

Title

Innovation Futures: Critical perspectives on the pace of innovation and their consequences for business, society and policy

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Background

The need for innovation has become a necessity in modern economy and society and it is commonly argued that ultimately individuals, firms, and nations have to innovate. Although, undoubtedly, innovation solves everyday life problems, provides enjoyable products, creates wealth, and drives economic development, the question of the intensity and direction of innovation becomes increasingly relevant when innovation becomes all-encompassing. This development is driven by new societal development and technologies which enabled the emergence of new organizational models for innovation. The way we organize innovation is changing. One hundred years ago the Austrian economist Alois Schumpeter has seen the entrepreneur and the development labs as prime locus of innovation. However, today innovation is seen as something which happens anywhere by anyone at anytime. Emerging innovation models such as open innovation, user innovation or community innovation describe this development stressing that innovation is increasingly perceived as open, distributed and networked phenomenon involving many part of the society and economy.

While innovation usually is seen as positive the acceleration of the innovation process and new organisational models of innovation may also have some unintended and negative impacts on economic and social development. In this paper a more critical perspective is adopted analysing various problematic aspects and consequences of innovation.

The study

This paper is based on findings from an international research project which investigates different organizational patterns of innovation processes and their future perspectives. In the course of the Innovation Futures (INFU) project which was funded by the 7. Framework Programme development trends and scenarios and their consequences for business, society and policy have been investigated. In the course of this work, various sources such as academic literature, magazines, newspapers, and the internet sites have been analyzed to identify how private and public actors create new ways to organize innovation. Based on a collection of identified international practice examples from industry and society a number of innovation models and visions was developed describing how innovation may be organized in a new way in very different fields in the future. These innovation models have been discussed and assessed by conducting interviews, launching an online survey, organising expert panels and workshops across Europe. In the final phase of the project the visions have been assessed and implications for European policy have been drawn.

New innovation models and their consequences

Based on the scanning of weak signals regarding the change of innovation patterns and reviewing the recent academic literature dealing with new forms of innovation, the INFU research team has generated and visualized 19 innovation models. Some of these

models can be briefly introduced as they deliver evidence for the very different and problematic consequences of innovation:

By the '*open source innovation model*' the team envisaged that open source software design such as the development of the LINUX computer software (which competes successfully with Microsoft) has become a significant trend. This innovation vision assumes that open source development is no longer limited to software design but becomes an all encompassing innovation pattern across society.

With '*automatised innovation*' it is assumed that a number of new techniques such as the semantic web analysis allows for automatising parts of the innovation process, ranging from idea generation via design to testing. In this model, sophisticated semantic web-filters track changes in consumer preferences and new ideas in real time, and automatically extract innovations with outstanding market potential.

'*Innovation marketplace*' is described as an innovation pattern where companies externalize (parts of the) innovation processes to an open innovation marketplace. Companies may be able to draw on a much broader range of ideas and perspectives.

The trend towards '*relocated innovation*' envisages that the West adopts the role of a follower while Asian countries become innovation leaders. Western companies wishfully have to face products primarily designed for a different cultural context and imitate and copy products from Asia.

With '*ubiquitous innovation*' the study expects innovation to become mandatory for more and more people in companies and other types of organizations. The assumption is that the current emphasis on innovation and creativity among designers, programmers, and engineers will spread to all workplaces. Hence, all employees, from the janitor to top managers are constantly involved in innovation activities. Creativity is part of any daily job routine and is a key in performance measurements.

Despite the overwhelmingly positive association with the innovation visions, we have identified some problematic aspects and effects of these new innovation patterns and even observed some counterbalancing trends, too. The constant pressure to innovate may have negative and unintended consequences: If more and more people suffer from the constant innovation pressure, innovation could become something undesirable and negative in the organization culture. Consequently, people may increasingly feel compelled to use their spare time to meet the never ending innovation demands, which, in turn, could have negative effects on people's health. In addition, professional designers and engineers may feel threatened by the distributed innovation model fearing to lose their jobs due to the large number of new actors who innovate by themselves.

A reverse trend may hence be that innovation fatigue takes over and '*no-innovation*' becomes en-vogue in certain areas and emerges as a trend in itself. This critical and rather skeptical innovation vision was the only model among all 19 models which explicitly expresses a 'de-acceleration' of the current innovation practice. An example of a practical signal we identified delivering evidence for this development was the case of an US cereal company. In the beginning of 2009, the American cereals manufacturer

Post came up with a new campaign under the tagline “Why we put the NO in Innovation.” This signal could be indicative of a trend that would have more companies starting to actively distance themselves from an innovative image. The publication of a sustainable design guideline presented at the occasion of the ‘Sustainable Everyday Exhibition’ in Milano in 2003 is a further signal of change identified which served as base for a no-innovation trend. This guideline formulates in a very simple way what product service designers should be taken into account to align with respective sustainable criteria.

As a result of the increasing global competition the findings of the study also indicates that US and European companies start more often to pursue deliberately imitation strategies. If the innovation pace on a global level will increase and countries such as India and China will catch-up and built up high innovation capacities, innovation competition will become even more harsh, and particularly firms in Western countries may follow more often imitation strategies. Thus, although currently product piracy and imitation are said to be mainly done in the new emerging countries, western countries may start to more often follow imitation strategies in the future.

In addition, as customers and citizens will become more involved and contribute directly in shaping the direction and speed of innovation we will see a slowdown of innovation in some areas due to risen awareness of customers and citizens as to the effects of too much innovation on the quality of life and the environment. Green lifestyle and consumption patterns of some consumer groups reward innovation patterns to quality and authenticity embedded in context and tradition. The models we have identified also deliver evidence for a slowdown of innovation in some fields due to new participatory and distributed innovation pattern. These innovation patterns are explained by larger coordination efforts between different stakeholders to the innovation process, in particular the end users.

With respect to the above mentioned ‘open source society’ and ‘automatised innovation’ model, which both rest on an extensive use of information and communication technologies (ICT) we can expect that we will see more use of ICT for the search for solutions and the identification of customer demands on the web, for web based product testing, simulations and so on. Although the intense use of ICT enables new innovation patterns and often speeds up the process, the long term impact on the innovativeness is hardly ever addressed.

Policy challenges

In the light of these arguments, what are the conclusions for policy-makers? First of all, during the process of innovation policy design and formulation, the long term impacts of an acceleration of innovation should be considered. A more critical public reflection and deliberation is needed in order to change conventional understandings and the development of more diversified images about future development. New ways are required to promote ‘reflexive thinking’, and society and innovation systems require new institutions and procedures to achieve more inclusive and pluralistic discussion and learning, involving all actors of the innovation system. In order to slow down the

innovation race there must be an increase in reflexivity within innovation studies and innovation policy in particular. Thereby a lack of reflexivity may be called “reflexivity failure”, referring to the notion of systems failures as often used to legitimize innovation policy interventions

The current innovation policy of the European Commission to address Grand Challenges can already be interpreted as a sign for a shift within the policy domain to steer scientific and technological development more explicitly towards the real needs of society. Moreover, within the impact assessment exercise, the Commission has started in recent years to not only assess and discuss the positive impacts of publicly funded research and innovation but also the negative and unintended consequences.

Participatory exercises and initiatives in the area of nanotechnology or genetically modified organisms organized in the last years are examples of a deliberative approach of reflexive and critical technological development, considering issues of risk, ethics and sustainability more comprehensively and hence enabling learning on the systems level.

As innovation processes are embedded in an innovation system consisting of many different actors, such alternative strategies to ‘escape’ from the intense innovation competition may be difficult to pursue. Due to the current pace of innovation systems, they lose their ability to brake, to stop or slow-down. However, public actors financially supporting innovation processes may decide to support only innovation with a particular value towards particular societal aims, who is one important conclusion for innovation policy makers. However, as mentioned above and also in other chapters in this volume, policy actors are an element of the innovation system which cannot act independently of other actors and have difficulties to change established paradigms, too.