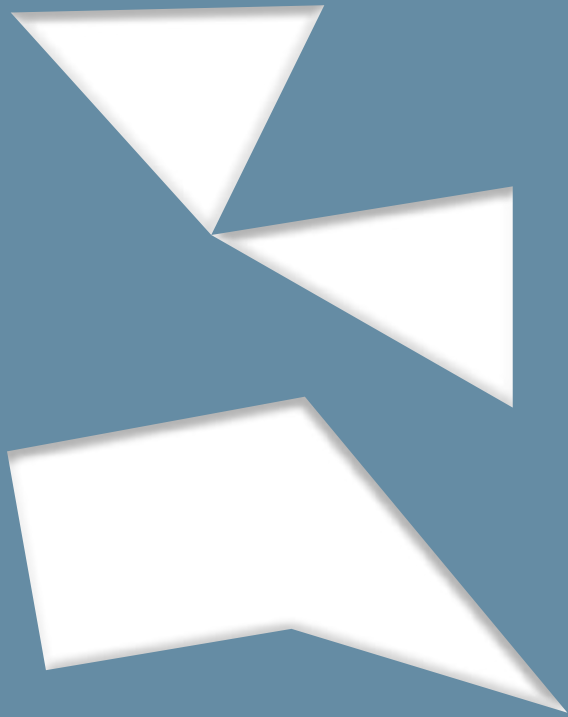


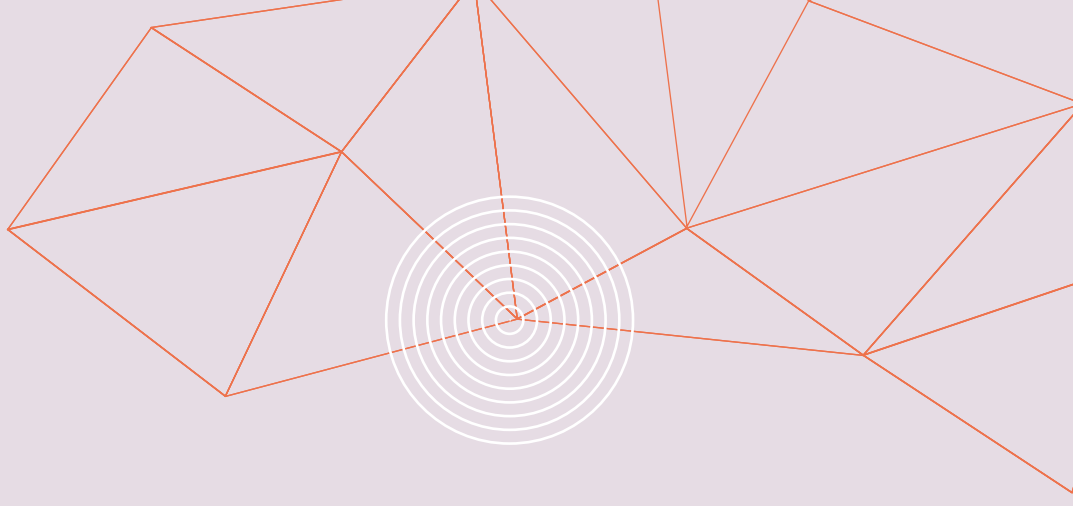
# COST ACTIONS AGAINST COVID-19 AND MORE

Annual  
Report  
2020







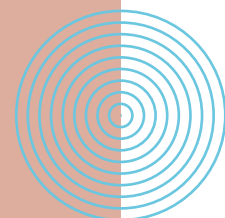


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# About us

COST provides networking opportunities for researchers and innovators in order to strengthen Europe's capacity to address scientific, technological and societal challenges. At COST, there are three strategic priorities: Promoting and spreading excellence, fostering interdisciplinary research for breakthrough science and empowering and retaining young researchers and innovators. COST implements its mission by funding bottom-up, excellence driven, open and inclusive networks for peaceful purposes in all areas of science and technology.



## WHO CAN PARTICIPATE?

Researchers and innovators from universities, public and private institutions, NGOs, industry and SMEs. Particular emphasis is placed on activities involving researchers from Inclusiveness Target Countries (ITCs) with a view to increasing their participation.

Researchers from [Near Neighbour Countries and International Partner Countries](#) can also take part in a COST Action on the basis of mutual benefit.

## HOW?

COST does not fund research, but provides support for networking activities carried out within COST Actions. In this way, it coordinates nationally funded research. COST invites researchers across Europe to submit proposals for Actions through a continuous [open call](#), no matter what their field of interest.

Further information on how to apply [here](#).

## NETWORKING TOOLS



**Meetings, workshops and conferences** – These are organised by the COST Action management committees in any COST country participating in the network and are open to the entire scientific community.



**Short-term scientific missions** – These are exchange visits between researchers in the network which enable scientists to visit an institution or laboratory in another COST country.



**Training schools** – They offer training in a relevant or new subject at one of the Action's laboratories which provides unique equipment and/or know-how.



**Dissemination activities** – COST encourages and supports Action participants to disseminate the outcome of their research to other COST networks, the wider scientific community, policymakers, the media, and society at large, through publications, electronic media, news releases, events, success story releases, etc.



**Conference grants** – These grants help PhD students and early-career investigators from Inclusiveness Target Countries attend international related conferences that are not organised by a COST Action.



# Introduction by the Director



2020 has been a challenging year for everyone, COVID-19 has hit all of us and put into question the living and working models we had in place for a long time. However, 2020 has also been a year for opportunities and positive developments at COST.

The immense impact of this pandemic across our whole society has shown that solutions need to be found at political, economic and scientific levels. COST Actions' diversity and interdisciplinarity offer an ideal approach to tackle such scenarios, making COST a must. In the last open call we received one of the highest number of proposals ever, which shows that there is a clear need for networking and exchanging ideas within the research community.

At COST we have adapted to the circumstances and have been responsive to change, while keeping the momentum. Flexibility has been at the core of our business during these difficult times. As a general rule, we have granted extensions to all ending Actions impacted by COVID-19, allowing the Actions more time to make use of unspent budget.

For the first time we ran 45 kick-off meetings of the new COST Actions in an online and interactive format, without compromising on quality. We have also had our first fully online COST info day, reaching more than 4000 views on our YouTube channel. And we started a series of online interviews, the COST Conversations, with videos and podcasts that bring Actions closer to our audience.

With regards to our added-value activities, we continued providing the tools to researchers that maximise the impact of our networks: the COST Academy and the COST Connect. I am proud to say that the COST Academy has contributed to an increase in the number of leadership positions from Inclusiveness Target Countries.

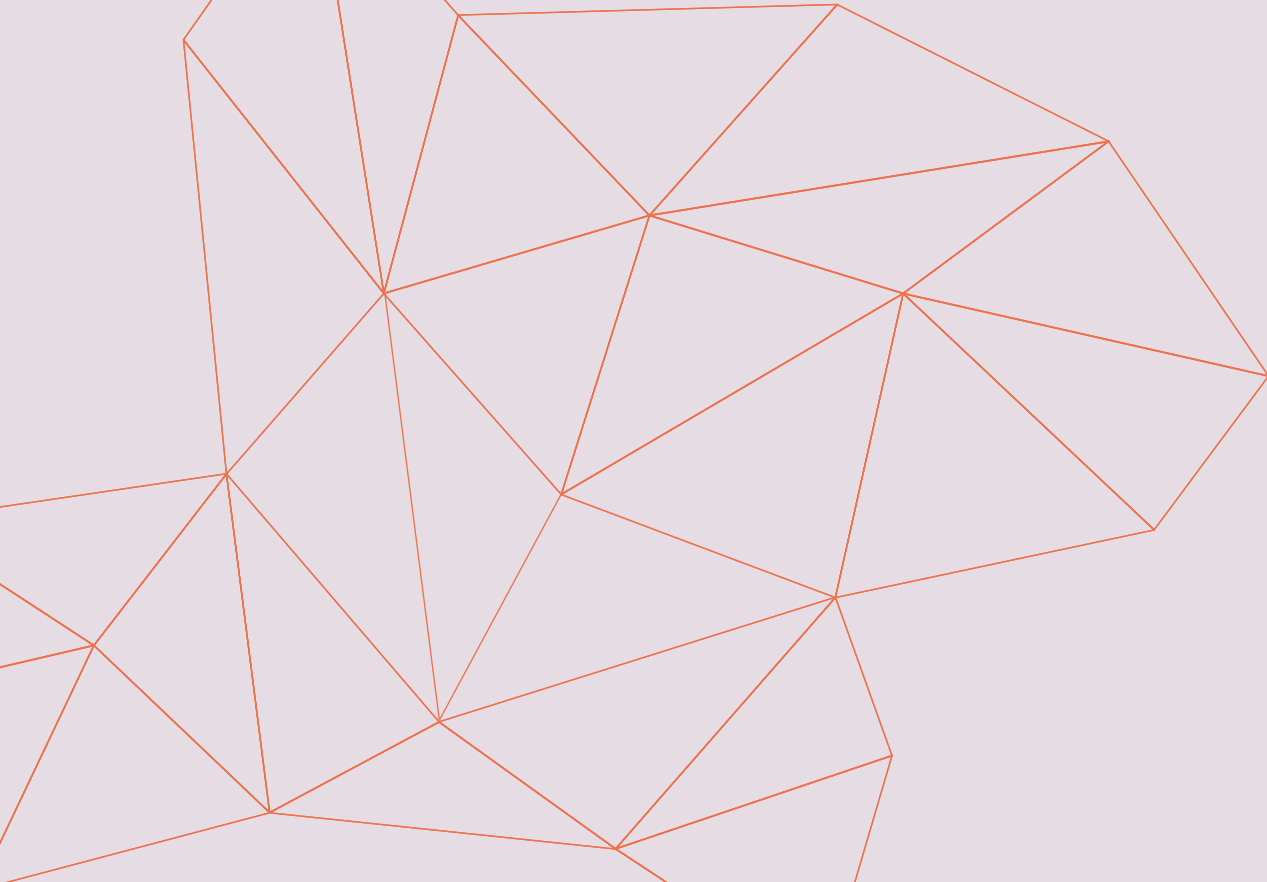
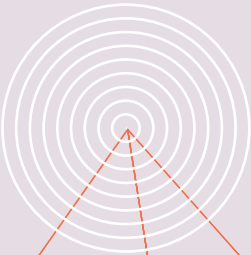
Despite the pandemic, other strategic activities such as the Cross-Cutting Activity webinar on science communication and the workshop 'COST Actions and Policy Impact' took place successfully. These are two innovative initiatives that bring together the COST Actions with policy makers and stakeholders to achieve an even higher impact.

At an organisational level, this year we will move to the brand-new premises in Brussels. When the global health situation allows, our new offices will be perfect to host bigger meetings and provide our staff with the comfort and facilities needed to serve our Actions in the best possible way.

In 2021 we will be celebrating the 50<sup>th</sup> anniversary of the COST programme in a new space, fully suited to start the new framework programme Horizon Europe and continue strengthening the future of our research networks. Because it is only together that we are stronger!

**Dr Ronald de Bruin, Director of  
the COST Association**

# Highlights of the year



**MARCH 2020**

## COVID dedicated bottom-up internetwork

Since March 2020, multiple COST Actions have approached the COST programme wanting to collaborate with other Actions on COVID-19 research. In response to these requests and to make the networking process smoother, COST has gathered together in a booklet entitled 'COST Actions against COVID-19, An interdisciplinary network', with details of all of the Actions wishing to connect and collaborate.

[Read the booklet](#)

**24 MARCH 2020**

## COST Innovators Grant

On 24 March 2020, the Committee of Senior Officials (CSO) of COST approved funding for 4 COST Innovators Grants (CIG).

The COST Innovators Grant, as defined in the COST Strategic Plan, aims at enhancing the pace and success of breakthrough innovations,



to build bridges between the scientific research performed in COST Actions and marketable applications and/or societal solutions and to explore innovation potential.

[Find out more](#)

**22 JULY 2020**

## Cross-Cutting Activity (CCA) webinar on science communication

The meeting, which was chaired by Prof. David Budtz Pedersen (CCA leader), had the aim to revitalise network activities and discuss next steps. A total of 33 CCA members attended the event, which marked the first time a CCA meeting was held in a digital format.

During the first session, the Webinar on COVID-19, CCA members were invited to share their involvement in communication activities related to COVID-19. A great variety of topics were highlighted during the webinar presentations,

including the need for open science and open approaches on how data is used by governments; the relationship between science and politics and science and the media; the Marie Skłodowska-Curie Actions of the European Commission supporting researchers in finding solutions to COVID-19 challenges; conspiracy theories in times of crises; etc.

[Find out more](#)



7 OCTOBER 2020

## Nobel Prize in Chemistry 2020 – Inspiring future researchers

On 7 October 2020, the Nobel Prize for chemistry was awarded to Prof. Emmanuelle Charpentier from the Max Planck Unit for the Science of Pathogens in Berlin and to Dr Jennifer A. Doudna from the University of California, Berkeley “for the development of a method for genome editing”.

In 2014, the COST Action, [Pathogen-informed strategies for sustainable broad-spectrum crop resistance](#) had organised a training school for young

PhD and Post-doctoral researchers to learn about the genome editing technique to modify plant genomes. Among the international invited speakers and lectures, Prof. Dr. Emmanuelle Charpentier presented the CRISPR-Cas9: from bacteria adaptive immunity to genome engineering to the 17 participants from 11 countries in Halle, Germany.

[Find out more](#)

27 OCTOBER 2020

## Western Balkans newsletter

The October's newsletter was dedicated to the Western Balkan Countries. The scientific communities of all the Western Balkan countries are today active beneficiaries of the COST Actions.

The Western Balkan Countries' participation doubled in the programme since the beginning of Horizon 2020.

[Read the newsletter](#)



17 NOVEMBER 2020

## Pilot COST Actions policy impact

On 17 November 2020, the workshop 'COST Actions and Policy Impact' took place for the very first time. (Former) Chairs, Vice-Chairs and participants of 10 highly successful COST Actions participated in this online workshop to present their Action and the way in which they achieved policy impact. During the discussion rounds participants had the opportunity to share experiences on the process of achieving policy impact and working together with policy stakeholders.

In addition to providing a platform to COST Actions for exchanging good practices on effective ways in which policy impact can be achieved, this event formed the basis for a concise and practical policy brief, which lists good practices, lessons learnt and advice and recommendations on creating policy impact of the 10 COST Actions present at the event. As such, key messages will be passed on to other Actions and may offer a source of inspiration for potential new activities in their networks.

[Find out more](#)

25-26 NOVEMBER 2021

## Virtual awareness events in Brazil and Canada

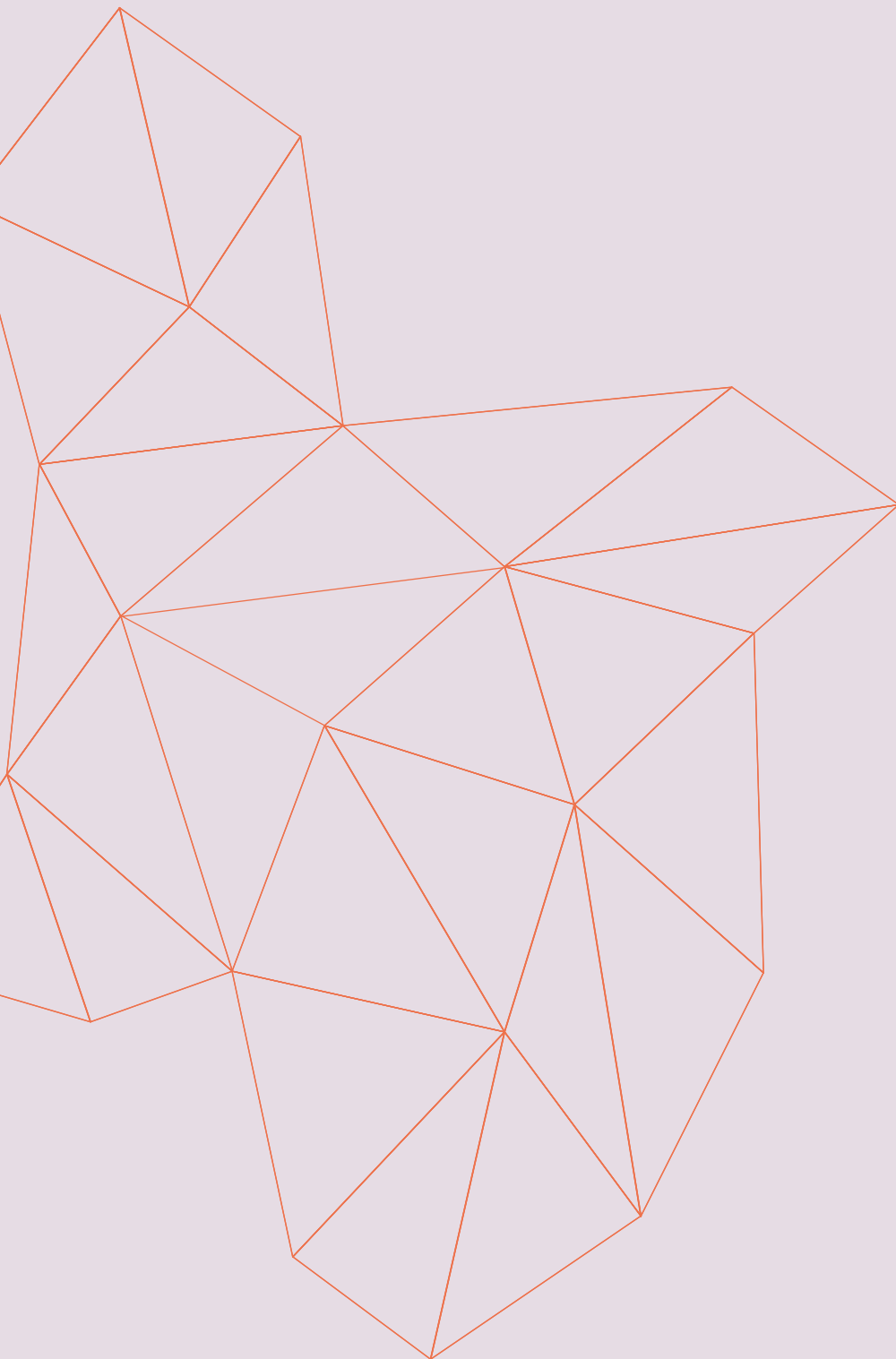
On Wednesday 25 November, the COST Association and the Ministry of Science, Technology and Innovation, jointly held a virtual awareness event aimed at encouraging researchers from Brazil to participate in COST activities. COST President, Prof. Paulo Ferrão noted the important milestone for COST – Brazil relations in promoting the participation of researchers across the Atlantic in COST Actions.

The European Research Days Canada 2020, which was organised by EURAXESS and Simon Fraser University (SFU), took place virtually on the 24 and 25 November. The event is held to celebrate and promote Europe as a research and innovation hub and aims to provide an overview of the EU-Canada research collaboration landscape. Director of the COST Association, Ronald de Bruin was invited to present a general overview of the COST programme and activities, as part of the opening plenary.

Find out more [here](#) or [here](#)

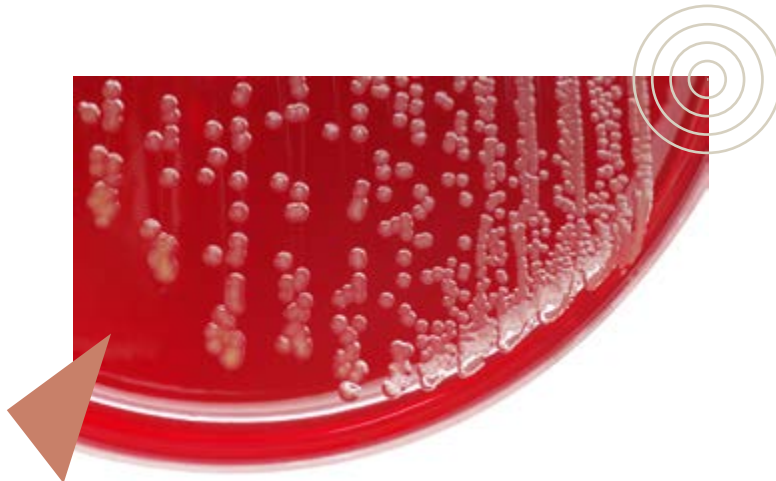


# Success stories



# Coatings network fights against future pandemics

In a world where global warming and long-distance travel quickly spread infectious diseases like COVID-19, innovative germ-killing coatings for hospitals could save lives. AMiCI, a COST Action, has developed a database that helps regulators, manufacturers and healthcare providers to safely introduce the technology, while a COST Innovators Grant is supporting scientists to commercialise bug-beating breakthroughs.



Staphylococcus aureus bacterial colonies on blood agar plate.

Millions of people worldwide catch infectious diseases from hospitals and other healthcare settings – over 4 million people each year in the EU alone, according to the [European Centre for Disease Prevention and Control](#). These sometimes-lethal infections are mainly transmitted via surfaces such as beds or tables, which are also a source of infection for viruses like COVID-19.

Anti-microbial coatings (AMC) are a possible solution. Active ingredients like copper or special chemical compounds protect walls, bed curtains and other surfaces, killing or repelling bacteria and viruses.

The COST Action "[Anti-Microbial Coatings Innovations to Prevent Infectious Diseases](#)" (AMiCI) is making it easier for manufacturers and hospitals

to make full use of these coatings. The network of over 60 institutes and companies from 33 European countries has developed a database of active ingredients in AMCs, an overview of current European research, and advice on designing safe products.

AMiCI has also identified issues with testing methods and approval processes in Europe and prepared guidelines for combining the coatings with best cleaning practice to optimise hospital hygiene.

*"Before COVID-19, [hospital-acquired infection] was an urgent issue. Now, sadly, more people are waking up to it,"* says the Action Chair, Dr Minna Keinänen-Toivola of Satakunta University of Applied Sciences in Finland.

The environmental scientist explains that in severe cases of viral disease like COVID-19, patients can develop secondary bacterial infections in their lungs. She believes that lessons from COVID-19 will include better use of microbe-resistant coatings: *"We have to be prepared. This will not be the last pandemic."*

AMiCI could make a real difference to pandemic-readiness. The network will present its results to [Members of the European Parliament](#) (MEPs), after they are published in the respected [Journal of Hospital Infection](#). The information can then spread out to national and EU regulators, the gatekeepers who ensure that AMCs are safe for humans and the environment and do not create antimicrobial-resistant 'super bugs', says Keinänen-Toivola.

AMiCI could also help to improve testing standards, for more effective products. For example, in one project, a researcher created a new testing model that mimics hospital conditions more closely than existing conditions, giving researchers a better idea of how well a coating will work in real life.

Finally, the network's guidelines for designing and using coatings provide a short-cut to researchers who want products to be easy to clean,

**"We have to be prepared. This will not be the last pandemic."**

*Dr Minna Keinänen-Toivola of Satakunta University of Applied Sciences in Finland.*



AMiCI Final Action conference in Krakow, Poland in February 2020.

cost-effective and durable – essential for busy, cash-strapped hospitals.

Many of these concrete results are thanks to input from producers, suppliers and potential users of AMC, standards organisations and EU research funders.

*"The Action was based on science, cooperation and discussion on how the Action relates to real life, to bring innovation to the market,"* says Keinänen-Toivola.

## AWARDED A COST INNOVATORS GRANT

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Although AMiCI ended in April 2020, many of the Action members have formed a group which has won a [COST Innovators Grant](#). The aim is to develop an online platform to help researchers commercialise anti-microbial innovations.

The platform includes information and scientific mentoring on potential coatings that can be tested and how to get these to different markets. It also explains how to register an invention, access financing and scale up to mass production through new field and pilot tests.

*"Great science is being done but people don't know how to turn it into products,"* Keinänen-Toivola says.

In particular, the platform will target young researchers, researchers from less-research-intensive

countries and women from AMiCI, followed by a call on social media. It will also publish lectures and videos on YouTube and social media that will be available to all.

Keinänen-Toivola adds that the COST Action will shortly release a YouTube video of some of its young researchers' achievements and is looking forward to future successes. "The Grant doesn't just maintain the AMiCI network, it expands it."

### Further information

[View the Action](#)

[View the Network website](#)

# Action participants contribute to first online tool for drug repurposing prediction against SARS-CoV-2

OpenMultiMed Action member, Prof. Jan Baumbach, and his lab team at the Technical University of Munich have developed the tool with the help of Prof. Harald Schmidt, Chair of the Action, and of two other researchers in the network.

[CoVex](#) is the first online platform for SARS-CoV-2 and SARS-CoV-1 host interactome exploration and drug identification. This user-friendly tool shows how human and viral proteins interact and implements systems medicine algorithms for network-based prediction of drugs against SARS-CoV-2 and similar viruses. In other words, CoVex gives the science community direct access to basic network medicine algorithms integrating drug-protein-virus interactions.

Prof. Jan Baumbach, core member of [Open Multiscale Systems Medicine](#) (OpenMultiMed) Action, and his team at the Experimental Bioinformatics lab of the Technical University of Munich, developed CoVex in a 10-day hackathon. Prof. Harald Schmidt, Chair of OpenMultiMed, provided help as well as two researchers that undertook a short-term scientific mission at Prof. Baumbach's lab.

The tool is available in open source and the development process and functionalities are documented [here](#).

## Further information

[Listen to the podcast](#)



Prof. Jan Baumbach



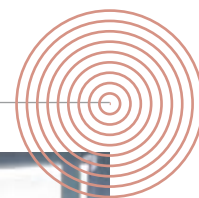
# Research stay puts spotlight on coronavirus care

COVID-19 arrived in Europe just as a Greek nursing researcher was visiting a Belgian hospital to observe infection control as part of the COST RANCARE Action. The flexible format of her short-term scientific mission (STSM) meant she could quickly switch her focus to find lessons for coronavirus pandemic care.

Dr Eftychia Evangelidou is a nurse and postdoctoral researcher at the General Hospital of Nea Ionia "Konstantopouleio - Patision. In late February 2020, she arrived at University Hospital Leuven to observe infection control as part of the "[Rationing – Missed Nursing care: An international and multidimensional problem](#)" (RANCARE) COST Action. The coronavirus pandemic shifted the focus of her 16-day visit dramatically.

Eftychia, her host at Leuven Professor Walter Sermeus, and supervisor Professor Annette Schuermans, explain how they adapted the STSM and what they learned.

## WHAT WAS YOUR EXPERIENCE OF THIS STSM?



### *Eftychia Evangelidou*

It was unforgettable. Professor Sermeus invited me to work at the university under Professor Schuermans, head of the Infection Control Department. The initial plan was to observe infection control practices and programmes and identify factors in missed nursing care – care that is intended but not given for many reasons, such as not being able to dispose of hospital waste properly.

With the COVID-19 outbreak, we adapted the study to the coronavirus crisis. The Infection Control Team, Annette and I created an action plan to observe all the strategies to flatten the virus growth curve.

As the outbreak progressed, I could no longer participate directly in infection control. However, Annette gave me feedback on missed care opportunities from her task force every day. It was really exciting because missed care had not been studied in this crisis before.



Dr Eftychia Evangelidou and Professor Annette Schuermans

### *Walter Sermeus*

It was lucky that Efi arrived at the end of February, before the Belgian lockdown on 14 March. The hospital was already preparing for COVID-19, so we could quickly change her STSM to focus on the most important things we should do. Missed care is important for infection control. It was incredibly helpful for the hospital to look at problems in materials, staff and knowledge.

## WHAT LESSONS DID YOU LEARN FROM THE STSM?

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### *Eftychia Evangelidou*

I stayed in touch with my home hospital and could compare restrictive measures, personal protective equipment (PPE) shortages, and national initiatives in Belgium and Greece. I analysed factors contributing to missed nursing care in this crisis for a report at the end of my STSM.

Belgium and Greece achieved impressive results thanks to their strategies of prompt implementation of restrictive measures and an action plan in the face of a pandemic. I have since applied these lessons to the "infections nursing" course that I teach at the University of Athens.

### *Annette Schuermans*

Efi arrived at a crucial turning point in the coronavirus pandemic for Greece and Belgium.

There was not enough time to learn big lessons, but we looked at differences in our hospital guidelines and patient characteristics. Understanding missed care is important not just for health but also for the economy and the functioning of society as a whole.

I would certainly be willing to host other students. Efi knew a lot about infection control – I would like to have her as part of our team!

## HOW IMPORTANT ARE NURSES IN THE COVID-19 CRISIS?

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### *Eftychia Evangelidou*

Nurses have a leading role, whether in infection control, emergency departments, operating rooms or the infectious diseases ward. They have to be well trained – they are the healthcare workers with the greatest exposure to patients.

### *Walter Sermeus*

They are crucial. Doctors deal with diagnosis and treatment but nurses spend time with patients, keep them alive and are important in coordination and continuity of care. Although doctors might be more visible in the media, the main job in intensive care is performed by nurses.

## WHAT ARE YOUR TAKEAWAYS ON COST AND STSMS?

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### *Eftychia Evangelidou*

It is a great experience. The exchange of ideas, experiences, practices, policies and strategies is amazing. The contact with nurses from such a well-organised university hospital has expanded my academic horizons. I would like similar opportunities in the future for all nurses.

### *Walter Sermeus*

The support and collaboration with scientists across the world are great! STSMs are crucial. Young researchers learn by doing – not by reading – and by discussion and reflecting. At the same time, they bring their own expertise and experience to the host institution. STSMs are really helpful for the development of science and exchange of research. You cannot overestimate their impact.

### **Further information**

[View the Action](#)

[View the Network website](#)

**"STSMs are crucial. Young researchers learn by doing – not by reading – and by discussion and reflecting."**

*Prof Walter Sermeus,  
Leuven Institute for Healthcare Policy, Belgium*



## Identifying Europe's most COVID-vulnerable countries

As people in Europe emerge from COVID-19 lockdowns, a study has identified which countries have populations most at risk from the virus. The work was produced by researchers from the COST burden-eu Action, which is strengthening capacity to assess the risk and burden of disease in populations worldwide.

The internationally respected journal *Archives of Public Health* published the [study](#). Among its authors are Grant Wyper and Dr Ian Grant. Mr Wyper, a public health intelligence adviser at Public Health Scotland in the United Kingdom, is the

lead author. Dr Grant is the co-leader of the burden-eu working group on methods, and a principal researcher at Public Health Scotland.

Here they explain why the burden-eu network is so necessary and what the study results mean.

### HOW DOES THE BURDEN-EU NETWORK ADD VALUE TO HEALTHCARE RESEARCH?

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#### **Ian Grant**

The [COST burden-eu Action](#) brings together researchers across Europe working with the global burden of disease (BoD) methodology. BoD was first developed by the World Bank and World Health Organization in the 1990s. It aims to measure the health loss from diseases, injuries and other risk factors, such as smoking, to eliminate disparities in societies and improve health systems.

However, the methodology is complex and demands vast amounts of data. Understanding and implementing the different methodological choices involved is not always straightforward.

Burden-eu is an excellent platform to share knowledge, experience, and solutions and to develop technical capacity in the methodology.

### WHY DID YOU SET UP THE STUDY ON COVID-19 RISK?

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#### **Grant Wyper**

BoD metrics can add great value to assessments of health impacts of a disease. The COVID-19

pandemic spread fast. National governments had to react urgently, introducing physical distancing and shielding to protect the most vulnerable. Our

network provided a timely opportunity for experts from across Europe to perform a rapid large-scale

Europe-wide assessment to identify the populations most vulnerable to the virus.

## HOW DID BEING PART OF BURDEN-EU HELP?

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**“Without burden-eu COST Action, it would simply not have been possible to produce such a collaborative paper in a very short time and involving scientists from different European countries”**

*Dr Ian Grant,  
Public Health Scotland, United Kingdom*

### **Ian Grant**

Being part of the network facilitated all stages of the work – conceiving the idea, defining the outline, and preparing drafts – as we were already working together in the Action. We were able to communicate in a way that we couldn't before.

We also had immediate access to a wealth of experts in BoD studies from different scientific disciplines. Without burden-eu, it would simply not have been possible to produce such a collaborative paper in a very short time and involving scientists from different European countries.

## SO WHICH COUNTRIES IN EUROPE HAVE THE HIGHEST-RISK POPULATIONS?

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### **Grant Wyper**

We found that the countries with the most vulnerable populations were Bulgaria, Portugal, Latvia, Lithuania, Greece, Germany, Estonia and Sweden.

We assessed baseline population-level vulnerability to long-term illness or death from COVID-19 in 45 European countries. This assessment was based on overlapping two factors – the share of elderly population in a country and the years lived with underlying health conditions in a population.

It's important to highlight that our assessment provides only a baseline measurement of vulnerability. Other factors will adjust the rate of infection and death due to COVID-19.

Even so, our measurement is increasingly relevant as the pandemic continues. Our findings can be an important factor in future research to identify baseline risks in individual countries. This can give governments a starting point for decisions on population shielding.

## WHAT ARE YOUR PLANS FOR THE REST OF THE ACTION?

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### **Ian Grant**

We still have over three years ahead of us. We will continue to expand our network (currently over 220 researchers from 37 European countries), welcoming researchers from across Europe and beyond to join.

We will continue to support advances in the method by encouraging greater interaction between existing work in the field.

In terms of developing capacity, we are expanding our programme of training schools and workshops on BoD skills and encouraging knowledge transfer among organisations through our short-term

scientific missions. In addition, we want to compile good practices in applying knowledge and to develop a roadmap to integrate these into national BoD studies.

On a personal level, Grant and I already work with BoD methods through our own [national study](#) on burden of disease and risk factors in Scotland.

### **More information**

[View the Action](#)

[View the Network website](#)

## Policing the pandemic



Members of the Action meet in Ghent

COST Action Polstops are exploring what it means to be stopped and checked by the police in the current COVID-19 context.

Police the world over have the right to stop citizens, to check their identities or to search them for illegal items. It is a controversial practice in some contexts, particularly the USA and UK, and is associated with discrimination and the targeting of minorities. In many other countries, it is scarcely remarked upon as a political issue.

In response to the current COVID-19 public health crisis, European states have introduced stricter measures to close workplaces, to limit the movement of people and to require or encourage social distancing. The ways in which these measures have been formulated and enforced vary from one country to the next and, in many cases, from one town to another. Throughout Europe, these practices have been controversial and have generated much debate questioning the legitimacy of the police checks in some public spaces.

The [COST Action Police Stops](#) (Polstops) which gathers experts and researchers from 29 countries, has been investigating police stop and check methods since its launch in 2018. The aim of the Action is to exchange and deepen the knowledge and understanding of police stops in Europe. It is gathering evidence on the legal powers officers have, the ways they use those powers and against whom. It is also interested in understanding the experience of those who are subject to stops. Does the experience undermine confidence in the police? What legal or political scrutiny is there of the practices?

[Sofie de Kimpe](#), professor of criminology at the Vrije Universiteit Brussel (VUB), chairs the Polstops Action which is seeking to better understand these variations and their effects in this unprecedented pandemic context.

*"What is most interesting about the pandemic is that more and more people, who previously would not have been subject to police attention, are being stopped by the police. It now concerns the white majority as much as minority youths. They are being asked to justify their journeys, to socially distance and to go home. It has given rise to a more widespread debate about the conduct of the police as they perform these stops than ever before."* Says the Action Chair.

Members of the COST network led by Mike Rowe, Vice-Chair from the University of Liverpool, worked on the development of a research protocol to gather information from countries with very different legal traditions.

*"We want to better understand the different ways in which police have responded to their new public health role. Has it raised questions about the legitimacy of the police, or has it been widely accepted? What might the longer-term consequences be for the relationship between citizens and the police?"*

Building on the ongoing activities of the action's four working groups on practice, experience, legitimacy, and the context of police stops, the network has developed an extensive questionnaire to explore key issues of concern, including:

- > How police forces have been engaged in the policing of lockdowns/social distancing
- > What we know so far about the experience of policing the pandemic
- > What controversies have already emerged about the policing of the pandemic
- > In addition to the public health crisis, other political/social/economic aspects pertinent to the practice of Police Stops during the pandemic

The network will seek to highlight examples of practice to improve police guidance and training and to

**"What is most interesting about the pandemic is that more and more people, who previously would not have been subject to police attention, are being stopped by the police. It now concerns the white majority as much as minority youths."**

*Sofie de Kimpe,  
professor of criminology  
at the Vrije Universiteit Brussel (VUB)*

inform citizens and others of their rights. It will highlight deeper issues of concern about the practice of police stops beyond the pandemic in a way that will have longer-term benefits.

#### **Additional information**

[View the Action page](#)

[View the network website](#)

[View the first POLSTOPS Newsletter](#)

## **COST conversations with two experts on conspiracy theories**

Prof. Peter Knight and Prof. Michael Butter, Chair and Vice Chair of COST Action 'Comparative Analysis of Conspiracy Theories', speak about the impact of those theories in the midst of a pandemic like COVID-19.

[Watch the video](#)



# Chronic fatigue research network targets COVID-19

Could COVID-19 harm patients after the infection has gone? Members of the EUROMENE COST Action are adapting their work on chronic fatigue syndrome to coronavirus patients. They plan to study the risk of follow-on extreme tiredness, to predict long-term health, social and economic impacts.

Myalgic encephalomyelitis (ME) or chronic fatigue syndrome (CFS), still puzzles scientists and doctors. To share information and insights, researchers from 21 countries created Europe's first CFS network, the COST Action 'European Network on Myalgic Encephalomyelitis/Chronic Fatigue Syndrome' ([EUROMENE](#)).

The network has identified indicators, such as biomarkers, of forms of the syndrome with different causes, developed an overview of potential treatments and drawn up guidelines on how to diagnose and treat chronic fatigue, published on the [Action website](#).

Participants are now looking for funding to investigate a possible new cause of ME/CFS – COVID-19. This is possible thanks to COST, acknowledges EUROMENE member Dr José Alegre-Martin, a

senior ME/CFS specialist at the Vall d'Hebron University Hospital in Barcelona, Spain. "This project requires a network and human resources, which EUROMENE makes viable."

The proposed work could help healthcare providers and governments plan for coronavirus consequences. "ME, or CFS, has been called post-viral fatigue syndrome," Alegre-Martin explains. "The economic burden of the disease across Europe was estimated to amount to EUR 40 billion each year. According to the PETI resolution, an estimate of 2 million people in the EU have the disease, with women being the most affected among adults."

"Due to the impact the coronavirus is having in the world, it is very important to design a protocol to detect related fatigue."

## RESEARCH PIVOT

Scientists plan to use networks, knowledge and homogenised data generated in EUROMENE to

identify the symptoms and markers of possible COVID-19-caused ME/CFS. Diving deeper, they



Members of the Action

**“EUROMENE marks a before and after in multidisciplinary and multi-centre work on chronic fatigue syndrome. It has been one of the most gratifying experiences in my professional life.”**

*Dr José Alegre-Martin,  
senior ME/CFS specialist at the Vall d’Hebron  
University Hospital in Barcelona, Spain*

will examine how reactions in the body’s cells and molecules could lead to a new form of the syndrome and suggest research for early diagnosis and even treatment.

In particular, researchers want to find out whether COVID-19 infection worsens fatigue in existing ME/CFS patients and whether other survivors of the virus might go on to develop the syndrome. Powerful computers will hunt through COVID-19 patient databases as well as medical clues from

ME/CFS patients and healthy volunteers, accessed partly through EUROMENE contacts.

Finally, scientists plan to study how this possible new form of chronic fatigue could add to the existing economic fallout from the new virus. “How does it limit patients’ ability to work?” asks Alegre-Martin.

Even so, there is a scientific opportunity in COVID-19, adds another EUROMENE participant, Professor Jérôme Authier of Paris Est-Creteil University in France. “We know the start date of this disease. It can be a model for understanding coronavirus-caused CFS.”

And although the COST Action ended in April 2020, it has already had a major impact on chronic fatigue research. “EUROMENE marks a before and after in multidisciplinary and multi-centre work on chronic fatigue syndrome,” says Alegre-Martin. “It has been one of the most gratifying experiences in my professional life.”

#### **More information**

[View the Action](#)

[View the Network website](#)

## **COST conversations - How is COVID-19 affecting patients with vascular problems?**

Dr Christopher Mayer and Dr Rosa Maria Bruno, core members of a COST Action about vascular ageing, talk about their participation in the network and the creation of the CARTESIAN study, a research platform that studies the impact of COVID-19 on vascular age.

[Watch the video](#)



# Rapid response for cardio COVID testing

Thanks to a COST Action network a rapid diagnostic test for COVID-19 patients is being developed. The COVIRNA project, led by the Luxembourg Institute of Health, is one of [23 research proposals selected under the Horizon 2020 call for 'Innovative and rapid health-related approaches to respond to COVID-19 and to deliver quick results for society for a higher level of preparedness of health systems'](#). The project was inspired by the successful and ongoing COST Action ['Catalyzing transcriptomics research in cardiovascular disease \(EU-CardioRNA\)'](#).

The COVIRNA project will develop a novel diagnostic test to predict cardiovascular outcomes for COVID-19 patients and improve cooperation between European research institutions to strengthen the overall response to the pandemic. The project, which kicked-off in November 2020, will last 24 months, has a budget of EUR 4.44 million and involves 15 partners from 12 European countries.

Dr Yvan Devaux from the Luxembourg Institute of Health is Coordinator of the CORVINA project and Chair of the COST Action. "The beauty of COST is that it allows people to grow networks," says Yvan. "We started the Action in 2018 with a network of some 30 researchers and two years later we are near 200. The nature of the Action means you can adapt and expand the network to reach out to complementary expertise and synergies."

## TRANSLATIONAL RESEARCH

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The EU-CardioRNA network involves a very wide range of academic and industrial expertise including basic research, clinical research and molecular diagnostics, many aspects of biology, information technologies and artificial intelligence.

Through interdisciplinary activities the Action aims to translate preclinical research into clinical developments quickly and efficiently. This is essential in view of the worldwide spread of cardiovascular disease. "Cardiovascular disease remains a major cause of mortality and disability in the modern world. Translational research is needed to identify novel therapeutic targets and biomarkers to optimise healthcare and decrease the burden of disease," explains Yvan.

The COST Action focuses on RNA. "RNA molecules have the potential to aid in diagnosing, predicting,

and treating patients with cardiovascular disease, in a personalised and sex-specific manner," he continues.

With partners of the COST Action a set of some 3000 RNA biomarkers that are expressed in the heart has been developed, validated and patented. In the CORVINA project, a large retrospective study on COVID-19 patients across Europe will be undertaken and a subset of the RNA biomarkers selected to develop a simple and robust *in-vitro* diagnostic test that can be used in the context of the COVID-19 pandemic, and in future health crises.

"By tackling the cardiovascular complications of COVID-19, the project can have a major impact on patient outcomes," explains Yvan. "Studies show that some 20% of COVID-related deaths are due to, often unexpected, cardiovascular issues."

## RAPID RESPONSE

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The existing COST network enabled a rapid response to the Commission's call for COVID projects. "The call was published in May 2020 and we immediately talked about how we might use our various expertise within the EU-CardioRNA network to face the pandemic," says Yvan.

Development of the project was extremely rapid. "From the initial idea to submission was about one

month, which is remarkable," says Yvan. "But the consortium partners knew each other well through the COST Action making it much easier to organise and recognise what we all could contribute to the project."

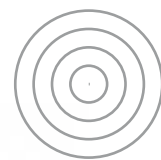
Read more about COST Action ["Catalyzing transcriptomics research in cardiovascular disease"](#)

**"The nature of the COST Action means you can adapt and expand the network to reach out to complementary expertise and synergies."**

*Dr Yvan Devaux  
from the Luxembourg Institute of Health*



# Digital human rights in the time of COVID



How are human rights protected and regulated in the digital world? Who makes and enforces the rules defining what we can say online? And how do crises, like the COVID pandemic, affect this emerging regulatory environment? These questions are at the heart of the COST Action GDHRNet ([Global Digital Human Rights Network](#)) that has already published results on the spread of digital disinformation relating to COVID and societal reactions to this 'infodemic'.

GDHRNet was only launched at the beginning of November 2020. However, it has rapidly grown and now involves participants from some 32 countries across Europe and also the USA, South Africa and South American states. Remarkably, its first working paper – '[Viral Information: How States and Platforms Deal with COVID-19-related Disinformation: an Exploratory Study of 20 Countries](#)' – was published before the end of the year.

The COST Action has two primary objectives. The first seeks to understand to what extent changes in the digital environment impact human rights.

"The digital space is changing our fundamental understanding of the scope of human rights," explains Professor Mart Susi of Tallinn University who is Chair of the network. "For example, is there a new conception of the right to privacy in the digital domain? And how do challenges to digital human rights affect our understanding of them in the 'real' world."

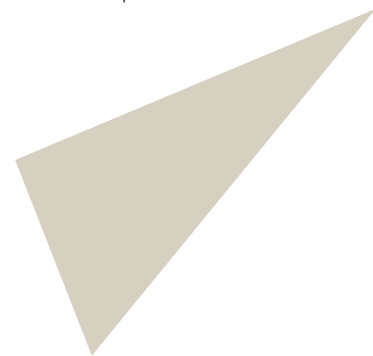


Professor Mart Susi of Tallinn University

The second goal is to gain in-depth knowledge of the practical dimensions of digital human rights. Researchers examine the practices of online stakeholders, like platforms, analyse the ways they set and enforce rules, how practices differ between different states and jurisdictions, and how platforms progressively feel the need to explain what they do.

"In the physical realm, such speech-related standards are established and monitored by governments and courts," continues Mart. "But in the digital world oversight has been transferred to private actors that have established their own orders."

The network will collect best practices of digital rights protection by platforms and develop guidelines to find ways to better protect rights in the online world through more transparent and accountable content governance processes.



## COVID CASE STUDY

Work in this second area is led by Dr Matthias Kettemann of the Leibniz Institute for Media Research and working group leader of the Action. Around 20 different case studies of digital platforms ranging from Facebook to TikTok, and from Telegram to app stores, cloud services and credit card companies are set to start.

"Having just started our Action, our first study on COVID-related disinformation was conducted as quickly as disinformation itself tends to spread," says Matthias. "Questionnaires were sent out and we received responses from more than 40 researchers from 20 countries within the GDHR Network. The study provides an important overview of how states and platforms have dealt with COVID-related disinformation."

"A key finding is that all companies have developed compliance policies against COVID disinformation," he continues. "Previously deleting, demonetising and deamplifying disinformation had not featured heavily in their regulatory arsenal, as this tended to hurt platforms in terms of reducing traffic and therefore revenue. , with COVID, there seems to be

**"Our network provides important insights that can make meaningful contributions to the discussions on the implementation of new rules on platforms, like the EU's Digital Services Act."**

*Dr Matthias Kettemann  
of the Leibniz Institute Germany*

a sudden realisation that, perhaps, disinformation can have substantial negative effects, both on individual rights and on social cohesion. We were able



Dr Matthias Kettemann of the Leibniz Institute

to show that throughout the world platforms have put increased effort into factchecking and, where appropriate, removal of content."

"The big question is, of course, who sets the rules in the future? And how can this process be made more transparent," says Mart. "What is the internal normative order of the platforms that run so much of what we experience as 'the internet'? Understanding this and formulating suggestions to provide better rules is the basis of our future work."

"It's an exciting time for platform research," concludes Matthias. "Our network provides important insights that can make meaningful contributions to the discussions on the implementation of new rules on platforms, like the [EU's Digital Services Act](#)."

The Action's second study will look at de-platforming politicians, focusing on how different platforms use filtering powers to amplify or attenuate contentious political content.

Read more about COST Action ["Global Digital Human Rights Network"](#).

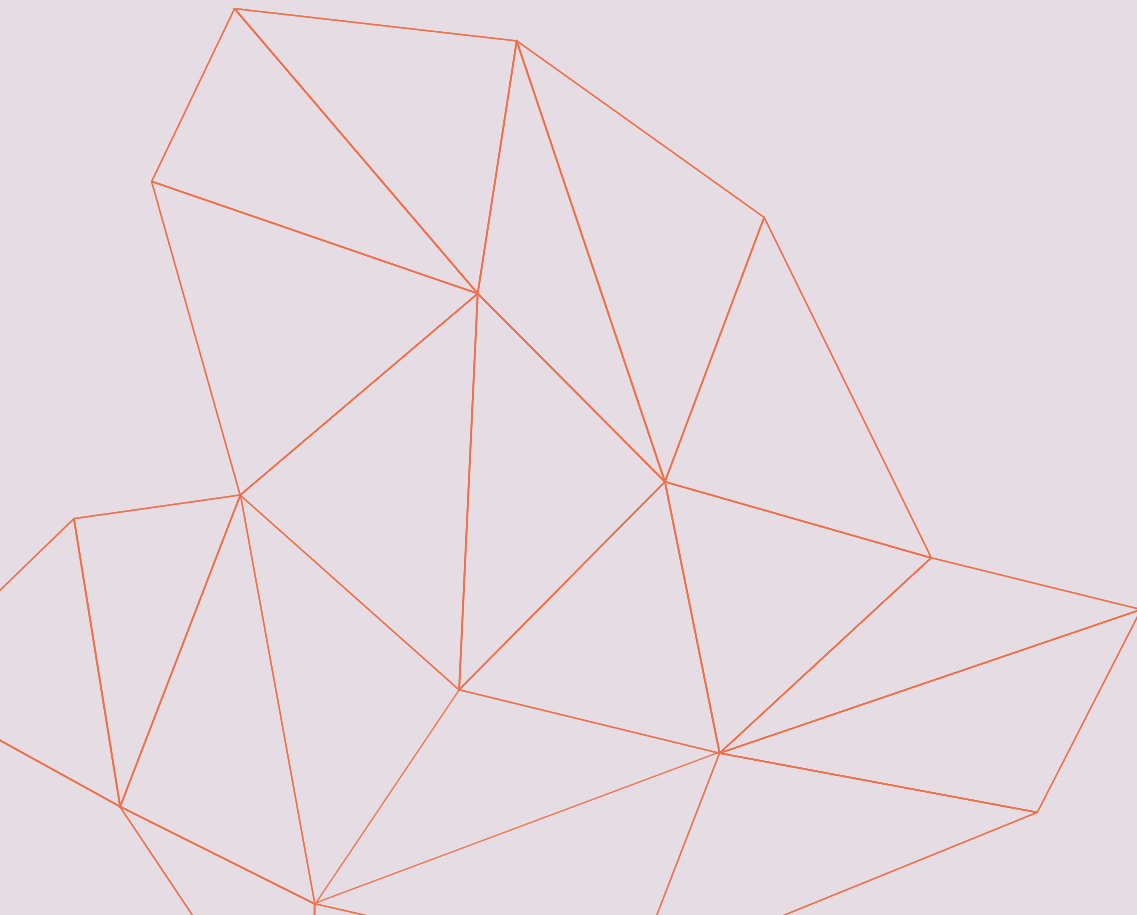
# Key figures of 2020

## Financial overview

COST is financed as a Coordination and Support Action (CSA) in the form of yearly renewed Specific Grant Agreements within a seven-year Framework Partnership Agreement (FPA) under Horizon 2020.

The budget dedicated to COST comes from two Horizon 2020 Work Programmes, namely Work Programme Part 13 (Europe in a changing world – inclusive, innovative and reflective societies) and Part 15 (Spreading Excellence and Widening Participation). The total contribution of Horizon 2020 for the period between May 2019 and April 2020 amounted to € 40 920 000.

COST is a global framework whose core activity is the networking of researchers and stakeholders from public and private institutions, NGOs, industry and SMEs. It carries out its activities on a multiannual basis, which means the networks funded by the COST Association – the COST Actions – run for four years and are implemented under decentralised management, namely the COST Grant System.





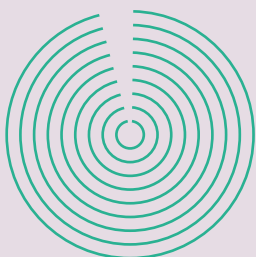
**86%**

Participants agree that COST plays an essential role in promoting and spreading scientific and technological knowledge across Europe



**80%**

Participants say that COST Actions led to new opportunities in their professional activities



**96%**

Participants would recommend joining a COST Action to a colleague



**39%**

Percentage of spin-off H2020 proposals approved

**291**

Number of running Actions

**30.8**

Average number of COST Members per Action

**4.3**

Average number of non-COST Members per Action

**€ 5.8 M**

Average value of approved spin-off projects per Action

**502**

Proposals submitted in 2020 COST Open Call

**897**

Number of SMEs involved in COST Actions

# Country participation



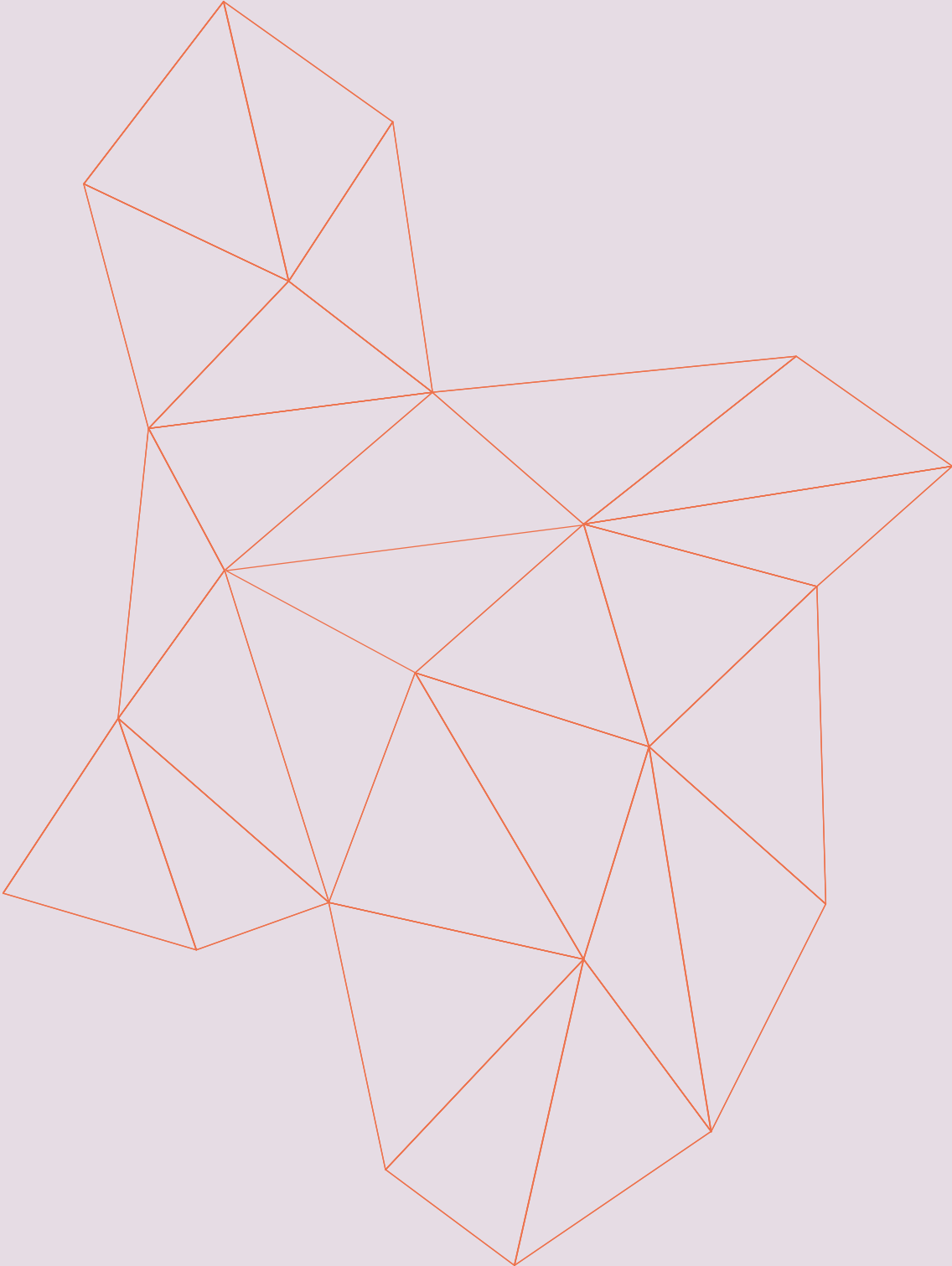
NAME	% OF TOTAL	NUMBER OF ACTIONS IN 2020 IN WHICH COUNTRY WAS ACTIVE
Albania	47.8%	139
Austria	83.2%	242
Belgium	90.0%	262
Bosnia & H.	85.6%	249
Bulgaria	76.6%	223
Croatia	92.4%	269
Cyprus	57.4%	167
Czech Republic	77.3%	225
Denmark	88.0%	256
Estonia	74.6%	217
Finland	72.5%	211
France	99.0%	288
Germany	99.7%	290
Greece	98.3%	286
Hungary	80.1%	233
Iceland	41.9%	122
Ireland	87.6%	255
Israel	85.6%	249
Italy	99.7%	290
Latvia	59.5%	173
Lithuania	67.4%	196
Luxembourg	34.4%	100
Malta	69.1%	201
Moldova	33.7%	98
Montenegro	45.4%	132
Netherlands	89.7%	261
North Macedonia	72.5%	211
Norway	89.0%	259
Poland	96.6%	281
Portugal	99.0%	288
Romania	88.0%	256
Serbia	92.8%	270
Slovakia	64.6%	188
Slovenia	85.9%	250
Spain	100.0%	291
Sweden	80.8%	235
Switzerland	88.3%	257
Turkey	92.8%	270
United Kingdom	97.6%	284



# Proposers profile per country



# Events



2 JULY 2020, ONLINE

## COST Connect on the Green Deal

In total 54 participants from 20 COST Actions attended the event and it was the first time COST Connect was held in a digital format. The event joined together COST Actions with expertise from the European Commission to discuss the future needs of EU research under Horizon Europe in order to make the Green Deal a success.

Due to the diversity of COST Actions present, a wide variety of topics were discussed during event breakout sessions, including circular cities, air quality, ecosystems, woodlands, etc. A key finding of these discussions was the importance of collaboration in tackling climate change, particularly through implementing a multi and interdisciplinary approach.

[Read more](#)



2-6 SEPTEMBER 2020 - ESOF 2020, TRIESTE, IT, AND ONLINE

## EuroScience Open Forum (ESOF)

The EuroScience Open Forum (ESOF) is a biennial, pan-European, general science conference dedicated to scientific research and innovation. Each conference aims to deliver stimulating content and lively debate around the latest advancements and discoveries in the sciences, humanities and social sciences.

The COST President, Prof. Paulo Ferrão, spoke at the session [Does science for missions undermine the mission of science?](#)

COST hosted two scientific sessions:

[Advancing Health Care with Big data and Machine Learning: Case studies and challenges](#), which

focused on how recent technological leaps have prompted an unprecedented volume of available biological and medical data, pleading the development of new ways to store, integrate and analyse millions of data points, for high definition of health and disease processes.

[Incorporating users in the deployment of Autonomous Vehicles](#) aimed at offering an appraisal of a timely research conducted within the COST Action "Wider Impacts and Scenario Evaluation of Autonomous and Connected Transport" (Wise-Act), a group of 150 experts from 41 worldwide countries.

[Read more](#)

9 DECEMBER 2020, ONLINE

## COST Connect on climate-neutral and smart cities

The European Union aims to achieve a net-zero balance by the year 2050, through reducing green-house gasses and compensating for any remaining emissions. As part of this ambitious goal the European Green Deal has been launched with € 1 trillion of investment allocated over the next ten years.

The COST Connect event on climate-neutral and smart cities addressed key issues related to these

goals. Stakeholders such as researchers, policy makers and business actors, including from COST Actions and the European Commission came together in an online format to jointly focus on sharing and co-creating knowledge in an interdisciplinary approach to contribute to a European wide solution.

[Read more](#)

# Media



## Reaching the world

# 545

**articles**

in specialised magazines  
and scientific reviews

# 921

**total  
articles\***

# 376

**articles**

in mainstream online  
news & media

\* Source: Meltwater

**AP** Associated Press

**B | B | C**

 **EurekAlert!**

**LA VANGUARDIA**

**EL  MUNDO**

**TIMES  MALTA**

**FARO DE VIGO**

**haber365**

**AGI  AGENZIA  
ITALIA**

 **THE NEW  
INDIAN EXPRESS**

**PTC**

**SIC   
NOTICIAS**

**HABERLER.COM**

**tvi24**

 **REUTERS**

**in.gr**

**europa press**



natureresearch

HAARETZ



THE LANCET



nature.com



Wiley Online Library



SPAIN

ABC

12/07/2020

33,2 M

# Investigadoras españolas lideran un proyecto para conocer cómo es ser madre durante la pandemia

[Read the full story](#)



NETHERLANDS

SCIENCEDIRECT

25/05/2020

32.9 M

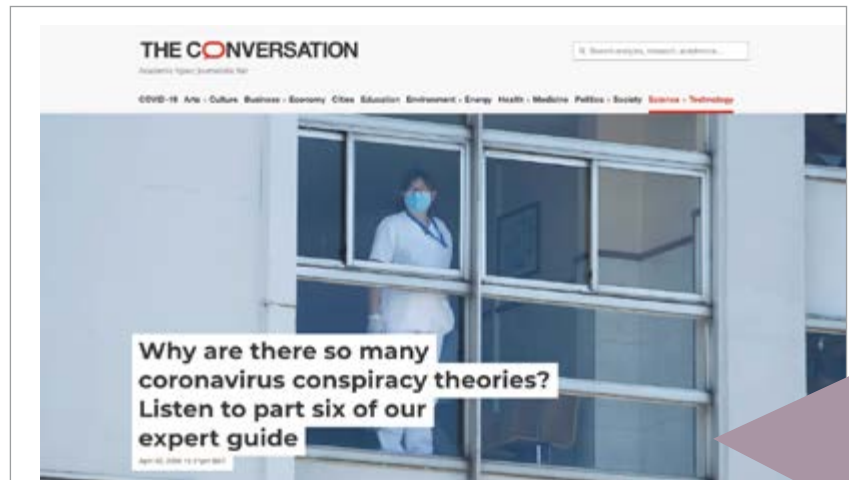
# Preventing problematic internet use during the COVID-19 pandemic: Consensus guidance

[Read the full story](#)



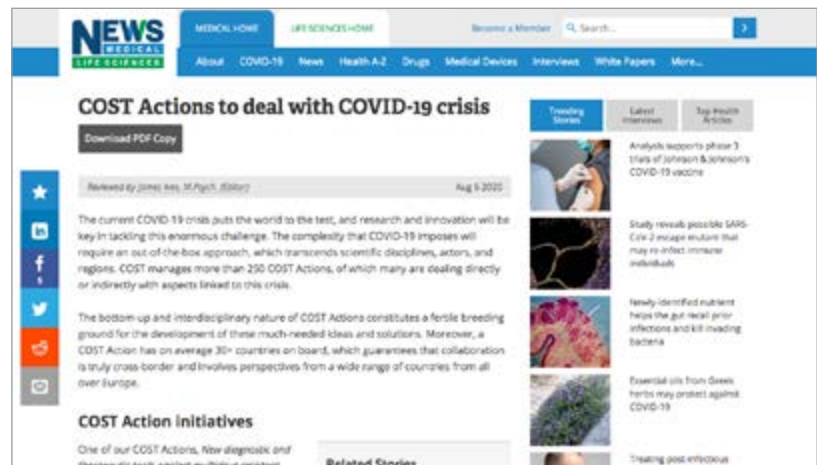
## Why are there so many coronavirus conspiracy theories? Listen to part six of our expert guide

[Read the full story](#)



## COST Actions to deal with COVID-19 crisis

[Read the full story](#)



## Investigadores estudam impacto da pandemia na gravidez e maternidade

[Read the full story](#)

