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***An Integration of Responsible
Innovation in the Financial Sector
through Design Thinking***

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AN INTEGRATION OF RESPONSIBLE INNOVATION IN THE FINANCIAL SECTOR THROUGH DESIGN THINKING

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Abstract:

Over the past few years, innovation has been developing a new characteristic, it has become inherently suspect. This is partly due to the series of recent market events which have contributed to the ever-increasing attention directed at the notion of responsible innovation. The race to market for technological and non-technological innovations is ever increasing in pace and enduring pressure from an ever more globalised market. At the same time, the newly released products and services stand under constant scrutiny by the hordes of social media users, capable of destroying a company's global reputation in a matter of minutes. It is therefore now in an organisation's best interest to be responsible. Naturally, an organisation's very survival depends on its ability to create value and be profitable, in other words, innovation is essential to the modern organisation's growth and development. However, innovation and responsibility have traditionally been considered to hamper one another. How can a firm achieve the right balance to keep innovating on products, services and processes while implementing responsibility all along its activities? Research suggests that this very balance could become an invaluable source of competitive advantage. Design thinking, in analogy with industrial design, is a creative discipline which is deployed within organisations' innovation processes. As such, design thinking is a very useful tool in developing responsible innovation, since it combines scientific rigour and technique with an understanding of human needs, while also incorporating an organisation's own economic imperatives. This modern approach therefore aims to achieve a responsible development for both the organisation and its innovations. This paper will begin by determining exactly what is meant by responsible innovation. It will then describe why design thinking is an effective method for integrating responsible innovation and present the results of a study which aimed to develop a way of integrating responsibility into the innovation process, using design thinking.

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Introduction

The history of innovation is directly linked to our ambition to always go further, whether for survival or simply for our own comfort. The concerns raised by innovations were generally outweighed by the significant benefit they added. Yet, due to a more significant civil understanding than in the past of what is at stake, which has contributed to an increasing questioning of its actual contribution to society with regards to its consequences, innovation has become suspect. There are two main reasons for this, the first one being linked to the knowledge of the importance of protecting the environment and the second to the exponential progress in terms of scientific and technological discoveries. Whether it is about cloning, genetic modification, mobile phones, or the Internet to name but a few, the question no longer lies in our ability to do something, but rather in our duty to do it. This in turn raises the issue of human values which stand at risk of being modified.

These issues need to be transferred and applied to an organisational context, within which most innovations are created. Success for an organisation is generally characterised by its ability to create wealth, in which case it is agreed that innovation and marketing are two crucial factors in achieving that goal (Drucker, 1973; Srinivasan, et al., 2009). In fact, the importance of innovation to the firm's success is very frequently cited in literature as the key element of superior firm performance (Han, Kim and Srivastava, 1998; Hurley and Hult, 1998; Weerawardena, et al., 2006). On the other hand, a firm's survival will depend on the implementation of a sustainable strategy which should include a commitment to preserve the interests of all stakeholders (investors, employees, customers, governments, NGOs and society at large) (Eccles and Serafeim, 2013). Therefore, an organisation's success would be defined by its ability to combine the achievement of performance objectives with its integration of a monitoring process for impacts it may have on stakeholders and society as a whole. However, what kind of a strategy would guarantee both the sustainable creation of value as well as the integration of accountability on the firm's part with regards to the impacts of its actions?

1. Context

The responsible innovation concept is one which today concerns all sectors of industry and research as a whole. It is, however, a particularly sensitive issue for the finance sector in the light of the innovations which were the cause of the recent crises.

For the purpose of this paper, it is important to take a look back at the context of banking creations. In 6th century B.C. Babylon, commodity-based loans are already a well-known practice. However, it is not until the 7th century with the introduction of money, that loans and deposit operations start to develop. Even though this commerce was initially started and constructed under religious orders, civilians eventually start becoming involved. Indeed, the Roman Empire witnesses the emergence of private bankers whose services are remunerated through claimed interest. These bankers gradually develop into actual institutions from the Renaissance onwards, with the founding of organisations such as the Fugger in Germany, the Medicis and Alberti in Italy to name but a few. Since their creation, banks have been innovating incessantly right up to our modern times, whether through bills of exchange, cheques, payment letters or even debit cards. Boosted by a booming economic activity, in the context of the industrial revolution of the 19th century for instance, banking institutions continue to develop various activities, notably those of shares to finance commercial companies (Rivoire, 1984).

Such innovative behaviour is far from insignificant to the financial crisis; the latter was in fact essentially triggered by an innovation: the subprime lending. Indeed, this type of mortgage credit is created in 2007, enabling bankers to grant mortgage loans to households with low income by calculating their borrowing capacity according to the value of the house being purchased. Naturally, the system worked as long as housing prices were on the rise. However, when these started to fall around, these households were no longer able to reimburse leading to the collapse of credit institutions. Due to the effects of securitisation (a forty year old practice, consisting in the transformation of bank loans into bank bonds bought by investors from all over the world) the whole financial system quickly became contaminated.

The crisis was therefore the result of two innovations: the subprimes and securitisation. However, the innovators of these services simply addressed a need

of American customers in a context where, since the 1930s, the housing politics in the United States of America is primarily focused on the ownership of property. Thus, this leads us to a fundamental question within the responsible innovation concept: should all consumer needs be answered? Would the financial crisis have happened if the innovator/banker of the subprimes had decided not to put this system in place due to the high level of risk linked to the housing market? What would the implications of such an action have been with regards to customer loyalty? It is in this context that the notion of responsibility reminds us that we must first and foremost be able to account for our actions.

It is essential to have a thorough understanding of the culture and mechanisms of the financial sector in order to ensure that the responsible innovation process meets the specific needs of this sector. Indeed, the financial industry's culture generally views innovation as the path towards progress (Lordon, 2009). It is therefore highly difficult for a bank to refuse innovative techniques which could potentially generate high profitability. Furthermore, financial institutions tend to follow a sort of 'closed-door' innovation process, throughout which new sophisticated products and services are developed and launched on the market, without involving various stakeholders which could contribute highly to the evaluation of potential impacts.

The study project presented in this paper was initiated in 2011 in order to address a need expressed by several French financial institutions which lacked a process for developing responsible products and services. The aim of the project was to develop an effective tool (ie. efficient, easily reproducible and with tangible results) to assist organisations in the development of responsible products and services. This project was unique in the sense that it led to the production of a management method for the responsible innovation process of banks and insurance companies. The methodology was largely based on a design thinking approach and involved the creation of a "co-opetitive" working group made up of actors from a sector which is generally known for its extreme competitiveness.

The responsible innovation methodology developed throughout the project encapsulates several advantages for the organisation. On the one hand, it is designed to be used in complement with the organisation's existing or 'classic' innovation process. This ensures that the entire lifecycle of the innovation is taken into account. On the other hand, despite having been developed in the context of

the finance sector, the responsible innovation process is perfectly adaptable to other sectors and organisational structures.

1.1. Innovation and Responsibility

Innovation and responsibility have traditionally been considered to be completely incompatible and even a hindrance to one another. Indeed, while the term ‘innovation’ is usually associated with notions of headway, progress, development and growth, the notion of ‘responsibility’ generally reminds us of something slow which effectively requires a lot of patience. The aim of this chapter is to focus on the characteristics of each term which lead to their compatibility in the modern organisational context.

According to Schumpeter (1939), innovation comes in many shapes and forms, ranging from being a whole new product or a set of changes made to an existing one to being a new process, the discovery of a new market, a new source of supply or even any change made within an organisation. Similar definitions portray innovation as a process which creates value and provides a degree of novelty to the organisation, suppliers and customers. It ultimately involves the development of new procedures, solutions, products and services and new ways of marketing (Covin and Slevin, 1991; Lumpkin and Dess, 1996; Knox, 2002).

This leads us to address the more complex meaning of responsibility in an organisational context and more precisely in terms of innovation. This raises the question of what and whom a particular innovation is responsible for. In fact, what is the purpose of responsibility? Is it to preserve the needs and well-being of future generations, or the current one? Does responsibility apply to groups of people, communities or individuals? The importance of these questions is highlighted when we analyse the evolution of the term ‘responsibility’, originating in the 18th century, at which time it was essentially linked to the idea of solidarity. The concept evolved in close link with the restructuration of civil responsibility schemes, including the prevention of risks. At that time the notions of responsibility and fault were separated, such as insurance, indemnification, etc. In fact, responsibility essentially became a tool for assessing risks, rather than a regulative principle of behaviour. Paradoxically, it also led to relieving each act of responsibility (Ewald, 1996:86). From then on, Engel argues that “responsibility

without fault tends to lead to the weakening of that responsibility” and that this applies both before and after the decision-making act (Engel, 1997:86). In the case of the former, it translates into an imposition of liability, without taking the behaviour of the liable individuals into consideration. It therefore acts as an anaesthetic and numbs the action, thereby producing a feeling which is completely opposite to that of responsibility. Once the decision is made, responsibility without fault does not identify the mistakes which may have been made and therefore destroys the feeling of responsibility as the person who pays compensation for the fault may openly declare that it is not their fault (Engel, 1997).

The reasoning by French philosopher Paul Ricoeur who claims that the term *responderes* should be replaced by *imputare* to stretch the notion of responsibility towards imputation and in turn increase the value of the relation between the two also addresses issues linked to the responsible innovation debate. In fact, the argument was initiated by Hans Jonas (1979) and supported by Ricoeur, emphasising the changed meaning of responsibility in the current technological period which hence requires a new focus towards a far future, taking into account potential consequences outside the current time frame (Jonas, 1979; Ricoeur, 1990). The responsibility of the innovator tends to currently solely concern the performance objectives of the innovation rather than its consequences on society as a whole. However, innovations have a direct impact on shaping future society and behaviours; these impacts can therefore no longer be ignored.

The outcomes of an innovation are, by their very nature, completely unpredictable. The context of innovation is one of uncertainty, whose consequences are very difficult to assess accurately despite the launch of surveys and market studies conducted throughout the development phase, aiming to determine the future market success of a project. This aspect is underlined by Schumpeter when he defines an innovation as a product which is launched on the market and which attracts enough customers to become significantly profitable (Schumpeter, 1939).

Geoffrey Moore (1991) suggests that an innovation’s pathway to total assimilation by the market depends on its adoption by different groups of customers. He identified a gap in the rate of adoption of an innovation, which occurs once the latter has been accepted by the ‘early adopters, visionaries’ group and before it convinces the ‘pragmatists’. ‘Crossing the Chasm’, as Moore defined it, represents the ultimate test in terms of the organisation’s ability to keep supplying the same

quality of product or service in a responsible manner, despite the obvious additional strain on the production system and supply chain.

The complexity of innovation is also linked to a set of parameters which all come into play within the process. Indeed, the leader's strategic vision; the management policy and talents; the corporate culture regarding innovation; the state of technology; the evaluation of performance; the communication and success as well as the time issue and implied risks are all factors which contribute to shaping the innovation process (Pavie, 2012). This last dimension is particularly crucial: How can a firm guarantee that its innovation is launched at the most favourable time to be accepted by customers? This in turn leads to the ultimate question: Have we spent enough time on testing the product or service and checking all hypotheses to guarantee it is 'responsible' in terms of society? These are all internal parameters; however the firm also faces external factors which shape the environment and will therefore impact on the innovation. These include the consumer needs fuelling the innovation, the market itself, the ecosystem as a whole and the environmental pressure driven by shareholders, consumers, rules and regulations. All of these factors are also impacted by the firm's responsibility and are to be also placed under the innovator's yoke (Pavie, 2012).

1.2. Understanding the Notion of Responsible Innovation in the Context of the Financial Sector

The responsible innovation concept consists of three axes, as follows:

1. Question the solutions to develop in response to individual needs

The marketing department is responsible for detecting today's consumer needs in order to establish whether it represents a market worth investing in. Human nature is such that the desire to consume and own is constantly evolving. It is therefore necessary for the innovator to question, not only the needs, but also the relevance of providing solutions to these. In effect, being responsible means being able to balance or space out new product launches in order to allow consumers time to "digest" them. A further dimension is the consideration of new ways of production in order to encourage a different, more responsible mode of consumption.

2. Monitor and manage the direct impacts of innovation

This axis is linked to two aspects: on the one hand, the inevitable uncertainty surrounding the deployment of all innovations and on the other, the inability to anticipate the exact impacts of products and services on the user's health and lifestyle, as well as future clients. Uncertainty is an unavoidable characteristic of the innovation context. The marketing department is in charge of generating estimations regarding sales volume for a particular innovation in order to guarantee the most efficient and continuous supply and stock management among others. These market studies and possible mistakes which may derive from them also contribute to the difficulty for innovators to accurately predict the consequences of innovation. Whether a success or failure is expected, it remains a prevision. It is important to remember that marketing does not create demand, but rather discovers it.

3. Consider the indirect impacts of innovation

This third and last axis concerns the need to consider the fact that an innovation will cause impacts which will even surpass the field in which it was launched. For this reason, it is necessary to integrate the idea that we are all interacting with each other, whether we are conscious of it or not. We essentially all form part of an ecosystem. While the previous axis was concerned with the direct impacts of an innovation on the direct user of the latter, this axis addresses the issue of indirect impacts which will affect the 'non-users'.

In order to apply this theory in the context of the banking and insurance industries, it is essential to begin by providing a brief overview of the understanding of the notion of responsibility in those sectors, especially since the crisis. Indeed, by challenging the social pact between banks and society, the financial crisis essentially made a dent in the trust which the public had placed in financial institutions. Therefore, a responsible innovation strategy in the financial industry would require a certain type of organisational structure. According to Callon and Lacoste (2011), the latter should be designed in such a way as to include the following:

- A questioning process for externalities and for the organisation's own management in order to be able to account for any unforeseen impacts linked to the innovation, which may arise;

- A monitoring mechanism which involves society and stakeholders into the innovation process and is flexible enough to make amends by recalling an innovation if it is considered harmful;
- A culture of acceptance with regards to the need for new forms of innovation in order to preserve the diversity of expectations and lifestyles and prevent lock-in effects or the irreversibility of mass innovations (Callon& Lacoste, 2011).

Since customers do not simply purchase a service when they engage with a financial institution, but rather entrust a part of their life, their financial security, future financial stability and heritage onto them, trust is a founding and critical principle for the banking and insurance industry. Trust therefore needs to be regained, not only from customers, but also from the wider circle of stakeholders surrounding the institution. However, it appears that customers' definition of trust varies greatly from that of banks' (Shevlin et al., 2009). A paradigm shift is therefore necessary in order to place the customer at the heart of the innovation process. This involves adopting an ever-increasingly competitive pricing policy; developing the personalisation of customer relations and developing the personalisation of services for clients. Furthermore, security and simplicity should be privileged as far as innovation is concerned, so as not to weaken the trust.

1.3. Responsible Innovation: A New Wicked Problem?

The achievement of responsible innovation whether in the financial sector or any other in fact, is defined by its complexity due to the multitude of actors, each with their own specificities and characteristics, who are involved in the process. Responsible innovation can therefore be described as a wicked problem. The term was introduced in 1973 by Rittel and Webber to characterize the nature of certain problems whose solving process involves uncovering or even creating new problems as one aspect of the main problem is addressed. This reasoning applies directly to responsible innovation, where scratching the surface to solve an issue inevitably reveals new arising issues to be addressed.

Rittel and Webber (1973) introduced ten characteristics to define the wicked problem concept:

1. There is no definitive formulation of a wicked problem.
2. Wicked problems have no stopping rule.

3. Solutions to wicked problems are not true or false, but good or bad.
4. There is no immediate and no ultimate test of a solution to a wicked problem.
5. Every solution to a wicked problem is a 'one-shot' operation; because there is no opportunity to learn by trial and error, every attempt counts significantly.
6. Wicked problems do not have an exhaustively describable set of potential solutions, nor is there a well-described set of permissible operations that may be incorporated into the plan.
7. Every wicked problem is essentially unique.
8. Every wicked problem can be considered to be a symptom of another problem.
9. The existence of a discrepancy representing a wicked problem can be explained in numerous ways.
10. The planner has no right to be wrong.

2. Methodology: A New Approach for Solving a Wicked Problem through Design Thinking

Design thinking, in analogy with industrial design, is a creative discipline that is incorporated into the innovation processes of organisations aiming to develop specific solutions to address complex issues. Despite being still relatively unknown, the concept first appeared in the 1980s and was made popular by IDEO's David Kelley and Tim Brown in 1999. Design thinking differs from industrial design – which typically tends to apply to the manufacturing sector – through several intrinsic characteristics including its vision and approach to innovation, its experiential, iterative and multidisciplinary method as well as the wide range of sector within which it can be applied. It is no wonder that design thinking should be currently experiencing a revival of interest. Its thorough method seems very effective in creating concrete solutions to address organisations' new needs and requirements with regards to innovation. Moreover, its pioneering approach in tackling complex problems appears to be particularly efficient in terms of responsible innovation. Indeed, design thinking represents a unique combination of scientific and technical rigour; an understanding of the needs of human beings and society in general; a clear consideration for the economic imperatives of an organisation and also provides a basis for monitoring the environmental impact of a project.

Design thinking is a modern approach which provides an additional dynamic for developing tomorrow's solutions. More precisely, it is particularly useful in developing innovations which are responsible in terms of their social, economic and environmental impacts. Today, design thinking has answered the wishes for the progress and development of design which were expressed by Victor Papanek in the 1970s. Indeed, at that time, he already hoped for a discipline of design which would be an "innovative, highly creative, cross-disciplinary tool responsive to the needs of men. It must be more research-oriented and we must stop defiling the earth itself with poorly-designed objects and structures" (Papanek, 1971).

2.1. Definition, General Scope and Benefits of Design Thinking

Design thinking is defined as "a discipline that uses the designer's sensibility and methods to match people's needs with what is technologically feasible and what a viable business strategy can concert into customer value and market opportunity" (Brown, 2008).

Design thinking is a critical tool for solving "wicked problems", which are defined by their complex nature, for which there is no simple or straight forward method of solution (Rittel and Webber, 1973). The same definition could be used to describe responsible innovation as it raises more questions in the process of trying to provide answers to the already existing issues. Hence, through its multidisciplinary approach, design thinking is a critical method used in clarifying and assessing complex problems. Indeed, it tackles problems through a three-pronged approach: desirability (human needs); viability (business needs) and feasibility (technical needs). The first point is concerned with putting the users and stakeholders at the centre of development, by assessing whether the solution is genuinely useful and therefore shows empathy towards users by optimising ease of use. The second point addresses the business requirements for developing a specific solution, in terms of adequate resources and know-how as well as previsions on profitability and ROI. The third point deals with the technical needs of the solution, in other words: can we implement the solution rapidly? Is it easy to maintain? Is it consistent with regards to our current situation?

Traditionally associated with the downstream innovation process of products and services and considered to simply provide an attractive packaging for the client thereby providing limited results in terms of value creation, design thinking has now become an integral part of the innovation process. Indeed, it plays a strategic

role in value creation through the creation of ideas that better answer the expectations and needs of consumers.

The banking and insurance sector needs to innovate differently and to become fully accountable for its actions. The regain of trust from customers and stakeholders, as well as the institutions' very survival in a highly competitive environment depends on their ability to integrate this concept. In that regard, design thinking has many benefits, as it articulates itself around and adapts to the organisation's innovation process. There are five main objectives to this method. These include the opening up of the innovation process to include customers, stakeholders and experts capable of providing guidance with regards to potential impacts; the improved understanding of customer needs and expectations, by involving these throughout the process; the full use and management of new distribution channels through the cross-disciplinary work; the reduction of risks posed by innovations by making an impact monitoring system central to the innovation process and the redefined role of banks and insurances as actors actively shaping the future of society.

2.2. Explanation of the Design Thinking Method for Integrating Responsible Innovation in Organisations

The main objective set at the beginning of the project was to design a method capable of supporting the development of responsible innovations in the banking and insurance sector while taking into account social, economic and environmental impacts linked to the new product or service. The design thinking method aimed to provide a method for assessing an innovation in the light of the three axes of responsible innovation and the principle of responsibility, as well as to identify potential innovative and responsible products and services.

The method used consisted of the following elements:

- 1) The creation of a multidisciplinary group in order to generate a global vision of the problem at hand, which involves the integration of responsibility into the innovation process of banking and insurance companies. As such, the working group consisted of philosophers, academics, anthropologists, designers, banking and insurance sector specialists as well as end users.
- 2) The separation of the theoretical and practical dimensions of responsible innovation to ensure that each part was treated accordingly and

simultaneously. As such, the theoretical approach consisted in an analysis of existing research surveys and a literature review to conduct a debate surrounding the topic of innovation and philosophy, while the practical approach, in parallel, consisted in conducting a series of ethnological interviews with regular bank and insurance customers and industry specialists, to assess their views on financial institutions, the industry as a whole and the role of innovation and responsibility within that sector.

- 3) Following the background work and on the basis of resulting syntheses, four workshops were organised to process, exchange and debate surrounding the information and with regards to the issues raised:
 - a. Workshop 1 was dedicated to the exact formulation and wording of the issues being treated as well as the definition of the parameter to which the responsible innovation method would be applicable. This facilitated the development of the first draft for the responsible innovation process.
 - b. Workshop 2 was dedicated to the research of new service concepts which would be deemed responsible. This workshop was essentially centred on the final user and resulted in the development of twelve different concepts.
 - c. Workshop 3 was dedicated to the analysis of the concepts developed in the previous workshop by confronting them to the first draft of the responsible innovation process derived from Workshop 1. This session allowed both the refinement of the process (creation of a responsible innovation process including the evaluation of impacts according to social, economic and environmental criteria) and the further development of the service concepts. Three concepts were then selected as those that were considered most likely to be developed into real responsible services.
 - d. Workshop 4 consisted in testing the three service concepts by evaluating them in terms of responsible innovation, through the responsible innovation process and its impact analysis based on the social, economic and environmental criteria. This final workshop

also enabled the finalisation of the responsible innovation process, as potential practical drawbacks were identified throughout the analysis of the service concepts.

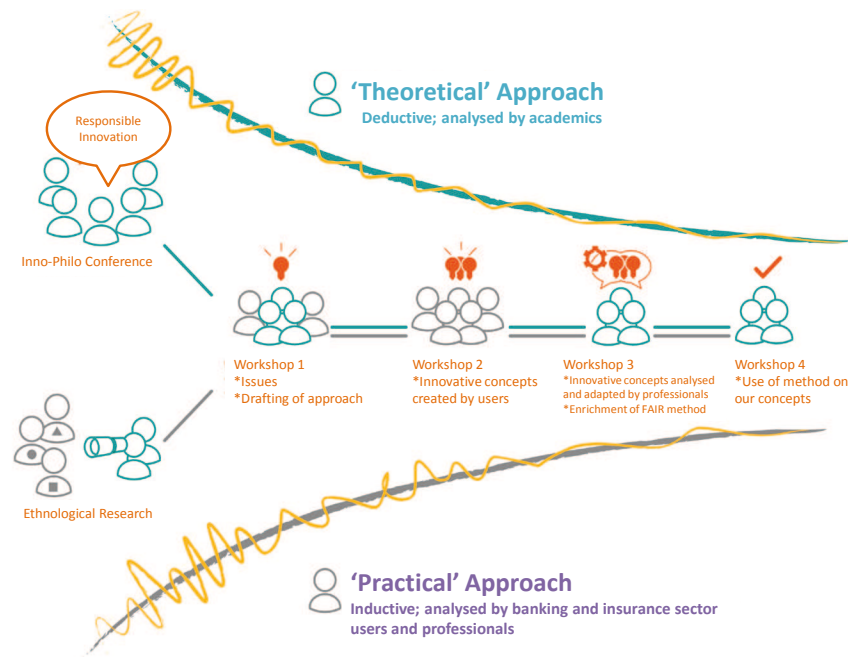


Figure 1. Illustration of the design thinking method for developing a responsible innovation process

The figure above illustrates the simultaneous approaches of the theoretical and practical elements of the method. On the one hand, academics addressed the issue of defining responsible innovation and how the responsibility of an innovation might be measured in order to feed that information into the analysis of the innovation process based on the three axes of responsible innovation. On the other hand, anthropologists conducted surveys with both financial sector professionals and customers to examine their interpretation of responsibility and what makes an innovation responsible from their perspective. The results of both approaches were then analysed conjointly in order to create a process allowing the assessment of an innovation in light of the concept of responsibility and the identification of potential innovative and responsible products and services.

3. Results: Responsible Innovation Process

In order to integrate responsibility an organisation in such a way as to foster creativity and organisational development a five-step process that links performance, innovation and responsibility must be adopted at all levels of the organisational structure. This guarantees that responsibility is not uniquely focused

on the development of new products and services but rather consists of a global integration across the whole organisation. Thus, the responsible innovation strategy is first and foremost a commitment by the entire organisation to be responsible through the organisation's various activities. This chapter will provide a brief analysis of the organisational process necessary to engage in responsible business practices. This will be followed by the detailed process occurring at Stage 4, which involves using design thinking in the development of responsible products and services.



Figure 2. An Integration of Responsibility at all Levels of the Organisation

Five Steps for Integrating Responsibility

Stage 1: Comply with the law

The first step of the process lays the foundation for developing the responsible organisation and evidently concerns the organisation's compliance with the law and legal practices. This may seem as an obvious step but it is a critical point when it comes to patents. Indeed, the recent legal conflicts between Samsung and Apple have shown that organisations can never be too cautious about patent infringements. Therefore, the aim is to examine the existing legislation to detect any potential obstacles to the development of any type of innovation within the organisation as a whole.

Stage 2: Anticipate future legal requirements

The second stage is about studying the legal landscape to identify potential trends in order to foresee future legal constraints which may affect the organisation and adapt to these before they are enforced. As such, the main objective of this stage is to ensure that compliance becomes an opportunity for innovation through the implementation of a regulatory or legal requirement which would, in the future,

force a major structural change upon the organisation. By developing an ability to anticipate future legislation, the company stands out from competitors by being the first to innovate on an aspect which will eventually become an obligation for all market players. In order to complete this stage of the process successfully, a certain ability to anticipate, shape and influence legislation and regulations is necessary and working with other market players, even competitors (through co-opetition projects) can facilitate the implementation and contribute positively to the creation of innovative solutions. The organisation can use this stage to find opportunities for innovation in the experimentation with new sustainable technologies, materials and processes. The major benefit of this stage was illustrated by Hewlett Packard when, in the 1990s, the IT corporation anticipated the issue of a European Directive banning the use of a certain type of copper used in their electronic components. Already aware of the toxicity of that material, HP invested heavily in the R&D department to develop a substitute. The reward came through a critical competitive advantage when the European Commission banned the toxic component from manufacturing processes in 2006.

Stage 3: Treat the value chain as an ecosystem

The main challenge behind the third stage is to be proactive in relation to the entire ecosystem, especially in terms of suppliers. Thus, the aim is to increase the efficiency of the value chain by designing it in such a way as to involve every single actor and organisation to be responsible. The organisation should therefore develop a certain expertise or network in areas such as efficient carbon management and life-cycle assessment, for instance. Innovation opportunities in this stage can be found in the development of sustainable sources of raw materials and components. In 2008, Wal-Mart set an ultimatum for its Chinese suppliers, who were told to reduce their CO₂ emissions by 5% by 2013 and increase the efficiency of their energy production by 25% within three years.

Stage 4: Innovate responsibly

This process will be explained in more detail in the next section. At each step of the development process of responsible products and services, the various risks, direct and indirect impacts of the project on social, economic and environmental factors are evaluated, or at least taken into consideration to be measured more precisely once the product or service has been launched. In order to ensure that risks of the projects have been effectively recognised, these are formulated into a

set of hypotheses, portraying any impacts which are solely measurable post-launch. This step is not only intended to create, draw and launch products and services to encourage responsible behaviour and consumption, but it also consists in developing these offers in such a way as to ensure that their impacts – throughout the development process and once they are in circulation on the market and being consumed – is controlled in order to take the necessary measures in case these impacts are particularly harmful.

Stage 5: Lead the change

This final stage is about becoming an industry leader in terms of responsible innovation, through three optional activities which are all linked to educating customers, employees and stakeholders towards responsibility and change their behaviours in terms of production and consumption:

5.1. Develop responsible business models

The aim here is to form a new basis for competition through finding new ways of providing and capturing value. Thus, the entire value chain needs to be re-designed in such a way as to involve suppliers, customers and stakeholders to interact through a different form of consumption. In 2008, FedEx implemented the innovative organisational programme ‘Fuel Sense’ designed to replace its fleet with Boeing 757, thus reducing jet fuel consumption by nearly 36%, while increasing capacity by 20%. The software was further developed in order to optimise flight routes and in certain cases to use solar energy for its centres based in California and Germany.

5.2. Communicate and educate to responsibility

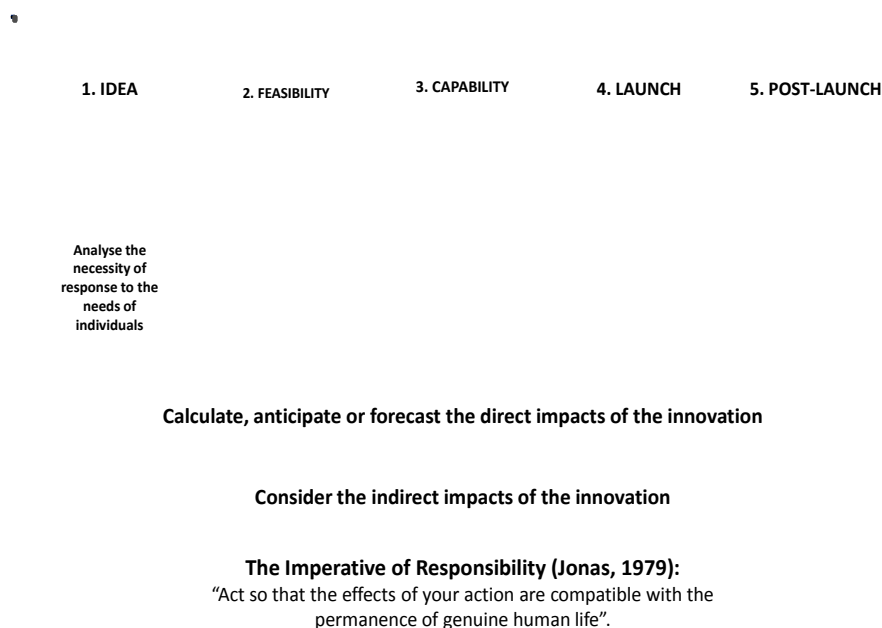
This stage is all about education through communication to not only customers, but rather all stakeholders. Responsibility is a collective action which concerns each and every actor of every sector or industry, when dealing with business as well as the surrounding society. As these are all impacted by innovations, they not only deserve the right to be informed about the organisation’s initiatives towards becoming more responsible, but also need to be collectively educated with regards to what it means to be responsible. For instance, Sodexo is actively involved in communication campaigns encouraging customers to make sustainable choices and adopt healthy, active lifestyles by demonstrating the initiatives undertaken by the organisation on that topic.

5.3. Create standard

At this stage, the main challenge lies in sourcing the required knowledge or expertise in terms of the organisation's production impacts. The organisation should aim to lead the change towards responsibility in its sector, by defining new 'responsible' norms and standards, which all market players will eventually need to adhere to. For instance, L'Oréal is currently using scientific advances such as tissue engineering, decoding the human genome and other imaginary techniques in an effort to make it possible to evaluate the safety of ingredients without testing on animals. L'Oréal stopped testing finished products on animals in 1989 and its main objective is to stop in vivo animal testing and replace it with in vitro testing on the biological tissues that have been reconstructed in laboratories.

Stage 4: Innovate responsibly through design thinking

The development of new responsible products and services happens through an integration of the three axes of responsible innovation (Figure 3) as well as the criteria for sustainable development (Figure 4) throughout the innovation process. For the purpose of the study a classic innovation process was used, consisting of five steps: idea, feasibility, capability, launch and post-launch. At each step, the innovation team is faced with a series of questions to address affecting their responsibility as the concept is turned into an idea and eventually a new marketable product or service.



INTEGRATION OF AXES OF RESPONSIBLE INNOVATION

Figure 3. An integration of the axes of responsible innovation

The design thinking method helps to combine the need for creativity as well as a monitoring of impacts; as such the need for responsibility is used as a lever for developing better innovations which are at the service of citizens and not the other way around.

In the first step of the process, the multidisciplinary innovation team unleashes its creativity to generate the most creative ideas with the ultimate goal of answering a consumer need. This is done in light of the first axis of responsible innovation, which questions whether all consumer needs should be answered. Both direct and indirect impacts linked to the project are also taken into account through an impact analysis of the social, economic and environmental criteria from the sustainable development theory. A social criterion could for example question the level of adaptability of the future product or service to ensure its accessibility to all members of society without discrimination. An economic criterion could address whether the product is being designed in such a way as to encourage other responsible activities, while an environmental criterion could raise the issue of the project's ecological footprint, both throughout the development and once the finished product has been launched.

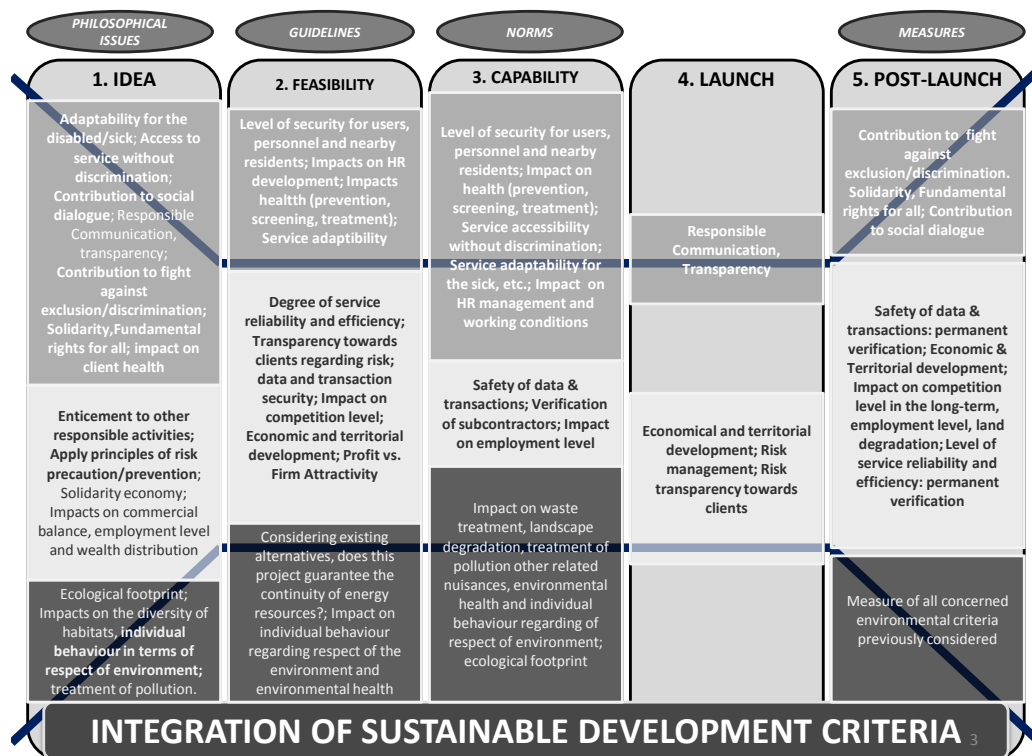


Figure 4. An integration of social, economic and environmental criteria

Certain questions arise at different steps of the same process, as the type of information required will vary depending on the progress made by the project. As discussed earlier, innovation is surrounded by uncertainty. It is therefore impossible to accurately predict all future impacts which will arise once the product is on the market. For this reason, a set of hypotheses representing potential risks must be formulated throughout the development and tested in the post-launch phase, as accurate information can be collected from the market. As such, a first set of hypotheses are created in the first step of the innovation process. These are specified in the ‘capability’ step of the process, as the future product or service is becoming increasingly defined and developed. Finally, the hypotheses representing the highest risk factor are given priority to be tested in post-launch. The results of these tests should assist management in deciding whether the product’s negative impacts are too great to be left on the market. If this is the case, the product or service is to be re-inserted into an earlier step of the process to be amended in order to minimise negative impacts.

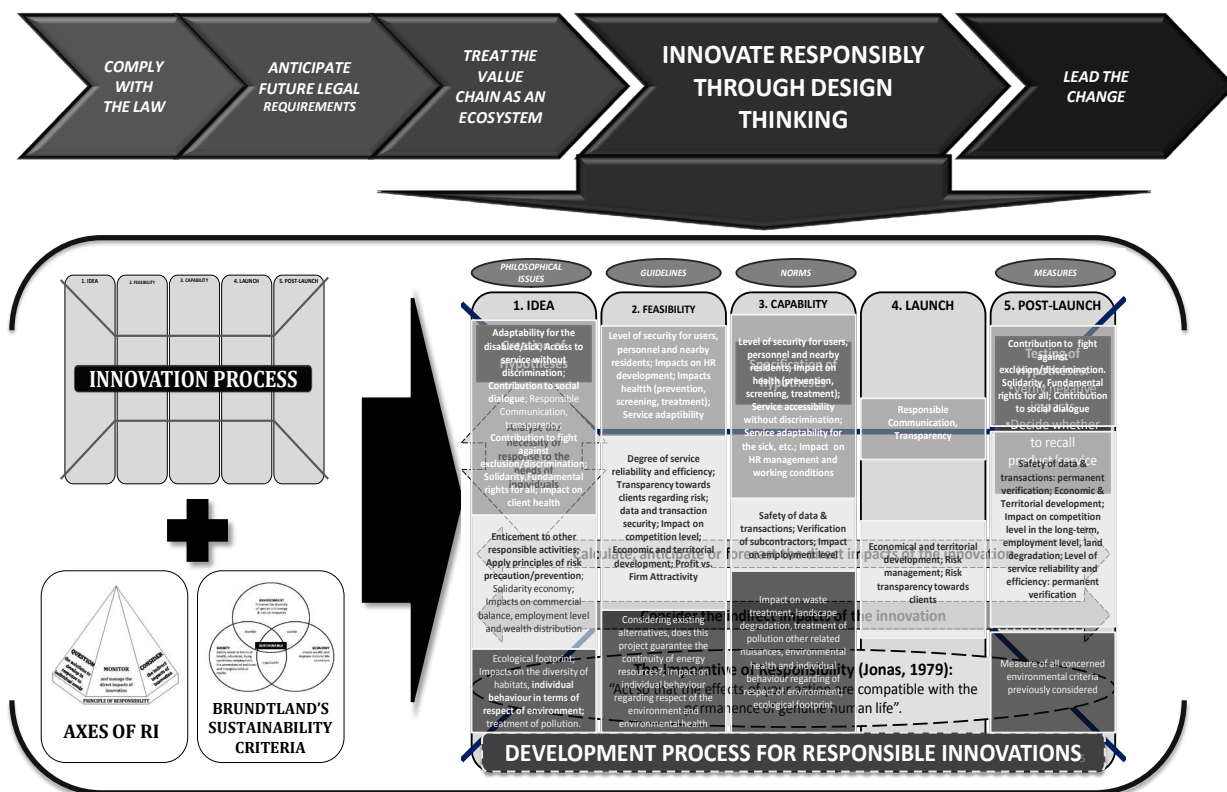


Figure 5. Developing responsible product and services through design thinking

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