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## Foreword

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In a film that is already 20 years old, *New Rose Hotel*, Abel Ferrara described a society in which large corporations dominate the world. They have money, power and, above all, competences to do it. The key element for their success is knowledge and they fiercely compete among each other to generate innovation-based new products. New knowledge is still generated by humans rather than by machines, and therefore bright scientists and engineers are the strategic resources for companies' prosperity. Corporations rightly assume that very creative individuals are likely to generate several good ideas in their life – the very geese that lay golden eggs. The film describes the attempt of one corporation to “steal” the most creative scientist, the genius of the time, for the competing company. The scientist is already very well paid, and is unlikely to be attracted by a greater salary. Here starts the thrill: will the gangsters hired by the company manage to persuade a spectacularly successful scientist to abandon his corporation and to join the competitor? Will they manage to get his brain by conquering his heart?

The film addresses several issues that are essential in the knowledge economy. First, is it true that top scientists and engineers are the core strategic asset of modern corporations? So far, this is far from being the case. Those who work in the R&D departments are unlikely to be the better-paid employees of a company. Most of the chief executive officers of large corporations originated from the financial sector or marketing, under the assumption that being good at managing money and selling products is more important than generating exciting new products and processes. But in the future this is less likely to occur and the progress of the knowledge economy will give more weight to those who are scientifically and technically

competent rather than to those who command the tricks of the stock markets or of advertising.

Second, are some individuals so creative that they generate several fundamental discoveries and inventions in their working lifespan? This is already the case and we know that a few creative people are able to generate a wealth of great ideas. Bach, Mozart and Beethoven have composed dozens of masterpieces and this is not an exception. The statistics on the authorship of scientific articles and patents do show that a very few scientists and engineers are responsible for delivering the large majority of high-impact results. It is therefore understandable that corporations try to secure the best minds and head-hunting is already a common practice of oligopolistic competition. It is very likely that we see head-hunters more often around the areas where creativity is a must such as R&D, software development and design. It might appear that the film underestimates the importance of teams and gives too much credit to individual geniuses, but a surprise hidden in the finale shows that networks of good inventors can be economically more important than a single top scientist.

Third, the film challenges the traditional view that the most important incentive to stimulate very creative people is financial. Of course, we know that incentives are crucial to secure the talent of the most gifted. In football, the transfer of top players from one team to another is dominated by the salaries paid, but perhaps those who have their talent in their heads, rather than in their feet, are likely to be more sophisticated and to praise other aspects of life as well as money. Not only scientists working in universities and public research centers, but also their colleagues employed in the business sector give high importance to the intellectual environment in which they operate, the freedom they enjoy in pursuing their agendas, the possibility to discuss ideas with colleagues as well as real or potential competitors.

Twenty years ago, a few spectators were persuaded that knowledge would become the crucial competitive asset for companies. Today, only a few will dispute it. But for those who still have some doubts, this book, elegantly written by Blandine Laperche, will provide definitively convincing arguments. This book clearly explains how the knowledge capital of companies is constructed and how it provides benefits to companies as well as to society at large. Three issues are crucial to Blandine Laperche's enquiry.

The first is the definition of innovation. For several decades, the Schumpeterian tradition has argued that innovating firms bring dynamism to the economy and are able to generate profits, efficiency and employment through the introduction of new products and processes. Innovating firms have unanimously been considered the frontrunners of progress and prosperity. But the specific understanding of innovation has too often been too narrow. Implicitly more than explicitly, we have assumed that innovation should be understood as something “technological” that is introduced in the “manufacturing” industries. True, for many decades the manufacturing industry provided a wealth of new products and processes that were used and diffused in agriculture as well as in the services. Still, it is too limited to presume that the production of innovation is confined to manufacturing and that the other industries are just users. In a world where the largest share of employment and value added comes from services, this traditional approach needs to be radically revised. We need to understand that innovation occurs in a much broader context; otherwise, we will not be able to understand why some that do not belong to the manufacturing industry are among the more prolific generators of fresh ideas and patents. Take the case of IBM, a company with more than a century on its shoulders, or the much younger Google: both are world leading innovators outside the realm of the manufacturing industry. Are we ready to take the challenge on board and to revise our toolkit? This book faithfully reports the state of the art: we can be happy for the progress achieved in the last decades producing broader and more comprehensive concepts and measures of innovation, but it clearly emerges that much still needs to be done to have instruments able to guide public policies and business strategies.

The second issue is the strong belief that the successful creation of knowledge capital by firms is rooted in a much wider economic and social space. Blandine Laperche builds upon the literature on national innovation systems to give a proper role to the relations between public and business players in augmenting the stock of knowledge. She shows that knowledge-based corporations do not work in a vacuum but rather in a heavily populated space where they interact with governments, universities, research centers, users and competitors. Her insights derive from an older and glorious academic tradition, the French historical *École des Annales*, which long before the economics of innovation became a popular subject, already understood the crucial role played by complex interactions between social institutions and techniques. In describing the boundaries of the firm, Blandine also takes into account how they have been transformed by the Internet revolution. The open innovation model, one of the most popular

developments in the field, has penetrated large and small firms differently and this has relevant consequences for business strategies. The implication is that all companies could potentially take advantage of the existing opportunities, but if they fail to do it, it is likely that they will be marginalized.

The third issue is the way in which corporations are opening to the global society. The knowledge capital developed by companies is not sufficient by itself to sustain economic performance. It should also be properly protected against real and potential competitors in internal and, above all, global markets. But the boundaries of intellectual property right are highly uncertain: as with any property rights, intellectual property is guaranteed, protected and enforced by national governments. In spite of the harmonization that has taken place over the years and, most notably, since the foundation of the World Trade Organization in 1995, each nation still has its own rules and practices. Companies' strategies are therefore forced to operate in uncharted waters and the attempt made in this book to map them is precious. The potential of companies to defend their own knowledge in isolation is more and more blurred. Blandine suggests that a really successful innovative company should not be obsessed with the protection of its knowledge, but rather it should be willing to share it because they know that this is the best way to move up in the learning curve. To put its own knowledge into a common pool is often the best way for a corporation to provide the standard to everybody. This is a lesson that perhaps several governments, obsessed with the protection of the intellectual property belonging to their own nations, have not yet properly assimilated.

The main lesson to be drawn from this dense, well-written and well-informed volume is that knowledge-based firms are not just profit-maximizing machines but rather institutions embedded into a much wider social fabric. In spite of the several attempts made to create fences around its fruits, knowledge will continue to provide benefits to a larger community of users. Marc Bloch already taught this in the 1930s with his seminal investigation of the Medieval watermills and Bertrand Gille in the 1970s with his comprehensive *Histoire des techniques*. We should be grateful to Blandine Laperche and her colleagues at the Research Network on Innovation for developing these ancient insights to better understand the knowledge-based company of the 21st Century.

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