

The Future of the EU as an Inclusive and Sustainable Innovative Economy

Discussion paper (short version)

In this paper, a group of [EuroTech Universities](#) professors¹ highlights several key challenges central to the transformation towards an inclusive and sustainable EU innovative economy. We focus on the need to develop five conditions that will enable the EU to become the leading economy in the world, by capitalizing on its distributed and inclusive nature as well as exploiting its potential for breakthrough innovations.

1. Tertiary Education and Fundamental Research.

A well-empowered and vibrant research university that couples research and education is the core institution in any innovative economy. Students at all levels are taught and supervised by scholars, and the latter are exposed to the energy and creativity of students. Research universities are thus a crucial mechanism to generate externalities in the form of both human capital and basic research as “joint products” (giving rise to economies of scope and internal spillovers).

This may seem self-evident (e.g. in the US context), but in Europe it is not. The national research institute (NRI) is dominating the research landscape in many European countries. These NRIs are a legacy of the past, when many countries tried to ‘catch up’ and existing universities were too poor to accomplish central research missions. However, as these countries have moved closer to the technology frontier, the rationale for a strong NRI sector is weakening and new institutions are needed. Two key problems arise from NRIs. First, they break the powerful relation between research and education. Second, the presence of a large NRI sector is a major obstacle for developing research universities, since the former captures a large fraction of available resources. As a result, there is a strong policy case for designing a process that will lead to more effective institutional arrangements in science and a higher level of investment in research universities. In a world characterized by limited resources, this should be done by transferring funds (at least partially) from one sector to the other, or alternatively, by merging research universities with NRIs (as in [Denmark](#)).

2. Young Innovative Firms.

More than ever in the history of innovation, the capacity of an economy to generate new ventures as well as to facilitate their growth determines whether it is part of the next technological revolution. The lack of [financial resources](#) appears to be the main barrier to innovation for innovating firms. It is therefore crucial to ensure that enough money is available for entrepreneurs with good ideas. Moreover, today’s emerging firms need [new corporate finance solutions](#) other than debt backed with physical assets. The US financial system has evolved more quickly to provide new solutions, such as high-yield bonds, venture debt, and private equity. Most parts of Europe still display a relative underdevelopment of financial services for emerging firms. A crucial policy issue is, therefore, to improve the EU financial sector, as a necessary condition for minimizing the access-to-finance barrier. In particular, high-risk financing and early-stage venture capital (VC) markets are pivotal and need to be reinforced. At the same time, there is still a role for public VC programmes in addition to private VC providers,

¹ The *EuroTech Universities Alliance* is a strategic partnership of four leading European Universities of Science & Technology: Technical University of Denmark (DTU), Eindhoven University of Technology (TU/e), École Polytechnique Fédérale de Lausanne (EPFL), and Technical University of Munich (TUM). This discussion paper provides an expert view of the following professors in innovation and entrepreneurship, rather than representing the official viewpoint of the (boards of the) four EuroTech Universities: Dominique Foray (lead author), Georges Romme (lead author), Oliver Alexy, Per Dannemand Andersen, Marc Gruber, Joachim Henkel, Fred Langerak, Jason Li-Ying, Ed Nijssen, Gaétan de Rassenfosse, Isabelle Reymen, Søren Salomo, Christopher Tucci, and Thomas Weber.



because the structure of private VC is inappropriate for many ventures and the capacity of the private VC industry is rather limited.

EU innovation policy must address the economics of young innovative companies by creating appropriate incentives involving effective corporate finance solutions, a strong private VC sector, public VC programmes, and a vibrant exit market, to generate a virtuous cycle of the generation of new (academic) ideas, development of start-ups, and demand for and supply of investment capital.

3. Transforming the Tax System.

Any attempt to address the European innovation challenge needs to go beyond established notions of ‘innovation policy’, to transform more deeply rooted conditions inhibiting innovative and entrepreneurial behavior. A key condition here is the highly fragmented landscape of country-specific (e.g. income) tax systems, which sustains a multi-billion industry focused on tax collection, optimization and evasion. These tax systems constitute an enormous drain on the limited pool of resources available for innovation and economic growth, and as such have strong [adverse effects on employment and real GDP](#). Moreover, the very notion of taxing income is highly antagonistic to the intrinsic value of work and economic growth in European society. We therefore call for a European debate on the need for standardizing tax systems in ways that do not inhibit innovation and economic growth.

One promising scenario involves the elimination of all income taxes, including gift and inheritance taxes, to replace these with a single-rate tax on value added or consumption — resulting in a straightforward system of [output taxation](#). Such a system would be automatically “fair” in distributing tax among individuals and would drastically simplify tax collection, thus making Europe into the most attractive location to start and grow a new business as well as for any other kind of investment (e.g. in sustainable energy production and storage).

4. Ensuring Appropriate Rewards and Incentives for Innovators.

The transaction of technologies among different actors has become pivotal to the successful development of new products, services and systems. Intellectual property (IP) underpins technology transfer between actors, by creating clear rights that can be transferred. A well-functioning IP system and market for technology are thus critical to the European innovation agenda. However, the European patent system is highly complex and fragmented, which creates a lot of uncertainty for inventors and entrepreneurs. The increasing numbers of patents granted by the European Patent Office (EPO) largely reflect ‘strategic patenting’ aimed at aggressively blocking other innovators and extorting royalties where possible. The rise of strategic patenting suggests patents may still be too easy to obtain. The [inventive step](#) threshold therefore needs to be raised significantly. We also call for an assessment of how the EPO is funded and governed. The EPO is financed by the fees it collects from its ‘clients’, which raises a serious [incentive problem](#). A key governance problem arises from the composition of the administrative council of the EPO, which might encourage the preservation of national interests at the expense of innovation and economic growth.

The EU should also play a central role in designing efficient markets for technology. These markets are plagued with failures arising from information asymmetry, lack of market thickness, and difficult-to-transfer property. More efficient markets for technology can be developed by promoting the standardization of contracts and developing the market infrastructure, amongst other measures.



5. Smart Specialisation.

The [smart specialisation](#) strategy (S3) addresses the innovation challenges of less advanced and transition regions (i.e. their weak capabilities and ecologies). For this type of region, the point is not to invent at the frontier, but to generate innovative complementarities in its key sectors — thereby transforming the region into a good follower that allocates R&D and other innovative inputs to lever the growth potential of knowledge and technology developed elsewhere.

However, such an inclusive approach to innovation and growth does not only require a set of generative conditions (such as those previously outlined), but also specific capabilities and resources at the regional level. Top regions benefit from spillovers arising from research and training, diffusion of technologies to suppliers, [new models of IP](#), and other [open innovation](#) practices. These spillovers constitute the [complementary capabilities](#) that many start-ups and SMEs can draw on, even if they have not contributed to their provision. In many other regions, however, these sources of complementary capabilities have never existed and large holes in their industrial ecosystems have emerged.

In less advanced regions, including those undergoing major transitions, regional innovation policy therefore needs to address the whole set of capabilities required to innovate in *specific* sectors and emerging fields. In other words, local innovation ecologies need to be formed: the dense network of companies, research institutions, specialised services and complementary capabilities that are mobilized to explore collectively a certain new domain of opportunities.

Together, these five conditions will enable the EU to become the leading economy in the world, by capitalizing on its distributed and inclusive nature as well as exploiting its potential for breakthrough (social, fiscal, technological, and other) innovations. Evidently, each condition involves a “grand” challenge that is nonlinear in nature and cuts across many different jurisdictions. Therefore, any effort to create these or similar conditions requires all stakeholders to not accept any quick fixes.

