. Therefore, CMK-N-CTF as an electrocatalyst for CO<sub>2</sub> reduction to CO, showed an improved current density of 4.8 mA/cm<sup>2</sup> at ~700 mV overpotential, compared to its individual counterparts and other heteroatomically engineered nanohybrids (eg CMK-NS-CTF and CMK-NB-CTF). This study gives deeper insights on development of Mott-Schottky heterojunctions as an effective approach for modulation of electronic pathways and eventually effective route for synthesis of high-performance 3D metal-free electrocatalysts, with possible enhancement of triple phase boundary

## Science and Business

### P21 "STEM to the rescue - how to build a strong future for Europe"

*Speaker(s): Mare Vahtre*

#### Description:

To ensure Europe's smart and sustainable economic growth, it is inevitable to ensure that there will be a new generation of specialists in the STEM field. Many countries are facing a shortage of STEM students, teachers and specialists. Additionally, there is an extensive gender imbalance among STEM students and workforce. In order to boost innovation and value-driven growth, we have to find effective solutions that fulfill this demand at the national as well as European level. To find the best ways to tackle the problems, we need to implement best practices from several European countries.

It is essential to start popularizing STEM from an early age and continue doing it throughout all grades. There are several outstanding projects in Europe, that promote the STEM field in a wider perspective in society. For example, the ENT3R program in Norway, that recruits higher education students all over the country to promote STEM in person through mentoring secondary school students and also via digital tools and channels. In order to support STEM teachers, Astra center in Denmark contributes by strengthening and developing science learning to grow a new generation of pupils with strong science competences.

We cannot stress enough the importance of informal learning and activities in promoting STEM. An excellent example of informal approach to STEM education is HK Unicorn Squad, a girls only technology hobby group initiative in Estonia. Gender biased approach targets a substantial problem of gender imbalance in STEM students and emphasizes the need to address the problem at an early (st)age.

The proposal of the panel aims to emphasize the importance of STEM in the future development of Europe, to highlight problems in the field and to explore different ways and approaches of addressing them. We want to draw attention to the need of policy makers, education providers and the industry to act together in promoting new educational practices and sharing the solutions to address skills mismatch in STEM to meet the future needs. Collaboration is the key to make the STEM field more attractive and flourishing. Sharing good examples and practices gives the participants of the session a better insight and new ideas for developing STEM activities for all age groups.

During the panel, an important emphasis is on the interaction. Best practices will not be shared only by the panelists, the audience will also be encouraged to share their knowledge and ideas on developing STEM education and a science-based society. Gathered collective knowledge will be used for future science and STEM and science popularizing projects in different countries.

### P22 Education and innovation practices and opportunities for a sustainable bioeconomy



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*Speaker(s): Marco Maria Grande*

**Description:**

The transition towards a sustainable bioeconomy is a very urgent societal challenge. The use of biobased resources and biotechnology, and the protection of bioresources and biodiversity can lead society to more sustainable production and consumption, improving environmental and social conditions and supporting the achievement of all the Sustainable Development Goals.

Interdisciplinary education and innovation and the skills development for the sustainability, circularity and digitization of the bioeconomy are essential to making society more resilient, addressing climate change, and engaging and including more people in the change.

In this session, education and innovation practices and funding opportunities for the European bioeconomy will be presented and discussed, involving experts, stakeholders, and policymakers in the field from different European regions. Particular attention will be given to the engagement and interaction of the audience, through open questions, polls, Q&A, and interventions.

The session is organised by the European Bioeconomy University (EBU), the alliance of six European universities leading education, research and innovation in the European bioeconomy. During the discussion, EBU's current projects and initiatives will be presented.

## **P23 Gravitational wave waves: opportunities for science, industry, and education.**

*Speaker(s): Gideon Koekoek*

**Description:**

The first direct detection of gravitational waves in 2015 and the subsequent measurements by the worldwide LIGO/Virgo/Kagra Collaboration have opened up the era of gravitational and multimessenger astronomy, leading to a wholly new window for investigating the universe and its constituents. Aside from the interest in fundamental physics, gravitational wave science has much spin-off to, and overlap with, technology, industry, and entrepreneurship, as much of the next-generation technologies are still to be developed to reach their full potential. As such, the design, construction, and ongoing modifications of gravitational wave detectors and their subsequent data-analysis leads to a wealth of opportunities for science, industry and education to work intimately together. Indeed, the long term plans for future gravitational wave detectors make the link with education (down to first year of studies) not only good for the general knowledge but also necessary for future science. The fascinating field of gravitational and multimessenger astrophysics and its exchanges with artistic expressions can be spoiled to engage even those who are less attracted towards fundamental science. The aim of this Session is to present this overlap and to convey the message that gravitational wave science is a multi-disciplinary endeavour with far-reaching implications to, and input from, experts outside of science. We intend to organise a lively exchange of ideas and interests and hope this is a starting point for further exchange with and involvement of experts in science, industry, and education.

## **P24 Fostering student engagement for sustainability: the specifically dedicated Swiss funding program «U Change»**

*Speaker(s): Yves Gärtner*

**Description:**

Students are important stakeholders for a transformation of different kinds of higher education institutions (HEIs) towards sustainable development. They need to get opportunities for testing new ideas, real life experience and project work training– the advantages of problem-based learning in



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higher education are not contested. Switzerland's funding program 'U Change' offers such opportunity and calls for inter- and transdisciplinary competencies.

U Change is funded by the Swiss government in periods of four years. It started in 2017 as the successor to the sd-universities program and went into the second four-years period in 2021.

Designed mainly as a funding program, it provides funding for different project categories:

A: implement student initiatives for SD

B1: implement platforms for support to student initiatives for SD

B2: funding for platforms to run own calls

C: Workshops for peer-to-peer-learning

For this purpose, U Change publishes calls for projects every six month. 56 projects from all types of HEIs and from a broad thematic range have been made possible in the past program period. By July 2022, about 30 to 40 new projects will be accepted for funding.

U Change also organizes an annual conference called Sustainable University Day together with host HEIs, in April 2022 on the topic of the dialogue between HEIs and community.

U Change faces different challenges, going from questions about how to get in touch with students, especially during lockdowns because of Covid-19, to a big variety of organizational forms at the different HEIs and big differences in the working culture, and how to measure the impact of all the funded projects. We see us as a learning organization, and want to share our experiences and best practices, but also ask similar projects on how they deal with the different challenges we face.

## **P25 Knowledge Transfer: From Basic Research in Chemistry to Entrepreneurship**

*Speaker(s): Yvonne Kasper*

### **Description:**

The transition to sustainable energy, the prevention of pollution in industrial processes and efficient conservation of resources are some of the greatest challenges faced by our and future generations. Researchers from Cluster of Excellence Ruhr Explorers Solvation, short RESOLV, which is funded by the Deutsche Forschungsgemeinschaft, conduct basic research in the field of Solvation Science and thus work on the foundations for solving these generation-defining challenges. The fact that basic research can shape society has been clear to everyone at least since the World Wide Web. However, especially for results from chemistry it often takes a long time to make an active contribution to shaping society. How can this gap between gaining knowledge in science and transferring this knowledge into practice be bridged? One possible solution would be to foster entrepreneurship in order to transfer research into practice, from the laboratory into the market. However, setting up a company poses challenges for researchers: Until products are marketable, expensive and complex infrastructure is needed, which entails a high entrepreneurial risk. The conversion from laboratory to real conditions is often costly and takes several years even in the best case. In addition, scientists often lack training in entrepreneurship; the possibility of a career path in business creation is often not present, and even if it is, the necessary knowledge to start up a business has to be acquired. In order to tackle these hurdles and to create awareness for the topic of entrepreneurship as well as to actively support chemists interested in starting a business, the incubator Start4Chem was established as part of the Worldfactory Start-Up Center (WSC) at the Ruhr-Universität Bochum. The WSC is part of the funding initiative "Excellence Start-up Center.NRW" of the Ministry of Economic Affairs, Innovation, Digitalization and Energy of the State of North Rhine-Westphalia. Start4Chem is additionally supported by funds from the Ruhr Conference, initiated by the state government of North Rhine-Westphalia to drive structural change in the region. Besides sensitizing scientists for entrepreneurship, among other things, individual coaching and consulting, support for funding applications and infrastructural support through own laboratory and co-working spaces are offered.

With the proximity, both in location and in ideology, Start4Chem and the Cluster of Excellence RESOLV, are two strong partners making a joint contribution to tackling the challenges facing society. This opens up an international research and development network for potential founders in the field of chemistry. In the session we will present our approach of combining cutting-edge research and



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entrepreneurship and, based on contributions from teams that are currently being consulted, we will show how we are working together towards a sustainable society.

## **P26 Researchers' charter for greenness and transdisciplinarity in a pandemic scenario. Right-timing for results.**

*Speaker(s): Ivo Djidrovski*

### **Description:**

The work exhibits the recommendations on the scopes, objectives and participative approach the scientific and innovative community has when delivering the EU Green Deal deadlines to the European resources' sustainability. Specifically, this part focuses on issues of how scientific expertise may be efficiently and effectively involved in ongoing decision-making processes, having provided also societal context and cultural perspective for the purpose.

The study highlights the researchers' roles, responsibilities distributions of the stakeholders when identifying the sustainable scheme and solutions. Finally, the main instructions describe the researchers' authority range and reference in science communication and implementation of the outcomes before and during the post-pandemic panorama. Any business stakeholders take part in an educational role within their local communities, where one cannot miss a democratic and inclusive intersectoral dialogue between either the scientific community, NGOs and local communities with business lobby representatives to encourage for discussing the provision of sustainable services to our societies.

The work calls for joint actions of business stakeholders and the scientific community to uphold similar climate change strategies and further enhance intersectoral dialogue following this structural advance. A crucial role for researchers and innovators in creating a valuable and trustworthy dialogue, capable of facing societal challenges by an active engagement of the scientific standing within local communities and organisations, is an ecological must. The analysis recognises the dialogues performed between NGOs and private entities have endured a lack of scientific sensitivity and factual input, showing an unbalanced distribution of any effective and efficient actions, if aimed, for transformation into sustainable business models and commitment to equally profitable but ecological activities, as well as sustainable ergonomics for workplaces and cultural innovations. <sup>[1]</sup>Direct involvement of the research community in decision-making processes should and is being started thanks to targeted policy-making and by transforming social networks.

## **Cultural Identities and Societal Transformation**

### **P27 ENIBB: a way for accessibility in the field of art**

*Speaker(s): elena weber*

### **Description:**

European Network for Inclusion Beyond the Borders had been introduced during ESOF Trieste 2020 with the subject concerning the inclusion and the empowerment of people with disabilities in the Balkans. The network is going to be formally established. For this reason the presentation for ESOF 2022 Leiden wants to deeply analyze the subject concerning the accessibility to culture in general and to cultural heritage specifically. The accessibility systems are not unique, there are different



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opportunities to create the art for all, the culture dedicated to all people. The members of the network are centres that support person with disabilities, also with multiple disabilities, people with special needs as well as professionals who support people with disabilities. This allows the network to be able to support a wide range of persons with disabilities, of every age and of different countries. The conference session is going to explore the already exploited activities in the field and, on the other side, the activities that can be exploited in a close future thanks to technological innovation as well as to social innovation. In addition, the conference session of 2020 ended with some unexplored questions concerning the distinction between equity and equality that the accessibility subject can support in a proper way.

## **P28 Positive Energy Districts and energy poverty**

*Speaker(s): Adam Hearn*

### **Description:**

The Strategic Energy Transition (SET) Plan from JPI Urban Europe proposes the creation of 100 Positive Energy Districts (PEDs) in Europe by 2025 with a stated goal of urban decarbonization. These are highly energy efficient residential urban areas that are powered entirely through renewables. PED creation is meant to be guided by principles of quality of life, sustainability, and inclusiveness (specifically focusing on affordability and energy poverty prevention). Using energy vulnerability factors and an energy justice framework, this research sheds light on how the topic of energy poverty mitigation is experienced and picked up by PED stakeholders. Stakeholders from numerous PEDs and PED-like projects were interviewed in order to determine how and to what extent they approached the topic of inclusivity, with a focus on energy poverty reduction. This included the themes of gentrification, financing for retrofitting, the use of community energy initiatives and energy advice, all themes which were identified as significant factors to consider in an EU Horizon2020 project. The contribution to academic research is towards the framing of energy poverty in European urban areas, focusing on the perceptions of key PED stakeholders. Furthermore, this research offers a potential contribution for informing policymaking in PED replication with a focus on the synergistic aims of both decarbonization and energy poverty mitigation.

## **P29 International migrations and refugee flows in the 21st century: Societal transformations arising from the Mediterranean Crisis**

*Speaker(s): Joana Lopes*

### **Description:**

The refugee and migrant flows in the Mediterranean, particularly evident in the years of 2015 and 2016, had consequences in the shaping of policies by the European Union and its Member-States, but also highlighted the lack of solidarity of some of these States to participate in the coordination of humanitarian rescue efforts and asylum assignment. The societal transformations generated by the Mediterranean Crisis are complex: hosting refugees requires solidarity, protection of human rights and integration of populations forced to leave their homes and make dangerous journeys in search of freedom, security and better living conditions.

This study aims to contribute to the understanding of societal transformations generated by international migrations and refugee flows from the Mediterranean in the first two decades of the 21st century. The research timeline is centred in the period of 2000 until 2020, to reflect not only the Mediterranean Crisis peak years, but also its antecedents and the situation experienced by refugees and migrants at present.

This research is interdisciplinary, gathering contributions from International Relations, History, Geopolitics, Law, Economics, Demography and Sociology.



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This study considers the geopolitical challenges arising from international migrations and refugee flows in the Mediterranean, by assessing their regional and global impact on different levels of the international system and addressing potential future developments from the Mediterranean Crisis at a societal level.

This poster has the following hypotheses: a) The refugee and migrant inflows from the Mediterranean in the first two decades of the 21st century have generated societal transformations in the destination countries; b) The societal transformations arising from the Mediterranean Crisis have occurred primarily on a regional level, affecting European and the Middle Eastern countries, and also on a global level; c) Europe is one of the main destinations of migration worldwide; d) On a regional and global level, the main societal transformations arising from the Mediterranean Crisis are of a political, economic, sociocultural and demographic nature; e) Other types of societal transformations, such as those of a religious and educational nature, while also present, are not as significant.

The core societal challenge to be faced in the upcoming years by European societies can be summarized as follows: what kind of world do we seek to build? Do we want Europe to become closed in itself or do we want Europe to remain true to its traditions of solidarity and fraternity?

### **P30 Who does the EU listen to and when? Utilizing Machine learning to understand EU policy responsiveness**

*Speaker(s): Nikoleta Yordanova*

#### **Description:**

In the last decade, the European Union (EU) faced multiple crises that have brought it into the public spotlight. Its decision-making processes and policy choices have become highly politicized and now attract the attention of polarized citizens across and within member states. Has this compelled EU institutions and policy-makers to become more responsive to public demands for policy action and accommodate the ever-growing diversity of citizens' preferences? This is the central question of our 'EUINACTION' project, funded by the NORFACE Governance programme under EU's Horizon 2020. In the poster, we showcase our use of Machine learning (ML) in the project as a means to increase public knowledge about EU policies and the extent to which these policies are shaped by the will of citizens across member states. Natural-Language-Processing and deep-learning techniques enable us to identify the policy positions of decision-makers, and to evaluate whether and, if so, when the transfer of policy authority from the national to the EU level follows public demands. Specifically, we use ML to process complex textual information (in legislative speeches, proposals, amendments, and final acts) and, thus, to capture the ambitions for and capacity of the EU legislators to enhance integration within and across policy areas. By systematically mapping the views of the citizens, the European Commission, and the member state representatives in the Council and the EP, we highlight which preferences were successfully integrated into the adopted policies, by whom, to what extent, and why. Methodologically, our project demonstrates how a small set of manually coded texts could be used to scale the propensity for EU authority expansion of political parties, national governments and EU institutions and to identify the actual level of EU authority expansion encapsulated within the legislative documents. For the scaling with a limited use of human intervention, we rely on innovative text processing approaches such as multilingual transformers and a ridge-regularised logistic classification. Our poster is of interest to policy practitioners, academics, and the general public. It introduces these audiences to an innovative and effective way of communicating about policy choices with the citizens, while drawing on a cutting-edge analysis of the textual data. Crucially, our presentation helps to increase the public understanding of the pace of European integration and the underlying reasons for its evolution and/or occasional inaction. Through enhancing knowledge and helping citizens to relate to policies designed at a distant supranational level, our approach helps foster trust and confidence in the EU.

## Freedom and Responsibility of Science

### P31 Experiments in research funding: lessons from partial randomisation

*Speaker(s): Helen Buckley Woods*

#### **Description:**

Peer review is the cornerstone of research assessment, the most-used mechanism worldwide for evaluating research and researchers. But it is not perfect, and concerns about, among others, its objectivity, reliability, efficacy, and efficiency have been expressed. Funding agencies have been trying different ways to mitigate these problems, such as experimenting with scoring systems, changing criteria, using different kinds of metrics, blinding applications, and varying the numbers of reviewers and review rounds. But most of the time the results and effects of these experiments have remained hidden and not much information has been shared among funders.

In recent years, there has been a growing interest for the use of partial randomisation, a mechanism to complement peer review in the final phase of the selection procedure, after scientific experts' evaluation of applications. Discarded by some as undermining meritocracy approaches, it is seen by others as a legitimate tool to solve some of the limitations of peer review.

This ESOF session will present and discuss the results of a workstream on partial randomisation by the Research on Research Institute (RoRI). RoRI is an international consortium of funders, universities and technologists that uses rigorous and evidence-based approaches to experimentation to improve the way research is funded, practised, communicated, and evaluated to ensure that its benefits reach more people. Through the randomisation workstream, the RoRI partners collaborated to experiment and exchange insights on uses of partial randomisation in grant allocation. The aim was to encourage experimentation among funders and to support them in designing effective interventions that are fit for purpose and rigorously evaluated. Facilitating learning from experiments that were underway or planned, it built a comparative picture of the pros, cons and possibilities of partial randomisation. The efforts of the workstream were focused on three areas:

- bespoke support for partners undertaking trials of partial randomisation or other experimental funding methods;
- the creation of a practical manual The Experimental Research Funders' Handbook, a practical guide to support funders in planning, implementing and evaluating experiments and innovations in grant allocation, including but not limited to partial randomisation. It includes practical guidance and case studies, designed to support funders as they embark on more widespread testing, trialling and evaluation of novel modes of funding allocation. This was done in collaboration with the Nesta Innovation Growth Lab.
- a qualitative study exploring motivations and drivers for partial randomisation.

The panelists in the session will present and discuss with the audience the results from this work, clarifying the challenges and opportunities in experimentation with funding allocation. We hope that the discussions will spark interest for more experimentation in assessment practices to contribute to reach a better understanding of the impact of the investments in research.

### P32 Public engagement and science communication for tackling misinformation and promoting trust in science

*Speaker(s): Joana Magalhaes*

#### **Description:**

In this post-factual era, the integrity of science is being questioned and it is urgent to create spaces of trust between science and citizens to ensure the progress of humanity. Moreover, the crisis in the media and alterations in the scientific publications format and access led to growing need to ensure



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the quality and reliability of science communication. The European Commission through the “SwafS-19-2018-2019: Taking stock and re-examining the role of science communication” topic aims to better understand how results from research and scientific methodologies are communicated and perceived by citizens, develop improved ways to measure and assess science communication, and identify good practices and policy guidelines to increase the accuracy of (and therefore trust in) science communication. In this context, it is crucial to understand the impact of fake news and misleading information on how citizens consume information and news related to science and technology to find new strategies to increase scientific literacy and reduce the spread and citizens’ belief in fake news, by promoting critical thinking. NEWSERA, ENJOI, TRESKA and QUEST are four of the eight projects selected under SwafS-19 topic. NEWSERA analyses and evaluates the complexities of science communication in citizen science initiatives as they pertain to data journalism and the quadruple helix of science (policy, industry, civil society and academia), involving them in the co-creation of innovative communication strategies through the #CitSciComm Labs. ENJOI centres on standards, principles, and indicators in science communication in order to address the prevalence of misinformation, which will constitute the basis of the ‘Observatory for outstanding open science communication’ that aspires to become a reference point for innovations in science journalism and science communication, and their diffusion. TRESKA focuses primarily on social science by exploring concerns about the effects of misinformation, disinformation, and over-information in relation to public trust in (social) science communication, having employed a large scale experimental survey research with emphasis on addressing misinformation and digital safety. QUEST investigates quality science communication dynamics in the strands of journalism, social media, and museums, through three focus areas, - climate change, vaccines and artificial intelligence proposing tools to build capacities, sound policy and incentives for quality science communication. In this session, their representatives will share both new models and processes (including co-creation methodologies) and main achievements for each project (impact, indicators, science communication tools, blueprints) and their complementarity. They will further discuss how these can contribute to support quality and effective communication by scientists, journalists and communicators, as well as citizen empowerment and stakeholder engagement.

## P34 Biosecurity for All: The Role of Scientists

*Speaker(s): Peter McGrath*

### Description:

Formulated and endorsed by the international scientific community, the ‘Tianjin Biosecurity Guidelines for Codes of Conduct for Scientists’ (<https://www.interacademies.org/publication/tianjin-biosecurity-guidelines-codes-conduct-scientists>) are a set of ten guiding principles and standards of conduct designed to promote responsible sciences and strengthen biosecurity governance at national and institutional levels. They may be used to develop new or enhance, supplement, and update the existing codes of conduct adaptive to a specific context and responsive to the bio-risks arising from the rapid advances in biological sciences.

This session will briefly review the inclusive process of producing the Tianjin Guidelines as well as initial dissemination activities, such as presentation to the States Parties of the Biological and Toxin Weapons Convention and to the 76th session of the UN General Assembly in September 2021. In order to be effective, the Tianjin Guidelines now need to be converted into institutional codes of conduct within universities and other research centres – not only throughout Europe, but in all countries, whether high-income or whether in low- and middle income countries where more and more biotech research is being undertaken.

Plans for dissemination of the guidelines will be discussed, as well as efforts for enhancing their uptake, including the preparation of active-learning modules for presentation to students and young scientists and the ‘snowball effect’ of a train-the-trainers model.

Proposed moderator/speakers:

Peter McGrath – InterAcademy Partnership (IAP), Trieste, Italy



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Leifan Wang – Tianjin University Centre for Biosafety Research and Strategy, Tianjin, China  
Gigi Gronvall – Johns Hopkins Center for Health Security, USA  
Nancy Connell – US National Academies of Science, Washington DC, USA  
Iqbal Parker, International Union of Biotechnology and Molecular Biology / University of Cape Town, South Africa

## **P35 TOWARDS AN ENGAGED, INCLUSIVE AND RESPONSIBLE SCIENCE COMMUNICATION**

*Speaker(s): Angela Simone*

### **Description:**

The Covid-19 pandemic, the climate crisis, and many more global challenges highlight the urgency of improving science communication and journalism in a systematic way. In the proposed round table, we want to investigate this challenge through the lenses of RRI, societal engagement, and inclusion. Responsible research and innovation (RRI) requires researchers, citizens, policymakers, businesses and third sector organisations to work closely together. It involves the aligning of research and innovation with societal values, needs and expectations.

Some of these aspects are crucial also to promote the concept of societal engagement in science communication and journalism. Going beyond simply listening to the users' preferences and asking them to actively share knowledge, points of view and sometimes specialized expertise makes science more consistent and inclusive. It directly addresses the audiences' real needs, covers stories with diverse nuances, and includes diverse socio-cultural perspectives and experiences.

Promoting dialogue between RRI experts, researchers, science communicators, and the public we want to set the basis for an engaged, inclusive and responsible science communication, using three different European networks as pilots. The European project TRANSFORM (<https://www.transform-project.eu>) is putting RRI principles into practice through sound citizen and societal engagement methodologies applied to regional R&I decision-making in Italy, Belgium, and Spain. The objective is to establish more open, transparent, and democratic R&I ecosystems for more responsible territorial development. On the other hand, the European project ENJOI (<https://enjoiscicomm.eu/>) is testing engagement as a key asset of innovation in science communication and journalism. Through a combination of methodologies and in collaboration with producers, target users, and stakeholders of science communication, ENJOI is co-creating and selecting a set of standards, principles, and indicators (SPIs) to define an outstanding open science communication. Furthermore, the European project MOSAIC (<https://mosaic-mission.eu/>) aims to find the best ways to make the active participation of multiple stakeholders possible when addressing mission-like objectives. The project is working to highlight how co-creation can make goals like 100 climate-neutral cities possible through a more inclusive process that better addresses societal needs. Starting from TRANSFORM, ENJOI, and MOSAIC's results and experiences, we will explore how RRI, societal engagement, and inclusiveness can improve science communication and journalism in a systematic way and render R&I more inclusive and just.

## **P37 European Strategy to Accelerator-based Photon Sources for answering societal challenges**

*Speaker(s): Rafael Abela*

### **Description:**

The objective of this panel discussion is to highlight the strategic role of Research Infrastructures (RIs)



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– using the example of the League for Accelerator-based Photon Sources (LEAPS) - in responding to innovation schemes in industry and to societal challenges.

LEAPS offers state-of-the-art analytical instruments to address emerging societal challenges as was well demonstrated by the fast and coordinated response to the COVID-19 pandemic. It is also an innovation-driver given its more than 15 spin-offs created and its industrial suppliers which include companies from the East of EU besides its industrial customers from varied fields from healthcare to construction. This aspect will be developed by Lenny Rivkin, the present LEAPS chair.

LEAPS promotes many different kinds of actions towards inclusiveness, diversity and equity which resulted in an IDEA (Inclusion, Diversity, Equity and Anti-discrimination) toolbox for best practices which paved the ground for this successful integrative collaboration. The IDEA actions will be explained by the leader of the LEAPS task force for IDEA.

The consortium has reached a level of maturity and is ready to coordinate its activities by strengthening its relations with European institutions as ESFRI – European Strategic Forum on Research Infrastructures - and ARIE – Analytical Research Infrastructures in Europe to make its instruments more easily available to scientific communities from new fields and to users from the Member States. This part of the LEAPS mission will be addressed by Caterina Biscari, LEAPS vice-chair.

Finally, Jean Daillant, LEAPS vice-chair, will expose what is needed to keep European RIs as global leaders and to continue at the forefront of the technological developments needed to push the science frontiers. He will also explain the LEAPS plans related to the training of experts, the reach out to new scientific communities and to attract companies and contribute to its innovative processes towards the advance of science for a better more sustainable and fair society.

Finally, the audience will be invited to actively participate in the discussion and contribute to brainstorming on the users communities needs, how to provide better services and easier ways to access the large RIs, how to approach new scientific communities and made the instruments more broadly available, how to better disseminate to the society the impact of the research performed at large RIs.

## **P38 Being a Independent scientist - a third way in personal and societal scientific development**

*Speaker(s): Jesper Jorgensen*

### **Description:**

Increasing economic, political, and administrative pressure on the European research institutions means that many academics find it difficult to pursue their own scientific ideas or find it impossible to get a permanent and tenured position at a research institution. Others want to create new research networks and opportunities across established systems and paradigms that are not possible within the established framework.

One possibility to solve these dilemmas is to establish oneself as an independent scientist, being independent of the established academic systems and thus follow in the footsteps of the many 'gentlemen scientists' who have had a great impact on the former scientific development (ex. Darwin, Tsiolkovsky, Tesla, Einstein)

By becoming an independent scientist, you validate yourself as an individual researcher and scientist, and gives value to your academic education and experience. Becoming an independent scientist also means that talent and knowledge can be retained within the scientific world, rather than being lost by talented scientists leaving research.

Experience shows that it can be a difficult step to establish oneself as an independent researcher, both financially and intellectually. You do not have the institution's support and legitimacy, you lose important information that is exchanged within the established academic system, you are not part of the institution's professional and social community, you will have to create the financial basis for your research (often in a patchwork of temporary jobs, teaching part-time, applying for funds or doing

contract work), access to libraries and other information are often limited, and often you will have to carry out all the practical tasks of the research process yourself.

Through invited speakers with a personal experience of being an independent scientist, the workshop will discuss experiences, advantages, and disadvantages of working individually as well as the current opportunities to receive support in the work. Practical challenges such as funding, access to laboratories and research facilities, library access and publishing will be shared. Information on national and international networks for independent scientists will be shared at the workshop.

The workshop will present the personal and intellectual benefits of going independent as an alternative scientific career, and the academic benefits of being a 'scientist outside the box'

The aim of the workshop is also to initiate the formation of new networks between independent researchers in Europe, partly in terms of creating collaboration and an intellectual forum. Partly to explore the possibilities for e.g., to work to ensure that independent scientists gain an established status within EuroScience and other scientific organizations.

### **P39 An open discussion on the right to science**

*Speaker(s): Franco Donati*

#### **Description:**

The right to science concerns people's ability to benefit from scientific advancements and to contribute to scientific endeavors. This is dependent on fundamental rights tied to freedom of speech, access to information, and people's ability to participate in and associate with the scientific community. However, how does this access to and participation in contemporary scientific advancements work in practice? This question is particularly timely when considering the current global health crisis, the ecological breakdown, and the political turmoil that are hindering people's ability to fully enjoy their human rights. Together with the rapid evolution of how information is shared and insights generated, these complex historical developments lead us to question how scientists, governments, and citizens could ensure the concrete protection and effective promotion of fundamental human rights.

### **P40 Fostering evidence-based policy making by research infrastructures: the RISIS experience and legacy**

*Speaker(s): Alessia Fava*

#### **Description:**

How to foster a stronger dialogue between science and policy? What is the contribution of the RISIS Research Infrastructure in reinforcing the action of the researchers' community to express the role of scientific freedom and face the most crucial societal challenges? How can the integration and availability of data help the researchers to investigate and produce new analyses as well as policymakers to orient their decisions?

RISIS is an Horizon2020 project and wants to promote an open data research infrastructure in the field of Science, Technology, and Innovation studies, to provide new policy evidence, following actors in different sources and geocoding organizations, projects, authors, and inventors. RISIS has 13 datasets plus two Registers on Universities, research organizations and firms, which provide information on three key dimensions: actors, geography, and themes. A set of indicators is also publicly available for research purposes, which enlarge the capabilities of scholars to access resources, combining them according to their needs.

RISIS Consortium is represented by 18 partners, among the most innovative Research Institutes and Universities active in the field of STI policy studies. The researchers would like to develop an effective and continuous process of interaction between scholars in the field, scholars from neighboring fields



and stakeholders, to raise the awareness of RISIS data, a key element of evidence-based policy making for research and innovation.

The panel structure is composed by a moderator and up to 4 speakers; the panelists shall explore the recent achievements in the project and focus on the most advanced developments occurring in:

- Building of new datasets such as ESID European Social Innovation Database -a comprehensive and authoritative source of information on social innovation projects and actors in Europe and beyond, and ISI-Trademark providing detailed information on all trademarks filed at the EUIPO (European Union Intellectual Property Office) and at the USPTO (United States Patent and Trademark Office).

Participants can discuss RISIS multidisciplinary approach dealing with crucial issues such as social innovation, public funding, knowledge concentration and policy mixes.

- The exploitation of new combination of data to better grasp the different evidence that are available on policies in the field to shed light on contents, impact or influence of policies and expertise. During the panel the participants can explore experimental activities developed using new resources for data exploitation.

- The role of Open Science in further integration of the STI community is a topic to be discussed. The rules on open access to research outcomes, and the connection between open access to research data and research data management, can be factors empowering the research capability and the autonomy of researchers, overcoming the traditional fragmentation of the field.

## **P41 Paving the way for a SESAME - African Light Source partnership**

*Speaker(s): James Gillies*

### **Description:**

The SESAME synchrotron radiation facility in the Middle East has been in operation since 2017. Two new state-of-the-art beamlines for micro-tomography (BEATS) and soft X-ray science (HESEB) will be added in 2022, almost doubling the existing portfolio of three operational beamlines. SESAME as an operational facility will bring strong opportunities in research and training to the African scientific communities to boost the pan-African Light Source initiative, AfLS. We therefore propose a panel discussion to explore how a SESAME - AfLS partnership might be forged.

## **P42 Re-thinking Science Communication to Increase Engagement with Policy Makers**

*Speaker(s): Leire Casas*

### **Description:**

NEWSERA is a SwafS-19 funded project that analyses and evaluates the complex and multidirectional science communication strategies - including digital and non-digital - by addressing the quadruple helix stakeholders in Citizen Science (CS) initiatives (CSi) as the new paradigm for science communication. The aim of NEWSERA is to show the virtues of CS as an inclusive, broad and powerful science communication mechanism that can increase trust in science communication while opening up science and innovation to society, raising awareness and educating in science, and reducing the chances of incurring in fake news by means of promoting critical thinking.

For this purpose, NEWSERA set up a series of virtual co-creation workshops, the #CitSciComm Labs, where 38 ongoing CSi from Spain, Italy and Portugal are participating as "pilots". In each Lab, CSi representatives work under communities of practice that involve specific quadruple helix stakeholders (citizens, academic scientists, policy makers, industries and SMEs), science communicators, science and data journalists, and NEWSERA members to co-design innovative strategies of science

communication for the CSi to reach target stakeholders, by defining a specific plan of action, tasks and indicators to follow their effectiveness and impact in social perception.

As a result of the participatory and mutual learning experiences gathered during the first round of the #CitSciComm Labs, a Policy Brief has been developed addressing the challenges that CSi may face when reaching out the quadruple helix stakeholders and science and data journalists, and pinpointing innovative ideas to overcome difficulties and adapt to a changing science communication environment.

Nowadays, it is clear that CSi can be catalysts of innovation: their inputs can lead to more informed and accountable outcomes in the policy and science agendas. By merging both agendas, the evidence towards a citizen-based policy making can be amplified. But tensions are still evident between traditional lobby and the innovative way of bringing citizens at the forefront of policy-making in science. Nonetheless, from a citizens' perspective, calls for more openness and accountability in policy-making is a real issue, together with a profound interest and eagerness from legislators to better appeal to public opinions' and knowledge. The Policy Brief aims to engage the CS community to work together with the public administration at any level: from the local, national, european or international level. In this regard, one of the main challenges at the EU level comes from the diversity of legislation. A previous research on how a territory is governed is of utmost importance to better understand how CS projects can be integrated in the political sphere.

Acknowledgments: This project has received funding from the European Union's Horizon 2020 Research and Innovation program under Grant Agreement n. 873125.

## **P43 Innovative ways to communicate climate action to citizens, diverse stakeholders and policy makers across Europe: challenges and experiences**

*Speaker(s): Marija Cvetinovic*

### **Description:**

In these extremely challenging times, climate change is only one in a series of worrisome issues we are currently facing, while their manifestations and influence are fiercely and increasingly experienced across the globe. Its effects threaten the very existence of life on our planet. Given these complex circumstances, climate crisis outcomes require equal attention, as well as adequate knowledge and means for urban actors/stakeholders to recognize cause-effect relations and available mitigation measures.

The TeRRIFICA project has developed an innovative approach to science communication open to individuals and groups to take an active part and influence climate change institutional, governmental and policy adaptations in cities. In a system defined by the RRI policy, the Sustainable Development Goals and the climate adaptation and mitigation measures, TeRRIFICA operates in six regions with very distinct challenges, in and outside EU. A practical outcome of this co-creation process will be locally focused but globally empowered climate actions targeting distinct citizens' needs. The TeRRIFICA crowd-map visually demonstrates the geographical spread of climate change effects that people encounter every day. The map enables users to link their observations to growing environmental issues, while raising awareness of global climate change trends. In practice, this tool helps users identify local needs and priorities in terms of water supply, air quality, land maintenance, surface temperature and wind flow, ponder on locations where these issues escalate and pinpoint these conflict zones on an online GIS map.

Through a discussion on experiences/networking, the panel aims to establish modalities for applying gained knowledge in order to enable incremental improvement of decision-making processes at the local level, i.e:

- Empower, inspire and mentor citizens to reach out and involve their immediate surroundings in addressing urgent environmental issues in their local urban communities;
- Provide guidance to educational authorities to influence school curricula towards integration of Citizen Science approaches to climate change topics;



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- Influence policy makers to include the crowdmapping tool into policy initiatives for climate change mitigation at city level.
- The core of this session is to showcase TeRRIFICA's unique approach and present insights into the application of this novel scientific communication tool in pilot regions. Taking into account external perspectives and knowledge, the idea is to provide an overview of aspirations and opportunities to incorporate such data into local decision-making processes at all scales, from bottom-up to top-down. The goal is to broaden the discussion to include diverse external challenges and local experiences in order to inspire and encourage outside parties to join the debate, advocate for innovative climate actions to tackle growing climate change crisis and influence the constitution of decision-making processes in the cities of tomorrow.
- The session organisers plan to invite/involve another external policy level speaker from from a pilot region.

## **P44 Scientific freedom and the RRING Community working with UNESCO on RSSR**

*Speaker(s): Dragana Mitrovic*

### **Description:**

This session will explore current models and frameworks for scientific freedom. In particular, it will explore the work of the H2020 project "RRING" on the topic, via its work with UNESCO on the Recommendation for Science and Scientific Researchers (RSSR), which embodies the principles of Scientific Freedom.

UNESCO Recommendations are legal instruments in which "the General Conference formulates principles and norms for the international regulation of any particular question and invites Member States to take whatever legislative or other steps may be required in conformity with the constitutional practice of each State."

The RSSR promotes a fair and appropriate status of scientific researchers and informs adequate national science, technology and innovation policies, and policies to ensure that societies use knowledge from all scientific fields in a responsible manner. Scientific freedom is at the core of the RSSR. The RSSR promotes:

- the right of researchers "to work in a spirit of intellectual freedom to pursue, expound and defend the scientific truth as they see it, an intellectual freedom which should include protection from undue influences on their independent judgement";
- "express themselves freely and openly on the ethical, human, scientific, social or ecological value of certain projects";
- "ensure the protection of the human rights, fundamental freedoms and dignity of the human person, and the confidentiality of personal data";
- "scientific researchers' right to publish or communicate results";
- "providing scientific researchers in their direct employment with adequate career development prospects and facilities" and "providing the necessary funds and mechanisms for, career development, and/or redeployment".

The overall project aim of RRING is to bring Responsible Research and Innovation (RRI) into the linked up global world to promote mutual learning and collaboration in RRI. This will be achieved by the formation of the global RRING community network. RRING will align RRI to the Sustainable Development Goals (SDGs) and the UNESCO RSSR as a global common denominator and global Framework.

Solutions that the session will explore are:

1. Examples of the barriers researchers experience in exercising freedom
2. How can the RSSR be enabled as a practical instrument for:
  - o researcher freedom
  - o researcher career security and reduced precarity
3. How do funders and funding organisations influence Scientific Freedom

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- Pedro Manuel Monreal – UNESCO: RSSR and the right of researchers to a sustainable career.
- Gordon Dalton – ICoRSA: Position statement on research careers to reduce precarity.
- Joao Amaral - ANICT Portugal: a brief overview on research contracts and career prospects in Portugal, and ANICT's past and present efforts to address working conditions and precarity.
- Dr Katie Wheat - Vitae UK: Whose problem is precarity? This session will consider the human impact of precarity and what precarity means to the lived experience of researchers.

## **P45 Creating a truly inclusive research landscape for the Global South: reflections and ways forward as Research4Life turns twenty**

*Speaker(s): Evalyne Wanjiru*

### **Description:**

20 years ago, we thought: what if everyone could access high quality literature? What if we could help researchers, doctors and policy makers in the Global South access the knowledge they need to advance their careers, publish quality research, and support evidence-based decision making? Since 2001, Research4Life ([www.research4life.org](http://www.research4life.org)) has provided free or low-cost access to up 151,000 leading journals and books to more than 10,000 institutions in 125 countries – supporting the UN Sustainable Development Goals' call to reduce inequalities and ensure equal opportunities for all. Research4Life is a unique public-private partnership between five U.N. Agencies, 200 leading publishers from around the world, Cornell and Yale Universities, and the International Association of STM Publishers. For more than 20 years, its offer has focused on free access to knowledge. But the landscape in which it operates is evolving rapidly, from the launch of the UN SDGs to the growth of open access, the pandemic, the rise in research from the Global South and the need to support a more equitable research space for all.

Now, Research4Life must reflect on its role in the future scholarly communications landscape, raising its profile to actively advocate for Global South researchers. In the past three years, the partnership has been helping researchers and librarians to stay up to date and enhance their skills through webinar series, trainer courses and multilingual MOOCs, training thousands – but more can, and must, be done.

This panel will focus on Research4Life's experience over the past twenty years, as well as the opportunities going forward – starting from a 2020 report that Research4Life commissioned to understand users' needs and challenges by carrying out an extensive survey and evaluation across multiple countries. The panel will include reflections on a new Country Connectors program, aiming at using local interventions to heighten awareness, strengthen capacity building and build strong community of users.

## **P46 Expectations vs. Reality in the discourse about Science Diplomacy for peace: the case of the Middle East Conflict**

*Speaker(s): Yoran Beldengrün*

### **Description:**

While not all types of international scientific collaborations are considered as science diplomacy, crossborder scientific collaborations between parties in conflict, can with few doubts be categorised as science diplomacy. With the increased presence of science diplomacy in the international discourse and also adaptation by a lot of states into their strategy of foreign affairs, related projects appear suddenly in the spotlight and at the same time raise great expectations as carrying the tag of "science diplomacy": first, the naïve observer might expect that the superpower of science with its universal language and neutrality can easily convene any type of communities, thus also parties in conflict,



around a scientific project, while the other romanticized science diplomacy enthusiasts might expect that having those two parties working together on a scientific project results in the free side-product of building peace and trust amongst both parties. The reality is unsurprisingly far more complex, by the mere fact that the participants have a dual identity as scientist and citizens with their own roles in their communities, political and religious beliefs, regional economic situations, freedom of movement etc. To contextualise the session, the moderator, Yoran Beldengrün, expert on science diplomacy in the Middle East, will give a short introduction into the topic and the ecosystem of such initiatives. Then, Israeli, Palestinian and international representatives from 4 organizations will share their perspectives on the role of science and diplomacy in their missions. Concretely, we will try to understand to which extent science is a key enabler of bringing people together, what factors are needed to build up such crossborder scientific cooperation, if and how trust- and peacebuilding promoting measures have been implemented in their initiative and finally how those initiatives aim to create impact.

The nature of the 4 different organizations on this panel are very different: Tech2Peace originated from Israelis and Palestinians who were engaged in peacebuilding and decided to run new seminars, with a focus on blended technology/entrepreneurship training, combined with conflict dialogue, and social activities. EcoPeaceMiddle East was born with the aim of protecting and conserving the environment in the Middle East and today runs offices in Ramallah, Tel Aviv and Amman, performing cross-border environmental research, education and advocacy for peaceful and sustainable regional development. The Transnational Red Sea Center started from a scientific discovery that Red Sea corals are extremely resistant to global warming and today with the support of the Swiss government its aim is to promote research and conservation policies through collaboration at the regional scale. Finally, the Malta Conference organises scientific conferences in Malta for researchers from many different, often mutually hostile, nations in the Middle East so they could cooperatively work toward solving problems facing the region.

## **P47 Evaluating Science Communication - Current Practices and Pathways Forward**

*Speaker(s): Imke Hedder*

### **Description:**

In times of change, in which science has a central role to play in offering orientation and insight, comprehensible, credible and effective science communication becomes increasingly relevant. While the research community has become more and more aware of the importance of science communication, the question remains how to ensure that these efforts have the desired outcomes. Consequently, evaluation and assessment of the impact of science communication practices have become increasingly prominent topics. In this regard, it is not only (institutional) practitioners of science communication and communicating researchers that are interested in the effects their efforts have on society – also policy makers and funders have been putting this issue high on the agenda. This trend indicates that showing proof of what works and what does not, as well as developing strategic plans for achieving science communication impact, is progressively becoming common practice. But what is the actual state-of-the-art when it comes to evaluating science communication today and where does the future lie? In this session, science communication practitioners and researchers from Switzerland, the Netherlands and Germany, addressing questions of impact and evaluation in their work, will offer insights into their analysis of the status quo. In addition, they will introduce new perspectives, based on several projects that lay the groundwork to support and improve such evaluations in their home countries. Their input will shed light on the current challenges and open questions these countries are facing when it comes to evaluating science communication, e.g., the varying definitions of impact, the cultural understanding of (and scepticism around) evaluation, and the demand for guidance to conduct meaningful evaluations using limited resources and expertise. The speakers will also present some of their efforts to address these issues and will offer participants the opportunity to share their perspectives on evaluations.



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Rather than just looking at what has been done so far, this session also focuses on what is yet to come: What does a meaningful evaluation practice in science communication look like in the future? How will science communicators in Europe apply digital technologies and qualitative methods responsibly? To what extent are they willing to share their knowledge, achievements and failures with the community to ensure we take the right steps towards a more comprehensive and effective practice? The interactive part of this session will encourage all participants to discuss future directions by sharing their experiences with and expectations of evaluation. The session will be led by scientists in the field of science communication from Leiden University, Utrecht University, the University of Zurich as well as team members of the Impact Unit, a project at the intersection of science communication research and practice by Wissenschaft im Dialog, the national organisation for science communication in Germany.

## **P48 How inclusive is research funding? An Analysis of Funders and Funding**

*Speaker(s): Judy Mielke*

### **Description:**

The concept of diversity and inclusion is well established in western society. We also would agree that diverse teams are able to see challenges from multiple perspectives and thereby provide more innovative solutions. It therefore comes as no surprise that many research funders fund individuals from underrepresented populations in their research disciplines to facilitate a more diverse workforce in research. However, just exactly how prevalent are minority or diversity awards in research, and do all funders provide such funding? If not such funding are available, is it due to a lack of funding or is there another rationale behind it? As a research grant and funding database ([scientificresearch.org](http://scientificresearch.org)), we are well positioned to answer this question. In our poster, we shall present diversity and inclusion funding provided by academic research funders from both a quantitative and qualitative perspective.

## **P49 Horizon Europe: How can the application, evaluation and consortium-building process be improved?**

*Speaker(s): Simon Pickard*

### **Description:**

By the time ESOF 2022 takes place, Horizon Europe - the EU's biggest-ever R&I programme - will have just celebrated its first birthday. Since Spring 2021, the European Commission has been publishing calls for proposals from universities, companies, research and technology agencies, and individual scientists, to start allocating its €95 billion pot towards a range of strategic goals and impact targets.

Nonetheless, the intervening period will also have given enough time for applicants and organisations, across Europe and beyond, to get a feel for the programme in practice - and in particular conventional R&I Actions under Pillar 2, plus most of the European Research Council and Innovation Council schemes. And by summer 2022, the Commission itself will already be starting work on its mid-programme review, which is due to take place in 2023.

Against this backdrop, Science|Business proposes to convene a DOUBLE SESSION in Leiden to take stock of the Horizon experience from an R&I stakeholder perspective, and to debate what could be done to improve the engagement process and incentives going forward. This first session will focus on the core of Horizon: its basic collaborative research and innovation projects in Pillar 2. Among the key questions to discuss: how have the first work programmes been received? What are the success rates? How does the application and evaluation process compare to Horizon 2020? How are the accounting rules and legal requirements in the Model Grant Agreement? And what would you change if you could?



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NB: the second session will focus primarily on the programmes and processes linked to the ERC and the EIC. The rationale is simple: it is simply impossible to cover all three Pillars in a single 75 minute session - hence the proposal to create a double session with similar objectives but distinctive themes. In this interactive round table, Science|Business will convene a high level debate among leaders from its international Network of public and private R&I organisations, policy makers and other key stakeholders to take stock of what's working and what isn't, and to identify what can be improved in the months to come.

## **P50 Citizen Science for Policy Making**

*Speaker(s): Rosa Arias*

### **Description:**

NEWSERA is a SwafS-19 funded project that analyses and evaluates the complex and multidirectional science communication strategies - including digital and non-digital - by addressing the quadruple helix stakeholders in Citizen Science (CSi) initiatives as the new paradigm for science communication. The aim of NEWSERA is to show the virtues of CS as an inclusive, broad and powerful science communication mechanism that can increase trust in science communication while opening up science and innovation to society, raising awareness and educating in science, and reducing the chances of incurring in fake news by means of promoting critical thinking. The public sector can benefit enormously from CS projects as they provide ideas and engagement with society to better understand the needs, interests and goals of those who they represent. The participation of policy makers also means the opportunity to influence policies and regulations with evidence-based, scientific data, building trust in CS and in science at large. Moreover, the involvement of policy makers offers an effective way to establish a commitment of other stakeholders, as policy makers play a key part in the project's repercussions, and it is more likely to see effects with them involved. They help to provide a better understanding of the issues that the projects are tackling. However, this collaboration with policy makers presents a number of challenges and it often does not happen in a smooth way. Building trust among citizens and institutions is still a big challenge. This round table wants to seize the opportunities and manage the challenges posed by the interaction between citizen science project representatives and policymakers and public sector officials. It will have a twofold objective: on one hand, to introduce citizen science practitioners to the complexities of public policy making; on the other hand, to introduce policy makers to the scientific results coming from citizen science projects that may have societal impact within their policy portfolios. Therefore, this dialogue will establish the basis for potential win-win collaborations where both citizen science practitioners and policy makers, and ultimately society, can mutually benefit. Acknowledgments: This project has received funding from the European Union's Horizon 2020 Research and Innovation program under Grant Agreement n. 873125.

## **P51 Nordic mess-ups in Science Communication – the mistakes we made and lessons learned**

*Speaker(s): Terje Tuisk*

### **Description:**

Scientists have never in human history received so much media coverage and other types of public attention as during the last two years of the COVID-19 pandemic. At the same time, the pandemic has brought severe polarisation in society. Different pandemic-related topics are in great detail and widely explained to the public by scientists, from vaccines to restrictions. At the same time, they are often loudly disagreed with by large groups of the general public, opinion leaders and even medical staff. This is a clear indication of miscommunication and lack of engagement. There could be different reasons for this. For example in reality many societal groups are in a totally different information space to what we believe; they hear the scientists' explanations but have always



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believed something totally different; scientists and communicators use too complicated language or the wrong argumentation; communication and engagement activities are often inaccessible to certain target groups; there is too much contradictory information available and it is difficult to make the right choice. Scientists often disagree with each other too and political opposition to governments and their decisions also comes into play. No wonder the argumentation and facts brought up by “the other side” are often more simple, easy to understand and relate to, despite not being underpinned by scientific evidence.

COVID-19 may be just an indicator of problems that have existed for a long time, which we simply were not aware of because we did not previously have to rely so obviously on science in the way we are now in a pandemic. Now is therefore the perfect moment to try to identify and scrutinise the mistakes we may have been making in science communication and in engaging society in science, and to learn from it together.

During the session science communication experts from Estonia, Finland, Iceland and Sweden will share mistakes that have been made in different kinds of science communication and engagement activities in their country and discuss the learnings they have gained from them. Key factors behind science learning and knowledge-based decision making will also be highlighted. Short presentations will be followed by roundtable discussions where participants will have an opportunity to discuss their own experiences, mistakes and learnings with others. Findings will be collated to create a “How not to guide” on how to avoid mistakes when planning, designing, organising or evaluating science communication and public engagement activities.

## P52 Let's make Science more reproducible, together!

*Speaker(s): Anne-Charlotte Fauvel*

### **Description:**

Reproducibility, understood as "the possibility for scientists, and by extension for the scientific community at large, to obtain the same results as the originators of some specific scientific findings" is a fundamental building block of Science. The process of scientific research involves conducting experiments to test and/ or generate a hypothesis. Results of these experiments are collected and analysed, and then shared with the wider research community through publication. Science's societal impact progresses as hypotheses are further generated, tested and validated, building on existing findings. Scientific progress requires that studies are rigorous and the findings reproducible. However, in a recent survey by the journal Nature, around 90% of respondents agreed that there is a “slight” or “significant” reproducibility crisis (<http://www.nature.com/news/1-500-scientistslift-the-lid-on-reproducibility-1.19970>). The challenges about reproducibility lay in the fact that there is no single cause of and solution to irreproducibility. In some cases, poor experimental design, inappropriate analysis and questionable research practices can lead to irreproducible results. Cultural factors, such as a highly competitive research environment and the high value placed on novelty and publication in high-profile journals, may also play a part.

Reproducibility has recently become a major talking point in multiple scientific domains: biomedical sciences, humanities and social sciences, computer sciences, psychology sciences to name a few, and has caught the attention of funders and policy-makers. For example, in December 2020, the European Commission published a scoping report (<https://op.europa.eu/en/publication-detail/-/publication/6bc538ad-344f-11eb-b27b-01aa75ed71a1>) to increase the understanding of the lack of reproducibility in Europe and help design a suitable response in the context of EU Research & Innovation. Shortly thereafter, in February 2021, the ERIC Forum organised a two-day interdisciplinary workshop to evidence that reproducibility affects many research fields and requires multi-stakeholder efforts both from funders, journals and researchers themselves to support a cultural shift in research practices. (<https://eatris.eu/news/eric-forum-publishes-recommendations-to-increase-reproducibility-in-academic-research/>).

With this session we will be looking at the recent year's fundamental shift in the way science is being conducted such as the unlocking of data's innovation potential and the growing adoption of Open



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Science practices together with the deployment of grassroots “Reproducibility networks” in Europe to inspire reproducible and responsible science, to improve the trustworthiness and quality of research and to consolidate the societal responsibility of Science. Let's make Science more reproducible, together!

## **P53 Design-thinking as bridge between science, policy and civil society: Co-creating “better stories” of responding to the pandemic**

*Speaker(s): Sofia Strid*

### **Description:**

Can social sciences deliver results as fast as natural sciences? The aim of the session is to explore and demonstrate how social science can deliver operational results for policymaking. It contributes to the dialogue on science and the interplay between science, policy and civil society by discussing cutting-edge methodological results and their potential impact on policymaking and society at large. To this end, the session introduces, demonstrates, and discusses design-thinking as a way to bridge the gap between science and policymaking, and the potential role of activism.

The interactive roundtable contains three brief presentations followed by a practical, interactive exercise. The first presentation introduces the project, and the overall theory and concepts of design-thinking. The second discusses its methodology, and introduces the civil society and activism nexus, demonstrating how the methodology itself delivers both on form and content, i.e., collective discussion of research results on inequalities and inclusion, and an inclusive co-creation process enabling grassroots movements, artists, activists and CSOs to share their wisdom and insights for policymaking and societal transformation. The third demonstrates its usefulness to bridge the gap between science and policymaking by introducing the results from applying the methodology in practice. The presentations will have space for questions, answers and reactions and encourages audience participation via the use of digital tools (e.g., Mentimeter) for real time feedback, including questions, expectations and word clouds.

The three presentations are followed by a practical and interactive exercise, which encourages audience participation and provides a feeling of the approach. The interactive exercise is an online teaser/tester element, where we demonstrate the use of Miro, an online whiteboard tool to facilitate design-thinking based workshop, as a tool to bridge the gap between science and policymaking.

The session is based on the results of RESISTIRÉ: Responding to Outbreaks through Co-creative Equality Strategies (2021-2023), funded by the EH2020.

## **P54 International academic mobility versus “brain drain”: How can a more balanced brain circulation be fostered? Part I: The role of research funding agencies**

*Speaker(s): Oksana Seumenicht*

### **Description:**

International academic mobility plays an important role in career development of early-career researchers (ECRs). One recent study reported that as many as three-quarters of some 2500 academic researchers surveyed had moved to another country for research training or work (McInroy et al, 2018). Another systematic review of almost 100 empirical studies stated that there is robust evidence of positive effects of international mobility on the broadening of scientists' networks (Netz, 2021). Moreover, several solid studies reviewed showed positive effects of international academic



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mobility on scientists' productivity, impact, and occupational situation. Governments and their research funding agencies as well as non-governmental foundations offer a myriad of fellowship schemes targeted at the ECRs. They aim at promoting their international academic mobility in general and attracting the most talented researchers to their countries in particular. However, it is no secret that the fierce competition for international talent may also result in "brain-drain" for home countries of mobile researchers. In its Conclusions on the New European Research Area (ERA) Council of the European Union stated (2020) that the "the phenomenon of "brain drain"... contributes to the research and innovation divide within the EU" and called on the European Commission and Member States "to monitor and recommend measures to address unbalanced brain circulation".

## **P55 Stronger together: Can Africa and Europe achieve their shared vision through research and innovation?**

*Speaker(s): Simon Pickard*

### **Description:**

Africa is a unique partner for the EU for historical and geographical reasons. Over the past couple of decades, the African and European Unions have developed a long-term, broad and evolving alliance across various policy areas - with science, technology and innovation one of the key channels through which shared priorities are defined and pursued.

In the years to come, the EU-AU partnership will focus on four main areas: the green transition, innovation & technology, public health, and scientific capacity building (including education). But how can leading R&I organisations in Europe and Africa deliver on this agenda, given the COVID-driven constraints on researcher mobility, funding uncertainties, and other barriers to scientific and technological collaboration? Is Horizon Europe the key vehicle to accelerate progress, or are there other channels for ST&I agencies to pursue? And beyond research, are new opportunities and dynamics arising in education and training, or investment in the next generation of entrepreneurs and disruptive innovators?

Against this backdrop, the purpose of this session is twofold: first, to identify the key issues which are advancing or hindering Africa-Europe R&I cooperation and capacity building; and second, to discuss new models of practice, partnership and knowledge exchange that could inform a blueprint for the post-COVID recovery phase.

## **P56 Involving society in science - exploring ways to achieve impactful stakeholder engagement**

*Speaker(s): Maria Hagardt*

### **Description:**

Global societal challenges together with growing public interest in science present both opportunities as well challenges for the scientific community. Research culture and praxis are undergoing comprehensive change moved by Open Science and Responsible Research and Innovation agendas, which call for a more transparent and collaborative science, and more participation of citizens.

Engagement of citizens in science is an enduring endeavour based on ensuring that citizens are involved in the different steps of the research cycle, and that the views of different stakeholders are taken into consideration when shaping science agendas and research projects. Putting this into practice is not always as easy as it might appear in theory, either. So how can science communication practitioners, researchers, policy makers and research funding bodies successfully engage with the public, and ensure that their values and interests are incorporated in science and its outcomes?

In this session, we will explore ways in which to achieve meaningful and impactful stakeholder engagement drawing upon a wide range of activities and initiatives. Representatives from several science and research organisations working at national and European levels will share their experiences and learnings of implementing and evaluating engagement methodologies such as co-creation, citizen science, gamification as well as public and multi-stakeholder dialogues. Discussion will focus on how to embed these approaches into research culture, practices and strategies at institutional and national level exploring aspects such as gaining buy-in, potential conflicts and tensions, training, rewards, funding, evaluation and sustainability. In this interactive session, short presentations will be followed by roundtable discussions in which participants can contribute their own experiences and views. Input will also be sought on current and future needs at an organisational and science policy level, resulting in a set of recommendations on how to enhance public engagement in science and put Open Science into practice.

## **P57 What does it mean to have confidence in research?**

*Speaker(s): Andrea White*

### **Description:**

Science and its practice are undergoing rapid change, from how scientists collaborate and conduct research, to how it is disseminated and communicated. The pandemic appears to have accelerated some long-term shifts: the urgency of the global health crisis spurred open science and data sharing with rapid evidence assessments, broadening access to research; and virtual collaboration amongst researchers and corporate R&D, as well as interdisciplinary collaboration, drove the extraordinary pace of innovation and breakthroughs.

Science is making extraordinary advances, but change and acceleration bring new challenges. As the nature of scientific publication and collaboration evolves, the quantity of published science balloons, aided by new technologies. Survey findings from before the pandemic suggest that scientists are finding it more difficult to verify and validate research they encounter.

Elsevier – in collaboration with Economist Impact, who are pioneers in innovative monitoring and trend spotting – is undertaking a landmark piece of research, titled Confidence in Research project, across seven countries (the UK, US, Germany, The Netherlands, France, China and Japan) to test the hypothesis that the pandemic has further exacerbated these pressures, making it harder for researchers to judge the reliability of research on which to build, and more complex and challenging to communicate their own research.

The collaboration will investigate the impact the Covid-19 pandemic has had on research processes and behaviours (around research, collaboration and communication); the scientific community's perspective on this changing landscape (including the peer review process and the publication of pre-prints); and researchers' perspectives on the credibility / trustworthiness of research and mechanisms for assessing it.

The research core objectives are:

- To understand the drivers of confidence in research;
- To understand how researchers' behaviors and perceptions of the research process have changed since the pandemic;
- To understand how this changing landscape is impacting confidence in research within the scientific community; and
- To identify tangible interventions to bolster confidence in research, particularly for scientific researchers at the early stage of their career.

These will be assessed through a comprehensive literature review produced in partnership with the Economist Impact, an online survey of scientific researchers (shaped with input from a specially-appointed Global Advisory Board and local partner organizations), a series of country-level roundtables and 12 in-depth expert interviews.

The resulting White Paper, which will be published in Q2 of 2022, will understand not only challenges and opportunities, but also meaningful, actionable insights that will support the research community to do what they do best – advance knowledge that benefits society. During this panel, the expert speakers will discuss the White Paper's findings and implications for the future of research, as well as recommendations and actions that can be taken to support the research community.

## **P58 BRIDGES - Building Reflexivity and response-ability Involving Different narratives of knowledGE and Science**

*Speaker(s): Samuele Giatti*

### **Description:**

"BRIDGES - Building Reflexivity and response-ability Involving Different narratives of knowledGE and Science" is a research project coordinated by the Institute for the electromagnetic sensing of the environment (Irea) of the national Research Council (Cnr), funded by the Cariplo Foundation within the Program for Social Research on Science, Technology and Society.

The project employs transdisciplinary and participatory research methods to understand and strengthen the relationship between science, society and ecological systems in the Italian context. To do this, it uses soil fertility as a case study, a topic of local and global interest, declared by the United Nations General Assembly as one of the three emergencies on the planet, together with climate change and the loss of biodiversity. Soil fertility is also a complex and controversial issue, because its management and protection imply a series of new relationships and visions between science, society, ecosystems and human and non-human actors.

The project (2021-2023) includes a social survey, in the Italian context, which will involve thousands of young researchers from the CNR and other scientific networks, exploring the dominant narratives on the science-society relationship around controversial issues. Starting from some emerging discourses, a series of seminars and Citizen Science activities will be organized, in urban and rural environments, in which some of the researchers involved in the social survey will experiment, together with networks of citizens, educators, artists, soil microbiology specialists, farmers a type of participatory and hybrid research aiming at discussing and collectively producing soil fertility indicators.

More specifically, BRIDGES will:

- uncover the grand narratives and imaginaries of science that implicitly – and often unconsciously – drive researchers in their work;
- within a transdisciplinary workshop, focus on the narratives shaping participants' relationship to soil, exploring the links between agriculture, food and health;
- develop and experiment methods for co-producing hybrid research practices that foster systemic and relational thinking – via both a rural workshop and a trans-disciplinary citizen science investigation.
- perform participatory observation and evaluation throughout the whole project.
- co-create reflexive communication and engagement activities.

This poster will present the an overview of such innovative methods together with the preliminary results of the survey conducted in Italy.

## **P59 The role of open science in driving responsible research culture.**

*Speaker(s): Diane Coaker*

### **Description:**

Research culture shapes the ecosystem in which we all operate, it influences who is doing research, what research is done and how it is communicated but what role does open science play in driving responsible research culture? How can it encourage interdisciplinarity and ensure the steady flow of research between academia, government and industry?



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In May 2021, the UKRI published a report outlining the funders' role in ensuring a responsible research culture and assessment practices – highlighting the importance of diversity, collaboration and need for change in research assessment. However, the report also found that funders cannot deliver systemic change alone.

Open science is rapidly becoming an approach that researchers, institutions and funders are all embracing as a way to help deliver a more constructive and effective research culture, one that is aligned with initiatives such as The Declaration on Research Assessment (DORA), and one that will bring benefits to the whole research system. Specifically, publishers are working hard to enable more rapid and earlier access and discoverability to all types of research output from across the research cycle. Demand for more rapid and fuller access to research needs to be accompanied by mechanisms that support responsible research practices and that can safeguard trust in research.

During this session, the panel will discuss and debate what the ideal research culture of the future looks like and how this might be achieved across all disciplines. They will bring together a range of perspectives on the role and importance of open science in driving responsible research culture and will share practical ways in which collaboration between stakeholders can facilitate the shift to open science, and bring about real change in how we discover, value and use research – to the benefit of our shared research system and society as a whole.

## Healthy Societies

### P60 Adverse Events as a Source of Emotional Disturbance for Healthcare Providers: The Second Victim Phenomenon

*Speaker(s): José Joaquín Mira*

#### **Description:**

Patient safety is a priority for healthcare systems across the world. Unfortunately, around 12% of the people admitted to hospitals and 2% of those in primary care suffer from an adverse event (AE). When AE does occur, there is a domino effect with professionals (second victims, SV) also suffering from the knowledge of having harmed their patients. Guilt, flashbacks and doubts about one's competence are the most frequent responses. In the most serious cases, the professional may develop a post-traumatic stress disorder. This phenomenon is causing unsafety in the provision of healthcare, loss of care quality provided, defensive medicine, and avoidable burden of human cost.

The lack of visibility and recognition of SV phenomenon, the taboo surrounding mistakes, and the ideal of perfection are some of the barriers that make it difficult to tackle this problem. However, caring for the well-being of the care

providers as a prerequisite for patient safety and quality of care. Over the past decade, various programs have been implemented to support the SVs, most of them based on peer support. Only about 10% of the SVs require more specialized support to overcome this experience.

Although these interventions are needed, there are other issues to be considered such as the legal framework regarding the professional liability, the promotion of the psychological safety as part of a proactive safety culture, and how patient safety is introduced in the curricula of the next generation of healthcare workers.

The COST Action 19113, led by the ERNST Consortium, is focused in the study of this phenomenon and also in the promotion of solutions to face with. We pursue open debates and develop new studies taking advantage of the European experience on this topic.





## **P61 Wider benefits of research infrastructures: Astronomy's contribution to the global covid-19 pandemic response**

*Speaker(s): Mathieu Isidro*

### **Description:**

In this double session we will explore some of the wider benefits that research infrastructures (RIs) can bring to society, through case studies from the astronomy field.

Ever since the start of the global covid-19 pandemic, governments around the world have worked to bring together expertise from many scientific disciplines to “flatten the curve” and develop long-term solutions to the upheaval. But beyond the obvious role of doctors, virologists, epidemiologists and statisticians, the broader scientific community has also played a role and made a material difference in our ability to fight the virus and in supporting society's responses to the pandemic. Astronomy, with its long history of technological breakthroughs and a highly skilled and creative workforce committed to public engagement has been playing its part in full in that global effort.

In this first session, we will focus on the role various astronomy RIs such as research institutes, professional bodies and observatories played in responding to the pandemic, from designing affordable ventilators to fighting misinformation, providing free educational resources to families stuck at home or applying observational techniques used in astronomy to help develop novel covid-19 detectors. Far from being removed from societal needs and worries and stuck in an ivory tower, these research organisations and researchers took part in coordinated national efforts or developed initiatives to support the wider response. Across the world, these researchers, engineers and project managers used their unique sets of skills, demonstrating the wider and immediate value of a highly educated and highly skilled workforce.

## **P62 From lab to communities: is the way we regulate medicines future-proof?**

*Speaker(s): Simon Pickard*

### **Description:**

A panel on how the potential of cutting-edge scientific and health technology innovations can impact on the well-being of communities, their access to medicines and the way we regulate them.

New medical technologies, from cutting-edge oncology and immunotherapies to headline-busting mRNA and CRISPR gene editing, offer unprecedented opportunities to save lives. Artificial Intelligence and the use of Health Data hold great promise for improving the delivery of healthcare and medicines worldwide. However, while we are seeing great scientific advances, we also observe that too often the benefits are not able to reach patients as the treatments are not affordable or accessible.

As often observed in modern history, scientific advances lag societal developments.

Over the past 18 months, for example, we all watched medicines regulators world-wide struggle with the urgent issues raised by COVID-19 vaccines. With more forward thinking, perhaps we can do better in the next crisis.

A “future-proof” approach is desirable.

In this panel session - which stems from a “Science Business future-proof initiative” that brings together a coalition of public and private expert organizations, including Karolinska Institute, Barcelona Supercomputing Centre, Bristol-Meyers-Squibb, University of Tartu and more - we gather relevant experts, with an interdisciplinary approach, at crossroads between regulatory science, medical science, and data science for an open-science based dialogue and interaction with the audience on: how can we better engage these scientific developments and put them concretely at the service of healthier and more resilient societies?

## **P63 Understanding the African Microbiome: Implications on One Health**

*Speaker(s): Hannibal Musarurwa*

### **Description:**

The African continent exists in both hemispheres of the earth and exhibit great biological and sociocultural diversities which directly impact food production, processing and nutrition. Divergent environmental conditions and subsequent food options results in variation in human microbiome across the continent. The human microbiome is known to be an indicator of health status and thus mapping its diversity across African populations is key in understanding the African health and disease landscape. Environmental microbial flora is also varied and subsequently impact environmental and human health, in addition to controlling food production. This session is designed to discuss and highlight current and future research on the continent's microbiome and launch a consortium for microbiome research aimed at improve productivity health and conservation across the continent. Panellists will come from diverse backgrounds including health, agriculture, conservation biology and humanities, and from different localities to encourage North-South cooperation in research. Junior researchers and graduate students will be provided a platform to present posters and podium presentations. It is envisaged that at the end of the meeting the scientists would have subscribed to the African Microbiome Project.

## **P64 The power of predictive genomics: should polygenic risk scores be routinely used within the healthcare system?**

*Speaker(s): Francesco Florindi*

### **Description:**

European healthcare systems might run out of capacity the future: ageing population, higher burden of complex non-communicable diseases, rising levels of obesity and other risk factors will all increase the magnitude of sick people our healthcare systems will have to take care of.

Wouldn't it be better to prevent citizens from becoming sick?

Our healthcare systems (and therefore reimbursement schemes, budgets and health policies) are wired up to care for the sick, not to prevent disease.

Polygenic risk scores (PRS) are increasingly demonstrating to be reliable instrument to harness the power of genomics to predict the chances an individual will develop a certain disease. Paired with the right healthcare support (geneticists, genetic counsellors etc) PRS can give unprecedented insight to citizens and help avoiding getting sick altogether.

PRS are not risk free though: from ethical and privacy concerns to risks of high false positive results, there are many issues to be considered with using such powerful technology.

The panel will debate the merits of PRS, and whether EU countries should implement nation-wide PRS campaigns, genotyping large proportions of their population.

## **P65 Chemical profiling of saliva: A window into human health**

*Speaker(s): Alessio Ciurli*

### **Description:**

Saliva is a multifunctional biofluid that serves to maintain oral health through lubrication, clearance, buffering, antibacterial activity, taste, and digestion. This complex biofluid is a mixture of different fluids secreted from three distinct salivary glands, namely, the parotids, the submandibulars, and the sublingual glands. Saliva is easily collected through spitting or the use of swabs. Nowadays, the high



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sensitivity of advanced analytical techniques, such as mass spectrometry, facilitate the analysis of saliva. These technologies offer extensive insights into the health status of the oral cavity as well as systematic alterations, as for instance hormone levels. In current healthcare applications, metabolite concentrations are routinely measured in a targeted fashion from predominantly blood specimen (e.g. the blood-glucose level in the case of diabetes). On the other hand, the metabolomics, the analysis of the entity of small molecules involved in metabolism, is rapidly gaining traction in personalized health monitoring. Moreover, metabolomics has recently been shifting from biomarker identification towards the discovery of active drivers of biological processes (activity metabolomics). To showcase the value of saliva as clinically useful biospecimen for metabolomics analysis we have recently collected 360 saliva samples from 20 healthy donors (10 males and 10 females) at three different oral locations (above the tongue, below the tongue and right cheek) and three distinct time points (morning, afternoon and bedtime). Saliva specimens were analysed using our cutting-edge LC-MS/MS based metabolomics platform and hundreds of metabolites were simultaneously identified. Based on this extensive dataset, we are going to explore the utility of saliva for monitoring active drivers of human biology in correlation with circadian rhythm, dietary habits, quality of sleep, optimal levels of exercise and aging. In the future, saliva specimen will likely provide biochemical information in a non-invasive, low-cost, and comprehensive fashion granting insights into personalized health.

## **P66 Bioart, New Reproductive Technology and Human Germline Gene Editing**

*Speaker(s): Adam Zaretsky*

### **Description:**

This session brings together an expert group of bioartists who work on projects pertaining to and engaging in new reproductive technology. Bioart mixes art and biology with a fairly high level of life science engagement including: the production of new knowledge, novel protocols and some cutting edge use of living biomaterials. The artists are deeply involved with citizen science. Their hands-on DIY/DIWO (do it yourself/do it with others) bioart wet labs spread informed debate about new biotechnologies into the public sphere by producing creative biological workshops for non-specialists. Mixing humanities innovation with an eye towards eliminating global inequalities, these bioartists focus on explorative freedom in open science spaces for curiosity-based research and development. This is the arts/humanities in art-science experimental design and non-conceptual execution with live materials, biological methods and artistic conclusions. Beyond offering experiential and contestational forms of informal science education, this panel is composed of very creative fundamental researchers and innovators with insights into novel new reproductive technology applications. Bioartistic ethical issues in human experimentation, human reproductive technology and baby design are based on bioethical oversight guidelines based on artistic goals. Relying on the benefits of pure research and curiosity based conjecture, bioartists have begun to formulate the tenets of their own review boards to avoid disqualification for seeking human and non-human subjects for curiosity based research run by those bioart creatives. It is of the utmost importance that the global genome be understood through the widest range of aesthetics that can be applied to human artificial reproduction and human germline gene editing. This is open science and it is meant to insure diverse public debate into the otherwise closed dialogue between science spokespeople and policy wonks. What is at stake is biosecurity for the species heritable commons. Surely, we cannot let these technologies go the way of past eugenics movements. There is an art movement trying to democratize human reproduction and critique naive concepts of health, as if well being and betterment were simple, neutral terms. Supporting bioinformatic biodiversity and conceptual diversity options while seeing progress in the human reproductive and design technologies results in a wider range of acceptable reproductive strategies and a more colorful palette of genes for future human genomic tailoring unbiased, intersectional and iconoclastic. Bioethical species industrialization for a sustainable earth, for space travel, for enhanced markets takes informed humanities positioning and bioartistic insight can get us there.

## **P67 How will the role of a stem cell donor be in the future and how can stem cell donors contribute to health inequalities in diverse communities?**

*Speaker(s): Lydia Foeken*

### **Description:**

WMDA is a global association based in Leiden, founded by Professor. Dr. Jon J. van Rood. His vision was equal access to transplant. A global infrastructure has been set up, which provides access to transplant centres to search for the best possible match for their patients. All transplant centres access the database to search the genetic donor twin for their patient. If a donor is a match with their patient, the stem cells are collected and transported to the transplant centres.

The transplant centres are facing major challenges. The families are smaller, so a suitable match is not always found in the family. On the other side there are more mixed marriages, which makes it even more complex to find the best match. Despite having a global database with the commitment of over 40 million donors from 50 countries, over 30% of the patients cannot find their genetic twin in the global database.

Time to transplant is key for success. How can we use artificial intelligence in the process to find the best donor for a patient?

## **P68 Challenges and strategies to promote a comprehensive research, development and communication plan to support the control, elimination and eradication of neglected tropical diseases.**

*Speaker(s): María de los Ángeles Erazo Pesántez*

### **Description:**

Neglected Tropical Diseases (NTDs) are a group of 20 infectious diseases that prevail in tropical and subtropical conditions in many countries, affect more than one billion people worldwide, and cost developing economies billions of dollars every year. Most of these diseases cause disability, disfigurement, social exclusion, and death. Since the publication of the first NTD road map and the London Declaration on NTDs, in 2012, remarkable progress has been made against some of these diseases. The 2021–2030 NTD road map seeks to build upon this progress by setting or reaffirming several ambitious targets.

The WHO has recognised the listing of identified NTD research priorities within its Global Observatory on Health research and development platform to be a Global Public Health Good. It has also realized differences in the structuring of prioritised across diseases, which could limit thinking about the integration of research and programmes related to the group of NTD.

All elements of NTD programmes—including programme management, epidemiological assessment, disease control and evaluation—could potentially benefit of the integration agenda of research and programmes related to NTD. Cross-cutting socioanthropological and health system research is also needed to guide these programmes.

The fight to combat NTDs has not stopped even during the COVID-19 pandemic. It is necessary to make this problem even more visible, to alleviate the suffering caused by NTDs to more than one billion people worldwide. For that, skilled and credible advocates will be needed, as well as partners willing to hear a complicated tale.

This session will examine the relationship between health news events, media content analysis and public perception about NTDs, as well as the challenges and strategies to promote a comprehensive research, development, and communication plan to support the control, elimination and eradication of NTDs. Base in some case studies, we will discuss: How can we improve healthcare related to NTDs and make it available for everyone? How can patients, patient organisations and some NGOs



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influence healthcare planning and research priorities? What is the role for Europe concerning the eradication of NTDs, and what are the implications for improvement in global health?

## **P69 Is Repurposing of Medicines the new “El Dorado” for curbing the increased cost of healthcare and drug development?**

*Speaker(s): Gary Saunders*

### **Description:**

Repurposing, known as the process of using existing drugs already approved for human use as new therapeutics outside of their original indication(s) to treat other diseases, has demonstrated high utility to serve unmet patient needs in many disease areas. Repurposing has for example shown its value during COVID-19, and, likely in combination with important medicines reformulation, has huge potential to treat rare diseases and cancers.

Policy, funding and research attention in the area has increased since the early 2000s (Parvathaneni V. et al. Drug repurposing: a promising tool to accelerate the drug discovery process *Drug Discov. Today*. 2019; 24: 2076). With development times and costs 30 to 75% lower than developing a new drug from scratch, the rationale behind repurposing is clear. (Roessler H.I. et al. Drug repurposing for rare diseases. *Trends in Pharmacological Sciences* 2021, 42, 255-267). Increasing the number of repurposed medicines on the market which have been developed more quickly and cheaply than new drugs, will result in reducing upwards pressure on drugs pricing, thus leading to lower healthcare costs. A recent study showed that between 2012–2017 (Polamreddy P. et al. Drug repurposing landscape (2012-2017): evolution, challenges, possible solutions; *Drug Disc Today* 2019, 24, 789) of 170 repurposed drugs in development, 72% were in clinical Phase II. Of these, 70% of the trials are sponsored by academia, indicating a growing role for academic investigators, alongside industry, in addressing unmet patient needs.

However, repurposing is a complex endeavour requiring expertise from multiple disciplines and stakeholders to effectively curb the cost of healthcare. Currently, the European repurposing ecosystem remains at an early stage of development, with several systemic inefficiencies that hamper the pace and effectiveness of repurposing. These challenges include, among many others, a reimbursement and health technology assessment environment that currently does not offer a viable path to market, as well as a European regulatory landscape that is not yet fully aligned to the needs of repurposing.

Those issues are complex and multi-factorial in their own right, yet actionable. With this session we will discuss actions undertaken by several key stakeholder groups (academia, industry, patient organisations, policy-maker) to fulfill the promise of repurposing to curb the increased costs of healthcare and drug development and the possible need for a sustainable European Innovation Platform dedicated to repurposing, specifically designed to generate system-wide improvement in the efficiency and effectiveness of repurposing and support harmonisation across the EU.

## **Sustainable Academic Careers**

### **P70 Carla: a mind opener for career development**

*Speaker(s): Lydia Sanmartí-Vila*

### **Description:**

Europe needs more well-prepared professionals to support its growth and innovation potential. Addressing this pressing necessity requires engaging all stakeholders to increase the visibility of the outstanding professional opportunities available in fields such as deep tech and provide the future



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workforce with tools to boost their employability. In this session we want to talk about how the EU project Carla is approaching this through innovative career development events and discuss with experts and the participants to the session about the needs and challenges faced by all stakeholders when talking about careers development, talent attraction, etc.

Carla is a 3-year H2020 EU-funded project that has designed a model for career camps of excellence. The Carla project is focusing the themes of its events in photonics, but the idea is that these camps are easily adapted to any STEM discipline as they are devised to make visible to STEM undergraduate, master students, PhD students and early-stage researchers the broad range of career opportunities that exists, especially beyond the traditional academic path. In fact, a Carla camp quantum technologies edition is being prepared to happen in April 2022.

The design of these camps has been done in collaboration with a pan-European network of 100 stakeholders representing the industry (small and large companies), academia, entrepreneurship and innovation, students and early-stage researchers as well as a group of experts in different dimensions of diversity in STEM. Thus, the aim of the Carla camps, which is how we call these career camps, is to open the mind of university, PhD students and early stage researchers in terms of career development, introducing them into the myriad of professional opportunities that technology and scientific fields such as photonics provide. Carla camps are being tested in 10 different countries. In this session, we will introduce the Carla project and present the results obtained by the project so far and will have a representative of each of the stakeholder groups to discuss in panel format about the challenges that their stakeholder group faces in terms of talent attraction or career development. Most part of the second half of the session will be dedicated to an open discussion with the rest of the audience about how can we help making the next generations (more) industry-ready, how to attract talent to deep tech professional area, career development opportunities beyond traditional academic careers, and how does the future workforce faces non-traditional professional opportunities.

## **P71 Zero tolerance for bullying in practice through the redefinition of success criteria in science**

*Speaker(s): Lidia Natalia Trusilewicz*

### **Description:**

The survey performed on structural violence and harassment issues among a representative sampling of the MSCA-related research community showed that 65% of respondents have been or are exposed to a kind of bullying in their workplace. This session addresses an urgent discussion on initially qualified for a statistical purpose several features phenomenon that nowadays determine our success criteria in science. As a research community, the panel invites us to contrast a perceived scientific wellness culture deficiency degree, overt abuse of power. However, together with raising the past decade especially researchers' mental health issues awareness. What new frameworks of science policy linked to so-demanded interdisciplinarity and intersectionality, or different nitrated funding schemes, need such exclusively goal-oriented ambiances for our to prosper future? Is a zero-tolerance factor possible in practice anyway or distinguishable from what is a healthy struggle for a benefit in this profession when verified in the function of the achievements and goals that truly matters contributively on the individual level and when referred towards the research population?

The session is organised by the Responsible Research Environments Task Force of the Policy Working Group at the Marie Curie Alumni Association. The substantial base of the session panel benefits from outcomes of a survey performed in a time panel discussion on "Structural violence and harassment within the scientific environments" at the MCAA virtual conference in November 2020. The invited speakers cover profiles to represent the continuity of expressed previous discussion paths and themes. Regarding the competencies, then this session panel will cover the angle of social science, professionals involved in real case studies of both positive or negative callout, EU-policy-oriented activists representing the #metoo or #heforshe like-movements. The session will also intend to cover the EU science policy crucial areas and aspects of the directed discussion.

## **P72 CAREEROMICS: Innovations in career support for early career researchers - THE INSIDE STORY**

*Speaker(s): Sarah Blackford*

### **Description:**

Statistics show that only a minority of doctoral and postdoctoral researchers progress to a permanent academic career (HEPI, 2020), whether by their own will or by necessity. The transition can be challenging both mechanistically and psychologically, so professional career support can be vital to assist in a successful and relatively stress-free exit.

In this “Careeromics” interactive workshop, founders of the ‘Careers Advisers supporting Researchers in Europe’ (CARE) group have brought together PhD career professionals who will showcase innovative career support tools and techniques that have been designed specifically for early career researchers to help them to increase self-awareness, reflect on their strengths, and embolden them to transition successfully to a range of careers outside of academia. By creating a personal inventory of skills and interests and linking them to potential non-academic careers provides a structured methodology for researchers to navigate their new career path. Underpinned by models of career theory, these tools have been implemented and tested in career education settings. The aim of the session is to broadcast more widely their existence and useability as part of the career planning process.

Founded at the ESOF2014 meeting in Copenhagen, CARE has over 100 members from around Europe, forming a valuable network of knowledge and experience to build capacity to support (post) doctoral researchers wherever they may be based. In this Careeromics session, we bring together creators and implementers of a range of innovative self-help tools with the aim to enhance researchers’ awareness of their strengths, skills, knowledge of non-academic career paths and career preparedness. These will include:

- Career Preparedness Matrix (Sarah Blackford, Lancaster University, UK) (Moderator and speaker)
- CareerCheck.dkfz.de for career orientation and planning (Dr Barbara Janssens, DKFZ, Heidelberg)
- Using the PhD Career Choice Indicator (Dr Tina Persson, PassagetoPro, Sweden)
- PhDOOC, a social method for PhDs to land a job <https://phdooc.moocit.fr/> (speaker to be agreed, PhDOOC Association)
- Skills portfolio Docpro <http://mydocpro.org/en>, (Dr Kristina Berkut, Association Bernard Gregory, ABG, France).

Delegates will have the opportunity to try out the tools, reflect and discuss their merits, as well as feeding back to the CARE members their experiences and recommendations. In association with ‘Careeromics: Innovations in career support for early career researchers. The Outside Story’ session, the two connected workshops aim, ultimately, to create a researcher’s toolkit to help ease the passage of early career researcher from the academic into the non-academic career sector.

## **P74 Mind the Social Security Gap**

*Speaker(s): Indi Seehra*

### **Description:**

Main current and future challenges can only be tackled through collaboration, resulting in the exchange of knowledge and people. When we talk about people, from our perspective, then we automatically focus on researchers, who are a strategic category of workers, and whose mobility is a driver for scientific excellence.



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Nevertheless, as illustrated by the MORE4 survey, social security and its transferability can demotivate or complicate international research mobility. The panel session will focus on two types of social security gaps that occur because of mobility and affect mobile researchers the most: overarching gaps that can affect mobile researchers regardless of the kind of social security concerned and specific gaps to specific kinds of social security. This includes issues related to healthcare and incapacity for work, supplementary pensions and maternity and family benefits. Social security issues are often not on the radar of many young people as it is seen as something that comes later in life, and there are many other hurdles for them to tackle first. Furthermore, these issues are often perceived as too complex.

The panel session aims to raise awareness about the existing gaps in social security, provide practical tips on how to limit the risk to be affected, and provide policy recommendations for the future.

The panel will comprise a representative from a Dutch ERIC active in several EU countries, a representative of Eurodoc and an expert in social security matters. A young researcher will moderate the discussion.

## **P75 Engaging science: leveraging behavioural science to model and support researcher-legislator engagement**

*Speaker(s): Henriette Ruhrmann*

### **Description:**

#### **Background**

Emerging technologies are accelerating social change at a rapid pace – and technological innovation needs democratic direction. For democracies to re-visit societal values in light of perpetual social and technological transformation, science needs to be open and engage with legislators.

Therefore, researchers face new expectations to become effective interlocutors for parliamentarians as part of their academic role. This emerging norm of engaged research is particularly challenging for early-career researchers under pressure to publish and communicate their research successfully.

Research institutions, conversely, must create institutional structures to support their researchers in engaging with legislators and achieving policy impact as part of their mission.

**Knowledge Gap** The state of knowledge remains insufficient on what institutional support is effective and efficient in promoting researchers' policy engagement. This study aims to shed light on the intersection of three current academic blind spots around science advice for policy: (1) the researcher side and the specific context of legislatures on the policy side, (2) the topic of innovation and emerging technologies, and (3) the application of quantitative modelling in the context of science-policy engagement.

**Research Question:** This mixed-method study focuses on the question of how we can model and explain researcher-legislator engagement to inform research institutions' capacity building to promote their researchers' policy impact.

**Methods:** The interdisciplinary research design applies behavioural science theory to the field of legislative science advice to propose an

evidence-based approach to build capacity for researcher-legislator engagement. Situated in Germany, my empirical research

combines: (A) a qualitative interview study around the case study of facial recognition technology (~30 interviews with

researchers, legislators, and intermediaries), and (B) a two-fold theory-based quantitative survey (~1.000 researchers + ~150 legislators from federal, state, and local parliaments). The survey study

(B) leverages insights from the pilot study to apply behavioural science theory (the COM-B model) to quantitatively explain and model researcher-legislator engagement.

**Results:** The poster will present findings from both studies: Based on the interview study (A), I developed a Sankey diagram



aggregating researchers' core motivations for policy engagement, the support received from their organisations, and the type of interaction they engage in. The survey study (B, Spring 2022) will model and compare the relative effect sizes of capability, opportunity, and motivation in driving researcher legislator engagement.

**Implications:** Based on the behavioural model for researcher-legislator engagement developed in the pilot study (A) and the survey study (B), I plan to propose a prototypical modular blueprint for a policy impact unit for German research institutions; among the first of its kind in Germany. My blueprint would address alternative ways to (1) design the service portfolio, (2) embed the unit in the institutional architecture, (3) fund its activities, and (4) evaluate its impact.

## P76 Skills for resilient researchers

*Speaker(s): Julie Leprêtre*

### **Description:**

The Covid-19 outbreak has brought to light how crucial excellent research and innovation systems and scientific communities are in tackling major global challenges. The crisis has dramatically highlighted the need to provide researchers with the right skills and to facilitate their outreach and networking. Capacity to recover and to tackle current and future socio-economic challenges require building a critical mass of talents through strong international, inter-sectoral (notably between academia and business) and interdisciplinary mobility and collaboration.

The Marie Skłodowska-Curie Actions (MSCA), the EU flagship programme for researchers' mobility and training through the development of excellent doctoral programmes, collaborative research and fellowship schemes, contribute to excellent research by equipping researchers with the new knowledge, skills and international, interdisciplinary and inter-sectoral exposure to solve future societal challenges.

Together with other European programmes, the Marie Skłodowska-Curie Actions foster the skills of tomorrow.

This panel discussion will focus on how the delivery of highly skilled people to the society could be further improved. Both the opportunities the MSCA offer in doing research abroad and skills development for researchers will be discussed.

The Chair of the session will challenge the speakers and the audience with the following questions:

- o The Covid-19 crisis has prompted public and private organisations alike across the world to accelerate their digitalization. What has been the immediate impact on skills and knowledge areas?
- o Which complementary skills and practices should be mainstreamed to make the new generation of scientists more resilient for societal transitions and exceptional situations such as the Covid-19 outbreak?
- o Which new knowledge areas have emerged and will require critical investment in the coming years to ensure that our societies are better prepared to tackle global challenges?
- o Can resilience be taught, and how can it be included in researchers' training programmes?
- o How could the EU better support the smooth transition towards new competence schemes and new knowledge areas, within the framework of the renewed European Research area?

The speakers will engage with the participants by discussing questions on skills development, expectations, new orientations needed in terms of training.

## P77 Comparative analysis of career pathways and determinants of international mobility for Spanish researchers in and outside Spain.



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*Speaker(s): Thomas Zacharewicz*

**Description:**

This study aims to highlight the dynamics underlying Spanish researchers' migration patterns over the last decade. Building on data gathered through an international study (MORE 3, MORE 4) and a representative sample of Spanish researchers working in Spain, the analysis focuses on identifying perceptions of working conditions, career prospect and confidence in the national Research and Innovation (R&I) system by Spanish researchers in Spain and abroad. It provides a comparative assessment of Spanish researchers' satisfaction with regards to recruitment processes, career progression, satisfaction with remuneration and confidence in the overall national academic system, across different fields of study (health sciences, natural sciences and social sciences) and career stages (Ph.D student, Junior researcher, assistant professor, full professor). Results provide evidence of a low confidence of Spanish researchers regarding career prospect in their own country, of a lower satisfaction with remuneration, a worse perception of recruitment processes and a worse perception of merit-based career progression in Spain than abroad. These findings are interpreted as major determinants of the decision to emigrate and develop an academic career outside Spain. Implications for future science policy in Spain are discussed.



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## Space for Science

### **P78 G2net: Gravitational Waves, Geophysics, Machine Learning and Robotics, a perfect team.**

*Speaker(s): Isabel Cordero-Carrión*

#### **Description:**

The breakthrough discovery of gravitational waves on September 14, 2015, was made possible through synergy of techniques drawing from expertise in physics, mathematics, information science and computing. The community nurtured by the G2Net COST Action is exploring, building on past work, the tremendous opportunity of the systematic application of Machine Learning, AI and Robotics to Gravitational Wave detection and Geophysics.

Gravitational Wave detectors are complex instruments and their data reflect this complexity. In the Gravitational Wave Open Science Center ( <https://www.gw-openscience.org> ) the data along with documentation, tutorials, and online tools for finding and viewing data, can be found. One of the topics we want to address in this Action is to investigate Machine Learning techniques to classify Gravitational Wave signals, recognise noise and disturbances from the instrument, as well as to identify Gravitational Wave signals from known and yet unknown mechanisms. The use of classical Machine learning techniques, together with the development of new ideas and the use of GPU-based Machine Learning solutions, is used to characterize the specific data structures appearing in the Gravitational Wave signals.

The progress in AI, Machine Learning, Robotics and IoT enables a new era of intelligent semi-autonomous GW detectors and novel geophysics approaches based on Big Data. The performance of earth-based GW detectors is largely influenced by the ability of combating the low-frequency ambient seismic noise and other seismic influences. These tasks require multidisciplinary research in the fields of seismic sensing, signal processing, robotics, machine learning and mathematical modeling. One of the topics we want to address in this Action is the acquisition, processing and interpretation of seismic data, with the goal of combating the seismic influences at Gravitational Wave detector site, using the multidisciplinary research, with a focus on advanced techniques available from state of the art machine learning algorithms.

Gravitational Wave detectors, both those currently running and those foreseen to be spaceborne, are uniquely complex instruments with specific and new challenges in terms of control and noise issues. These challenges call for significant adaptation and ingenuity in the Machine Learning approaches, which are seldom used as textbook cases and are often coupled with simulations and burden with heavy experimental constraints. These developments need diverse expertise and interaction, which is the benefit of the G2net COST action. One of the topics we want to address in this Action is to develop Machine Learning algorithms as part of the detectors' feedback-control systems as well as for the feed-forward cancellation of noise.

In this conference session we want to discuss about these topics with a general audience and to motivate curiosity about present cutting-edge scientific and technological developments associated to the new channel to observe the universe, the Gravitational Waves.

### **P79 How will increased access to space and a new global in-space infrastructure support the pursuit of science?**

*Speaker(s): John Murray*

#### **Description:**

Recent advances in proliferation of investment in commercial use of space have resulted in a rapid shift in the major drivers of space activity. Space is rapidly shifting from the domain of countries and



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national space programs to one of commercial activity. Several billion dollars of investment in recent commercial space activity has resulted in a major shift to global coverage and constellations in low-Earth orbit to provide communications, imaging, radar, and weather observations from a global fabric of space infrastructure.

The implications for science are significant, as activities will no longer be as constrained by science review boards, government funding, or tedious contracting processes. Instead activity can be managed by small companies, capabilities can be in orbit in a matter of months, and multi-point measurements around the globe dreamed of in science for decades can be realized by constellations of satellites in just a few years. The developing infrastructure, which will number tens of thousands of satellite platforms in the next 5 years, will represent a major opportunity for science conducted from space, and how citizens engage and perceive the planet – from a global, system-level perspective, that may be available soon to any smart phone user.

Most of today's space funding is coming from investors and clients interested in the prospect of new data sources, timely and global coverage, and new ways of analyzing activity around the globe – be it weather, methane emission, traffic patterns, shipping logistics, or communications. Regardless, new low Earth orbit constellations will provide a new set of opportunities – for multi-point, global science, and new perspectives for the general public about the interconnectedness of the globe.

This panel will explore the implications of such a global fabric and persistent, multi-point global observations. We potentially face an opportunity, much like the internet provided with social media and constant access across the globe for rapid data dissemination and sharing of data on a global scale. But now the information sources will come from space and provide new perspectives not previously available to the general public. What new perspectives on the planet could this provide, not just to scientists, but to average citizens? And how might this connect with our focus on climate change, lunar interests, Mars, and beyond?

Session attendees will gain a new awareness of the dramatic changes in access to space and the opportunity for new activities in space. In a matter of a few years, we will see new modes of commercial and scientific pursuit – driven by pervasive platforms and measurement capabilities, novel algorithms and correlations, and global collaboration on an unprecedented scale.

## **P80 Universe inside – how computational astrophysics has changed traditional astronomy**

*Speaker(s): Angela Michel*

### **Description:**

Today, much of what we learn about the universe is the result of ever more powerful satellites and telescopes. Or isn't it? For many computational astrophysicists around the world the answer is definitely: no, there is more!

The field of computational astrophysics has emerged as a powerful new tool that increasingly rivals traditional research methodologies in astronomy. Helped by the exponential growth of the capabilities of modern supercomputers, numerical simulation methods are now routinely applied to study complex astrophysical problems that previously defied other ways of theoretical study. Such calculations can model even the whole universe, from the Big Bang to today. However, the special, demanding requirements of astrophysical systems require the invention of new, tailor-made numerical methods that bring their own complexity and challenges in terms of reliability and accuracy.

Examples of recent progress in this area include, for example, the cosmological Illustris and IllustrisTNG simulations. Carried out with a new type of moving-mesh code, called Arepo (developed by V. Springel), these calculations yielded the most successful and comprehensive studies of the formation of galaxies thus far. Likewise, the moving-mesh approach allowed important progress on long-standing problems in stellar astrophysics, such as simulating Type Ia supernovae, mergers of all sorts of stars or the production of magnetic fields during the collision of two stars.

The questions we will explore in this panel discussion are:

- What, if any, is the additional value of computational astrophysics?



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- And, on the flip side: What is the value of (traditional) observational astronomy alone? Can we understand observed phenomena without sophisticated and complex computational models?
- Can one make discoveries with simulations?
- Can computational astrophysics lead to new fundamental insights given that it is based exclusively on known physical principles?
- Computer simulations are just models of how we imagine the universe works with many (numerical) pitfalls. How can these be verified? Is there a danger of being misled?

## **P81 Regional Food at the Goethe Universität Frankfurt**

*Speaker(s): Dominiek Lootens*

### **Description:**

Due to climate change, the need to minimize the environmental damages caused by food production is inevitable. This can be achieved, inter alia, by consuming regional and organic produced food. As an individual, critically questioning one's personal consumerism and changing it towards an environmentally sustainable path is important. However, there is also the need for large-scale food production to become as sustainable as possible.

Therefore, the goal of our research was to find out if it would be possible to supply the cafeterias at Campus Riedberg of Goethe Universität Frankfurt exclusively with regional food. To reach our goal we conducted interviews with representatives of various institutions, including the General Student Committee (AStA) at Goethe University, the Frankfurt am Main student union, the Frankfurt Nutrition Council, and a regional food distributor. In addition, a survey among the students and employees of the Riedberg campus served to assess the acceptance of a cafeteria supplied by regional food and to determine their eating habits.

The cafeterias are operated by the student administration in Frankfurt, which is why the people in charge had to be convinced of the advantages of a regional food supply. First, interviews were conducted with the citizen food council of Frankfurt as well as an unpacked food store about regional food supply and supply chains. Furthermore, a very successful survey with about 300 participants, which corresponds to around 10% of those contacted, was conducted to determine whether regional food would be important to students and staff of the campus. The survey found that 74% of respondents would be willing to pay more for a lunch made with locally sourced ingredients. 44% of respondents would pay between €1 and €1.50 more, 19% between €1.50 and €2, 17% less than €1 and 9% more than €2. The remaining participants would not be willing to spend more money. In addition, it can also be observed that more than half of the respondents (54%) are on a vegetarian or vegan diet. Due to this fact, one could prioritize a switch to locally produced plant products and locally produced animal products, such as eggs or milk. The project has since been turned over to the students' union, which continues to work to come to an agreement with the student administration on a regional supply.

## **ESOF2022 Regional Site Katowice Posters**

**\*below list are selected posters displayed on the conference platform. All posters (including the ones listed below) were presented onsite in Katowice**

### **P86 Comparison of the toxicity of forest and agri-food biomass ashes**

*Speaker(s): Joanna Adamczyk*

### **P87 Relationships of selected tests for the assessment of special fitness off-ice with tests on ice of the elite players of the Polish ice hockey league.**

*Speaker(s): Jakub Baron*

### **P89 Surgery training system supported by organic materials.**

*Speaker(s): Magdalena Błaszczuk*

### **P90 Influence of thermally treated meat consumption for the occurrence of cancer in the oral cavity. Simple and natural ways to reduce the formation of muta- and carcinogenic pahs in meat.**

*Speaker(s): Sylwia Bulanda*

### **P91 Mental disorders in a criminal trial**

*Speaker(s): Marcin Burdzik*

### **P92 Waste management as the determinant of the european green deal implementation**

*Speaker(s): Wojciech Derej*

### **P93 The difficult art of implementation. A short guide for hitchhikers on the science-industry route.**

*Speaker(s): Tomasz Flak*

### **P94 Thermal structure of Hansbreen, Spitsbergen, on the basis of repeated radio-echo soundings (machine learning approach)**

*Speaker(s): Kamil Kachniarz*



**P95 Spatial structure of the Surface Urban Heat Island and Surface Cold Island in summer based on Landsat 8 imagery in the Górnośląsko – Zagłębiowska Metropolis**

*Speaker(s): Aleksandra Renc*

**P96 Dielectric films produced via sol-gel method and dip-coating technique for optoelectronics**

*Speaker(s): Magdalena Zięba*



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# ESOF 2022 LEIDEN 13-16 EUROSCIENCE OPEN FORUM JULY

CROSSING BORDERS, ENGAGED SCIENCE, RESILIENT SOCIETIES



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ESOF 2022  
EUROSCIENCE OPEN FORUM  
KATOWICE 15 JULY  
REGIONAL SITE  
CROSSING BORDERS, ENGAGED SCIENCE, RESILIENT SOCIETIES

## Participant survey results – Factsheet

21 October 2022



# INTRODUCTION

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## ABOUT THIS DOCUMENT

- This factsheet report presents findings from EuroScience Open Forum (ESOF) 2022 participant feedback data. The document is intended for ESOF organisers and stakeholders to understand the participant experience, collect input for future editions, and gain insight about event outcomes and impact.

## ABOUT THIS RESEARCH

- ESOF 2022 took place between July 13 – 16, 2022. Registrants could choose between an online only event or a onsite/online experience, with attendees joining activities in person in Leiden, the Netherlands, as well as online.
- Participant feedback was collected in July and August 2022 via an online survey. As of 25 August 2022, 197 surveys had been completed; a representative sample of the audience.
- This factsheet highlights key takeaways from the data and themes from the verbatim feedback. Full survey results are available in a separate document. The number of respondents may vary by question. It is only noted ( $n = XX$ ) where there were significantly fewer responses than the overall group of 197 respondents.

### Contents

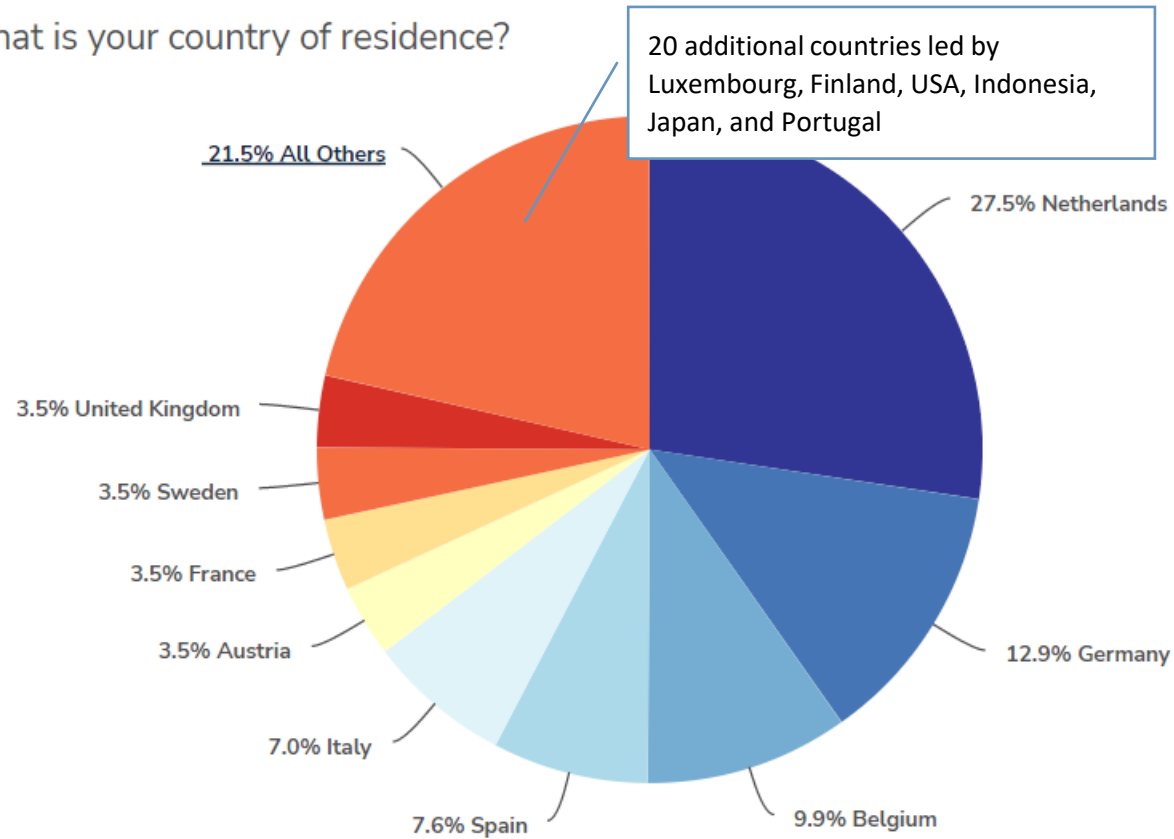
Introduction	(2)
Audience and attendance	(3)
Satisfaction and takeaways	(7)
Segment: General attendees	(14)
Event technology	(19)
Comms and operations	(24)
Appendix	(29)

# Audience and attendance

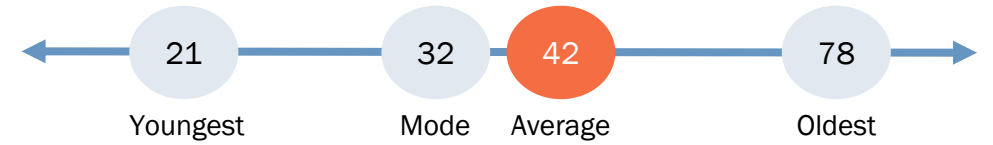
Who attended, and how?

# AUDIENCE DEMOGRAPHICS

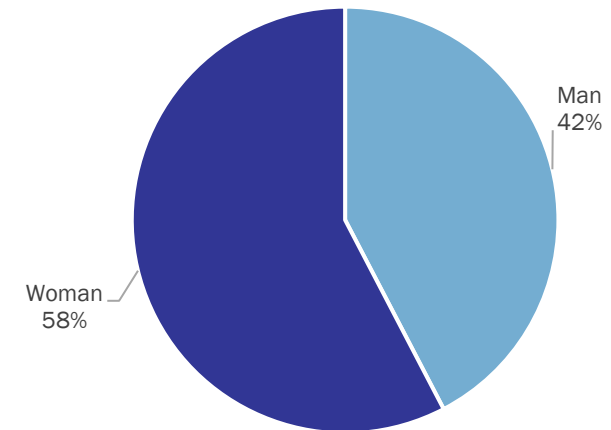
What is your country of residence?



How old are you?

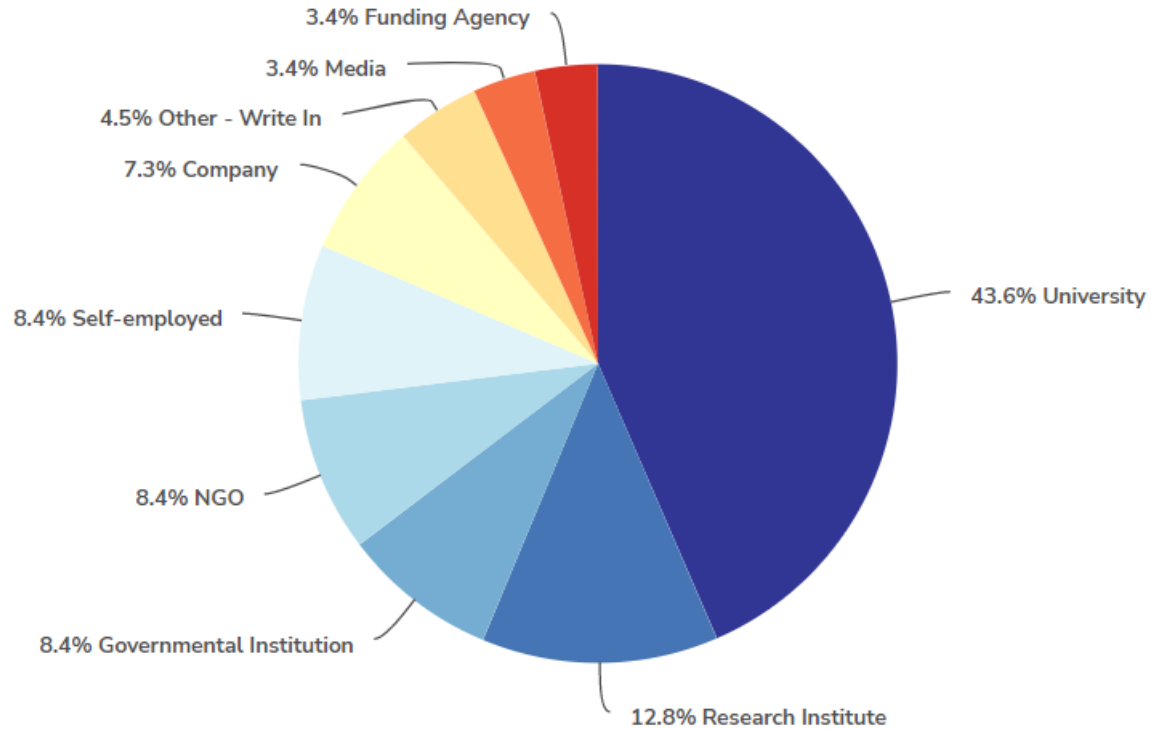


With what gender do you most identify?

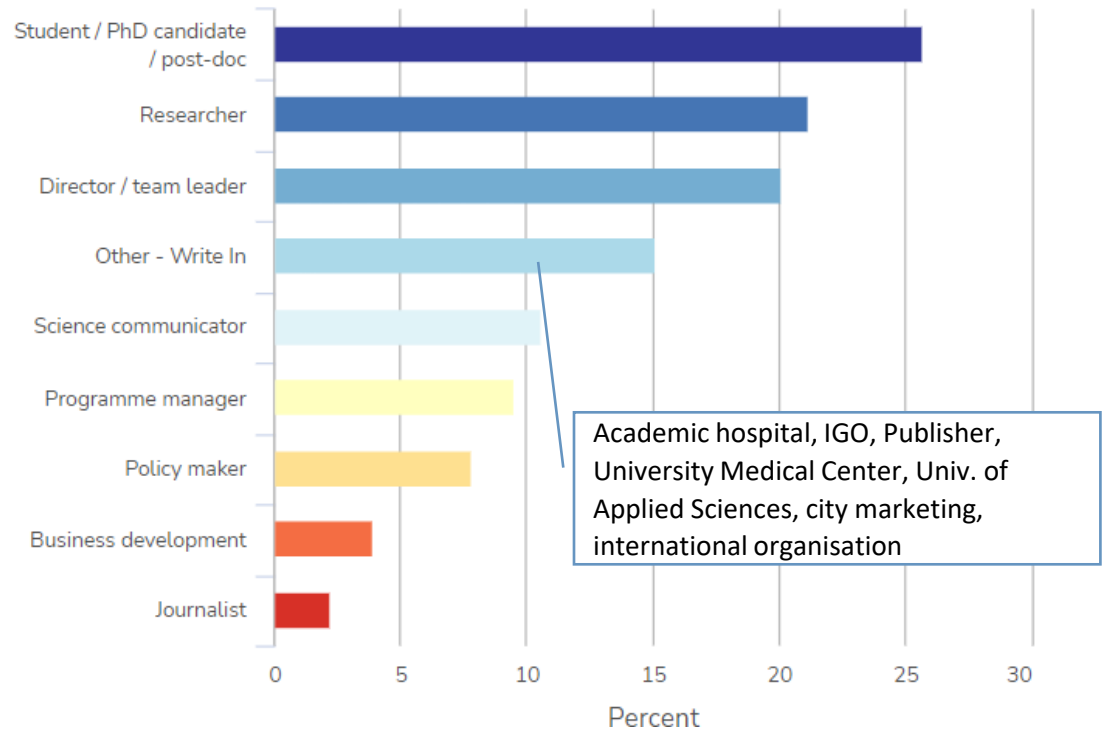


# AUDIENCE DEMOGRAPHICS

What best describes your workplace?



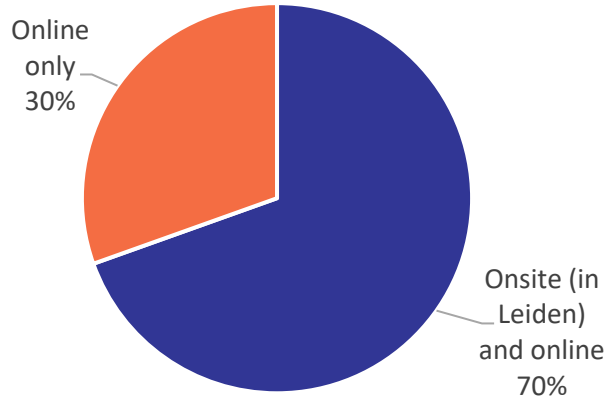
What is your current position?



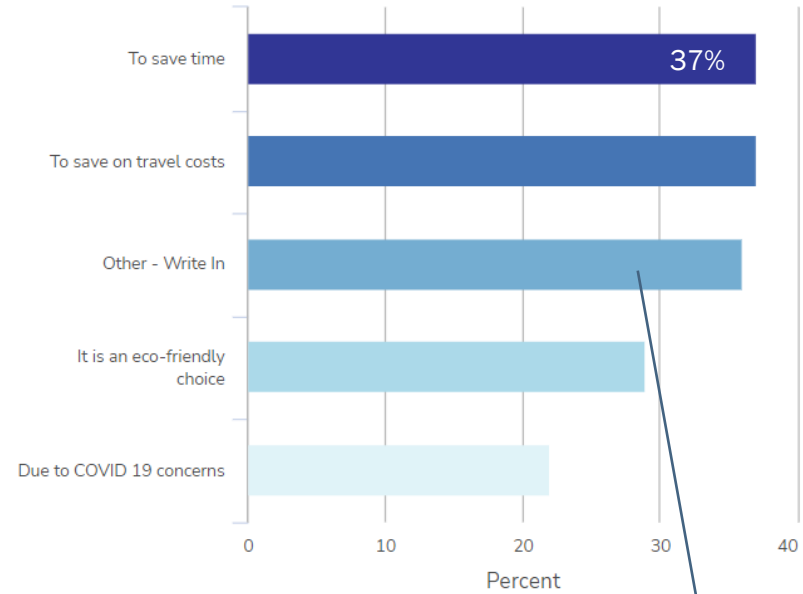


# ATTENDANCE TYPE

What type of registration did you have?

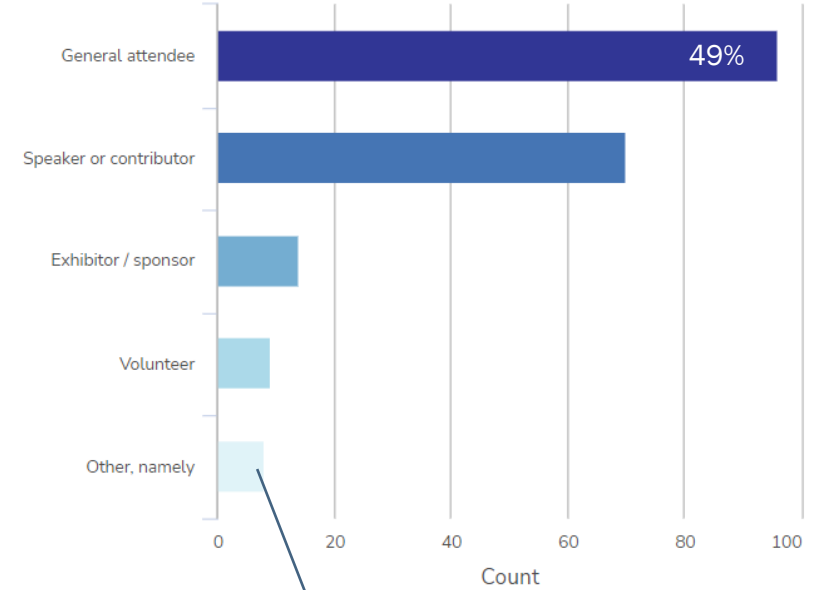


Why did you choose to participate online?



“My session was online only, so why bother?” (17%), Personal reasons (13%), TalentOn Applicant (5%)

What was your primary role during your participation at ESOF?



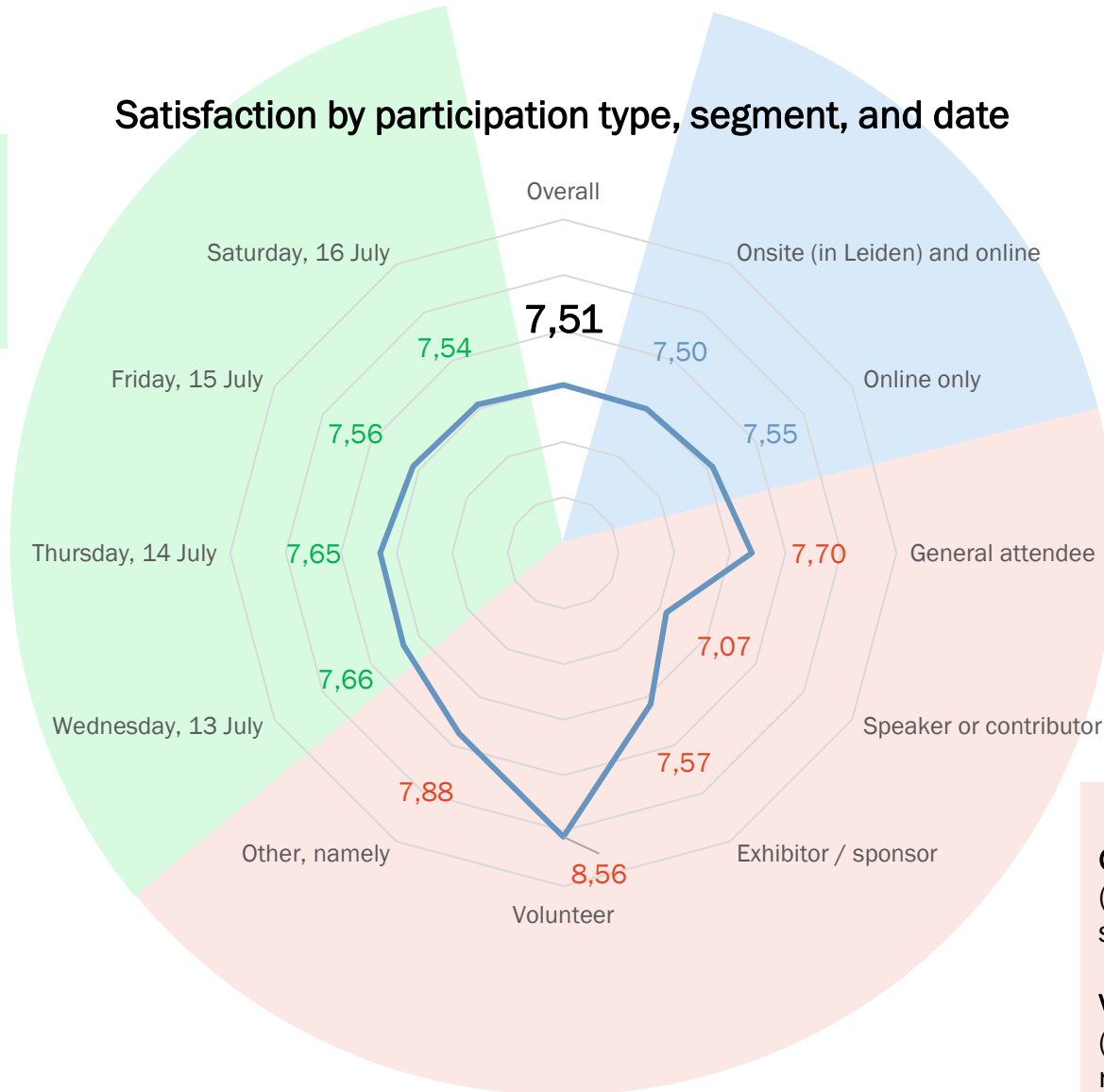
Press (5%), board member, satellite event organiser...

# Satisfaction & takeaways

What results and perceptions did participants takeaway from ESOF? What audiences are advocates for ESOF?

# SATISFACTION OVERALL WAS 7.5/10

## Satisfaction by participation type, segment, and date



### By date

The first two days of the event drove slightly higher than average satisfaction though all days hovered near the average

### By registration type

Overall satisfaction was nearly equal between **online only** attendees and **hybrid participants**

### By participant segment

**General attendees** reported above average satisfaction (7,7) while **speakers or contributors** reported the lowest satisfaction level (7,07).

**Volunteers** and **“Other”** reported very high satisfaction (8,56 and 7,88, respectively); because the n for these respondents was low ( $n = <10$ ) it is not representative.

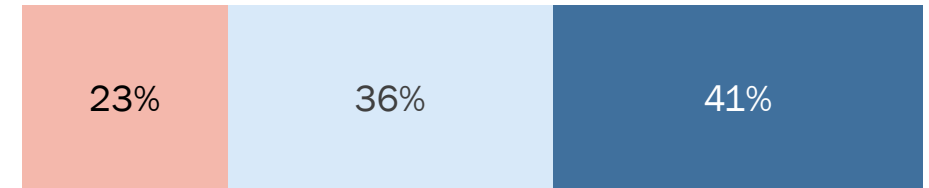
# SATISFACTION – NET PROMOTER SCORE

*Net Promoter Score (NPS) is a formula based on percentage of customers rating their likelihood to recommend a company, a product, or a service to a friend or colleague. It is often used as an indicator for growth, customer engagement, and loyalty. NPS scoring ranges from a low of -100 to a high of 100. Generally speaking, a result of 30 or above is a quite positive result.*

- NPS for ESOF was 18 overall.
- **Speakers were less likely** than the participant average to be ESOF advocates (10 vs 18 overall), while **general attendees were slightly more likely** (22 vs 18 overall).
- Attendees working in a **university were significantly less likely** to be advocates (3 vs 18), while those from **Research Institutes were much more likely** (30 vs 18).
- **Students, PhDs, post-docs are slightly more likely** to be advocates for ESOF (22 vs 18 overall), while those identifying as **researchers and directors were much less likely** than average (3 and 6, respectively, vs 18 overall)

Net Promoter Score  
How likely are you to promote ESOF to your network?

18



*41% of participants responded with a 9 or 10; these are your “promoters”. 23% of participants responded with a 1 – 6; these are your “detractors.”*

# VERBATIM: OVERALL EVENT

1. Participants expressed general appreciation for ESOF 2022

*Thank you for a lovely ESOF2022.*

*I loved the 2022 edition to be honest, I only hope I will be able to go on 2024 :)*

*It has been a fantastic experience in all parts.*

2. The online only sessions created frustration for many presenters and in-person attendees

*NO PURELY VIRTUAL SESSIONS PLEASE! It was as if there were two separate conferences going on. I found it laughable and a missed opportunity to have virtual sessions with most of the speakers being physically present in Leiden*

*Online sessions had small audiences and zero impact. They were a waste of presenters' time.*

3. Having multiple sites for the event was a dissatisfier

*Have all the sessions, posters, networking in just one venue. The use of three different venues in this ESOF dispersed participants.*

4. Attendees missed (the right) networking opportunities

*more interactive rounds like speed dating of participants or cafe round for science communicators*

*better networking opportunities, especially full-text searching for attendees descriptions (badges). I would have loved to connect to other science communicators by searching for "science communication" in the descriptions.*

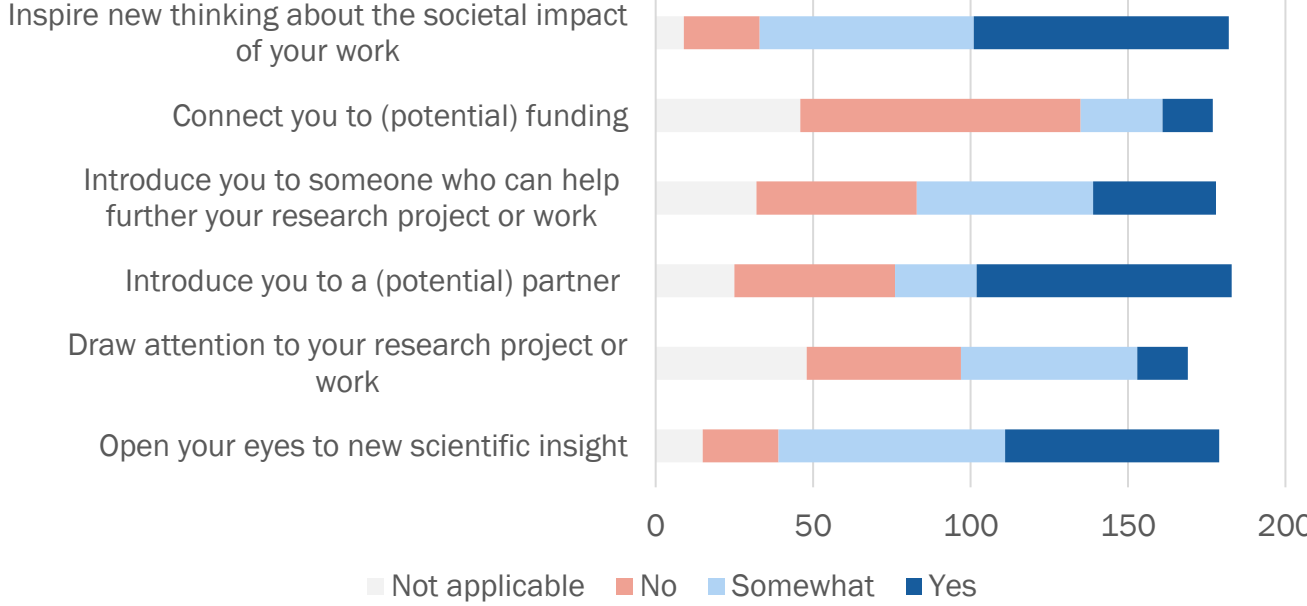


# SATISFACTION: ACTIVITIES AND RESULTS

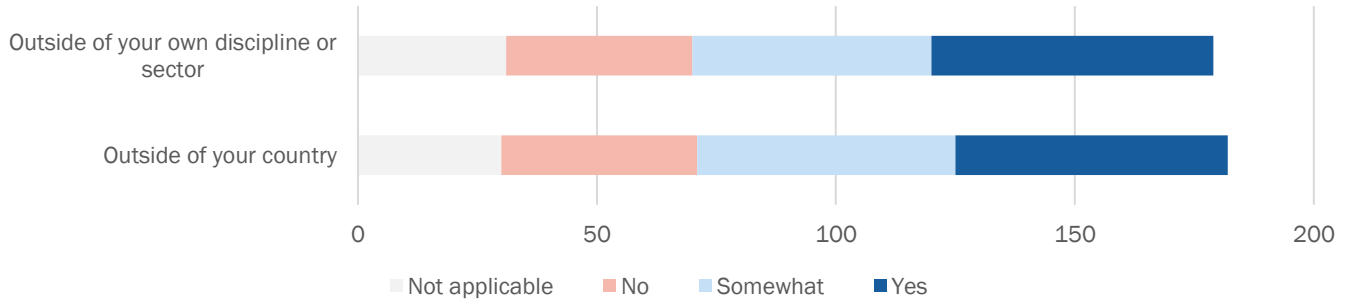
How would you rate the overall content quality with regards to

	Not applicable	Very poor	Poor	Fair	Good	Excellent
Scientific sessions						
Count	16	5	9	29	77	45
Row %	8.8%	2.8%	5.0%	16.0%	42.5%	24.9%
Posters						
Count	68	2	9	34	48	22
Row %	37.2%	1.1%	4.9%	18.6%	26.2%	12.0%
Exhibition						
Count	61	2	8	40	51	19
Row %	33.7%	1.1%	4.4%	22.1%	28.2%	10.5%
Networking						
Count	36	8	15	31	56	36
Row %	19.8%	4.4%	8.2%	17.0%	30.8%	19.8%

Did your attendance:



Did your attendance at ESOF strengthen your scientific network:



# VERBATIM: SCIENTIFIC CONTENT AND DELIVERY

1. Speakers, moderators, and panelists need more information about their audience and help presenting their content engagingly

*Too often sessions are led by scientists who have no clue about how to prepare a good session, how to present a session, how to prepare the speakers, what questions to ask, and how to communicate with the public.*

2. Interactive elements were appreciated (Slido) but the speakers weren't equipped to use it effectively

*The session on contested heritage stood out in two regards. First, the content was outstanding in its relevance. ...Sadly it also stood out for the complete insufficiency of organisation of the panel. The keynote was far too long and laborious, the great panel speakers had to cut short their insightful presentations and there was no room for discussion with the audience..*

3. Overlapping sessions caused disappointment

*the technical stuff was ok, but you need to put people animating the online participation*

*The moderators did not really read the questions on the app, so it was disappointing for those who asked questions*

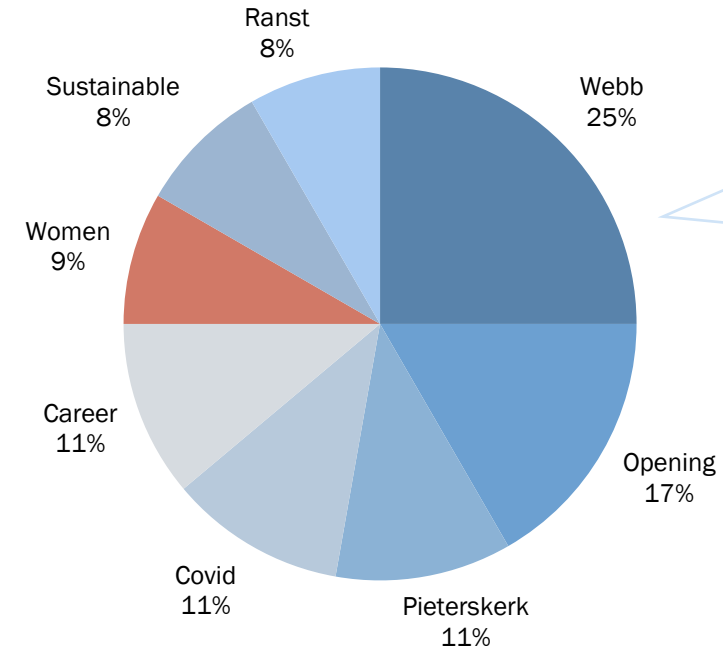
*Avoid planning sessions that may interest similar audiences at the same time (happened a lot here, even from same track).*

*...it was too scattered, which is a shame because of how well all the themes connect. With fewer sessions at the same time, I think people would be able to draw more connections and find more common ground.*

# VERBATIM: MEMORABLE SESSIONS

1. In addition to the value of content, smart use of interactivity and prepared presenters were main satisfaction influencers

Verbatim feedback: most cited sessions



*James Webb Space Telescope talk (not only pictures but chemical compositions)*

*Quantum Revolution Insightful and understandable presentations Good Q&A session, led by a moderator who clearly knows about communication*

*Sustainable Forestry and Bioenergy? A Fishbowl Debate The fishbowl style was dynamic*

*Session on Rights retention strategy due to an interactive element ( a quiz)*

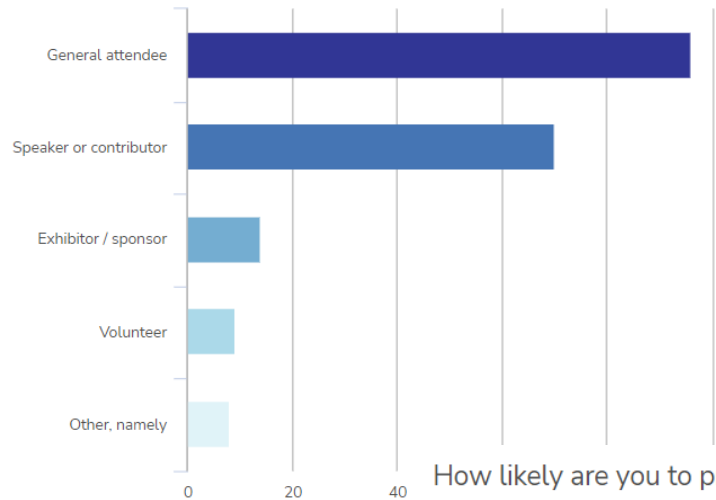
*I liked the workshops (especially the one on science communication) because of the interaction. It was nice to know what kind of people were in the audience.*

# General attendees

How did the largest audience segment and primary ESOF audience of *general attendees* experience the event?

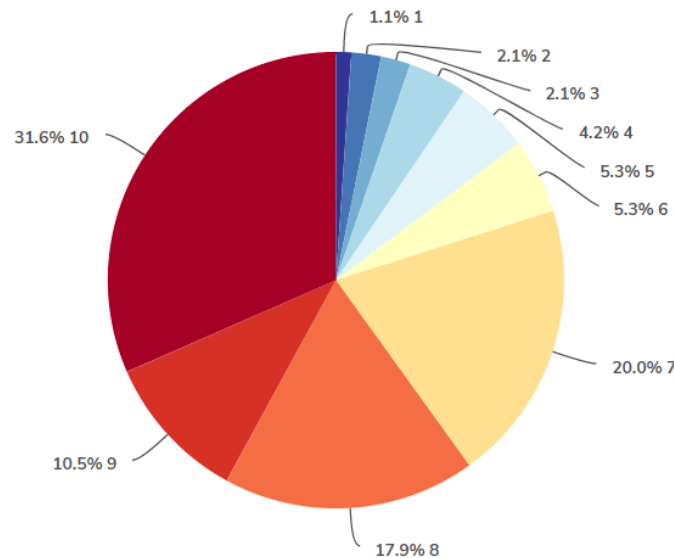
# GENERAL ATTENDEES: SATISFACTION

What was your primary role during your participation at ESOF?



- 49% of survey respondents were “general attendees.” In this section we look at satisfaction and takeaways from this group alone.
- 77% of general attendees were also first time attendees.
- Average satisfaction for general attendees was 7,7 / 10.
- Net Promoter Score for general attendees was 22, compared to an average for all audience segments of 18.

How likely are you to promote ESOF to your network?



Net Promoter Score

How likely are you to promote ESOF to your network?

22

42% of participants responded with a 9 or 10; these are your “promoters”. 20% of participants responded with a 1 – 6; these are your “detractors.” The difference is your Net Promoter Score (NPS). NPS can be used as an indicator for growth, customer engagement, and loyalty. NPS scores range from a low of -100 to a high of 100.



# GENERAL ATTENDEES: CONTENT

How would you rate the overall content quality with regards to

	Not applicable	Very poor	Poor	Fair	Good	Excellent
Scientific sessions Count Row %	3 3.1%	2 2.1%	4 4.2%	15 15.6%	48 50.0%	24 25.0%
Posters Count Row %	30 31.3%	1 1.0%	4 4.2%	15 15.6%	36 37.5%	10 10.4%
Exhibition Count Row %	27 28.1%	1 1.0%	2 2.1%	20 20.8%	35 36.5%	11 11.5%
Networking Count Row %	17 17.7%	2 2.1%	12 12.5%	19 19.8%	30 31.3%	16 16.7%

- General attendees showed up for the scientific sessions
  - only 3% responded “not applicable” compared to the other offerings such as Posters (31% not applicable), Exhibition (28% not applicable) and networking (18% not applicable)
- General attendees were satisfied with the overall content quality for this (most valued) element of the program: 72% rated the quality of content for scientific sessions as “Good” or “Excellent.”
- The General Attendees who did participate in Posters, Exhibition, or Networking activities shared more mixed reviews; for each, 46% rated the offerings “Good” or “Excellent,” with between 16-21% rating the activities “Fair.”

# GENERAL ATTENDEES: TAKEAWAYS

To what extent did your participation:

	Not Applicable	No	Somewhat	Yes
Open your eyes to new scientific insight				
Count	5	7	36	46
Row %	5.3%	7.4%	38.3%	48.9%
Draw attention to your research project or work				
Count	24	21	28	22
Row %	25.3%	22.1%	29.5%	23.2%
Introduce you to a (potential) partner				
Count	13	32	35	13
Row %	14.0%	34.4%	37.6%	14.0%
Introduce you to someone who can help further your research project or work				
Count	15	34	30	15
Row %	16.0%	36.2%	31.9%	16.0%
Connect you to (potential) funding				
Count	19	52	16	6
Row %	20.4%	55.9%	17.2%	6.5%
Inspire new thinking about the societal impact of your work				
Count	1	11	35	49
Row %	1.0%	11.5%	36.5%	51.0%

- General attendees were most confident about their outcomes in the areas of “New scientific insight” and “Thinking about the social impact of your work,” with 87% and 84%, respectively, reporting “Somewhat” or “yes” for those outcomes.
- Indicators around networking were more divided. For example:
  - “Introduce you to a partner” = 34% No
  - “introduce you to someone...” = 36% No
  - “Strengthen your network outside of your country or outside of your discipline” with a fairly even distribution of outcomes

Did your attendance at ESOF strengthen your scientific network:

	Not Applicable	No	Somewhat	Yes
Outside of your country				
Count	17	25	32	22
Row %	17.7%	26.0%	33.3%	22.9%
Outside of your own discipline or sector				
Count	16	21	29	28
Row %	17.0%	22.3%	30.9%	29.8%

# GENERAL ATTENDEES: TECHNOLOGY

How would you rate the functionality of the Conference Virtual (online) Platform with regards to

	Not applicable	Very poor	Poor	Fair	Good	Excellent
Overall ease of use Count	21	3	4	13	28	22
Delivery of scientific sessions Count	33	3	2	11	23	20
E-poster presentations Count	56	2	0	8	19	6
Virtual exhibition Count	60	1	1	9	15	5
On-demand cinema Count	56	1	1	8	20	6
Networking area online Count	61	3	5	9	12	3
Attendee list Count	41	2	4	16	20	8
Talk Show Count	50	2	1	9	21	10
Photo Booth Count	56	1	4	7	13	9

- General attendees were positive about the “Overall ease of use” and “delivery of scientific sessions” (their primary activity at the event), with 55% and 47%, respectively, responding with ratings of “Good” and “Excellent.”

	Good	Excellent
Overall ease of use	28 30.8%	22 24.2%
Delivery of scientific sessions	23 25.0%	20 21.7%

- Between 41 (45%) and 61 (66%) of the 96 General attendee respondents did not make use of the virtual platform’s other offerings.

# Technology

Experiences with the virtual platform and app

# TECHNOLOGY: THE VIRTUAL PLATFORM

(All) How would you rate the functionality of the Conference Virtual (online) Platform with regards to

	Not applicable	Very poor	Poor	Fair	Good	Excellent
E-poster presentations						
Count	114	5	2	14	28	11
Row %	65.5%	2.9%	1.1%	8.0%	16.1%	6.3%
Virtual exhibition						
Count	117	4	2	16	26	9
Row %	67.2%	2.3%	1.1%	9.2%	14.9%	5.2%
On-demand cinema						
Count	120	6	1	10	30	8
Row %	68.6%	3.4%	0.6%	5.7%	17.1%	4.6%
Networking area online						
Count	120	9	9	9	21	6
Row %	69.0%	5.2%	5.2%	5.2%	12.1%	3.4%
Attendee list						
Count	84	7	11	21	37	14
Row %	48.3%	4.0%	6.3%	12.1%	21.3%	8.0%
Talk Show						
Count	102	4	4	12	35	18
Row %	58.3%	2.3%	2.3%	6.9%	20.0%	10.3%
Photo Booth						
Count	121	3	6	9	18	15
Row %	70.3%	1.7%	3.5%	5.2%	10.5%	8.7%

Participants who made use of all the functionality within the online platform were generally positive.

However, the majority of participants did not make use of the offerings. 70% of attendees did not make use of the Photo Booth, online networking (69%), on-demand cinema (69%), virtual exhibition (67%), or e-Poster presentations (66%).



# TECHNOLOGY: THE VIRTUAL PLATFORM

Hybrid vs. online only: How would you rate the functionality of the Conference Virtual (online) Platform with regards to

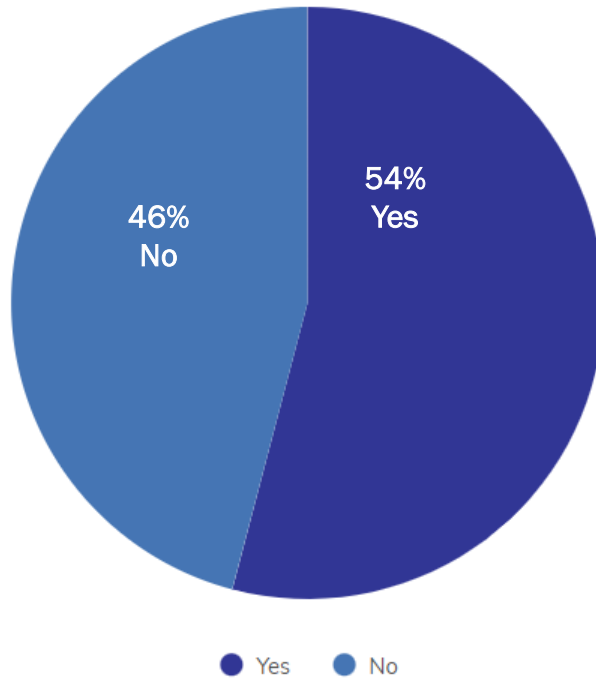
		Not applicable	Very poor	Poor	Fair	Good	Excellent
Hybrid	Overall ease of use						
	Count	44	4	7	22	25	14
	Row %	37.9%	3.4%	6.0%	19.0%	21.6%	12.1%
	Delivery of scientific sessions						
	Count	58	3	3	14	24	14
	Row %	50.0%	2.6%	2.6%	12.1%	20.7%	12.1%
Online only	Overall ease of use						
	Count	1	3	2	13	18	21
	Row %	1.7%	5.2%	3.4%	22.4%	31.0%	36.2%
	Delivery of scientific sessions						
	Count	6	1	3	12	19	19
	Row %	10.0%	1.7%	5.0%	20.0%	31.7%	31.7%

Half of the **hybrid participants** used the virtual platform for scientific sessions

The **online only participants** were more enthusiastic about the platform than the hybrid group (36% excellent ease of use vs. 12% for hybrid participants and 32% excellent delivery vs. 12% for hybrid).

# TECHNOLOGY: THE APP

Did you use the ESOF conference app?



What did you think of the conference app's functionality?

	Not applicable	Very poor	Poor	Fair	Good	Excellent
Intuitive to use						
Count	2	3	13	30	29	20
Row %	2.1%	3.1%	13.4%	30.9%	29.9%	20.6%
Programme guide						
Count	2	6	18	21	32	17
Row %	2.1%	6.3%	18.8%	21.9%	33.3%	17.7%
Getting around Leiden / Wayfinding						
Count	35	2	5	16	23	12
Row %	37.6%	2.2%	5.4%	17.2%	24.7%	12.9%
Interactivity during sessions						
Count	24	4	9	24	20	15
Row %	25.0%	4.2%	9.4%	25.0%	20.8%	15.6%

# VERBATIM: TECHNOLOGY

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1. Along with appreciation, participants expressed frustration with some design choices.

*Great, very intuitive design of the online platform!*

*Very good quality!*

*I appreciate the effort and sorry to say it, but the access to any sessions is "hidden" (a user have to go through 5-6 different "layer" in order to access)*

*It was not convenient that in Android apps, when you click on Back, it exits the app.*

*The virtual platform was totally overburdened with stuff which made it very difficult to navigate. I disliked all the pop-up windows*

*It was sad that we were kicked out of a session directly when the scheduled time was over. Sometimes, discussions and Q&A sessions were still on-going, and we couldn't follow the final / closing part*

And many ideas to consider for the future:

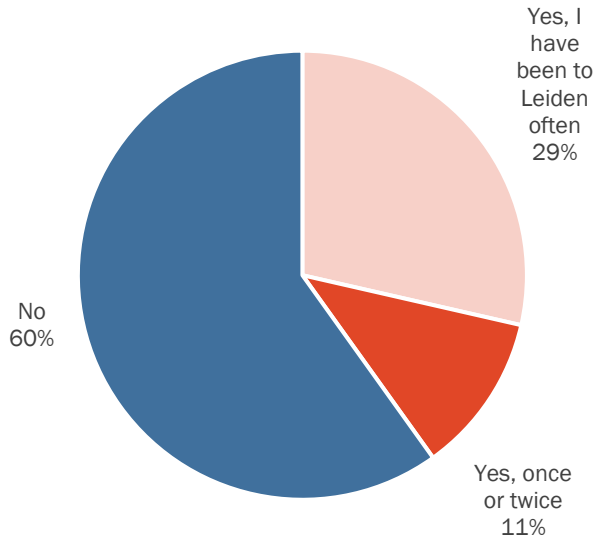
- visibility to the number of virtual attendees in a session (“IT felt like I was communicating in to a void”)
- It would've been very handy if I would've been able to transfer my favourites for example into my Google /Apple calendar.
- The conference app was updated frequently...perhaps it could be more obvious if timings have been changed?
- Option to save the workshops and then show your personal day schedule.
- I missed a big fat "HELP" button.

# Communications & operations

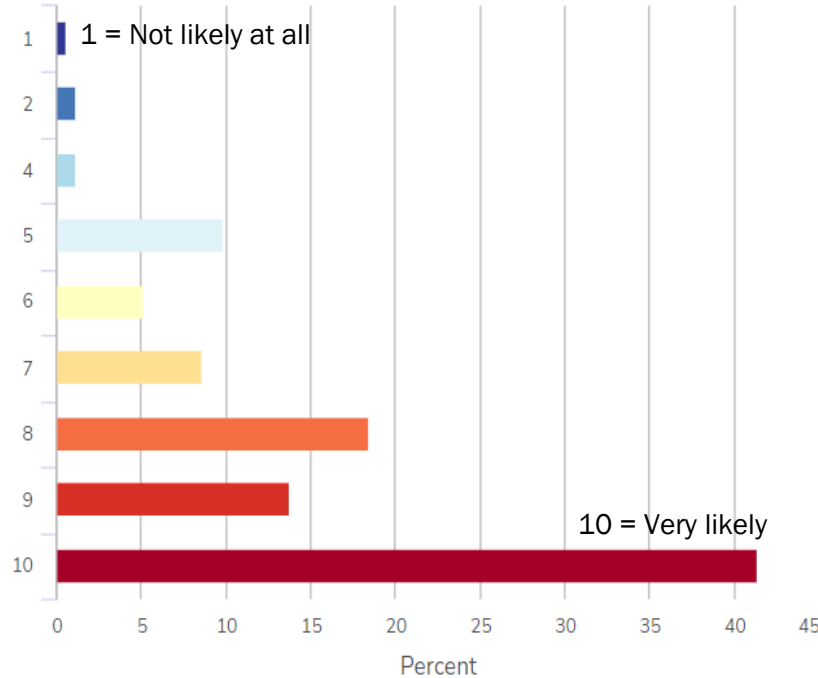
Host city Leiden, ESOF awareness

# LEIDEN WAS A NEW AND POSITIVE EXPERIENCE

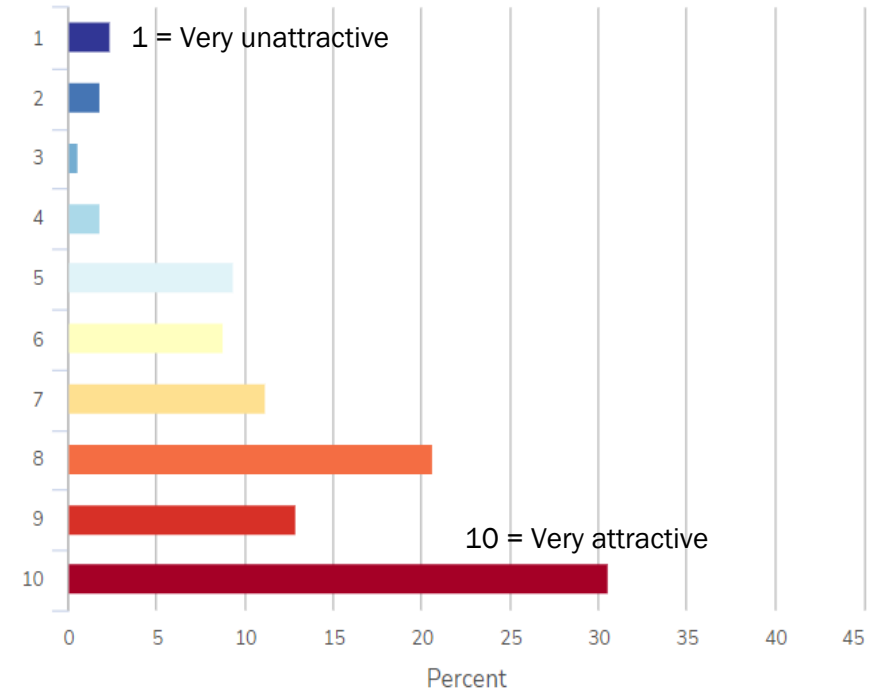
Had you ever visited Leiden before ESOF 2022?



How likely are you to recommend Leiden to your friends, family, or colleagues as a destination?



How attractive do you personally find Leiden for future scientific work or study?



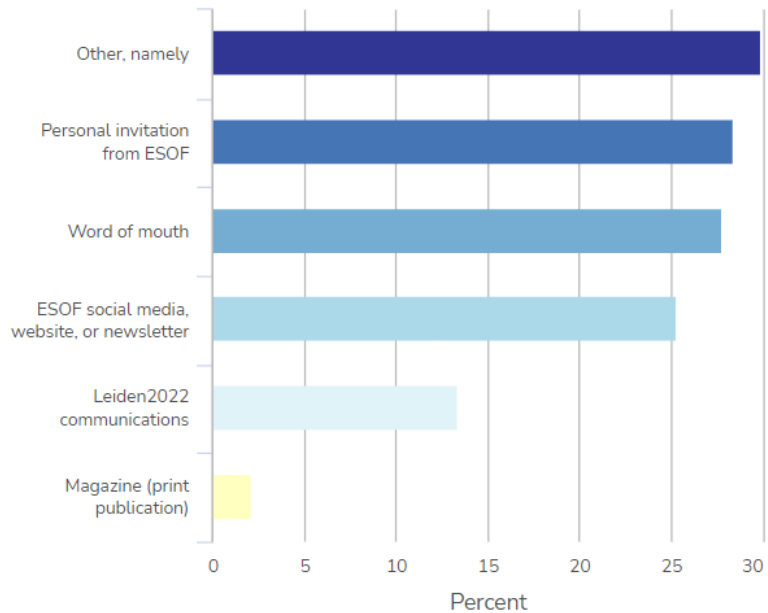
**Net Promoter Score**  
How likely are you to recommend Leiden?

37

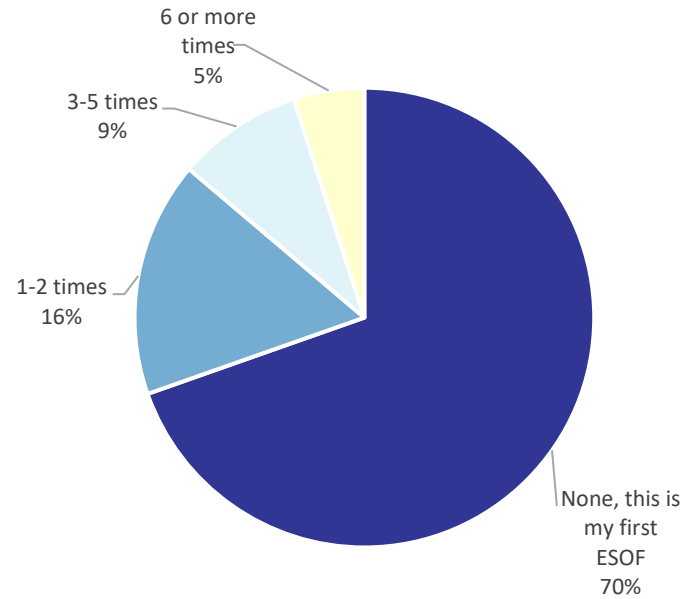


# AWARENESS AND CROSSOVER EVENTS

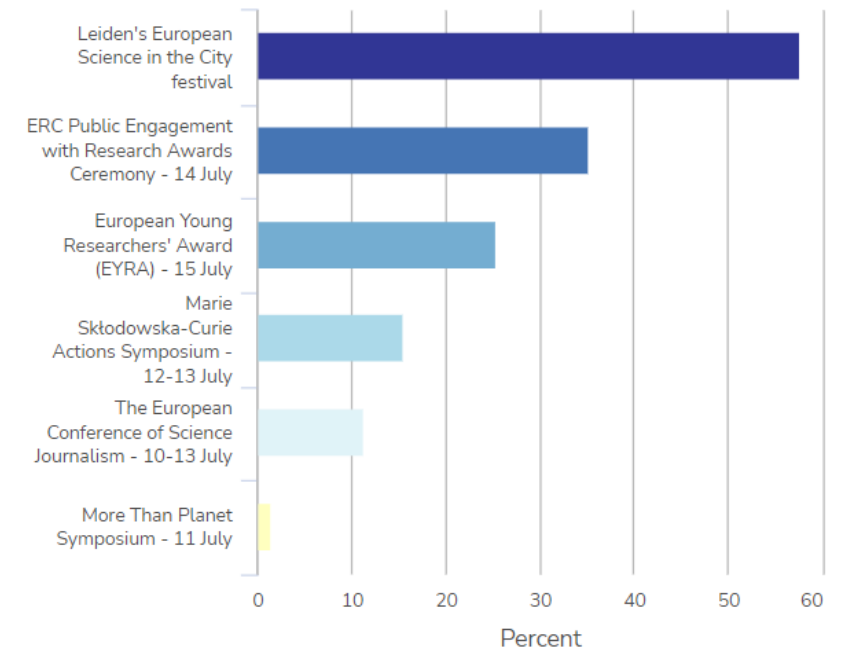
How did you hear about ESOF?



How many ESOF editions had you attended before?



Did you attend any satellite / related events?



# VERBATIM: COMMUNICATIONS AND OPERATIONS

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1. There was an opportunity to support networking with the food and drink offering

*...for stimulating networking would be to offer coffee or tea in certain areas. I went to the conference alone and did not get the feeling people were automatically put together to mingle in between or just before sessions. Also ...people were leaving the main networking ...event on Friday to go out for diner since there wasn't any proper dinner food, only bites (sorry to say). So I would ...ask not to underestimate the social function of food and drink.*

2. Missing the online only sessions in the program was dissappointing.

*The online sessions should be added to the programme because many onsite participants were still attending those. It would have been easier to have all the sessions in the app.*

*networking between sessions could be encouraged more usefully by designating free tea/coffee areas during the breaks - this tends to encourage informal mingling*

3. Participants expressed disappointment with specific elements of the event organisation

*Ensure the program is correctly displayed online and in the app.*

*Organize all about 1 year in advance, treat professionals professionally.*

**C I G A R B O X**

The logo consists of the letters 'C I G A R B O X' in a bold, black, sans-serif font. Each letter is filled with a white icon: 'C' contains a gauge with a needle; 'I' is a vertical ruler; 'G' is a gear; 'A' is a pair of compasses; 'R' is a lightbulb; 'B' is a bar chart with four bars of increasing height; 'O' is a circular arrow; and 'X' is a hammer and an arrow pointing upwards and to the right.

# APPENDICES

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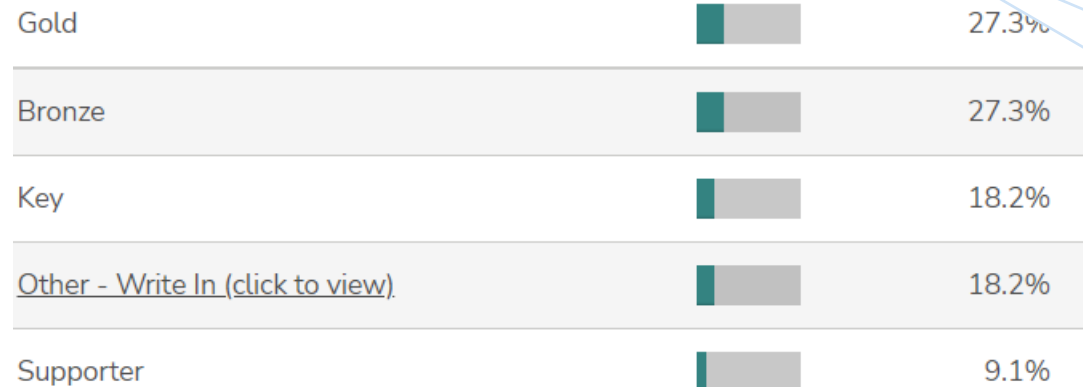
- Exhibitor and sponsor results
- Full survey results (separate document)

# SPONSORSHIP (n = 11)

The 11 responses from sponsors and exhibitors are not enough to draw reliable conclusions. See full data responses for all feedback.

Overall satisfaction for sponsors was 6,55 / 10.

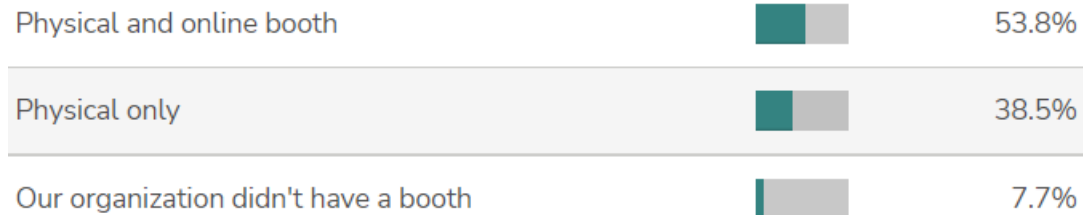
What sponsorship package did you have?



*Organize the exhibition and the speeches/sponsored sessions on the same location or divide them equally to have more attendees visiting the exhibition space*

*the exhibition hall was almost empty- nothing like Toulouse, Manchester or Turin in past years. Attitude of organisers on the ground not too helpful. Either*

What type of booth did you have?



*The physical booth was more important to us, we wanted to network with the participants onsite. The online booth was part of...our package and we thought it was a useful edition.*



# VOLUNTEERS ( $n = 9$ )

The 9 responses from volunteers are not enough to draw reliable conclusions. See full data responses for all feedback.

Average satisfaction of volunteers was 8,36 / 10.

- All but one of the respondents was Dutch.
- All were first-time attendees.
- Four respondents come from a university setting and/or a post-doc, PhD role; three are self-employed.

*advertising paper can be available As Small but more content and useful For example, including all the countries where Jansen operates, or if the number of advertising brochures is more, other creative advertising ideas are used.*

*To be honest it was really well organized, every corner there was a volunteer ready and eager to help. Sometimes it was overkill because the work that I had to do as a volunteer sometimes felt superfluous, simply because there were many signs showing the way but the attendees felt very comfortable having a chat so in any case they felt taken cared of and that's what matters.*

*Keep it hybride so many people from all over the world, not only Europe, can attend the conference. Keep the food vegetarian and the conference as paperless as much as possible and make also sure the venues are at walking or biking distance from eachother to keep it as sustainable as possible. Also the possibility for society in general to visit, like was possible in Leiden, is something I would recommand for ESOF2024 In Poland.*