TIP@50: Technology and Innovation Policy

Human-centered policy design and implementation
TIP@50: Lessons learned

1. People, people, people...
   • Promote policies to help massifying skill development and foster collective learning, democratizing the access to knowledge

2. On the collective action of institutions and a system approach to technology and innovation:
   • Promote policies to foster institutional and R&D diversification, together with the role of intermediaries

3. Diversifying the structure of the economies and the level of incentives, to enlarge access to innovation:
   • Which policies to enlarge gross expenditure in R&D and avoid further concentration of funding?
A case study: cancer diagnosis and treatment...
A mission oriented approach to cancer in Europe for 2030
(source: Celis & Pavalkis, Molecular Oncology, Nov, 2017)

To achieve a long term survival of 3 out 4 cancer patients

The issues: Where?...How?
Democratizing mobility,

... new horizons for innovation?

Three main driving factors:

• Connectivity
• Electrification
• Ambition...
Albert Robida,
Leaving the Opera in Year 2000 (La Sortie de l'Opéra en l'An 2000), 1882

Gramazio & Kohler’s ballet of flying machines for their Vertical Village is actually rooted in a long tradition of science-fiction images of future aerial urban life. This one by French illustrator Albert Robida represents fashionable society leaving the Paris opera at night after a show.
How to use technology to leverage citizens’ expertise and promote learning??

Consider Knowledge as our common future:
...by promoting **participatory actions** rooted in people’s knowledge, know-how and needs/goals, and oriented to foster **collective learning**, democratizing the access to knowledge and **create new** solutions for all.

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Any knowledge is necessarily personal and social...

“indwelling” : ...learn by experiencing?

Polanyi (1966, 1969)

A new culture of learning? ...Becoming!

People learn how to embrace change, collaboratively, through knowing, making and playing

Thomas and Brown (2010, 2011)
The process (from June 2016): Connecting scientists to policy to build new horizons for entrepreneurs around the world!
1. AIR Center
2. “Porcupine” EMSO Marine Observatory (UK)
3. Galway Bay EMSO Marine Observatory (IR)
4. Kiruna ESA Station (SW)
5. Molene Isl. EMSO Marine Observatory (FR)
6. Villafranca ESA Station (ES)
7. Cadiz Gulf EMSO Obs. (PT)
8. Cape Verde (CV)
10. South Atlantic FixO3 Observatory (UK)
11. Alcântara Launch Center, (BR)
12. Kourou ESA Station, French Guiana (FR)
13. Bay of Fundy Observatory, (CA)
• **WHAT** will these new technologies be like?
• On **WHICH** research we should invest in?
• **WHAT** engineering courses should we teach in our schools and universities?

These are relevant issues, but the **wrong questions** ...
We can look, instead, at the process...

How people, institutions and incentives can be effectively oriented, transmitted and assimilated to better connect scientist and policy in order to allow all our societies, at large, to move towards a socially responsible, sustainable and entrepreneurial world?
Learning from TIP@50: the hypothesis

Science, its impact and the presence of innovation, result from a cumulative, long-term, collective and uncertainty process, involving an extensive division of labour, which requires massifying the training of human resources and qualifying the labour force in many economic sectors, in a way that depends on the structure of the economy.

Public Policy is critical:

but, is there room for a common vision for TIP?
The multidimensions of S&T and the social construction of Technology and Innovation Policy

**PULL UP THE TOP OF THE KNOWLEDGE PYRAMID**
Requires a strong academic research engagement, with advanced and doctoral training of human resources

**BROADENING THE BASIS OF THE KNOWLEDGE PYRAMID**
Open social access to higher education, to different students (including lifelong learning), mitigating access inequalities

broadening the base and pulling the top, promoting social mobility and equal opportunities across the socio-economic-cultural structure
The social construction of technology and innovation policy

Scientific employment
internationalize

Diversify institutions, strengthening diversified missions

More “intermediaries”: collaborative Labs, strengthening networks

More employment

More scientific culture
More public participation

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Why technology and Innovation?

The future requires addressing two key emerging issues everywhere:

• EXTERNAL – multilateral:
  – Multiply global R&D and HE networks
  – Develop international R&D organisations and programmes
  – Promote the international debate for new research agendas

• INTERNAL:
  – Better understanding of “policy mix”:
    • Exploration and exploitation
    • Extended BERD across small, medium and large companies
    • The key role of local productive arrangements for global markets
  – Invent jointly new economic drivers
  – Diversify and combine funding sources

but, is there room for a common vision of the future of TIP?
World share of GDP and GERD for the G20 over the last decade (2002-2012); values in %