

The roles of lead users in software radical innovation

Abstract: We study the case of an innovation designed by two software companies, innovation that combines their respective software to achieve a new type of platform. These software editors have implemented this innovation for two clients. We conducted a longitudinal study of these two implementation projects to analyze the role of the first customers. This leads us to define three types of role and thus enrich the concept of *lead user*.

Key words: *lead user*; project management; radical innovation process; software innovation.

The nature of customer involvement in new product development has generated considerable work both in marketing as well as in the innovation field itself. The traditional marketing approaches see the customer as passive, with given needs that must be analysed in order to conceive an offering. The literature on project management and new product development (NPD) identifies project organisation models but the customer either remains outside the design process or is just involved from time to time. For researchers in industrial marketing (Hakansson, 1982), however, the customer is active in the transaction. The literature on user innovation (von Hippel, 1986) is quite the reverse in that it considers that the customer is often at the origin of the innovation and that he plays a decisive role in its development. For Seybold (2006), the development of this new paradigm can be explained by the emergence of customers looking for greater involvement in the design of new products. As a result, companies are now seeking to improve their innovation potential by making it possible for the customers to play an active role in innovation processes (Prahalad & Ramaswamy, 2000).

The work on user innovation emphasises a specific designer category, the *lead users*, but does not distinguish the roles that these pioneering users can have in innovation processes. They treat each category as one entity with the exception of recent work (O'Hern & Rindfleisch, 2010). The role of customers or users is highlighted but the parts they play in the process are not specified, unlike those of project members in the literature on new product development. Our work therefore aims at shedding light on the *lead user* notion by linking it to some concepts developed in the literature on project-management. To achieve this, we have chosen to study a software innovation process. Innovative software is liable to significantly modify user practices (Markus & Mao, 2004), which is why understanding the needs of these end-users is just as crucial as the value that such innovation can bring them. To tackle this difficulty, new forms of interaction between software publishers and end-users have been tried out (McCormack et al., 2001). However, this work is not aimed at characterising the respective contributions of the suppliers and their initial customers in the innovation process but rather their interaction methods: what interactions, when and for what reason.

In the first part that is devoted to a review of the literature, we highlight the innovation characteristics in the software industry and develop work on the involvement of the customer in innovation processes. After setting out our research methodology, we then present two projects involving innovative software development from some software publishers for two customers. In the last part we analyse the role of the first customers in the innovation process. We go further into the *lead user* concept and suggest distinguishing between three roles held by various actors within the customer organisation.

1. Review of the literature and choice of theoretical framework

1.1 Characteristics of software-industry innovation

The software industry is characterised by a regular flow of innovation, but also by a high failure rate which leads companies in this sector to reconsider a better integration of the first customers in the projects applying new concepts. These innovations are usually developed by start-ups that concentrate on a specific technology. In the event of radical innovation, they take part in a market-creation process and come up against resource scarcity in terms of time and manpower. In fact, the software industry is ruled by a phenomenon called "winner takes all" (Cusumano, 2004): only a few pieces of software survive in each category. This results from more and more customers using this software, and more particularly from learning

phenomena through usage, from increasing returns to adoption (Arthur, 1989). This therefore means that software publishers have to focus on their technology to be among the recognised leaders in the domain. In addition, they also have to combine their offer with software designed by other publishers so as to be able to offer attractive solutions to their customers.

According to Cusumano (2004), the initial implementations of a new concept within the customer organisation represent a key stage in the innovation process, enabling the transition from the concept to the product. These implementations are carried out through projects involving the software publisher or publishers, the customer, and possibly a computer services company. The role of the customers and users in such projects is, as we have already mentioned, hardly covered at all by project-management literature. We, therefore, feel that the implementation of a new software concept is an interesting case because it identifies these roles and related skills in a better way.

1.2 User innovation

In the literature on user innovation, von Hippel (1986) defines the notion of *lead user* : they are individuals or organisations that are aware of needs that will become requirements of a large number of users and they hope, by satisfying these needs, that they will make significant profits. In terms of the “numeric products”, Franke & von Hippel (2003) state that: “*Lead Users can design and develop any kind of innovation in the field of information products, like software.*” For von Hippel (2005), companies should generate innovative concepts in partnership with *lead users* and in nearly every field. Faced with the acceleration in the pace of innovation in each industry, it may be beneficial to let some users develop the innovations themselves. Von Hippel (2001) therefore suggests an approach whereby users receive the tools to enable them to handle the design of the product.

For software, the literature mainly covers open source software and describes projects run by self-organised communities of volunteer developers. Logically, in this case, the organisation question is not central. On a more general basis, the questions linked to the organisation and management of innovation projects, and the roles that the *lead users* play within them are not dwelt on very much by the innovation literature.

1.3 The literature on new product development

The literature on new product development (NPD) and project management develops, in its own words, an organisational rethink about the innovation process. The concepts of *heavyweight project manager*, of *lightweight project manager* in counterpoint to the former (Clarke & Fujimoto, 1991), of *champion* (Roberts & Fusfeld, 1981), and also of *gatekeeper* (Allen, T. 1971), have, among others, been developed to describe the organisation of innovation projects and the roles that the project members should hold, according to the type of project and organisation that involve them. Clark & Fujimoto (1991) recommend “heavyweight” project managers to direct teams in charge of developing complex products in firms that are bureaucratic and mature. Hauser, Tellis and Griffin (2006) however, note that when innovation concerns small firms, teams geographically spread out and industries experiencing rapid change, like the software industry, particular organisational structures can

encourage innovation. The authors therefore stress the point that in the “fuzzy front end” phases, an R&D manager can manage a radical innovation process effectively.

However, works on project management and NPD share an often implicit conception in which customers have little influence on the development activity surrounding new products (von Hippel, 2005). This leads to our research question: what are the different roles played by the *lead users* in a innovation process involving several suppliers? We intend to deal with this question by linking the literature on user innovation and the literature on project management.

2. Emblematic innovation software

In order to distinguish the roles of the *lead users* in the processes that are of interest to us, we decided to study an emblematic innovation case in the field of proprietary software. We will present the innovation and the companies that contributed to it before giving details of our methodological approach. The innovation studied is an automated knowledge-base creation solution. It was developed via two projects carried out by two companies: PressPro, a French newspaper group, and Exinis France, subsidiary of an international legal document publisher. The first project was designed to facilitate the work of the PressPro archivists when creating press kits for journalists. The second was aimed at helping with the compilation of legal summaries sold by Exinis to corporate law firms. This type of solution corresponds to a generic need to analyse “non- structured” text and comes under the movement known as “semantic web”. In these two projects, it was a question of developing an innovation based on the combination of information-extraction and information-storage software, designed by two publishers, Temis and Mondeca.

Temis, a French start-up that employs about fifty people, proposes an offer in the *text mining* domain including IDE, an information-extraction engine. Such engines are viewed as radical innovations because they are based on combinations of innovative semantic-analysis and statistical-analysis algorithms, and with automated text analysis introduce a huge change in practices. For each customer, a personalised module, called “*knowledge cartridge*” has to be created in order to define the terms and concepts to be extracted.

Mondeca is a French start-up that employs about twenty people and that markets a knowledge- base management system called ITM. This software has to be personalised for each application by designing ontologies in computer science terms, i.e. representations of knowledge that is specific to a domain.

The coupling between IDE and IDM can make it possible to extract information and transfer it automatically to a knowledge base. The users can then go straight into this knowledge base to carry out their research and use the knowledge that has been organised. This coupling, by means of a module called OntoPop bridge, constitutes the bases of a new application platform in the field of document processing as shown in figure 1. This coupling constitutes a radical innovation in the sense that it disturbs the working habits of end-users like archivists by automating tasks that used to take a large part of their working time, and in the sense that applications of this innovation have to be defined.

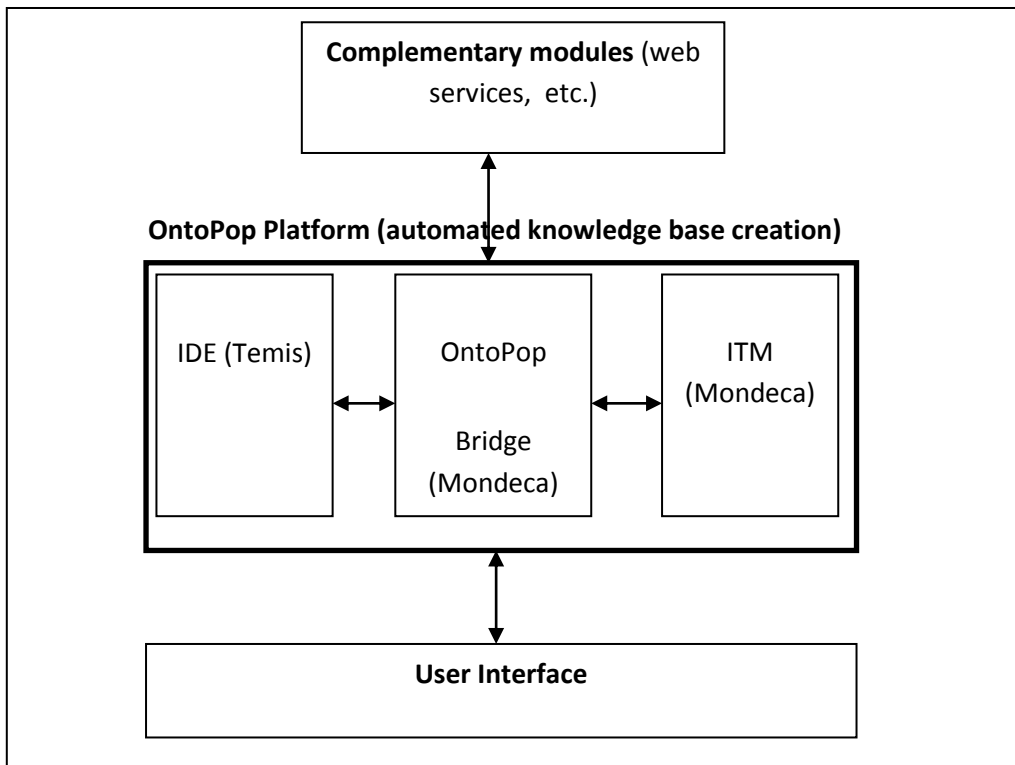


Fig. 1: OntoPop platform and connected modules

During the two projects studied and within the framework of the innovation process, it was a question of:

- designing and developing the OntoPop bridge, that has a generic part and a part that can be personalised.
- defining the personalisation details of the bridge during its application to the particular context of each customer
- defining a methodology concerning the coordination between the personalisation of IDE, ITM and the OntoPop bridge.

Such are the main difficulties that have to be overcome to bring about the innovation.

Methodology: the innovation process was analysed by conducting two partially concomitant projects, using the same software bricks and linking them in a specific way for two different customers. The data on the projects was gradually built up as they progressed, from June 2003 to December 2008. Interviews were held every two months during this period with the key personnel at Temis. Occasional semi-directive interviews with project managers held at Mondeca and at the two customers completed this longitudinal vision. In all, 66 interviews were held. Also, documents relating to the OntoPop bridge were collected. The comparative analysis of these projects was handed to the Temis and Mondeca project-members.

3. Analysis of the emergence of an innovation from the two projects

We are going to go back over the main stages of these projects and clarify the actors involved and their contributions. We will first present the project carried out for Exinis that started after the project conducted for PressPro. In fact, it was during the second project that the innovation was really developed and exploited. The PressPro project represented an advance in the design of the innovation but the solution was not finalised.

3.1 The Exinis project

Exinis's customers are corporate law firms that come to Exinis for documents and summaries. The company, therefore, compiles a vast amount of information. The Exinis France web manager, William, thought up the possibilities offered by a knowledge-base system created automatically from all the publications available in text form. From a number of ideas, he designed an application to facilitate the work of the editors and writers in charge of legal summaries, by automating the tagging of standardized references (markers) to the legal texts. It was therefore aimed at reducing the time devoted to a tedious task.

William retained Temis as a result of his partnership with Mondeca on the PressPro project. The OntoPop bridge was at this point at the design stage. Three suppliers were involved :

- Temis was in charge of developing the "legal-skill cartridge".
- Mondeca was in charge of developing a "legal ontology".
- 4D Concept, SSII, was responsible for developing user interfaces.

Table 1 : The actors involved in the Exinis project.

Exinis	Temis	Mondeca	4DConcept
<ul style="list-style-type: none"> - William, initiator and manager of the project, dedicated. - Charles, data base specialist, operational project manager, dedicated. - Hugo and Ursule, two expert users in knowledge management. - User groups. 	<ul style="list-style-type: none"> - Project manager, dedicated. - Language expert, responsible for legal-skill cartridge. - Two computer analysts. 	<ul style="list-style-type: none"> - Project manager, dedicated. - Coupling project manager, dedicated to the OntoPop bridge design. - Ontology expert, responsible for the domain ontology . - Three computer analysts. 	<ul style="list-style-type: none"> - Project manager, dedicated, responsible for user interface. - One computer analyst.

The Operation

William devised the software architecture and chose the suppliers. As a computer scientist who had done some research work with language experts and who was very enthusiastic about the semantic web concept, was recognised by the board of Exinis France as the project manager. Hugo and Ursule, two users that we qualify as “expert users”, worked several half-days a week with the project members for the entire duration of the project. Having devised a solution to combine IDE, ITM and open source web services, William designed the application specifications with the help of Hugo and Ursule, starting from a prototype solution developed by Temis and Mondeca.

Hugo and Ursule then worked on different tasks with the suppliers (Temis and Mondeca project managers, the Mondeca coupling project manager, and the 4D Concept project manager). This involvement proved to be decisive in terms of understanding the uses. It enabled Hugo and Ursule to develop their initial skills and to put forward suggestions about the IDE/ITM coupling that in turn led to new developments on the part of Mondeca.

User involvement developed according to three phases:

- First phase: user workshops involving Hugo and Ursule were organised each week that enabled William to develop the solution’s operational specifications and then helped the suppliers to understand the uses. The workshops occasionally involved Charles, as well as the Temis and Mondeca project managers, the experts (linguistic from Temis and ontology from Mondeca) and the 4D Concept project manager.
- Second phase: several groups uniting some “non-expert” users were invited to ten or so meetings. Propositions on the design choices were presented to them at these meetings so that they could express their preferences. But William’s objective was, above all, to get them to support his own design choices.
- Third phase: pre-production, during which user groups tested the solution.

William supervised the entire project and monitored the work done by Charles who coordinated and checked the progress of the tasks in close collaboration with the supplier project managers. William also took a number of initiatives throughout the project:

- He had a knowledge base test developed to assess the IDE/ITM coupling performances which brought to the fore problems linked to the ITM access time and to the slow transfer of information between IDE and ITM. Mondeca then had to improve ITM.
- He asked for specific developments for pedagogic reasons. The objective was to show top managers at Exinis the long term benefits of adopting the new software platform.
- He redirected the project and redefined the priorities. Some tasks turned out to be more complex than forecast, which resulted in a revision of some contractual elements, including a reduction in the number of tasks to be carried out by suppliers and an increase in the project budget as well as the definition of some additional tasks.

The supplier project members viewed William’s role as essential because of his transverse skills, his global vision and his ability to redirect the project. Coordination between Temis and Mondeca on personalisation of the OntoPop bridge was defined by establishing the Ontopop methodology. The latter planned the various tasks and interaction methods among project members to achieve the implementation of the

OntoPop platform. It was drawn up from experience acquired during the PressPro project and finalised during the Exinis project.

3.2 The PressPro project

We will quickly explain the PressPro project by emphasising its differences when compared to the Exinis project. The project was initiated in June 2003 by the manager of the PressPro documentation department, David, after a meeting with Mondeca representatives. He was looking for a solution to automatically extract and categorise information contained in the tabloid articles, tasks that represented the majority of the work of the archivists in this press group. He had the idea of coupling IDE and ITM and he also wanted Xyleme, publisher of XLM, archive software in XML format, to be part of the project.

Table 2: the members involved in the PressPro project.

PressPro	Temis	Mondeca	Xyleme
<ul style="list-style-type: none"> - David, PressPro documentation manager, initiator and manager of the project. - PressPro IT documentation manager, operational project manager. - Two computer analysts. 	<ul style="list-style-type: none"> - Project manager, dedicated. - Language expert, responsible for celebrities-knowledge cartridge. - Two computer analysts. 	<ul style="list-style-type: none"> - Project manager, dedicated. - Coupling project manager, dedicated to design of OntoPop bridge. - Ontology expert , responsible for the domain ontology. - Three computer analysts. 	<ul style="list-style-type: none"> - Project manager, dedicated. - One computer analyst.

Initially, a list of specifications was established to define the projected performance level. However, as the bridge had not yet been developed, it was impossible to propose a prototype that would have facilitated the drawing up of the specifications. David was having to manage the project and report to the board, and the PressPro IT documentation manager was having to take on the role of operational project manager in charge of developing user interfaces. A number of user workshops were set up for several months, bringing together all the archivists and the project managers from the three software publishers in groups, as well as David. However, David and the PressPro computer analysts did not manage to take on the task linked to the user interfaces and six months after the launch of the project, the task was entrusted to Xyleme. At the same time, the user workshops were suspended as the archivists had stopped participating, doubting the feasibility of the project and fearing a reorganization in their department. Subsequently, two PressPro archivists dedicated to the project worked at Mondeca's premises with the project managers and experts from Mondeca and Xyleme.

The project was progressing mainly in terms of the design and development of the user interfaces, the “celebrities” ontology and the OntoPop bridge. Although it was one of his responsibilities, David could not take on the coordination of these three tasks because of his lack of experience in the technology used by the different types of software. As a result, the three software publishers involved complained about the lack of coordination but did not want to take it on themselves. Their relationship with David deteriorated, the latter considering the solution performances to be insufficient while the software publishers thought his expectations were unrealistic. The specifications initially defined then proved to be too vague and the questions relating to the information-extraction quality could not be resolved. In spite of these tensions, the project progressed, but David’s attention was taken up with problems surrounding the personalization of ITM and XLM, problems that were solved thanks to the considerable involvement of the two dedicated archivist users. Temis, on the contrary, worked quite independently on the design of the “celebrities” knowledge cartridge. When this personalized module was offered to the archivists, they were disappointed by the quality of the terminology extraction and, given the delay already accumulated by the project, this part of the solution was ultimately rejected.

A comparison of the operation of each project results in the identification of several key roles played by the PressPro or Exinis customers : architect, HPWM, operational manager, project integration manager and end users. Table 3 lists the activities that characterize each one and the project members that held them in the two cases studied. To create this typology, we also used literature on project-management (Clark, K.B. & T. Fujimoto, 1991).

Table 3

Key roles	Responsibilities and activities	PressPro project members	Exinis project members
Innovation architect	<ul style="list-style-type: none"> - Designs a new software application using his cross-functional skills (acts as a gatekeeper). - Chooses various pieces of software to construct the new application. - Convinces top company management of the innovation’s importance. (acts as the innovation “champion”). - Persuades the software publishers to take part in the innovation process. - In charge of definition of project specifications. 	PressPro documentation manager	Exinis Web Manager

<p>Heavyweight Project Manager</p>	<ul style="list-style-type: none"> - Takes part in the definition of project specifications. - Supervises the project applying the innovation. - Supervises the work of the operational project manager. - Occasionally interacts with the suppliers' various project managers. - Defends the project with his top management (acts as the innovation "champion"). - Redirects the project and redefines the tasks when difficulties or opportunities arise. - Interacts with certain users at key stages (launch, design choices, tests). 	<p>PressPro documentation manager > None (at the end of the project)</p>	<p>Exinis Web Manager</p>
<p>Operational project manager</p>	<ul style="list-style-type: none"> - Works closely with the HWPM. - Allocates, monitors and controls the various tasks. - Is responsible for completing the work. - Interacts with the suppliers' project managers to coordinate their actions. 	<p>PressPro project manager → Xyleme project manager (after 6 months)</p>	<p>Exinis project manager</p>
<p>Software implementation project manager</p>	<ul style="list-style-type: none"> - Designs and develops the software solution's user interfaces. - Observes the various usages. - Works closely with the users. 	<p>PressPro project manager → Xyleme project manager with non-expert users (after 6</p>	<p>4D Concept project manager with two expert users</p>

		months).	
Users	<ul style="list-style-type: none"> - Observed by the innovation architect to define the project specifications. - Transfer « sticky » information (von Hippel, 2005) related to their usages to the project managers. - Give opinions on design options. - Test the solution. 	40 archivists (none skilled in knowledge management)	50 editors/writers (two skilled in knowledge management, “expert users”)

4. Discussion

PressPro and Exinis can both be qualified as *lead users*. However the comparison of the two projects results in our distinguishing roles that correspond to different skills and contributions from these customers. We will now emphasise the reasons that, for us, justify these roles being held by the customers.

4.1 Heavyweight project management and design of the innovation’s architecture:

In the two projects studied, the design of the product architecture, i.e. the choice of the software that had to be combined, was down to the customer. We suggest calling the person at the customer who designed this new architecture as the “*lead user architect*”. We feel that the definition of such product architecture can only come from a customer’s initiative. On the one hand, as an expert of his own needs, he is in a position to design new types of applications. In addition, while the various software publishers are focussed on their own technology, the customer can convince them to collaborate. He has two arguments to influence the innovation process:

- Project financing, that is usually a godsend for start-ups that find their resources swallowed up in software development while they still have only a few customers;
- The existence of a market for the application combining their respective software. As von Hippel (1986) points out, *lead users* have specific needs that no supplier is in a position to understand as well as they do. Therefore the customer that designs the new architecture demonstrates the potential of a new market. The start-ups need this type of information about the market because they do not have the cross-functional knowledge of the technologies or any precise idea of the needs that would enable them to assess the market potential for such applications.

A second role that the first customers have to play is that of HWPM (heavyweight project manager) (Clark & Fujimoto, 1991; Clark & Wheelwright, 1992). As it is a new type of software, there is some uncertainty as to the complexity of its adaptability to specific customer requirements, its user acceptance and performance level. The novelty of the solution results in some lack of precision in the initial specifications and also involves modifications to the tasks to be completed during the project and to the budgets. An actor with the skills to

direct this dynamics is essential. His legitimacy must be recognised internally by his company's management that has to be convinced and reassured, as well as externally, so that his choices are accepted by the suppliers. Finally, he needs to ensure that the personalisation of the solution is adapted to the requirements of his company. To achieve this, he has got to define the procedures for user involvement so that they are conducive to the transfer of sticky information related to their usages and to the tests. He will also be able to conduct other forms of personalisation that consist in attaching other software to the core software that makes up the platform (Gawer & Cusumano, 2002), as we saw during the two projects. In both cases, his knowledge of the users is paramount. An HWPM therefore seems to be essential to run the type of project we have studied and the role must be played by an actor located at the customer, that we call "*lead user HWPM*".

4.2 Operational project management

The overall management of the project in operational terms was run by a dedicated project manager at Exinis. For the most part, he played the role of operational project manager (Charue-Duboc, 1997), responsible for the success of the project and for looking after the implementation of the necessary technical means to achieve the objectives defined by the HWPM. This type of management can turn out to be difficult and uncertain. In fact, at the beginning, there is no standard method to implement this software and it is essential to get the software publishers to work together, something they are not used to doing. He then has to be credible in the eyes of the suppliers, endowed with software project management skills and capable of working in close cooperation with the HWPM. This proximity, a clear understanding of the objectives sought after as well as the need to interact with each supplier, leads us to conclude that the role of operational project manager must be taken on by somebody located at the customer end, that we suggest calling "*lead user project manager*".

4.3 Personalisation with the individual lead users

The Exinis users, with their skills in the software technology used, had a very important contribution to make in the collaboration with the Temis and Mondeca experts. As individuals, these users present *lead user* characteristics because they are "at the leading edge" of a trend recognised by the experts and known as the "semantic web". This is not only due to their training in knowledge management but also because they have realised how much profit they could make by using the innovation. At PressPro, however, the users that were involved had neither the same skills nor motivation which proved to be an obstacle for the project. We therefore insist that the major role should be played by users with skills and motivation thus setting them apart from ordinary users. Their contribution to the detailed expression of the user requirements differentiates them profoundly from the other roles highlighted previously. We suggest calling these users that have *lead user* characteristics, "*lead user experts*".

4.4 Contribution of "ordinary" users: multiplicity of uses and tests.

The contribution of “non-expert” users was not the same in the two projects studied. For Exinis, it only involved a small number of users and concerned validating design options and test campaigns. For PressPro, the intention of having all the users participate in the workshops, and consequently in the project itself, was a failure. This observation corresponds to what is recommended by the supporters of *user innovation*, namely that user contributions in the design process are only beneficial when they are from *lead users*. The common contribution among the “ordinary” users during the two projects studied was , almost exclusively, the tests, which refers back to the notion of collective intelligence, meaningful in the open source universe (Raymond, 1999).

5. Conclusion

The software industry is distinguished by the dynamism of the open source movement that highlights individual developers that take part in software design (von Krogh & von Hippel, 2003). The coordination between these developers is usually presented as emerging and self-organised (Raymond, 1999), contrary to the traditional methods of organising new product development as described in project management. The analysis of the projects we carried out highlights customers that are *lead users* but it also shows the need for coordination.

By bridging the literature on user innovation and the literature on project management, we suggested releasing the notion of *lead user* and differentiating various roles that have to be taken on by the *lead user* customers, roles that we have identified during our study. We pointed out how the first customers are involved in a multi-actor innovation process emblematic of the software industry. The customers we observed are clearly *lead users* but their role differs from what is described in the literature on user innovation in general, and in the literature relating to software in particular. In fact, strictly speaking, the *lead users* do not develop the innovation as this task is up to the suppliers, but through the innovation architect, they design it, and they need to be able to run the project that is implementing it with an HWPM assisted by an operational project manager.

By taking on these roles, the customers play the role of integrating the innovation, an essential role for an innovation that is distributed and is likely to be found in sectors where the set of component parts of an innovation is not designed or developed by one company, which seems to be the case in biotechnology (Bureth & Pénin, 2007). Our work is therefore aimed at enriching the *lead user* concept by emphasising its various dimensions.

References:

- Allen, T (1971): Communications, Technology Transfer, and the Role of Technical Gatekeeper, *R&D Management*, Vol. 1, p. 14-21
- Arthur, B (1989): Competing technologies, increasing returns and lock-in by historical events, *Economic Journal*, Vol. 99, No. 3, p. 116-131
- Bureth, A & Pénin, J (2007): Modular innovations and distributed processes: The case of genetically engineered vaccines, *European Journal of Economic and Social Systems*, Vol. 20, No. 2, p. 251-274
- Charue-Duboc, F(1997) : Maîtrise d'œuvre, maîtrise d'ouvrage et direction de projet, pour comprendre l'évolution des projets chez Rhône Poulenc, *Gérer & Comprendre*, No. 49, p. 54-64
- Clark, KB & Fujimoto, T (1991): *Product Development Performance: Strategy, Organization and Management in the World Auto Industry*, Harvard Business School Press, Boston, MA
- Clark, KB & Wheelwright, C (1992): *Revolutionizing Product Development*, Free Press, New York
- Cusumano, M (2004) *The Business of Software*, Free Press, New York
- Franke, N & von Hippel, E (2003): Satisfying heterogeneous user needs via innovation toolkits: the case of Apache security software, *Research Policy* Vol. 32, No. 7, p. 1199-215
- Gawer, A & Cusumano, M (2002): *Platform leadership*, Harvard Business School Press, Cambridge, MA
- Hakansson H (ed) (1982), *International Marketing and Purchasing of Industrial Goods*, Chichester: Wiley.
- Hauser, J, Tellis, GJ, & Griffin, A (2006): Research on Innovation: A Review and Agenda for Marketing Science, *Marketing Science*, Nov/Dec 2006; Vol. 25, No. 6
- Markus, ML & Mao, JY (2004): Participation in Development and Implementation – Updating an Old, Tired Concept for Today's IS Contexts, *Journal of the Association for Information Systems*, Vol. 5, No. 11-12, p. 514-544
- McCormack, A, Verganti R & Iansiti M (2001): Developing Products on 'Internet Time': The Anatomy of a Flexible Development Process, *Management Science*, Vol. 47, No. 1, p. 133-150
- O'Hern, M, & Rindfleisch, A (2010): Customer Co-Creation: A Typology and Research Agenda, *Review of Marketing Research*, Vol. 6, p. 84-106

- Prahalad, CK & Ramaswamy V (2000): Co-opting Customer Competence, *Harvard Business Review*, No. 78 (January-February), p. 79-87
- Raymond, E (2001): *The Cathedral and the Bazaar (Revised Edition)*, O'Reilly
- Roberts, EB & Fusfeld, AR (1981): Critical functions: needed roles in the innovation process, *Career Issues in Human Resource Management*, Ed. Ralph Katz, Prentice Hall Inc., Englewood Cliffs, New Jersey, p. 182-207
- Seybold, P (2006): *Outside Innovation: How Your Customers Will Co-Design Your Company's Future*, Collins, New York
- von Hippel, E (1986): Lead Users: A Source of Novel Product Concepts, *Management Science*, Vol. 32, No. 7: p. 791-805
- von Hippel, E (2001): Perspective: User Toolkits for Innovation, *Journal of Product Innovation Management*, Vol. 18, p. 247-257
- von Hippel, E (2005): *Democratizing Innovation*, Cambridge, MA, MIT Press
- von Krogh, G & von Hippel, E (2003): "Special Issue on Open Source Software Development," editorial in *Research Policy* Vol. 32, No. 7, p. 1146-1157