

# Changing European Research Landscape

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# IS IT A BLEAK WINTER?

European policy must see research as an essential step to regeneration.

# Question?

- Do we observe on the changes in current European Research landscapes
  - Or
- Consider ways in which we might more effectively contribute to the changes that are underway?  
***I strongly advocate the latter.***

# Indicators of Divided Europe

- Well -- BREXIT; need we say more?
- Rise of populist leaders in several countries
- Lack of cohesion on key opportunities
- Yet, there is agreement on some common challenges. The approach and response to Grand Challenges offers hope

# Brexit



# BREXIT implications

- We know that a slim majority of those who voted favoured departure from EU, but what did they actually want? Implementation remains--
- Practical implications includes a budget gap in 2016 of Euro 1.7 Billion arising from currency fluctuation from 1.37 at set date to 1.16 today.
- Loss of annual contribution of Euro 8 Billion; nearly the size of the current FP including UK!

# REPUBLICAN GOVERNMENT

- Now that the US elections are over, we know that there will be a Republican majority in all three key bodies: Presidency, Senate and House of Representatives
- Republican Government has a history of similar policies; with this is now the added challenge to long-standing trade agreements
- Rejection of expert advice, denial of consensus on climate change, non-acceptance of mainstream economic theories



“The Republican Brain: The Science of Why  
They Deny Science- and Reality.”

*–Chris Mooney 2012*



“When I’m at home, I spend all my time, like a good liberal, yelling at the television set, denouncing Republicans and how biased they are. Then I assume my persona at work and I say, theoretically, it’s really hard to know why there would be a difference.”

*—Peter Ditto, Uni California, Irvine*

# Scale of Funding

- Let us remind ourselves that H2020 is only about 1/3 of national funding agency spend on Research
- Philanthropic funding still important; represent a freedom open to neither of above, for example:  
*The (Stg 650 Million) Crick Institute is the biggest biomedical research institute under one roof in Europe and is investigating the fundamental biology underlying human health and disease.*
- <sup>1</sup>  
<https://www.crick.ac.uk/news/news-archive/2016/11/09/queen-opens-new-francis-crick-institute-building/>

# How Choices are made

- It is interesting to reflect on the roles of the various players in shaping our Research Landscape
- National priorities: Smart Specialisation: driving forces -- jobs, social benefit, economic advantage
- Grand Challenges
- European: Commission, Parliament and Council
- Note that no <sup>1</sup>mandate for Industrial Policy- this leads to a fragmented approach that undermines impact of research outputs

# National Priorities

- National Research strategy
- Smart Specialisation agenda; particularly regional opportunities:  
[https://ec.europa.eu/research/regions/pdf/publications/ExpertReport-Universities\\_and\\_Smart\\_Spec-WebPublication-A4.pdf](https://ec.europa.eu/research/regions/pdf/publications/ExpertReport-Universities_and_Smart_Spec-WebPublication-A4.pdf)
- Contribution to Grand Challenge and global agendas (well know, will not enumerate here)
- Science Europe represents most  
[www.scienceeurope.org](http://www.scienceeurope.org)

# UNESCO-Sustainable Development Goals 2030

- Was there ever a more succinct outline of the Challenges of our time? <http://una-gp.org/the-sustainable-development-goals-2015-2030/>
- Can we do more than hope that UN plays an increasing role in our future and overcomes challenges posed to UNESCO Budget? Can we ENGAGE with those decisions?



# European Commission

- Probably best commentary comes from <http://sciencebusiness.net/news/79966/EU-Commission-sketches-possible-directions-for-FP9>
- Scenarios based approach: Rosy, Gloomy: continuance or better. ---PLUS
- Future of Energy & Transportation
- Security and Defence<sup>1</sup>: Note proposal to include preparatory actions-

# EP and STOA

- I observe an increased activity by EP; see towards Scientific Foresight for the EP:  
[http://www.europarl.europa.eu/RegData/etudes/IDAN/2015/527415/EPRS\\_IDA\(2015\)527415\\_REV1\\_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/IDAN/2015/527415/EPRS_IDA(2015)527415_REV1_EN.pdf)
- This poses the question as to how we will interact and persuade the Parliament: note some examples- EISMD, [www.re<sup>5</sup>search.eu](http://www.research.eu), Science Media Hub.

# All demand Public Engagement

- We should ensure that these consultations learn from this project the most ***effective*** techniques
- We should input when appropriate: e.g how many had opportunity to input to Simplification meeting on 25th September?
- Stakeholder consultation design:  
[http://ec.europa.eu/research/consultations/interim\\_h2020\\_2016/consultation\\_en.htm](http://ec.europa.eu/research/consultations/interim_h2020_2016/consultation_en.htm)

Personal view: A real priority--

- Artificial Intelligence, AI or Deep Learning has made amazing strides
- Measure of financial importance is Nvidia; they work with 1,500 companies and had "revenues of \$1.2 Billion" from this area alone
- Comment from Andrew Ng, Baibu; "***AI is the new electricity***" with the associated social and employment changes

# Artificial Intelligence

- Whilst, in one sense, AI can be seen as the continuing drive for efficiency and automation-
- There is a real step change being driven in our time
- I never thought that I would experience excellent voice dictation-- yet, it is here and now; powered by AI and aided by physical hardware. More amazingly, it translates in real time to most languages
- How do we tackle the ethical questions?



# Ethical Questions of AI

- The development here is quite astonishing; we need to recognize the positive and negative aspects
- WEF observations:  
<https://www.weforum.org/agenda/2016/10/top-10-ethical-issues-in-artificial-intelligence/>
- A pressing case for deliberative decision making

# Russian Federation

- We can expect that collaboration with the Russian Federation and allied countries takes a more central role
- It is clear that isolation is not productive, despite the challenges in accepting some recent actions
- The sheer scale of the potential is enormous: a pressing need for better dialogue and action









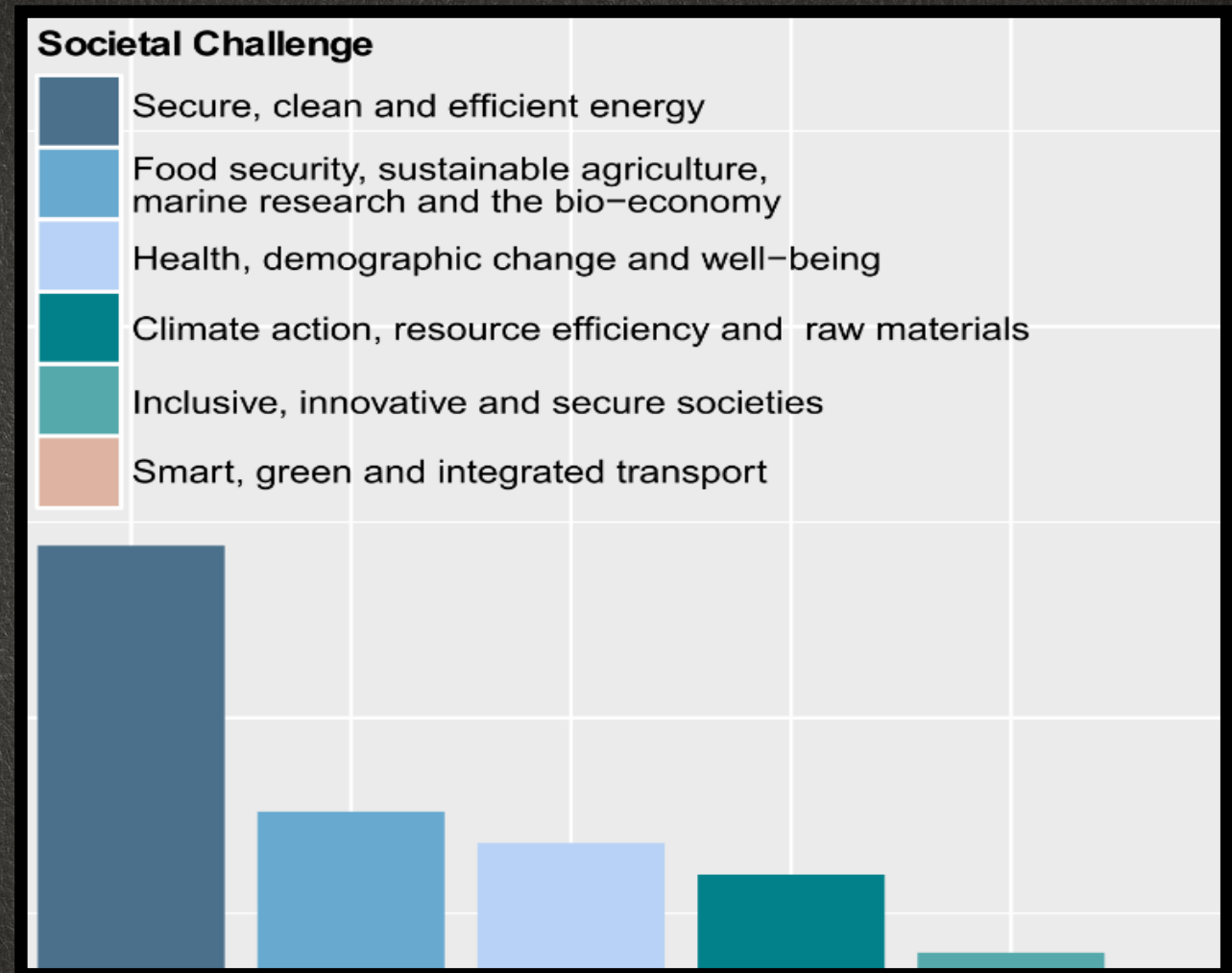




# Young Research Careers

- ESF has traditionally supported young researchers and in our EURYI scheme was a precursor for ERC
- We need to do much more to ease the transition from PhD to research career-- or indeed, envision an alternative to PhD
- See <http://www.esf.org/serving-science/career-tracking/career-tracking-pilot.html> for some unexpected outcomes.

# EXAMPLE OF A REAL MAP: MERIL PROJECT



<http://portal.meril.eu>

In closing---

- Gratitude to Mikko, Kaisa and all colleagues in the project: it has been a great experience
- There are practical lessons that can lead to short-term benefits; we need to be evangelists for application
- Engagement is essential to shape our future-- we cannot sit idly and let it happen.





- End poverty in all its forms everywhere
- End hunger, achieve food security and improved nutrition, and promote sustainable agriculture
- Ensure healthy lives and promote well-being for all at all ages
- Ensure inclusive and equitable quality education and promote life-long learning opportunities for all
- Achieve gender equality and empower all women and girls
- Ensure availability and sustainable management of water and sanitation
- Ensure access to affordable, reliable, sustainable, and modern energy
- Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- Reduce inequality within and among countries



Make cities and human settlements inclusive, safe, resilient and sustainable  
Ensure sustainable consumption and production patterns  
Take urgent action to combat climate change and its impacts (in line with the United Nations Framework Convention on Climate Change)  
Conserve and sustainably use the oceans, seas and marine resources for sustainable development  
Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and re  
Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and  
Strengthen the means of implementation and revitalize the global partnership for sustainable development