Executive summary

Innovation has become the new hot topic of both, companies and government executives in just a few years' time. No matter which sector or industry, innovation has become this new magical key word, capable of solving all our problems. Everybody tries to be innovative, as if calling a project or a new venture «innovative» was sufficient to guarantee its success.

Yet, innovation does not solely rely on creativity, research and education. In contrast to a simple invention, an innovation must meet expectations, be it those of clients, users from within the organization or other operators, or even society at large, and can only be developed jointly. Innovation thus can be described as a new idea that meets «market demand» (in its largest sense), and there is no innovation without an ecosystem.

Our book is a compilation of stories, best practices and recommendations that promote the emergence and spreading of sustainable innovations that serve our economy, our society, our environment and our citizens. They are derived from more than 100 interviews, which we conducted as FNEP[4] delegates in France and in five foreign countries (Germany, California, South Korea, Finland, and Italy) during the entire year 2015.

Those interviews allowed us to collect the input and vision from a wide range of different innovation leaders, such as business leaders, policy makers, government officials, researchers, technical experts, entrepreneurs, employees of medium-sized and large businesses, citizens, economists and philosopher ... Their enthusiasm, energy and passion have shown us in an impressive way that innovation is far from being the prerogative of a privileged group of people but above all a question of human talent, state of mind, encounters and method.

Ultimately, we suggest performance levers for innovation. First and foremost, we recommend that each actor builds his or her own ecosystem of innovation, and understand its strengths and performance lever (Chapter 1). Activating and allocating internal resources more efficiently (Chapter 2) and rethinking our interactions with our partners (Chapter 3) are essential elements for successful innovators. Nevertheless, going beyond the existing and completely reinventing the ecosystem can prove very successful in some cases (Chapter 4).

At this point, we also would like to make a case for the concept of intrapreneurship, the objective of wich is to enable large companies to rediscover their entrepreneurial spirit and can come in different formats, either within the

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organization (Labs, Hubs…), or outside (spin offs, alliances…). Even if the idea is not new [5], it now carries a new meaning in the current context, at a time when, in the innovation field, agility and speed are more important than ever. But the dynamics between the different players are changing and moving towards the search of new ways of working and working together.

Cooperation between education, research, businesses and start-up is increasing. Public authorities have their share by creating a framework that protects companies but also often limits their possibilities, something which any innovation ecosystem moans and asks for at the same time. New multifaceted alliances emerge and open up new possibilities: all parties can now become suppliers, customers and partners at different points in time.

This is why, we would like to introduce a new term today: «exopreneurship», which stands for undertaking new ventures in line and together with the ecosystem, as the new performance lever, and which we will discuss in detail in the following chapters.

Chapter 1 is supposed to reinforce our understanding of existing ecosystems in order to better structure our own environment.

• Ideally, the ecosystem boots innovation and shares the risk in order to allow the innovators to recover. A natural ecosystem consists of different parties and an environment, which ensures continuity in the evolution and guarantees a certain visibility of the future.

We will then see how territorial and historical roots largely shape innovation, how local cultures and trades influence our ways of thinking, our degree of international openness, and our understanding of risk.

We also believe that the rules that shape an ecosystem, which are sometimes seen as constraints, also create trust. The proliferation of initiatives within our ecosystems adds to its diversity and richness. It also means that innovators must pay attention to the changes underway and ahead, by taking into account big trends as well as weak signals.

• We have also analyzed and evaluated methods and tools that help us to improve our ecosystem, by building those relationships that are able to take innovative projects forward.

Firstly, it seems crucial to us, to be aware of the methode and mapping tools that exist, that enable us to constantly be up to date of the state of the art (inventions, patents, scientific publications, trend radars, monitoring of start-up development...). The public sector, would play a huge role by opening its data, at the

5 Term defined by Ginford Pinchot in 1976

same times as it identifies new innovative start-up for fiscal reasons, certainly has a role to play here by opening its data.

Dialogue and experience sharing, with regards to the successes but also the lessons of failure, and co-creation are other important levers to allow for a collective learning experience.

Moreover, an efficient environment ensures a «natural» selection. Any ecosystem is therefore an opportunity to test ideas and products in real terms, to assess the market appetite or to experience the quality of the team, its ability to overcome challenges and difficulties.

Governments and large companies that wish to stimulate innovation do have the possibility to influence or even accelerate the «natural» selection (e.g. by providing funding to the most promising projects only).

Last but not least, innovation fosters human strength and energy. We therefore advise all parties to take advantage of the positive and stimulating energy flow that is released by the ecosystem, to align their activities with those of the most innovative players in order to learn from them and create some kind of ripple effect.

Chapter 2 presents the levers that facilitate the emergence and development of innovation.

• Assuming that «innovation is between brains and not in the brains»[6], we first and foremost must create opportunities for exchange and collaboration.

There is a variety of methods and tools that enable us to release new ideas and foster their movement within a structure. It is the task of businesses and governments to build a work environment that generates ideas and strengthens imagination. They must create new exchange platforms in order to facilitate and boost cooperation. The fluent circulation of ideas and information sharing allows for in-house benchmarks and an understanding of the issues and needs of neighboring teams, with the aim of finding joint solutions.

Innovations often emerge at the crossroads of trades and industries. It is therefore important to encourage the multidisciplinary of the workforce, the crossover of skills and career paths, and a transversal project organization. It is also important to encourage and facilitate mobility and to recognize the merits of these new or atypical profiles that often combine multiple skills and experiences, and have links to different ecosystems.

• Furthermore, it is vital to transform ideas into economically viable projects in order to boost innovation development.

6 Interview of Bernard Stiegler, philosopher, professor, author et founder of L'Institut de recherche et d'innovation, Paris, France, 28/05/2015.

In order to fully benefit from the innovation capacities of the teams, all organizations must define a clear innovation strategy and internal processes that employees and top management can refer too. In this respect, we will present the DKPC method and new forms of design thinking, which try to ensure involvement of the respective target groups from the very early stages of a project.

It is important to make use of existing participatory and collaborative innovation, such as collecting new ideas and improvement suggestions via social media, to reward those that innovate, and to ensure the necessary board level support to truly foster and boost innovation processes internally.

It is also vital to provide the necessary means to transform ideas into economically viable projects in order to facilitate the development of innovative projects.

Organizations can stimulate the entrepreneurial spirit of their employees and alter their attitude towards risk. They can provide physical, virtual or temporary space for testing and improving innovations, and must then define an appropriate way of further pursuing innovative projects once they have been selected. This can happen within the organization or on an external basis (intrapreneurship).

And last but not least, our organizations must learn to promote and value their innovations by preparing the markets for their arrival and/or turning them into cash coins to generate the necessary return on investment.

Communication about innovation and utilizing innovation as a communications tool helps to teach clients and others users the benefits of ground-breaking new concepts. It also enables organizations to position themselves as state of the art players and strengthen their brand and employer image, in the domestic and foreign markets.

In Chapter 3, we explain the importance of expanding knowledge and impact circles for innovation development.

Co-development and co-production with different partners allow organizations to innovate faster and better. It is thus essential that we are familiar with our environment and those that surround us; that we understand the challenges they face; that we are able to make use of already existing relationships and common interests.

• The acceleration of the rhythm of innovation forces us to regularly review expressed or implicit demand of our traditional partner organizations (clients, suppliers…) and the market in order not to miss out on any trends.

Listening to clients and to the general market are vital.

Usage capability and simplicity must be a priority and it is therefore very useful to bring in the targeted customers or users as early as possible in the conception and production processes of new products and services, so that the latter can get used to them, test and help to improve them. Besides, this will reinforce the direct links with the client and make him become involved into the search for appropriate solutions for his very own problems.

Secondly, we must reflect on our supplier relations in order to jointly develop new solutions and create mutual value.

It is important that companies and authorities can benefit from the expertise of their traditional partners, who are often closer to operations and can provide the necessary technical and technological knowhow. Possibilities of cooperation include collaboration between SMEs, large groups, and administration but should be extended to new, emerging partners, such as start-up.

Investor relations are obviously crucial for innovation development. In order to move away from the traditional dilemma of having either too few promising projects or too little money available on the financial markets, a new equilibrium must be found. New forms of financing should be applied to different stages of the innovation development process. In addition, project leaders must understand and take address the underlying motivation of investors, and e.g. allow for a timely exit, which should, of course, generated the desired return on investment. The number of innovation funds is still too low in Europe. Hence, public money should be made available where markets show gaps – and only there, in order to guarantee the desired leverage effect.

• However, in order to find one's role in a sustainable and efficient ecosystem, organizations must reach out to new players, beyond their traditional one-tier partners.

Finding common interest between different contract parties, or even competitors, seems all but intuitive. It's nevertheless possible and can often prove to be very beneficial for joint innovation development. Cooperation and partnership are key elements for rethinking entire value chains and industries; opportunities for potential collaboration should be jointly explored and determined. It is true that in a globalized world, yesterday's most ferocious competitor can be tomorrow's closest ally.

Last but not least, innovation leaders must think big and think global right from the start. This has been stressed again and again by our interview partners and cannot be emphasized enough. All the more since the internet and other modern communication technologies enable our organizations to search innovation partners worldwide and import massive amounts of international knowledge and data. Innovation ecosystems can indeed be local and global at the same time. Clusters, for example, can help to enter new markets and secure European project financing.

Last but not least, Chapter 4 tries to find answers for those that think that our ecosystems are too limited, too rigid, lacking resources, incentives, and the necessary support for innovation.

• We are deeply convinced that we can all make a contribution to our ecosystems of innovation and also can also make it evolve in the desired direction. In order to find the right framework for our ambitions, however, we must keep abreast of existing structures and dynamics, which will enable us to take control, cross the lines and create new markets for our innovations.

• It can be useful to know how to interpret existing legal and regulatory standards, and to be aware of ways to influence them. For instance, it is possible to turn to the authorities in order to protect oneself by insisting on rigorous application of effective legislation. Organizations can also take part in the process of elaborating new rules, standards and laws in order to make sure that those match the requirements of innovative processes.

• The possibility of juggling around with norms also enables us to change the existing dynamics – if we know our normative environment well enough. On the one hand, standards can become a tool for industrial promotion, through exporting the products of one country to another jointly with the associated national standards. On the other hand, organizations can also make the deliberate decision to stay outside the circuit of common standards to differentiate themselves from their competitors, such as Apple has done with their system of chargers.

• For most organizations, whether they are active in the field of technology or not, defining an intellectual property strategy has proven useful. According to their objectives and development stages, different options (from industrial secrets to patents) can make sense at different points in time. In this respect, it is also possible to force competitors to use one's own technologies or to negotiate a pool of patents in order to remain competitive on highly mature markets. Patents can also be just a way to block competitors to enter new markets or technology fields to keep a competitive advantage. And there are many more IP strategies, which are not mutually exclusive, that can be explored and applied to different situations.

• Knowing how to interpret the law and current rules for one's own purposes will help us mobilize the tools and mechanisms that exist to boost innovation and find new opportunities. This also includes, for instance, an optimized presentation of innovation costs in the profit and loss statement in order to avoid making them look like simple expenses rather than investments in the future.

It can also be necessary, in some cases, to join forces with even direct competitors, in order to push for topics of mutual interest (e.g. at international level).

• And finally, in order to innovate differently (beyond the limited framework), organizations must also open up to new horizons, look for new resources and/ or markets.

There are different strategies of differentiation that allow us to develop innovative products outside our comfort zone. Frugal innovation, which is developed based on the lack of resources and (financial) means, shows us that successful innovation development does not solely rely on money.

Besides, sometimes it can be vital to be fast in order to outpace the market, for instance, by launching a beta version of a product early (the concept of quick & dirty), and more generally speaking by respecting essential time to market requirements, which can prove crucial for modern innovation development.

We must also ask ourselves about the role of innovation today: are we seeing a new technological revolution or are we dealing with a paradigm shift? Only think about big data that offer uncountable possibilities, which makes them an incredible source of inspiration but also something that sparks our worst fears.

Open source methods are a way of grasping new innovations and input from new, emerging players and are most useful for non-confidential fields and topics. Generally speaking, we all must adapt to infinite diversity or «the crowd», which nurtures and drives the digital world.

It is our ultimate belief that, as the innovators that we are, we should «always shoot for the moon, because even if it fails you land in the stars», as Oscar Wilde brilliantly put it. Only by doing so, the unthinkable becomes possible. This is why, we also ask «who» is really able to «disrupt» the traditional value chain and how. The answer is most often «start-up» – but not only. By «going to Mars» we try to describe this «dream» that is shared by all true innovation leaders. And last but not least, we discuss those innovation topics that will change the relationships between mankind and machines forever: «robolution» and the technologies of the «augmented man» (human 2.0) and advanced genomics.

In fine, humans are at the center of all the interactions that we describe; they are at the origin of disruptive strategies; they are the ultimate target group of any kind of innovations. They are humans that must take their destiny into their own hands.