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***The importance of responsible-  
innovation and the necessity of  
'Innovation-care'***

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**THE IMPORTANCE OF RESPONSIBLE-INNOVATION  
AND THE NECESSITY OF ‘INNOVATION-CARE’**

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## **SUMMARY**

This study deals with responsibility as part of innovation. Innovation gives birth to development for the organizations by nature and can take several forms. In an economic context always more global and more competitive, innovation can only be at the core of any strategy. At the same time, the race for innovation in the world today raises new questions. These questions stem most of the time from the impossibility to forecast the result of the innovations: will it be successful or not? More exactly the questions innovation raise are also about its consequences on all the society, and not only on the economics, as Schumpeter assumed (Schumpeter, 1939). The consequences of innovation can stretch to the environment, to the society and to social topics. They are to be placed under the innovator's yoke as well. Thus the particularities of the responsible-innovation have to take into account these important questions and to be articulated according to different topics. Responsible-innovation should indeed help to answer the problematic raised by the innovation.

In parallel, the common acceptance of the word 'responsibility' raises some questions about its use and how it should be understood. What does 'responsibility' mean? Who is responsible and for what? Is it the shareholder, the customer, the supplier or the manager? These questions are at the core of our research; we try, by the notion of *care*, to provide an evolution of responsible-innovation. Contrary to it, the 'innovation-*care*' is about people and focuses on taking care of them. The purpose of the innovation-*care* is indeed to innovate while keeping up with the level of productivity necessary to any organization. It also has to take into account the essential interdependence between the innovator and the citizen, and to accept the role played by innovation in the individual's life within the City.

## **KEY WORDS.**

Innovation, responsibility, *care*, innovator, individuals, performance, interdependence, ethics.

## **INTRODUCTION : INNOVATION, RESPONSIBILITY AND CARE**

When François Rabelais wrote in the XVIth century in *Pantagruel* his famous sentence “Science without consciousness is nothing but the death of the soul” (Rabelais, 1854, p.107), was he aware that five centuries later it would still be a topical question? Was it an early attempt to fight the modernity his century would enter with Descartes, his almost contemporary? Whatever it was, if we look at the environment we live in today, we cannot deny that he had a vision. Electronics has invaded our everyday life with the objects through which we communicate, the ‘digitalization of the world’ is becoming a major stake and nanotechnologies are going to be everywhere, whether in food or in clothes. And it seems that it is only the beginning, considering the progress to come both in the exploitation of the human body and in its avatars, in terms of trivialized automatons.

In the meantime, these new technologies or these new ways to communicate have been related to the development of democratic movements in the countries where freedom of expression is limited. Besides, medical headways supported by technology are naturally praised by their beneficiaries. We could thus study the notion of innovation by using the famous term *deinon*. This term is difficult to translate because of its polysemy. It means both the ideas of the terrible and of the admirable which unite to say the power of opposite. Sophocles in *Antigone* illustrated this idea by the example of the man who has “resources, whose ingenious skill is above all expectations, he moves sometimes towards evil, sometimes towards good” (Sophocles, 1955, p.86). But men, the individuals are those who innovate, there are the ones who can chose in which direction they want innovation to direct innovation: “sometimes towards evil, sometimes towards good”, consciously or not. The responsibility to chose between ‘to make or not to make’ is finally borne by innovators. Nevertheless, the very word ‘responsible’ can take several meanings, including an everyday acceptance. What does ‘responsibility’ mean today? For whom? For what? To which extent?

The unprecedented rise of technology and of its power occurs in a context of globalization which keeps on accelerating. Human beings henceforth have to assume their responsibility of the world and in the world. The innovator is more particularly concerned by the responsibility of the world to come. It is by its novelties, its launches of products and services that the face of the world is outlined. Thus it is appropriate to talk about responsible-innovation. It’s necessary to question the role of responsibility in innovation one more time and to underline that it has a unique stake: taking care of humanity.

That is the reason why we suggest to focus in the first part on the fundamental question of responsibility by underlining in what, as Marc Neuberg says, the responsibility of innovation remains in the consideration of situation within a value system shared by all the actors impacted by innovation (Neuberg, 1997). We shall then describe what ‘responsible-innovation’ may be. It will also be the moment to point out criticisms concerning the wrong understanding or, more exactly, the shades of meaning of responsibility. As a result, we shall opt for a proposition which, it seems to us, casts a new light on the issue that every innovation has to deal with: the individual. That is why we shall use the notion of *care*. Having defined this term, we shall explore the meaning of ‘innovation-*care*’, its principles, and its uses for the society, for the company and for the innovator. In a conclusive moment we shall be careful not to lose sight of the very essence of innovation according to Schumpeter: the economic performance (Schumpeter, 1939).

## **PARTIE I : THE NEED OF RESPONSIBILITY FOR THE INNOVATOR**

### **1. About the importance of responsibility**

By nature innovation cannot be predicted. Even if a lot of surveys and market-studies are made before a new product or a new service is launched, there is no denying that it is only once the product is on the market that its outcome can be known. When Schumpeter described innovation he particularly underlined this aspect: innovation occurs when the product is launched on the market and attracts enough customers to become significantly profitable (Schumpeter, 1939).

This situation of uncertainty is the basis on which a lot of studies are made and thrive, aiming at reducing failures. Paradoxically enough, few people wonder about the consequences of this uncertainty, should it be successful or not. Yet it is this very uncertain feature which gives birth to the stakes of responsible-innovation, whose essence is to question the consequences of an innovation.

In the recent financial crisis, the banking innovation was held responsible for the economic fall. And today new topics on ‘responsible-innovation’ are often to be found in the media. This notion which is both comforting and seemingly morals, aims at reassuring the customers on both the morals of their supplier and the security of the financial product they are offered. Yet if the popularizing and everyday acceptance of the expression appeared during the financial crisis, the ‘responsible-innovation’ theme appeared in Europe in 2004 through the French association Vivagora. Vivagora’s purpose is to reflect on a new relation between the society and innovation while keeping men and their quality of life at the core of its researches<sup>2</sup>.

The understanding of the notion ‘responsible-innovation’ leaves room for a large number of interpretations. Its evolution is deeply rooted in the topic of the social responsibility of the firm whose stake is about the firm’s basics, especially innovation, but not exclusively. The stake of the social responsibility of the firm has in fact little to do with innovation. As it is mostly concerned with short and middle-term issues, social responsibility cannot highlight the specificities of innovation, not even mention its uncertain outcome. The social responsibility of firms mostly deals with the present time and the close future, but also, and mostly, with what it can forecast (Porter and Kramer, 2011). And the very essence of innovation lies in its uncertainty: in the uncertainty of its results, of its outcomes on the market, of its uses, etc.

#### **1.1 Responsibility, a new dimension in the innovation world.**

We can only determine ‘responsible-innovation’ in parallel with the notion of progress, that is to say the permanent desire of men to ‘progress’ towards a goal that is profitable for the individuals. It is only when we think in those terms that Descartes’ sentence, which made the XVIth century enter modernity and progress, in other words the race for innovation, can reach the full extent of its meaning: we, men “have to render ourselves the lords and possessors of nature” (Descartes, 1953, p.168). This opinion, which was justified in the XVIth century – all the more so that it was concerned with protecting men’s health<sup>3</sup> (Faye, 2005) – has rarely been questioned. The race for progress and innovation, which thrived on economic development, has kept increasing its speed<sup>4</sup> (Carlson, 2002).

Even if this dimension became more tangible at the time, it dates back to the Ancient World. To quote two significant examples, one can think about the quest for immortality in the *Epopée of Gilgamesh* or the quest for the fountain of youth and for the elixir of immortality (Bostrom, 2005). Among the French philosophers of the XVIIIth, we can quote Condorcet who suggested to use the future outcomes of medical sciences to create an endless human life (Condorcet, 1822). Benjamin Franklin, whose phantasm was to be able to interrupt and start life again, showed similar interests (Franklin, 1956). It is also to be remembered that the great theorist of evolution, Charles Darwin, underlined that chances were that humankind, as we know it today had not reached the end of its evolution, and was rather at its very beginning (Darwin, 2003).

Finally, Nietzsche in the XIXth century was just the heir of these philosophers when he wrote about the “will for power” (Nietzsche, 2003, p.87) whose meaning was to “reach more essence”. According to him there is always a taste for power which can be seen everywhere. However, it can take several forms or functions according to individuals or bodies.

The point of these philosophers (a few among great-ones) is about ‘progress’, should it be related to knowledge or to sciences. The notion of progress has been studied for a long time in close link with medical headways or questions related to the conservation, creation and extension of human life. We shall not forget Paracelsus, who kept experimenting the ‘chemical’ reproduction of life in the XVth century (Bensaude-Vincent, 2001). Even if religion has always limited some possibilities of progress, about life reproduction for instance, the scientists had neither the knowledge nor the ability to realize such ambitious projects. But for the last ten or twenty years the rhythm of medical progress has clearly become faster with the discovery of genetics, of the DNA structures and the first attempts to clone animals. The issue lies no longer in the ability of science to realize a project; it is now in the ethics and responsibilities concerns of the choice between doing or not doing<sup>5</sup>.

Innovation, the daughter of progress, has kept developing while trying to improve or to ease all aspects of the life of individuals, their conservation as well as their well-being. It was helped in this particular area by the development and the progress of technology, which have enabled men to develop lots of products and services whose existence was pure fantasy less than a century ago. Today, for instance, ‘transhumanism’ has become a will whose public stake is the improvement of the human condition through techniques. These techniques for instance aim at ending old-age and increasing our intellectual, psychological and body capacities<sup>6</sup>. The theorists of transhumanism, especially Raymond Kurzweil, highlight the fact that the rhythm of technological changes is becoming faster, and that the next fifty years will witness both technological breakthroughs and a technological singularity which will deeply and definitely transform human nature (Kurzweil, 1999). Even if those in favor of transhumanism show the possible risks stemming from the rise of new techniques and technologies, they are deeply convinced that the benefits are bigger than the risks, especially in terms of fighting against poverty, sickness, disabilities, lack of food and dictatorships. The improvement of the quality of life of the individuals being the ultimate goal, those theorists only see in the concept of ‘nature’ something unclear and hampering progress (Bostrom et al, 2008).

These last dimensions cast a new light on the risks and threats for human values. There is today a new context which brings into line the modern period we live in and the quest for a sustainable and responsible development. Thanks to the progress of science and technology, we can understand the complexity and the exploitation of the world. These developments

make way for a lot of actions which imply ethical, social and citizenship-related concerns. Yet the success and uses originating from these developments result in new risks whose consequences cannot be foreseen, should they be success or give birth to new behaviors. Responsibility should thus be given a new common acceptance, because it appears that “nowadays we are responsible, or at least responsible together, for common actions whose development and effects remain unknown; the circle of closeness which made me feel duty-bound only towards the close future and my neighbor is broken, just like the link of simultaneity which made me responsible for the present effects, or the effects directly inferring from the actions I made today” François Ost explains (Ost, 1995, p.267).

The way we think about being responsible and being careful evolves, because we act in a different manner from thirty years ago. Responsibility remains the property of individuals, but it spreads to all the society. It can now be devolved to a man, but not only to him. Moreover, whereas we used to think that responsibility and proximity were linked, that it needed a strict boundary in space and time, it now evolves towards a time- and space- free notion with unlimited reciprocity. In other words, responsibility has to be defined more precisely because the constant journey between individual and common responsibility which has become the norm is as unclear as it is strongly rooted in the mindset: “Instead of personal actions easy to identify, we have to face numerous decisions which, all together, can have considerable effects. Responsibility is nowhere and everywhere. Actions have been made and decisions have been taken, whose consequences are sometimes tragic. But no one can identify who is responsible for it, unless we decide that the organizations or the network should bear it, which does not fit our intuition of responsibility. We keep thinking about it as a property of the individual” Jean-Louis Génard says (Génard, 2000, p.105). In our opinion it would also made responsibility less clear.

## **2. The criteria of responsible-innovation**

Three elements mentioned by Bensaude-Vincent<sup>7</sup> (Bensaude-Vincent, 2009) can help to determine what a responsible-innovation may be. We have to mention that if these can be studied together, they have to be clearly distinguished from one-another in the meantime. The first one emphasizes the fact that in the world today, every firm is – righteously – obsessed with listening to their customers, so that they will be able to meet their needs. Responsible-innovation questions this dimension by wondering if a new need should systematically be met. Should a firm systematically launch an innovation which allows to meet a need just discovered? In other words, it’s not because there is a need that an innovation must be launch. Should innovation strategies do everything they can to meet a new need? Should we launch an internet service which automatically makes the student’s homeworks because they do not want to do them<sup>8</sup>? Should we organize trips dedicated to special sexual desires because a part of the population has special sexual desires<sup>9</sup>?

The second aspect of responsible-innovation is a blatant fact: innovators cannot calculate or predict all the consequences of the products they launch. All the more so that in the meantime there is a race for innovation which entails quick decisions (sometimes even adopted in a hurry). As a result of the challenging business environment and of the increasing number of firms, all the competitors can think about is launching their last product on the market, whatever the consequences. The famous Ford Pinto is a telling example (Raymond, 2003)

The third and last level of responsible-innovation is knowing that the innovation can result in new risks, whose consequences can impact everyday life and ways of life. This topic has a

great importance and yet it is often sidelined. An innovation in an area may have no consequences on this sector. The innovation of the scientist as the innovation of the product manager can indeed bring a communication between sectors which remain unknown at the beginning. In the case of the launching of a new, faster, more powerful, with high sound-damages plane the consequences should not only be assessed on the members of the staff and on the customers. The damages stretch to all the beings in contact with it, should they be human or animals. It is the whole ecosystem around the airports which is harmed, as the *Grenelle de l'environnement* underlined, and decisions will have to be made<sup>10</sup>. Same case when a car with air-conditioning is sold, because it uses 15% more than the average car which does not use this option (Gagnepain, 2006). Carbon emissions will reach not only the driver, but also the man on his bicycle.

Responsible-innovation thus results in three axes, three questions that we repeat hereafter: should a new need always be met? Do we really know the full extent of the consequences of the innovation once it will be available on the market? Will this very same innovation have consequences on the ecosystem within which it will evolve?

### **3. From responsibility to the care**

#### **3.1 Common misunderstandings about the meaning of 'responsibility'**

The previous elements underline what responsible-innovation can be, that is to say an innovation stemming from a client's need, a solution developed by the firm, an institution or an organization and which enables it to grow with profit while being aware of the possible damages on the society in the short, middle and long-term.

Yet 'responsible-innovation' seems to face too many limits, which result in an impossible understanding of the notion, and thus in an impossible implementation of it within the structures of the innovative organizations.

The first point deals with responsibility as part of innovation. Who is responsible of the innovation in terms of implementation? Who 'has to account for its decisions' as the Latin etymology *respondere* suggests? Especially concerning suggestions about new products or services? In other words, who decides? This question is very important when it comes to analyze the recent development of working groups firms have set up. The first consequence of of these working-groups is the dilution of responsibility (Baber, 1983). We know that the dilution of responsibility in general and of responsibility as part of innovation in particular, always results in a careless assessing of consequences. We obviously feel less concerned by the impact of innovation when it's not well defined who in the management chain makes decisions (Baber, 1983). Responsibility can only be approached when one chairs an entire item – even a small one – not only a part of it.

Secondly, responsible-innovation is often shown as hampering innovation. Just as much as 'innovation' is characterized by development, growth, headway and progress, being 'responsible' is synonym of brakes, slow motion and patience. Because one may have 'to account for' what he did, the rhythm of the innovation automatically has to be slower. The fear of bearing responsibilities for one's acts is an incentive to wait-and-see policy, should it be because of a lack of courage or because of a will to avoid problems.



The third point is the common acceptance of the term 'responsible'. For what and for whom would an innovation be responsible? We could imagine a responsible-innovation dedicated to the sole preservation of the stakes of the shareholders. If so, the actions implemented would not matter. What is the object of responsibility? Is it the preservation of the generations to come? Or the current generations? Is responsibility about groups, communities or individuals? These questions have to be raised, all the more so as the word 'responsibility' dates back to the XVIIIth century and also covers the notion of solidarity. The evolution of this term is closely linked to the restructuration of the schemes of civil responsibility, including the prevention of risks. It is at that period that the notions of responsibility and fault broke apart, just like insurance, indemnification, etc. In fact, it became a tool allowing people to assess risks more than a regulative principle of the behaviors. And yet it had a paradoxical consequence: the "relieving responsibility of each act" (Eswald, 1996, p.86). From this moment on: "Responsibility without fault lead to the weakening of responsibility. Above it, before the making of a decision, and because it results in a dilution of responsibility without allowing to question the role of the people being inquired, it turns action into an anesthesia, which is exactly the opposite of the feeling to being responsible. Beneath, because it does not analyze the faults which may have existed, responsibility without fault kills the feeling of responsibility, because the person who indemnify can openly say that "this is not my fault" Laurence Engel says (Engel, 1997, p.80).

In-between those two steps, the substance of the responsibility of the subject both for himself and for the others has been lost. It is thus the judiciary evolution of responsibility which rocks its very essence (Gorgoni, 2006). Responsibility has a consistent meaning as long as it is an application chosen by individuals for individuals. It weakens as soon as it falls under the yoke of executive organs (Eswald, 1996). François Ewald explains that "what makes us responsible is the fact that we make decisions when we are responsible for others. This dimension cannot be seized by law because law thinks responsibility in terms of norms and of breaking of those norms. Yet we are not completely feeling responsible when we are submitted to norms. The experiment of responsibility begins with making a decision in which norms had no part" (Eswald, 1997, p.11). We can note that this dimension was the one adopted by Petersen when he underlined the space we implement in responsibility between the 'do not harm' and the 'do good' (Pedersen, 2010). The question of submission to norms thus differs from doing good. Doing good is going positively beyond norms.

The last point of this criticism of the term 'responsibility' is the fact that the very notion is no longer accurate. Since the financial crisis, everything has become magically 'responsible'. From the consumer credit to the last cellulators, everything is coated with responsibility. We experienced the 'green washing' trend; it seems that the 'responsibility washing' will be its heir.

There is a need for responsible innovation but the word is no longer keeping pace with its meaning, it is too unclear and trivialized. Not only does it have a passive and defensive coloration but it does not enable to point out the particularities of its object precisely enough, and thus remains of little use.

Herbert Hart suggests that we adopt the notion of 'role-responsibility' (Hart, 1968). It is an interesting idea because it characterizes the situation of the one who is in charge of taking care of someone else's interests. The 'role-responsibility' refers to a meaning of the responsibility that brings into play a nexus of transverse responsibilities at the intersection of ethics and law. Nevertheless, even if the concept shows interesting aspects regarding our

problematic, it seems to us it cannot fit. Indeed, just like the notion of ‘responsibility’, ‘role-responsibility’ and what it covers in term of ‘being in charge of taking care of someone else’s interests’ can only deal with the preservation of the shareholder’s stakes, whatever the means.

Paul Ricœur shows that the term *respondere* is often misunderstood and suggests that we replace it by *imputare*, the imputation. According to him, the notion of responsibility should be stretched towards imputation so as to increase the value of the relation with each-other. Ricœur’s speech nearly questions responsible-innovation. He says that “the new meaning responsibility has been given in our technological period needs an orientation openly directed towards a far future, which goes beyond the time of consequences we can predict” (Ricoeur, 1995). Yet imputation seems too close to juridical questions because imputation seeks the ‘fault’ and characterizes it for the subject, which is useful but in no way sufficient. If we were to scare innovators with imputation, the direct risk would be the slowing-down or the giving-up of every innovation. Moreover, imputation seems to focus on the past whereas we are trying to think about an innovation which is yet to come.

It is thus necessary to find a new concept, a new dimension, a new understanding which would provide us with an answer to this lack of substance. This concept should in the meantime enable us to understand more completely what is at stake in the relation of the individual, with himself as with someone else. In other words the point is to think about innovation just as a means whose result would be better for the individuals, because it would take care of them. It would highlight a point which responsible-innovation does not tackles enough. Taking care of the individuals naturally leads the society towards a better end. This is the reason why we suggest to use the British and American notion of *care*. This one, coupled with the notion of innovation, should enable us to reach a new paradigm, including a new conception of the innovator’s role, and help us to set up a more accurate approach of what responsible-innovation should be. This paradigm could be placed under the aegis of Plato who said, in *The Republic* that the City should be established not only for “a single class of privileged citizens, to whom the possession of happiness would be granted, but so that happiness would belong to the higher number of people we can reach, to the whole State” (Platon, 1950, p.980). Thus, reformulating the Athenian , innovate-*care* is to innovate for the City while seeking not only the exceptional happiness of a single group, but happiness for as many individuals as possible, that is to say all the City.

## **PART II : EMERGENCE OF THE CARE BEYOND THE SOCIAL SCIENCES**

### **1. What does care consist in?**

*Care* can be understood as solicitude, taking care of someone or kindness (Laugier et al, 2008) It is the universal expression of human concerns about the world we live in (Gilligan, 2008). This concept is used by sociologists, psychologists, politicians, jurists, philosophers, geographers, anthropologists, engineers and social workers. And yet it seems important today to question its dimension within the managerial circle, especially concerning innovation (Tronto, 2003). If the concept of *care* is closely linked to the relationships between individuals, Joan Tronto, one of the most influent specialists of the *care*, underlines the need for questioning the concept by institutions, cities and States (Paperman, 2008). It is a consistent project, because for the advocates of the ethics of *care*, morals infers from everyday life experiences, and from moral problems faced by real people in their routine (Laugier et al, 2008). This is the reason why we think that firms should be added to this list.

At the beginning Joan Tronto and Berenice Fischer defined the *care* as “a typically human activity which includes everything we do so as to maintain, preserve or fix our ‘world’, aiming at living in it in the best conditions. This world includes our bodies, our individualities and our environment, because we try to mix it in a complex pattern which is the underlying basis of life.” (Fisher et al, 1993, p.37) Innovation associated with *care* does not completely match this definition, because every technological, scientific, economical innovation does not aim at ‘fixing’ the world or our bodies – even if it might have been the aim of progress. Yet, according to this definition, the innovation-*care* can be partly defined as enabling to avoid what the *care* tries to implement. In other words, innovation should not run the risk to destroy the world, the environment or individuals.

This definition reveals also that *care* is focused on time present and innovation-*care* on the future. While *care* aims at taking care of the one who currently needs it, innovation-*care* aims at meeting the future needs of the individuals without forgetting to care for them. We should note that this research is strongly correlated with ethics, and with responsible-innovation. In order to make it clearer, we underline that we consider ourselves as heirs of Bernard William, whose thesis is that the basis of ethics is to be found in Socrates’ question “How should we live?”(William 1990). This question is a need, a demand for ethics with which philosophers try to deal when thoroughly reflecting upon ethics. This reflection is even more Socratic: by which knowledge can we reach the ‘good way of life’? Innovation-*care* is based on these two pillars: first ‘taking care of oneself’ -*epimeleia heautou*-, and secondly ethics, which is here linked with Socrates but can also refer to Kant, as we will see later.

These details are important for our study, because from its beginning and under the influence of Carol Gilligan *care* was understood as an ethics, a specifically female-one, for it appears first within the families – we take care of the ones who are around us and that we love without conditions –and is passed from mothers to daughters through generations. Several analyses have yet shown that no one is born *caring*, it is something we become (Paperman, 2008). – ‘Passing on’ is not genetics, but its achieved through education and thus the gender barriers disappear. If *care* transcend genders like it transcends cultures and borders, it seems that in the meantime it could transcend social classes and root in the economy and business management.

#### **1.1 Innovation-*care* or *care*-innovation?**

Before going further in our analysis of the notion, we need to define more accurately the two possible articulations of innovation with the *care*. These possibilities can be summed up in two words: innovation-*care* and *care*-innovation. In order to grasp the meaning of these notions, we have to explain that *care* consists in four phases according to Joan Tronto and Berenice Fisher: ‘*caring-about*’ someone or something; ‘*care-for*’ someone; ‘*care-giving*’ to someone; ‘*care-receiving*’ (Tronto, 2003).

Innovation associated with *care* is to be found in no less than three of the categories mentioned. An innovation can indeed aim at ‘giving care to someone’, such as medical innovations for instance; it is thus *caring giving*. It is also the possibility to ‘*care for* someone’, and institutions offering services such as cleaning-ladies, help for homework and nursery school attendants are related to this point. In these first two articulations, services or products can be developed, whose *care* is to some extent at the core of the economic offer. Eventually *caring-about*. There is no point here to develop a new product or service. ‘*Caring-about*’ deals with innovating (whatever the sector, the market, the product or the service) while caring about the individuals in the society. And therefore it implies ‘*caring-about*’ others. ‘*Caring-about*’ must be taken for a general solution but it is rather an answer to the consequence of innovation on the individuals. In other words, when a new banking service is launched, is it sure to care about its customers? Is there no risk that it would harm them or take them as hostage?

We must thus distinguish innovation-*care* from the notion *care*-innovation. The last one focuses more particularly on innovations whose purpose is to meet the need for cares (school attendants, baby-sitters, cleaning-lady organisms and so on). Innovation-*care* is thinking about individuals when assessing the consequences of innovation, and as such, it is real innovation (should it be technological, scientific or economic.) Among these different areas, the question of the *care for* the others will arise and root.

### **PART III : CHARACTERIZATION OF THE PURPOSE OF INNOVATION-CARE**

The purpose of innovation-*care* is first to bring innovation back in the society so it is as close to the people as it can be, because, as we said earlier, innovation is trapped within managerial circles and freed only to listen to the consumers and detect commercial prospects. Innovation-*care* will on the contrary consider the society within which the product is to be launched, so as to enable the innovation to focus on men. We can wonder if innovation within this framework is a return to Descartes' thought, for his will to see men "*as lords and possessors of nature*" (Descartes, 1953) was, as we said, strongly correlated with progress for the preservation of the individual and of health.

#### **1. Fields of expression of care.**

*Care* must run through a collective consciousness for Joan Tronto, because all of us benefit from it. It means that it is the attention we pay to the caring for somebody else which enables the existence of a collective *care*. Yet it raises the question of ability: what do we know about the techniques of caring for someone? What do we know about what is done for us? The movements and the wills which the others give and have for us weave the preservation, coherence and even the aesthetics of our lives (Fisher et al, 1990). How could the manager know about caring for someone? These questions are just as accurate when it comes to innovation: what do we want for our lives? How should we answer it? What are the intentions and is it coherent?

Innovation-*care* raises once more these questions about every form an innovation can adopt, in order to formulate them according to personal inner needs. It questions the decision to launch an innovation on the market when its finality is opposed to, or clearly contrasting with universal principles which have been agreed on. If the economic aspects of innovation are clearly studied by the corporate strategic services, the point here is to reflect beyond the market share this or that innovation will provide. In the end, the vulnerability of a firm does not have so much influence on its balance sheet but rather on the individuals – should they be employees, customers or citizens – who work for or benefit from it. The point is thus to innovate for the others in the same manner we would innovate for ourselves, as Kant would have said.

Joan Tronto highlights that in *care* there is a dyad which articulates two kinds of individuals, the *care-giver* on the one-hand, who gives the care, and the one who benefits from it on the other hand. We can see that the balance of power shifts in favor of the first-one (Tronto, 2003). Even if it is slightly different; this superiority of the giver is to be found in the notion of innovation-*care*. Just like the innovator, the firm which innovates has power on its customers - who benefit from it and whom he/she knows, because he/she studied their needs and habits. This power, of which the innovator may be tempted to abuse, is a main aspect of innovation-*care* which is written hereafter: to which extent can I exploit the weakness of someone who needs me? Let us take an extreme – but nonetheless real – example: to which extent a weapon dealer which innovates by creating a more effective weapon does really take into account his customer? As we know, this topic does not only deal with the extreme case of weapons, but also with products from the food and new technologies industries. To quote one but significant example, the question of the possible consequences of high-voltage electric lines remains unsolved<sup>11</sup> (Raoul, 2010).

#### **1.1 The individual's spheres.**

This innovative environment raises the problematic of the private life *versus* the professional-one, especially for the innovator. For a few years Western firms – just as governments- have kept promoting the necessity of a strict boundary between what deals with one’s career and the citizen life, the famous *work/life balance*. The point is to enable individuals to have a personal life protected from their works. In the meantime, this policy results in a potential unawareness or voluntary denial of the consequences of each of them on the other. The fact that we want the manager to be a citizen who does not think about his work implies that we also want him to stick to his work when he is at his office; we want him to give up his citizenship and everything it implies when he enters the firm building. The most important consequence this dichotomy implies – among others – is that the manager’s main focus should be its company rather than the City. Indeed, to which extent does a manager wonder “I have before my eyes an innovation which could be successful and thus good for the firm, its success could even enable me to get a promotion. Should I give up because it has negative impacts?” We can notice the disparity between power, concern and *care* and this can result in several possible conflicts for the manager. How will the manager answer this question? Using his values? His morals? But values and morals are very difficult to establish on a worldwide basis, if not impossible (Schwartz, 2005). What a deal with morals in Asia does not in Africa and morals itself differs when it is thought by a man or a woman (Laugier et al, 2008). The most significant innovations in the world today transcend borders and continents. The dichotomy manager/citizen should be explored once more. Is the separation between manager and citizen to be backed, or should we on the contrary articulate these two roles in order to strike a happy medium?

Responsibility within the innovation area has to be defined in another manner by listening to all its members, that is to say a responsibility which reflects on the individuals the innovation can reach – should they be customers, citizens, potential customers, etc. Not only must the innovator understand that he is also a citizen, but also that his/her professional sphere aims at taking care of his/her private life. This is what Empedocles tried to teach us, reformulated by Jean-François Balaudé “There cannot be a human community fair and living in harmony if its members do not think and behave like members of the superior community of living beings.” (Balaudé, 2010, p.117). In other words, innovators must always remain citizens, citizens working for the City and the community in which they fit.

The interaction between the private and professional sphere is the interdependence between manager and citizen, between innovators and innovation-benefiters as a whole. In the end, private and public spheres merge.

## **1.2 Competitiveness, interdependence and short-term plans.**

Innovation-*care* underlines the fact that we cannot pretend that we are self-sufficient, and the innovator has to accept this reality. Nonetheless, even if the state of interdependence existing between the innovator and its direct or indirect benefiters can be understood, it is often sidelined because of exogenous and endogenous corporate factors.

### *1.2.1 Exogenous conditions.*

Exogenous conditions hamper our understanding of the state of interdependence, and thus of innovation-*care*. They are closely linked to the economic pressure in which firms work, and especially to a globalized strong competitiveness which results in stressing the innovation process. Firms must keep up with a competitive environment and a strong and perfect

productivity, or they are to be killed by this very same competitiveness. It seems that a kind of economic Darwinism is working, which entails a fight for economic survival and results in the elimination of the weakest.

To understand the way it works, take look at a study, made between September, 2009 and January, 2010. It interviewed 1,541 CEOs, Presidents and Directors of public and private organizations and firms of different sizes in 60 different countries and 33 sectors<sup>12</sup>.

What attracted our attention in this study are the firms pointed out as ‘over-productive’, especially in terms of innovation. The difference between the ‘over-productive’ organizations and the others are measured by their economic results in the short and long term. The indicator used is the rate of annual growth of their operating margin in a four-year term, from 2003 to 2008 for the long term measure, and the same rate for the year 2008-2009 for the short term. This method emphasizes the over-productive organizations, the ones which managed to improve their operating margin both in the long and in the short range.

We shall also take notice of the fact that these ‘over-productive’ firms have better overcome the crisis than the others, because they built themselves in the strongest way in this economic environment, and they have kept improving.

Two specificities of these ‘over-productive’ firms can be identified. First, these organizations accept to bear responsibility for taking decisions in uncertainty. Indeed, 16% more of them implement reiterated processes of strategic planning, in place of formal annual planning process. Second; they are able to make up their minds faster than the others. More exactly, they are 54% to be in favor of quick decisions. Yet these are precisely the two factors which damage the responsibility of innovation and enable the negative consequences of an innovation not to be taken into account: making up one’s mind in a state of uncertainty leads to risks. Being able to make up one’s mind quickly is as risky as having no control on the factors and the consequences. We will not conclude immediately that being ‘over-productive’ means *de facto* damaging the responsibility of innovation. We would need to go into the detail and analyze the innovations and process of these ‘over-producers’ to say such a thing. Moreover, we would need to analyze a panel of firms whose innovation can be qualified as ‘responsible’ and compare their production to the average in their production sector of the market and to those of the ‘over-producers’.

### *1.2.2 Endogenous conditions.*

Endogenous, are closely linked to the first ones. They deal with two major issues. First, the fact that the duration of CEO in their position keeps decreasing. In the last ten years, the average lifetime of a CEO decreased of 25% (Favaro et al, 2010). When they are asked about it CEOs answer that they have barely enough time to imagine a strategy when they come into office. Their concern and obsession must be the publication of the results to come. But this publication cannot be made separately from the announcement of a strategy, of future innovations and projects, even if they are at the very beginning of their development. They criticize what they call the syndrome of ‘announcement effect’ they have to accept to reassure the market and/or the shareholders and/or their co-workers. From this moment on, no doubt is admitted, no question can be raised, even if it is the very essence of innovation to be in a state of uncertainty. In order to keep their work, these CEOs have to maintain the announcement effect and guarantee the success of the innovation. This results in an explosion of announcement effect with their competitors. The point is no longer to launch the innovation of

the year but to reach fame through the announcement effect of the year, which can be measured easily by the evolution of the stock exchange's value. Because this system is difficult to stretch in the long range, the CEOs are always granted a shorter lifetime in their job. The pressure of the market and of shareholders for a short-term profitability is responsible for the shorter lifetime of CEOs, who complain about their constant lack of time for implementing a concrete strategy or a range of successful innovations.

Another factor which does not stem from the firm and whose responsibility is often born by the CEO is to be mentioned. CEOs have a particularly close link with innovations, and are often considered as their 'fathers'. In a study carried with 1,130 directors, from all areas and continents, they claimed that the responsibility of innovation belonged to them. 50% of them said "I am the innovator" or that it belonged "to all the employees"<sup>13</sup> which imply, in the last case, the directors remain the owners of innovations through the hierarchy process. This underlines several difficulties concerning a possible innovation-*care*, especially an ecological question. If an innovation fails, is the director responsible for it? If he is, what made him responsible for it and to which extent? Is there an obsession to innovate as soon as pride and ambition are stressed? (Raymond, 2003)

### **1.3 About the understanding of interdependence as related to exogenous and endogenous conditions.**

Innovation-*care* deals with both the exogenous and endogenous conditions of the firm through the conscience of interdependence. There is interdependence in today's globalization of products and services; there is interdependence between individuals, should they be directors or employees; there is interdependence in the inner-self of an individual between the manager and the citizen. Interdependence is everywhere, whether we like it or not. And the goal of *care* is to accept this interdependence while taking care of oneself and of the others. Being aware of interdependence is understanding that violence always turn against oneself, just as we benefit from the *care* given to someone else (Gilligan, 2008). This is why the *care* theories always underline the importance of showing that all of us depend on the services of others for the meeting of our basic needs (Laugier et al, 2008). In the *care* perspective, oneself and the others are not represented as distinct items: the relationship is the central object from which the moral subject perceives needs and meets this perception. Each of these perspectives deals with seizing the relations between you and the others (Laugier et al, 2008).

From medicine to driving on a road, from education to information, from management to collaboration within a project-group there is interdependence. In order to understand this concept, one has to leave its own sphere, and it is precisely what most of the time firms and directors find the most difficult, especially within the innovation framework. The offer of innovation-*care* is, on the one-hand, to show that innovation is no lonely stake, and on the other hand, that failure does not mean weakness but is due to human characteristics. To quote one but significant example, a study about airplane accidents showed that pilot instructors proved that if the crew members kept to the sole understanding of the situation of the pilot, they were unable to correct a mistake. If pilots and crew learn to recognize their mistakes and accept their weaknesses, they solve the problems much more effectively (Tronto, 2003).

## **PART IV : INNOVATION-CARE AND SELF-CONTROL**



Innovation-*care* is focused on the awareness of our relationship with the others, but its most important concern is the awareness of the interdependence between individuals, firms, countries, etc. Innovation-*care* is the awareness of the possible exchanges at the boundary between private and public spheres. The innovator is able to understand the notion of *care* only when he is aware of living of a process where he receives *care* and benefits from innovations. In other words, he must personally aim at being ‘*caring*’.

Once these mixed-processes are understood, innovation can no longer pretend to bring happiness to people, which is something that innovation can naturally do but which may have consequence on *care*. Joan Tronto distinguishes between ‘good’ and ‘bad’ *care* by referring to the significant example of the colons who thought that they were not taking advantage of the people they wished to rule (Tronto, 2003). The same criticism may be raised about innovation.

It seems that the ‘over-productive’ firms we talked about start listening to people, and are more particularly concerned with listening to their customers in order to focus their researches on them. Putting the customer at the core of one’s strategy is even becoming an obsession. For 95% of these firms, that is to say 14% more than the others, “tying closer bonds with the customer” is the priority<sup>14</sup>. Yet there is more to innovation-*care*. If the innovator thinks that something is ‘good’ for him or herself or for his customer, it may not be for the rest of the society. Innovation-*care* will thus endeavor to listen to the opinions of others. But the opinion of others does not necessarily match the opinion of potential customers. It seems important to take into account the opinion of all the people who could suffer from the consequences of a future innovation.

This question is particularly accurate because innovation, from the customer’s perspective, is most of the time valuable when it comes to incremental innovations. Yet the most topical issues concerning the possible consequences of an innovation deal with breakthrough innovations. Incremental innovations are by nature more predictable, because there is at least a small part of them on the market. A breakthrough innovation requires more attention because its consequences are completely unknown. A new difficulty emerges because the very notions of breakthrough and incremental have no worldwide acceptance<sup>15</sup> (Harrison, 2010).

In order to define innovation-*care* we need to adopt an holistic approach. It means acting not only for the sake of oneself, of the firm or of one’s nation. It means acting for the sake of these elements but also for the sake of all the society. A cigarette-producer must think about non-smokers; a producer of domestic cleaners about the treatment of water after its products will have been in contact with it and about the children playing with this water; a car-seller about the pedestrians and the cyclists with whom cars share the road.

In the end, the evolution of the paradigm innovation-*care* is just resurgence of the thinking act of the application of the Kantian principles, more particularly of the universal maxims. The first one, important because dealing with our subject: “Act that your principle of action might safely be made a law for the whole world” (Kant, 2006, p.97). It highlights the interdependence scheme, the obligation to look for the global consequences and the fact that others, in the meantime, can have the same concerns as oneself, instead of a personal and individual look. In other words this principle could be the maxim of innovation-*care*: always acting while caring, that is to say bringing into line our actions with a universal look on what we are just about to do.

The second one is: «Act in such a way that you treat humanity, whether in your own person or in the person of any other, always at the same time as an end and never merely as a means to an end” (Kant, 2006, p.108). Here innovation-*care* is particularly emphasizes as there is the humanity to preserve, and it is a goal in itself. This Kantian maxim, just as the last-one, tries to put individuals as a necessary prerequisite for any action. There is no denying that Kant did not think about innovation when he wrote those maxims, yet he remained an observer of the French philosophers of the XVIIIth century, thus of the numerous issues linked with progress and sciences, which are precisely the reasons why Rousseau criticized him (Rousseau, 1991).

### **1.1 From the innovator to the innovator-*caring*?**

The maxims of Kant and more generally the innovation-*care* require a completely new human behavior, concerning others and oneself. When Hans Jonas introduced the “responsibility principle” he wondered if humanity had a right to exist (Jonas, 2008). If the answer to this question is yes, then it is essential that human beings evolve towards a new behavior, a behavior caring for the world, a new stance that individuals in their large acceptance must take. Faced with the rise of technology and its power, with a worldwide globalization, human beings have to bear their responsibilities for the world and in the world.

It depend on the innovator and it raises the question of the innovator profile. The later should adopt a *caring* behavior, which should stem from his/her inner self. Yet usual studies about innovation , should it be in business, economics or sociology, are much more interested in the innovation as a process, and thus more in what innovators do than who they are (Guichard and Serval, 2006). Even if this issue is tackled, the question of the responsibility of the innovator remains sidelined. Schumpeter saw the innovator as an athlete with a strong taste for conquest, a ‘*wild spirit*’ which yearned for success (Schumpeter, 1999; Perroux, 1965). Recent literature on entrepreneurship questions the personal characteristics of the innovator-entrepreneur, but neither Robert (Robert, 1991) nor Sahlman (Sahlman, 1997) deal with the question of their responsibility. Whatever the innovator types we can quote, following Alter’s typology, the ‘central’, ‘specialized’, ‘link’ or ‘followers’, none has to worry about this characteristic (Alter 2002). The only aspect stemming from the different researches carried out on the innovator’s profile is that innovators are often considered as iconoclasts, eccentrics, exceptions to the norm, marginals or even deviants “because their behaviors are in opposition with the established social norms ” (Alter, 2003, p.18). This last element must be emphasized, it can be brought in parallel with Michel Foucault who often used the word ‘innovation’ to point out behaviors, and especially sexual ones, which were exceptions to the norms (Foucault, 2009).

Some books, less classic and academics, tackle the issue of the innovator’s profile more often, but they do not mention the responsibility they are to bear. For instance one of Tom Kelley’s last books, *The ten faces of Innovations*, makes no mention of the responsibility of the innovator. The author classifies innovative behaviors in three categories: the ‘learners’, the ‘promoters’ and the ‘builders’ (Kelley, 2005), whose specificities are explained; none of them ever possess, or should possess, responsible qualities.

### **1.2 Stigmatization of innovation, of innovators and self-control**

Turning one’s behavior into a responsible one does not mean more constraint. There is no point in stigmatizing innovations, or in agreeing with Rousseau who saw progress as the

symbol of men's degradation, or in trying to establish that the state of nature would be more profitable (Rousseau, 1989).

We must mention two necessary qualities the innovator should have. First, as we said earlier, the ability to question the capacity of a responsible-innovation, and thus to come to grips with the three aspects Bernadette Bensaude-Vincent underlined, as mentioned earlier. Secondly, the ability to slow down innovation in an attempt to bring it into line with the economic, social and society's sphere in which it will be implemented. This last concern naturally evolves toward self-control which echoes the Stoicism techniques. Self-control was closely linked with the notion of freedom (Schuhl, 1982) for the Stoicians. Being able to control oneself is being free from one's passions, from exterior events and so on. Being able to control oneself for the innovator-*caring* means to be free from the market, from the economic pressure, from the situations which would see the launch of an innovation without having assessed its possible consequences. One must not be completely unaware of the context in which the innovation was born, but one must not be dependent on it as well. If the service or the product launched is really innovative, these questions are no longer accurate.

Being able to control oneself for the innovator-*caring* also means knowing what makes us act and launch this innovation. Why is this innovations good? is it good by nature, or for me, or for others? That is the control of the innovation process in its deeper consequences. Being able to control oneself also means giving up, just as the Stoic masters showed their ability to give up on their passions. Even if they are attractive and give pleasure, they endeavored to control their passions so as not to yield to them (Schuhl, 1982). Innovator-*caring* must reach some wisdom, which no other person can understand: they notice the needs of others but they must act only according to what they know, because others rely on them (Schuhl, 1982). They must be able to foresee the actions which could result in pain, because they among others are responsible for everybody's well-being. The entire ethics of *care* which relies on the principle of non-violence and of not harming anybody will thus prevail in the innovation area (Schuhl, 1982).

Thus even if an innovation can significantly increase the turnover, reach the objectives and generate a consistent premium, one should be able to give up on it if it damages the 'care' of the individuals and of the society. The innovator-*caring* is a conscience, not only for them but for their firms, their organizations and for their society. They act, not only in their own interest, but in the common-one's. If the responsible-innovation could assess the consequences on the community, Innovation-*care* pictures itself as caring for the community. Innovation-*care* has a positive and benevolent role to play in the community and in the City, and the innovator-*caring* is the first student of the ethical Kantian principle "*What should I do?*" (Kant, 1985, p.25). Responsible-innovation would stick to a predetermined role concerning its consequences while innovation-care- takes care of the others as a prerequisite.

## **CONCLUSION : HOW TO COMBINE CARE AND PERFORMANCE ?**

Kindness and care for others are key-notions concerning innovation-*care* and contribute to the evolution of the very notion of *care*. As we said, the meaning of care for its creators is ‘to care for the others’. For Janet Finch and Dulcie Groves, care is even a “*combination of affectionate feelings and responsibilities*” (Cancias et al, 2000, p.36). From the mother to the cleaning-lady and the nurse, there are jobs and professional features linked to care. The first approach of care was very feminist. We shall mention that it would be useful to question innovation-*care* through a female prism, for we know that on the one hand women are very sensitive and adapt themselves much more easily to innovations (Garbarino et al, 2004; Mazman, Usluel et al, 2009), and that on the other hand women’s life, compared to men’s life, roots more in social interactions and personal relationships (Gilligan, 2008).

Yet managers and innovators should be added to this list maybe even before the ‘usual female deliverers’ of care, because they are the people in charge of the individuals care through the innovations they might launch.

We would like to underline the fact that the word *care* in the expression ‘innovation-*care*’ is nevertheless linked to a hierarchy whose top is innovation. Even if we have just underlined that a caring-innovator should know when to give up on innovations, there is no denying that his first attribute is to innovate while aiming at economic performance. Care is not responsibility, it is not the social responsibility of firm, nor the sustainable development issues. Last but not least care is not a frame or a brake to innovation. It is a process which can be articulated to it and with it, but is not the final goal. For it is innovation as a well-known factor of performance, growth, sustainability and improvement of the individuals’ lives which has to recover a primacy. A final primacy, without ambiguous meaning, for innovation being first by nature, care comes first for organizations, leaders, and innovators. In fact the well-being, the care mentioned at the start of this movement have never meant sacrifices (Gilligan, 2008).

This means that performance is at the core of innovation-care, that there is no possible amphibology in this new generation and this is very important. Any other interpretation would be a misunderstanding of the meaning of care in general, and of innovation care particularly. If it is easy to understand as far as innovation-care is concerned, in the case of care it doesn’t mean providing a basic service of an inferior quality, pretending that what important is the ‘care for the others’.

Care develops itself through occasions. Care in itself does not mean anything or just a new form of sympathy. On the contrary, care developed on the American continent keeps pace with the pragmatic movement and deals with concrete events, with reality. Innovation-care without its focus on innovation would remain a given-without-gift. The integration of tools able to deal with innovation-care exists nowadays or will exist soon, should it be the *Chasm* from Moore (Moore, 1999) or the *Matrix Virtue* of Martin for instance (Martin, 2002). Its concrete aspect can also be found within the assessment methods of the strategies of existing firms, such as the *Dow Jones Index*<sup>16</sup> for example. It can as well rely on quantitative axis integrating indicators of its components which would enable to assess and be assessed according to one’s ability to innovate-care.

The Antic philosophy considered that commitment was the necessary condition to implement a philosophic way of life. This commitment was to be found in the mind as well as in actions, it is the very famous articulation of *theoria/praxis*. It is also the Greek *elenchus* – the commitment – which means “think well to be able to act well” (Balaudé, 2010, p.188).

Innovation-care is just at the very beginning of its existence and its stance remains to be drawn more accurately so that it could be integrated to economic models. Just as the Ancient for the philosophy, innovation-care is to be thought as a commitment. This commitment has two faces: it can be intellectual models, theories and speeches but also actions. Like other sciences, running a business and management must integrate these two schemes in innovation-care, for its own development as for the one of the individuals and of the City.

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## Notes

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<sup>2</sup> <http://www.vivagora.org>

<sup>3</sup> Emmanuel Faye shows that to get all the possible “commodities” on earth is not the prevailing aim; it is in fact the “preservation of health” with the intent to make mankind “wiser”. It implies to have knowledge of the “reasons” for our sicknesses and of “all remedies provided by nature”. Cf. E. Faye, *Heidegger, l'introduction du nazisme dans la philosophie : autour des séminaires inédits de 1933-1935*, Albin Michel, « Idées », 2005.

<sup>4</sup> The appearance of the first criticisms at the beginning of the 60's can be noted, for one Rachel Carlson in *Silent Spring*, Mariner Book Edition, 2002

<sup>5</sup> Among a very large range of examples, the latest birth of the first “life-saving baby” can be noted. The parents of a little girl suffering from a genetic disease have decided to have another child that could save her. The parents of this “life-saving baby” benefited from a double pre-implantation diagnostic. First the embryos that carried the sickness were ruled out; then, among the remaining ones, the one that matched the best the gene pool of the sibling was selected and finally it was implanted in the mother's womb. If such a technical achievement should be celebrated, one can wonder about the development of such a technique which opens the way for eugenics.

<sup>6</sup> [www.transhumanism.org](http://www.transhumanism.org)

<sup>7</sup> Bernadette Bensaude-Vincent, au Colloque innovation responsable du 29 avril 2009, Collège de France.

<sup>8</sup> *Libération* du 7 mars 2009, « Faismesdevoirs.com ferme déjà ses pages ».

<sup>9</sup> For instance, few internet websites: [pleasuretours.com](http://pleasuretours.com); [alternativephuket.com](http://alternativephuket.com); [globalfantasies.com](http://globalfantasies.com); [temptation.originalresorts.com](http://temptation.originalresorts.com); [affordable-adult-vacations.com](http://affordable-adult-vacations.com); [wildwomenvacations.com](http://wildwomenvacations.com); [pornweek.com](http://pornweek.com).

<sup>10</sup> <http://www.legrenelle-environnement.fr/Convention-avec-les-acteurs-du.html>. For that matter, the measures intending to reduce noise pollution for the sake of the local residents' well-being increase the planes' consumption of kerosene in the same time.

<sup>11</sup> Cf. le rapport du sénateur Daniel Raoul sur « Les effets sur la santé et l'environnement des champs électromagnétiques produits par les lignes à haute et très haute tension » Handed out to the Parliamentary Office for the Evaluation of Scientific Choices and Technologies, may 2010

<sup>12</sup> IBM. 2010, *Institute for Business Value, Capitalizing on Complexity*, (IBM Corporation).

<sup>13</sup> IBM, 2008, *Global CEO Study*, (IBM Corporation).

<sup>14</sup> IBM. 2010, *Institute for Business Value, Capitalizing on Complexity*, (IBM Corporation).

<sup>15</sup> Conference holds in CEIBS (China Europe International Business School) in Shanghai, 30 June 2010. During that conference, Norma Harisson came back to the subject of incremental innovation vs disruptive innovation and highlighted the fact that what is incremental for the American market can be disruptive for the Chinese market. This explains why, all in all, innovation in China is incremental based on occidental innovations, principally on the business model.

<sup>16</sup> <http://www.sustainability-index.com/>

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