

THE LAUNCH OF INNOVATIVE SERVICES: LESSONS FROM AUTOMOTIVE TELEMATICS.

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ABSTRACT

In the literature on NPD, most existing studies on the end of the design process concentrate on managing ramp-up of manufactured products. However our economies increasingly depend upon services. This article examine the management of the final phases of the design process of an innovative service. Our research make three contributions : 1) we show that the concept of ramp-up is insufficient for understanding the phenomena at works. The nature of services means that two types of learning – technical and sales – take place at the same time. 2) an analysis of the data collected confirms this difference by bringing to light great contrasts in these two dimensions. 3) This led us to identify a new field for NPD research : the design of the sales process.

INTRODUCTION AND RESEARCH QUESTION

The central role played by innovation in corporate strategy has given rise to a significant stream of research on new product design (Brown & Eisenhardt, 1995). While this work has undoubtedly helped researchers and practitioners better understand and master the design process, certain weaknesses are nevertheless clear. For instance, in a recent review of the literature, Krishnan & Ulrich (2001) show that this work focuses excessively on the development phases per se; in particular, they demonstrate that the final phases in the design process for new products (tests on pilot sites, ramp-up and launch) have been more or less ignored. Yet in their 1991 study, Clark & Fujimoto had already emphasized the crucial importance of these phases, which to a great extent determine the future success of a product. Unanticipated quality problems that handicap a new product's reputation and hence its sales, or an inability to achieve expected yields, generally result in the loss of potential customers and postpone the return on investment. Cooper (1993) also highlighted the importance of the strategy adopted at launch for the success or failure of new products.

In the literature on new product development, most existing studies on the end of the design process generally concentrate on managing ramp-up. This work has highlighted the importance of the strategies implemented by managers (i.e. Terwiesch & Bohn, 2001) and the basic link that exists between the work conducted during development and the quality of ramp-up (Langowitz, 1988; Clark & Fujimoto, 1991). Nonetheless, for the most part this work focuses on the study of these issues in the field of manufactured products and neglect the specific issue of marketing (design of the marketing plan, the training of sales personnel and so on).

This situation poses a problem at a time when a great deal of research is showing that our economies increasingly depend upon services (Gadrey, 2003). As Thomke (2003) observed, the focus in the literature on product innovation is the likely explanation for the relative lack of proven methods for the development of new services. Indeed, existing work on innovation in services agrees on one point: in service companies, the process of design/innovation is relatively informal, providing a partial explanation for the problems frequently seen in the development of new services, such as missed deadlines and inadequate quality (Gallouj & Gallouj, 1996; Jallat, 2000; Flipo, 2001). This is all the more regrettable given that service innovation is not limited to "pure" service companies (banks, insurance, transport, business services etc.); industrial firms are also increasingly using product-related services to stand out from the competition and to offer their clients customized solutions (Furrer, 1997; Cusumano, 2004).

This article will examine the management of the final phases of the design process of an innovative service. While the literature on service innovation proposes theoretical models of the design process (Shostack, 1984; Lovelock, 1984; Scheuing & Jonhson, 1989; Edvardsson & al, 2000), it does not pay much attention to the final phases of the process (ramp-up, to the extent that this concept has much meaning for services, and marketing)¹. They agree on the importance of conducting tests before service launch, but also show that these tests are rarely performed in practice (Eiglier & Langeard, 1987; Gallouj & Gallouj, 1996; Jallat, 2000). There is, however, reason to believe that these final steps in design play a crucial role in the success or failure of a new service, just as they do for products.

We will consider these issues using an inductive research method (Glaser & Strauss, 1967), which Eisenhardt (1989) showed was relevant for exploring issues that were new for researchers and practitioners. An interactive study (Berry, 1995) conducted for three years within a European carmaking company (here called Telcar) enabled us to take part in the real-time design process and then in the marketing of a new telematics service. In a previous article (Lenfle & Midler, 2003), we presented the issues related to the development of telematics services and the organizational response adopted by Telcar. Here we will concentrate on the more specific issue of the launch of this service.

This article will make three contributions. An analysis of the implementation process in the case of services shows, first, that the concept of ramp-up is insufficient for understanding the phenomena involved in the launch of an innovative service. The simultaneity of the production and consumption of a service means that two types of learning – technical and sales – take place at the same time. The commercial dimension is not treated in studies on ramp-up, and it is therefore necessary to draw on other literature. Second, an analysis of the data collected confirms this difference by bringing to light great contrasts in these two aspects of learning. This led us to identify a field that needs exploration by researchers in product and services innovation: the design of the sales process.

We begin by discussing the notion of a product launch and showing that this involves two different processes: the ramp-up of a production system and a sales launch. We then study the transferability of this concept to the world of services. Then, having described the role of services in the car industry, we analyze what is

¹ A bibliographical search on the Internet reveals that this issue has not been covered by any article in the specialist journals on production management (*Production & Operations Management Journal*), nor in journals dealing more specifically with services (*Journal of Service Research, International Journal of Service Industry Management*).

new in the service under study. We then show the problems that designers must deal with during the launch phase. Finally, we present the data collected during the first 17 months of marketing the service. An analysis of these results shows the relevance of the results obtained in the case of products, as well as their limitations. But this case also suggests that the development of the sales process for a product or service has still not been given great attention. We conclude by pointing out that this is an important area for researchers in the management sciences.

THE LAUNCH OF A NEW PRODUCT: PHYSICAL GOODS VS. SERVICES

In their critical review of the literature on new product development, Krishnan & Ulrich (2001) put ramp-up and product launch in the same phase; however, in the rest of their article the only work they cite in fact concerns ramp-up. We feel that this is indicative of the ambiguity of research on the development of new products, which – as the summary of Krishnan & Ulrich illustrates by default – harbours a significant technical bias and leaves aside the issue of the commercial launch.

Here we consider product launch to incorporate what are actually two different processes: the start-up of production in normal conditions, generally called ramp-up, and the commercial launch of the product.

The literature on new product development, which is already sparse on the first issue, is silent on the second, which is, on the other hand, dealt with in the literature on marketing. The lack of communication between these two fields is due, in the case of products, to the de-coupling of these two processes. Chronologically, ramp-up precedes marketing, even though in practice there is some overlap. The literature on marketing thus assumes that products are available in the desired quantity and quality. This hypothesis is of some relevance, to the extent that the time gap between the two processes² makes corrections possible if, for example, the products are not of the required quality. Before studying the case of services, it is necessary to present the main results of this research, which we will consider in turn.

Ramp-up of manufactured products

In the literature on new product development, the final phases of the design process are mainly studied under the concept of "ramp-up". As is specified in Wheelwright & Clark (1992, p. 8): *"In ramp-up, the firm starts commercial production at a relatively low level of volume; as the organization develops confidence in its (and its suppliers') ability to execute production consistently and in marketing's ability to sell the product, the volume increases. At the conclusion of the ramp-up phase, the production system has achieved its target levels of volume, cost and quality."* Ramp-up thus occurs as the last stage of development: the design of the product and of the process are complete; prototypes have been made and tested; and now the transition is made to production in real conditions. The goods produced in this phase are intended for sale; goals for yields and quality thus play a major role.

Ramp-up is therefore the ultimate test of the quality of the design work. Research on the subject has shown that it must be viewed as a key learning opportunity. It has revealed three important points in the case of products, as follows:

1. The fundamental role of the design work preceding ramp-up (strictly speaking) and the way the project as a whole constitutes preparation for this phase (Langowitz, 1988; Clark & Fujimoto, 1991).

² Generally, production begins before marketing, if only to supply the network.

2. The importance companies place on the management of this phase, as more and more frequently they set up teams specifically to manage it. Implementation is thus treated as an extension of the innovation process (Leonard-Barton, 1988). Terwiesch et al. (1999) show the positive impact the establishment of specialized teams for managing this phase has had in the case of the hard disk industry.
3. And, consequently, the differences in performance observed among firms that adopt very different strategies in this area. Research in this field has, for example, shown the impact of variables like training and change management (Adler & Clark, 1991), experimentation strategies (Terwiesch et Xu, 2001 ; Terwiesch et Bohn, 2001), industrial strategies (Clark & Fujimoto, 1991), and capitalizing on previous experience (Charue-Duboc, 1995).

The launch of a new product : the case of physical goods

The subject of product launch and marketing has been covered by many marketing and strategy studies, which have examined the impact of the strategy adopted during launch on the diffusion of innovation and, consequently, on a company's profitability. The goal is to accelerate diffusion in order to reduce the ROI time. Two trends in this literature can be outlined:

- The first deals with strategic issues. Lieberman & Montgomery (1988) devote great attention to the advantages and strategic risks of the *first-mover*, whereas the classic marketing texts (for example, Kotler, 2003) highlight the main strategies possible during the launch of a new product. At a general level they oppose the strategies of a mass launch – mobilizing every marketing lever, at great cost, to accelerate diffusion – in favour of a more prudent approach that focuses on early adopters and that limits the resources committed.

- The second current studies the levers of action available during the launch of a new product and their impact on diffusion. This has led to several significant results:

1. Rogers (1983) underlined the importance of early adopters of a new product regarding the process of diffusion, thus highlighting the importance of choosing the first customers to be targeted at launch. More recently, Moore (1995) has shown the limits of this reasoning and the need to adapt a company's strategy to *cross the chasm* that separates early adopters from the mass of potential customers.
2. Customers are not the only targets at launch; for a company to gain acceptance for its innovation, it must also convince distributors, who will sell and recommend the product to customers, and producers of related goods, who in some cases determine how attractive it is (Gawer & Cusumano, 2003). This process of training partners is long and expensive.
3. Finally, the literature discusses the impact of different variables in the marketing mix on how consumers greet an innovation (Manceau, 2003). It emphasizes in particular:
 - a. The importance of the simplicity of the initial product and the range offered in order to facilitate customer uptake.
 - b. The role of communications that help explain the benefits of the product offered and contribute to promoting its image among future purchasers. The tests organized at launch can play a significant role in adoption.
 - c. Various price strategies, depending on whether the goal is rapid market penetration (low price) or a quick return on investment (skimming through a high price).

The specific character of services

Even though the two trends in literature provide solid results in the case of physical goods, there is a question with regard to how transferable these outcomes are to the world of services. Three points need to be taken into account.

First, it is interesting to note that with regard to the issue of the launch itself, the results are similar to the case of physical goods; Eiglier & Langeard (1987) thus emphasize the importance of clear communications and the simplicity of a new concept offered to customers. Likewise, Lovelock (1984) and Scheuing & Johnson (1989) point out the importance of training those personnel who are in contact with customers given that services are co-produced with them, without, however, explaining which actions might be relevant.

However, after this initial approximation, it is not possible to separate production and marketing due to the structural characteristics of services (Eiglier & Langeard, 1987; Grönroos, 1990). In services production takes place simultaneously with the sale. In these conditions, i) it is very difficult to "correct" defects³, and ii) customer dissatisfaction is immediate and frequently insurmountable (Zeithaml & al., 1990). The first marketing is thus very much a *moment of truth* (Norman, 1991) that will, to a great extent, determine the success or failure of the new service. In the case of services, the launch phase also involves the initial months of marketing the service, so it does not include the tests conducted during the design process, tests that are intended to prepare for marketing. We will consider the consequences of simultaneous production/sales later in this paper.

Finally, to our knowledge the notion of ramp-up has never been used in the case of services. This raises a question about whether this concept and the results from the realm of products are applicable. In the case of physical goods, monitoring ramp-up particularly involves the determination of an observation point (in general, the factory) and the definition of indicators used to guide the phase (in general, productivity and quality). Studies on the subject thus typically measure the time required for different plants to achieve "normal" levels of productivity and quality and/or to explain any differences according to the strategies implemented before and during ramp-up (Clark & Fujimoto, 1991; Terwiesch & Bohn, 2001). In the case of services, we will hence have to determine the appropriate performance indicators and deal with the problems posed by the heterogeneous character of the network.

The launch of an innovative service thus raises particular questions. By studying the case of telematics services, we will be able to specify the phenomena involved during the launch of an innovative service and to show the value and limits of observations from the study of physical goods.

THE AUTOMOBILE AND SERVICE INNOVATION: THE CASE OF EMERGENCY AND BREAKDOWN CALLS

The context and design of the service

Carmaking constitutes a typical example of an industry that offers a product-service pair (Eiglier & Langeard, 1987). Even if historically the product-service couple is in this case dominated by the product, carmakers offer their customers a wide range of services aimed at facilitating the car's purchase (credit), repair (maintenance) and availability (breakdown assistance), or all three simultaneously (via a combined monthly fee). This trend to develop car-related services has been

³ Unlike manufacturing plants that can "take back" a product before marketing it, even if this is costly.

recently boosted by using ICT to offer customers new types of "telematics services" (address dispatch, route-finder services, remote diagnostics, location-enhanced emergency calls and more). Making room for new service possibilities is a significant innovation for carmakers, which are embarking on a field that they have not yet mastered.

Here we will concentrate on the case of E/B Call, an emergency & breakdown call service that began at Telcar in 2001⁴. As the name indicates, the concept involves offering customers a service that allows them to call a number for help in case of an accident or breakdown. The call (made automatically in an accident) is used to determine the vehicle's precise location. The service may appear to be an *a priori* extension of the assistance services that have long been offered by carmakers. However, a detailed analysis of the design work (Lenfle, 2004) shows that, on the contrary, this represents a major departure in several areas simultaneously. It requires:

1. Developing product support that permits communication with and location of the vehicle, including when a crash occurs.
2. Solving the legal issues raised by an emergency service (i.e. who is responsible if a problem arises during the emergency procedure?).
3. Setting up a front office, in the knowledge that the one offering the service (the dealer network) is not the same as the one performing it (a partner specializing in assistance).
4. Designing and setting up a complex back office, comprising:
 - A telecommunications infrastructure that can locate the vehicle in an extremely short time and with a high degree of reliability.
 - Information systems that can record service contracts and handle invoicing, and then deal with internal data to manage customer relations.
5. Developing a business model that ensures the financing of a service that, according to all those involved, is "difficult to sell".

The complexity of the service can be seen in the course of the design process. Telcar did not in fact have the internal competences necessary and had never before marketed this type of service. Our analysis of the unfolding of the project shows that the team encountered three main difficulties:

- a) Setting up a communications/emergency infrastructure proved to be much more complex than originally thought. For example, the tests organized during design revealed recurring difficulties in locating the vehicles and inadequate training on the part of phone operators. The system was late in being declared operational.
- b) Developing the sales procedure as a dealer service required a great deal of back-and-forth between the project team and the Telcar sales department. The latter wanted to streamline the procedure for service registration, which in particular provides for 1) signing a contract, and 2) a registration call between the seller and customer. The involvement of the manager of the Telematics project finally convinced the sales department to accept this solution.
- c) The discussion of the sales process was complicated by legal issues. The Telcar legal staff emphasized the need for the customer to sign a contract, given the special nature of emergency calls and the risks run by the carmaker in case of problems. These discussions were also at the root of the lag in marketing.

⁴ For reasons of confidentiality, names and dates have been changed and/or disguised.

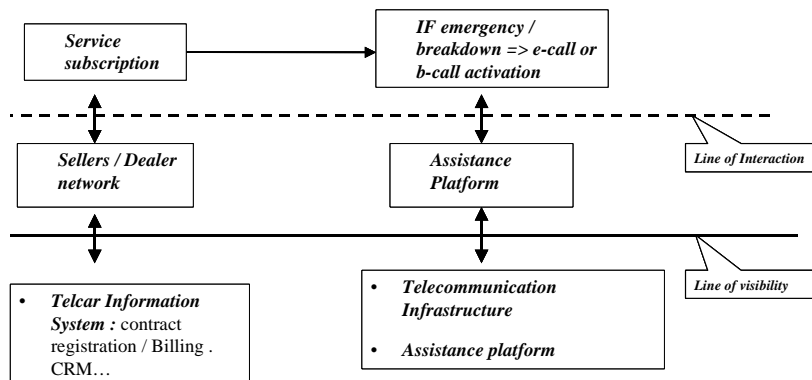
The problem: Integrating technical and commercial learning

The case of the E/B Call helps us understand the phenomena involved in launching an innovative service. For this purpose, we use the model proposed by Shostack (1981) and then developed by J. Kingman-Brundage (1989). This tool, called a "blueprint", helps to identify the main steps involved in delivering the service and, for each step, the process and people involved in it. Two levels can be distinguished in the process of service marketing ("servuction"), corresponding to the classic distinction between front and back office:

1. People in contact with the customers (interaction line).
2. The process supporting these people, which is invisible to the customer (line of visibility).

Applying this model to the case of the location-enhanced emergency call, we obtain the following diagram, which represents a simplified version of the servuction process and consists of only two steps (Figure 1). Two points in particular distinguish the case of services from that of physical goods.

Figure 1: A simplified blueprint of the E/B Call.



First, due to the co-production and non-material nature of the service, the system must be operational from the first day it is marketed (after all, a customer could have an accident only moments after subscribing to the service). Unlike the situation with regard to products, the start of production cannot be dissociated from the start of marketing. The ramp-up and marketing phases are thus intertwined. This simultaneity creates additional problems for the project team: unlike physical goods, it is impossible to take back a service after a defect has been noticed. As is clear, however, there are many potential sources of defects: they could come from the front office and/or the process established, in this case the registration of customers during the sale, the localization of the vehicle and the organization of assistance⁵.

Second, while the notion of ramp-up emphasizes the technical aspect of learning with regard to the capacity to produce the product correctly, in this case the two processes of learning identified in Section 2 take place simultaneously:

- The first (left part of Figure 1) concerns the effectiveness of the process of selling the service. In the case of the E/B Call, this takes place mainly at the dealership and involves the sales staff above all.

⁵ These are not all equally serious. Errors in registration hurt the company first, as it will experience difficulties in managing its customer relations. On the other hand, failure to locate the vehicle calls into question the very reason for the service.

- The second (right part of Figure 1) involves the production of the service itself, i.e. locating the vehicle and organizing assistance or repairs. It concerns those involved in the assistance system, as well as the entire communications and assistance back office, which, it should be recalled, is where the main innovations are concentrated.

The difficulty is thus to understand the determinants of the learning process. After presenting the results of the study of the E/B Call case, in the last section we will discuss the most relevant analytical approaches for understanding the phenomena involved and the determinants of a successful launch.

THE LAUNCH PROCESS

The monitoring indicators

As mentioned in section 2, to organize the launch the team need to define observation methods and performance criteria. The difficulties encountered in service design led the project managers to define three different indicators to monitor the implementation of service marketing:

1. The reliability rate measures the ratio between the properly located calls and the total number of calls. It estimates the reliability of the back office, which comprises the telecommunications infrastructure set up to locate vehicles and then organize assistance. This first indicator thus measures the quality of the "technical" design work performed by the team (right part of Figure 1).
2. The rate of contract subscriptions measures the ratio between the number of customers who might subscribe (those whose car is equipped with a telematics module) and those who actually subscribe. It measures the effectiveness of the "internal marketing" work performed by the project team. The work on service innovation illustrates the difficulties that exist for mobilizing downstream personnel, in particular those in the front office. As Thomke (2003), for example, has shown, the latter are always torn between the need to complete their day-to-day tasks and the effort that is required to assimilate the procedures intrinsic to any new service. One could therefore conclude that the effectiveness of the "sales" dimension of the service launch depends on the training/evangelization efforts of the project team prior to marketing.

There are two other particularly interesting features concerning the emergency call service offered by Telcar:

- It is free for customers; as a result, the contract subscription rate is not influenced by cost considerations and could be considered a relatively "pure" measure of the work done to design the service marketing set-up.
 - Likewise, the company decided not to promote the service initially except through its network; it was thus mainly sales personnel who were promoting the service.
3. The rate of registration calls measures the ratio between the number of customers actually subscribing to the service and the number of registration calls really made. As already explained, the marketing process provides for a call between the salesperson and the customer to record certain customer data. This third rate helps to refine the extent to which the network has assimilated the procedures designed upstream.

Presentation of the data collected

Our participation in the Telcar project gave us access to a wealth of material. The following graphics page (Figure 2) presents the changes in the three preceding indicators over a 17-month period, starting with marketing. At this point, the team believed that the system was functioning "normally", at least from a technical viewpoint. The reliability rate for localization has stabilized since the end of March at above the initial goal of 95% (red line on the figure).

Figure 2: The emergency call service: 17 months of operation

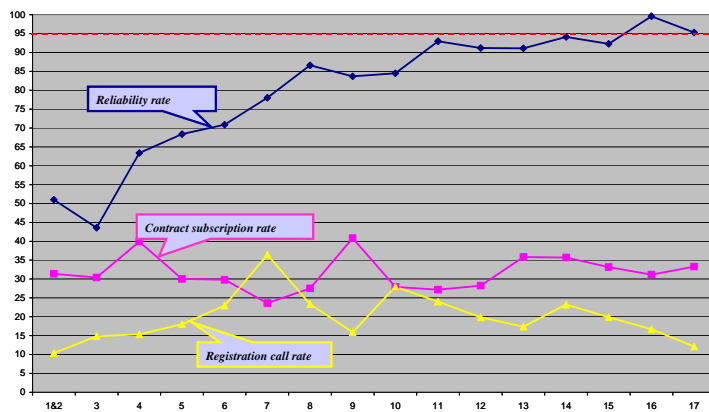
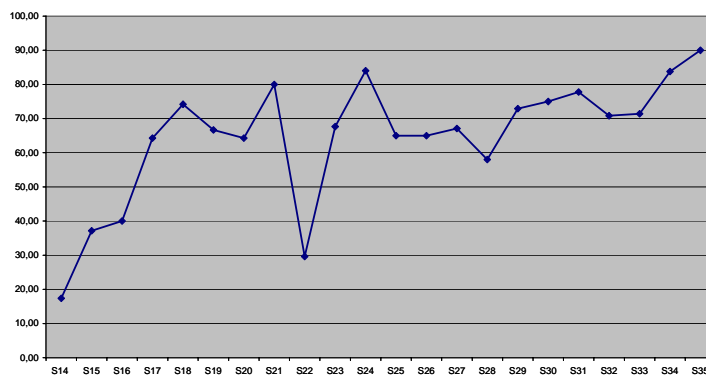


Figure 3: Reliability of localization between the fourth and eighth months following launch



This immediately gives rise to several observations about ramp-up:

1. At the technical level, the tests performed before service marketing were not adequate to deal with all the uncertainties. The first quarter was marked by a low reliability rate (blue curve).
2. The reliability rate improved regularly with time: in 17 months, it thus rose from less than 50% to stabilize at above 90% in the 11th month, achieving the targeted 95% by the end of the 14th month. A detailed study of the changes in this rate provides greater detail regarding the technical ramp-up. Figure 3 thus shows that the team managed to solve the main problems between the fourth and eighth months following launch. Between these two dates, the localization reliability rate, this time calculated on a weekly basis, rose from below 20% to 90%. Variations in this rate, in particular the trough seen for Week 22, nevertheless show the difficulty for a carmaker with regard to mastering a completely innovative back office.
3. However, this represents only the technical dimension of ramp-up. If we now consider the rates for subscription and registration calls, i.e. the "commercial"

dimension of ramp-up, the situation is very different. These two indicators have a dual characteristic:

- They are relatively low (between 30 and 40% for the subscription rate, below 30% for the service registration calls).
- They are stable over time, reflecting the relative lack of learning during the period under consideration.

The data collected on the E/B Call case thus reveals two very different curves, depending on whether the "technical" or "commercial" aspect of the service is considered. This difference is explained in Section 5.

ANALYSIS AND DISCUSSION

We will use two theoretical frameworks to explain the changes presented in the preceding section. First, we will show the relevance of the results of the research on ramp-up in the case of services with regard to products (cf. Section 2): the nature of the design work upstream from launch and the organization of the launch per se thus contribute to a better understanding of the data collected. The paradox represented by the statistical refutation of our second hypothesis will thereby be explained in part, but we believe that this theoretical framework needs to be supplemented. More specifically, the case of E/B Call brings to light a field that has been little studied by research on new product design: the design of the sales process. This will be the subject of the third part of our analysis.

The importance of the upstream preparatory work

The difficulties encountered by Telcar are due first of all to the quality of the work performed upstream. In their 1991 study, Clark & Fujimoto link the superiority of Japanese companies to the quality of their upstream design work, which enables them to anticipate the problems that arise during ramp-up. These firms thus regain their former levels of productivity and quality 10 times faster than their Western competitors. We believe that the same phenomena are at work in the case of the emergency call service and that this partially explains the differences observed between the technical and commercial dimensions.

The establishment of the technical infrastructure was thus subject to intensive design work even if, as we've explained, many difficulties arose: a specialist team worked on the question, involving suppliers, and tests were performed under real conditions, which made it possible, if not to eliminate all defects, to at least identify their possible causes. Preliminary tests, for example, led to modification of service platform operators' scripts and improvement in their training. The team was thus prepared to handle the difficulties that arose during marketing, so the low rate of localization calls during the first weeks of marketing were more indicative of the difficulty of perfecting an unprecedented telecommunications infrastructure than of inadequacies in the upstream design work.

Conversely, the design work on the marketing process was much less intense. In this dimension of the project, the way the design process worked was similar to the sequential operations whose limits were described by Wheelwright & Clark (1992). There were thus very logical weaknesses in this type of organization:

- Downstream activities, in particular the sales department, were integrated belatedly into the project team (Lenfle & Midler, 2003).
- Conflicts then surfaced that led to a questioning of the work carried out up to then; the marketing process was thus modified late.

- This led to neglect of the real test phases with one or more dealers to evaluate the procedure's effectiveness, so it was not possible to count on the knowledge accumulated during these tests (Thomke, 2003), and marketing became the sole test of truth.
- Likewise, the network could not be trained satisfactorily and no incentives systems has been implemented.

Finally, the marketing efforts, which are crucial to the success of an innovative goods (cf. Section 2) or service (Lovelock, 1984), could not be carried out effectively. This undoubtedly constitutes an initial explanation for the low number of subscriptions observed.

Nevertheless, while the functioning of the design process explains the difficult start-up of the services, this alone cannot explain the change in the performance of the two over time.

The role of the monitoring and launch structures

This leads to a study of the way in which the launch itself was organized, which constitutes the second variable underlying the differences in performance observed between firms in the case of products (cf. Section 2). On this question, real-time monitoring of the marketing process enabled us to uncover the differences between the technical and commercial dimensions of the service. We believe that this will explain the absence of front-office learning with regard to marketing the service.

In the case of emergency calls, the communications infrastructure is managed by a technical team for whom this is the main mission and who themselves designed and established the infrastructure; the team thus has significant experience with possible defects in the system. Every defective call is systematically analyzed in order to understand the source of the problem. The change in the reliability rate between the fourth month and the eighth reflects the difficulty as well as the effectiveness of learning. Thereafter, the team was able to rapidly detect and solve the various problems encountered; this can be seen in the curve in Figure 1. Yet we still find ourselves in a situation much like that studied in the literature on products: a team is managing a largely automated system. The challenge is thus to understand the dysfunctions of the system, but the latter is familiar as the design work has laid a basis for understanding.

The situation is different with regard to the commercial dimension of the service. The difficulty here is managing the way a very heterogeneous network scattered throughout the country learns⁶. The challenge here is 1) to monitor the functioning of the entire network, and 2) to ensure that both learning and the exchange of learning amongst dealerships are capitalized upon. The system for managing the ramp-up will thus play an absolutely crucial role in this process. Given the geographic dispersal of the dealers and the sales pressure they are subjected to, it is not at all likely that the transfer of knowledge will take place spontaneously.

However, in the case of the emergency call service, it is clear that the monitoring and launch structures are weak. Unlike the telecommunication infrastructure there isn't any launch team. Furthermore, due to the unfolding of the design process, the involvement of the sales department remains limited. Consequently dealers do not have a contact capable of answering their questions in case of problems. The existence of a launch support structure is thus in our opinion a

⁶ Some dealers are medium-sized companies in large urban areas, while others are very small family-run firms, and so forth.

sine qua non for the existence of a learning process⁷. Its role will consist of centralizing the learning acquired by the different dealers and, based on the accumulated knowledge, make changes to procedures and assist the network with any difficulties.

Other case studies in the same company show the effectiveness of this type of structure, when it exists. Its absence in the E/B Call case goes a long way toward explaining the stability of the curves. It has been amplified by the lack of incentives for dealers. Moreover, a look at the changes in the curves leads us to believe that the effects of this absence are cumulative over time in the case of services. There is thus every chance that the innovation will never make up for the accumulated lag.

Designing the sales process for innovation

The E/B Call case shows both the importance of the sales process in launching the service and the difficulty of involving the sales personnel in the design process. For the designers, the problem here is to design a sales process that will help both distributors AND customers to learn about the innovation more rapidly. This question has, however, not been given much attention. This clearly goes beyond the field of the literature on ramp-up. The paradox is that it is also given little attention in studies on marketing and sales: the former basically emphasizes the role of tests that can facilitate the take-up of a new product by customers (Manceau, 2003), while the latter, to our knowledge, does not deal with the links between sales and innovation⁸. Yet our research at Telcar demonstrates the impact of this variable and the complexity of this task: it requires consideration of customer dynamics and support material, adaptation of tools used by salespeople, and training methods for salespeople and the incentives used to mobilize them.

The E/B Call case shows the importance of involving the sales personnel in design: they are the ones who know the sales process and are capable of anticipating any problems in implementation. The case of the emergency call service illustrates the consequences of involving these people too late. In this respect, it is striking to see the similarity between the weak involvement of sales and the situation of factories in the mid-1980s: process feasibility problems were discovered late because manufacturers were not very mobilized in the design process for new products. With the implementation of the concurrent engineering approach in the 1990s, the factories were mobilized upstream of development right up to the most operational level to review product/process designs. This was to play a central role in the shortening of product cycles and the increase in the speed of ramp-up observed in the early 1990s (Clark & Fujimoto, 1991). The growing importance of services to manufacturing strategies and the latter's impact on marketing have made it important to bring about an analogous change in the sales world.

The limits on the parallel between the two worlds probably stems from the nature of the sales activity itself. In his research on automobile sales platforms, J. Y. Barbier (2004) shows that the activities of salespeople lead them to concentrate on the most profitable activities and limit the window during which they are available for learning new sales procedures. This "cognitive saturation" of the sales personnel is a constraint for those who design and test sales processes. It is magnified in the present

⁷ This has been shown in the case of products (cf. section 2) The difference is that here the transfer must be managed in real time, whereas the product studies generally examine the consequences of the transfer in the case of two successive launches in different factories.

⁸ A study of the articles appearing in the last 10 years in the *Journal of Personal Selling and Sales Management* shows that the question of innovation is virtually absent from sales studies.

case by the innovative, free nature of the service. Up till now, therefore, salespeople have not viewed E/B Call as a concept that really differentiates them; this partly explains the difficulty of mobilizing them and is particularly reflected in their absence during pre-marketing tests. The company is thus losing an opportunity to have them review the processes developed. This emphasizes the importance of:

1. The thoroughness of the test conducted, which does not merely concern the technical dimensions of the service, as is frequently the case (Eiglier & Langeard, 1987; Gallouj & Gallouj, 1996).
2. Front-loading in design: this case shows the need to start in very early on training and "evangelization" within of the network⁹.

This doubtlessly represents a challenge for the "sales methods" that need to be integrated into the design process so as to make the sales process a crucial lever in the adoption of the innovation.

CONCLUSION

The E/B Call case study has helped to demonstrate the specific features of a service launch. This involves simultaneously managing two processes that are relatively separate in the case of products: the ramp-up of the production system and marketing. Nevertheless, this specificity does not render irrelevant the results presented in the literature on ramp-up. We find, for instance:

- The difficulty of managing the launch of a highly innovative service: the absence of precedents and the need to develop new technical and sales knowledge considerably complicates the design process.
- The importance of the quality of the upstream design work for performance and, conversely, the negative impact of late changes: this emphasizes the practical and theoretical importance of developing methods to manage innovation that are suited to services (Lenfle, 2004).
- The role of management structures in this phase: first, they help to manage the problems that inevitably appear; and, second, they help to capitalize on the knowledge accumulated so as to guide the process in real time.

Our research has also identified key issues for research into innovation, two important points in particular:

First, the design of the sales process and its impact on the adoption of innovations is a field that has been little explored by the literature. Yet the case studied here illustrates the difficulties experienced in involving these personnel. The methods used to involve them undoubtedly constitute an emerging field of research. This brings up both the role and the form of the tests conducted during the design process, which must make it possible to test this dimension, and of the incentive systems for personnel who are systematically swamped in their day-to-day tasks. Studying the ways salespeople learn and opportunities for influencing this is also an important issue that we have barely touched upon here.

In addition to tests conducted at pilot sites, the issue of rolling out a large-scale service is another important question for researchers and practitioners. The dispersed, heterogeneous nature of the network makes it difficult to transpose the procedures developed upstream intact. This relates to the work of the designers and the organization of the launch. The challenge will be to design procedures that are both

⁹ Other cases observed in the same company show that, in the case of services, training efforts are particularly long-lasting and costly (many people mobilized for six months).

general enough to ensure that service delivery is consistent as well as adaptable to the contexts in which they are delivered to the customer.

The questions raised, in particular concerning the design of the sales process, call for innovative collaboration between the disciplines involved (marketing, sales, new product development and innovation management).

REFERENCES

- Adler, P. & K. Clark. 1991. Behind the learning curve : a sketch of the learning process. *Manag. Sci.* **37** (3), 267-281.
- Barbier, J.Y. 2004. *Efficacité et transposabilité d'une plate-forme de vente. Le cas d'une entreprise de distribution de véhicules d'occasion.* Unpublished Ph.D Thesis, Ecole Polytechnique, Paris.
- Berry, M. 1995. Research and the practice of management : a french view. *Org. Sci.* **6** (1), 104-116.
- Brown, S.L., K.M. Eisenhardt. 1995. Product development : past research, present findings, and future directions. *Academy of Manag. Review.* **20** (2), 343-378.
- Charue-Duboc, F. 1995. Usage et production de connaissance dans une usine automobile : un processus d'apprentissage organisationnel in F. Charue-Duboc. *Des savoirs en action*, L'Harmattan, Paris, 175-198.
- Clark, K., T. Fujimoto. 1991. *Product development performance. Strategy, organization and management in the world auto industry*, Harvard Business School Press, Cambridge, MA.
- Cooper, R. 1993. *Winning at new product : accelerating the process from idea to launch*, 2nd edition, Addison-Wesley.
- Cusumano, M. 2004. *The business of Software*, The Free Press.
- Dutton, J., A. Thomas. 1984. Treating progress functions as managerial opportunities. *Academy of Manag. Review.* **9** (2), 235-247.
- Edvardsson, B., A. Gustafsson, M. D. Johnson, B. Sanden. 2000. *New service development and innovation in the new economy*, Studenlitteratur, Lund, Sweden.
- Eiglier, P., E. Langeard. 1987. *Servuction. Le marketing des services.* Edisciences International, Paris, France.
- Eisenhardt, K. 1989. Building theories from case study research. *Academy of Manag Review.* **14** (4), 532-550.
- Furrer, O. 1997. Le rôle stratégique des services autour du produit. *Revue Française Gestion.* **113** 98-107.
- Gadrey, J. 2003. *Socio-économie des services.* La Découverte, Paris, France.
- Gallouj, C., F. Gallouj 1996. *L'innovation dans les services.* Economica, Paris, France.
- Gawer, A., M. Cusumano. 2003. *Platform leadership.* Harvard Business School Press, Cambridge, MA.
- Glaser, B., A. Strauss. 1967. *The discovery of grounded theory. Strategies for qualitative research.* Aldine Publishing Company, Chicago.
- Grönroos, C. 1990. *Service Management and Marketing : Managing the moments of Truth in Service Competition.* Lexington Books, New York.
- Hatchuel, A. 1994. Apprentissages collectifs et activité de conception. *Revue Française Gestion.* **99** 109-120.
- Jallat F. 2000. Le management de l'innovation dans les entreprises de services : spécificité des processus et facteurs de performances. in *De l'idée au marché*, Bloch A., D. Manceau D. (eds), Vuibert, Paris, France

- Kingman-Brundage J. 1989. The ABCs of service blueprinting. in *Designing a winning service strategy*, Bitner M.J. & L.A. Crosby (eds), American Marketing Association.
- Kotler, A. 2003. *Marketing Management*. Pearson Education, France.
- Krishnan, V., K. Ulrich. 2001. Product development decisions : a review of the literature. *Manag. Sci.* **47** (1), 1-21.
- Langowitz, N. 1988. An exploration of production problems in the initial commercial manufacture of products. *Res. Pol.* **17**, 43-54.
- Lenfle, S. & C. Midler. 2003. Innovation in automotive telematic services : characteristics of the field and management principles. *International Journal of Automotive Technology and Management*, **3** 144-159.
- Lenfle, S. 2004. Innovation in services : the contribution of design theory . *11th International Product Development Management Conference – Dublin*, june 20-22.
- Leonard-Barton, D. 1988. Implementation as mutual adaptation of technology and organization. *Res. Pol.* **17** (5) 251-267.
- Lieberman, M.B., D.B. Montgomery. 1988. First-mover advantage. *Strategic Manag. J.* **9** (6) 41-58.
- Lovelock, C., J. Wirtz., D. Lapert. 2004. *Marketing des services*. Pearson Education, Paris, France.
- Lovelock C. 1984. Developing and implementing new services. in *Developing new service*, George, W., C. Marshall. (eds), American Marketing Association.
- Manceau, D. 2003. Lancement de nouveaux produits. in *Encyclopédie de l'innovation*. Mustar & Penan (eds.), Economica, Paris, France.
- Moore, G.A. 1995. *Inside the Tornado*. HarperBusiness Book, New-York.
- Normann, R. 1991. *Service management : strategy and leadership in service businesses*. John Wiley and sons.
- Rogers, E. 1983. *Diffusion of Innovations*. The Free Press.
- Scheuing, E., E. Johnson. 1989. A proposed model for new service development. *Journal of Service Marketing.* **3** (2) 25-34.
- Shostack, G.L. 1981. How to design a service ? in *Marketing of services*. George; W., J. Donnelly (eds), American Marketing Association proceedings series.
- Terwiesch, C. & Bohn, R. (2001), "Learning and Process Improvement during Production Ramp-up", *Int. J. Product. Econ.* **70** 1-19.
- Terwiesch, C., Chea, K. & Bohn, R. (1999) "An Exploratory Study of Product Transfer and Production Ramp-up in the Data Storage Industry", Report 99-02, University of California, San Diego.
- Thomke, S. 2003. R&D comes to service. Bank of America's pathbreaking experiment. *Harvard Business Review*, April, 71-79.
- Wheelwright, S., K. Clark. 1992. *Revolutionizing product development. Quantum leaps in speed, efficiency and quality*. The Free Press, New-York.
- Zeithaml, V., A. Parasuraman, L. Berry. 1990. *Delivering Quality Services*. The Free Press, New York.