

2014•2015  
FACULTY OF BUSINESS ECONOMICS  
*Master of Management*

Master's thesis  
The human side of open innovation implementation

Supervisor :  
Prof. dr. Anna ROIJAKERS

Ludovic Corvers  
*Thesis presented in fulfillment of the requirements for the degree of Master of  
Management*

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# Acknowledgements

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This thesis is my final project at the University of Hasselt and marks the end of my student life, and it therefore had to be about a topic that is important to me, that I would enjoy researching. This topic happens to be open innovation, which is why I would like to thank my promotor, Prof. dr. Nadine Roijackers, who has always been by my side and who has been of great help when I needed it.

I also would like to thank all of the participants to my research, without whom I would not have been able to do my thesis. I therefore thank Inge Schildermans, Navin Kunde, Michael Catrysse and Luc Chefneux for the time they provided me and for their contribution.

Finally, I would like to thank my friends that supported me during this year; they gave me good advices and were always present when I needed help. An external view is always useful and therefore I thank them to have taken the time to read my work and to give me their valuable opinions.



# Summary

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This master thesis is about the management of open innovation implementation at the human level. On the one hand, we have open innovation, a concept that has been discovered by Henry Chesbrough in 2003, and is since then attracting more and more attention from both organizations and researchers, and on the other hand, we have the change management field that analyses how to handle changes in an organization. These two fields have not been clearly linked yet, which is the aim of this thesis. More specifically, the research question that led this whole thesis is: **how to manage the shift from closed to open innovation at the human level inside the company?**

The first step has been to review the open innovation and the change management literature. Open innovation basically involves the use of external knowledge in order to improve inside innovation, or letting internal knowledge flow outside the internal bonds of the company (Chesbrough, 2003). It can be defined depending on the degree of openness practiced by organizations (Lazzarotti and Manzini, 2009), meaning that an organization can either be highly open or lowly open, there is no predefined level of openness. Considered as a strategic shift in organizations used to closed innovation, change management is key to success. Change management involves the use of a suited leadership style, and also involves the use of change agents in order to facilitate the change process. A strategic shift might simply be a small and quick change while totally be the opposite and involve a change in culture.

The second step has been to connect all of these elements together in order to see a pattern in the way open innovation is dealt with by organizations. Therefore, 4 organizations practicing open innovation have been contacted and interviewed in order to gather up all the information necessary for that purpose. It involved questions about the degree of openness, the organizational culture, the way the employees perceive open innovation, the resistance and the way management dealt or are dealing with it.

Several elements of both fields were successfully linked thanks to these interviews. Employees don't seem to always perceive open innovation as a significant change, but they see it as an adaptive change; they need time to adapt. Whether the change is perceived as significant or not doesn't prevent resistance; 6 different types of resistance

have been found through the interviews, namely: the NIH syndrome, incomprehension, IP leaking fear, fear of losing its job, company alignment, and gap management. Management should deal with these resistances step-by-step, as employees need time to adapt. It should communicate as much as possible, trying to understand their fear, and involve them in the change process. A good way to help them further is to show them the positive results of open innovation. An internal change agent also has the power to influence the resisters. 2 types of change agents have been found: pushers and pullers. Pushers are the ones that have earned the trust of the resisters and that can convince them of the benefits of open innovation. Pullers work differently, they literally pull the resisters with them by taking decisions the resisters normally should have taken themselves.

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# 1 INTRODUCTION

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Since its discovery by Henry Chesbrough, the term of open innovation has become today a very famous concept, and is winning more and more adherents. Most companies are initially based on a closed innovation model, so what does an open innovation imply? It implies opening your innovation process to external parties. This certainly doesn't happen without some issues during the implementation phase. The focus here is on the human side of open innovation implementation, meaning the employees themselves. What do they think about open innovation? The relevant literature so far on open innovation of course makes the difference with closed innovation, explains why companies want to open their innovation funnel, explains how to define the degree of open innovation practiced by companies, and also gives insight in the way companies implement open innovation. However, the area of interest of this thesis goes beyond open innovation alone, it also covers the management of the change that open innovation is. The literature briefly discusses the link between organizational culture and open innovation, recognizing that open innovation represents a strategic change for the organization and that the R&D department needs help to accept this change, but this literature remains exploratory and no exact connexion has been made with how to manage this implementation process on a human level, that is how to manage the reactions of the employees and their resistance if there is any. Moreover, to my knowledge, only one cultural model (Tsui, 2006) has been analysed in regards to open innovation practices, while I will try to link open innovation with another one (Harrison, 1993). Therefore, a review of the change management literature is more than necessary. It says that to manage a strategic change and to deal with resistance, a change agent can be used and a proper change leadership style can facilitate the process. This is the area that I will focus on: the human side of open innovation implementation. Since the open innovation literature hasn't been connected yet with the change management literature, this is the gap that I will try to fill. My research question is therefore: **How to manage the shift from closed to open innovation at the human level inside the company?**

In order to answer this research question, I interviewed 4 companies, and more specifically, the open innovation manager (or someone ranked similarly) from each of them. Initially, a number of 30 companies have been contacted via emails and 4 have accepted to participate in this research. The companies contacted had to practice open innovation and the contact person had to be able to answer questions relative to the implementation process of open innovation, and therefore had to have a relevant position in the company, which is why I decided to go for the open innovation manager. A semi-structured questionnaire has been created to interview these open innovation manager in order to answer to the following investigative questions: how do employees consider a shift from closed innovation to open innovation? Is there an open innovation culture? Are employees resistant to this shift and are they still resistant nowadays? Is a change agent necessary and who can play this role? What type of change leadership style fits best the situation? To summarize these questions shortly, they ask about the feelings of the employees regarding open innovation and how to manage them.

This thesis consists in 6 chapters. The following chapter gives a more detailed overview of the open innovation and change management literature together with a theoretical framework that will be the baseline of this thesis. Moreover, propositions representing my expectations have been developed in order to see if they fit with the findings of the interviews; chapter 3 gives more details on the research method used, on the interview questionnaire and on the companies contacted; chapter 4 gives the results of the interviews for each variable of the conceptual model and compares the findings with the propositions developed in chapter 2. Chapter 5 discusses the findings by answering the research question and more particularly by answering each investigative question. Finally, chapter 6 concludes by mentioning the implications for theory, managerial implications and limitations and future research directions.

## 2 LITERATURE REVIEW AND THEORETICAL FRAMEWORK

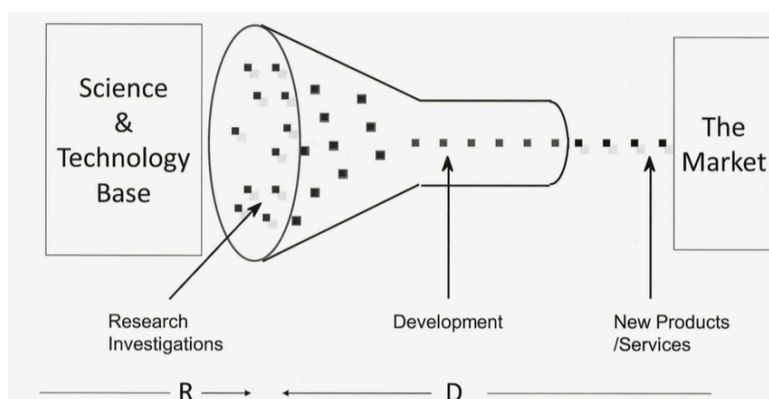
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This literature review is split into two main parts, namely open innovation and change management. These two parts together review the different concepts that form the basis of the management problem researched.

### 2.1 Open innovation

The main topic of this research focuses on open innovation. This is therefore where the literature review starts.

Since Chesbrough is the father of the concept of open innovation, I will use his definition, which is: "open innovation is the use of purposive inflows and outflows of knowledge to accelerate internal innovation and expand the markets for external use of innovation" (2003). Closed innovation is the traditional way of innovating, and is the opposite of open innovation. It will be defined as follows: "Under the closed model of innovation, research projects are launched from the science and technology base of the firm" (Chesbrough, 2012). So the big difference between the two processes is that in the closed innovation model, only internal knowledge is used. Figure 2.1 illustrates closed innovation while figure 2.2 illustrates open innovation.

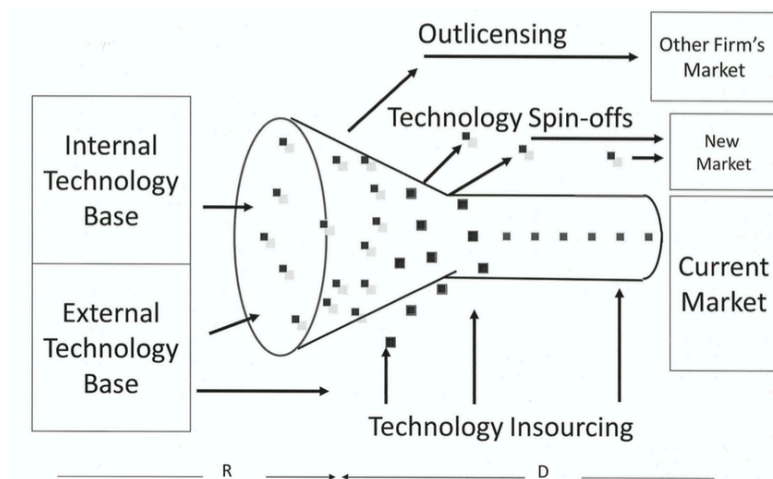


**Figure 2.1: Closed innovation by Chesbrough (2012)**

Chesbrough (2012) defines two different types of open innovation: outside-in and inside-out. He defines the outside-in system as “opening up a company's innovation processes to many kinds of external inputs and contributions” and inside-out as “allowing unused and underutilized ideas to go outside the organization for others to use in their businesses and business models”. Three main reasons have been found as to why firms want to shift from closed innovation to open innovation (Mortara, Napp, Slacik and Minshall, 2009):

- Access to new technologies,
- Access to new competencies,
- Access to new ideas.

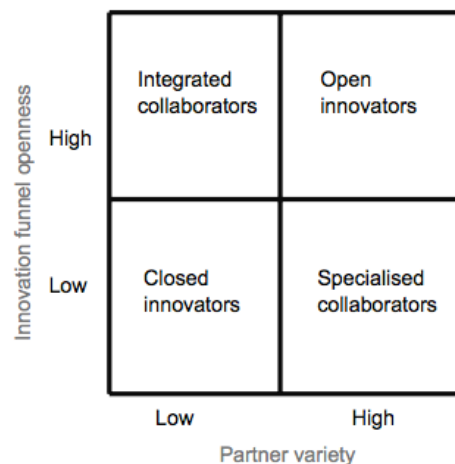
Chesbrough also says that open innovation can be useful in times of recessions. Vanhaverbeke and Roijackers (2009) also discuss this fact and come to agree with Chesbrough. Open innovation can help in different ways firms that have financial problems. Jointly developing new technologies can save money and make the R&D more efficient.



**Figure 2.2: Open innovation by Chesbrough (2012)**

Chesbrough (2003) says himself that firms do not need to open completely. The degree of openness “(...) reflects how broadly and intensively a firm uses external information in innovation” (Drechsler and Natter, 2011). Some researchers say that the more open a

firm is to innovation, the more efficient the R&D performance will be (Fey and Birkinshaw, 2005), while other researchers found out that there is actually an optimal point to reach (Laursen and Salter 2006). Dreschsler and Natter (2011) found out that several factors such as little market knowledge, bad intellectual property system and strong competition to give an incentive to firms to stay closed or to open to only a little extent, and they found out several factors such as a good intellectual property system and the need for extra knowledge and financial funding to play in favour to a more open position. Researchers Lazzarotti and Manzini (2009) define the degree of openness as consisting of two variables, the first being “the number/type of partners with which the company collaborates” which they call “partner variety” and the second being “the number/type of phases of the innovation process that the company opens to external contributions” which they call “innovation funnel openness” (2009). In accordance with the conclusion of Laursen and Salter (2006), they say that it is not always the best solution to be fully open, but that an optimal degree exists. According to the two variables used to define the degree of openness, four types of open innovation have been found (Lazzarotti and Manzini, 2009), as illustrated by figure 2.3.



**Figure 2.3: Degrees of open innovation by Lazzarotti and Manzini (2009)**

Firstly, we have the closed innovators who use external knowledge “only for a specific, single phase of the innovation funnel and typically in dyadic collaborations”. Secondly, we have the specialized collaborators, who “are able to work with many different partners, but concentrate their collaborations at a single point of the innovation funnel”. Thirdly we have the integrated collaborators, who “open their whole innovation funnel, but only to contributions coming from a few types of partners “. Finally, open innovators are the

ones that “are really able to manage a wide set of technological relationships, that impact the whole innovation funnel and involves a wide set of different partners”. Other ways to distinguish between different degrees of innovation have been discovered in many researches, Abulrub and Lee (2012) classified them following their degrees of openness and their types:

	Mode	Definition
O U T S I D E - I N	Purchasing	Buying technologies (intellectual property; patents, copyrights or trademarks) from external partners [15], [17], [18]
	Licensing-in	Obtaining a right to exploit technologies (intellectual property; patents, copyrights or trademarks) by paying royalties to external partners [13], [15], [17], [18]
	Joint Venture	Establishing a joint venture in collaboration with other companies to commercialize technologies [13], [16], [18]
	Joint Development	Jointly developing technologies with external partners such as universities or, other companies [2], [16], [18]
	Contract R&D (Outsourcing)	Buying R&D services from other organizations such as universities, public research organizations, commercial engineers or suppliers [8], [16], [18]
	Venture Capital	Investing promising ventures through venture capital (the external venture capital or the internal venture capital) [13], [18]
	Mergers and Acquisitions (M&A)	Acquiring companies with promising technologies, in case of having difficulty in-house development (e.g. high risk technologies) [19]
	Customer Involvement	Involving customers in innovation processes (e.g. market research to check their needs, or developing products based on customers' specifications or modifications) [8], [17]
	External Networking	Drawing on or collaborating with external partners to acquire new knowledge and technologies or human capital (including consulting external experts to solve the problems of innovation, information sharing) [2], [13], [17]
I N S I D E - O U T	Selling	Selling internal technologies (intellectual property; patents, copyrights or trademarks) to the market to better profit from them [17]
	Licensing-out	Granting licenses to exploit internal technologies to external partners instead of direct commercialization and receiving royalties from them [2], [8], [13], [15], [18]
	Spin-Off	Creating up a new organization based on internal knowledge, and also with all the support from the parent company or organization [2], [13], [18]
	Open Source	Revealing internal technologies without immediate financial rewards for indirect benefits to the company [15]

**Figure 2.4: Modes of open innovation by Abulrub and Lee (2012)**

The literature also contains some basic knowledge about open innovation implementation. Four different ways of implementing open innovation have been discovered by Mortara, Napp, Slacik and Minshall (2009):

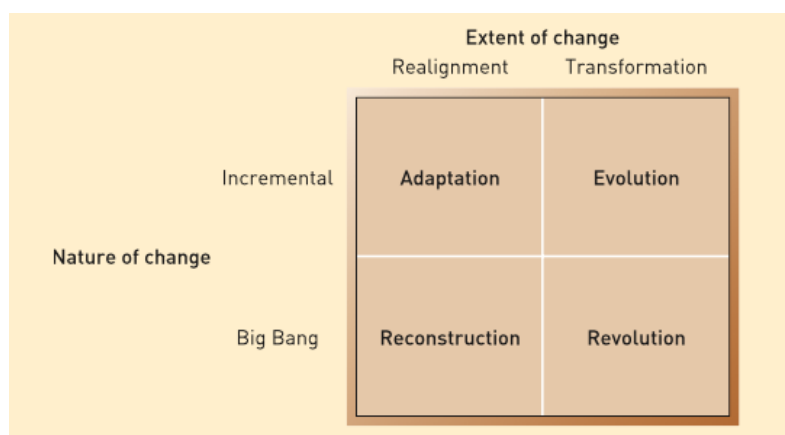
- Top-down and centralized: strategy oriented approach, where the implementation of open innovation through the firm is in the hand of a few people.
- Top-down and decentralized: strategy oriented approach, where the implementation of open innovation through the firm is spread over a broad range of people in the firm.

- Bottom-up and centralized: strategy that emerges naturally instead of being planned by the top management, where the implementation of open innovation through the firm is in the hand of a few people.
- Bottom-up and decentralized: strategy that emerges naturally instead of being planned by the top management, where the implementation of open innovation through the firm is spread over a broad range of people in the firm.

## 2.2 Open innovation implementation and change management

After a comprehensive understanding of the concept of open innovation, a review of the literature about how companies implement changes and what are the issues that are being faced during the implementation process is imperative.

Open innovation means opening to other organizations, and when a firm is used to closed innovation, it will face some issues during its implementation phase. In every case, this shift to open innovation constitutes a strategic change for the organization. A strategic change can be defined depending on the extent of the change and the nature of the change (Balogun and Hope Hailey, cited in Johnson et al., 2011, p.465). When the change needs to be urgently implemented, it is called "reconstruction" if it can happen without disturbing the current business model and culture of the firm, and it is called "revolution" in the opposite case. When the change is not urgent and can be implemented within a long time period, it is called "adaptation" if it can happen without disturbing the current business model and culture of the firm, and "evolution" in the opposite case. This model is illustrated by figure 2.5.



**Figure 2.5: Strategic change by Balogun and Hope Hailey (2007)**



Martin (2005, p.796) also has a model defining the type of change, called the change matrix, this time depending on the scale of impact (adaptive – fracturing) and the degree of planning (unplanned – planned). An unplanned and adaptive change is called a surprise, an unplanned but fracturing change is called a crisis, a planned and adaptive change is called incremental and finally a planned but fracturing change is called strategic.

Several of the issues faced during the implementation phase concern the human side, among which we can find the organizational culture and the employees’ motivation (Mortara, Napp, Slacik and Minshall 2009). It is indeed true that a change in the organizational culture is most of the time needed in order to implement open innovation in an organization (Slowinski et al., cited in Giannopoulou et al., 2011). Organizational culture is defined as “the distinctive norms, beliefs, principles and ways of behaving that combine to give each organisation its distinct character” (Arnold, 2005, p.625). Moreover, “organisational culture is to an organisation what personality is to an individual” (Johnson, 1990). A lot of researchers have identified different typologies to describe organizational culture, which are identified in table 2.1.

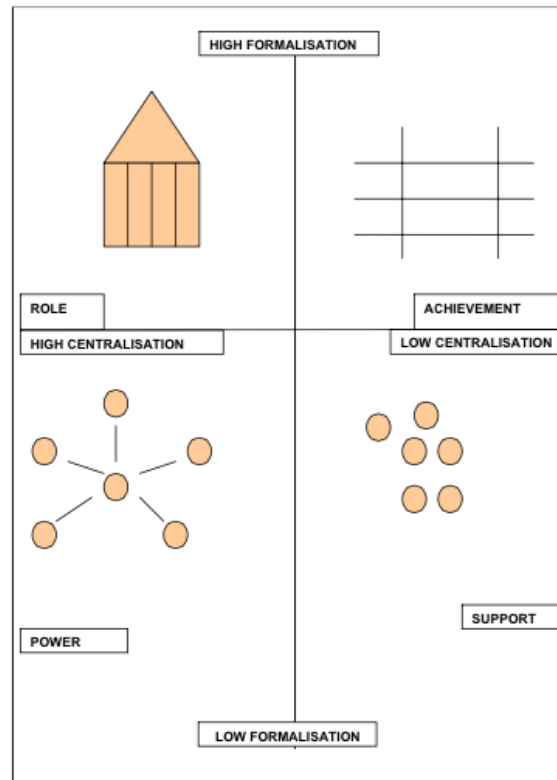
Author(s) and date	Typology
<b>Deal and Kennedy (1982)</b>	<ul style="list-style-type: none"> <li>- Tough-guy/macho culture</li> <li>- Work-hard/play-hard culture</li> <li>- Bet-your company culture</li> <li>- Process culture</li> </ul>
<b>Handy (1985)</b>	<ul style="list-style-type: none"> <li>- Power</li> <li>- Role</li> <li>- Task</li> <li>- Person</li> </ul>
<b>Scholtz (1987)</b>	<ul style="list-style-type: none"> <li>- Stable</li> <li>- Reactive</li> <li>- Anticipating</li> <li>- Exploring</li> <li>- Creative</li> </ul>
<b>Hampden and turner (1990)</b>	<ul style="list-style-type: none"> <li>- Role</li> <li>- Power</li> <li>- Task</li> <li>- Atomistic</li> </ul>

<b>Hofstede (1991)</b>	<ul style="list-style-type: none"> <li>- Power distance</li> <li>- Individualism/collectivism</li> <li>- Uncertainty avoidance</li> <li>- Masculinity/femininity</li> <li>- Confusion dynamism</li> </ul>
<b>Harrison (1993)</b>	<ul style="list-style-type: none"> <li>- Role</li> <li>- Achievement</li> <li>- Power</li> <li>- Support</li> </ul>
<b>Tsui (2006)</b>	<ul style="list-style-type: none"> <li>- Integrative culture</li> <li>- Hierarchy culture</li> </ul>

**Table 2.1: Organizational culture typologies**

Naqshbandi, Kaur and Ma (2014) have researched which culture types would favour or not open innovation. They decided to base their research on the model developed by Tsui et al. (2006), which distinguishes two types of cultures: integrative culture and hierarchy culture. An integrative culture recognizes the need for internal integration and external adaptation, which imply a strong attention to innovation and changes in the external environment. On the contrary, a hierarchy culture means that the firm functions following rules and with a narrow control of the employees leaving no opportunities to participate in decision making. They found out that a highly integrative culture does favour outside-in open innovation but has no impact on inside-out open innovation, while a hierarchy culture is not working in the favour of any of the two types of open innovation. Other researchers such as Tranekjer and Knudsen (2012) say that it is capital for the culture to allow for knowledge sharing and Herzog (cited in Giannopoulou, 2011) adds that it is also imperative that the culture is risk taking oriented. The model from Harrison (1993) will be used in the following parts of this thesis because it is said to provide "an awareness of the cultural gap between the existing and preferred cultures in an organization". Therefore, if I happen to find out a preferred culture type from his model, it will be possible for organizations belonging to other types to know what they have to change. Harrison came up with four types of cultures that are defined following the criteria of extent of formalisation and extent of centralisation. I consider that these dimensions are very interesting in defining an organization and I already have my ideas on which dimensions fits best with an open innovation strategy. Harrison's model is illustrated by figure 2.6. Firstly, there is the power-oriented culture, which is an "organizational culture that is based on inequality of access to resources" (Harrison and Stokes, 1992). This culture type implies a centralized power, rules, authority and a

division of work. Management is usually personal and informal and is characterized by a top-down communication style. Secondly, a role-oriented culture is defined as “substituting a system of structures and procedures for the naked power of the leader” (Harrison and Stokes, 1992).

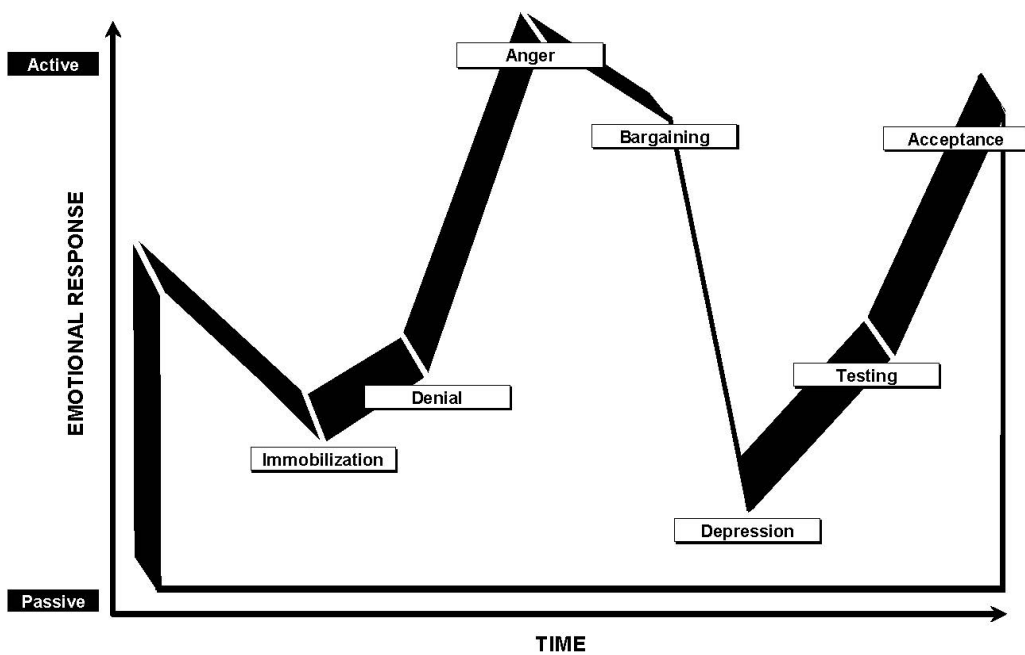


**Figure 2.6: Organizational culture by Harrison (1993)**

It is characterized by a centralized power as well but is mainly characterized by its logical structure and its jobs specialization. One drawback of this type of culture is that it is not a dynamic one; these firms have difficulties to change and adapt. Thirdly, the achievement-oriented culture is defined as “the aligned culture, which lines people up behind a common vision or purpose” (Harrison and Stokes, 1992). Power is here diffuse, shared. This type of culture is characterized by its ability to achieve the strategic objectives of the firm, with specialized teams. Firms with this culture have a high chance of survival in a dynamic environment. Finally, the support-oriented culture is defined as “organisational climate that is based on mutual trust between the individual and the organisation” (Harrison and Stokes, 2012). This culture is more person oriented than team oriented in opposition to the achievement culture. Power is shared and tasks are assigned to people following their own preference. This implies that this culture

“encourages proactive, experimentation and openness to change” (Harrison, 1993).

It is assumed that a shift from closed to open innovation might imply some changes in the organization culture, but a strategic change in an organization also means possible resistance. Resistance might come from individuals in the organization or from groups (Martins, 2005, p.818). Also, a culture can be characterized by its strength: “In a strong culture, the organisation’s core values are held strongly and shared widely” (Martins and Martins, 2003). A strong culture is said to help the firm to perform better (Brown, 1998, p.226) but under some conditions (McShane, 2000, p.467): the cultural values have to align with the external environment. In other words, the organizational culture has to be adaptive in order for the firm to really perform better, if a culture is strong but not adaptive, there is a risk of it not being able to adapt to change when needed. The problem is that people will resist. In fact, Lewin (cited in Martin, 2005, p.809) developed a model called “forcefield model of change” which says that in every change situation, there are driving forces, for example a need for higher productivity or the need to adapt to the environment, and there are restraining forces, which could be the fact that people don’t want to change, because there are either afraid or lazy. Kübler-Ross five stages model (1969) shows the stages through which people go in the case of someone else’s death, and it can be used to analyse the reactions of employees when changes are being done. The model is shown in figure 2.7. Immobilization is the first stage and means that employees don’t know how to react. Next the denial, where employees fake that they are fine with the change, or they don’t want to realize what is happening. During the anger stage, employees have passed the denial stage and don’t agree with the situation. The bargaining stage involves employees trying to negotiate the terms of the change or to delay. Then comes the depression stage, where employees have used all their bargaining power and can’t do anything more. Testing involves the employees experiencing the change until they finally accept what’s happening in the last stage that is called acceptance. This model basically tells us that people go through a whole process when experiencing change. Lewin (cited in Martin, 2005, p.810) also developed a way to describe how to deal with change and resistance: first we have to unfreeze the situation, that is help people accept that there is a need to change, then we have to actually apply the changes when the current situation is unfrozen. Once the changes have been made, we have to refreeze, that is to freeze the changes that have been made.



**Figure 2.7: Kübler-Ross five stages model (1969)**

A shift from closed innovation to open innovation might not touch every single employee of the firm in the same way. The department that will be the most touched is the R&D department (Mortara, Napp, Slacik and Minshall, 2009). Barret, Velu, Kohli Salge and Simoes-Brown (2011) agree and say that the R&D department might feel threatened in the sense that this is another way of working including external partners and they fear for their positions in the firm. R&D employees have to be prepared to this openness. Nakagaki et al. (2012) also found out that there is a need for the culture to “encourage personnel to move away from perceiving an outside view as an admission of failure” which is in concordance with other findings that employees have to prepare for this change.

In order to facilitate strategic change to take place, and therefore to reduce negative emotional response from Kübler-ross five stages mode, the role of change leadership is capital (Slowinski et al., cited in Giannopoulou et al., 2011). Change leadership can be defined as “the process of influencing an organisation in its efforts towards achieving an aim or goal” (Stodgill, cited in Johnson et al., 2011, p.471). Giannopoulou, Yström and Ollila (2011) define change leadership in the case of a shift from closed to open innovation as “leadership for diversity”. They say that it is the responsibility of such leader to facilitate the change towards a risk taking culture and to tackle any resistance problem by demonstrating that open innovation has nothing to do with competition or

substitution; it is a complement to internal activities. He is responsible for the implementation of a system favourable for both internal and external innovation and should assist every person that is or will be touched in a way or another by the open innovation implementation process. Adair (cited in Mullins, p.265) developed a theory called "action-centered leadership", which says that leaders have 3 main domains of tasks in an organization working in teams: they have to manage the team as a whole, but they also have to take care of the individual needs and ensure the completion of the common task. Five types of leadership have been defined by Balogun and Hope Hailey (cited in Johnson et al., 2011, p.477), which are: education, collaboration, participation, direction and coercion. The education type of leadership involves teaching and convincing the employees that there is a need for change. Communication is key. Collaboration means that those employees who are affected by the change will be involved in the change agenda. Participation leadership goes one step further and involves those employees in the change process directly. The direction type leader on the other hand will make use of his power, authority to make the decisions directly to set up the change agenda and process. Finally, coercion looks a lot like direction itself, but is more extreme. The agenda and the change process are imposed to the employees without a word from them. Other models have been developed, for example by Kotter and Schlesinger (cited in Martin, 2005, p. 811). Their model defines six types of change management strategies: education and communication, participation and involvement, facilitation and support, negotiation and agreement, manipulation and co-option, and finally explicit and implicit coercion. Dunphy and Stace (cited in Martin, 2005, p.812) also developed a more complex model based on the scale of change and the style of management that would be the most adapted:

		Scale of change			
		Fine tuning	Incremental adjustment	Modular transformation	Corporate transformation
Style of management	Collaborative	Participative evolution		Charismatic transformation	
	Consultative				
	Directive	Forced evolution		Dictatorial transformation	
	Coercive				

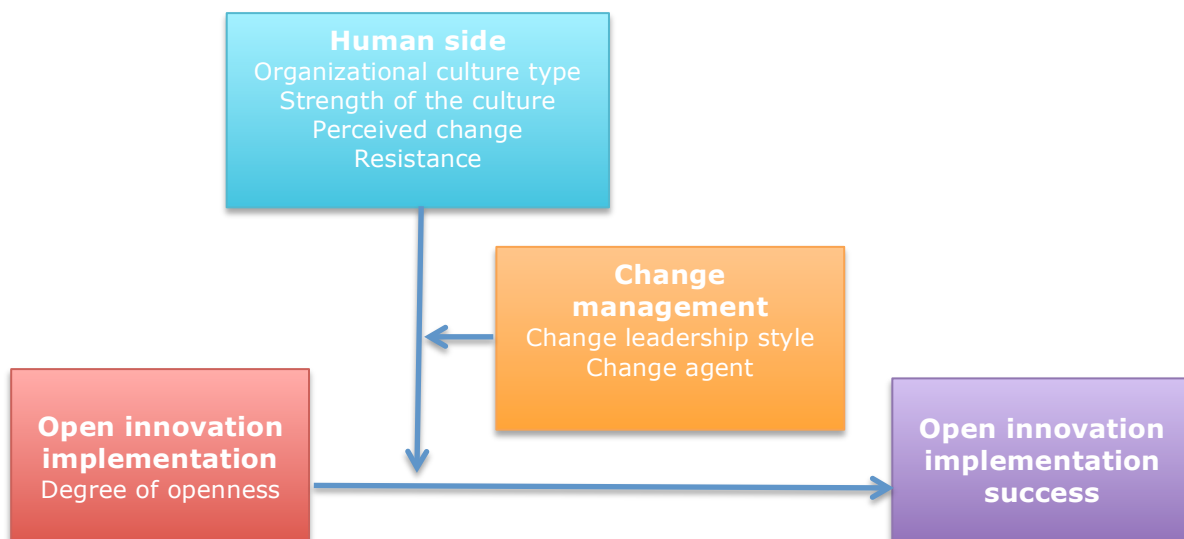
**Table 2.2: Change strategies by Dunphy and Stace (1990)**

In addition to change leadership, change agents can play an important role in this change process. Martin (2005, p.817) defines a change agent as "someone who plays a

leading role in sponsoring the need for change or its implementation". Indeed, he identified three types of change agents: change generators, who try to identify where changes are needed, change implementers, who are in charge of the implementation of the change strategy, and change adopters, ensuring that changes have been correctly implemented. Similar to a change agent, Mortara, Napp, Slacik, and Minshall (2009) in their study have discovered that to facilitate the implementation process, companies can make the use of "open innovation implementation group". This group is made of R&D managers who support the open innovation concept and who are eager to experience it. Their main role is to help the R&D employees to accept the change by becoming more open.

## 2.3 Theoretical framework

### 2.3.1 Conceptual model



**Figure 2.8: Conceptual model**

From the review of the literature, I have decided to select the variables that I think are the most relevant to answer to the research question and the investigative questions. I already know that people inside the company will be impacted by open innovation. In addition to this finding, I'd like to research whether the degree of openness does affect or not the open innovation implementation success. Therefore, open innovation implementation will be the independent variable, further measured by the degree of

openness, and the open innovation implementation success will be the dependent variable.

This relationship will be moderated by what I call the “human side” variables. The human side of an organization can be considered in different ways. Therefore, the dimensions I chose are the organizational culture, defined by the type of culture and also its strength. I would like to find out if one specific type of culture is better than the other in the case of open innovation and I also would like to find out if the strength of the culture can be a problem in its implementation. More specifically, I choose to use the model from Harrison (1993) and I would like to find out what degree of formalization and centralization would fit better an open innovation strategy. After that we have the perceived change by the employees that open innovation represents. Here, I would like to find out if they consider an open innovation strategy to be a big change, and if they need a short or long time to adapt. Finally, we have the resistance that they show. Considering open innovation as a big change doesn’t directly mean employees will be resistant and therefore I think it is necessary to include both in the model.

This moderating effect that the human side has on the dependent-independent relationship can itself be moderated by what I call here the “change management” variables. These variables are the change leadership style, and the change agent. I would like to see if a change agent is necessary, what its role is and what type of change leadership style works best in this situation.

### 2.3.2 Variables definition

The different variables that are present in the conceptual model are explained in this section. They are defined and if several models in the literature have described them, one of these models in particular is selected.

#### ***Independent variable:***

##### **Open innovation implementation:**

- **Degree of openness:** “how broadly and intensively a firm uses external information in innovation” (Drechsler and Natter, 2011). The typology of Lazzarotti and Manzini will be used to classify the companies in the following categories: closed innovators, specialized collaborators, integrated collaborators and open innovators, meaning that the degree of openness is measured by the number and



types of partners that the company is working with, and the phases of the innovation process in which these partners participate. I decided to go for this model because it contains only two dimensions and four possible outcomes, making this model suited for this research since it is not too complex, but enough to differentiate between the companies that are compared.

### **Dependent variable:**

**Open innovation implementation success:** open innovation implementation success is here defined as the regular use of open innovation practices, taken into account the opinion of the interviewee. The amount of resistance remaining will also be taken into account in order to correct any biased opinion from the interviewee since it can be subjective. This is the case because if there was resistance, it shows that resistance was successfully handled, and if there is still resistance, and if the company keeps practicing open innovation, it shows in a way that the company is properly managing the resistance. This variable therefore is defined as:

- Low if open innovation practices are highly disturbed by the human side variables;
- Moderate if open innovation practices are disturbed by the human side variables to a moderate extent and if they are properly handled;
- High if there are almost no or no issues left regarding the human side variables.

### **Moderating variables which moderate the relationship between the independent and dependent variables:**

#### **Human side:**

- **Organizational culture:** “the distinctive norms, beliefs, principles and ways of behaving that combine to give each organisation its distinct character” (Arnold, 2005, p.625). Organizational culture is here sub-divided into two dimensions:
  - **Organizational culture type:** the model developed by Harrison (1993) is used in this research to characterize the organizational culture of the company. This model characterizes organizational culture following the degree of centralization and the degree of formalization of the company, and the four different outcomes are the following: role, achievement, power and support. I chose this model because I believe the two dimensions used to define the organizational culture type are well suited to see whether or not it will support open innovation and it also gives some insight on the organizational structure of the company.

- **Organizational culture strength:** “In a strong culture, the organisation’s core values are held strongly and shared widely” (Martins and Martins, 2003). This variable is either defined as strong or weak.
- **Perceived change:** Following the model of Balogun and Hope Hailey (cited in Johnson et al., 2011, p.465), strategic change is defined following the extent of change, meaning how big the change is, and the nature of change, meaning the speed of the change process, giving the four possible outcomes which consist in: adaptation, evolution, revolution, and reconstruction. This model is normally used to define the change as it really is, while I use it here from the perspective of the employees, and name it “perceived change”. However, the two dimensions remain the same, namely the extent of change and the nature of change.
- **Resistance:** degree of resistance from employees within the firm, taking into account if resistance is past or still present. This variable is defined as:
  - Light if resistance is overall nearly not present, or if it is only encountered in isolated cases;
  - Medium if resistance is sufficiently present to be perceived as an issue;
  - High if resistance is present to the point that open innovation practices are negatively impacted.

***Moderating variables which moderate the effect of the “human side” on the relationship between the independent and dependent variables:***

**Change management:**

- **Change agent:** Martin (2005, p.817) defines a change agent as “someone who plays a leading role in sponsoring the need for change or its implementation”. This variable is defined as absence of change agent, internal change agent or external change agent.
- **Change leadership:** “the process of influencing an organisation in its efforts towards achieving an aim or goal” (Stodgill, cited in Johnson et al., 2011). This variable will be classified in categories following the typology of Balogun and Hope Hailey (cited in Johnson et al., 2011, p.477), which are: education, collaboration, participation, direction and coercion.

**2.3.3 Propositions**

As it will be stated in the research methodology chapter, the research technique used is case studies. Being a qualitative technique, it is not possible to use statistical packages

to test whether or not hypotheses are rejected. Therefore, I made a list of propositions based on the conceptual model in order to have some insight about the relationships between the variables.

**P1: There is a negative relationship between the degree of openness and the open innovation implementation success.**

I expect this relationship to be negative because the more you want to be open, the biggest the difference with a closed innovation model, and so the probability of implementation success is lesser.

*P1a: A high partner variety negatively impacts the open innovation implementation success.*

I think that the more partners you involve in your innovation activities, the more diversified the external knowledge will be and therefore I expect that it can slow down the open innovation implementation, to make it accepted by your company.

*P1b: A high innovation funnel openness negatively impacts open innovation implementation success.*

I think that the more you open your innovation funnel, the more changes it brings in comparison to closed innovation, and it therefore is more difficult to implement.

**P2: The perceived change has a negative moderating effect on the open innovation implementation success**

I expect that considering how employees perceive the change to open innovation will influence the open innovation implementation strategy.

*P2a: Employees consider open innovation as a big change.*

I think that employees see open innovation as a big change from the way they are used to work, and therefore it will impact the open innovation implementation.

*P2b: Employees need time to adapt to open innovation.*

I think that employees need time to adapt to open innovation whether they consider it a big or small change.

**P3: The organizational culture type has a moderating effect on the open innovation implementation success**

I expect the organizational culture type to influence the open innovation success because I believe not every organizational culture type will provoke the same type and amount of resistance.

*P3a: High formalization is negatively related with OI implementation success.*

I believe that the more a company is formalized, the less flexible it is and therefore the less people can take risks and also the more they are used to a controlled environment, which open innovation can disturb.

*P3b: high centralization is negatively related with OI implementation success.*

I also believe that the more a company is centralized, the less freedom middle management and the rest of company has, and therefore the less flexible the company is and the less it might allow for knowledge sharing.

**P4: The organizational culture's strength has a negative moderating on the open innovation implementation success**

I expect this relationship to be negative since the stronger the organizational culture, the harder it is to adapt to change.

**P5: Employees resistance has a negative moderating effect on the open innovation implementation success**

I expect that the more there is resistance, the less probability there is that the open innovation implementation is a success.

**P6: The change leadership style chosen has a moderating effect on the "human side" variables effects**

I expect that following the type of leadership chosen to lead the shift to open innovation will have an impact on the effect that the human side variables have on the implementation success.

*P6a: The use of authority is negatively related to successful OI implementation*

I believe that using authority and force to make people accept open innovation can't solve the resistance problem.

*P6b: The involvement of employees is positively related to successful OI implementation*

I expect that involving and properly communicating what is expected from the resistants can help them go through it.

**P7: The use of a change agent has a moderating effect on the “human side” variable effects**

I expect that if a firm uses a change agent to facilitate the shift to open innovation will have a positive impact on the effect that the human side variables have on the implementation success.

*P7a: A change agent has a positive effect on open innovation implementation success.*

I believe that employees need help to understand and accept open innovation.

*P7b: An internal change agent is more suited than an external change agent in the case of open innovation.*

I believe that an internal change agent is more effective because people resistant to open innovation already have to deal with the fact that external people will participate in the internal activities of the company, and they don't need other external people to tell them they're wrong to be resistant. An internal agent who they know and trust is better suited.

## 3 RESEARCH METHODOLOGY

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### 3.1 Research technique

Among the different kinds of research techniques available today, the one that is chosen in this thesis is case studies. This technique is best suited here for several reasons:

- The topic of open innovation is still vague and far from being fully explored;
- One of the other topics included in this thesis is organizational culture. This topic is very difficult to be researched through quantitative techniques. It requires qualitative interviews in order to guide the respondent. For example, the simple question "what is the culture of your company" would stay unanswered by a lot of people and requires some guiding questions;
- The questions have to be answered by the right person in order to be relevant. The person that is chosen here is the open innovation manager, or what's the closest to it.

Case studies here mean interviewing relevant companies, that is: companies that have experienced the shift from closed to open innovation. Companies that are currently experiencing this shift can still give valuable information. The interview takes place face-to-face when the company is located in Belgium or nearby areas, and via the Internet with Skype when the respondent is located in another country. Telephone interview and email surveys will be avoided since it will be too complicated to ask questions that require deep answers and explanations. An interview guide has been set up in order to ensure that all the relevant information is being retrieved during the interview.

Information from these cases is useful in order to find similarities between how companies manage open innovation. Considering the limited amount of companies that participated in the study, differences between the cases are judged as inconclusive and in need of further research to get more insight, whether any similarities lead to a generalization and is of course ground for future testing. The final idea is therefore to determine if one specific type of culture impedes or allows more for open innovation

considering the amount of resistance that they face, which change leadership styles seems to be the most common and which seem to work best, if cultural strength affects the resistance that employees experience, etc.

## **3.2 Interview guide**

The questions are divided following the different themes covered in the conceptual model. This is a semi-structured questionnaire, meaning that all of the questions have to be covered during the interviews, but that the discussion can deviate from the questions in order to capture extra knowledge.

### **1. Degree of openness**

Firstly, there is a need to identify the degree of openness pursued by the company:

- How many and what type of partners are involved?
- Which phase(s) of the innovation process is/are involved?

### **2. Nature of change**

Then, the next step is to identify how the company perceives an open innovation strategy:

- How would you describe the change that constitutes the shift from closed to open innovation?
  - o Big/small change?
  - o Fast/slow adaptation?
- Was a change in culture needed? In what way?

### **3. Organizational culture.**

- Culture type
  - o Degree of centralization: the extent to which decision-making is centralized at the top. How are decisions being made? Is power shared or centralized?
  - o Degree of formalization: the extent to which there are rules and procedures and the extent of freedom employees have in respecting them. Is the company highly formalized?
- Culture strength

- How strongly are the common values shared among employees?

#### **4. Resistance**

Whether there was a culture related change or not, an open innovation still requires employees to adapt their way of working.

- Was there any resistance? From who in particular?
- Are people still resistant?

#### **5. Change leadership style**

This section asks how management at the company dealt with the situation.

- How did you communicate that change was needed?
- Involvement of employees in the change agenda?
- Involvement of employees in the change process?
- Use of authority needed?
- Imposition of change, force needed?

#### **6. Change agent**

Then I need to know whether or not the company had to ask someone to play the role of change agent to facilitate the situation.

- Did you make the use of a change agent to facilitate the implementation of OI?
  - Who? External, internal?
  - Why was it needed?
  - Did it work as planned?

#### **7. OI implementation success**

Finally, whether or not the OI strategy is well in place right now, what still has to be done and what were the key success factors.

- Would you describe the OI implementation as successful? To what extent?

### **3.3 Companies contacted**

A total of 30 open innovation managers (or equivalent) from 30 different companies have been contacted directly by email. 4 companies have positively replied and agreed to provide information about their company. The following table provides the name of the persons contacted, their company and their exact position within their company.



<b>Name</b>	<b>Company</b>	<b>Position</b>
<b>Luc Chefneux</b>	ArcelorMittal	Director open innovation and knowledge management
<b>Navin Kunde</b>	Clorox	Business network leader
<b>Inge Schildermans</b>	Bekaert	Senior innovation manager
<b>Michael Catrysse</b>	Televic	Technology and innovation director

**Table 3.1: Companies contacted**

The companies Televic, Bekaert and Clorox have been interviewed via Skype, while the company ArcelorMittal has been interviewed face to face. The transcript of each interview can be found in the appendices, together with a short introduction of the company and of the contact person.

# 4 FINDINGS

In this section, results of the interviews are presented under the form of tables. Each company result is compared for one variable at a time to determine what are the similarities and differences. The variable is defined by taking directly small pieces of information that the interviewee has given during the interview, therefore under the form of quotes to justify the result that has been given. The related proposition is then discussed by comparing the results. The transcription of the interview together with a small introduction of the company and the interview are to be found in appendix.

## 4.1 Open innovation implementation success

Results of the interview for the open innovation implementation success	
Televic	<p><b><u>Medium</u></b></p> <p>MC: "This is some work that still has to continue, because we still see in Televic as well people that are not comfortable with sharing information or think that they know better, that they have all knowledge and do not trust any others, so this is something we need to continuously work on, yeah."</p>
Bekaert	<p><b><u>High</u></b></p> <p>IS: "Well I think we could be even more open than we are today. Still today there is not the spontaneous intention to immediately look outside for e.g. technology or product development. But during my 11 years career at Bekaert, there have always been co-operations or projects with companies outside Bekaert, from suppliers to customers to start-up companies to universities. That didn't change, and it has even been reinforced in the last couple of years, and certainly the desire of our CEO to engage more with customers but also with partners so not to invent everything by ourselves to speed up the development process."</p>
Clorox	<p><b><u>High</u></b></p> <p>NK: "So innovation is a multi-functional game, it's not just an R&amp;D game"</p>

	<p>at Clorox.”</p> <p>NK: “I think open innovation is just part of what we do. The resistance may have happened ten years ago but now there's not really resistance, yeah. You know, one of the things we do more recently is the network part, you know that they have decided to do the last few years. We are doing... think about it as open innovation outside of R&amp;D.”</p> <p>NK: “So, we have taken open innovation outside of just R&amp;D to other functions now, to the networking side.”</p>
ArcelorMittal	<p><b>High</b></p> <p>LC: “There is a team that has just been put in place for that, with which I am almost permanently in contact.” ... “Well, they rush. And I’d say that the R&amp;D is running behind them. In fact they apply open innovation in a way that has firstly been, maybe still today, judged disturbing.” ...“That means that this modification has started to induce more flexibility in a system that was very organized but so much organized that it was relatively heavy and didn’t allow a big flexibility. Though open innovation actually requires and engenders flexibility. Therefore, I am pretty confident on the direction things are taking.”</p> <p>LC: “So we have had a collaborative culture which now has practically more than 60 years. And this collaborative culture made that, working with competitors, working with research centres like the one in which we are, but there are others in Europe that are a bit similar, but I’d say that it made that certain aspects of open innovation were already here since a long time. Including by the by collaborations between steel companies and universities.”</p>

**Table 4.1: Open innovation implementation**

Three companies are considered to have reached a high degree of open innovation implementation success because open innovation has become part of their DNA and that resistance seems to be nowadays quite light to almost inexistent, meaning it doesn’t impede open innovation activities. One company has reached a medium degree of success because resistance is still present to a higher degree and the company is still in

the process of making it part of their way of thinking; however, it doesn't prevent them to practice open innovation.

## 4.2 Degree of openness

Results of the interview for the degree of openness	
Televic	<p><b><u>Specialized collaborator</u></b></p> <p>→ <b><i>Innovation funnel openness: low → mostly ideas and researches</i></b></p> <p>MC: "What we do is involve researchers in the ideation process, either as inspiration or during brainstorm sessions, as well as with the evaluation of ideas"</p> <p>MC: "And let's say that in an informal way, we try to capture ideas from our customers as well, we don't have any formal process for that."</p> <p>→ <b><i>Partner variety: high → universities, research institutes, engineering schools and customers but no competitors</i></b></p> <p>MC: "So what we are looking for is indeed universities, research institutes and engineering schools on the one hand, and then companies that are technology driven and customers as well."</p> <p>MC: "What we don't do is collaborating with direct competitors."</p>
Bekaert	<p><b><u>Open innovator</u></b></p> <p>→ <b><i>Innovation funnel openness: high → ideation and co-development</i></b></p> <p>IS: "It's all about front-end innovation, so meaning idea gathering, idea evaluation and selection and then turning some into projects."</p> <p>IS: "We have co-development with suppliers on the material itself"</p> <p>IS: "We do have development projects with customers or customers of our customers and there, there is the idea to come up with a new commercial product. Co-creation we call it. But in order to start co-creating with e.g a customer, some conditions need to be met such as open culture at both sides, mutual understanding of the objectives, multi-level dialogues, a win-win from both sides, etc..."</p>

**→ Partners variety: high → customers, research institutes, universities, no real competitors + internal portal opened to consulting companies and soon suppliers**

IS: "Those ideas can come from everywhere; they mostly come from the market (customers with a request or a problem), in addition we try to follow-up trends and try to link them to our capabilities, also ideas can come from internal bottom-up idea generation exercises based on a specified technical challenge or question, etc..."

IS: "Well we have a joint venture with a company who is a competitor, a supplier and a customer at the same time. It is not that we really have co-development projects with competitors, that is rarely the case."

IS: "We have R&D partnerships with universities and technical centres all over the world. Well we have the university of Leuven, the university of Gent that is nearby, but we also have universities in the east side of Europe where we work closely with, because we also have operational plants in that part of the continent. We have relationships with Chinese universities because we also have an R&D centre in China. We have relationships with universities in both North and South America."

IS: "And then we have working relationships with universities and research institutes for very advanced topics like modelling on material deformation, etc..."

IS: "We have an internal innovation portal, which is open to 5000 people in Bekaert, and we are in the last couple of months also involving external companies like for example Creax or Innovia which are innovation consulting companies. We will try to also open up to suppliers. It is our intention to involve our customers too in the future. "

Clorox

**Open innovator**

NK: "Hum, it's usually 50 - 50, I would say most of the time, we keep half of the things open and half of the things closed. But the number of

projects that are open is huge; almost every project has some degree of openness to it. So even though the degree of openness might be different, the number of projects that has some level of openness, it's almost all of them."

**→ Innovation funnel openness: high → front-end up to commercialization**

NK: "The variety of partners we work with in the very front-end, in the ideation stage is much more broader than the variety of people we can work with towards the implementation or the commercialization stage."

NK: "And 80%, back then, we did a quick benchmark, and we found that 80% of our R&D, of our products, had external R&D."

NK: "And you have to be aware of where that partner adds value. There are more partners who add value in the front-end innovation where you are trying to ideate and you have to be open for ideas from anywhere, and fewer partners can help the back-end because there are some practical considerations of go-to market that no everybody can deliver on."

**→ Partners variety: high → customers, inventors, suppliers, universities, research institutes, experts, etc.<sup>1</sup>**

NK: "And that's how we compete, every small business has its own challenges so for some businesses we might work with customers, for some others we might not, in some businesses we might work more with inventors, in some businesses it doesn't make sense."

NK: "Because we are a small company, we can't afford to do a lot of fundamental research, so on the research side we will partner with universities, right? But universities are not going to help us with implementation, so very quickly we realize that the best partners for us for end to end innovation was suppliers, these big supplier companies that

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<sup>1</sup> For more details, see appendix "Presentation of Navin Kunde, Clorox"

	were doing a lot of research already.”
ArcelorMittal	<p><b><u>Open innovator</u></b></p> <p><b>→ Innovation funnel openness: high → from ideas to research to development</b></p> <p>LC: “Open innovation, it is eventually working with competitors, for certain things we are not directly competing on. There are things on which we won’t share anything, particularly concerning the finished products that are sold and in which there is a direct competition. On the contrary, we will share more easily on the production processes because there is less competition.”</p> <p>LC: “We have to know that at a given moment, open innovation is really good but at a given moment we have to know when to remain closed, we shouldn’t be naïve. Following the confidence level or naivety level, we can have different degrees in our opening capacity.”</p> <p><b>→ Partner variety: high → universities, customers, competitors, complementors, research institutes etc.</b></p> <p>LC: “So we collaborate with competitors, we collaborate with dedicated research centres, with RTO (research technology organisation), we collaborate with universities. There are also two very important aspects to open innovation that we have already been doing without realizing it, it is collaborating with clients”</p> <p>LC: “But at the other extremity of the value chain, we also work a lot with suppliers. So, suppliers can be of any kind”</p> <p>LC: “... and progressively, we are opening up to collaborations with companies that I would call complementors.”</p> <p>LC: “Long-term partners, so university laboratories with which we have privileged relationships, we have among twenty of them, in Europe and North America. We also have among twelve, I think, research centers that are external to the group.”</p>

LC: "We also have relationships with among twenty universities worldwide."

LC: "We have at the moment 15 research centres, which are located in 11 different sites."

**Table 4.2: Degree of openness**

Out of the four companies interviewed, three are considered as open innovators and one is considered as a specialized collaborator. More specifically, three of them have a high innovation funnel openness, meaning they open a lot of their innovation activities to external parties, and all of them have a high partner variety, meaning that whether they have a low or a high innovation funnel openness, they all are open to a lot of different types of partners. This result can be interpreted as a tendency for companies to open up to a lot of different partners in order to capture different kinds of added values that these different partners can contribute. The phases of the innovation process involved however can be limited to the front-end innovation, but from the cases analysed, almost the whole innovation funnel is involved.

**P1: There is a negative relationship between the degree of openness and the open innovation implementation success**

*P1a: A high partner variety negatively impacts the open innovation implementation success.*

All of the companies interviewed have a high partner variety. Even though one has only reached a medium degree of open innovation implementation success so far, it doesn't provide sufficient evidence to consider this proposition as supported.

*→ Not supported*

*P1b: A high innovation funnel openness negatively impacts open innovation implementation success.*

Three companies have high innovation funnel openness and one has a low innovation funnel openness. When looking at the individual cases, the company that has the lowest degree of open innovation implementation success is the one that is the least open, which clearly doesn't support this proposition.

*→ Not supported*



### 4.3 Perceived change

Results of the interview for the perceived change	
Televic	<p><b><u>Evolution</u></b></p> <p>→ <b><i>Extent of change: transformation → big</i></b></p> <p>MC: "Yes I think it is, but of course this not something you can do from one day to the other, it has to grow and it has to go step by step. Also try to build on early successes, because successful joint developments can convince people to continue this, but this is of course a change process, you need to convince people that other people might be more eligible to or have some knowledge that they don't have."</p> <p>→ <b><i>Nature of change: incremental → slow</i></b></p> <p>MC: "We continuously work on that, and we try to have a really open and innovative culture but this is, let's say this is something you can't change from one day to the other, it takes time, it takes more initiatives to changes. It also comes when new people are arriving; selecting employees in a good way with an open mind, I think this helps too."</p> <p>MC: "What we do right now is, this is also gradually building up, we do some workshops with customers, we do some testing, some trials, we have projects in which some products are tested with customers, so this gradually builds up and it is not from one day to another that we say "what we do is open innovation"."</p>
Bekaert	<p><b><u>Adaptation</u></b></p> <p>→ <b><i>Extent of change: realignment → small</i></b></p> <p>IS: "Bekaert has recognized that open innovation is a must to go forward. At this moment, resistance is not high. In the eleven years that I work for this company, open innovation was already been practised and got even more attention in the last years"</p> <p>→ <b><i>Nature of change: incremental → slow</i></b></p> <p>IS: " Open innovation is starting to take more &amp; more part of our culture."</p>
Clorox	<p><b><u>Evolution</u></b></p> <p>→ <b><i>Extent of change: transformation → big</i></b></p>

	<p>NK: "It was a big change, the idea that you would go outside, it wasn't a big change problem from why we should do it, it was a big change from how we should do it. How it works, how to do it effectively, how to articulate your gaps, right? Because if you look at open innovation, it's really about gap management."</p> <p><b>→ Nature of change: incremental → slow</b></p> <p>NK: "Over the years, slowly, everybody is getting more open to doing open innovation"</p>
ArcelorMittal	<p><b><u>Adaptation</u></b></p> <p><b>→ Extent of change: realignment → small</b></p> <p>LC: "Most of the companies, I think, were already practicing open innovation without realizing it. Now, starting from the moment we talk about it, where we promote open innovation, people realize that there are a lot of possibilities."</p> <p>LC: "We have to know that in the steel industry, in Europe in particular, I'd say that we have always had an old culture of collaborations between competitors".</p> <p><b>→ Nature of change: incremental → slow</b></p> <p>LC: "Now if we talk about it, if we explain it progressively, mentalities start to evolve, knowing well that there are always obstacles, and that there will always be."</p> <p>LC: " But progressively, this notion has become so common, we are talking about it so much that it penetrates, it begins to penetrate a bit everywhere."</p>

**Table 4.3: Perceived change**

Two different types of perceived change are apparent in the cases studied: evolution and adaptation. This means that half of the respondents don't think open innovation is a big change for the company while the other half thinks the opposite. However, all of them think that a slow, step-by-step approach is better than a fast approach in order to implement open innovation. We can therefore say that whether the change is considered

as big or small doesn't influence the time that is needed to really implement open innovation and to make it part of the DNA of the organization.

**P2: The perceived change has a negative moderating effect on the open innovation implementation success**

*P2a: Employees consider open innovation as a big change.*

Since only half of the respondents think open innovation is not a big change, this proposition can't be considered as being supported.

→ Not supported

*P2b: Employees need time to adapt to open innovation.*

Whether the change is perceived as big or small, a step-by-step implementation is used in every company interviewed. I therefore consider that people usually need time to adapt and that it therefore can slow down the open innovation implementation process.

→ Supported

**4.4 Culture type**

Results of the interview for the culture type	
Televic	<p><b>Support</b></p> <p>→ <b>Formalisation: low</b></p> <p>MC: "Televic has evolved from a small SME of 100 persons about 10 years ago to a company of 600 persons right now, and we don't have many rules, which as the company grows larger is sometimes a problem because it creates inefficiency."</p> <p>→ <b>Centralisation: low</b></p> <p>MC: "All managers have some kind of decision-making power in their fields, we try to offer a framework to our management team, to our managers and to our employees in which they can take decisions, and of course up to a certain level, when financials are involved, they have to go one level up."</p>
Bekaert	<p><b>Support</b></p> <p>→ <b>Formalization: low to medium</b></p> <p>IS: "Well we are a big company and recently there is more focus on standardisation and reducing complexity. Due to its size, its scale, its</p>

footprint, ...there are of course rules, procedures and codes of conduct."

→ **Centralization: low to medium**

IS: "We have indeed a small group of executives, who decide on the strategy, the vision and the mission of our company." Our organisation is structured in "business platforms", "regions" and "global functions". The business platforms are accountable for their strategy, for customer and market development, for the delivery of long term margin and growth objectives, the regions are responsible for the execution of annual objectives. The global and hence central functions support both business platforms and regions.

IS: "Well on the important things like strategy, like objectives and the goals that we need to achieve for the next years, it is of course a top-down decision, but every department is empowered to take their own decisions, but they also are accountable for that and at the end need to take the responsibility. But empowerment is something our CEO really wants to push: to give the people the freedom and authority to decide by themselves, of their domain of course. But they will also be taken accountable for it."

Clorox

**Support**

→ **Formalization: low**

NK: "The rules are more around following a process that we know has worked, so we have a very process heavy company. The rules are not so formal about, you know, I have my desk, it's not like that."

NK: "So we have some rules around knowledge management, we have some rules around following a process, we have some rules around ethics and how to treat partners, but at the same time it is not super formalized as we have a lot of flexibility around how we go about doing the business and how we go about within those rules, how we operate."

→ **Centralization: low to medium**

NK: ... "it's more of a decentralized company than a centralized company."

	<p>We have some groups that are centralized, or hybrid. Open innovation is centralized, I work across all the businesses and the joint venture, so the capability part of open innovation is centralized, but the business connection leader part is decentralized, so it is a hybrid model”</p> <p>NK: “So it’s a hybrid model, I think for open innovation a hybrid works best because you can’t be completely decentralized, it’s very inefficient to do that, but if you are fully centralized you won’t know what the businesses gaps are, and you can’t build those strong relationships that overcome cultural resistance if there is any, so you have to keep that decentralization.”</p>
ArcelorMittal	<p><b><u>Role</u></b></p> <p>→ <b>Formalization: high</b></p> <p>LC: “Yes. In the management of projects portfolio, I can go and give a class at the university on that, and explain that we are at the top, but we are so well at the top that I find that at a given moment we have become less flexible. This is the reason why innovation often develops particularly in SME or in smaller companies.”</p> <p>→ <b>Centralization: high</b></p> <p>LC: “Well, in fact there is only one person who decides, it is Mr Mittal.”</p> <p>LC: “Actually, there is at the top of ArcelorMittal at the moment 4 persons: Mr Mittal father, Mr Mittal son, one of their Indian collaborator and one of their American collaborator, that’s it. The other 2, I’d say, are naturally at the top, but are actually sort of subordinated to the family that owns the company. So it is really, really, really centralized. No important decisions can be taken without their agreement.”</p> <p>LC: “Now, the hierarchical levels, I’d say, seem to me to be pretty normal for a company about this size. After the top of the top, there is the management committee, grouping the main leaders from different branches of the group and from different activities, I don’t know how many they are, I’m not part of these levels.”</p>

**Table 4.4: Culture type**

Among the four companies interviewed, we can observe two types of cultures, which are: support and role, which actually are the two extremes. When having a look at the extent of formalization, one company has high formalization while two have low formalization and one has low to medium formalization, the trend therefore goes towards lower formalization; and when looking at the extent of centralization, two companies have low to medium centralization, one has high centralization and one has low centralization, here again suggesting that the trend goes towards lower centralization.

**P3: The organizational culture type has a moderating effect on the open innovation implementation success**

*P3a: High formalization is negatively related with OI implementation success*

It seems that low to medium formalization is more common. High formalization clearly indicated a lack of flexibility in the case in question, but it didn't prevent open innovation in any way. It therefore can't be said that it impedes open innovation practices.

→ Not supported

*P3b: High centralization is negatively related with OI implementation success*

Only one company is highly centralized, with the three others being lowly centralized. Though all of them have succeeded in implementing OI, it is evident that a lowly centralized company would be best here. However, it doesn't prevent open innovation implementation success either, and therefore this proposition is not supported.

→ Not supported

**4.5 Culture strength**

Results of the interview for the culture strength	
Televic	<p><b>Strong</b></p> <p>MC: "We continuously work on that, and we try to have a really open and innovative culture but this is, let's say this is something you can't change from one day to the other, it takes time, it takes more initiatives to changes. It also comes when new people are arriving; selecting employees in a good way with an open mind, I think this helps too."</p> <p>LC: "Ok so you actually hire on basis of your culture?"</p> <p>MC: "Yeah well of course this is not the only criterion."</p>

	<p>MC: "No, we are let's say risk averse. This goes back to the ownership of Televic, Televic is family-owned and we have two shareholders that are still, well, it's privately held and you see that they are rather conservative, they have a conservative approach towards risk taking."</p>
Bekaert	<p><b><u>Strong</u></b></p> <p>IS: "We have three values that we share: trust, integrity and resilience. So those are the main values of Bekaert, and we also have eight leadership behaviours. "</p> <p>IS: "We really see to it that these values and leadership behaviours are respected, not only in our internal way of working but also towards the outside world."</p>
Clorox	<p><b><u>Strong</u></b></p> <p>NK: "They hire for the right people, that's very important to the culture of the company."</p> <p>NK: "It's part of the culture of the company, and again we hire for people ... sometimes you make mistakes and then those people leave, so you know that over time it's not going to work."</p> <p>NK: "We are always trying to be more efficient, trying to do more with less if you will. And so that's part of the values too but the two that apply to open innovation, I think, are "work together to win" and "do the right thing", and that actually talks to partners because sometimes we might find the right partner, but if they don't have the right values, we can't work with them."</p>
ArcelorMittal	<p><b><u>Strong</u></b></p> <p>LC: "When hiring, I don't perceive any, I'd say "cultural tests", on the contrary, I'd even say that we favour multiculturalism, thinking that multiculturalism is a source of wealth. Now, there is a very important aspect in what you say, and I am glad you talk about it. At a given moment, we need common values to share."</p>

LC: "And there is nothing to do about it, including people who culturally wouldn't have the same values at all, at a given moment, if we tell you "you have to respect a certain number of rules", then you respect them or you get fired."

LC: "There are rules that get progressively implemented and therefore the corporate social responsibility becomes our common reference base. Usually we present it under the form of the 4 p's. A company that respects the corporate social responsibility should have P for "profit", so it should be profitable, P for "people", so we have to respect the employees, workers etc., to respect the national legislations, and there is a P for "planet", respect of the environment etc. and there is also the aspect "partners", so it is all a bit about stakeholders, what's around us."

LC: "So it's still very important therefore that we can have totally different national cultures but still with a common resource base through the corporate social responsibility."

**Table 4.5: Culture strength**

All the companies interviewed have a strong culture, and all of them have succeeded in implementing open innovation whether to a medium or high degree.

**P4: The organizational culture's strength has a negative moderating on the open innovation implementation success**

None of the companies had a weak culture, it is therefore not possible to directly compare the amount of resistance between a weak and a strong culture. And since all of the companies succeeded in implementing open innovation, this proposition is not supported.

*→ Not supported*



## 4.6 Resistance

Results of the interview for the resistance	
Televic	<p><b>Medium → NIH syndrome</b></p> <p>MC: "Yes R&amp;D people are resistant but management people as well, not only R&amp;D people are difficult to change."</p> <p>MC: "Yes we have people that are resistant, which think that we should not work together."</p> <p>MC: "Some people still think that we should do everything ourselves."</p>
Bekaert	<p><b>Light → corporate venturing: incomprehension</b></p> <p>IS: "We have a corporate venturing department looking at start-up companies which have technologies which are not in our company but could be complementary to our company. So we invest in funds or we invest directly in those start-up companies." ... "Sometimes of course people question what is the return of all those investments, because we don't really see for example something being commercialized on the short term, but that's part of the innovation process; not everything turns out to be 100% successful. Learning from failures: that is still – to my opinion – a weak part in our culture, but I am convinced we are getting there."</p>
Clorox	<p><b>Light → alignment of the firm and gap management</b></p> <p>NK: "So we have to have a lot of internal collaborations and convincing to other parts of the company like supplier chain and procurement which are incented differently, so the R&amp;D part wins, but the procurement part loses, because they are incented by keeping the costs low, and so we had to get an alignment at the very high levels. So the first part which I mentioned is not easy, because we have to have the entire company aligned, it's like overall Clorox wins, R&amp;D wins a lot, procurement loses a little, but overall Clorox wins. You cannot have us go to the suppliers, take innovation and then give all the business to the cheapest bidder."</p> <p>NK: "If you remember the famous goals set by A.G. Lafley at P&amp;G, Procter &amp; Gamble, if you read about it, it was "50% of our products should have external input". For them 50% was a big deal because P&amp;G has such a</p>

strong internal R&D culture. Clorox had never that strong R&D culture, we just couldn't afford to do all the R&D inside. So for us the barrier was different, the barrier was not so much the willingness of R&D to do it, it was the willingness of everybody else to come along with it, because it was such a big part of what we did, we had to be willing to work with small suppliers, we had to be willing to pay more, there was not a culture change needed to make that happen, it wasn't like "I don't want to do it, not invented here, I want to be the owner of the idea", it wasn't that."

NK: "You have to be able to clearly articulate what you can't do so that other people can help you, if you are not sure about what you can't do, you can't find the right partners, so there was some challenges there because people had to really think hard about what they could do and what they could not do. And, articulate that. And sometimes people get embarrassed to say "I can't do", but it wasn't so hard once people got the idea of R&D without borders, people got it. This was mostly an R&D thing. This was not in marketing and other functions; these functions were still doing all themselves."

NK: "We are doing, think about it as open innovation outside of R&D. So my role as business networks leader, we are doing these experts networks where we go and bring ideas and answer questions and fill knowledge gaps, not capability gaps, and right there, there is resistance too because if you think about marketing and global insight and other functions, they are like "we know our job, we don't need to talk to some outside expert!" but that is also part of, you know, things that we have been working on the recent years."

NK: "Not always too proud, sometimes they have a lot of confidence, they are like "I've been doing this for many years, I know what I am doing, what has somebody else got to teach me?"."

ArcelorMittal

**Light** → depending on the project: IP leaking fear, fear of loosing its job, company alignment and NIH syndrome

LC: "I've never met someone who said "No". At a given moment on a

particular topic, it has already happened frequently, yes.”

LC: “We have to know that, inevitably, within a research centre there is always a tendency that, luckily, I’d say, is strongly fading away, to experience the NIH, not invented here, syndrome. We are seeing that still nowadays at certain places more than others and with certain people more than others.”

LC: “There is firstly the IP problem, where people think that if they collaborate with others, they will steal their good ideas and in the end they will lose their IP, we are going to get pumped up. Firstly, those people that think like that are people that have a bit a presumptuous vision, I know a lot of them in our own company that work on the principle that “they are the best, we shouldn’t work with others because we can only lose something since we are the best in the world”.

LC: “The other cultural aspect and also very human, is to say “ok but careful, I am specialist in a field, et we want to do open innovation and collaborate with research centres that are really dedicated to my field. Wait, won’t I lose my post? Won’t we at a given time decide to stop the research activity in my specialty field in the company where I am to entrust this research field to an external company?”.”

LC: “And here you have to note that in the steps to open innovation, we are far from having only the responsibility of R&D, on the contrary. And among the major players, there is the sales direction.”

LC: “So the sales direction is not the only one. As soon as we talk about open innovation and innovation, important directions in big companies, there is the CTO, the technical direction, the one that manages and prepares the investments. Because the R&D can’t do something, if at a given moment we don’t have the money to invest, nothing will happen. Then, following what you want to do, I personally have been confronted to a problem in a project that was really innovating and collaborative, with the direction of the information systems, informatics.” ... “So here there is

a cultural problem because the other functions of the company and the sales direction, culturally are not preoccupied by innovation, it is not in their genes. They compare prices, they negotiate, and they try to convince suppliers to get even less expensive, which is sometimes completely opposed, I'd say, to the innovation spirit."

**Table 4.6: Resistance**

Through the analysis of the interviews, 6 different types of resistances are apparent: the NIH syndrome, incomprehension, gap management, company alignment, IP leaking fear and fear of loosing its job.

**P5: Employees resistance has a negative moderating effect on the open innovation implementation success**

All of the companies have experienced or are still experiencing resistance towards open innovation. This being said, even though they are practicing open innovation on a regular basis, one of the companies still needs significant work on the resistance in order to lower it and the others only face light or isolated cases of resistance. The fact that even isolated cases of resistance still happen does provide evidence that resistance negatively impacted or negatively impacts open innovation implementation.

→ *Supported*

**4.7 Change leadership style**

Results of the interview for the change leadership style	
Televic	<p><b><u>Education and participation</u></b> → Involvement and convince by results</p> <p>MC: "I don't think we communicated this as such. It is something that has evolved and let's say little bit by little bit has become the standard."</p> <p>MC: "Yeah we don't force them, because we would like them to participate but no it's against their nature that they are not convinced and it won't work."</p> <p>MC: "We try to convince them but of course this is something difficult, it is difficult to convince people. So you can always show them good examples and one of my strategy is let's say to a certain extent exclude them from</p>

	<p>these activities and go on with the people that are willing to participate in open innovation initiatives, and then prove that the other people that don't participate are wrong. That way they are let's say a little bit out of the group."</p>
Bekaert	<p><b><u>Education and participation</u></b> → Communication and involvement</p> <p>IS: "By showing them what is the end-goal or the ambition, where we should go to and how it would make the company and our customers better so that people can really understand why we're doing it, so taking them in this change process along, make sure they are involved in the change process. This and empowerment."</p>
Clorox	<p><b><u>Education and participation</u></b> → Communication, involvement and convince by results</p> <p>NK: "Right, if it's part of business strategy, if it's the only way you can put the product is by collaborating with suppliers, nobody is going to say "I no longer want to collaborate with suppliers", this is how we are going to make it! They say "I make it in the lab", I say "I am not giving you any budget!", how are you going to make it? Right?"</p> <p>NK: "Some of us, like just me are just hearing it, because I haven't been around for the full, you know, 12 years, but I think it was more figuring out how to do innovation, and proving to the people inside the company that going outside would give you better, faster and cheaper results. Initially you have a few people who buy in, a few people who are against it. It's a typical "bell curve", ok? And a lot of people in the middle who are just waiting and watching and they are open minded about it. So you have to have some early wins, that actually show that this works. And that's how you build the culture, and you have to do it person by person, business by business."</p> <p>NK: "Yes, it's a very collaborative culture here, we don't have command and control culture."</p> <p>NK: "The authority comes from business results. They can't really argue</p>

	<p>with that. If you win as business, you win as a team, the authority comes automatically. Somebody telling you to do something but the business results are not working, people will not listen to you, because people at Clorox think of themselves as owners of the company, not just somebody who just does a job you know, we are all shareholders, we are all invested in the team winning, and so if the approach that wins is open innovation, if open innovation is the best approach that wins, it's better why would anybody argue with that?"</p>
ArcelorMittal	<p><b><u>Education, participation and direction</u></b> → Communication, involvement and authority if necessary</p> <p>LC: "In fact, we have hierarchical structures that at a given moment have to take their responsibilities. A researcher that has this syndrome, if at a given moment we tell him "do it", he does it. So we mostly have to convince the hierarchy. Therefore, it is a really big job and I'd say it has been years that I am fighting for it. There are messages that go very well, and others that go a bit less well etc."</p> <p>LC: "We also have within the company to talk very early with the directions that are involved in the innovation process."</p>

**Table 4.7: Change leadership style**

Among the five types of change leadership styles developed by Balogun and Hope Hailey (cited in Johnson et al., 2011), three are apparent in the studied cases. Education and participation are part of all of the cases' strategy and one of the companies tends to use direction if necessary.

**P6: The change leadership style chosen will have a moderating effect on the "human side" variables effects**

*A6a: The use of authority is negatively related to successful OI implementation*

Only one company made use of authority in isolated cases, and all have used communication and involvement in order to avoid resistance. Three of them also use positive results from open innovation activities in order to prove the resistants wrong. It seems therefore that authority is not needed or can be avoided.

→ Supported

*P6b: The involvement of employees is positively related to successful OI implementation*

Only one company admitted that if one employee can't be reasoned with, he will be left aside in the hope that he will realize he is wrong. The rest of the companies, this one included except in extreme cases, do involve their employees from the start. Moreover, this proposition is considered supported because the one company sometimes not involving its employees is the one with the lowest degree of open innovation implementation success (medium).

→ *Supported*

## 4.8 Change agent

Results of the interview for the change agent	
Televic	<p><b><u>Internal and external</u></b></p> <p>MC: "Yes we had some consultants helping us on that but most of the work has been done internally."</p>
Bekaert	<p><b><u>Internal</u></b></p> <p>IS: "We do not use the name "change agents", but we do have several people in the organisation who could be considered so, each within their own department. For example in corporate venturing, we have one person who is really responsible, he is the contact person of that department, and you can see him as a change agent. He is really a champion, meaning that he can defend the importance for Bekaert, the importance of the start-up companies we should invest in and try to make a case for the top management to invest yes or no."</p>
Clorox	<p><b><u>Internal</u></b></p> <p>NK: "We have a partnerships leader, we have a business networks leader and that's me, and then we have a business connection leaders, who are the people who sit with the businesses."</p> <p>NK: "You have to have people who are change agents, but the change agents can't come in as a project every few months, the change agent are always sitting inside the group."</p> <p>NK: "But we hired them into the open innovation group because they were also very open minded and they have good relationship skills, but</p>

	they also understand the business and the history of the business and they work well with the people inside the business.”
ArcelorMittal	<p><b><u>Internal</u></b></p> <p>LC: “Yes and no, because I have to say yes, it’s a bit my function but alone in a whole that vast, I’d say, we have to recognize our limits, and stay really modest on what we can really do. So, I think that it has been several years we try to sell these ideas, but now these ideas have started to penetrate. What will, in my opinion, radically change things, this is not me, even if I prepared the field, but this is for example the organizational changes that have just been implemented.”... “There is a team that has just been put in place for that, with which I am almost permanently in contact.” ... “Well, they rush. And I’d say that the R&amp;D is running behind them. In fact they apply open innovation in a way that has firstly been, maybe still today, judged disturbing. They don’t really pay attention to what the R&amp;D has or is developing; they pay attention to what is developed outside. And people come and see them saying “We have a great solution for this or that, could we test it in your plants?” and they reply “Yes sure let’s do this!” a bit like cow-boys, what is really disturbing for the R&amp;D. But this is that that is making things evolve at the moment, because the R&amp;D must align.”</p>

**Table 4.8: Change agent**

It seems through the analysis of the interviews that all of the companies felt the need to use someone they can consider as a change agent to facilitate the change process. All of the companies interviewed do have someone that they consider as internal change agent, and only one has used external change agents, but to a lesser extent than internal.

**P7: The use of a change agent has a positive moderating effect on the “human side” variable effects**

*P7a: A change agent has a positive effect on open innovation implementation success.*

We can conclude here that the presence of a change agent is a positive factor, and an internal one is usually preferred.

→ Supported



*P7b: An internal change agent is more suited than an external change agent in the case of open innovation.*

All of the companies have an internal agent, and the only company that had also used an external agent is the one still facing the biggest amount of resistance. Therefore, this proposition is considered supported.

→ Supported

## 5 DISCUSSION

This section summarizes the interview results and answers to the research and investigative questions. The following table summarizes the interview results.

	<i>Televic</i>	<i>Bekaert</i>	<i>Clorox</i>	<i>ArcelorMittal</i>
Degree of openness	Specialized collaborator	Open innovator	Open innovator	Open innovator
Perceived change	Evolution	Adaptation	Evolution	Adaptation
Culture type	Support	Support	Support	Role
Culture strength	Strong	Strong	Strong	Strong
Resistance	Medium	Light	Light	Light
Leadership	Education and participation	Education and participation	Education and participation	Education, participation and direction
Change agent	Internal and external	Internal	Internal	Internal
OI Success	Medium	High	High	High

**Table 5.1: Summary table of results**

Next, I present a summary of the propositions that were confronted to the interview results together with my opinion on whether the proposition was supported or not by the cases analysed.

Proposition	Result
<p><b>P1: There is a negative relationship between the degree of openness and the open innovation implementation success.</b></p> <p><i>P1a: A high partner variety negatively impacts the open innovation implementation success.</i></p> <p><i>P1b: A high innovation funnel openness negatively impacts open innovation implementation success.</i></p>	<p>Not supported</p> <p>Not supported</p>
<p><b>P2: The perceived change has a negative moderating effect on the open innovation implementation success</b></p> <p><i>P2a: Employees consider open innovation as a big change.</i></p>	<p>Not supported</p>

<i>P2b: Employees need time to adapt to open innovation.</i>	Supported
<b>P3: The organizational culture type has a moderating effect on the open innovation implementation success</b>	
<i>P3a: High formalization is negatively related with OI implementation success.</i>	Not supported
<i>P3b: high centralization is negatively related with OI.</i>	Not supported
<b>P4: The organizational culture's strength has a negative moderating effect on the open innovation implementation success</b>	Not supported
<b>P5: Employees resistance has a negative moderating effect on the open innovation implementation success</b>	Supported
<b>P6: The change leadership style chosen has a moderating effect on the "human side" variables effects</b>	
<i>P6a: The use of authority is negatively related to successful OI implementation</i>	Supported
<i>P6b: The involvement of employees is positively related to successful OI implementation</i>	Supported
<b>P7: The use of a change agent has a moderating effect on the "human side" variable effects</b>	
<i>P7a: A change agent has a positive effect on open innovation implementation success.</i>	Supported
<i>P7b: An internal change agent is more suited than an external change agent in the case of open innovation.</i>	Supported

**Table 5.2: Propositions summary**

It is clear that not all the propositions were supported by the cases analysed. The ones that were supported allow me to make some generalizations: employees tend to need time to adapt to open innovation, whether they think it is a big change or not. They will appear resistant to this shift for several different reasons, and this resistance doesn't require authority to be dealt with. On the contrary, involving the employees in the change process seems to be the best solution; communication is key to the success of open innovation implementation. This is also where an internal change agent can help, since it is usually a person who will have the trust of the concerned employees, and therefore will be listened to by the resistance.

These results will now be discussed more in details by answering to the research question, that is: answering to the different investigative questions.

As a reminder, the purpose of this study was to answer the following research question:

## **How to manage the shift from closed to open innovation at the human level inside the company?**

And to answer this question, several elements had to be discovered, and these had been transformed into investigative questions. Each of them is now discussed.

- *How do employees consider a shift from closed innovation to open innovation?*

It is not clear whether employees usually consider open innovation as a significant change or not, but a step-by-step approach is preferable in the implementation process in every case.

- *Is there an open innovation culture?*

From the cases analysis, it doesn't seem that one particular culture from the model of Harrison (1993) is best suited for open innovation. The two extreme – role and support – can be found in the cases studied and these companies don't prevent open innovation at all. However, it has to be mentioned that low centralization and low formalization seem to be more common in companies practicing open innovation.

- *Are employees resistant to this shift and are they still resistant nowadays?*

All of the companies contacted have faced resistance at the beginning, and most of them still face some kind of resistance today. They can be resistant for several reasons. The **Not-Invented-Here (NIH) syndrome** implies that people intrinsically prefer to use internal knowledge than external, even if it's not better. They think they are the best, and therefore don't see the need for asking help. The **IP leaking fear** is when people think that they are the best, and that if they collaborate, they will more than probably lose their IP and gain nothing. Some employees also have the **fear of losing their job** because open innovation means working with external people. People then tend to be afraid that if these external people do the job actually better than them, they could not be needed anymore. Resistance can also come from other people than the R&D and is related to the **company alignment**; indeed one "resistance" that has been mentioned is the fact that the different departments of a company don't view partnering with external parties in the same way. It has to be understood that all the departments have to be aligned and understand why they do open innovation. Another problem, very managerial, is linked to **gap management**. Open innovation, as already said, is about working with external parties. Companies do this in order to gain extra knowledge, capabilities and

ideas, meaning that if they had everything in-house, they wouldn't need to do open innovation. Here comes the gap management problem, meaning that people have to discover what they lack and what they need in order to find the right partner, which is not an easy task since the company and the employees have to challenge themselves and be ready to evolve. The last issue that has been mentioned by the interviewees is the understanding of the benefits of such practices; they don't see the point. This resistance is therefore called **incomprehension**. Employees want to know why they should trust external parties to participate in the well being of the company, they therefore want to see the results. This issue can be linked to the NIH syndrome, the IP leaking fear and to the gap management problem since they all imply that they can basically do everything by themselves and don't see the benefits they could gain through collaborating with external parties.

- *Who can play the role of change agent?*

It seems that the implementation of an open innovation strategy does need the help of a change agent to facilitate the change and to overcome the resistance cited above. External agents such as consultants have been used in only one company and only played a minor role, meaning that the change agent would have to be internal in general. As for who in particular can play this role, the results show that it would be someone that people can trust, meaning someone they already know, but also someone who is really good at their job, called "champion" by one of the company. I will call this kind of change agents "**pushers**", because they try to push the employees to understand and accept open innovation. Another type of change agent is indirectly used by one of the company, one that does not necessarily inspire the resistants but push them by taking initiatives that will impact them negatively if they don't follow up. This kind of change agents will be called "**pullers**" because they actually pull the resistant with them; they have to follow them, and walking is not enough, they have to run.

- *What type of change leadership styles fits best the situation?*

It is obvious from the cases analysed that authority is only rarely used and only in case of extreme resistance from an employee that refuses to do a job that needs to be done. Otherwise, the common approach seems to be an honest communication complemented with an involvement of the employees in open innovation activities. Most of the time, a good way to convince them is by proving them the benefits of open innovation by showing them results. They then would realize they are wrong to be resistant and will

start to accept it. Another way, is simply to make it a strong element of the overall strategy of the company, communicate this strategy and give them time in order for them to get used it.



## 6 CONCLUSIONS

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### 6.1 Implications for theory

This thesis tries to connect the change management literature with the open innovation literature in order to discover how to manage the human side of open innovation implementation, meaning how to manage the employees. Indeed, the literature so far on open innovation is not very rich as the concept can still be considered as new, and even though organizational culture has been cited several times as a success factor in allowing open innovation to work, the subject has not been researched in detail. More particularly, the management of the change that an open innovation strategy represents has not entirely been researched.

This thesis fills this gap in the literature by succeeding in connecting open innovation with elements of the change management literature which are the change leadership style, the perceived change by employees and the type of change agent they need to facilitate the change process. More specifically, I have linked open innovation implementation with the change leadership styles developed by Balogun and Hope Hailey (cited in Johnson et al., 2011) and I have discovered that “education” and “participation” are the most suited styles for open innovation implementation. I have linked open innovation implementation with the strategic change model also developed by Balogun and Hope Hailey (cited in Johnson et al., 2011) and I have discovered that employees don’t necessarily consider open innovation as a big change, but that they need time to adapt to it. Finally, in accordance with the findings of Giannapoulou et al. (2011) that say that a leader should help in the implementation process, I discovered two types of change agents, both internal, that can be called pushers and pullers, in order to facilitate the implementation process. The pushers can be considered equivalent to the open innovation implementation group mentioned by Mortara, Napp, Slacik, and Minshall (2009); this group consists of R&D managers that are in favour of open innovation, and in the same way as the pushers, they try to convince the resistance that open innovation is not a threat but an opportunity. My thesis also contributes to the theory by discovering



exactly what kind of resistance employees can manifest. Six types of resistance have been found out, namely the NIH syndrome, the IP leaking fear, the fear of losing a job, gap management, the company alignment and finally incomprehension. All of these different resistances can be related to the findings of Barret, Velu, Kohli Salge and Simoes-Brown (2011) that employees actually feel threatened by this new way of working.

It has to be added that the affirmation of Slowinski et al. (cited in Giannopoulou et al., 2011) that a change in culture is needed in order to implement open innovation has not been successfully linked with the model from Harrison (1993). Naqshbandi, Kaur and Ma (2014) had already tried to connect open innovation with organizational culture, and more specifically with the model developed by Tsui et al. (2006) that makes the difference between integrative cultures and hierarchy cultures, but the results concerning Harrison's model are not conclusive. The degree of openness as defined by Lazzarotti and Manzini (2009) also didn't seem to influence open innovation implementation success. Concerning the affirmation made by Mortara, Napp, Slacik and Minshall (2009) and Barret, Velu, Kohli Salge and Simoes-Brown (2011) that the most impacted group of people by an open innovation strategy is the R&D department, it is not entirely supported by the interviewees. Of course, these R&D people will be impacted, but the company as a whole has to embrace open innovation in a sense that the whole organization has to be aligned in order for open innovation to properly work. Each department has its own incentives and missions, and they have to understand the benefits of open innovation in their own way.

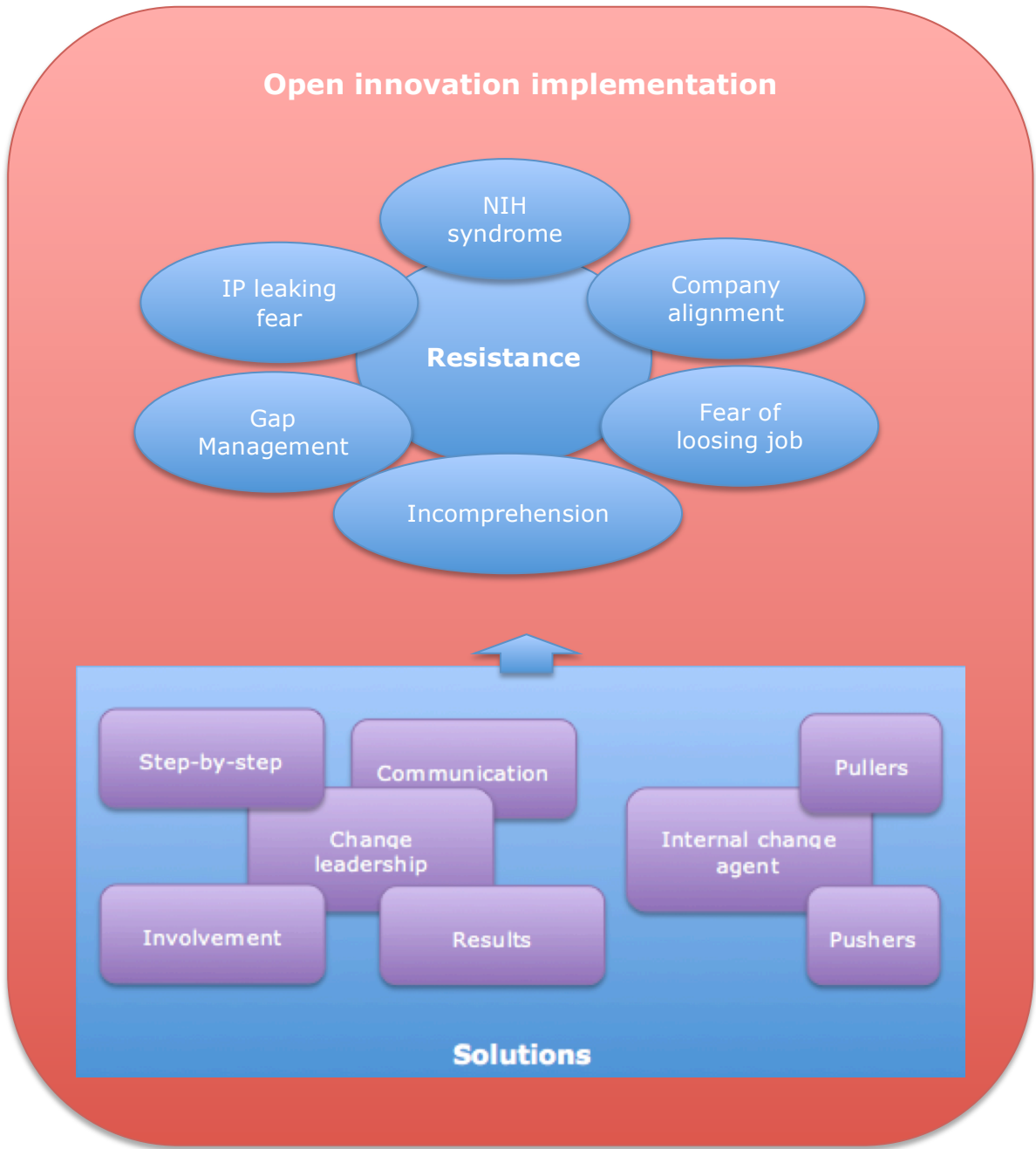
## **6.2 Managerial implications**

This study has some implications for managers that would like to open their companies to external knowledge. The first thing managers should realize is that open innovation is not something that will be part of the DNA of the company from one day to the other. It can represent a big change for the employees, and it can engender resistance whether they are part of the R&D department or other department indirectly affected by open innovation such as the sales department.

Figure 6.1 illustrates the managerial implications of the discoveries made in this thesis. Open innovation can cause resistance from the employees, and this resistance can be

classified in six categories, namely NIH syndrome, company alignment, fear of losing our job, gap management, the fear of losing IP and incomprehension. This resistance slows down the open innovation implementation in the company and what managers need to know is what is the best way to deal with these resisters. First is what they can try to do themselves: (a) a step-by-step approach where (b) communication is key, that is communicating the company's strategy and when someone is resistant for whatever reason, this resistance has to be heard and taken into account; (c) involvement of the employees is advised to reduce their apprehension and to show them what they would miss; (d) results from successful open innovation practices have to be put forward in order to show the resisters that they don't have anything to fear and everything to win. Managers also should make use of an internal change agent whether a pusher or a puller who can be used in order to facilitate the process. An external agent is not to be excluded but they tend to be less efficient in the case of open innovation resistance.

A culture whether formalized or not and whether centralized or not doesn't affect open innovation implementation, and therefore managers don't have to (a) understand their culture based on these dimensions, which would not be an easy task, (b) fear that their culture is not suited to open innovation, or (c) fear that their culture is too strong or too weak. A last element is the fact that the degree of openness chosen by the company will not affect open innovation implementation either, meaning that manager don't have to pay particular attention to that.



**Figure 6.1: Open innovation implementation**

### **6.3 Limitations and future research directions**

It has to be taken into account that the number of cases analysed is far from being sufficient in order to make reliable conclusions. This research gives an insight into the change management linked to open innovation and requires further studies to confirm the assumptions that have been made here. This can be considered to be a first step into this field, and a quantitative study involving a sufficient amount of cases to test these hypotheses is therefore the next step to this thesis.

It has also to be taken into account that, due to a lack of time and a lack of opportunity, only one person from each company has been interviewed, and this person, regardless of its function, was directly linked to open innovation activities. None of the employees directly impacted by open innovation were interviewed, which would probably give very valuable information about the human side of open innovation implementation since they lived it or are currently living it. Moreover, other higher positioned people such as the HR manager could also give useful information.

Another limitation that has to be mentioned is that the cultural understanding of the companies interviewed is limited. Among the four companies interviewed, three of them were interviewed in Belgium and the last one was based in the USA, meaning that the national culture can here play a role as well, and it has not been taken into account.

I therefore advise that for further attempts to research this topic, more attention should be given to the employees themselves in order to compare their view with the one of open innovation managers and HR managers. More attention can also be paid to national culture, as its role can be important.



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# Appendices

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## *Transcripts of interviews*

### *INTERVIEW WITH MICHAEL CATRY SSE, DIRECTOR OF TECHNOLOGY AND INNOVATION, TELEVIC*



Televic is a Belgian company founded in 1946 and has now subsidiaries in France, Bulgaria, China and the United Kingdom counting 600 employees. The core business of Televic consists in the manufacturing and installing of top end high-tech communication systems and the company is actually split in 5 independent companies called Televic Rail, which provides passenger information systems on trains, Televic Healthcare, which provides communication systems in the healthcare sector, Televic Conference, which offers systems for conferences, Televic Education providing technology for schools, and finally Televic AV, taking care of audio-visual installations.



The person that has been interviewed is Michael Catrysse, who is the director of technology and innovation of the company.

**LC: First of all, could you maybe give me a short introduction of your company? I know that it is divided in 5 independent divisions, right? And what is your role exactly?**

MC: Yes, so Televic is active in the field of communication systems, and we make communication systems for a couple of niche markets, for rails, for trains, that's the rail division, and for hospitals, the healthcare division, for education, and the last is for large meeting rooms and conferences, for which we have two divisions, Televic Conference and Televic Audio Visual. My role is to support the different business units in the field of

innovation and technological choices, so I try to screen new technologies, I try to set up collaborations with universities, research centres, look for funding, support in IPR, R&D methodologies, technical training, and so on.

**LC: Ok so you are the one in charge OI?**

MC: Well it depends what you define as OI?

**LC: Well you said you have collaborations with research institutes for example, and that you are dealing with those relations ships, this is what I mean by OI.**

MC: Then yes.

**LC: Okay so actually the first thing I would like to define is your degree of openness, and I saw on your website your partners include universities, engineering schools and research institutes, do you also have other types of partners such as competitors or customers?**

MC: Yeah so if you look at the type of collaborations we have, first of all, it's important to know that what we are doing is almost, well, our collaborative projects or cooperative projects with research institutes are almost always funded by the Flemish government. So what we are looking for is indeed universities, research institutes and engineering schools on the one hand, and then companies that are technology driven and customers as well. For instance we have a research project in which hospitals are involved, in which train operators or train construction companies are involved, we have also cooperation with other technology companies such as Alcatel, Philips, NXP, and so on. What we don't do is collaborating with direct competitors. If you look at the definition of open innovation as such, if you look at Chesbrough definition, I don't think he mentioned, well I think he excludes competition as well.

**LC: And I suppose the reason behind that is that you don't want to share your technology with them?**

MC: Yeah well what we typically do is looking for other technology companies that are indeed of similar technology as we are, and but for other indications, we try to share the

risk of development, and let's say the investment of development and research by dividing the cost among several companies, but not competing companies yes.

**LC: You already partly answered this, but concerning the phases of the innovation process, do your partners participate for example also in the development of innovation or just in the generation of ideas?**

MC: Well ideas are mostly generated within the company. That's something we actually don't do with other companies, or at least not with other technological companies. What we do is involve researchers in the ideation process, either as inspiration or during brainstorm sessions, as well as with the evaluation of ideas, so what we typically do is set up a campaign on a certain topic to harvest ideas, and we often start this with a lecture from one of our researcher or university researcher. At the end of this campaign, and this is something quite new, we have organized this so far once but we intend to repeat this because this was quite successful, we organize some workshops in which the ideas that are generated within Televic are presented to experts in certain technological fields from researchers at the university who help us evaluate these ideas that are generated. In some cases, they are also involved in brainstorm sessions as well. And let's say that in an informal way, we try to capture ideas from our customers as well, we don't have any formal process for that.

**LC: Ok I see, it's more an indirect approach.**

MC: Yes, indirect, yes.

**LC: And did you always practice open innovation at Televic or when do you start to use open innovation?**

MC: I think it started, well I'm here for almost 2 years now so it is my predecessor who initiated this and we started about 2 years ago. And it was let's say on a lower scale, just working together with research centres to develop one part of a product and this has evolved to the state we are in right now.

**LC: And do you think it was a big change for the employees of the company to start using open innovation?**

MC: Yes I think it is, but of course this not something you can do from one day to the other, it has to grow and it has to go step by step. Also try to build on early successes, because successful joint developments can convince people to continue this, but this is of course change process, you need to convince people that other people might be more eligible to or have some knowledge that they don't have. This is some work that still has to continue, because we still see in Televic as well people that are not comfortable with sharing information or think that they know better, that they have all knowledge and do not trust any others, so this is something we need to continuously work on yeah.

**LC: And are the R&D employees more resistant than others?**

MC: Yes R&D people are resistant but management people as well, this not only R&D people are difficult to change.

**LC: And did you have to change the culture of the company as a whole?**

MC: We continuously work on that, and we try to have a really open and innovative culture but this is, let's say this is something you can't change from one day to the other, it takes time, it takes more initiatives to changes. It also comes when new people are arriving; selecting employees in a good way with an open mind, I think this helps too.

**LC: Ok so you actually hire on basis of your culture?**

MC: Yeah well of course this is not the only criterion.

**LC: Do you think that it is important that your culture allows for knowledge sharing, and is it the case in your company?**

MC: Absolutely, but not enough. We should share more knowledge; this is one of the things I work on right now, start up some working groups in which they share knowledge, bring people together that exchange their expertise or their experience with one technology for instance and we are also looking at platform, a software platform on which they can exchange some knowledge but this is work in progress. We need to work on that, this is one of the topic that is very important to me.

**LC: And what about risk taking behaviours? Saw on your website that one of your value is about having realistic expectations about your work. Do you take a lot of risks at Televic?**

MC: No, we are let's say risk averse. This goes back to the ownership of Televic; Televic is family-owned and we have two shareholders that are still, well, it's privately held and you see that they are rather conservative, they have a conservative approach towards risk taking. And this is reflected through the whole organization of course. This does not mean that ... well we look at new technologies and we try to follow up on new technologies in order to replace our current technologies and products, but this takes time. And we have to be very careful in selecting new technologies, which is for me not a disadvantage, it is realism in the company.

**LC: So for you it's not a problem to be risk averse?**

MC: Maybe. Of course it is always more attractive to be able to take more risks in innovation but once you know it is not always possible, you can live with that, I don't see it as a big problem.

**LC: To come back to defining your culture, would you say decision-making power is centralized at the top or is shared among managers?**

MC: All managers have some kind of decision-making power in their fields, we try to offer a framework to our management team, to our managers and to our employees in which they can take decisions, and of course up to a certain level, when financials are involved, they have to go one level up.

**LC: And do you think it is important that managers have their own power?**

MC: Yes I think it is. Yes of course.

**LC: And do you have a lot of rules at your company?**

MC: We don't have any. Well you have to see the history of course of Televic, Televic has evolved from a small SME of 100 persons about 10 years to a company of 600 persons right now, and we don't have many rules, which as the company grows larger is sometimes a problem because it creates inefficiency. If you don't have the right processes in place and the right decision-making processes then this might turn into a problem.

**LC: Don't you think it is actually a good thing for open innovation that you don't have too many rules?**

MC: No I don't believe that, no it all depends on your strategy. This goes again together with risk taking, if you know where you want to go to because ... I don't think open innovation means having no rules, because open innovation, if you look at the whole framework of open innovation, this goes together with a lot of agreements, non-disclosure agreements that are made with intellectual property rights, protection of ideas, it's not because you are open that you just share your ideas, your inventions, what you do is you try to describe as much as possible your own knowledge, your own intellectual property and try to share these. This is to me open innovation. There is a need for a framework, no rules, I don't believe in that. Again as well, as far as strategy is concerned, you can look at market product combinations, this has to be defined. If you just leave this open and say well you can do whatever you want and build and products, we could as well build a smartphone, with the knowledge we have in house, we could for instance build a smartphone. But this is not our market. So I think you need to have a set of rules and a framework in which people can operate.

**LC: I also saw that you have subsidiaries in China, France, Bulgaria and the UK. How does your relationship work with them? Do you have a lot of people there?**

MC: In France, UK and Germany, these are sales offices from our company, so purely sales. China is another story, we have two divisions, one is a joint venture for rail business, which operates quite independently from our operations in Europe, and which serves almost only the Chinese market.

**LC: Let me go back a bit on the culture aspect of your company. How did you communicate that you were opting for an open innovation strategy? I know that you were not part of the company back then but can you still answer this?**

MC: I don't think we communicated this as such. It is something that has evolved and let's say little bit by little bit has become the standard. Let's say in a first place we just started with one specific project that was successful and then we continued to work on that and then this evolved, this is not like you tomorrow we start doing open innovation. If you look at customers as well, if you look at how we work with customers right now, well sales people have always tried to translate customers' needs and their ideas into projects, or products, and they always have given feedback on customers' ideas to our R&D departments. What we do right now is, this is also gradually building up, we do some workshops with customers, we do some testing, some trials, we have projects in which some products are tested with customers, so this gradually builds up and it is not from one day to another that we say "what we do is open innovation".

**LC: So you don't have actually someone that is purely resistant to open innovation?**

MC: Yes we have people that are resistant, which think that we should not work together.

**LC: And how do you deal with them then?**

MC: Well we still have problems with them. We see that they don't want to work together with other people. We try to convince them but of course this is something difficult, it is difficult to convince people. So you can always show them good examples and one of my strategy is let's say to a certain extent exclude them from these activities and go on with the people that are willing to participate in open innovation initiatives, and then prove that the other people that don't participate are wrong. That way they are let's say a little bit out of the group.

**LC: Okay so you don't force them, you want to show them they are wrong in order to convince them.**



MC: Yeah we don't force them, because we would like them to participate but no it's against their nature that they are not convinced and it won't work.

**LC: And do you think they will one day change their mind?**

MC: I think that if they see that it really brings something then they will, yes. But again this is change management, and it should take some time for that.

**LC: Are these people resistant from the beginning? Since back then you had only a few projects and now you have a lot more partnerships.**

MC: Yeah some people are not convinced since the beginning, some people still think that we should do everything ourselves.

**LC: And did you make use of some kind of change agent to facilitate this change? Consultants for example?**

MC: Yes we had some consultants helping us on that but most of the work has been done internally.

**LC: Do you think a change agent is actually needed in this kind of situation?**

MC: Well again it depends, if you want things to go fast you will need a change agent, but again I am not convinced that this is the right way to do that, I do not agree on the fast track for this kind of changes.

**LC: So right now would you consider that open innovation is well implemented in your company, that it is successful?**

MC: Yes it is big success; we have been able to with the help of research partners put some products successfully on the market.

**LC: So you think you will keep using open innovation, is it entirely part of Televic now?**

MC: Yes, it helps us adapting new technologies faster and sharing risks, so yes.

**LC: Ok all of my questions have been answered; thank you very much for your participation. I think culture is a very interesting topic that has not been really researched in the open innovation literature.**

MC: Yes I think that culture is indeed an issue, but it is a difficult one to tackle. It much has to do with the people themselves and I believe that again it's not easy to convince people, you have to prove them that it works, it's more like an attitude rather than something you can convince people of.

*INTERVIEW WITH INGE SCHILDERMANS, SENIOR INNOVATION MANAGER, BEKAERT*



Bekaert is a Belgian company founded in 1880 and is specialized in steel wire transformation and coating technologies. The company sells its products in over 120 countries and has 30 000 employees in total. Bekaert customers can be found in the following industries: automotive, construction, equipment, agriculture, consumer goods, energy and utilities, and basic materials.



The person that has been interviewed is Inge Schildermans, who is senior innovation manager at Bekaert.

**LC: So my name is Ludovic, student of the university of Hasselt and I am doing my master thesis on open innovation, which is why I interview you today. Could you maybe start by a small introduction of Bekaert and of yourself, what are you doing in the company?**

IS: Bekaert is a Belgian company founded in 1880 and is specialized in steel wire transformation and coating technologies. The company sells its products in over 120 countries and has 30 000 employees in total. Bekaert customers can be found in the following industries: automotive, construction, equipment, agriculture, consumer goods, energy and utilities, and basic materials. I started working for Bekaert in 2004, I was a PHD student at that time and I started working in the technical part of the fibres. I was responsible for the technology, the portfolio of the products and of the R&D projects, and then since end of 2012 we have set up a corporate innovation department in Bekaert, which was not existing before, and I am responsible for that department.

**LC: And what do you do exactly in that department?**

IS: Well, it's several assignments that we have, a big part goes to front-end innovation, so meaning idea gathering, idea evaluation and selecting and then turning into pre-projects. Those ideas can come from everywhere; they can come from the market, customers with a problem or a specific request, from internal bottom up idea generation exercises on specific topic. In addition, we try to follow trends and link it to our capabilities. And then we have a second part which is implementation of projects, which means we also execute on a limited number of projects which are a little bit further out of scope of our business platforms, so a little bit riskier, higher margin, longer time of frame to accomplish. And then overall we are also responsible for the innovation process, sharing best practices in the company. We also try to stimulate the entrepreneurship in the company by organising competition contests. For a company of almost 30.000 people, that is a challenge.

**LC: Yes I can imagine that! So you work with customers, but do you also work with competitors?**

IS: Well we have a joint venture with somebody who is a competitor, a supplier and a customer at the same time. It is not that we really have co-development projects with competitors, that is not the case.

**LC: And with universities and research institutes? Do you have concrete examples?**

IS: Well we have the university of Leuven, the university of Gent that is nearby, but we also have universities in the east side of Europe where we work closely with, because we also have operational plants in that part of the continent. We have relationships with Chinese universities because we also have an R&D centre in China. So maybe actually I should explain how we are structured a bit. So we have a centre of innovation department, we have several business platforms and we have production plants. We do have 2 central R&D organizations, one here in Belgium, which is located in Deerlijk, and one in China. We also have a centre engineering department also here in Belgium and also in China.

**LC: Why exactly in China?**

IS: Because we have a lot of operations that are in China. We moved to China in the early 90s, I think we are one of the first foreign companies to set foot in China, so yeah we profit of the growth over there, and I think it was in 2006 but I am not entirely sure, that we set up an R&D department there.

**LC: Are the people working there from here or hired directly from China?**

IS: They are hired directly from China, yes.

**LC: And when you practice open innovation, do you at the generation of ideas and do you go further in the innovation process with your partners? Do you do researches and production with them?**

IS: Both! For the generation of ideas, in some cases and where appropriate we try to involve companies like Creax and Innovia. We have co-development with suppliers on the material itself, so steel composition, but that is more on the long-term research side. And then we have with universities and research institutes for newer things like modelling on material characterization, etc. So things that we don't have in-house, that we need to cooperate with universities. We do have development projects with customers or customers of our customers, which are called "co-creation" and there indeed, there is the idea to come up together with a new commercial product.

**LC: Ok so would you say that Bekaert is a really open company?**

IS: Well I think we could be even more open. But we are not closed, no. So as long as I have been working for Bekaert, I know that we have had projects with companies outside Bekaert, from suppliers to customers to companies to universities. That didn't change, and I think it was even reinforced in the last couple of years, and certainly also the desire of our CEO to do more with customers, certainly, but also with partners so not to invent everything by ourselves.

**LC: So how would you become more open?**

IS: Well by sharing of course, by being open yourself, willing to share the "fit for use" IP also in some cases for joint IP. However, this should go hand in hand with the IPD & legal department in order to make sure we still respect our industrial property. We do have development projects with customers or customers of our customers and there, there is the idea to come up with a new commercial product. Co-creation we call it. But in order to start co-creating with e.g a customer, some conditions need to be met such as open culture at both sides, mutual understanding of the objectives, multi-level dialogues, a win-win from both sides, etc. We have an innovation portal in inside, it's an internal one which is open to 5000 people in Bekaert, but we are in the last couple of years also using that also for external companies like for example Creax or Innovia which are innovation consulting companies, and we will try to also open up to suppliers, but we will try first with customers very soon. We are also trying to engage ourselves in an engagement platform meaning that we also want the outside world to know that Bekaert is willing to innovate, but this is not yet set up, we still have just the bekaert.com website, but we have plans to go into more interactive open innovation challenges with the outside world, yes.

**LC: So you have an innovation platform inside the company, meaning your culture allows for knowledge sharing, it is suited for knowledge sharing?**

IS: (...) Yes so it already exist since for more than 15 years, Of course it has evolved, so we have tried to improve it, also the software has been improved of course because the software is completely different than 15 years ago, so it's more like chat rooms, discussion forums, and we will even make it even smarter in the coming releases, but the attention is really put on collaborating with as much people possible within the company

and then also with people outside the company. But with people outside the company it is still, yeah, somewhat restricted or let's say selected, and we don't think this innovation portal is suited to really open up to the outside world and therefore we want to engage in something... better, yeah, which is called an engagement platform.

**LC: So you would have two different platforms, one for the inside and one for the outside. And do you think an open innovation strategy represents a big change for the employees of the company if they are not used to it?**

IS: If they are not used to it, then yes. But like I said I've been in the company now for eleven years and this has always been there, so for me it was not a big change. But I can imagine that many years back open innovation was not really the case and everything was invented within the company, but no to be honest I don't see much resistance.

**LC: For those people are a bit resistant, do you think they need a long time to adapt?**

IS: I don't think it should take a long time, open innovation is part of our culture now. And it will even be reinforced.

**LC: Okay now I would like to describe a bit the culture of Bekaert. First thing I would like to know is how is management divided? How many levels do you have?**

IS: We have indeed the top of Bekaert, which we call the BGE (Bekaert Group Executives) which consists of 8 people at this moment, representing the Business Platforms, the regions and the global functions. The levels below are the Senior Vice Presidents and the Senior presidents of the different departments. The business platforms are accountable for their strategy, for customer and market development, for the delivery of long term margin and growth objectives, the regions are responsible for the execution of annual objectives. The global and hence central functions support both business platforms and regions. All together, 4-6 levels depending on the department.

**LC: And does each level have some kind of decision-making power or is it always the top that has to decide?**

IS: Well on the important things like strategy and ambition, like objectives and the goals that we need to achieve for the next years, it is of course a top-down decision, but every department is empowered to take their own decisions to meet those targets, but they also are accountable for it, meaning at the end taking the responsibility. But empowerment is certainly stimulated by our CEO so he really wants to give the people the freedom and authority to decide by themselves, of their domain of course.

**LC: So for example in innovation, can you accept a project, a new partnership on your own or do you have to talk about it at the top first?**

IS: No, each business platform can decide with who, when & how to partner in the innovation projects. Of course if the partnership is having huge impact on Bekaert in one or the other, the top is involved.

**LC: And do you have a lot of rules at the company? Or do you have freedom in your actions?**

IS: "Well we are a big company and recently there is more focus on standardisation and reducing complexity. Due to its size, its scale, its footprint... There are of course rules, procedures and codes of conduct. But like I said, empowerment is important and hence, there is a degree of freedom in the decision making."

**LC: Are you also allowed to take risks?**

IS: Yes and no of course. We have had a project in the past which was very well succeeding, but which was also suffering from (...) and after that we had a period of risk aversion, but now it's getting better again and we have the feeling that indeed investments are being picked up ... or projects which not really have delivered yet but we need to do the investment to scale up and people don't do difficult about that. If you can show a good business plan with good returns, you have your lead customers, and you can show that it is within the strategic fit of the company adding value to both the

company and its customers, the chances are high that you get the necessary investments to continue.

**LC: And concerning the culture of your company, what are the values that you share with the other employees, the values of Bekaert?**

IS: We have three values that we share; these are trust, integrity and resilience. So those are the main values of Bekaert, and we also have eight leadership behaviours; put One Bekaert first, focus on the external customer, being ambitious with a plan to deliver, balancing short & long term requirements, seizing empowerment and empowering others, simplify, speak-up and listen and finally, living the Bekaert values of trust, integrity and resilience.

**LC: And when you hire people, do you pay attention that they agree with all of them?**

IS: Well I am not involved in the HR department, but I am sure one tries to find out if there is a match between the new person and the company culture. But nobody can know upfront.

**LC: So do you think Bekaert has a strong culture? I mean, do people strongly believe in the values of Bekaert?**

IS: We really see to it that these values & leadership behaviours are respected, not only in our internal way of working but also towards the outside world.

**LC: Ok, and do you think it is important to have strong values for a company?**

IS: Yes.

**LC: You told me there were not really any resistance for open innovation?**

IS: For open innovation, no I don't see major issues. We have a corporate venturing department looking at cooperation with start-up companies that have technologies complementary to ours. So we invest in funds or we invest directly in those start-up



companies. So that is really a department, which has been started a few years ago, it is still there and it is still seen as important. Sometimes of course people question what is the return of all those investments, because we don't really see for example something being commercialized on the short term, but that is part of the innovation process. Not everything ends up 100% successfully, but without taking the risk you would never know.

**LC: And in this case, when something is not 100% accepted in the company, how do you communicate and try to convince people that it is the right way to go?**

IS: By showing them what is the end-goal, what we should go to and how it would make the company better so that people can really understand why we're doing it, so taking them in this change process along, make sure they are involved in the change process. When they are involved, there is also more buy-in.

**LC: But you never try to use force or authority to try to convince them, it's just about involvement and communication?**

IS: Indeed, yes. Of course, some decisions are really top down driven such as vision, ambition, strategy & values.

**LC: Did you ever make the use of a change agent in your company in order to facilitate the change process, for example for the venturing problem?**

IS: For the corporate venturing department, we have one person who is really responsible, he is the contact person of that department, and you can see him as a change agent. He is really a champion, meaning that he can defend the importance for Bekaert, the importance of the start-up companies we should invest in and try to make a case for the top management to invest yes or no. For innovation in general, I think my team can be seen as the change agents as we try to take initiatives, which were not taken in the past. We clearly use change agents in an operational excellence program we are undertaking at the moment. Those change agents will be responsible to carry out that program in the next 3 years all around the company, in all of our plants.

**LC: So you prefer to use internal agents, you don't use for example consultants to help you?**

IS: We use both, depending the topic.

**LC: And what do you think about the use of consultants and the fact that they are external, and that they might not know how the company works?**

IS: Yes but we make a selection of the consultants we work with, it needs to "click", because there are a lot of innovation consultants. On each hand you have different consultants companies and, so when we talk with those companies, we also try to understand how they think, how they feel and if this matches, the company culture so sometimes you have a "click" with some consultants and sometimes you don't. We tend to work on major programs with the same consultants, as they already know how our culture is alike.

**LC: For open innovation, could you give me more concrete examples and talk about your current projects?**

IS: For some of the running projects, we use a technology we did not have before in the company. Therefore we worked together with an institute having expertise on that matter in order to speed up the development. Other example, for screening of potential opportunities for one of our products, we involved Innovia to help us in that matter.

**LC: And how do you select your partners? What is the selection process?**

IS: Well it depends; let's say... When we work together with research companies, it's depending on their expertise, because we don't have the expertise in-house. So we do a screening of which institutes have a wide expertise in-house and then we connect and partner-up. With regards to co-creation with customers, this is not so easy. Certain conditions need to be met upfront, such as the willingness to share & be open on both sides hence trust, multi-level dialogues, knowing each other culture and having the same objectives, willing to spend both money, time & resources on the common project.

**LC: How many open innovation projects do you have at the moment?**

IS: At the moment, I've looked it up yesterday; I think we have 33 and these are projects excluding projects with customers. So if you would include projects with customers, it would be much more.

**LC: Because they are less formal or less defined?**

IS: No, because we make the difference between cooperation with suppliers, with institutes, start-up companies and innovation consultants on one side, and then the co-creation projects with customers at the other side. So we have open innovation, but I think they are different in nature so with the customers you try to co-create, to co-develop, and with the other ones you do co-research or you try to complement your own competences with another competence.

**LC: Ok, let me check my questions, I think we did everything ... So overall, would you say that open innovation is part of Bekaert DNA, of Bekaert's culture?**

IS: Well, it could be better, it can always be better, but certainly it's not excluded in our culture, and we try to do it more and more. I think maybe I can give you a more concrete example, hum... we have been looking at energy reduction for example, to save costs, and yeah we look at our machines, how can they run faster, how can we use less of the soap that we use in our process, but we have been doing that continuously for several years and the result was more incremental of nature. But at a given moment, we decided to use an innovation consulting company having expertise on certain methodologies resulting in breakthrough impact, so not 1 or 2% but we are talking 10 or 20% energy reduction. So we use them, and in more than 3 months, they succeeded in coming up with ideas for our processes we never thought of before. We selected a few of them and then those few were then further worked out and now they are being implemented.

**LC: And how do you select ideas, do you have a dedicated committee?**

IS: Well when they come to the corporate department, which is my team, we use a list of questions, indeed, to determine the technical feasibility, commercial feasibility, the risk

of return, the market attractiveness, those are typical questions that we use. So the ideas which come into our innovation portal, so the platform that we use internally, we use that type of principle.

**LC: And you told me you have 20 000 employees at Bekaert, how many do you have in Belgium?**

IS: 30 000 yes, and I think we are with 2000 people in Belgium.

**LC: And do you communicate a lot with your foreign subsidiaries? Do you share a lot of ideas with your R&D centre in China for example?**

IS: Well the R&D department in China and our R&D department here in Belgium yes they communicate. They also the same boss, the CTO of course, who they need to report to. There are regular workshops where both departments are involved. Both have access to the innovation portal, which is actually open to everyone in the company.

**LC: Ok I think I have everything I need.**

*INTERVIEW WITH NAVIN KUNDE, BUSINESS NETWORKS LEADER, THE CLOROX COMPANY*



The Clorox Company is an American company founded in 1913, and is active in consumer household products, with leading brands in cleaning products, food, personal care products, etc. The company counts more or less 7 700 employees and has activities worldwide, with production in more than 20 countries and sales in more than 100 countries.



The person that has been interviewed is Navin Kunde, who is the business networks leader at Clorox.

**LC: So maybe can you start by a small introduction of yourself and the company?**

NK: Ok so, I am an engineer by training, and I worked in the aerospace industry many years ago, and then I got my MBA, but after my MBA I worked as a consultant for about 7 years. And one of the topics that I thought very interesting was innovation and specifically within innovation this open innovation because it was starting and I talked to a lot of companies, I was very interested in this concept that you don't have to do it yourself, you know, the world is going to the point where you are using other people for like, if you're not very good at carpentry you don't do it yourself, you hire somebody else. And that has to extend to the corporate because this is very inefficient for companies to do everything themselves, to be vertically integrated. And you know, in today's network world, as long as you find the right partner you don't have to do it yourself. You can outsource to somebody who can do it cheaper, faster or better, and you can focus on your own core competences and we learned about this in MBA School a lot. But in the aerospace and defence industry, they are very closed to working outside, it's very competitive. And I had this insight that, business-to-business, you will be less open to working with outside because everybody then is on level par. In a B2B company, you have to bring something of yourself that is different than your competition, right? Otherwise, everybody is going to the same outside people, it's the same, so you have to have a iteration between what you do and what other people do. So I do something, I go outside, I ask something, then I do something else, so it has to be iteration. For a business-to-consumer company, B2C, the consumer doesn't really care who did the technology, who did the research or whatever. They care more about the brand, they care about the qualities, they care about the price, they care about the availability in retail, so one of the hypotheses was that B2C should be more open to open innovation, right? But that's not always true. And that's where the human element comes in, so it's not just, you know, from the theory you should say "yeah B2C shouldn't care where they are making their things but B2B should", but it's not always true, and that's where the human element comes in. And it's one of the biggest barriers, I think, to adoption of open innovation. And I can talk a little bit how Clorox adopted open innovation very early and how we have fewer barriers, and how in my consulting world, I've seen other places where there are barriers, but I've not worked there, I only worked there briefly as a consultant. So after 7 years as a consultant, many years working in open innovation, I decided I wanted to go back to industry, I moved to California, and Clorox is based here,

so it was one of the top companies in open innovation so I joined the open innovation group. I started in 2011 and we did some upgrades to the existing open innovation, you know, what they had been working on, make them more contemporary, and ... what happens is that when you succeed in open innovation you tend to do the same thing over and over again, and success becomes your weakness because you don't keep adjusting and learning from your mistakes. And Clorox has been very successful in open innovation and so they had become a little bit complacent, and so we did a little bit of an upgrade and so we are getting back to the, you know, doing things which are very different, differentiated and competitive, using open innovation for competitiveness and not just cost, speed, etc. So that's why I sent you the deck, I just put a few slides together, some of them you might have seen from previous, you know, slides that I have shared, but I added a couple more just for context for you as a student to understand it. So if you have any questions about those, I am happy to answer them but it should be self-explanatory and then we go to your list of questions.

**LC: On your slide number 5, this is a list of all your partners, so you do partnerships with customers, inventors, experts, universities, research labs, this is the whole pool of persons you would partner with right?**

NK: Yes, because Clorox has many different businesses, they are in many industries, and every industry has unique challenges, every industry has different consumer needs, and every industry has different competitive landscape. A lot of our businesses are very small so they have to do open innovation to compete with some of the big player, so for example our food business is maybe 300 to 400 millions dollars, but they are competing with Nestle, you know, they are much bigger, and the only way we can compete is by doing open innovation. Cleaning business is very strong but even then they compete with P&G and some of the other guys, so it's a mixed-size company, it's 6 billion dollars in revenues, it's a very agile company so it's very lean, it's very efficient, we have to work smarter because we just can't work harder and throw more money. And one way to work smarter is to partner with people who have already done the things and who are experts. And so our (...) used to be very humble to accept that we don't have all the answers, and to partner with people who have the answers and learn from them. And that's how we compete, every small business has its own challenges so for some businesses we might work with customers, for some others we might not, in some businesses we might work more with inventors, in some businesses it doesn't make sense. So I'll give an example,

in the cleaning business it's a lot of chemicals, right? Lot of these expensive molecules ... and so we end up working suppliers like BASF or Dow Chemicals, these big companies, some of them are bigger than we are, very strong technically. But in business like food, there are a lot of inventors who come up with new flavours, who come up with new packaging so we are happy to work with inventors in those businesses, but I can't imagine somebody in their kitchen or garage coming up with a new chemical formula. So in some businesses it makes more sense to work with suppliers, in some businesses it makes more sense to be open to inventors because inventors are not easy to work with either but we have to be able to work with them, and for us it's like we don't really care where the good ideas come from, we don't care who are the best, you know, partners, but I think now we are getting to your questions, because the variety of partners we work with in the very front-end, in the ideation stage is much more broader than the variety of people we can work with towards the implementation or the commercialization stage. Does that make sense?

**LC: So you wouldn't do that with a consumer for example, they won't participate in the commercialization?**

NK: Yeah, the consumer can't really help us, right. They can give us feedback, and things like that, but mostly it's more at the front-end of the innovation, because it's broader. So if we think about open innovation, there are two parts that we have involved. One is the old one, I showed that slide 2 right, which showed the original genesis of the open innovation at Clorox, like you kind of get the idea, it's like, you know, Germany playing against the rest of the world in soccer, right? So, it's like you partner with anybody, so because you can't have everybody to be the same, so that's more for suppliers, it's more for ... all the way from beginning to end, so in the old days we would partner with like other companies outside of Clorox from everything from ideas to research to implementation. Because we are a small company, we can't afford to do a lot of fundamental research, so on the research side we will partner with universities, right? But universities are not going to help us with implementation, so very quickly we realize that the best partners for us for end to end innovation was suppliers, these big supplier companies that were doing a lot of research already. And for Clorox, we say, if our suppliers bring us innovation, we will give them business. So, we don't always give business to the supplier who is the cheapest, because the cheapest suppliers don't do R&D. The people who work more expensive will do more R&D, that's why they are more

expensive. But we are interested in that innovation and that R&D so we cannot take the R&D and then not give them business for their chemicals. So we have to have a lot of internal collaborations and convincing to other parts of the company like supplier chain and procurement which are incented differently, so the R&D part wins, but the procurement part loses, because they are incented by keeping the costs low, and so we had get alignment at the very high levels. So the first part which I mentioned is not easy, because we have to have the entire company aligned, it's like overall Clorox wins, R&D wins a lot, procurement loses a little, but overall Clorox wins. You cannot have us go to the suppliers, take innovation and then give all the business to the cheapest bidder. So the promise was that if you help us with innovation, we will give our business, even if it's more expensive to buy your stuff.

**LC: Because it's a partnership, so it's a win-win situation?**

NK: Exactly, we call it "win-balance", because sometimes win-win doesn't work because what you're trying to do is win at every stage of the process; we call it win-balance because it's like I win today, you win tomorrow. I know that I'm going to lose on the other side, but overall we win. Because win-win is impractical, there are so few examples of win-win, it's not practical, but win-balance is more practical. It's like you will give me your innovation and you will collaborate with me and I will give you insight, you bring me your chemicals and your molecules, and then so you win on the consumer insights, you'll have your own consumer insight thing because I'm your customer, you give me your research and development and you develop something for me, but I'm a small company so I understand that, you know, you may need to develop some other things for other customers as well. But then, I will promise that I will buy your stuff later, even if it's more expensive. Of course there are still some limits, we can't make no profits, but at the same time it's a partnership, it's a long-term thinking and it was very new for the industry when Clorox did it back in 2000 or so. The procurement and supply chain organization, and the R&D organization had to be really aligned, and very on the same page with each other, like always together, and it took a lot of collaboration for that.

**LC: So, when did Clorox started to use open innovation, technology brokerage?**

NK: I would think about 2000, 2001. But this was before Henry Chesbrough even came up with the concept of open innovation. We called it technology brokerage because it's



the idea of R&D without borders. You don't do R&D only inside your company, you do it also outside your company and it was a very practical reason for doing it: we can't afford to do it ourselves! So we have to look outside. And 80%, back then, we did a quick benchmark, and we found that 80% of our R&D, of our products, had external R&D. If you remember the famous goals set by A.G. Lafley at P&G, Procter & Gamble, if you read about it, it was "50% of our products should have external input". For them 50% was a big deal because P&G has such a strong internal R&D culture. Clorox had never that strong R&D culture, we just couldn't afford to do all the R&D inside. So for us the barrier was different, the barrier was not so much the willingness of R&D to do it, it was the willingness of everybody else to come along with it, because it was such a big part of what we did, we had to be willing to work with small suppliers, we had to be willing to pay more, there was not a culture change needed to make that happen, it wasn't like "I don't want to do it, not invented here, I want to be the owner of the idea", it wasn't that.

**LC: Just a little question, since you mentioned P&G. I saw that you were once part of them, what happened?**

NK: Yes, Procter & Gamble purchased Clorox in 57 I think, I don't know the exact date but it was in 1957, and then in 1969 they had to divest because of anti-trust because they had a monopoly in the cleaning and laundry business. And so the bleach business of Clorox was produced separately. It's an interesting history of Clorox you know, it is a tiny company it was an entrepreneurial company based here in the Bay area, these 5 guys got together and they each put hundred dollars and they took water from the San Francisco Bay, electronized it and bleach came out of the other end. And they started selling bleach, one of the guys was a grocery store owner and he started selling bleach and that's how the business got started, so it's got very strong entrepreneurial roots, and then over time they got very good at brand building, so it was a very strong sales and marketing company, and very strong distribution channels, and very strong brands, so in 69 when Procter & Gamble divested us, we were left with one brand, everything else was gone. So from 1930 to 1969, Procter absorbed everything else except the bleach, which had to be divested for the antitrust, and so they had lot of cash from the divestiture, so they went in turn buying these brands. It became basically a marketing company, it has never been an R&D company, so it became a marketing company because they said "we will buy brands that are inefficient, or brands that have suffered because people are not paying attention to them", so they had some very strong marketing people who built up

these brands, they want these companies which were strong brands once, pick up the brands again or they bought companies that were strong brands but very inefficient, so either they increase the revenue by building the brand, or they reduce the costs by making it more efficient, and that's how they came up with this board of brands that had nothing to do with each other, and they are really opportunistic so "hey there is a food company, that's a strong brand, let's buy them! Hey look there's a charcoal company; let's get those guys! This other company has 5 brands that don't fit into the strategic portfolio they don't know what to do with them, let's buy all of them!", it's kind of like that, so it was like everybody's leftovers, we went buying them cheap, and they built this company with all these brands, and the two things that were common, one was that they were all sold through the grocery channel, through the retail channel, so there was supply chain efficiencies, so if you think about it, if you do a full truckload it is much more efficient than doing half truckload, right? So if you fill that truckload with bleach, charcoal, cat litter etc. and we bought this company called Burt's Bees which is lip balm, and you can put it all on the same truckload, and sell through the same grocery store it is extremely efficient, otherwise how much bleach can you put on the same truck, I mean the turns would be once every 5 years because people don't buy that much bleach. So it became very efficient to buy all those different brands.

**LC: But most of these brands were not really successful at first, so you had to make them successful again?**

NK: Yeah, we bought them because they were not successful, yes.

**LC: So that you can get them cheap.**

NK: Yeah, exactly. And also Procter, you mentioned Procter, Procter and Clorox have a lot of common ... DNA, if you will, because we were part of Procter, it was not that long ago right, 69 is not that long ago, for a hundred years old company it's not that long. So Procter and Clorox actually have a joint venture in the business of "Glad". It's a joint venture, there are a lot of case studies about it, because we have a lot of competition on other brands and here we have a joint venture on a brand, and, you know, how is that going to work? It's because there is a very strong cultural overlap with the 2 companies, there is a very strong ethics, and a very strong firewall in the joint venture where things can't go over to the other side. So things go inside the joint venture but don't go outside

of the joint venture. So Clorox gives the operations and a lot of the brand and marketing, and Procter brings the R&D. So, because Clorox is not a strong R&D company, we are more of an innovation company, and innovation is not just R&D, it has research and development, it has sales, it has marketing, it has everything, right? Innovation is all of the above. Business model innovation, everything. So it's not just product development, brand or research development.

**LC: So you actually complement each other here.**

NK: Exactly.

**LC: And what do you do exactly with this joint venture? It's independent right?**

NK: Yeah, it's an independent joint venture, but it's managed, you know, 80% is owned by Clorox and 20% is owned by Procter and Gamble, it's more of our brand, we manage the brand, we do the operations, Procter and Gamble will bring the R&D to it. So, what was I saying? So in 2005, was something that in the joint venture started in, and it is very successful, it is almost a 1 billion dollar business. And they had a lot of technology from other businesses that we used in the joint venture. And so, those businesses they had invested in a lot of technology for their diapers business, for other businesses and they couldn't do anything with them, or they wanted to monetize the investment and Clorox had the brands that could use that technology, but Clorox could not afford to pay them because we are not very rich we are a really poor company. And so, we said "Ok, why don't we give 10% of our company, in return for the R&D, and then we'll give the option to buy another 10% if you think it's a well-run company and if you think it is successful". And so they bought 10% and they bought another 10% in a couple of years because it was working well, so that's how it works. So coming back to some of your... you know I am answering you broadly and we can go to the detailed questions but overall, it's been pretty open to open innovation because it's necessary for business. It's a business reality, it's not something that you are trying to do because it's an intellectual, you know, framework or it's like a cool thing to do and everybody does it, it has nothing to do with that, it's practical, it helps me win, it helps me to be more efficient, it helps me to sell more, it helps me to sell more products, it helps you with speed to market, that's why we do open innovation, not because it's some cool thing that everybody is doing.

**LC: Do you think some companies do this?**

NK: I think so, yes. I think the CEO goes to some, hum, some conference, he sees some other people are doing open innovation, he doesn't really understand it but he sees they are getting good results, he comes back and says "guys I want you to do open innovation, go figure it out" and then they do something, some pieces of the puzzle, but they don't have an overall strategy and an overall piece and place, and some people do it and some people don't do it because it's not part of the business strategy. It's just some initiative, and people are like "what is this, why am I doing this?" and that's when you got the cultural resistance. If it's part of how you win, there is very little cultural resistance because it's imperative. You cannot do it otherwise.

**LC: So, you mean that is you make it part of your strategy, it will win the agreement of people?**

NK: Right, if it's part of the business strategy, if it's the only way you can put the product is by collaborating with suppliers, nobody is going to say "I no longer want to collaborate with suppliers", this is how we are going to make it! They say "I make it in the lab", I say "I am not giving you any budget!", how are you going to make it? Right? So in some way it's quite easy, but there are challenges, you know, and we can talk about those as well.

**LC: So, for you, is it a big change for the employees, when you communicate your business strategy and that you use open innovation? I know it's not from one day to the other that you implement this kind of strategy, but is it a big change in general?**

NK: It was a big change, the idea that you would go outside, it wasn't a big change problem from why we should do it, it was a big change from how we should do it. How it works, how to do it effectively, how to articulate your gaps, right? Because if you look at open innovation, it's really about gap management. It's about being very clear about what you can do, and what you can't do. You have to be able to clearly articulate what you can't do so that other people can help you, if you are not sure about what you can't do, you can't find the right partners, so there was some challenges there because people had to really think hard about what they could do and what they could not do. And,

articulate that. And sometimes people get embarrassed to say "I can't do", but it wasn't so hard once people got the idea of R&D without borders, people got it. This was mostly an R&D thing. This was not in marketing and other functions; these functions were still doing all themselves. Over the years, slowly, everybody is getting more open to doing open innovation, and I talked about that a little bit because now with networking we are going much broader than R&D, because partnerships and suppliers are more, you know, supply chain and research and development, and you buy stuff, you buy this chemical to make your cleaning, you know, juice or whatever, right, so depending on what business you're looking for, so mostly, in the beginning open innovation was all from R&D, led by R&D, with partnerships with supply chain and operations and procurement. Now we have evolved, that was slide 5, and you know, slide 3 and 4 I explain a little bit about what was working, about what was not working. Now we have a much broader philosophy and this is something that, hum, I have brought this perspective in when I came from corporate executive board, but then we evolved and we adjusted it to make it work at Clorox. And that's an other thing, you know, when you have consultants and external people coming in, they have all these frameworks and theories, and I've been in that space for 7 or 8 years, but do you actually go inside a company and join the team and become part of the team, and you understand challenges and how to work with them, and you build a trusting relationships? It's very hard to bring some of those new ideas, and make them stick. And so, I made a commitment to come to Clorox, leave my consulting world, and the last 4 years, the entire team has built on the original ideas, and some of the original ideas that I had on the page with the fish? Hum, some of them come from the corporate executive board, if you look at some of the research that they did in 2008, in 2009 on open innovation, the corporate executive board in this company and in Washington, they have offices in London, and, other parts of the world as well. CEB it's called. They did a lot of work in open innovation, and I used to work there, so a lot of that initial gap, so a lot of ideas and ... sometimes, consultants and academics can come up with a framework much better because people in the industry are too busy making stuff, and dealing with the day to day fires to think conceptually, I don't get paid to think conceptually and write papers, you know, I get paid to deliver results. Hum, because we have always strong collaborations with universities, and researchers, and hey "how can we apply this", it's all about applying those ideas and concepts, innovative work in industry. So we took that idea of open innovation and we applied it, and for each business we say, you know that fish diagram I showed you, each business who says "ok, ranch dressing", not much with universities, we work more with suppliers and inventors.

Cleaning, we work with suppliers very strongly, we do win-balance program with some other big suppliers, we don't work with inventors, we work with customers because we want to know what Wal-Mart wants to carry and Target wants to carry, and so we kind of pick and choose from that diagram and it's not all the fish together. That's why I draw that diagram, depending on which other fish to chase; you assemble your other small fishes in some way, right? And you have to be thoughtful and so I think of Clorox of the eye of that fish or of the brain of that fish, that says "ok I am going to collaborate with this supplier and that university" and you have to be very strategic and very thoughtful about it, you can't just go open and just work with anybody no, it doesn't work that way.

**LC: Ok you want to pick the right partner for each of your operation**

NK: Right, absolutely. And you have to be aware of where that partner adds value. There are more partners who add value in the front-end innovation where you are trying to ideate and you have to be open for ideas from anywhere, and fewer partners can help the back-end because there are some practical considerations of go-to market that not everybody can deliver on. We will work with some universities that are not the best; I give you an example, because there are fast! And they're not so hard to work with, and they don't have crazy overhead and they don't have professors who have such big egos that we can never talk to them. If it takes 2 months to schedule a conversation with a professor at Stanford, I don't to work with anybody at Stanford! I'd rather work with a smaller university that is more agile and, you know, works with speed. It's not about the money, it's about the speed, it's about the willingness to collaborate, it's about the willingness to keep certain things secret, and not publish everything that we talk about. There are certain things that we look for that are more practical for us.

**LC: Yes I see what you mean, I indeed think that innovation is about speed, you want to be the first to bring something new on the market, so a responsive university is important even if Stanford would be better.**

NK: I mean I just took Stanford as an example, this is just an example but we work with a lot of universities that have more practical, you know, programs. So we have the university of California or Davis, which is about an hour from here, and they have a strong food department. So our food department works with them. They also have a strong veterinary school, and so they study cat behaviour, and we have a cat litter

business. And, we understand about litter, right, litter is like the sand and how the cat goes to do it, you know, its business, and so you know, we play with the litter and the sand, and we make sure that the smell is not there, but we don't understand cats! So we work with the professors to understand the cat behaves. What does the cat do? Does it like to go from this side of the litter box, or the other side of the litter box, the consumer the person who is mommy, or we call it the "meow mommy", the consumer is the mew mommy because she is the one who buys the cat litter, but the true consumer is the cat, so we have to understand cats, and we don't have people internally who understand the cats, we have a bunch of geologists, who understand a lot about sand and the litter, we have a bunch of chemists who can add additives which deal with the smell, you know, once the cat does its business, but we don't have cat behaviour psychologists. So, in open innovation we went out and we found a university that has cat behaviour psychologists. And if there is only one, then we have to figure out how to work with them because we don't have a choice! Does that make sense? We have to find out the gap, what's the gap? And then we go and fill the gap.

**LC: I think that's how you need to think about it because if you don't think about that first, you will try to get partners that you might actually not need because you can do it yourselves.**

NK: Right and then you need to collaborate with other people in the business to understand the gap. So you need to be on the same page as your R&D people, as your marketing people, as your consumer. So innovation is a multi-functional game, it's not just an R&D game at Clorox. Part of this is because we are a B2C company; in the B2B world you will find that it is more about the product. Because that's their differentiator, it's the product, and so it's quite different to other people in the B2B world, there is more resistance to open innovation.

**LC: A question, so you try to fill the gaps with collaborations with other entities, do you also try to learn from them how to do it yourselves or do you want to keep it as a collaboration?**

NK: Hum ... we learn enough to be able to collaborate well, but we don't have the bandwidth to become the expert, they are the experts. Sometimes if somebody is doing something and we feel maybe it might be more efficient for us in the long run to become

an expert, we might buy him or her out, or we might learn a little or might hire somebody, but then that destroys the trust in the market, and we are the long-run game. Because if we destroy the trust, then in the future nobody will come to us. So, we take our partnerships very seriously, and we treat our partners with a lot of respect, and we have some golden principles of collaborations that even the CEO backs us on, and so we kind of make sure that our reputation and trust in the market place, we cannot destroy it. That's how you become a 100 year old company, you know, we intend to be alive for the next 100 years, you can't have behaviours that ... because if people stop coming to us as partners, our business model is destroyed!

**LC: Yes so you keep your relationships healthy so that you attract other partners.**

NK: Exactly, relationships and reputation healthy.

**LC: To go back a little bit to the culture of your company, I saw on one of your slides that you said that the company kind of created an innovation culture. What does it mean? What changed?**

NK: Some of us, like just me are just hearing it, because I haven't been around for the full, you know, 12 years, but I think it was more figuring out how to do innovation, and proving to the people inside the company that going outside would give you better, faster and cheaper results. Initially you have a few people who buy in, a few people who are against it. It's a typical "bell curve", ok? And a lot of people in the middle who are just waiting and watching and they are open minded about it. So you have to have some early wins, which actually show that this works. And that's how you build the culture, and you have to do it person-by-person, business-by-business. You know, some of the important things to remember, is sometimes the answer is not to be open. And it always has to be one of your choices, you know, I will at this point choose to do it all in-house, because extremely important from an IP perspective, or from a competitive perspective. And you always have to give people that choice, but make them prove to you that it is a better choice than going outside. The default has to be "we will go outside", the default cannot be "we will do it ourselves". So I give you an example, right. If you are very good a finances and very good at managing your money, great, but I'm going to say "hey I can find a financial advisor that can do it much better. If you prove to me that you are



better than this person, sure you can do it yourself." or something like that, right? So the default cannot be "you do it yourself, and then when you screw it up you give it to somebody else", we don't have any money for somebody to manage. So that was part of the culture, we showed enough successes, that the default changed from not being open to being open. And people said "why aren't you open? you have to be open! So give me a reason why you are doing it yourself!" So I think that was the shift that came through wins, small wins in the beginning, project by project for the first three or four years you have those small wins and you have to publicise those wins and you have to go around and talk to people about that, answer their questions, how did you framework the problem, how did you present it, how did you make sure that (...). So you have to build systems inside the company that allow you to do what we call "technical briefs", so you say this is a technical brief, right, for example, I am looking for a molecule that smells very good, because I want to add it to my cleaner. I don't know how to do it; I am not a fragrance house. So I need to go and give that brief of what I am looking for to the right persons and there is certain timing. So you know, there are some things that you need to put some processes in place to do it repeatedly and efficiently over time. Because people will say, "this is taking too much time to find the right partner! I can just do it myself", but the result is not so good, after that. That's why the open innovation group that I am part of now helps with that. It used to be called "Technology brokerage group", they are brokers between what is needed and who is outside, so we connect the two parties. And then of course you have to bring in the contracting people, the legal people; all those things have to be put in place. You have to get started with a pilot project or two projects, but then you have to put the infrastructure in place and then you have to quickly take it up and show the business results so that all the other departments give their best people for you to work with, otherwise it's not going to work.

**LC: So actually you let them the choice of agreeing with open innovation, you try to convince them with successful stories but you don't force them to agree with it. So it's more about collaboration?**

NK: Yes, it's a very collaborative culture here; we don't have command and control culture.

**LC: Ok so you never really use authority to convince people then?**

NK: No, no. It has to be ... the authority comes from business results. They can't really argue with that. If you win as business, you win as a team, the authority comes automatically. Somebody telling you to do something but the business results are not working, people will not listen to you, because people at Clorox think of themselves as owners of the company, not just somebody who just does a job you know, we are all shareholders, we are all invested in the team winning, and so if the approach that wins is open innovation, if open innovation is the best approach that wins, it's better why would anybody argue with that? But there are some practical things that we have to put in place, so ... it's not so easy to know what your gaps are, it's not so easy to know that you have to go outside. It's not so easy to act with speed. So over time we put people inside the business from the open innovation group, so we had to build a group with a structure, so we have about 6 or 7 people in our group, and there about half of us, about 3 of us who are embedded with the business. So they always are in the business, and sometimes they work with 2 or businesses so it's not like 1 person per business, so one person might be with cat litter and charcoal, one person might be with food, right? So they are sitting with the businesses so they understand what the business is working on, and they know where they will have gaps, because they are always with them. It's not like "I meet you once every six months and I interview you, I am sitting with you all the time so I understand where you are struggling and where you have all the answers. In fact I might come to you as a business connection leader", they are called business connection leaders, and say, "hey you can do this, you don't need somebody outside, just do it yourselves", and then you can get some IP. Or you might say, "Wow, what you are trying to do is really difficult! Let me do a search and see if somebody else has already done this, or who is further along in the product development, and maybe we can partner with them", right? That's the kind of conversation, and you can't have it randomly every six months, they will not open up to you, but you are sitting with them in the business all the time, it automatically ... you have those conversations because they are like " oh my god this is such a difficult project, I don't know what to do", you know, it's the same thing at university, right? When you have a group of friends and people that you talk to all the time, they are more likely to help you because they understand you. If you're sitting with somebody every six months, you will never open up to him or her. So there's a cultural, a people element to that, that you build relationships over time, you stay with the businesses, you understand the history, you understand the challenges, you understand the mistakes that were made, you understand the successes, you can talk about it, it's not just a bunch of powerpoints that you have to read. You can

just have a conversation about it, say "you know what, we went to this one supplier, partner, and they screwed us, they were really bad to work with", or you can say something like "wow, this was really good, but man, I got lucky". You know, that happens in life.

**LC: So you said that it's good sometimes to sit with them and listen to them. Is that your role to do that?**

NK: The business connection leader does that. That's about half of the open innovation group, they are called business connection leaders. Each of them is sitting with different businesses, and the other half is what we call capability, and there's a "partnership capability", like we already talked about the partnerships side, and I am the "networking capability", so I am the business networks leader. We have partnerships leader, we have a business networks leader and that's me, and then we have a business connection leaders, who are the people who sit with the businesses.

**LC: And would you they can play the role of change agent? Like, they are the ones who try to make them accept OI?**

NK: Yes absolutely. You have to have people who are change agents, but the change agents can't come in as a project every few months, the change agent are always sitting inside the group.

**LC: So they are all internal, there are no consultants, external people?**

NK: No, no.

**LC: And they always try to use results as you said, right? Because they can't argue with them.**

NK: Yeah, you can't just... you know, sometimes you try some new things that are hypothetical, but you know you say it can fail it can succeed let's try it out let's do some experiments, let's do some minimum viable proposition, let's test it out, hum... but you have to have trust built over many years of successes to try new things. You can't simply go to somebody you never work with and expect him to trust you to try something new.

So lot of these business connection leaders originally came from that business. But we hired them into the open innovation group because they were also very open minded and they have good relationship skills, but they also understand the business and the history of the business and they work well with the people inside the business.

**LC: Ok so that's how you chose them, ok. And do you still have some resistance or would you say that everyone is open to open innovation right now?**

NK: I think open innovation is just part of what we do. The resistance may have happened ten years ago but now there's not really resistance, yeah. You know, one of the things we do more recently is the network part, you know that they have decided to do the last few years. We are doing, think about it as open innovation outside of R&D. So my role as business networks leader, we are doing these experts networks where we go and bring ideas and answer questions and fill knowledge gaps, not capability gaps, and right there, there is resistance too because if you think about marketing and global insight and other functions, they are like "we know our job, we don't need to talk to some outside expert!" but that is also part of, you know, things that we have been working on the recent years. "Yeah, you may have all the answers but what is the harm in talking to somebody outside", but then we have to find the right experts who have credibility and who can teach us about certain things, and have a conversation and we find that if we have a senior leader who has some questions that are keeping them up at night, setting up a one hour conversation with a peer in a different company who has done it before is a very powerful way of doing open innovation if you will, because you are getting someone else's ideas, and practical insights, and you are learning from them. So, we have taken open innovation outside of just R&D to other functions now, to the networking side. Everything from M&A to how to manage your portfolio of brands to how, you know, centralization or decentralization, because you know companies go through these cycles of centralization or decentralization, what are the pro's and con's, you know, all kind of stuff. We do ... any kind of business related challenge, you find an expert for them to talk to, and you are talking to the top people, you're talking to executives. But we're talking to somebody else who is an executive, I might have our head of marketing talk to the person who was the ex head, not the current, of marketing at Johnson & Johnson about something, or they might talk to, if there's a small business which behaves more like a start-up, I might have them talk to somebody in private equity, or I might have talk to ... somebody who's a start-up entrepreneur, about how do you build

an entrepreneurial kind of culture, you know, in a small business. So, that's the other thing we are doing, and there is resistance there because people don't like to admit that they don't have all the answers.

**LC: Yeah they are too proud I guess to admit they might need help?**

NK: Not always too proud, sometimes they have a lot of confidence, they are like "I've been doing this for many years, I know what I am doing, what has somebody else got to teach me?". And that, it has to be project by project. Every time, you know, there might be 2 projects that we find somebody good to talk to and one project that we don't, we lose that one person but we get 2 people. So over time the culture builds up, and you also have to really articulate the gap. That is very hard to do; it's not so easy to do. In the technical field it's easier actually, because you can say, "I can make this molecule, I can't make this other molecule", but in the knowledge field, how do you explain to somebody who's very senior that he may be very good at something? That he will benefit to talk to somebody outside? It's very sensitive.

**LC: But how do you do to realize that someone senior needs to talk to someone else? I mean if he's already a senior person, you might not even doubt his capabilities and knowledge.**

NK: It's dangerous, but at the same time it's important. If you think about what's good and right for your company, you basically, the way the approach it is we say "listen we've done this with others, are there some barriers that you're trying to... are new to you or unfamiliar with you? Can you benefit from a conversation with somebody in a new space?". Again we don't try to push it. We say, "if you're interested we are happy to help, we just want you to be aware. If you're not interested, thank you for listening". We don't push it, it's not a strong-arm tactics, and it's very awful. And, we, at open innovation, we paid for those interviews already, like we have a retainer with seven network groups, and we say "It's low cost, and we will do a fast one week turnaround". So sometimes speed is very important, and sometimes they don't have budget, right? They will be like "where I am going to talk to them? Do we have an MBA in place? Confidentiality?" They are talking about very sensitive things, so they're more worried about that sometimes, so we have to take care of all those things up-front. And then you have to then say "what are the gaps?" right, and then once you identified those gaps,

then you have to find the right person. And once they had a good one conversation, they are hooked. Because the way I see it, you have nothing to lose, you have one hour. You have nothing to lose, if you don't like it, don't do it again. It's the same technique we used for open innovation many years ago on the supplier side and the R&D side, we're using the same technique in network side, and it's to have them talk to consultants and experts and people who are ex industry, hum, people from other companies. But now it's executives talking to them, because one of the thing we are trying to do is we talk to people ... but ask people, I'm talking a lot, let's answer some of your questions.

**LC: Oh actually we almost went through all of them during our little discussion. So we talked about change agents, change leadership style is about how you communicate so we answered this, resistance too. Just some questions the culture, so to define it. I have actually to define your culture, so I found a model, which was created by Harrison, so I don't know if you know about it, so it's about degree of formalization and degree of centralization. So I'd like to know about this in your company. Do the middle managers have some kind of decision-making power, or do you also have to ask the top management if you can do something or do you have some kind of freedom?**

NK: You know, we have... It's interesting you say that. It's very much a culture where people take ownership but we also have a situation, which we are trying to rectify, where the top management behaves like middle management. What's happening is that, over time, because everybody takes ownership and we have some very young people fresh out of school be given some very important projects, and it's great we want to have them learn, but that does is it also makes senior management very nervous and so they try to over-manage sometimes. And we are trying to get out of that by having the middle management take on more of those responsibilities and accountabilities. So I wouldn't call ... it's not formal so much, but it's something that happened over time. We give so much responsibility to the very fresh people that it makes the top people nervous, so we are trying to figure out how to create the right level of experience on the teams so that the top people can focus strategy, more on strategy and less on project management. And that's actually one of the expert network team that is trying to help, they talk to people who have done that in other companies successfully. This is a typical example of a management challenge, of a people challenge, that you say "Ok, we have this issue, we

recognize this issue, we are honest about it, let's figure out how other people have tackled it, and see the pro's and con's and facts".

**LC: So if I understand, your company is more decentralized but it makes senior management nervous so they want to be maybe more centralized?**

NK: They want to stay decentralized because it's more efficient. They have to do a lot of extra work because they try to get into the details of what people are doing, and this is all management so it's start like people who are across businesses will do that, but people inside the business unit get very micromanaging sometimes. And so we are trying to get away from that culture, but yeah it's more of a decentralized company than a centralized company. We have some groups that are centralized, or hybrid. Open innovation is centralized, I work across all the businesses and the joint venture, so the capability part of open innovation is centralized, but the business connection leader part is decentralized, so it is a hybrid model where even the people who are centralized, some of them are dedicated to certain business sites, and some of them are creating capabilities that go across any business.

**LC: And do you think it is important to be decentralized a bit? So for business network is centralized but business connection is more decentralized?**

NK: Yeah, I think that a hybrid model is best, you want to, for open innovation... I think a hybrid works best because there are things that are more efficient to keep centralized. You don't want to have different people do their own networks and it's not doing the networks, it's figuring out the process of doing the networks, or over time you get really good at partnerships principles, and you do that well and how do you manage the relationship. You don't want everybody to figure that out but at the same, each business is unique and so you have to some people who are decentralized but connected to that business, so if you can think about the businesses are different, but we have people who are sitting with these businesses then connected to our centralized organization. So it's a hybrid model, I think for open innovation a hybrid works best because you can't be completely decentralized, it's very inefficient to do that, but if you are fully centralized you won't know what the businesses gaps are, and you can't build those strong relationships that overcome cultural resistance if there is any, so you have to keep that decentralization. So in my opinion, a hybrid model but you have to realize how it is

hybrid, the capability part is centralized but the business connection is decentralized. But we are still in the same group.

**LC: But it's a bit strange. But I don't know exactly how your company is structured, because I know... you said your company is not so big, but it's kind of a big company still. Is it?**

NK: Yes so we all sit in the area, ok? But we have a completely sitting structure, there is no assigned desk. There are no executive offices, people come in every morning and they sit at a different desk. We recognize that it's remote, I work from home, some days I work from the road, it doesn't matter where I am, I am always connected, right? And, hum... so the business connection leaders can spend 2 or 3 days a week sitting with the business, and the rest of the time they might come and sit with the open innovation group that is sitting in one part of the campus. There are some businesses that are in other parts of the country, the business connection leader will go visit them one week out of the month so they will sit with them and understand them or they're in touch with them, calling into meeting, doing video conferences and stuff like that. So it is a hybrid model because you can't have the business connection leaders only sitting with the business, you have to have them doing both. So it's a very important job.

**LC: Do you have a lot of rules? Like you said you don't have specific offices, you can sit where you want.**

NK: The rules are more around following a process that we know has worked, so we have a very process heavy company. The rules are not so formal about, you know, "I have my desk", it's not like that. It's more around "make sure that we do knowledge management", when we have a conversation with a supplier, we will post it on the internal share point, and you know if someone calls me out of the blue and says " I have this thing I look up the share point", and I say "you called somebody else and they already looked into this and told you no! So why are you calling me?" and that shuts the conversation down right there, you know. So we have some rules around knowledge management, we have some rules around following a process, we have some rules around ethics and how to treat partners, but at the same time it is not super formalized as we have a lot of flexibility around how we go about doing the business and how we go about within those rules, how we operate.



**LC: And do you think it is important for open innovation to work in this way?**

NK: Yes I think so. I think for open innovation, to have a process is very important because you need to have knowledge management when you are sending our briefs to all these external partners, you need to know what they say, there has to be something that is managed centrally so we have a central database, we have a thing called Clorox Connects, everybody has their own portal so let's say I have to ask for a certain chemical from suppliers, so I will talk to the business, figure out what the question is or what the problem is, the gap is, and they will go online to our portal and they will that question on the Dow Chemical portal, the BASF portal, the Stepan portal, and then all the information that comes back is visible to everybody on the team, it's not going back and forward from that guy's email. Hum, and so, that is something we all do because it's part of knowledge management and it's part of everybody being aware of what's going on. And then of course we can then give permissions to that portal only to certain people, so you know, confidentiality is maintained, and we make sure that if there are 2 different projects going on, one with Dow and one with BASF, we can keep a firewall between them, so we make sure different people are working on them, right. So it allows us... there are certain rules we put in place that make our open innovation world easier, so I would call it structured flexibility. Once a process works, we like to follow it because it's more efficient, and also the businesses get used to it. So if you go tell the businesses that this works, it works in a certain way, you don't want to change it! I mean if something is broken you change it and adjust to it, but you can't have anarchy where everybody is doing in his or her own way. So you follow a process but you do it... I don't know how to explain it, it's... Structured flexibility is the best way to explain it, so when I look for an expert I will post that on Clorox Connects, and there will be what is my request, who wants it, what other key questions, what kind of experts am I looking for, is it a confidential request, is it one day, seven days, ten days, how many experts do I want, is it one is it three is it five. Some of these questions are like a request menu, it makes things extremely efficient and it creates the same kind of questions that everybody has to answer, otherwise one person will get a very broad request, and one will get a very detailed, it would be hard to manage.

**LC: So you mean the process and procedures should be standardized, you should have like a framework, but you still need some flexibility in order to be more innovative?**

NK: Yes, what you put in those questions is up to you but the fact that you have to have questions is standard. For example, the same thing, when we do an interview with an expert, the team that is doing the interview, sometimes there are 10 people on the interview, I say, "Listen, the process is this. You have to have a set of interview questions, you have to have a prioritization, and only two voices on the com, my voice and somebody on the team, nobody else, I don't want people jumping in all over, and talking over each other. You guys meet before the call and figure out what you want to get from the call. After the call, somebody takes notes, sends them up, they post it on the SharePoint on the internet" so that next time we have a follow-up call, people are not like "what did we talk about?", no, so there is a process that there is a process that we have to follow and there is discipline that is needed, because we have to be able to measure the success or the failure and it can't be people telling stories, it has to be facts. So as much as possible we try to standardize or formalize how we do it or what we do, but then the detail of the questions is up to them, how they ask the questions is up to them, but the fact that they have to have questions going to the interview (...). So there are some rules that you have to tell people who haven't done it before, otherwise you will leak IP, right? That's the trick with open innovation, if you're too open it's dangerous, if you're too closed, you are not getting any useful information. So you have to find the balance, it's about that balance. I always tell people that it's ok to be 95% closed, as long as you know which 95% to keep closed and which 5% to keep open. It's also ok to be 95% open as long as you know which 5% to keep closed; otherwise you are leaking your IP or your strategy.

**LC: And what about Clorox? How many %?**

NK: Hum, it's usually 50 - 50, I would say most of the time, and we keep half of the things open and half of the things closed. But the number of projects that are open is huge; almost every project has some degree of openness to it. So even though the degree of openness might be different, the number of projects that has some level of openness, it's almost all of them.

**LC: So each of your projects is kind of open, even if it's to a small degree, but overall Clorox is highly open, right? That's how I see it, because 80% of your projects come from partnerships, right?**

NK: Yeah, it's probably more than that, it's used to be 80% 10 years ago, now it's probably higher.

**LC: So I think I already know the answer, but for your company, knowledge sharing is very important, it's part of your culture.**

NK: Yeah.

**LC: And do you take a lot of risks at Clorox or are you very risk averse? Do you allow for risk-taking behaviours? Do you try to be sure of each details of a project before or are you taking risks?**

NK: It depends on which part of the cycle you're in. So people in the early stage, you can take more risks because a lot of the things are more reversible and you haven't made a lot of investments. You can take more risks and that's where there is more uncertainty anyway. And you have to be open to be very divergent in your thinking. As you go further and further you have made some choices, you have to make some choices, and that that time, you want to be more risk-averse because you are risking everything that's been done so far, right? So as we go further down we tend to be more conservative. In the early stages we are more risky, we take more risks. But sometimes, you are further down and you are dealing some kind of technical or other problems and you have to take some risks so you have to try different things. So we tend to not take risks with partners, we tend to work with partners that we trust, but science is science and physics and chemistry and those things you can't change so sometimes when you're dealing with certain new things, you try out a few things and see what works. There are also risks with launching a product because sometimes consumers don't buy what you think they're going to buy. But we also pull things out very quickly if it doesn't work. So taking risks is ok as long as there are two factors involved. One is how reversible is that risk that you've taken. So if it's a safety issue, we will never take a risk, because if somebody's life is at stake, that is not a reasonable decision, right? If something else, something that is easily reversible, we will try if it works great and if not we will do the

opposite! And also there is a severity of consequences. So if you do something and there is a lot of costs involved or as I talked about lot of risks linked to human safety or something, we have to be extremely careful doing it because it could be reversible, but it's costly if you make a mistake, so you break down the projects into smaller pieces and you try different things out or you have to make sure that everybody sort of agrees on the consequence of the risks that you are taking. So we tend to be more conservative, my answer is that we tend to be more conservative because we can't afford to make big mistakes. If we make a big mistake, the business really suffers.

**LC: Yeah, I think that's the case for most companies. You can't just take all the risks you want.**

NK: Yeah, so from a cultural perspective, we like to take risks, but we ... so we have put some processes in place including a lot of the work that has come up from start-up nation, we do a lot of market testing, we use consumer groups a lot, we do a lot of social media, we do a lot of consumer testing, we do a lot obviously product testing and stuff like that. So we tend to take smaller risks to make sure if it works or not, we don't take a huge risk because it could be reversible but it's costly to reverse it. The other thing I think you were getting at was a general idea so we have a competition called "Innovent", where people can bring different product ideas to the table and there is a competition where they can, you know, come up with an idea, people vote on those ideas...

**LC: Yes I think I saw it on your website actually, I saw something about consumers forums and inventors forums.**

NK: Yeah, exactly, but Innovent is a program that is an internal idea competition, and sometimes there are product ideas sometimes there are brand ideas, we actually launched products and brands coming out of, well not brands, but products coming out of Innovent. And those could be from different functions, different businesses, so somebody in cleaning could come up with a food idea, and we launch it so we take some risks from that perspective too on the ideas side, because ideas are cheap. You can easily take risks and people can look at those ideas and to build an idea into a business and make it successful, you put more and more efforts into it, and then you have a lot of people who invest a lot of themselves in there. So it's not so easy to just pull the plug, so you want to make sure that you are helping them but at the same time you are very aware of the

risks and aware of the outcomes that will cause you to kill the projects, you have to be very transparent about it. You can say "if the result is X, I'm going to kill it. If it's Y, you can keep going", and every time you have to keep communicating that, so it's very clear to the people who are working on the project what is the outcome you are seeking.

**LC: So you always take into account the consequences before keeping going?**

NK: As best as we can. Sometimes we can't but as best as we try to take into account the consequences and that leads to some risk aversion because, you know, it's "what can go wrong?" mentality versus "what is possible" mentality. But we don't have an unlimited budget or unlimited time so unlike a start up, we can't really do whatever we want.

**LC: Ok, good. Just one last thing, I know that you have four values at Clorox. You mentioned it already, you have "take personal ownership", you also "do the right things", "stretch your results", and "work together to win", would you consider that these values are very strong among the employees of your companies? Do they respect them very strongly? And when you hire someone, do you pay attention that these persons fit with the values?**

NK: They hire for the right people, that's very important to the culture of the company. "Do the right thing", I think is one that resonates completely with a lot of people, but what does "do the right thing" means, right? It's kind of fuzzy. What you think is the right thing what I may think is the right thing, so that's why you have to have some of the other things in there like the "work together to win" which talks to partnerships.

**LC: Yeah which is kind of referring to open innovation.**

NK: Open innovation and other partnerships, it's internal partnerships in different functions as well as working with external parties. The "do the right thing" is definitely the one that we always talk about, so for example we are not in India, China, Brazil, or Russia, but these are huge markets because bribing government officials is not doing the right thing. Or the kind of compromises that we realize we have to make to do business in some of these countries is not part of the Clorox culture, so we don't do business there. We have a huge business in Latin America but we are not in Brazil. We don't even think about going to Russia. It's part of the culture of the company, and again we hire for

people ... sometimes you make mistakes and then those people leave, so you know that over time it's not going to work. Also some of the other things that you ask about were ... so the "take personal ownerships" and "stretch for results", they are also part of the same thing. Personal ownership means you speak up, irrespective of your title or your function, if you think that something is wrong. And then stretch for results, we have people who have way more than they can do we are a small company, we are a lean company, we are people very multiple hands, and so everybody has to do more than, you know, just show up, do something and then go home. We are always trying to be more efficient, trying to do more with less if you will. And so that's part of the values too but the two that apply to open innovation, I think, are "work together to win" and "do the right thing", and that actually talks to partners because sometimes we might find the right partner, but if they don't have the right values, we can't work with them.

**LC: Oh, you mean they need to have a culture that is kind of in accordance with yours, right?**

NK: Yeah, this is why we work so well with Procter and Gamble, because our cultures are very similar.

**LC: Do you also have to have the same kind of strategy vision?**

NK: It's strategy visions but also values. The values are very important, so we will not work with a company that does not treat its people well or has safety issues, we just can't. And it's not just like, you know, soft HR type issues, it's practical business issues, it's reputation, it's legal risk, and all kind of other things that we might have to face.

**LC: So overall you would say that open innovation is really dependent on the culture?**

NK: Absolutely. The culture of the company for sure, but the culture is driven by the fact that the company has to do open innovation to survive. So it's both, right? Open innovation is very much in sync with the rest of the philosophy of Clorox. So if you think about we are a lean a company, we have to stretch, we have to work together, all those things, open innovation is a good fit with that.

**LC: Yeah it's true, it works together.**

NK: Yeah, right? It's not incompatible with some of the ways the company operates. Which is why it is something we adopted a long time ago and it's working well. So as you think about other companies that people might struggle with, you just say "why would you want to do open innovation?", Apple doesn't do open innovation.

**LC: Yes that's true, that's one of the big examples of closed innovation.**

NK: Right? They are like " No we don't want to do it, we want to keep it for ourselves", they don't talk to consumers, they do whatever they think works and they have their own values etc. etc., it's not open innovation.

**LC: Why do you think they do this, Apple? Why do you think some companies don't do open innovation?**

NK: Ah! I don't know.

**LC: They want to keep their secrets inside, I guess.**

NK: Yeah, I think so, I think they have a lot of confidence that they can do it all themselves. I am sure they have some suppliers they work with. A lot of times, Apple is not first to market, somebody else has gone there and failed. I don't know enough about Apple to... But what I am trying to say is that not everybody has to do open innovation it's the point I am trying to make. And Apple might choose to be more like 95% closed and 5% open, again the insight here is not so much that you have to always be open or always be closed, you have to know when to be open and when to be closed, you have to how much to be open and how much to be closed. And you have to apply that consistently. So for example when I am doing an expert call with somebody and it's a confidential discussion about maybe we are doing some M&A in some new area we want to learn about, they don't know who we are. We are not going to be open about it. But we are open to talk to people outside the company, we are not going to be sitting in the conference room and just talking to ourselves with some public information, we talk to people, right, who are experts in the field. But they don't need to know who we are. So that part is closed. So you know what is open and what is closed. It's a solid business

strategy, it's not something flaky, and, you know, "wow it's awesome let's all be open", no it's not how it works, there is a solid business reason for open innovation.


**LC: And step by step, so you have to try first with one partner, then if it works you try with other partners and then you become more and more open.**

NK: Yeah, you learn what works with the first partner and you have to be very honest about that. And then you have to trust that not every partner is going to be the best partner, which is when you find a good partner and you stick with them, and there has to be a very good reason to go away from that partner. It's like friendship in some ways, you know. You find somebody that works and is an old friend, you don't simply cut it off with them. But there might be some things that happen, and, you know, you might need to move on.

**LC: Ok, I think we answered all the questions!**


NK: Good! Wonderful.

*INTERVIEW WITH LUC CHEFNEUX, DIRECTOR OI AND KNOWLEDGE SHARING, ARCELORMITTAL*

## ArcelorMittal

ArcelorMittal is a steel manufacturing company founded in 2006 with its headquarters located in Luxembourg. In Belgium, everything started with Cockerill in 1840. Cockerill then merged with Hainaut-Sambre to form Cockerill-Sambre in 1981. It was next acquired by Usinor in 1998, which became Arcelor in 2001 and finally ArcelorMittal in 2006.



The person from ArcelorMittal that has been interviewed is Luc Chefneux, Director open innovation and knowledge management from the company.



**LCo: Et donc je recherche le côté culturel de l'innovation ouverte, donc quand une société veut implémenter ce type de stratégie, c'est un changement pour les employés, savoir s'ils sont résistants, comment est-ce que vous gérer cette résistance s'il y en a, et quelle est la culture d'ArcelorMittal, et quel est votre avis général sur une culture d'innovation. Mais c'est étape par étape, peut-être pouvez-vous commencer par une petite introduction, ce que vous faites dans la société etc.**

LCh: Bien. Je pense qu'effectivement l'aspect culturel est fondamental dans l'innovation ouverte. Et en fait, je pense que les cultures sont encore loin d'avoir évolué tel qu'il le faudrait. Ça prend beaucoup de temps c'est la chose la plus difficile à modifier. Et les cultures doivent aussi évoluer essentiellement dans la tête des patrons. Donc j'ai entendu des déclarations disant qu'on était « fully committed to open innovation » en agissant d'une manière totalement différente. Donc il faut quand même que les mentalités évoluent progressivement. Ensuite, je dirais que l'innovation ouverte c'est un terme nouveau, hein, puisque c'est Henry Chesbrough qui l'a sorti en 2005 donc cela fait à peine 10 ans, ça a fait un buzz, tout le monde parle d'open innovation, mais il faut reconnaître que beaucoup de pratique d'innovation ouverte étaient appliquées depuis des décennies, et donc un peu comme Jourdain qui faisait de la prose sans le savoir, ici on faisait de l'open innovation sans qu'on ai encore diffusé le terme. Et donc il y a certaines choses qui se font bien, dans un esprit d'open innovation, et d'autres choses qui se font beaucoup moins bien. Donc euh... et en plus de cela, au seins du groupe ArcelorMittal, nous sommes nous la je dirais la conséquence de fusions multiples. Et donc les cultures de ces différentes sociétés qui forment maintenant la grande société ArcelorMittal, peuvent être fort différentes. Certaines étant plus ouvertes, en terme de recherche, développement et innovation, et d'autres étant toujours plus fermées. Sachant que, inévitablement, au sein d'un centre de recherche, on a toujours une tendance qui heureusement, je dirais, s'atténue très fortement, à connaître le syndrome du NIH, « not invented here », et ça, on le constate, je dirais toujours maintenant et plus à certains endroits qu'à d'autres, et plus avec certaines personnes qu'avec d'autres. Donc voilà. Dans mon esprit, l'innovation ouverte, je vais l'appliqué dans le domaine que je connais bien qui est le domaine de la sidérurgie, hein, il faut savoir que dans le domaine de la sidérurgie, et en Europe en particulier, je dirais que nous avons toujours eu une culture très ancienne de collaborations entre les concurrents, ce qui est déjà quelque chose de tout à fait particulier, et je dirai presque unique dans l'industrie. Moi qui n'avait vécu que

dans l'acier, je croyais que c'était naturel, puis maintenant je suis confronté à travailler avec d'autres industries comme le verre, le papier, la chimie etc. je me rend compte que c'est beaucoup moins évident donc la sidérurgie européenne est un peu une exception mais je dirai intéressante à connaître et à examiner. Grâce au traité CK, qui a démarré en 52 à peu près, 51 ou 52, on a toujours eu un programme de recherche et développement dans le domaine de l'acier, programme qui poussait finalement les différents acteurs européens à collaborer entre eux. Donc on a eu une culture de collaboration qui maintenant a pratiquement plus de 60 ans. Et cette culture de collaboration fait en sorte que travaillant avec des concurrents, travaillant avec des centres de recherche comme celui dans lequel vous êtes, le centre de recherche métallurgie ici à Liège, mais il y en a d'autres en Europe qui sont un peu similaire, mais je dirais qu'il y a déjà certains aspects de l'open innovation qui étaient déjà présents depuis très longtemps. Y compris d'ailleurs dans les collaborations entre les sidérurgistes et les universités. Cockerill-Sambre dont je suis issu avait une longue tradition de collaborations en particulier avec l'université de Liège, et quelque part, c'est un élément important aussi de l'open innovation. Quand on parle d'ailleurs d'open innovation au sein d'une université, et je ne fais pas allusion ici à l'université d'Hasselt, puisque la notion d'open innovation est à mon avis là-bas beaucoup mieux perçue, et bien les universitaires pensent que open innovation c'est les entreprises qui collaborent avec l'université, mais c'est évidemment beaucoup plus que ça. Mais c'est ça aussi, ok ? Et là dans ce domaine là, alors qu'on avait déjà une grande expérience de collaboration entre les sociétés sidérurgiques, entre les sociétés sidérurgiques et les centres de recherche qui étaient associés, comme le CRM, il y a aussi une longue tradition de collaborations avec des universités et en particulier, lorsque j'ai prit la fonction que j'exerce encore pour le moment d'ailleurs en partie, en 2005 au sein de l'organisation qui s'appelle « Global R&D » d'ArcelorMittal, il fallait un peu que je vous en dise un mot, lorsque j'ai prit cette fonction là, j'ai aussi prit en charge les relations entre la recherche du groupe ArcelorMittal et tous les partenaires extérieurs de recherche, y compris les universités avec lesquelles la société Usinor qui était aussi parmi les sociétés à l'origine du groupe et qui avait racheté Cockerill, avait déjà une longue tradition de ce que l'on appelle maintenant les « long-term partners », c'est-à-dire les laboratoires scientifiques universitaires, qui sont au top dans un domaine particulier, et avec lesquels nous signons un contrat de collaboration à long terme et avec lesquels nous entretenons des relations suivies avec d'ailleurs un certain formalisme, donc chaque année nous devons organiser une réunion, un « steering committee » de manière à voir un peu comment évoluent nos

relations et à essayer d'améliorer les collaborations. Donc voilà, donc moi je suis en charge entre autres de tout ce qui est coordination de la R&D du groupe ArcelorMittal avec les acteurs extérieurs de la recherche, alors pour vous donner un ordre de grandeur, des long-term partners, donc des laboratoires universitaires avec lesquels nous entretenons des relations privilégiées, nous en avons une petite vingtaine, en Europe et en Amérique du Nord. Nous avons également une douzaine, je crois, de centres de recherche extérieur au groupe avec lesquels nous entretenons des relations privilégiées, et le centre de recherche avec lequel les relations sont les plus privilégiées, les plus stratégiques, c'est celui-ci. Le CRM, parce que ArcelorMittal contribue largement au financement du CRM et qu'une partie de notre R&D est réalisée au CRM. Raison pour laquelle je suis régulièrement aussi et quand je dois organiser une réunion à Liège, je demande une salle ici. Voilà donc j'étais en train de vous dire qu'on avait pas mal de partenaires externes, hein, et que entre autres, le CRM était un partenaire tout à fait stratégique. Nous avons aussi des relations dans une vingtaine d'universités dans le monde entier. Et donc ma fonction, je dirai, déborde largement en terme de partenariat, de recherche, déborde largement de l'Europe puisque nous sommes implantés dans le monde entier, et que bon, on doit essayer de rendre un peu cohérentes toutes ces relations internationales. Alors, pour que vous compreniez un peu, finalement, la taille, l'enjeu pour une société comme ArcelorMittal, nous avons actuellement 15 centres de recherche, qui sont situés dans 11 sites différents. Le site le plus important étant situé en Lorraine près de Messe, où nous avons 4 centres de recherche distincts mais qui sont dans le même campus, partageant un certain nombre de facilités logistiques. Nous avons un centre de recherche à Gand, qui est l'ancien de recherche d'Usinar, nous avons ce centre de recherche-ci, que nous avons finalement cédé au CRM pour en faire le CRM Group, de manière à créer ici à Liège un pôle de recherche d'une taille suffisamment significative au niveau européen ou mondial. L'ancien CRM, le CRM ASBL est situé à 100 mètres d'ici dans le bois, nous avons une bonne centaine de personnes ici tout près, et entre les deux il y avait une grande barrière et on ne se parlait pas, alors que les deux centres étaient très complémentaires donc on a finalement décidé, pour différentes raisons qui étaient légales, entre autres, de faire en sorte que ce soit le CRM qui absorbe notre centre de recherche ArcelorMittal, plutôt que l'inverse. Et donc, il y a aucun problème, nous y trouvons même un avantage justement dans le cadre de l'open innovation. Dans la mesure où le CRM Group n'est pas une société détenue par exemple à 100% par ArcelorMittal même si ArcelorMittal est un des principaux contributeurs financiers, parce qu'on finance des recherches au CRM, mais le CRM est un centre de

recherche partenarial où à côté des principaux, je dirais, participants que sont le groupe ArcelorMittal et le groupe sidérurgique Tata Steel, donc deux groupes sidérurgiques importants européens, il y a un tas d'autres partenaires qui font parties des partenaires associés au CRM, et donc il y en, je dirai plusieurs dizaines, que ce soit de grandes sociétés comme CMI par exemple, qui est le grand constructeur d'équipement sidérurgique installé à Seraing, c'est un nom qui doit vous dire quelque chose, et d'autres grand constructeurs sidérurgiques comme Siemens par exemple, est aussi partenaire du CRM, nous y retrouverons également des sociétés comme Magotteaux, comme les fabricants de cylindres, OSB, ici aussi dans le bassin de Liège, mais aussi pas mal même de PME locales. Donc le CRM je dirais même de par sa constitution, est un centre qui est voué à de la recherche partenariale et donc à faire de l'open innovation. Et donc quelque part c'est un atout pour le groupe ArcelorMittal de disposer je dirais d'une relation privilégiée avec le CRM parce que c'est là que nous pouvons le plus facilement monter des projets collaboratifs avec des concurrents, par exemple Tata Steel qui fait partie aussi des contributeurs du CRM, ben presque par définition quand on doit monter des projets avec eux c'est avec le CRM, mais le CRM peut y associer une certain nombre de ses membres associés. Donc on a la chance ici d'avoir un écosystème favorisant l'open innovation, ok ? Mais nous avons aussi d'autres centres de recherches, nous avons un petit centre de recherche au Luxembourg, qui travaille sur le produit long donc les poutrelles, nous avons un centre de recherche de l'autre côté de la frontière luxembourgeoise, en France, à Gandrange qui travaille sur les produits longs, les fils, entre autres, nous avons un centre de recherche assez important en Espagne dans les Asturies, un petit centre de recherche dans le pays Basque, nous avons un assez gros centre de recherche à Chicago aux Etats-Unis, un autre au Canada, et nous sommes en train pour le moment d'en créer un au Brésil pour ne citer que les principaux. J'ai passé dans mon énumération le centre de recherche du Creusot qui travaille sur des produits un peu spéciaux, des produits fortement (...) qui sont les problèmes de forges etc. Donc voilà. Donc nos 15 centres de recherche, c'est entre 1300 et 1400 chercheurs dont la moitié sont des scientifiques, l'autre moitié des techniciens etc., qui sont bien nécessaires aussi dans les activités de recherche. Et la moitié de ces chercheurs, plus de la moitié, sont détenteurs d'un doctorat. Et nous avons je dirais bien une quinzaine au minimum de nationalités différentes, on y parle un peu toutes les langues mais la langue du groupe c'est l'anglais.

**LCo: Oui en effet c'est un peu la langue internationale.**

LCh: Voilà. Donc ça vous explique un peu la taille de la R&D du groupe. Alors un des problèmes c'est que lorsque l'on parle d'R&D on ne parle pas nécessairement d'innovation. R&D n'est pas équivalent à innovation. C'est quelque chose qui est très difficile à faire comprendre, surtout aux gens de la R&D. En fait, l'innovation c'est tout une chaîne, et je dirais même que l'image de chaîne ou en tout cas cette image d'une séquence en passant d'une recherche fondamentale à l'innovation, c'est quelque chose que je n'aime pas beaucoup d'ailleurs dans la conférence que j'ai donnée, j'essaye de présenter un schéma un peu différent, il y a ce que l'on appelle la recherche fondamentale ou la recherche globale ou la recherche orientée, qui se fait dans les universités, et les universités pensent que parce que ils font de la bonne recherche, ça va favoriser l'innovation, mais ce n'est pas nécessairement vrai. La recherche de base crée un terreau scientifique et un réservoir qui est un potentiel pour soutenir la recherche appliquée. La recherche appliquée, elle, est réalisée en partie dans les universités mais est réalisée assez bien dans des centres de recherche qu'on appelle en Europe les « RTO », research and technology organizations, qui d'ailleurs forment une grosse association en Europe qui s'appelle l' « EARTO », vous pouvez aller voir ça sur internet, et qui regroupe des centres de recherche prestigieux comme les Fraunhofer institutes en Allemagne qui sont la référence presque mondiale dans le domaine, les instituts Fraunhofer comptent certainement une trentaine d'implantations un peu partout dans le monde au départ de l'Allemagne, mais ils commencent maintenant à se trouver un peu partout dans le monde. Ce sont des centres de recherche appliquée, très proches des universités mais qui sont indépendants. Vous avez en France le CEA, qui est aussi le principal centre de recherche technologique français pas seulement dans le domaine atomique, le commissariat à l'énergie atomique c'est beaucoup plus que ça, c'est maintenant devenu le commissariat à l'énergie atomique et aux énergies alternatives. Vous avez en Hollande, pour citer les principaux, le TNO, TNO qui compte je crois 3000 chercheurs, centre de recherche public, vous avez en Espagne par exemple aux pays Basque, Tecnalia, et vous avez en Flandres par exemple le VITO. En Wallonie il n'y a pas d'équivalent strict à ses grands centres public ou semi-public. Par contre nous avons, et nous en avons trop, nous avons 22 centres de recherche dits « agréés » qui sont des centres de recherche appliquée et qui doivent compter environ 1100 à 1200 chercheurs. Ces centres dont le CRM fait partie d'ailleurs, je dirais, sont relativement peu connus, assez coupés des universités ce qui est tout à fait paradoxal, et vivent un peu dans un monde à part, et si on fait la division entre le nombre de chercheurs en Wallonie dans

ces centres là par le nombre de centres, on se rend compte très vite que, d'autant plus qu'il y a quelques gros centres, que la plupart sont des petits centres qui sont loin d'atteindre la masse critique leur permettant d'être visible au niveau européen. Et là il y a un gros potentiel d'amélioration au niveau de la région wallonne mais ça, ça nous éloigne un peu de notre sujet. Simplement il faut savoir donc qu'il y a parmi les acteurs très important de l'open innovation, il y a ces RTO, research and technology organizations, qui sont là pour faire un peu le lien entre la recherche qui est faite dans les universités, et le monde de l'industrie. Alors, je vous ai parlé des RTO en vous parlant de la recherche appliquée, je vous ai dit un peu dans les universités, un peu beaucoup même, exclusivement pratiquement dans les centres de recherche de type RTO, au CRM par exemple, mais aussi évidemment dans les centres de recherche des entreprises, ok ? Mais quand vous arrivez au bout d'une recherche, vous n'êtes pas nécessairement à l'innovation. Parce que il y a je dirais ce que l'on appelle au niveau du vocabulaire européen, the valley of death, hein la vallée de la mort, si il n'y a pas je dirais, si le développement n'a pas un business model lui permettant d'être rentable, les belles découvertes, les belles mises au point, les bons résultats de la R&D ce que l'on appelle « sur étagère », et donc ne jamais être utilisés. Et pour passer cette vallée de la mort, ben il faut déjà disposer de centres de recherche appliquée comme on les a. Il faut bien souvent, en particulier dans le domaine des procédés nouveaux, permettant de produire des produits nouveaux, il faut disposer d'équipement qui sont des équipements pilotes permettant de produire à une échelle peut-être réduire mais déjà voir si ça marche en pratique, il faut aussi de l'argent pour des projets de démonstration à l'échelle réelle, et il faut des sociétés qui acceptent, je dirais, de déployer et d'utiliser ce qui a été développé. Or c'est là que l'on se retrouve devant un vrai problème. Il y a l'innovation et qui nécessite d'ailleurs peut-être d'accentuer les aspects d'open innovation, on considère qu'une recherche qui a été faite à l'université, si elle coûte 10, le passage au pilote et à la démonstration coûte 100, et le déploiement sur le marché, en pratique, coûte 1000, ok ? Donc quand les chercheurs à l'université sont très contents d'avoir trouvé un truc, « regardez extra, regardez comme on est bon », puis vont vers les entreprises en disant « nous on voudrait notre quote-part », les entreprises disent « écoutez on est encore nulle part », et puis faut trouver l'argent pour passer ces différentes étapes. Je vais vous donner un exemple qui est à mon avis un des plus beaux d'open innovation que je connaisse dans le monde de la sidérurgie et qui est un projet énorme, qui est en train de se continuer mais qui a plutôt je dirais connu des déboires. Il y a plus de 10 ans nous avons créé un consortium européen avec 40 entreprises, pour essayer de développer de

nouvelles technologies permettant de produire de l'acier sans émission de CO2. Faut savoir qu'actuellement pour 1 tonne d'acier produite, on produit un peu moins de 2 tonnes de CO2. Ce qui est évidemment très interpellant dans le contexte du réchauffement climatique. Sachant bien par ailleurs que, je dirais, l'acier est un matériau un peu ambivalent ; pour le produire on fait des émissions de CO2 mais toutes les énergies renouvelables nécessitent de l'acier pour pouvoir être construites hein, on ne sait pas construire des éoliennes en carton. Donc, à un moment donné l'acier est un matériau nécessaire pour le développement des énergies renouvelable. Mais bref, on a lancé un consortium avec une quarantaine d'entreprises, la plupart des sidérurgistes européens mais aussi les grands fabricants d'équipement sidérurgique, des universités, des centres de recherche, 40, plus de 40 participants. Pour un budget qui est assez important, qui était obtenu au départ par le Framework program 5 de la commission européenne auquel sont venus s'ajouter d'autres projets qui ont amené des funding, je dirai que le funding, donc les subsides que nous avons reçus sur 10 ans, dépassent 60 millions d'euro. Et on a mit au point une nouvelle, plusieurs nouvelles technologies dont une était plus mûre que d'autres, était prête à être installée. Le problème c'est que pour l'installer, c'était une technologie qui permettait de faire le recyclage des gaz émis par un haut fourneau. Donc recyclant les gaz, on utilisait beaucoup mieux finalement l'énergie donc on diminuait fortement la consommation énergétique, mais en plus on en enrichissait les gaz finalement émis en CO2 ce qui permettait de séparer plus facilement le CO2 du reste, et il était prévu, après avoir capté le CO2, de l'enfuir, donc c'est ce qu'on appelle du « CCS », carbon capture and storage. Eh bien on avait choisit un haut fourneau qui est un haut fourneau de Lorraine. Le coût de la démonstration industrielle, parce qu'on était passé là-bas de... par de la recherche et puis un petit pilote, un petit haut fourneau expérimental qui était situé dans une université en Suède, et puis il fallait à l'échelle industrielle pour bien tester que ça marchait, parce quand on change d'échelle ça pose toujours des problèmes différents, le coût était de 600 millions d'euro. Personne ne voulait payer 600 millions, forcément. Donc on a essayé de chercher des subsides, mais des subsides de ce montant là c'est presque impossible de les obtenir au niveau européen, on avait réussi à faire des montages mais le problème, il y avait 2 problèmes majeurs qui ont quand même empêché les choses de se concrétiser, d'une part des investissements semblables peuvent se concevoir si à un moment donné il y a une pénalité importante aux émissions de CO2. Alors que est le niveau de pénalité qui ferait en sorte que ça pourrait être viable économiquement parlant, je n'en sais rien, mais 30, 50, 60 euro à la tonne, mais pendant qu'on préparait ce projet pilote, le coût du CO2 est

tombé à 3 euro à la tonne. Donc qu'est-ce qui va, je dirais, faire les dépenses importantes d'équipement pour que le produit final coûte beaucoup, beaucoup plus cher par rapport à ce qui est fait par les concurrents et les concurrents internationaux. Et le deuxième problème, c'est qu'il faut encore quand on a capté le CO2 le stocker. Pour le stocker on doit le stocker dans des réservoirs souterrains, donc il y avait un endroit qui avait été choisit les bancs argileux de la vallée de la Meuse, mais l'air de rien, pour amener le CO2 de Lorraine jusqu'à la Meuse, je sais pas moi, 50km de pipeline, on pouvait ajouter 1 million d'euro au km, et puis il fallait une station pour injecter, tout ça coûte évidemment très cher aussi, et il fallait encore obtenir les autorisations, or dès qu'il s'agit de faire des trucs comme ça, vous avez toutes les associations de défense de l'environnement, écologistes etc. qui disent « niette », et donc finalement le projet ne s'est pas fait. Donc ça signifie qu'ici on était vraiment dans un exemple assez extraordinaire d'open innovation, parce que tous les acteurs qu'on peut retrouver étaient présents, et on y est pas arrivé parce qu'on est tombé dans la vallée de la mort, et on n'en est pas sorti, voilà ! Donc des exemples il y en a d'autres plus modestes, mais il y en a. Donc je reviens un peu à ma notion d'open innovation. Open innovation c'est éventuellement travailler avec des concurrents, pour certaines choses où on est pas en concurrence directe évidemment, il y a des choses sur lesquelles on ne partagera rien, en particulier en ce qui concerne les produits finis, qui sont vendus et dans lesquels il y a une concurrence directe. Par contre on partagera plus facilement sur les procédés de production parce que là il y a moins de compétition et c'est surtout la sidérurgie européenne qu'on essaye de défendre pour qu'elle existe encore par rapport à la chinoise ou à la coréenne. Donc là c'est un peu une défense collective, on se met ensemble pour essayer de rester présent. Donc on collabore avec des concurrents, on collabore avec des centres de recherche dédiés, des RTO, on collabore avec les universités. Il y a aussi deux aspects très importants à l'open innovation qu'on a toujours plus ou moins fait sans que ce soit bien clair dans les esprits, c'est collaborer avec les clients. Il est évident qu'on essaye de répondre aux besoins de nos clients, et en particulier dans l'acier, les clients les plus exigeants c'est l'industrie automobile. C'est elle qui nous force à développer en permanence de nouvelle qualité d'acier, parce qu'il y a une concurrence exacerbée des matériaux concurrents tels que essentiellement l'aluminium, le plastique aussi, on parle maintenant des fibres de verres, mais aussi des fibres de carbones. Heureusement l'acier continue à être un matériau de choix, mais il y a une volonté des constructeurs automobiles à diminuer le poids des bagnoles, et pour diminuer le poids des bagnoles il faut mettre des matériaux moins lourds ou avoir des matériaux d'une meilleure qualité



permettant d'atteindre les mêmes résultats avec moins de matériaux et une masse plus faible. Donc on travaille beaucoup avec les constructeurs automobiles. Comme les constructeurs automobiles, eux, ils sont vraiment en compétition les uns par rapport aux autres, là notre open innovation dans le domaine est souvent très confidentielle, c'est-à-dire qu'on a des accords avec Volkswagen, ou avec BMW, ou avec Peugeot ou Citroën, mais on ne va pas souvent le crier sur tous les toits, parce que notre client avec lesquels nous travaillons, disent surtout « ça je veux pas qu'on le sache », ça reste confidentiel. Nous commençons à faire ça de plus en plus dans d'autres domaines, pour des clients qui utilisent des produits sidérurgiques. Je dirais qu'on avait fait une estimation en son temps en disant que nous avions au minimum 150 chercheurs qui sont impliqués dans des projets en collaborations avec nos clients. Mais à l'autre extrémité de la chaîne de valeur, et nous travaillons beaucoup aussi avec des fournisseurs. Alors les fournisseurs il y en a de différentes sortes. Il y a des fournisseurs d'équipement sidérurgique, par exemple CMI, ben nous avons un accord de partenariat avec CMI, nous faisons un certain nombre de projet R&D avec eux. Chacun dans son intérêt de nouveau. Eux développent un équipement nouveau et nous profitons de cet équipement nouveau pour développer quelque chose de nouveau. Si on fait ensemble, à la limite, on peut avoir des royalties sur la technologie que l'on a aidé CMI à développer, que CMI vendra inévitablement par la suite à certains de nos concurrents, mais on peut soit retarder le moment où ils pourront le faire ou bien négocier des royalties par exemple, ok ? Donc voilà un exemple d'open innovation en collaboration avec des fournisseurs, mais des fournisseurs ça peut être des fournisseurs d'huile, de laminage avec lesquels on travaille, ça peut être des fournisseurs d'électricité avec lesquels on essaye des choses ensemble pour réduire les consommations, réduire les coûts d'électricité dans nos usines. Donc les fournisseurs peuvent être des fournisseurs de tout type. Et ça c'est l'open innovation, je dirais un peu classique, et progressivement, on s'ouvre aussi à des collaborations avec des sociétés que j'appellerai moi « complémentaires ». C'est quoi complémentaire, je vais te donner le meilleur exemple, le plus simple, c'est l'industrie du verre. Et bien, le verre est le meilleur ami de l'acier, parce que l'acier a beaucoup de qualité, sauf une, il n'est pas transparent. Et donc, on retrouve l'acier associé au verre dans beaucoup de produits, dans les voitures, et surtout dans les bâtiments, et l'acier dans la construction est un de nos marchés principaux également, et donc faire des travaux ensemble entre sidérurgistes, verriers pour concevoir des bâtiments plus efficaces énergétiquement par exemple etc., moins chers, se construisant plus rapidement etc., et bien se sont des collaborations je dirais naturelles, entre sociétés non pas concurrentes, mais

complémentaires. Donc voilà un peu vu d'une manière un peu nombriliste, vu par une société telle que la notre, l'open innovation c'est pouvoir collaborer avec finalement toutes les entités qui tournent autour de notre chaîne de valeur. Ça c'est un des aspects. Alors, la commission européenne favorise évidemment ce genre de démarche à travers un certain nombre d'initiatives, et l'initiative la plus importante et à laquelle moi j'ai participé dès le départ pour essayer de la susciter et maintenant j'y suis plongé je dirai jusqu'au cou, c'est le cadre d'Horizon 2020, donc les programmes européens subsidiés par l'Europe dans le cadre du programme cadre qui s'appelle Horizon 2020 ça vous dit quelque chose ? C'est un programme d'aide à la recherche et développement, je dirais, géré par l'Union Européenne, ce sont des programmes qui se déroulent pendant 7 ans, donc nous sommes actuellement dans le programme 2014 – 2020, avec un montant de subsides associés au programme de l'ordre de 80 milliards d'euro, donc c'est quand même peu de chose. Et à l'intérieur de cette somme assez colossale, il y a évidemment différents types de programmes dont des programmes qui favorisent le leadership industriel de l'Europe. Et à l'intérieur de ces programmes là, il y a ce qu'on appelle les PPP, les partenariats publics privés, et par exemple, il y en a plusieurs qui nous intéressent, et celui auquel je faisais allusion il y a un petit moment, c'est le PPP Spire, Sustainable Process Industry through Resource and Energy efficiency, dans lequel la commission veut favoriser les industries qu'on appelle « energy intensive » qui sont souvent des industries de l'amont, qui fabriquent des matériaux comme l'acier, les non-ferreux, la chimie, le ciment, le verre, le papier, la céramique etc., et donc il y a budgets importants avec des appels à projets qui nécessitent obligatoirement de créer un consortium avec des entreprises, des centres de recherche et des universités, et en plus de ça, puisque c'est un programme européen, il y a une obligation d'avoir au minimum 3 partenaires de 3 pays différents. Donc il y a vraiment une incitation à l'open innovation venant de l'Europe. Mais le problème c'est vraiment justement la fameuse vallée de la mort, jusqu'à présent, tous les programmes de recherche et développement qui ont été lancés par l'Europe et celui-ci est le huitième, en fait, ont beaucoup favorisé la recherche amont, la recherche fondamentale, la recherche dans les universités, et les industries avaient peu de place, et en plus, on finançait la recherche, mais on ne finançait pas je dirais la partie passage de la vallée de la mort. Et en particulier, alors là c'est une notion peut-être intéressante qu'il faudrait que je vous cite, on ne subsidiait pas le passage au TRL élevé. Alors, ça ne vous dit rien du tout, le TRL c'est un terme qui devient d'usage depuis à peine 2 ans au niveau européen, et qui vient de l'industrie spatiale américaine, ça veut dire « technology readiness level ». Donc lorsque on fait de la recherche de base

à l'université à la limite on travaille sur des très faibles TRL, TRL 1 - 2 - 3. Si on fait de la recherche dans un centre de recherche appliquée, on va monter de TRL 5 - 6, 7 peut-être, mais pour monter jusqu'au TRL 9 où on est prêt à déployer une solution qui a été prouvée à l'échelle, là il y avait rien. Et bien, le nouveau programme Horizon 2020 essaye d'aller plus loin, plus haut dans l'échelle des TRL. C'est pas encore gagné, parce qu'il y a quand même toujours pas moyen d'avoir des financements tels que ceux dont nous aurions besoin dans notre métier puisque pour aller vraiment comme je vous l'ai dit tout à l'heure faire de grands projets de démonstrations industrielles, ce n'est pas par millions d'euro ni mais des dizaines c'est des centaines de millions d'euro dont on a besoin, et là, on est toujours en train pour le moment avec la commission européenne de voir comment on peut faire des montages pour pouvoir y arriver. Donc voilà ça c'est je dirais globalement le paysage tel que je vois l'open innovation qui est en train maintenant de vivre une nouvelle orientation qui n'est pas contradictoire, ce qui est l'open innovation en réseau, les networks of innovation. Moi je classe les réseaux en innovation en 2 catégories : les réseaux internationaux, et j'ai prit l'initiative chez ArcelorMittal de créer 3 réseaux internationaux, qui sont des réseaux qui nous sont propres, à la société ArcelorMittal, dont 1 d'ailleurs est géré par le CRM de l'université de Liège, dans le domaine de la construction métallique. Avec des partenaires universitaires essentiellement, du monde entier, dont beaucoup de partenaires européens forcément, mais aussi 1 partenaire canadien, 2 nord-américains, 2 brésiliens, 1 chinois, 1 indien, 1 australien, 1 africain du sud enfin bref, un réseau très très international où on essaye à ce moment là de faire en sorte que les gens compétents, les plus compétents dans certaines régions du monde ou dans certains pays, travaillent avec nous, qu'on puisse échanger, qu'on puisse éventuellement monter des projets ensemble. Donc on voit bien qu'il y a une dimension très mondiale à ce genre réseau. L'Europe fait la même chose d'ailleurs avec un certain nombre de réseau mais je vais pas vous embrouiller trop parce que la complexité européenne est telle qu'il faut presque qu'un an au minimum pour s'y retrouver mais l'Europe favorise aussi la création de réseau à l'échelle européenne pour favoriser l'innovation. Et alors il y a un deuxième paradigme qui sont les écosystèmes d'innovation dont la Wallonie, je dirais, représente pour moi un des meilleurs exemples à travers les pôles de compétitivité. Alors, les pôles de compétitivité, c'est une notion qui est plus ancienne que l'open innovation, c'est assez curieux alors qu'on a d'abord parlé d'open innovation dans nos pays et puis on s'est intéressé aux pôles de compétitivité. La notion même de pôle de compétitivité a été créée par Michael Porter, il y a au moins 20 ou 25 ans. Et ça a percolé, ça a diffusé plus lentement, et c'est quoi pôle de

compétitivité, alors là on se place à un niveau régional, à un niveau plus local, et on essaye de créer un écosystème rassemblant de grandes entreprises, des PME, les universités, des centres de recherche, les acteurs même du déploiement économique local pour mettre un peu tout ça ensemble et faire en sorte que la mayonnaise essaye de prendre pour favoriser l'innovation au niveau régional. Et comme j'ai la chance de voyager assez bien et de voir ce qui se passe ailleurs, je pense franchement que des pôles de compétitivité wallons sont parmi les plus efficaces que l'on peut prendre comme exemple de ces écosystèmes d'innovation. Ils ont contribué très largement à décloisonner, je ne dis pas que tout est parfait, il y a encore des tas de possibilités d'amélioration, mais ils ont contribué très largement à décloisonner ce qui se faisait dans les universités, ce qui se faisait dans les centres de recherche, ce qui se faisait dans les entreprises y compris les PME. Et là effectivement ça a été un choc culturel et ça a fait évoluer la culture d'innovation en Wallonie, clairement. Il faut reconnaître que toutes les entreprises ne sont pas nécessairement associées à un pôle de compétitivité, mais ce qui est clair c'est que celles qui y sont associées, ça a déclenché je dirais une évolution culturelle.

**LCo: Donc l'open innovation est un gros changement pour une société qui ne la pratiquait pas ou bien on va dire qui la pratiquait à un très bas level ?**

LCh: C'est-à-dire qu'à un moment donné... la plupart je crois quand même des entreprises faisaient un peu d'open innovation sans s'en rendre compte. Maintenant à partir du moment où on parle, où on fait la promotion de l'open innovation, les gens se rendent compte qu'il y a beaucoup plus de possibilités et les écosystèmes d'innovation au niveau local permettent à ce moment là aussi réellement, je dirais, d'offrir des possibilités que les gens ne connaissent pas. En fait, quand je vois l'ensemble de tous les organismes qui sont censés aider les PME ou qui sont censés promouvoir l'organisation en régional wallonne, c'est incroyable, on ne s'y retrouve pas tellement il y en a. Mais le patron de PME, lui, il est prit jusqu'au coude dans ses problèmes quotidiens, il n'a pas le temps de s'avoir à qui il doit s'adresser. C'est pour ça qu'il y a eu, et qu'on a créé en région wallonne ... alors il faut encore que je retombe sur le terme... Il y avait l'agence de simulation économique et l'agence de simulation technologique. C'était deux grands machins qui essayent un peu de coordonner et de mettre d'ordre dans la profusion d'organismes qui existaient, et ces deux organismes viennent d'être fusionnés dans l'agence de promotion de l'économie et de l'innovation, je ne connais pas tellement bien

l'acronyme, mais pour essayer justement, progressivement, de mettre de la cohérence et de faire en sorte que quand une société veut, je dirais, trouver à se faire aider ou à faire une démarche d'open innovation, elle n'ai pas 36 guichets auxquels elle doit aller frapper. Voilà je pense que quand on a expliqué ça, on a fait un peu le tour de l'open innovation. Maintenant si on en parle si on l'explique, progressivement les mentalités commencent à évoluer, sachant bien qu'il y a toujours des obstacles, et des obstacles il y en a toujours. Alors les obstacles sont des obstacles un peu... bon ils sont tous culturels évidemment. Mais quels sont les principaux obstacles que l'on rencontre. Il y a d'abord l'obstacle de la propriété intellectuelle, où là on se dit que si on collabore avec d'autres, on va se faire piquer ses bonnes idées et on va finalement s'appauvrir en propriété intellectuelle, on va se faire pomper. D'abord ceux qui pensent ça ce sont des gens qui ont un peu une vision présomptueuse, j'en connais beaucoup dans notre propre société partant du principe que « comme on est les meilleurs », il ne faut pas qu'on collabore parce qu'on ne peut qu'y perdre « puisqu'on est les meilleurs au monde ». Ca c'est quand même un peu un syndrome « closed innovation ». Il faut maintenant se rendre compte qu'il y a des tas d'idées, des tas de compétences ailleurs que chez nous, donc ça c'est un peu le fameux tableau de Henry Chesbrough, les différences entre la closed et open innovation. Et donc, on a tout autant à aller chercher comme idées chez les autres que les autres ont de possibilités de venir en chercher chez nous. Maintenant c'est vrai que quand on monte des projets collaboratifs, donc dans un esprit d'open innovation, que ce soit avec des centres de recherche, des concurrents, des sociétés complémentaires, des fournisseurs ou des clients, il faut surtout essayer d'aborder les problèmes de propriétés intellectuelles assez tôt. Alors je vais dire, pas trop tôt et surtout pas avec des juristes, il faut d'abord essayer de savoir réellement ce que chacun veut en termes je vais dire technologiques et scientifiques. Et puis on peut s'arranger à mon avis relativement facilement, quand on sait clairement ce qu'on veut alors là on va trouver les juristes. Si on va trouver les juristes avant de savoir ce qu'on veut, alors là on est perdu parce que les juristes vont inventer des problèmes qu'ils vont s'ingénier de résoudre et on va entrer dans des complexités rares, et je parle par expérience. Et donc, il faut essayer que les problèmes de propriétés intellectuelles ou de droits d'usage, de ce que l'on va trouver ensemble, soient clairs. Il faut dire que par exemple que dans les programmes de types, des anciens programmes CK, les programmes maintenant RFCS, qui est le programme de recherche dédiée au charbon et à l'acier, nous avons des formulaires assez standard. Chacun reste propriétaire de ce qu'il a trouvé lui même, si des choses ont été trouvées ensemble il y a copropriété, les participants au consortium

ont le droit d'utiliser gratuitement ce que les autres trouvent, et ont des possibilités de négocier des conditions intéressantes s'ils veulent les utiliser par la suite, donc voilà. Et je dirais, c'est du bon sens. Et finalement ça peut s'arranger assez facilement pour autant qu'on ne pense pas à discuter de ça quand il est trop tard. Si on est trop loin dans la recherche, qu'il y a déjà des trucs qui ont été trouvés, alors là on entre dans des querelles de chiffonniers qui sont tout à fait pénibles. Ok ? Propriété intellectuelle et crainte culturelle de se faire piquer des idées en ne se disant pas « ben oui mais en collaborant avec d'autres, moi ça va m'ouvrir l'esprit, et ça va me permettre aussi d'avoir des idées », donc là il y a vraiment un aspect culturel. L'autre aspect culturel et aussi très humain, c'est de dire « oui mais attention mais je suis spécialiste dans un domaine, et on veut faire de l'open innovation et collaborer avec un centre de recherche qui est vraiment dédié à mon domaine. Mais attend, est-ce que je vais pas y perdre ma place ? Est-ce que à un moment donné on ne va pas décider de stopper l'activité de recherche dans mon domaine de spécialité dans la société où je suis pour confier ce domaine de recherche à une société externe ? » donc là il y a cette crainte qu'il ne faut pas nier. Alors c'est moins grave évidemment lorsqu'on est dans des domaines de spécialité spécifique hein notre entreprise par exemple, il est hors de question pour un sidérurgiste d'abandonner à d'autres la compétence et des développements dans des produits, dans des aciers nouveaux, c'est le cœur de notre métier. Il y a d'autres métiers, régulation automatique, mécanique etc. où on pourrait très bien dire « eh ben moi j'arrête le département ou service qui s'occupe de ça et je passe un contrat de partenariat avec un centre extérieur ». En fait, d'une société comme la notre, pour vous donner des ordres de grandeur de ce qu'on peut considérer comme de l'open innovation, nous avons un budget de R&D de l'ordre de 250 millions d'euro par an, nous avons certainement pour 10 millions de budget de collaboration avec les opérateurs externes. Pour le moment nous devons avoir environ par exemple une soixantaine de thèses de doctorat que nous pilotons et dans lesquelles nous intervenons souvent partiellement parce qu'on obtient pas mal de subsides pour les thèses de doctorat, nous avons entre 100 et 200 étudiants qui viennent leur master thesis chez nous, nous avons des dizaines de collaborations spécifiques avec des universités ou avec des centres de recherche, donc on fait déjà beaucoup. Mais on reste quand même avec notre budget avec 1300 chercheurs. Je vais prendre d'autres exemples. De l'open innovation poussée à l'extrême. La société Rolls Royce, non pas les bagnoles, les moteurs d'avion. C'est une des plus grosses entreprises mondiales dans le domaine de l'aéronautique, je crois gère un budget R&D qui est plus à peu près 10 fois le notre, donc eux ils parlent en milliards, avec 80 personnes. Alors on

peut se dire comment ça se fait ? Simplement, ils ont prit le « contrôle » d'un certain nombre de laboratoires universitaires dans le monde entier. Qu'ils contrôlent pratiquement réellement, donc ces gens là travaillent dans le domaine évidemment des moteurs exclusivement pour Rolls Royce. Et eux, ils ont les compétences permettant de gérer tout ce qui se fait dans le monde entier dans leurs centres de recherche qui leurs sont associés. Donc là c'est vraiment l'ouverture totale. Et donc c'est une autre manière de gérer la recherche et l'innovation. Voilà. Donc voilà un petit peu grosso modo tracer ce que je peux dire de plus fondamental dans le domaine, maintenant n'hésite pas à me poser quelques questions plus précises.

**LCo: Oui j'en ai quelques unes, vous avez déjà répondu à pas mal d'entre elles déjà en m'expliquant de façon générale. Au niveau de la résistance, le fait de perdre les idées, de se faire voler les idées, le syndrome de NIH ou bien perdre sa place. Vous avez d'autres idées en tête ? D'autres risques, résistance, raisons de résister ?**

LCh: Je dirais aussi, et là je le vois très bien en France, ce n'est même pas une résistance mais c'est un peu culturel, ils ont tendance à travailler sur la France. C'est un grand pays, on n'y trouve un peu de tout. Et il y a des subsides à la recherche très importants. Et c'est plus facile d'aller chercher les subsides français pour un projet collaboratif où on a que des français que de préparer un projet européen. Donc la France est assez peu présente au niveau européen, et très, très active dans les recherches hexagonales, dans l'hexagone. Donc là c'est un peu aussi je dirais une certaine méfiance ou une difficulté en tout cas, plus grande à travailler avec quelqu'un qui n'a pas la même culture, ou la même langue. Donc là c'est clair que quand vous devez travailler avec des allemands, ben les allemands ont une certaine manière de voir les choses. Moi je ne trouve pas que ce soit un problème majeur, au contraire c'est plutôt un enrichissement, mais il faut savoir que ça peut exister. Et puis alors aussi un obstacle culturel qui est de ne pas nécessairement aller travailler avec les opérateurs les mieux adaptés. Les gens ont une tendance humaine à vouloir collaborer avec des copains qu'ils ont dans l'universités dont ils sont diplômés, même si c'est pas nécessairement la meilleure et même s'ils auraient peut-être de meilleurs résultats avec un autre opérateur. Et donc je pense que ce sont les difficultés majeures, c'est toujours celles là que l'on va trouver. Alors faut quand même se dire aussi, et ça c'est une difficulté qui n'est pas culturelle, mais qui est organisationnelle. C'est qu'à un moment donné, si vous voulez faire de

l'innovation vous pouvez à un moment donné vous retrouver en porte-à-faux par rapport à d'autres orientations de votre société. Les grandes sociétés comme les nôtres sont assez schizophrènes, ok ? Donc on peut avoir des consignes bien claires à suivre et qui parfois rentrent en conflit. Je vais vous donner un exemple, pendant 2 ans je me suis occupé, en appuis évidemment de l'équipe qui le faisait, du redéploiement économique du bassin de Liège. Une manière de faire ce redéploiement économique et c'est de ça dont je m'occupais, c'était d'essayer de susciter la création de spin-offs. On travaillait avec l'université de Liège, il y avait des opportunités de soutenir des démarches de l'unif pour créer des spin-offs ou soutenir le développement de petites PME technologiques liégeoises qui avaient quelque chose d'intéressant dans nos métier avec lesquelles on collaborait et donc on se disait on va essayer de les aider à progresser. Eh bien nous avions un budget, à l'époque c'était Arcelor, pas encore ArcelorMittal, pour aider ces entreprises à se développer et c'était vraiment un objectif très clair et qu'on devait poursuivre de manière évidente, et qui est entré en conflit avec d'autres objectifs venant d'autres parties de l'entreprise, et en particulier la direction des achats. Et là vous devez noter que dans les démarches d'open innovation, on n'est loin d'avoir uniquement une responsabilité de la R&D, au contraire. Et parmi les acteurs majeurs il y a la direction des achats. Pourquoi est-ce que je parle de ça ? C'est parce que la direction des achats de Liège recevait des consignes très strictes de la direction des achats plus globale qui demandait de réduire les coûts. Forcément. Mais comment réduire les coûts ? Diminuer drastiquement le nombre de vos fournisseurs. Vous ne pouvez plus travailler qu'avec des gros fournisseurs parce que avec eux on peut faire des contrats globaux et puis ils sont plus fiables que des petits qui risquent d'aller en faillite, et en plus essayer d'aller voir les fournisseurs des pays de l'est parce qu'ils sont moins chers. Alors quand moi j'arrivais avec une PME de Liège avec 5-6 personnes qui essayent de se développer, et on essayait de faire quelque chose et de leur faire passer une commande pour qu'ils démontrent dans nos usines liégeoises la pertinence de leur technologie, ben les achats n'étaient pas d'accord ! « Ils ne sont pas accrédités achats, ils sont trop petits, on me demande de réduire les fournisseurs » etc. Donc, la seule solution, on y est arrivé mais ça a prit du temps, c'est qu'il faut, très en amont aussi, comme j'ai dit tout à l'heure il faut en amont discuter avec des extérieurs, faut discuter propriété intellectuelle, il faut aussi discuter très tôt au sein de l'entreprise avec les différentes directions impliquées dans la démarche d'innovation. Bon je prends un exemple typique. On met en place une nouvelle technologie avec un grand fournisseur d'équipement, et puis on décide de faire un investissement dans nos usines pour lesquelles on souhaiterait forcément que ce soit le



gars avec lequel on a fait le développement, qui soit le fournisseur. Halte là ! Quand on fait des achats importants, il y a des procédures. Et on est obligé de mettre plusieurs sociétés en concurrence. Qu'est-ce qui va permettre à la société avec laquelle nous avons travaillé d'avoir quand même une chance correcte d'être sélectionnée ? Ce n'est pas évident ! Il est arrivé fréquemment que les gars avec lesquels on avait travaillé, et bien promettent un prix et puis un concurrent avec lequel on a rien fait et qui parfois technologiquement est peut-être moins avancé, remet un prix tellement plus bas qu'on passe avec l'autre. Donc voilà un exemple aussi pour lesquels il faut être très attentifs avec les directions des achats. Si on veut par exemple collaborer avec un fournisseur, dès le départ il faut en discuter avec les achats. Et il faut pouvoir dire à un moment donné dans la négociation, et bien par exemple le fait de travailler avec tel fournisseur plutôt qu'avec un autre, va nous donner à terme un avantage d'autant de millions d'euro par exemple. Cet avantage alors, le négociateur des achats va le prendre en compte plutôt que d'acheter le moins cher. Mais si vous n'avez pas prit toutes vos précautions, si vous ne les avez pas mis dans le coup, il l'achètera le moins cher. Et alors là, vous l'aurez dans l'os parce que vous ne saurez pas, je dirais, bénéficier de ce que vous avez fait. Donc la direction des achats mais c'est pas la seule. Dès qu'on parle open innovation et innovation, les directions importantes dans les grandes sociétés, ça s'appelle entre autres les CTO, la direction technique, celle qui gère et qui prépare les investissements. Parce que la R&D peut faire quelque chose, si à un moment donné on n'a pas les sous pour investir, rien ne se fera. Donc la direction technique et la direction des achats. Plus alors, suivant ce que vous voulez faire, moi j'ai été confronté à un problème dans un projet très innovant collaboratif etc. avec les directions des systèmes d'information, l'informatique. Il y a aussi des consignes, des stratégies, dans les gens qui s'occupent d'informatique et les stratégies n'incluent pas forcément l'innovation, mais plutôt l'uniformisation des équipements etc. et donc si vous voulez faire de l'innovation dans un domaine où vous n'êtes pas totalement maître, vous avez tout intérêt à mettre très tôt les gens dans le coup, les autres forces de l'entreprise. Donc là il y a quand même un problème culturel parce que les autres fonctions de l'entreprise et la direction des achats, culturellement ne sont pas préoccupées par l'innovation c'est pas dans leur gênes. Eux ils comparent des prix, ils négocient, ils tordent le bras des fournisseurs pour obtenir encore moins cher, ce qui peut parfois être totalement opposé, je dirais, à l'esprit de l'innovation.

**LCo: Et en général quand vous avez de la résistance au niveau R&D ou au niveau d'autres départements, comment est-ce que vous gérez cette résistance ? Comment est-ce que vous essayez de les convaincre qu'il faut pratiquer de l'open innovation ? Imaginons si quelqu'un a le syndrome NIH, comment allez-vous essayer de le convaincre ?**

LCh: En fait, nous avons des structures hiérarchiques qui à un moment donné doivent prendre leur responsabilité. Un chercheur qui a beau avoir ce syndrome là, si à un moment donné on lui dit « tu le fais », il le fait. Donc il faut surtout convaincre la hiérarchie. Et donc c'est un travail de très longue haleine et je dirais que ça fait des années que je me bats pour ça. Il y a des messages qui passent bien et d'autres qui passent moins bien etc. Mais progressivement, cette notion est devenue tellement courante, on en parle tellement que ça percole, ça commence à percoler un peu partout. Tout en sachant bien qu'à un moment donné, l'open innovation c'est très bien mais à un moment donné faut savoir aussi fermer, il ne faut pas non plus être naïf. Alors suivant le niveau de confiance de ou de naïveté de chacun, ben on peut avoir des degrés différents dans la capacité d'ouverture. Donc voilà.

**LCo: Donc si quelqu'un ne veut pas vraiment participer, vous allez quand même essayer de le faire participer plus dans le sens où il doit répondre à ses responsabilités ?**

LCh: Je n'ai jamais été confronté à quelqu'un qui dit « Non ». Si à un moment donné il peut y avoir sur un sujet particulier, c'est déjà arrivé fréquemment ça par contre. On dit on voulait faire un projet collaboratif avec tel et tel concurrent par exemple, sur les nouvelles qualités d'acier, ben là, avant de pouvoir être autorisé à préparer une proposition de recherche collaborative, parce que pour moi l'open innovation c'est quand même très proche de la recherche collaborative, c'est même presque la même chose, et bien on doit passer par des décisions hiérarchiques des personnes qui sont responsables des portefeuilles de projets, et si à un moment donné le patron qui est responsable de tous les développements dans le domaine de l'automobile dit « non », ça c'est dangereux parce qu'on arrivera à participer correctement sans dévoiler un peu les domaines dans lesquels on estime qu'on est peut-être à la pointe, et bien la recherche ne se fait pas. Donc clairement, plutôt que lier directement à la culture, ça peut être lié directement au marché. Nous avons deux visions totalement différentes au sein de notre propre

entrepris suivant que l'on travaillera dans le domaine de la construction ou dans le domaine de l'automobile. Dans le domaine de la construction, et en particulier mes collègues luxembourgeois qui travaillent sur des poutres, pour faire des structures de bâtiments. Une poutre faite par ArcelorMittal, faite par Tata ou par un autre, c'est quand même une poutre avec les mêmes caractéristiques donc il n'y a pas de différenciation majeure, voire pas de différenciation du tout. Donc dans ce cas qu'est ce qu'on fait, ben on se met tous ensemble, sidérurgistes, pour travailler pour augmenter la part de l'acier dans le bâtiment au détriment du béton. C'est aussi simple que ça. Un building est-ce qu'on le fait en béton ou est-ce qu'on le fait en acier. Si on parvient à démontrer que l'acier a des tas d'avantages par rapport au béton, qu'il coûte moins cher, que ceci, que cela, on augmente la part de marché globale de l'acier dans la construction. Donc on a intérêt à serrer les coudes. Si on va dans l'autre extrême, dans l'automobile, ou chaque sidérurgiste essaye de développer des aciers très pointus pour pouvoir avoir des commandes de client dans un climat de concurrence exacerbée, et bien là mes collègues de l'automobile, moins on collabore mieux ça vaut. Donc là, les marchés et les circonstances différentes ont engendré au sein de la même entreprise des cultures différentes. C'est pour ça aussi qu'on a 15 centres de recherche, chaque centre a sa propre culture parce qu'il est lié à un marché qui n'est pas le même. Donc voilà. Vous parlez des obstacles à l'open innovation, mais il y a des obstacles culturels à l'innovation en général, et pas seulement à l'open innovation. Je dirais que pour avoir une culture je dirais ouverte à l'innovation en général, ben il faut avoir une culture un peu entrepreneuriale, une culture je dirais d'ouverture d'esprit, de flexibilité, de goût du risque et j'aurai tendance à dire que je ne met pas ça au niveau d'une société en particulier, je met ça plutôt au niveau d'une région, d'un pays, d'un continent. Il est clair que les américains ont un esprit beaucoup plus ouvert à l'innovation parce que ils osent prendre des risques, que le risque et l'échec ne sont pas mal vus, contrairement à ce qu'il se passe en Europe. Et il faut bien reconnaître par exemple que l'esprit d'entreprise, l'esprit peut-être même de flexibilité, d'ouverture culturelle, par exemple en Wallonie, est certainement moins développé qu'en Flandre par exemple. Donc, je ne parlerai pas d'une culture de la société ArcelorMittal en général, mais plutôt à quel endroit sont les gens, mes collègues de Chicago n'ont pas la même culture parce que ce sont les américains, que mes collègues français.

**LCo: Donc la culture nationale est un facteur essentiel également permettant l'innovation en général et l'innovation ouverte ?**

LCh: Oui et par exemple, c'est une des choses que je trouve très intéressante en Wallonie, c'est qu'à côté des pôles de compétitivité qui ont engendré je dirais des modifications culturelles, d'ouverture d'esprit entre les différents acteurs, ben par exemple on a créé ce qu'on appelle « Creative Wallonia », c'est une initiative du ministre Marcourt, et bon je ne connais pas bien les détails mais c'est un organisme qui fait la promotion de l'esprit d'entreprise, de la créativité au sein de la Wallonie en se rendant compte que si on veut que la Wallonie s'en sorte, ben elle doit être capable d'innover, et pour être capable d'innover, c'est pas simplement un problème scientifique ou technologique c'est un problème culturel. Si on ne s'attaque pas en même temps à l'évolution de l'état d'esprit des gens, ben on arrivera à rien.

**LCo: Et en Wallonie vous en pensez quoi du goût du risque par exemple ?**

LCh: Ben j'aurais tendance à dire qu'il est plus faible que dans pas mal d'autres endroits, je dirais c'est un peu lié à notre histoire qui était faite de grandes sociétés où on entrait comme si c'était à l'administration, on y faisait toute sa carrière, etc. Et donc il n'y a pas le même tissu peut-être de PME et donc de tissu de culture d'entrepreneuriat pas aussi poussé en Wallonie qu'en Flandre. Et de nouveau, il ne faut pas généraliser. Ce problème en Wallonie c'est un problème essentiellement des anciens bassins houillers et sidérurgiques, mais il suffit d'aller dans mon coin dans le pays de Herve où même encore mieux dans la région germanophone, ben ils ont une mentalité tout à fait différente de celle qu'on trouvera à Seraing. Et progressivement je crois que les choses sont quand même en train d'évoluer plutôt dans le bon sens. Mais est-ce que ça évolue assez vite, c'est un autre problème.

**LCo: Et j'aimerais savoir si votre société, et cela dépend peut être du niveau national aussi, est-ce que vous considérez que votre société permet l'échange, le partage de connaissance au sein de l'entreprise ?**

LCh: Je suis chargé, enfin j'ai été chargé pendant les deux dernières années du knowledge sharing et knowledge management de la R&D.

**LCo: Ah oui et j'avais une autre question à vous poser, est-ce que vous avez un « agent de changement », j'imagine que c'est vous en fait dans ce cas-ci. Est-ce**

**vous qui gérer l'implémentation de l'open innovation chez ArcelorMittal ?  
Puisqu'on parle de votre poste.**

LCh: Oui. Oui et non, parce que je dois dire que oui, c'est un peu ma fonction mais seul dans un ensemble aussi vaste, je dirais il faut quand même reconnaître les limites, et rester très modeste sur ce qu'il y a moyen de faire. Donc je pense que ... ça fait quelques années qu'on essaye de faire passer des idées, maintenant les idées ont commencé à percoler. Ce qui va à mon avis changer radicalement les choses, ce n'est pas moi, même si j'ai préparé le terrain, mais c'est par exemple les changements organisationnels qui viennent de se faire. Nous avons la R&D. Et nous n'avions pas d'équipe ailleurs se préoccupant de l'innovation. Donc la R&D était quasi convaincue que c'était elle l'innovation. Sauf que, comme je vous l'ai dit, s'il n'y a pas des gens qui sont d'accord de mettre du pognon pour implanter, ça pose des problèmes, ça prend un temps fou, et bien maintenant au niveau de la fonction depuis peu, il y a moins d'un an, du CTO corporate, donc de la direction technique corporate du groupe, il y a une équipe qui vient d'être mise en place pour ça, et avec lesquels je suis en contact je dirais parmi permanent. Parce que c'est moi qui fait le contact entre eux et la R&D assez curieusement. Et bien ils foncent. Et je dirais que la R&D coure derrière, c'est un peu ça. C'est-à-dire que eux ils appliquent l'open innovation d'une manière qui au départ a été, qui peut-être toujours, jugée dérangeante par mes collègues de la R&D. Ils ne font pas tellement attention à ce que la R&D a développé ou développe, ils sont attentifs à ce qui est développé à l'extérieur. Et il y a des gens qui viennent les trouver en disant « nous on a une solution géniale » pour ceci ou pour cela, « est-ce qu'on pourrait la tester dans vos usines ? », et ils répondent « Ok on y va ! » et ils y vont un peu comme des cow-boys, ce qui est très gênant pour la R&D. Mais c'est ça qui fait évoluer pour le moment les choses, parce que la R&D est obligée un peu de s'aligner. Et eux-mêmes se rendent compte qu'en travaillant comme des cow-boys, ils ne travaillent pas bien parce qu'ils n'ont pas forcément les compétences leur permettant de juger du bienfondé de ce qu'on vient de le dire. Et donc, pour le moment, je m'y attendais depuis tout un temps mais pour le moment c'est en train de se faire, on est en train de changer de culture à cause du fait qu'il y a une équipe maintenant qui n'est pas la R&D et qu'on a dit « maintenant c'est vous qui vous occupez de l'innovation en rupture ». Evidemment, ça stimule la R&D évidemment, de voir qu'à la limite si elle ne sort pas un peu les poings de ses poches, c'est les solutions qui ont été développées ailleurs qu'en interne que l'on va appliquer.

Donc il y a pour le moment là-bas un changement qui est en train de s'opérer et c'est ce changement là à mon avis qui va faire la différence.

**LCo: Et quand vous dites « changement de culture », qu'est-ce qui change exactement ? Elle devient plus ouverte, niveau ouverture d'esprit ?**

LCh: Oui. C'est-à-dire que cette modification-là vient d'introduire de la souplesse dans un système qui était hyper bien organisé mais étant tellement bien organisé, il était relativement lourd et il ne permettait pas une grande flexibilité. Or l'open innovation justement requiert et engendre de la flexibilité. Donc, je suis assez confiant sur la manière dont les choses sont en train d'évoluer. Oh je peux dire que j'ai été un modeste acteur parce qu'il a fallu pendant des années prêcher les choses et maintenant que ça se met en place, essayer que les gens ne s'étripent pas et bon voilà. Mais je trouve que ça évolue bien pour le moment. Je n'irai pas jusqu'à dire que mon avis est partagé par tous au sein de la R&D, mais je suis confiant. Ben il n'y a rien à faire, dans les grandes sociétés il y a toujours une question de pouvoir, chacun joue un peu des coudes, et quand quelqu'un vient sur ce que vous considérez être vos platebandes, ce n'est jamais vraiment bien vu. Mais l'open innovation oblige un peu à ouvrir les fenêtres, les portes et à la flexibilité, et je trouve ça excellent.

**LCo: Maintenant j'aimerais un peu décrire la culture de votre société. Connaissez-vous le modèle d'Harrison de 93 ? C'est un modèle qui décrit les cultures de sociétés selon le degré de centralisation et le degré de formalisation. Est-ce que le pouvoir de décision est partagé, combien de niveaux de management avez-vous ? etc.**

LCh: Bon, ArcelorMittal a le même niveau de décision qu'une épicerie hein, c'est-à-dire qu'il y a une personne qui décide, c'est monsieur Mittal. Il est le principal actionnaire de la société, il en est le CEO. Quand je dis seul, non, parce qu'il y a le gamin qui est là, son fils, qui prend une place de plus en plus grande, et en fait au sommet d'ArcelorMittal actuellement, il y a 4 personnes : monsieur Mittal père, monsieur Mittal fils, un de leur collaborateur indien et un de leur collaborateur américain, c'est tout. Les deux autres, je dirais, sont évidemment au sommet, mais quelque part sont dans une situation de subordination par rapport à la famille propriétaire. Donc très, très, très centralisé. Aucune décision importante n'est prise sans leurs consentements. C'est aussi simple que

ça. Maintenant, les niveaux hiérarchiques, je dirais, me paraissent assez normaux pour les sociétés de cette taille là. En-dessous du top du top, il y a le comité de management, rassemblant les principaux dirigeants des différentes branches du groupe et des différentes activités, je ne sais pas combien ils sont, moi je ne suis pas à ces niveaux-là. Donc il y a certainement une vingtaine de personnes, parmi lesquelles avec un titre de senior vice president, le CTO corporate et avec un titre de vice president, le patron de la R&D, ok ? Alors, si je prends la R&D puisque c'est quand même le domaine dans lequel je suis, donc c'est celui que je maîtrise le mieux, il y a un premier niveau hiérarchique qui est les membres du « leadership team ». Alors, il faut savoir que nous avons une organisation matricielle, alors une organisation matricielle par définition, il y a des gens qui s'occupent des portefeuilles de projet, et donc des budgets associés, c'est eux qui sont responsables de définir les projets en fonction des demandes des clients, qui sont les clients externes ou les clients internes, clients internes dans le cas des procédés, et qui sont redevables des budgets attribués aux projets. Et puis alors il y a une organisation des ressources, qui sont les centres de recherche. On en est arrivé à une situation que je trouve un peu excessive, mais ça c'est un problème culturel, où les patrons des centres de recherche, ils ne prennent plus d'initiative. Ils attendent que les directeurs de portefeuilles disent « ça tu peux faire, ça tu peux pas faire ». Ils sont là pour exécuter et les autres pour décider. Enfin ça dépend aussi des endroits, ça cette différence très importante était surtout française. Les français, culturellement, et ça c'est très curieux j'ai découvert ça parce que nous avons été repris par des français il y a quelques années, les français sont râleurs, ça on le sait bien, mais ils sont super obéissants. Ils ont un respect de la hiérarchie. C'est un peu des restes de la royauté française ou de la super centralisation française, alors que les belges râlent beaucoup moins, mais quand on leur donne un ordre, ils en font quand même à leur tête. Je caricature hein, mais il y a un peu de ça. Donc ce qui veut dire que si je vois par exemple que notre centre de recherche de Gand, ils prennent des initiatives et puis alors ils arrivent à convaincre peut-être les directeurs de portefeuilles que c'est vachement bien, les français ils attendent qu'on leur dise quoi faire. Et puis les espagnols ils font tout à fait ce qu'ils veulent. Donc voilà, 3 pays voisins au niveau européen, 3 cultures différentes. Mais il y a le leadership team, donc les grands patrons de portefeuilles, les directeurs généraux, par exemple il y a un patron pour ce qui est construction, et puis il y a un patron pour tout ce qui est automobile et autre type d'application, ces gens là gèrent avec les collaborateurs évidemment hein, parfois de très haut niveau, gèrent ... je ne sais pas moi. Mon collègue Tyrion, il doit gérer des portefeuilles de projet

certainement pour 150 millions d'euro ! Mais il a, je ne sais pas moi, une dizaine de collaborateurs. Les centres de recherche, ben il y a des patrons de centres de recherche dont deux centres de recherche qui travaillent exclusivement pour le secteur de l'automobile, un à Messe et un autre près de Paris, un sur les produits et un sur les applications, et bien voilà, donc, il y a une hiérarchie pour les grands portefeuilles et une hiérarchie pour les ressources. Et la hiérarchie pour les ressources, alors là c'est encore assez hiérarchique. Il y a une directrice, qui a été ma directrice jusqu'il y a deux mois parce qu'on vient de faire des modifications organisationnelles, qui est la patronne de tous les centres de recherche européen. Bon. Par exemple, c'est parce-que ce n'est pas le cas ici parce que le CRM est en dehors, mais le directeur général du CRM dépendrait s'il était resté ArcelorMittal, dépendrait de cette dame qui est la directrice de tous les centres de recherche européen. Donc, il y a le patron de la recherche, le leadership team dans lequel se trouvent les directeurs de portefeuille et les directeurs des grandes entités de recherche, et puis il y a les directeurs des centres de recherche, et moi je suis à ce niveau-là. Donc au niveau « -2 », ou même « -1 » par rapport aux membres du leadership team.

**LCo: Et au niveau formalisation, avez-vous beaucoup de règles et de procédures, et sont-elles flexibles ou bien êtes-vous obligés de les suivre à la lettre?**

LCh: Oui. Dans la gestion des portefeuilles de projet, je peux aller donner cours à l'université là-dessus, et expliquer qu'on est vraiment au top, mais on est tellement bien au top que je trouve qu'à un moment donné on est devenu beaucoup moins souple. C'est la raison pour laquelle bien souvent l'innovation elle se développe surtout dans les PME ou dans les entreprises plus petites. C'était le cas à Cockerill d'ailleurs. Cockerill était beaucoup plus innovant qu'Usinor, et à ça vaut peut-être la peine d'en parler parce que c'est une différence culturelle liée à la taille de l'entreprise. Quand nous avons été racheté par Usinor, on a fait des comparaisons à ce moment-là, j'étais -2 dans la R&D du groupe, je m'occupais à Cockerill-Sambre de tout ce qui était procédé nouveau, mais comment est-ce qu'on faisait ça ? On faisait ça avec des équipes assez restreintes et on sous-traitait la recherche au CRM. C'est ça qu'on avait une culture très open innovation sans le savoir. On sous-traitait notre recherche, et donc nous on était chargé de prendre ce qui se faisait au CRM pour l'appliquer. Donc on était très peu, nous avons simplement ce centre de recherche-ci, il y avait une centaine de personnes pour travailler sur les





produits. Et puis on a vu débarquer les gens d'Usinor, on va faire des comparaisons etc. Ils étaient à ce moment je crois 1500 chercheurs, plus que maintenant ! Rien que chez Usinor. Et nous ? Eh bien on a prit les 100 personnes de notre petit centre et puis on a dit « Oui mais le CRM mais c'est comme si il travaillait entièrement pour nous » alors qu'ils travaillaient pour différentes sociétés, et donc on a essayé de faire des trucs pour ne pas paraître trop minables. Mais, en réalité, si ils avaient des forces de R&D beaucoup plus importantes que nous, en terme d'innovations, c'était Cockerill qui a apporté toutes les innovations de rupture ! Parce que nous, on a peut-être peu de force, mais on avait construit des lignes pilotes. Et donc, que ce soit dans notre centre ici ou au CRM, nous disposons de lignes pilotes nous permettant pratiquement de tester pratiquement tout ce qui étaient les idées nouvelles, alors que les français, ils travaillaient d'une manière très systématique. Ils faisaient ce que j'appelle du « carpet bombing », c'était la tactique de l'aviation alliée, américaine en particulier, pendant la deuxième guerre mondiale au Vietnam. Les américains, on ne fait pas attention à ce que ça coûte, on bombarde tout ! Et comme ça on espère bien avoir atteint une cible. Nous on faisait, on avait un peu la tactique, je vais reprendre une expression imaginée d'un ancien collègue au CRM, on avait la tactique du petit cochon dans un champ de truffe. On allait flairer puis un moment donné on trouvait quelque chose d'intéressant et se focalisait là-dessus. Mais en attendant, avec je dirais un peu d'intuition, parce qu'il faut de l'intuition et de l'expérience, on avait nous identifier les points les plus intéressants, on avait construit les lignes pilotes, et on était dans les technologies nouvelles, on était bien plus à la pointe que les français ! Qui eux chaque fois qu'ils avaient développé quelque chose, ils le mettaient sur étagère, et il n'y avait personne qui prenait le risque de l'implanter industriellement. Et donc toutes les ruptures qui se font actuellement dans le groupe ArcelorMittal sont des ruptures qui ont été initiées du temps de Cockerill-Sambre et qui ont été initiées avec le CRM. Donc voilà ça c'est un aspect culturel important aussi. Plus la société est petite, plus les gens vont travailler un peu à l'intuition, alors ça peut bien marcher ou ça peut foirer, mais ça marche bien à l'intuition, on va plus vite que de vouloir absolument tout découvrir, être certain de tout pour aller de l'avant. Pour moi on peut très bien être très performant en innovation, et ça c'est un message que n'aiment pas mes collègues chercheurs mais moi je suis issu d'une culture d'abord, je dirais j'ai passé presque toute ma carrière au niveau industriel, à implanter des choses. Et ce que je dis n'est pas dans la mentalité qui a fait toute sa carrière en recherche, mais on peut très bien être très innovant sans avoir de centres de recherche. Faut des gens compétents dans des domaines, et on travaille avec des extérieurs, on va chercher les

meilleures idées quelque part à l'extérieur et on les applique ! Ca c'est vraiment le cœur même de l'open innovation. Et évidemment pour quelqu'un qui a fait toute sa carrière dans la recherche et qui entend dire ça, c'est interpellant. C'est ainsi aussi que je dis souvent à des amis professeurs d'université, je le dis dans mes conférences, qu'on peut se ruiner en investissant en recherches fondamentales c'est très bien, mais c'est les autres qui retireront les marrons du feu. C'est comme ça que l'Europe est très forte en recherche fondamentale universitaire et que ce sont les américains, les coréens ou les japonais qui en tirent profit en terme de marché et de développement économique. Voilà.

**LCo: J'ai une toute dernière question, par rapport à la force de votre culture. Vous avez des valeurs communes j'imagine que tout le monde doit respecter dans la société. Est-ce que tout le monde les respecte vraiment ? Faites-vous attention à cela lorsque vous engagez quelqu'un ?**

LCh: Bon, clairement, notre société est très multiculturelle. Ca c'est clair. Et donc, à l'engagement, je ne perçois pas qu'il y ait je dirais de « test culturel », au contraire, je dirais même qu'on favorise la multi culturalité. En se disant que la multi culturalité est une source de richesse. Maintenant, il y a un aspect très important dans ce que vous dites et je suis content que vous abordiez ce sujet là. A un moment donné, on a besoin de valeurs communes à partager. Et on en a d'autant plus besoin dans le monde de barbares dans lequel on vit et je dois dire qu'on ne peut sûrement pas dire que notre propre société, la manière dont elle s'est créée etc. soit à l'abri de tous reproches. Bon, je ne vais pas revenir dont Monsieur Mittal a créé son empire. Par contre, ce qui se passe c'est que maintenant de plus en plus il y a une influence majeure de la « corporate social responsibility ». Et c'est un point qui me passionne, donc à la limite on est reparti pour 2 heures ! Nous avons à Londres un nouveau directeur corporate social responsibility auquel j'ai envoyé d'ailleurs il y a 3 jours un petit message en lui disant que j'étais particulièrement content des messages qu'il faisait passer parce que la responsabilité sociétale des entreprises, c'est devenu une référence à laquelle tout le monde doit se raccrocher. Et il n'y a rien à faire, y compris les gens qui culturellement n'auraient pas du tout les même valeurs, à un moment donné, si on vous dit « vous devez respectez un certain nombre de règles », ben vous les respectez ou bien vous vous faites virer. Je prends un exemple. Dans la responsabilité sociétale de l'entreprise, on doit se conformer aux règles, je dirais, édictées par l'OCDE etc. en termes par exemple de lutte anti-corruption. Il est clair que dans certains pays du monde, la corruption c'est presque la

pratique courante. Et bien maintenant, il y a des lois qui font en sorte que si à un moment donné il y a un acte de corruption dans une entreprise, du groupe ArcelorMittal, c'est monsieur Mittal lui-même qui a des comptes à rendre à la justice. Et bien, du jour au lendemain, sauf si il peut démontrer qu'il a prit toutes les mesures visant à prévenir tout acte de corruption dans l'entreprise, donc du jour au lendemain nous avons eu des formations à distance etc. expliquant tout ce qu'il fallait respecter etc. et proclamant clairement que toute personne qui dans le groupe serait amenée à un moment donné pour commettre un acte de corruption, ce serait sous sa propre responsabilité et qu'il serait viré immédiatement. Donc voilà le genre de truc, bon. Il y a des règles qui s'implantent progressivement et donc la corporate social responsibility devient le socle de référence commun. D'habitude on la présente sous forme de la règle des 4 P hein, une société qui respecte la corporate social responsibility doit avoir, P c'est « profit », donc il faut qu'elle soit profitable, P c'est « people », donc il faut qu'on respecte ces ouvriers, ces employés etc., qu'on respecte les législations nationales, il y a aussi P pour « planète », respect de l'environnement etc., et l'aspect « partners », donc c'est un peu tout ce qui est stakeholders, tout ce qui nous entoure. Et de plus en plus maintenant, pour des sociétés comme les nôtres, la corporate social responsibility commence à être équivalente au respect des principes de sustainable development. Et là c'est très important parce que ça, ça crée un socle de valeur qui à mon avis nous entraîne tous ensemble dans la bonne direction, nous oblige à penser un peu à plus long terme. Et effectivement, il y a une évolution favorable liée à l'introduction de ces notions, et par exemple ArcelorMittal est un membre actif du World Business Council for Sustainable Environment, WBC je ne sais plus quoi, enfin c'est une association des industries privées internationales pour promouvoir le développement durable, donc voilà ! Donc ça c'est quand même très important donc on peut avoir des cultures nationales totalement différentes et quand même avoir un socle commun à travers la corporate social responsibility.

## The Human Side of Open Innovation Implementation

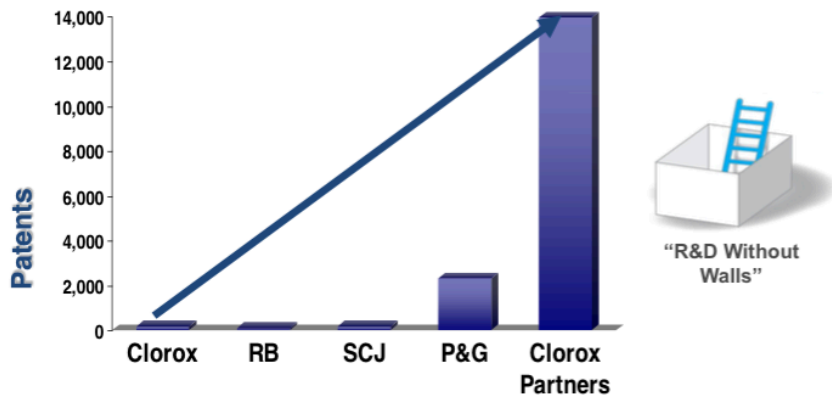
Discussion with Ludovic Corvers  
Master of Management student in International Marketing Strategy  
**University of Hasselt, Belgium**

*Navin Kunde, Business Networks Leader  
Open Innovation Networks, R&D*

6 April 2015 Clorox Confidential Information

### Open Innovation ~Y2K: Technology Brokerage

Partnering offers access to broader universe of new ideas & technologies



Patents since 1990

## Technology Brokerage – Building the Foundation of Open Innovation

- Creates virtual scale and resource access
- Allows focus on core capabilities
- Speed to Market
- Unique and Cutting Edge Partnering Process
- Created strong internal linkages to enable “catching”

The Best of the Inside combined with the Best of the Outside

3

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## Technology Brokerage – First ten years

### Successes

- 80% of new products developed with partners
- Accessed best in class technology to create superior products
- Created an open innovation, collaborative R&D culture

### Limitations

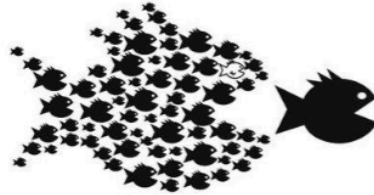
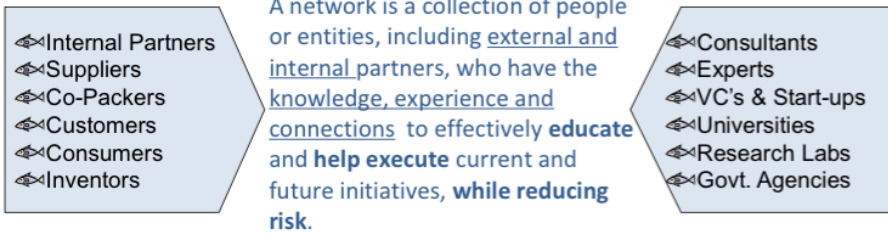
- Tended to get what we asked for
- Needed to integrate across entire innovation and link partners to networks
- World was changing rapidly needed cross-functional external focus

4

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~2012: “We build cutting edge networks and partnerships that drive technical innovation and accelerate growth”



## Organize Network Partners for Competitive Advantage!

### Questionnaire: open innovation implementation

<p><b>1. Degree of openness</b></p> <p>--- How many and which type of partners are you collaborating with?</p> <p>--- How many and which phase(s)* of the innovation process are they involve in?</p> <p><b>2. Nature of change</b></p> <p>--- How would you describe the change that constitutes the choice of an open innovation strategy?</p> <p>o Big/small change?</p> <p>o Fast/slow adaptation needed?</p> <p>--- Was a change in culture needed?</p> <p><b>3. Organizational culture</b></p> <p>--- <i>Degree of centralization</i> – is decision-making power centralized or shared on several levels? Is management concentrated at the top?</p> <p>--- <i>Degree of formalization</i> – to which extent work roles are structured in your company and to which extent activities of the employees are governed by rules and procedures?</p> <p>--- Does it allow for knowledge sharing?</p> <p>--- Does it allow for risk-taking behaviors?</p> <p>--- Culture strength - How strongly are the common values shared among employees?</p>	<p><b>4. Resistance</b></p> <p>o Resistance? From who in particular?</p> <p>o Do you think the degree of openness would affect the nature of change?</p> <p>o Do you think being even more open would have caused further resistance?</p> <p><b>5. Change leadership style</b></p> <p>--- How did you communicate that change was needed?</p> <p>--- Involvement of employees in the change agenda?</p> <p>--- Involvement of employees in the change process?</p> <p>--- Use of authority needed?</p> <p>--- Use of "force" needed?</p> <p><b>6. Change agent (if any)</b></p> <p>--- Did you make the use of a change agent to facilitate the implementation of OI?</p> <p>o Who? External, internal?</p> <p>o Why was it needed?</p> <p>o Did it work as planned?</p> <p><b>7. OI implementation success</b></p> <p>--- Would you describe the OI implementation as successful? To what extent?</p>
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**The human side of open innovation implementation**

Richting: **Master of Management-International Marketing Strategy**  
Jaar: **2015**

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Voor akkoord,

**Corvers, Ludovic**

Datum: **31/05/2015**