



Miruna Amza
& Iris Opris
**A wild
and fertile
ground**

spokes

- spokes**, noun, plural of spoke
1. One of the rods or braces connecting the hub and rim of a wheel.
 2. *Nautical* One of the handles projecting from the rim of a ship's steering wheel.



Science communication for the 21st century

A CONVERSATION WITH

ANNE GLOVER



Spokes: How can science centres and museums work better with the European Commission to not only disseminate information but also to collect European citizens' views?

Anne Glover: People go into science centres and museums and I think they have great experiences. The challenge is to get all the experience and abilities – particularly science communication – from all the museums and science centres and spread them outside.

So one of the things that could be good – and of course this could be funded by a European Commission programme – is to get those skills in communication and make those a routine part of every undergraduate degree so that when I come from a degree in astrophysics, I am an expert in that field, but I am also an expert in how I can talk about that to a non-expert.

We need a different sort of scientist for the 21st century – it's no good to have the scientist working on their own in the lab and not interacting much with others, apart from other scientists. I'm painting a very bleak picture there, but we need young people who are enthusiastic about science, when they get their degree, being an expert communicator. And that's where I think the museums and science centres have the skills that we – and I include myself in this – don't have.

S: Science centres and museums in evidence-based policymaking: Do science centres have a role in this? If so, what should that role be?

AG: They've definitely got a role in policymaking because they attract citizens – citizens who perhaps have an interest in science and culture and who potentially have an interest in the future and so have a vision for the future. So science centres and museums are very good places for capturing opinions and views. And I think that those views – and also the challenges that might come from citizens – could be very helpful in, if you like, enabling politicians to see a little further than they currently see.

Let's take an example of the debate around climate change: There's an absolute consensus that we're having a negative impact on our planet, but how do we deal with it? Science can come up with lots of options, but citizens are saying, "Well, I don't like the sound of that because I'm going to have to change or do something different."

So, where we could use the science centres and museums is to ask citizens to imagine what an ideal future would look like and offer them opportunities – would you really like a car of your own or could you share a car and see all the benefits of that or could you use public transport and see benefits with that or could you have much more virtual reality so you wouldn't have to travel anymore.

All these scenarios can be made real by science centres and museums and the information can be then delivered back to the policymakers and the politicians saying that citizens are more open than you think to these possibilities – it's just that we don't often ask citizens.

Spokes caught up with Anne Glover, Chief Scientific Advisor to the European Union, at the 3rd PLACES conference: Modeling cities of scientific culture, in Torino, Italy.



Photo: Silvia Pastore

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features



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S: The VOICES project is doing this essentially...

AG: Yes, which I think is very important because all of us must have been in the position where we're listening to the news or we hear a politician telling us that citizens don't like this or don't want that and I'm thinking, "well, I'm one of them and nobody's ever asked me". How do they know I don't want this?

I think [the solution] is all to do with lubricating this flow of knowledge and views and opinions and information from the bulk of the population of citizens into the people who make decisions.

S: What are, in your view, the upcoming aspects in European research that will require a clear dialogue with citizens?

AG: Energy. How we generate energy sustainably, how we use oil and gas, what we should use and what we shouldn't use – biofuels – all of these questions. Citizens have a very important role there.

Climate change, biotechnology – particularly around things like food security. So if we think about genetic modification, we do have to consider how we feed nine billion people by 2050. We do need science and technology to help us there, because we need to do this with less land, less input, less water, potentially quite difficult conditions – all of these things we have to deliver – so we have to think about how we get citizens involved in that dialogue to demand new science or to say they don't want particular science.

Other issues would be – particularly in Europe – that we are an ageing culture and we need to age and live well. Otherwise we can't sustain the population. So we need to think about new technologies for looking at the neurodegenerative disorders and I'm thinking about stem cell technology and so on. But citizens need to be comfortable with the idea of stem cell technology because there's a lot of ethical debate and discussion around that.

Synthetic biology – similarly – being able to generate either new options for storage of energy using microbes or using microbes for fuel.

Views, Opinions and Ideas of Citizens in Europe on Science (VOICES) is a year-long, Europe-wide citizen consultation, led by Ecsite, exploring the concept of waste as a resource. The project is a means of integrating public opinion into the "Climate action, resource efficiency, raw materials" dimension of Horizon 2020 Work Programmes beginning in 2014.

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Nanotechnology is another big area. All of these areas, what's at the back of my mind is, that if we are as bad at communicating those as we were around genetic modification, we've got a real problem on our hands.

We can't deliver a secure future for our population in the 21st century without using the knowledge that we're creating and the technology that we potentially have.

We got it wrong with genetic modification because nobody thought to include citizens in the debate. People thought we'll just create the technology, we deliver it, and that's it. Well, that was the wrong thing to do so we can learn from that and make sure citizens are in right at the beginning and that they're asking the questions and they're making the demands – not politicians or scientists or policymakers.

S: This idea of cities being a good conduit through which citizens can influence policy is a big part of the PLACES project which ends in March 2014 – what can we do with the knowledge community that's been built in that project?

AG: There will be a lot of output from the PLACES project and I think that can be constructed into a meaningful, powerful manifesto for cities that can then be taken to our cities in Europe and they can be challenged and say, "here's what we found – how will you react to this?" When a project comes to an end, it's never really the end, it's the "now what?" It's making sure there's a way that people can benefit from the very interesting and exciting debate.

The PLACES project won't solve every problem we have in the 21st century, but it uses the undoubted power of these hubs of cities – these vibrant organisms that cities are where more and more of us will live because we are becoming more and more urbanized – and use these cities to grow and develop using some of the toolkits that have been developed in PLACES.

We have to give people something very simple and realistic so they can reflect on what they can do. And even a database of experts so that people can think, "this looks interesting but how can I find out about this – who would be the contact in a city that has done this well?"

S: Science communication experts included?

AG: Absolutely, because for me it is all about knowledge brokering: Science communication is using knowledge as an asset and shifting it from one environment to another. And while you do that, of course, you are always adding value to the knowledge.

So if we had to make things easy – clear steps that you can take if you're in a city and you want it to be a city of the future and if you have some resources like databases with good examples of things you can do – and there are contacts – because the most important thing is to be able to pick up the phone and say "I'd like to speak to you about what you've done because I think it could work here."

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S: It's that simple, really?

AG: (laughs) It can be that simple.

Cities should have websites and on the website there should be lots of contacts of who does what. I think you must have looked at the websites of some cities – some of them I'm impressed with and some of them I just think...

S: ...they're trapped in the 1990s?

AG: Yes, that's how it seems.

But why invent the wheel if someone's already got a good wheel that's working? There's no competition here, actually; a vibrant city somewhere is good for cities everywhere. Just because one city is good doesn't mean another needs to be worse. There's plenty of opportunity for them all to be great and the more collaboration there is, the better.

We used to have these twinings - lots of places twinned with others. There used to be a lot of cultural interaction which is really helpful and good. We could think about this concept of twinning again, of pairing up cities in exchanging information and driving up the stakes and try to improve to have these real cities of knowledge and science culture.

S: "Scientific Culture Twinning"?

AG: Yes.

The Platform of Local Authorities and Communicators Engaged in Science (PLACES) project, funded by the European Commission and led by Ecsite, fosters connections between scientists, science communicators, citizens, the private sector and policymakers. More than 70 cities in the project are using these connections to develop science communication policies at the local level. Do not miss: PLACES of scientific culture, Bremen, Germany, 10-12 March 2014. openplaces.eu/conference

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