Open Science Talk No. 53 (2023) Research Assessment - Navigating Pitfalls and Promoting Change : a computer-generated transcript [1]

(Aspaas) Open Science Talk, the podcast about open science. My name is Per Pippin Aspaas and this episode is something unique in the podcast series' history. We are now live from the Munin Conference in Tromsø where the closing panel discussion is being recorded as a podcast. So if you hear sounds from the audience, that is because there is an audience. We are not in a studio, but in an auditorium.

(Aspaas) We are in Tromsø, inside the Arctic Circle, and I would like to welcome warmly Yensi Flores Bueso, molecular biologist and holder of a Marie Curie fellowship in the University of Washington, Seattle, and with the collaboration with the University College of Cork in Ireland. You are here to talk about research assessments, as everybody else on this panel is. We'll get to that shortly. But first, private question. I mean, you originally you come from Honduras. I checked the average temperatures in your home country, in your capital, for instance, should be 27 degrees now. Here, it's snowing and pretty dark in ten days time on the 20th November. The sun will not rise until next year, about 20th of January. So I just wondered, how does it feel to be in such a cold environment?

(Bueso) I like it.

(Aspaas) You do?

(Bueso) Yeah.

(Aspaas) Okay, there was only one answer to that question.

(Aspaas) And Kirstie Whitaker from The Alan Turing Institute. Warm welcome to you as well. You are leading the Tools, Practices and Systems Research Program at The Alan Turing Institute. We'll get to your specialities shortly, but you as well: we are pretty far north. Here, we are also in an environment that is multicultural. And, for instance, the reindeer herders are around us in the mountains. Did you get to see any reindeers lately?

(Whitaker) We did. My daughter is here with me, so thank you so much to the conference organisers for facilitating having her come along. On Monday before the conference started, we went to go and learn about Sami culture and we fed some of the reindeer herd. It was incredible. And just just 10 minutes ago I got a WhatsApp from her babysitter. She is out there playing in the snow right now, having a wonderful time. And I too, I'm having a wonderful time with all of you.

(Aspaas) Lovely to hear.

(Aspaas) And then the third guest is a Hervé Dole from the Université Paris-Saclay in France, a professor of astrophysics and also the vice president for arts, culture, science and society at your university. Warm welcome to you as well. A couple days ago I was writing you a short email for some practicalities for this session and I got an auto reply saying, «Unfortunately, I'm unavailable until November 14th because» – I'm translating here from the French – «because I am attending the Munin Conference in Norway and hunting for the northern lights.» So your first question, did you see any?

(Dole) Yeah, yeah. It was a fantastic experience. I saw it twice, one with my own eyes on the top of the mountain. The first day it's the green light and then yesterday in town. So I couldn't see the colours but my camera could. And yeah, it was amazing experience. I hope to renew it in the following days. Thanks for the invitation and it's an incredible experience. You know, when you compare the theory and the practice, I mean and the human experience, the last one is always the best.

(Aspaas) Wonderful! Last but not least, a local hero, Jan-Gunnar Winther, who is now the pro rector for research and development here at UiT. For the last couple of months, you have been in this position. Before that you were a director at the Norwegian Polar Institute here in Tromsø. And you've also been chairing a Centre for the Ocean and the Arctic. And your speciality, I believe, is hydrology, isn't it?

(Winther) Yeah. Thanks.

(Aspaas) So my question to you is to you, this is not much of a winter. I guess you would like to be at the pole. I mean, some years ago you went all the way to the South Pole with the Crown Prince of Norway and an historian called Harald Dag Jølle on skis. So, I mean, this is not no match for you, I guess.

(Winther) Well, maybe being on this panel, being less knowledgeable than the three others is like a pole for me now. No, it's, of course, not the pole, really. I should say that I spent the two last days in Paris, by the way. So we are living in a very international world, and that's nice.

(Aspaas) Lovely. As you can imagine, this was just the breaking of the ice. And let's go to what we're supposed to talk about, research assessment and the need to reform it.

(Aspaas) So back to you, Yensi. You are quite active aside your research. You are a member of the executive committee of the Global Young Academy. And you're on the steering board of something called the Coalition for Advancing Research Assessment. So, first of all, what is this CoARA, as it's called?

(Bueso) So the CoARA is a community of research organisations or research associated organisations that have identified that there is a problem with research assessment. And overall they agree that we should reform research assessment and they agreed that this reform should be based in four main principles, which is to acknowledge that diversity of contributions in science and in research and steer away from relying in indicators. So these are the main principles. Overall, the CoARA provides all the infrastructure and that helps to build a community and to raise knowledge and share this knowledge. For example, the existence of working groups, working in different topics of research assessment, national chapters that can work together with institutions within our region and among other. For example, in the future there will be some projects call in, I think, next year that you will start with some cascade funding. So overall, it's kind of a support mechanism to bring together all these organisations that are interested in change. And it's very important also to acknowledge that this change has to happen at a global level. Right now it has a strong presence in Europe and thankfully, you know, in less than one year we have about 550 signatories, members of the coalition. But we also know that this has to be a global initiative because research is a global enterprise. So. We are making efforts to globalise CoARA and this is getting to be noticed. We already have members from the US and Latin America, Africa and Australia already.

(Aspaas) Okay. So there is seems to be a great awareness out there that something has to change in terms of research assessment, so that the young scholars can find new ways to get a position where

they more promote, as I understood, transparency of science and opening of science. But what if I was then someone doing my Ph.D. and I have been striving for the top journals and doing what my my supervisor had told me. And then I see the moving targets. Now, suddenly, everything else is more important than just that. What would you say to me if I was in that position?

(Bueso) Yes, that that's a question that I get a lot. And actually that's something that we discuss a lot within the early career researchers. It's like having this conflictive moment or of what do I have to do? Do I have to focus in publishing in high impact factor or can I focus on doing something else? I guess that my answer to this is that I do have high hopes that we will come together to provide a better research environment and our research culture to our early career researchers in the future. So I will encourage most of my peers to do what they love and do it in the best way they can. Like, research is not only about publications and I have experienced how many other colleagues have strengths in other areas, for example, in science policy or science education, science communication. And I just would say that we should focus in all of it because all is relevant to science.

(Aspaas) You represent a research field that is fairly infrastructure dependent. I mean, you need labs, you need computers, you need equipment for analysis and software, etc. And equity is another of those important words in the university strategies these days and access to resources and infrastructure is, of course, important to build a research career. And how do you address this? Do you address it in CoARA, or how would you reflect upon it outside of CoARA in case it's not part of CoARA?

(Bueso) Yeah equity is something that I am really passionate about and bringing opportunities to scientists and I have … definitely, research assessment can help with this because if you focus on research and like that researcher in their context and not, like, looking for a universal standard like that is like a metric, for example, because it doesn't, it doesn't look for the context word that researcher is in their reality. But there's also other ways. You know in open science, for example, it's very important to have open science, and that counts in the whole array of open science initiatives. And also I believe that science education and collaborations that are equitable or, like, fair and also in in some science education utilizing for example, the technology, for example, AI or more computational analysis to make the processes of the biological processes in the lab a lot less expensive because that's the most expensive part of research, really, in my field.

(Aspaas) Excellent. We will get back to you shortly, but I want to move to the next speaker of the panel. It's you, Kirstie Whitaker. The use of data science in research is, of course, expanding. And artificial intelligence is one of your specialities. And it's, of course, extremely important for us in this context that we are in now. The Turing Way is something that you've worked on. And could you explain shortly what is this Turing Way and how does that relate to the other aspects of data science and also artificial intelligence, if possible?

(Whitaker) Yeah. So back in 2018, the Turing Institute, which is the UK's National Institute for Data Science and Artificial Intelligence, was awarded a £40 million investment to use to investigate how we could use AI to revolutionise science and government. So big, you know, big money and big goals. And one of the prompts that I was asked at the time was to think about what would be a useful way of spending this money that would traditionally be difficult to fund. And my experience has been that even if researchers think that that openness, reproducibility, transparency is important, there's a huge skill barrier to being able to actually engage in these practices. So a big one, for example, is using version control and being able to kind of write down code to be able to perform your analysis is a barrier for quite a lot of people. It depends on what backgrounds you've come from. For some it's it's not a barrier and they've been doing it since they were a teenager or younger. But for many

people, when they're in their Ph.D. or even when they enter their postdocs, this might be the first time that they're being asked to work reproducibly. And so what we did is we created a community around a Jupyter Book, which is an online book. The contents is a web page, and it can be edited and it can be extended and changed. And the reason that we wanted to build the guide that way is because although teaching people something about version controls and think about data management, the FAIR data principles, thinking about coding and reproducibility is important. What we really wanted them to know is that nothing is complete and you can participate in improving knowledge around the world.

(Aspaas) So how many were actually participating to this handbook, online handbook?

(Whitaker) So in the first round of funding we had, I think there were seven of us who were sort of part of the code team. And we wrote the first, I think maybe like five chapters, and we launched the book, which means that we sort of told everyone about this published GitHub repository and the website at the UK Software Sustainability Institute's Collaborations workshop, which is that big annual meeting. So we launched that in 2019 – I think it might be 2018, sorry. And from there we've invited people to participate in collaborating on it, and we now have more than 400 contributors.

(Aspaas) So a book by four hundreds authors, or how do you define a contributor?

(Whitaker) So this is actually something that's really important to me, and it relates to research assessments, the deification of authorship as being the most important parts of the research process, I think is one of our biggest hurdles that we have to overcome. So we do not actually have … we acknowledge all of our contributors. We acknowledge everyone who takes part in the health and sustaining the project. A way that you can contribute is by writing. Another way is by editing. We also have team members who focus on translating the book. We have folks who think about how we can make sure that we are making the website and our processes accessible. And then we also have an infrastructure working group and they make sure that the website stays alive, that we actually, sort of, are able to support people who have questions or if some if content sometimes gets lost in Git – that's surprisingly common. And so these are our experts that go and find these points and we don't differentiate between those types of contributions. Now, what we say the book acknowledges those contributors. What we have in our in the community handbook is an acknowledgements page and everyone is listed by name. It's in alphabetical order and that people can write for themselves in the words that make most sense for their career, their needs at this stage, what they have done, what they have contributed. So some of them might talk about the fact that they have written, some may talk about the fact that they've convened working groups, some may talk about the fact that they've gone out and they've presented or they've run workshops and trainings, but everyone gets to use the word that makes the most sense for them. And then what they can do is they can link their name in the book, they can include that in their CV or in cover letters, for example, and that allows people to understand their contributions in a curated way.

(Aspaas) Very interesting and the next question is then about ethics. I mean, artificial intelligence is hardly ever mentioned without a mention of ethics or concerns in that direction. Does The Turing Way cover that, or should you go elsewhere to look for the ethics?

(Whitaker) Well, you should absolutely come to The Turing way. And if it doesn't yet cover the ethical considerations that you're looking for, you should help us by opening an issue and telling us that there should be additional content. So the book originally started focusing on reproducibility. And the reason for that was that that's something that sort of very individually actionable for anyone who's working with data. But reproducibility feeds into the ethics framework that we use that The Turing Institute that was developed by our Professor of Responsible Innovation, research professor David

Leslie, in our public policy program, which is the safety principles and safety stands for SAFE, sustainable, accountable, FAIR, explainable, and then the D is data stewardship. And so, yes, the Turing Way has expanded to include guides around reproducibility, project design, which is really important facing the that accountability and some of that FAIRness aspects … communication. How do you communicate? How do you bring people in? So the project that's related very strongly to the explainability and to the sustainability requirements, we also have guidance around collaboration, which relates to sort of all of these points. How do you work together? How do you bring diverse perspectives together? And we have a set of guides around ethics. And one chapter that I am very, very proud of – of many, but one chapter that I'll shout out – is that we have a chapter there talking about unions and how important it is for tech workers to participate in their in their union. So we think about ethics very, very broadly, as well as quite actionability around things like transparency and accountability.

(Aspaas) Lovely. We'll leave it there for now and get back to you shortly. Now it's time to move on to a Hervé Dole. I have been told that today is actually the World Science Day for Peace and Development, a day that highlights the significant role of science in society and the need to engage the wider public in debates on emerging scientific issues of our current world. So in essence, World Science Day underlines the importance and relevance of science in our daily lives. So any comments on that broad, big topic?

(Dole) Yeah, I'll try. I was asked by a team, an association nearby my university dealing with peace, to give a talk. I have no idea what to do about peace, except that peace is nice. And actually, by talking with them and having a few thoughts about that, we came – I came to realise that peace is completely embedded in science because you need discussion, you need worlds to be together, you need to respect your, the others there is the ethics and what you just said … so science without peace is just impossible. So there is a strong connection. And I'm happy that there is this day that connects peace and science because both goes together. And it's also a way to say that science and technology is different. Science is knowledge is establishing technologies, the way we translate science into the daily lives and then we may come to A.I. that is, you know, helping us and saving us in, you know, in the hospitals or whatever. And then you have AI that blocks us from thinking. When you are on social networks and you are in your bubble, because all the friends that like things like you and you don't have other thoughts. So technology can bring to various things, while science is supposed to be in line with peace. And to make it short, our societies indeed are embedded, I mean, we are here thanks to the science, although we are not – what's the word in English? – I mean, science does not everything unfortunately. I mean, first, science is broad: you know, human sciences, natural sciences, experimental sciences, so there is a broad spectrum, and fortunately, the society we live in is more than just science. We have many other aspects in our lives: arts, culture, or religion for some, and there are things that makes us unique and exciting to be humans. But it's true that science is one of the nicest parts that humankind made up to now.

(Aspaas) On that positive note, to follow up to make science beautiful and maintain it as a beautiful thing in our society is an important thing. And we see in several countries that our budgets are a bit stretched. So we don't have the money that we would like, but still researchers, when we apply for external funding, we need to showcase the potential societal impact and also economic impact of our work. But still, demonstrating the impact of one's research can be a really hard challenge can't it?

(Dole) Yeah.

(Aspaas) So how can we adapt research assessment to be … to better reflect what impact research has on society?

(Dole) Well, you have the good way and the bad way. The bad way is to cheat and to promise everything you do on the project. That's I mean, I'm sure most of us, you know, promise things on our proposals, and – it's not cheating, but it's overselling or underselling things. But the good way would be to stop having a short term view because most of our societies are sticking to short term views. I mean, politics, I mean, and everything. So, and trust each other – I mean, society should trust the teachers at school, should trust the researchers, obviously, doctors at hospital, everything – we wish at some time, at some point we should stop, you know, reporting everything we do every day. That's a feeling I have, that we do too much reporting on less profound work and reflection and the work we're supposed to to do, that would be the first thing. And then, before this big change may happen, what we can do is to take an average – that means, be honest and be wise. For instance, so, in my research, I'm working on space projects to better understand the origin of the universe. And usually the way we sell these science projects, which are costly, is to, first, put an emphasis on the knowledge, the knowledge is a noble thing. Where do we come from? It's a, kind of, interesting question. Second, is to say that to gain this knowledge, we need technology and we need to build new artefacts, new things, and these things that eventually will have an impact on everyday life. Of course, it's a bet that … we do it because we're not sure that the telescopes we send into space will have any impact on everyday life in ten or fifteen years, we don't know. But the fact that the industry is taking part in this effort, they may even be able to design new satellites for better prediction of storms – weather, better images when there is a catastrophe in the world, everything like that. So you can draw this line of, you know, long term spinoffs of what you do. We already do that. And sometimes people – politicians or policymakers or people who decide – buy it or sometimes they don't. And then you have to come to the real thing. I mean, we are part of societies that are highly educated, which is a good for many countries – not all, unfortunately. And keeping the high level of – I was going to say excellence, but that's not the word – you know, high aims for education in modern countries, I guess is the best goal we can have, you know, having healthy people and high education and to maintain a high education, you need good teachers, to have good teachers, you need to have at some point researchers, you have to have technologies, you have to have jobs, you have to have a wealthy society. And that would be the way I would sell the relationship between science and society as a whole. Of course, then you can have dedicated staff going to schools, measuring the increase in scoring in mathematics or whatever. Then you have many tools that are relevant or not. But that would be my my answer for a broader picture of the good, the relationship between science and society.

(Aspaas) I know that Paris-Saclay works with what is often called citizen science and that's part of your responsibility, I guess, in the position that you you have. How can you measure if a scientist is good at citizen science, or would you want to measure it at all?

(Dole) Well, first we won't measure it like this. First, we are happy when colleagues do citizen science because we don't have many at least I'm not aware of which is not good either. So we we try to push and to promote this, but we don't have too much colleagues doing that. So whenever we hear colleagues that are asking for help or money to do the project. We are, first, we are happy, because we can say well we have colleagues that do citizen science. Then, every project is different. We have one project which is reanalysing the data from the Large Hadron Collider of particle physics, you know, the one that discovered the Higgs boson a few years ago. They got the Nobel Prize for that. They have huge amounts of data. You have thousands of colleagues that signed the papers. So citizen science aims at looking at the data in a different way. So basically, I mean, having any – count the number of citizens that participate. That's a good metrics, even if it's the zero level of doing that. We have another project, which is really nice too, we have cameras all over the country and a part of Europe, that scan the sky all nights. And when you see a fireball with three cameras, you can get a

position or area where the rock fell on the ground. And believe it or not, there are very little rocks that you recover directly from space in this way. Usually, they are destroyed or they are, you know, in water and whatever. And for the first time in many years, we found one in Normandy, France, thanks to that. And my colleagues just get to the press, local press, saying «well, this Sunday at 11 a.m., please come with your shoes and your boots and your coat and everything, and we'll scan the lands to find these tiny rocks». And they found it and they made a major discovery, because they can recover where it came from, the solar system and everything. So it's a different way. The fact that you find the rock is, I mean, priceless for science and for humanity in general. So what metrics do you put on it? You have uniqually one sample, but I mean, it's fantastic. So there is no single metrics. And so each project is different. You have other projects that are hosted, I guess, in the UK, it's a Zooniverse. And so we put data in it and then citizens just choose the galaxy they want to map and they choose if it's a spiral galaxy, an elliptical, or irregular, whatever. And so I guess the number of participants is a right metrics as well. So every project is different. But again, I think as long as colleagues involve citizens, we are happy and we try to promote this.

(Aspaas) Lovely. We'll get back to you as well. But now it's time for Jan-Gunnar Winther, our pro rector for research and development here at UiT. This societal impact of science and this engagement between science and the wider society is, of course, very important in this country as well – and for this university. What new skills and competencies are needed for researchers and research leaders in particular to be effective in changing this landscape or in operating in this changing landscape?

(Winther) Thank you. Can you hear me in the back? Yeah. Okay, good. So I haven't been here today, so maybe things have been said before, but in my mind there is actually a long list of demands for a modern, call it, or state of the art scientist or research leader of today. So we need to be maybe super women and super men to to fulfil that list. But of course, you don't need to have all those skills inside one body. You can also build a team. But I would mention five areas, which I think have developed quite quickly and are important to fulfil all these demands. One is communication, outreach. We already talked about that, citizen science, being opening up the university and the knowledge that sits very often – seen from outside – far away, maybe not understandable. So we are good at communicating what it means, what we are doing, to the societies. I think that's something that has developed. A challenge with that is that it's really hard to credit it. So the individual scientist doesn't give much credit for having an event in the town hall or having a chronicle in the newspaper. But one way to actually strengthen that is to challenge the research councils to earmark part of their funding going to communication. And we have examples of that in Norway. The last International Polar Year, 10% of the total funding was actually earmarked to communication. So you have an upstream earmarking, which makes the result that you wish to have. So I think that's an elegant way of strengthening that. My second one is networking skills. I mean, that's an obvious one, but it takes a lot. I mean, being active out there, you can do a lot from your computer, but you can't do everything there. But when it comes to, for example, joining these clubs that you would like to be part in, maybe to reach to a successful grant in the EU or whatever, you need to be part of a consortium. And if you are not the part of a consortium, it takes something to get there. So the whole networking skills I think is extremely important. It doesn't only go within academia, it's also beyond academia to authorities, to private businesses, to local and regional politicians and so on. My third one is, I called, we need to be more business minded, and maybe that's to throw some flame into an academic institution, but with that I mean several things. One is actually back to what was discussed here just recently. I think we will gain a lot if we are able to show the value of our work for those who are funding it, so, government at the last instance. Take an example from climate change research. It's well proven that being proactive is much better than being reactive. I mean, it's different calculations of that. But the World Bank and the United Nations, they come out with 5 to 7 times more for

societies. Better to be proactive than reactive. But also in all other fields, if you are able to show the real value and actually also the dollars and euros that it actually gives to society, I think that will strengthen our arguments when we are applying for funds. I also think that maybe some parts of academia can gain a lot by being business minded in the sense that they establish collaboration with private sector. I think it's an interesting combination of two different worlds – and also pragmatically, there is some money there. My number four is convening power – I may come back to that, I think you have prepared something – but being a, let's say, an ambitious scientist using your skills, authority, respect as convening and facilitating others to get to your table, so to speak. You have an idea, you have some initiative, and you are good at gathering people, and use your academic power in a very strategic sense. So convening power being a facilitator, I think, is also an important skill. And last and this is maybe more for the leaders than than for an individual scientist, is science, diplomacy or science advice, as it's something called I just came from Paris where I had to use some of that skills. It is very efficient and as you already said, Per, the economic situation, it's tougher out there and it will probably continue to be tougher. So how do we reach out to those who are actually, at the end of the day, financing our work? I think the skills of science diplomacy, which has been on the table for some years, but we have more to do in that field, and it will pay off. That's my view on that. Thank you.

(Aspaas) Thank you very much for a very rich answer. If we go more personally, do you and your personal experiences in your previous role in your previous role were you set up the Centre for the Ocean and the Arctic, how did you work on recruiting the best people? And did you reflect on the changing landscape, or did you do it the old way as as you always had experienced before?

(Winther) First, I should say that this centre that I led for five years, it was established in 2018 by the Norwegian Government. It's not comparable with all other kinds of activities in the university sector because it had a very clear mandate of being. I think it's easiest explained by being a mini, mini, mini IPCC in the Governmental Panel on Climate Change, not doing research themselves, but assessing, knowledge, information, data that is out there. So it's a kind of different body or animal. However, we put a lot of effort into being relevant, and some of my five points was actually, I believe, being relevant and explaining that you are relevant. And that means that you have to reach out to many in society all the way from government through private sector and management and also academia. And you have to convene and gather and use good tools for bringing people together. And this centre was actually then set up in a way that we should do assessments and we should, based on these assessments – which was really not much our work, it was all the ones that came to the table that did the job and we didn't pay them for that, but we just facilitated, it's a very clever setup, I think – made the gravity and the weight around what we could actually present, then, to our ministry as advice was much stronger. It was both stronger in the way that it was cross-cutting many fields, many sectors, and it was more voices and more, kind of, authority behind our advices. So we were very much strategically moving in the, in that landscape. And with a very few people, I think we have been listened to as a centre, among top leaders in private businesses and also in government. But again, it's not comparable. So with respect for that – but that was the set up in the centre.

(Aspaas) But then again, every context is local and special in some way, I guess. Except for the perspective that you can have as a rectorate where you look at an entire institution, that's another thing. But most research, at least, it goes on in in small clusters in local environments. Let's try and bring in this local environment. I think, it's more than ... the time is now for you to think of questions so you can start raising your hands in the audience. Meanwhile, I'll ask the three fantastic keynotes: Is there anything that you have learned during the last three days of this conference that you have

found particularly useful as far as research assessment is concerned in particular? Who would like to start? Maybe you.

(Bueso) Well, I found very interesting and a great potential of how AI tools can help us in improving research assessment. And also in today's talk, I found very interesting, for example, a measure of engagement with the society, that something exists there, and maybe we should consider it for implementation. That's two things that I like. Yeah.

(Aspaas) Thank you, Yensi. It's your turn, Kirstie.

(Whitaker) Yeah, I was just … I'm scrolling on my phone to make sure that I have Gisela Schmidt's last name – it's her last name that I was looking for. So. Gisela talked about knowledge infrastructures require scaffolding, the role of personal relationships and information management. And if you're able to go back and rewatch that talk, I just absolutely loved – I started taking photos of every slide and at some point I was like, I could just download these slides and have them as a resource. But I thought this point about the need to build trust. We need to build those personal relationships. Otherwise, we can't have the sort of large scale collaborations that we need in order to inform policy for some of the biggest and most thorny challenges. And I would say AI … maybe AI doesn't have to be thorny, but it's definitely interdisciplinary in, basically, in every way. And then it is used to hopefully address some major, major challenges. And what that talk is really sparking for me is how do we assess the success of the people who are building … we call it this glue work of being able to, sort of, bring people together to bridge communities. And we have a team at The Turing Institute, of research community managers, and they are embedded in research teams and it is their goal to … they do some training and, sort of, advocacy around open research in its many different forms. But also, they introduce people they help to sort of bridge jargon terms, and they often report that it's very, very difficult to give evidence of their work because if they do their work very well, all the rest of the team just feel that they're being very, very successful and great collaborators and everyone's getting on really well. But what I really enjoyed about this framework of scaffolding was it gave me some language and then also a sort of, you know, a socio technical basis in the research for being able to articulate why having coffee with people on a regular basis turns out to be not just about the free coffee, but actually building that trust and building those sustainable relationships.

(Aspass) Lovely. And how about you, Hervé?

(Dole) Yeah, I agree with what was said. I had the amazing experience of this these three days by discovering a nice colleagues and all over the place here and nice talks and a topic that I was not mastering – or I'm still not mastering it, but a new field for me, because I'm not specific specifically in open science business, I was going to say – in my talk, I mentioned a rocket of knowledge. So with the first stage being open science, so that's the basic, the foundation of everything that comes after. So after, in my view, was science and society and then the involvement of colleagues and universities. And I was both shocked and happy to see that we have the same problems of, you know, getting the Ph.D. students get to know more about about, I mean, copyright things about open science procedures. You know, why use technical things, things like that. The fact that we all agree also that the recognition of the work is still a problem, unfortunately. But it's good to see that we have all the same problems. But the problem remains. So a recognition of all the work behind the scenes work for open science, but also for recognition of science and society implications. The fact that the rankings are and are more a problem than the solution. But the rankings are everywhere in our life, personal and in academia. So yeah, it's more a problem than the solution, but it's there. So what's the point? I mean, let's see, I guess. Yeah, I learned a lot and it's great to see all this community with the same aim, with the same goals – high level goals, high ambition for the society. And it's good to see that

there are things moving. I was surprised at the level of open access publication that is dramatically increasing in every field of science, which I was not aware of. So yeah, great, great conference and thanks for having us here.

(Aspaas) It's always nice to have some positive mood in the room in these days. So thank you so much for that. We have a question, do we, from the audience. Yeah, down here. It's down here first, Bror-Magnus. So if you could just say your name and where you're from – and then your question, please.

(Iva Melinščak Zlodi) Thank you. I'm Iva Melinščak Zlodi from Croatia. And my question is related to encouraging and evaluating scientists to come out and have a public voice and appearance. So I agree that science is beautiful and that showing audience that science is beautiful is important, but science is sometimes also controversial, and pushing scientists into the public is not always something that will be welcomed, especially in some societies that are less, let's say, tolerant. At my university, there are, for instance, I don't know, a historian who often speaks out publicly – he receives death threats. Or people get, I don't know, social defamation or something like that. So how can universities and institutions protect their employees? How can they evaluate their their role in society, especially if it is not always politically welcomed? And how can they themselves, if the scientists are not in agreement, how will they assess and evaluate among themselves?

(Aspaas) Maybe Kirstie first, and then ...

(Whitaker) I love this question. I think it's so important. There's so many differences in different countries about, sort of, what is or is not acceptable to talk about. And if we are to take on, you know, challenges like climate change, for example, we are going to need to work as a global community. And so thinking as well about peace – that's also a global community. And so having people be able to go out and talk about their work and articulate why it's important, I think is really important. And also, as you said, it's it's incredibly irresponsible to send people out to ... maybe if we, sort of, assess their success as a researcher based on whether they go out into the society in a way that potentially puts them in danger or in harm's way, I think it is difficult to know the full answer, but I think a component of it is making sure that the institution backs their team member. So one of the things that we do at The Turing Institute as part of our ethics review process asks people, how are you going to engage the public in your research? How ... what are the messages? What's the theory of change? What is it that you're trying to achieve? And how does this, you know, no one is going to sort of solve climate change in one go, but how does your particular piece of work step towards an improvement in these societal challenges? And what we sometimes end up doing is having discussions at an institute level – we're not a huge institute, so map it like a department at a university or something like that – where we make sure that we believe that the work that is being done at the Institute is aligned with our mission and that we endorse it and it is being undertaken ethically and responsibly. And that doesn't necessarily solve the problem of there being challenges when a team member goes and speaks externally, but it does mean that they are not alone in going out there and speaking externally. Now, I also think that what that does, as well, is ... it kicks up the responsibility chain, questions like «what if this result is going to criticise the current government?» And that is something that I think individual researchers should absolutely think about. Individual researchers are human beings, they exist in their country, their nation, their world. But it is the responsibility of the leadership of the organisation to be able to navigate through the policies on those. So at the moment I suspect that many people feel that they should not go out and speak out because their institute does not back them and they would feel very isolated if they did. And what I would encourage organisations to do is to say if our researchers, if our members of our communities do not go out into the world, we are limiting the impact we are able to achieve. And that's going to go against some of our big – maybe our overselling

in some of our big ambitions. And if we want them to go out there, they need to go out safely and we need to have policies to protect them when they do.

(Aspaas) Jan-Gunnar, I'm sure you as a prorector will have thoughts on this.

(Winther) Very briefly, I support everything that has been said here. But another dimension of that very disturbing, actually, current in society is that people may speak out, but they are putting themselves in a more mainstream kind of articulation than they would have done if they were not afraid for some responses in social media and so on. So there are two sides. It's those who are attacked, which is very serious and we should prep them and we should protect them and all this. But it's also … you can look into a scenario where we change the point of view from big organisations to be more aligned with mainstream and authorities and governments and so on. And that's also a risk which is not so easy to spot, maybe.

(Dole) If I may, I have a few points. First, it's ethics and academic freedom. So before going to the problems. So academic freedom – we have almost 10,000 researchers in my university. So we cannot throw them – and even if we would, anyway, it's not a good idea. So academic freedom. So they are free to do what they want within the academic freedom framework, which leads to the ethics. We have an ethics charter that should be more known because when you are in front of a journalist, it's not it's not easy because usually they consider you as an expert of everything. So they ask you, of course, a question about the topics that's there. But then they widen the questions and then you are in trouble because either you just say «well, I'm not an expert, bye bye. See you guys. Bye bye.» Or you try to do something, but then you are not in your field of expertise, you mix your opinions and your expertise. And that's where it becomes tricky because you're not … in this situation, you are not very well backed up by your institution because, «well, that's not your field of expertise, so screw you». So that's a problem. We need protection, we are not good at that. We have a problem, we have problems, I guess, every institution. So we could improve on this. We can also reverse the problem: before sending people on the media and everything. So to have them for our classes of media training and also, you know, answering questions and stick to the topic which what you want. And also, I must say, we also blacklist some of our colleagues because some of them explicitly say stupid things, they don't for academic freedom. I mean, we have a few, I mean, I guess in every institution there are a few. So these guys, we try to blacklist them and when we are, you know, asked for someone, we say, «no, no, please, not this person you may choose any other, but not this one». So of course it's under the carpet, but it's there too. And then we have a list of colleagues that usually are used to go in the field like that and answer, but you're right: sometimes we have bad surprises – colleagues are attacked and we try your best and it usually originates from either social media where you don't have the subtleties to explain everything, or when you're asked questions, outside your field of expertise. And then I mean, what you do, you have people in front of you on the media, whatever. It's difficult to say no, but … yeah.

(Bueso) So yeah, I was going to say about having scientific freedom or academic freedom, a framework that is very clear and that is supported by the university or entity. And recently what we an initiative that came by in the Global Young Academy was having training for intercultural communication, which was very useful. And all sorts of training like that, I think it's good for researchers because we become more aware of what to expect and things like that. And there is some uncertainty on the science that is very difficult to explain in general – to the general audience, to be comfortable with uncertainty. It's, kind of, what is not on the other side of science, let's say. So in social media, it can be okay, this solution and this is happening because of this, but in science it's sometimes we don't know or it's something that is evolving or we're just learning. And I think that being very honest and clear about this helps because it puts us in to a human context.

(Aspaas) So getting back, then, to research assessment and perhaps recruitment politics: you need to have teams build teams where people can teach the rest of the colleagues, perhaps media training and all that, that's part of what is important for an institution and also for funders to actually fund outreach in itself. Like, you had this example of 10% outreach money.

(Dole) It's 1%.

(Aspaas) I think our time is out. But you have 20 seconds each to give the final last word. 20 seconds. We start with Jan-Gunnar Winther.

(Winther) Yeah, based a little bit on the last question, I think it's extremely important to protect the freedom of speech. And there are many tools in the box to protect that, especially in the world we are living in now, where we are under attack in so many ways, fake news and all this that you know about. So freedom of speech would really be a goal to protect. Thank you.

(Dole) Shall I? Two points, I guess. Let's think on the long term. Not that the short term for every part of our lives and politics and everything. Let's look longer, and I guess things will go better. And science and society should be more common. So please go to see people. If you're an academic or a student, please go to see your community, kids at school or elderly or wherever they are and share it, share your science, share your questions, share your uncertainties, because we are not, you know, one or zero. And I guess that's a good way for a better society.

(Whitaker) And I'll build on top of that view for a longer term vision and sort of more ambitions take on some of the biggest challenges. We have got to stop giving people short term contracts. The short term contracts are parts of the most toxic parts of academia. It incentivises us to do these small, bitty, uninspired, unimportant pieces of work. And also it disincentivizes people to go out there and talk about their efforts because they're always chasing the next thing, the next thing. And that uncertainty is really holding us back. So long term contracts will really, really enhance the ability for us as a community to take on the most ambitious research.

(Bueso) For me, it's let's look at science as our universal language and let's look at science as a universal human right so that we all benefit of its outcomes and we all participate in it.

(Aspaas) Thank you very much indeed. Shouldn't we give a warm round of applause to the panel?

(Aspaas) Open Science Talk is produced by the University Library of UiT the Arctic University of Norway. Thanks for listening.