

## Executive Summary

Both developed and developing economies alike now fully recognise the importance and impact of innovation on their national economic performance, global competitiveness and overall wellbeing. There is no doubt that in the age of the 'knowledge-based economy' there has been intensifying interest in identifying the desired set of national policy tools needed to encourage innovation. This is especially true in Europe, both in the context of the EU's Lisbon Agenda goals and also as a result of Europe's desire to compete on the global economic stage.

Recently, however, some policy-making bodies in Europe and at the global level have embraced the notion that the current innovation model needs 'fixing'. This belief has been expressed at various levels; from cases involving individual companies, to inquiries focusing on entire sectors, to policy strategies that aim to provide global solutions.

The problem, however, does not lie with the popular perception of innovation but rather with the more detailed understanding and appreciation (or the lack of it) of the way in which innovation takes place; both in theory and in practice. The simple truth is that the existing innovation model is not broken. On the contrary, innovation is flourishing. From innovations that are based on collaborations, convergence, strategic alliances and standard setting through to more traditional in-house R&D, the market today is more innovative than ever.

Accordingly, this paper describes the nature, process and characteristics of technological innovation, as well as analysing its fundamental relationship with the creation and uses of knowledge, and the role that Intellectual Property Rights (IPRs) play in this process. Despite the complexity of this field, the paper highlights some key 'governing patterns' that underpin the innovation process:

- Technological Innovation cannot be characterised in terms of 'good' or 'bad' innovation. In some public discussions there is a tendency to argue that incremental innovation contributes less to society than radical innovation and, as such, is less desirable. In other circles, innovation which focuses on the components of a product is afforded a higher status than innovation which concerns the manner in which such products are introduced to the market and to the public. In real life, however, the contribution of innovation to society cannot be categorised in such a simplistic way. As demonstrated in this paper, incremental improvements can have effects which are just as significant as radical innovation, while innovations that concern the processes and architectures surrounding a product may be as essential to the market and to the public as the original product innovation itself.
- Technological Innovation cannot be dictated or anticipated via top-down processes. History suggests that even the brightest minds cannot be expected to anticipate the manner in which the nature of innovation will evolve and the way in which demand for such innovation will manifest itself. Certainly, the professional pursuit of innovation underpins the ability to introduce new products to the market. But, of equal importance is the fact that innovation can be unpredictable, influenced by external events and ultimately nurtured by the ability of entrepreneurs to identify and seize opportunities once they present themselves.
- Technological innovation is deeply rooted in market forces. It is the incentives and rewards provided by the market which drive innovators to make the risky, time consuming and costly investments needed to bring new products to the market. To this extent, the innovation process is driven by the voluntary will of the innovator to create and use knowledge, rather than by any form of compulsion.
- If we accept that technological innovation is based on these voluntary, market-driven efforts, certain mechanisms need to be put in place. One such mechanism is the existence of IPRs, which provide the incentives both for the creation and the exchange of knowledge for the

sake of promoting technological innovation. IPRs function as a safety net that allows the process of knowledge creation to take place, not least in the phases preceding the introduction of these technologies to the market. IPRs also allow entities to exchange and share their knowledge assets in a manner that guarantees their expected share of market reward from a given innovation.

Nevertheless, this paper identifies a worrying trend towards the belief that alternative models of innovation can be found. This trend is based on the notion that innovation can be directed by a top-down process in which policymaking bodies are afforded a greater degree of discretion concerning the desirable direction and forms of technological innovation. Consequently, this approach encourages - or at least legitimises - the use of compulsory mechanisms (a compulsory licence, for example) under which knowledge assets may be taken from one entity and transferred to another for the sake of facilitating more and 'better' innovation.

This paper suggests that this perception is highly problematic. First, it is not backed up by theoretical or empirical underpinnings. On the contrary, the theoretical and empirical evidence reviewed in this paper suggests that innovation does not seem to occur in this way. Second, the paper suggests that the exercise of this approach may be based on ideological or political considerations rather than a rational discussion of its merits. Third, it would seem that advocates of this model are suggesting turning the process on its head, i.e. they advocate implementing the concept first, in the hope and anticipation that it will work. In other words, the experimentation is taking place at the possible expense of innovation itself and, as a consequence, at the expense of the consumer and the taxpayer.

The paper concludes that policy-makers should exercise great caution when considering pursuing this type of compulsory, non-market-driven model. Specifically, when advocating an innovation process that is guided, and to some extent directed, by a top-down approach that relies on the compulsory use and transfer of knowledge, policy-makers must ask themselves one simple question: is this decision based on an understanding of the realities that govern the innovation process, or is it based on a vision of how the world should look and consequently how innovation should take place?