Introduction

For several years, innovation has been omnipresent and part of strategic matters. The word “innovation” is in the headlines of reports, articles and business media, and is also the subject of events, projects, think-tanks, clubs and blogs. Several forums on social networks are devoted to its various facets. This is a global phenomenon.

In the 20th Century, innovation was a subject for research centers of large companies and public laboratories. Now, it is no longer a confidential matter: we innovate politics, organization, management, business models, the way of managing intellectual capital, training, services, gastronomy and even DIY and gardening. From innovation emerges the vision of development that generates lasting values, ensuring a high level of income and a thriving economy. Innovation has all these virtues and is also likely to change tastes and mentalities.

The 1990s began with *knowledge-based business* (sale of publications, services and tools for knowledge management); nowadays *innovation-based business* flourishes. Many firms offer a plethora of approaches to creativity and innovation, some use games and information and communication technologies (ICT), there is also an abundance of institutional or private seminars and symposia. A variety of approaches are proposed. Most of them apply to product innovation resulting from research. Following the environmental awakening, innovation has become “eco”, and is coming out of its favorite fields to infiltrate almost all other fields.

European and national policies have been developed, but the people in charge do not seem to be interested in feedback from practice. Nowadays, we rely on innovation to revitalize territories, to modernize industry, to create businesses, and to generate new activities. But how can we innovate to achieve the expected impact? What is the alternative to *faster, cheaper, better* logic? According to Peter Drucker, “the greatest danger in times of turbulence is not the turbulence. It is to act with

yesterday's logic". Which logic can we hold on to? How can we go from theory to practice in order to build a sustainable knowledge society? What are the prospects for all populations? What are the skills necessary to innovate and turn innovation into a sustainable success? Where can we find them? Peter Drucker mentions only one essential skill: "Every organization – not just businesses – needs one core competence: innovation. And every organization needs a way to record and appraise its innovative performance"[1].

Which indicators can measure the impact of innovation on the economy? How can technologies – ICT, Web 2.0 or artificial intelligence – help to innovate? Which stakeholders should we involve in the process? How can we innovate without destroying the planet? This book attempts to answer some of these questions.

The motivation behind this book is to introduce a global and systemic overview of the subject, to present the various aspects of innovation under different angles and perspectives to finally bring the reader to an understanding of all ecosystem components, their metamorphoses, cross-influences and possible impacts on the balanced development of people, businesses, regions and countries.

It is difficult to present such a topic – this is a set of ecosystems including individuals, their environments, products and services, technologies, activities, society, institutions, companies, schools, universities and research centers, as well as machines and the environment.

The other difficulty is to freeze a reality of the moment, knowing that this really is a question of dynamics. This book is a still picture because we are unable to give our readers a real-time video on paper. The seven chapters which follow are an attempt to paint a global overview of the subject. They can be read separately depending on the reader's interest.

Thus, Chapter 1 provides a landscape of innovation throughout the world. The resulting picture is static, but gives some references to follow. It introduces the main rankings and attempts to paint an image of innovation in selected countries. It demonstrates the bias of the ranking and the lack of suitable indicators for the knowledge economy measuring the impact of various actions, which are essential for a real-time control.

Chapter 2 presents the different aspects of innovation. This can be closed and open, incremental and disruptive (radical), organizational and cognitive. Products and services, business models, the ways of working and getting assistance from computers are part of this chapter's concerns. This list is not exhaustive and we

1. HBR, January-February 1995.

thank our readers for reporting other aspects which have been omitted by ignorance, on http://innovation3d.fr.

Chapter 3 describes the two main components of the innovation process, which are the creativity and the transformation of ideas into values. It focuses on the evolution from the closed process, which is still practiced in a large number of businesses and institutions, to the global "knowledge e-co-innovation" through approaches such as participative innovation addressing the clients' needs and open innovation.

Chapter 4 lists the knowledge and skills essential for the successful transformation of an idea into values for all stakeholders. This chapter suggests a method of measuring the innovation capacity of individuals, companies and organizations. Designed for the knowledge economy, it introduces the indicators of the intangible values, which make it possible to measure the impact of actions on balanced development.

Chapter 5 highlights the importance of "knowing how" to involve computers in all their forms and to use suitable approaches and techniques, so they can boost their own innovative capacity along with that of individuals and groups. The organization and management of knowledge increases the chances of successful innovation.

Chapter 6 focuses on innovating technological innovation. It suggests some ideas for improving the existing system, in order to accelerate the generation of the values from the research results. Fostering and enhancement of applied research is a prerequisite for the survival of ecosystems and a key to balanced development. This chapter describes French and European research systems, but the reader will find many similarities with other countries.

Finally, Chapter 7 highlights the importance of the right innovation management for the rapidity and quality of regional development.

In order to initialize the construction of the common language of knowledge innovation e-co-systems, a glossary has been compiled, in addition to the explanations in the footnotes. Each reader will then be able to enrich their vocabulary in their respective contexts.

This book aims to be a practical guide to the innovation "country" and help readers to become knowledge cultivators. Please feel free to send me your comments and keep me informed on your progress.

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