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Q&A: 'You are the generation which I hope will fix our society'

Young researchers are curious, energetic, imaginative and look at the world in new ways, but their lack of job security or clear career path is a 'major, major problem', says Jean-Eric Paquet, the EU's director general for research and innovation, who experienced the issue first hand when one of his sons stopped working in science for lack of long-term prospects.

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We challenged Mr Paquet to sit down with Giulia Malaguarnera, an early career biotech researcher and president of Eurodoc (the European council of doctoral candidates and junior researchers), to talk about what Horizon Europe, the European Commission's 2021-2027 research funding programme, has in store for young researchers and how it can address issues such as career precarity, open science and levelling the research playing field.

This is an edited version of their conversation.

Giulia Malaguarnera: Horizon Europe launched earlier this year. What are the new, key priorities, in a nutshell?

Jean-Eric Paquet: There is a degree of continuity with Horizon 2020. Particularly on the science side we continue to put the biggest component on the European Research Council (ERC), which is the lighthouse telling the world that the best science is happening in Europe. Arguably not only in Europe – but also in Europe.

We will continue the Marie Skłodowska-Curie (MSCA) programme (for early career researchers) with more funding and a few adjustments. We believe we need to continue to support the mobility of young researchers. I think our main asset in European science is the diversity of science cultures and allowing young researchers to go through it.

Where you have a change is with the creation of the European Innovation Council (EIC), which aims to emulate the ERC. The ERC is Europe's Nobel prize factory and I very much expect that the EIC will be our unicorn factory as we move forward. The innovation supported by the EIC is essentially deep tech innovation based on science and engineering where we believe the next generation of innovation is going to be. What we are looking at is innovators who have drive, who are really looking at disrupting the state of affairs.

There's lots of innovation happening in Europe. Where we are challenged is on the scaling up. And this is where the EIC comes in with a number of features we believe will be quite powerful in helping these companies develop, get products to market and scale up.

But what is most novel are the missions on cities, oceans, soils, climate and adaption and cancer. And these missions are about connecting science with public policy deliverables. They are about setting a longer term objective – (by 2030) one hundred climate-neutral cities, three million less deaths from cancer.

GM: Within Horizon Europe, in which areas do you foresee early career researchers playing a big role?

JEP: Young researchers are today the vibrant community which is making a big difference in science in Europe. The principal investigators are amazing people, but they rely on teams which are really doing the groundwork and often contributing to the discovery very directly.

The teams in the ERC, any consortia or related project, I would expect that they will benefit from the curiosity, energy, imagination, and new ways of looking at the world, which is the hallmark of your generation.

Your generation is looking at our planet very differently from maybe people who are in their 50s or 60s.

But I would really encourage young researchers to be curious, to interact with us as we prepare priorities. And come to the Research and Innovation Days next week and tell us what we got right and also, don't hesitate to underline where you think we are getting it wrong.

GM: As president of Eurodoc, an umbrella organisation representing early career researchers in 28 countries, I am always in touch with junior researchers. We face a big challenge, which is research precarity. On one hand, we have junior researchers who are not fully recognised as professionals, but as students. And on the other, we (Eurodoc) found in a soon-to-be-published 2018-19 survey that about 80% of post-doctoral researchers in Europe hold a research position for just two years. How is the EU looking to reduce this precarity?

JEP: This is a major, major problem. There was a lot of complacency at national level and also at EU level about that – equating that precarity with agility, flexibility or capacity to move around. But I think we are now, in many member states, research organisations, seeing more and more researchers who don't accept it (the precariousness of employment contracts) anymore.

And we are seeing also long-term precarity, which was not the case maybe a decade ago. The structural precarity is unacceptable. That needs to be tackled. Recognised first and tackled. There's absolutely no doubt about that.

I have also a little bit of a personal issue here. I mean all my sons are doing science and the older one - before I became director general for research and innovation, disclaimer, disclaimer - left science. He now works in an industry organisation. It was not possible to really look longer term for him. The second one is still in the lab. Let's see how long he lasts. And the third one is now at master's level. So I'm seeing first hand how exciting such a career is, but also how challenging the framework is to really project yourself in the long term. And that's a real challenge.

At the EU level of course, we will act on it. We need also to ensure that we provide a better framework for member state policies (through the revision of the 2005 European charter for researchers). We will improve

Euraxess, the talent platform for Europe.

This is in the end essentially an issue of national implementation and also largely of national competence. We (at the EU level) can certainly push, nudge, propose instruments to facilitate more ambitious policies which tackle precarity more effectively. It is fully on the agenda but it will not be solved overnight.

GM: Can you briefly explain what Euraxess is?

JEP: Euraxess is a digital platform which allows available positions across the EU but also beyond the EU to be advertised and available for anyone to apply to. You also have some instruments to help you apply. (It's) an active platform for individual scientists, (EU) funded or not.

GM: Covid-19 has added another layer of uncertainty and stress. What support is there at the EU level for researchers that, for instance, have lost more than one year of research because maybe they do fieldwork or seasonal experiments or research?

JEP: This applies to the entire (funding) programme. Obviously, against a discussion with precarity, this certainly was felt as even more impactful among young researchers.

I know that we have not completely met the expectation from some younger scientists. I know that Eurodoc (and the Marie Curie Alumni Association) had a survey (on the impact of Covid-19) and in the end we had quite a few young scientists who felt that in the end, the flexibility which we introduced was not enough. We introduced massive flexibility to all the instruments. We allowed extensions; we allowed change in terms of work packages to ensure that any delays which were linked to the lockdown could be fully taken into account. The only thing which we didn't do was to increase the budgets of these projects because there was no budget available.

GM: Even if from one side Covid-19 has brought a lot of challenges, it also opened up our vision around open science.

JEP: Absolutely.

GM: I am a huge advocate of that. Open science means openly sharing knowledge and making it accessible. It's important not only for the researchers, but also for citizens, because we need to earn their trust and to include them. What lessons do you think have we learned from Covid-19 and open science?

JEP: The first thing I would say is that I hope that there is no coming back on the open science improvement during Covid because it made an amazing difference. I mean, never has science moved so fast. Of course, admittedly on the topic where funding was everywhere, where cohorts of clinical trials were available everywhere. These are, of course, extremely important factors for the acceleration of science and science results, vaccines being the spectacular one and the European vaccine, BioNTech, being the most spectacular one.

But there are other factors which really played a key role, and open science is absolutely one of them. We had the European Virus Archive, set up over nearly a decade, which was fully open access to scientists around the world. And that was then continued with magazines which operate behind paywalls, turning off paywalls.

I'm really proud that the European Commission supported creating the Covid-19 data portal. This was set up in April of 2020, so, super fast. It's an early European science cloud for Covid-19 on which thousands of scientists shared millions of research data, not just the article but the data itself. And that has had an amazing accelerating impact on the science response to Covid-19. So these are developments which we now need to take stock of.

On the side of the Commission two developments were already ongoing, but are now much emboldened. The first is the European open science cloud on which we will continue to invest. And secondly, open access. Scientists funded under Horizon Europe will have to make their article, their peer reviewed article, available on day one.

GM: Could you tell us more about this?

JEP: The paywall is what we all experience when we are on the internet, some services are available, others you need you to pay for a subscription, which can be quite costly. Many journals have these.

What we argue is that keeping research results limited in terms of access for six months, sometimes more, goes against the needs of society, but also goes against the need of science, because science operates – not always but during Covid certainly, and in many other areas in health or in climate – against urgency. So limiting access to science outcomes is not acceptable for the European Commission, is not acceptable in Horizon Europe.

GM: The pandemic has seen a lot of researchers are jumping into Covid-19 research but there are other fields that are equally important. How is the EU supporting overlooked fields?

JEP: If you're referring, for example, to the humanities, this is a much longer discussion.

There is this perception that European research is not interested enough in humanities. Firstly, it's true that Europe Horizon does not cover fully all aspects of humanities. I think for me here, the issue of humanities is much more that member states don't invest enough in humanities research. And the perception that Horizon can compensate, that is an illusion. Horizon Europe will never compensate for whatever the area, in climate, in health, what is not done at national level. We represent less than 10% of public funding in Europe. So the initial effort, the real effort needs to be done at national level and that applies to humanities as well.

But then more generally on humanities, if you look at Horizon Europe, there is one cluster which deals with inclusive societies, where I am very proud that my teams recommended to have a major topic on democracy and governance. This is a real step forward. But maybe more important for me is a very hard push - and the results will be measured over time - that whatever research we do, we try to ensure that teams also look at the social implications.

GM: Yes, for sure. Younger researchers are also dreaming about a good research environment, which is free from discrimination and is inclusive of minorities, disabilities and gender and so on. Do you want to say something about how the EU can improve this situation?

One practical element is that we will require that institutions which are supported under Horizon Europe, so universities and research organisations, have in place a gender equality plan. (From 2022 onwards) if you apply for a call and you are selected, by the time of contract signature, you need to have the gender equality plan in place. If you don't have it, the funding is not available.

Of course, they are not a magic wand. A gender equality plan is a framework. And then you need to put in resources and you need to deliver with it. But we believe that having it as a universal feature of all our research institutions in Europe will have a very big impact on gender equality in the institutions.

Secondly, this is also visible in the work programmes, it will be very visible in the evaluation guidance we give. We also want research which is gender neutral and gender aware (and inclusive of ethnicities, disability and sexual orientation).

GM: And finally, how do you see the role of the next generation of researchers?

JEP: You are the generation which I hope will fix our society. We will not leave you alone in doing that. I think the responsibility is transgenerational, but I expect the momentum from your generation to help us.

This story is part of a series in which we hear from the next generation of scientists and researchers who are working to tackle global challenges.

Giulia Malaguarnera is a fellow of the Marie Sk?odowska-Curie programme which supports early career researchers. Her project Goc-MM developed a device mimicking human gut conditions to study microbiota linked to obesity and other metabolic conditions. She will be speaking at a panel discussion on how young researchers build careers and are assessed on 24 June as part of the European Commission's Research and Innovation Days conference.

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What is Horizon Europe?