INNOVATION PROCESS BASED ON CUSTOMER DEVELOPMENT IN A LARGE MATURE COMPANY

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SUMMARY (*maximum 250 words*)

Goal: To assess whether it is indeed possible to apply the Customer Development process in a mature firm.

Design / Methodology / Approach: This case study was built from a semi-structured interview with the Innovation manager and a UX Designer at that institution.

Results: It was possible to verify from the analysis of the interview that the company is able to apply only part of the Customer Development process in its new product innovation process.

Limitations of the research (if applicable): This paper is a case study and applied research, so it is not possible to make generalizations. In addition, this article considered interviews with only two individuals from the company, which may have limited results.

Originality / value: The Customer Development process, widely used by startups, is designed with the aim that, at the end of a process of development of an innovation, the customer can see the maximum value in the product. But there are few studies on the application of this methodology in mature companies.

Keywords: Customer Development process, Innovation, Mature company

INTRODUCTION

Innovation is essential for any organization to remain competitive in an environment with increasingly fierce competition (Trott, 2012). But how to develop effective innovations? Several methodologies and innovation processes have been studied, and many of them are used today by several corporations around the globe. One of these methodologies is that the innovation process must include the customer from the conception of ideas to the validation and the proposal to launch the product: the methodology based on the Customer Development process.

According to Blank (2006), the Customer Development methodology was designed with the aim that, at the end of a product development process, the customer can see maximum value in the product and it can be successful in the market. This methodology was structured in a process, which goes through the conception of ideas and goes until obtaining the company's escalation, with the difference of having the customer as the validating subject of the deliveries made during the product development activities.

To ensure that the result of the methodology will be effective according to the purpose established for the product, it is necessary to perform the process management. With the proper management of a process, Dávila et al. (2008) says that it is possible to manage time, difficulties and costs, ensuring sustainability of the process and an innovation with lower costs.

This type of innovative product development methodology has been widely used by startups, technology-based companies that are still looking for a repeatable and scalable business model (Blank and Dorf, 2012). However, several organizations that do not fit this concept have started to adapt it to use in their contexts. This is the case of a large traditional healthcare organization in Brazil, whose name will be hidden in this article for reasons of confidentiality.

Based on what has been exposed so far, the question is: how does the Customer Development process work in a mature company? We sought, then, to conduct a case study in this firm in order to assess whether it is indeed possible to apply the Customer Development process in a mature firm. This case study was built from a semi-structured interview with the Innovation manager and a UX Designer at that institution.

After this introduction, we sought to establish the fundamental constructs for the analysis of the collected data. In the following moment, the research design was described, in other words, the methodological procedures used in this article. In the next section, we highlight the collected data that are most relevant for the analysis and for the analysis itself.

INNOVATION PROCESS AND MANAGEMENT

Regardless of size and stage of maturity, every organization has processes, even if not mapped and managed (Dávila et al., 2008). According to the authors, the process is a flow of activities from an organization whose objective is to generate value for customers, and that is why it is strategic to pay attention to them.

Köpke et al. (2019) state that the process occurs from the collaboration and communication of different parts of the company so that it is possible to achieve business objectives. The authors also state that there are several ways to define an organizational process. One of them is based on the interactions between the parties involved as a protocol to be followed, while the other way consists of control and dominance by one of the parties. For Meerkamm (2010), however, the life cycle of the process generally has the following phases:

- Strategy: the organization defines in a macro way how it will achieve its business objectives.
- Modeling: at this moment, the processes and their most relevant aspects are defined, which are modeled and validated later.
- Implementation: it is when the process starts to be executed in the organization, which can vary from one to another.
- Control and monitoring: to measure the quality of the process it needs to be evaluated during its execution, evaluating, for example, real data with what was planned. In this way, it will be possible to optimize the process.

An organizational structure, as mentioned by Meerkamm (2010), oriented to processes can increase the quality of its production and productivity. For this, it is necessary to make the efficient management of institutional processes, since the proper management of its processes has a direct impact on the quality of the goods and services offered by it (Dávila et al., 2008). For the authors, Process Management is the "systemic action associated with continuous improvement of the organization" (Dávila et al., 2008, p. 2). For Varvakis et.al. (1998 apud Dávila et al., 2008, p. 03), "process management is the definition, analysis and continuous improvement of processes in order to meet the needs and expectations of customers".

Therefore, the management of processes is understood as the orientation and organization of activities developed by a company whose objective is to better deal with time, quality and costs in order to be able to achieve strategic and operational objectives (MEERKAMM, 2010).

According to Dávila et al. (2008), it is possible to identify three parts in the management of a process. The first concerns to the identification of organizational processes. The second is related to the establishment of evaluation criteria for the processes identified in the previous phase. Meanwhile, the third part deals with the selection of the most significant organizational processes, so that they can be better worked and have their efficiency increased.

Innovating is more than creating new ideas, it deals with the possibility mainly of the implemented, valid and measured value or the value that it can deliver to the client and the organization (Trott, 2012). For this reason, organizations that seek to differentiate itself in the market and remain competitive in the face of strong competition should always seek innovation (Zerfass, 2011).

According to Trott (2012, p.10), innovation needs to be related to the context in which organizations are inserted and be seen as their own process. Also, for the author, innovation is nothing more than acquiring and applying knowledge that provides the development of new products that satisfy the needs of consumers.

Along the same lines of thought, Dávila et al. (2008, p. 02) understand innovation as the use of organizational knowledge and skills in order to create value. For the authors, however, innovation can also occur in processes with the aim of improving the quality of goods/services, reducing times and costs, among other organizational objectives.

For innovation to result in competitive advantages, its results must be aligned with a strategic vision. Coral et al. (2008) state that, for this, innovation must be planned and developed through systematized processes that allow the manager to have control over its implementation trajectory. Also, for researchers, innovation planning must start from the organization's strategic planning, considering aspects of both technology and the market. The NUGIN methodology, proposed by the authors, guides towards an integrated management of innovation based on this systematization of the process of developing new goods and services and internal business processes.

Wan et al. (2019), in their literature reviews, found that many studies point to the birth of a new pattern of innovation in emerging countries, called cost innovation, especially in China. Despite the name, this type of innovation process is not related to the creation, only, of low-cost products and services, but to the delivery of real value to customers. The authors studies by Wan et al. (2019) highlighted in their studies three vectors of cost innovation: "1) offering customers high technology

at low cost; 2) presenting customers with an unmatched choice of products in what used be considered standardized, mass-market segments; and 3) offering specialty products at dramatically lower prices, turning them into volume businesses."

For these vectors to be achieved, the key processes to be followed that are able to discover the latent needs of consumers and use them to fuel cost innovation occur in three phases, according to the synthesis of the findings of several authors raised by Wan et al. (2019). In phase 1, the goal is to find innovative ideas using customer-oriented processes. Therefore, it is important to be aware of customer needs and market trends is the first step in a product development process (Wan et al., 2019). At this point, according to the authors, it is necessary to raise opportunities and make product specifications.

The authors in Wan et al. (2019) emphasize that this first phase is the most important in an innovation methodology in which costs are important concerns, since it is from there that it will be possible to save money. This is possible because the company will be developing only enough and specific products for its consumers, unlike what happens in traditional innovation processes in Western countries, where the budget is usually high and, in many cases, lead organizations to develop resources and / or products that people don't need.

In phase 2, we select which ideas will be taken forward using pragmatic decisions. On this occasion, organizations should look for logical reasons to make decisions quickly and efficiently. Meanwhile, in phase 3, the intention is to implement ideas using highly flexible product development processes, no longer based on features or in search of more sophisticated products. In general, the study by Wan et al. (2019) suggests that the search for innovative ideas using the customer-oriented methodology may lead to low-cost innovation.

THE CUSTOMER DEVELOPMENT PROCESS

The orientation of product development based on needs and the delivery of value to customers has become known in the recent literature as the Customer Development Process. This development model was coined by Blank (2006). The Customer Development process, according to the author, is a framework used to discover and validate that the company has a market for a certain product

before developing it in its final version and directing them many valuable resources for the organization's survival. For the author, this framework has four phases (Blank, 2006):

1. Customer discovery: time to make clear and validate the customer's problem and hypothesis. For the author, it is at this stage that one seeks to validate the fit of the solution with the problem and propose an MVP (Minimum Viable Product) and a sales funnel.

2. Customer validation: time to develop and test the sales process to validate the business model. According to the author, this stage seeks to validate the fit of the product with the market, the business model and the marketing and sales strategies.

3. Creation with the customer: with the validated model, the objective is to grow the customer base to validate the business viability. According to the author, this stage seeks to scale the execution.

4. Business construction: time to implement formal management processes and create strategies that help the organization to scale and optimize its operation.

> It is important to point out that the first two phases are the most important ones. If the startup is not able to validate its business model before running out of resources, it will fail. Therefore, it is crucial to perform an effective customer discovery process [13]. This can be done by interviewing potential customers, or by using marketing strategies, such as landing pages or online advertisements to validate a given value proposition (Chanin et al., 2019, p. 3).

By performing all these steps in the process, it will be possible to find out whether the right tools have been developed to solve customers' problems and needs, whether the right methods for acquiring and converting customers have been tested, and whether resources for scaling the business are certain.

Based on the assumptions of Blank (2006), the entrepreneur will be aware that the problem and the solution he is developing are only hypotheses that may or may not be validated before starting the formalization of management processes and developing scalability strategies for his business.

Amedofu et al. (2019) refer to this methodology as the ability to acquire, satisfy and retain customers, which is important for the survival of any organization, especially startups. According to the authors, focusing on the customer when developing a new product or service is necessary when the firm is entering an existing market, a niche market or creating a product or service for which there is still no market.

The process was based on the premise that many startups close their doors for lack of customers and not for problems with the development of their products. Blank (2006) states that there are many methodologies already used in these firms to optimize their development processes, such as agile methodologies, but that there was no process for the development of products focused on the needs of consumers.

Although the Customer Development process is closely linked, in the literature, to research on innovation processes in startups, other corporations can also adapt this process to their realities, especially those also based on technology. For Cooper and Vlaskovits (2010), the application of the Customer Development process varies from one company to another. The authors say that applying the principles of this process to companies with a simpler business model is easier and more straightforward, but that there are big challenges in applying the process in firms with a complex business model within an also complex ecosystem. The difficulties are "how to test", "what to test", "when to test".

These difficulties appear due to the interdependence of corporations with their partners, customers and other stakeholders, who create business risks and guide the priority of the business premises that need to be tested and validated (Cooper & Vlaskovits, 2010, p. 34). Another characteristic of large organizations is that they already have their business model validated, and, therefore, their processes and organization are already structured. It is as a result of this peculiarity that large institutions have more challenges when trying to implement processes such as Customer Development, even for the creation and validation of new products to be offered to the market.

RESEARCH DESIGN

In order to achieve the objective proposed in this paper it was decided to carry out a qualitative research, adequate when aiming to explore subjective aspects of a study theme (Duarte, 2006).

This study took place in three stages. In the first, a bibliographic search was carried out so that it was possible to define essential constructs, already studied in the previous sections. The intention, in addition to identifying, locating and obtaining the coherent and existing bibliography on the topic (Stumpf, 2014), was to assist in choosing the analysis of the collected data. The second stage dealt effectively with data collection, which took place through semi-structured interviews, a

method possible in exploratory research such as this, with the company's Innovation Manager and a UX Designer.

The organization in question was chosen because it claims to follow the Customer Development process in the development of its products, the focus of this study. In addition, the facility to conduct the interview and obtain the necessary data was considered in the selection of the corporation. In addition, the institution was chosen because it is one of the largest in the health segment in the country and has been on the market for many decades, with a validated core business model and defined processes. Thus, it was assumed that it would be more difficult to adopt new work methodologies, even in a technology area.

The company has a headquarters and several units spread across Brazil. These units, however, have some autonomy in some areas and can define, for example, which technologies to use to serve their customers. Regarding the two interviewees, both have academic backgrounds that qualify them for the positions they occupy and have been with the firm long enough and have experienced the innovation process adopted by it. Therefore, it has know-how to talk about the innovation process used there. In this study, we will call the Manager as Interviewee 1 and the UX Designer as Interviewee 2.

RESULTS AND ANALYSIS

For Interviewee 1, the market and the customer determine the need for innovation, and the ideas are conceived based on the problems reported by the customer. According to Interviewee 2, this needs assessment is carried out by the company's top management, according to the company's strategic map, which takes the ideas to the team to start the problem and solution validation process. "There is a cycle of listening to the client, co-creating with the client through Design Sprint and then prototyping and validating with the client" (Interviewee 1, 2019, in an interview with the authors). This perception is in line with what Amedofu et al. (2019) states that the Customer Development process also has the function of satisfying and retaining customers, so, a priori, it seems coherent to base its strategy for developing new products based on this process.

In the process described by Interviewee 1, the client enters from the conception of ideas, after presenting his problems, and is consulted again during the development of the product. "Whenever

necessary, we carry out Workshops to validate ideas and products, with the participation of representatives of our customers and stakeholders" (Interviewee 2, 2020, in an interview with the authors).

Regarding the problem validation stage, it was not clear in the answers how it is carried out. According to Interviewee 2, when the demand reaches the technical team, the idea is already validated. "We used to have a project team, which validated these ideas, and also acted in the conception of new ideas, but the team was extinguished, and the function of validating the ideas was left to the management only" (Interviewee 2, 2020, in interview to the authors).

The description of the corporation's product development cycle by respondents is pertinent to the process proposed in 2006 by Blank. This is even more clear in another answer from Interviewee 2. "With the idea validated, I create the product prototype and validate it with the units to verify that it is correct and that it meets their needs. With the prototype adjusted, the team of analysts creates documentation and the prototype is sent to our supplier to develop the final product. The next step is approval by headquarters and then the product is launched" (Interviewee 2, 2020, in an interview with the authors).

In more detail, Interviewee 2 describes that even prioritizing product development activities is based on conversations with the company's units "to find out what features they need most. We also do interviews with end customers. We consider our customers to be the company's units, in the B2B model, and the customers of the units to be our users, in the B2B2C model. But the priority customer is the units" (Interviewee 2, 2020, in an interview with the authors).

The concern with listening to all audiences impacted by the firm's applications is forceful with the Customer Development process. One of the startups studied by Chanin et al. (2017), named by the author in his article only as Startup A, also focused on two audiences, who would be impacted by the idealized solution. In the process of validating the solution, the startup decided to conduct in-depth interviews with both audiences, which led it to change its initial idea and invest in a solution that would meet the needs of both. With this change, the new product launched was able to generate more than $ 3,000.00 in revenue one month after launch.

Fundamental point highlighted by Interviewee 1 is the fact that the client participates, according to the methodology, in all the initial stages of the process, from research to understand their problems

and even in deciding the solutions that are most appropriate. Similarly, when solutions are developed, validating them with customers is necessary so that it is possible to move on to the next steps. When conducting their study with another start-up (Start-up C), Chanin et al. (2017) showed that the company has completely changed its way of developing the product, since in the process of validation with the client it realized that its target audience had other interests than those initially planned by the organization's team.

Another study that highlights the effectiveness of the methodology was conducted by Nigri and Monteiro (2014), on the validation of a startup in the education sector. In this research, the process of validating problems, ideas and solutions, up to the time of preparing the company for climbing, is presented in detail. According to the authors, it was necessary to validate four business models, including market validation, ideas and solutions, until finding the ideal model for the company. Such studies on the application of the methodology confirm the need and the impact of evaluating with the client both the problem and the solution that is intended to be implemented.

The process followed by the firm's innovation area, based on the methodology developed by Blank (2006), seeks, in the words of Interviewee 1 (2019, in an interview with the authors), "to always meet the expectations of innovation and improvement of products and services". Asked about the routine of the processes of one of the products, an app, Interviewee 2 replied as follows: "in relation to the implementation of the app, it starts when a unit speaks to our Marketing sector, the demand is then passed on to the sector of Integration, which then passes to the Homologation sector, and only then goes into Production "(Interviewee 2, 2020, in an interview with the authors).

In the model described by Interviewee 2, the main customer heard is the units, which can adopt their technologies. However, those who will actually use the systems developed by the headquarters are the customers of the units, and they have little participation in the company's innovation process. "Our biggest problem is not being able to make more contact with them, because we need authorization from the local unit to talk to their customers. This is because of the company's structure and organization, the units have such autonomy to allow or not to talk to their customers" (Interviewee 2, 2020, in an interview with the authors).

In this case, it is necessary to reflect better on the innovation model adopted by the firm and it is necessary to ask some questions: how much are the units prepared to truthfully pass on the needs

of their customers to the area of innovation? How to design a product that fits the needs of each unit?

Still in the first stage of the process, Interviewee 1 explained that the teams that participate in the development of the products are divided into Squads that are organized through agile methods, and involve daily meetings and monthly planning to make deliveries in line with the customer's needs. "In this sense, Squad's PO (Product Owner) is the one who is always bringing and defending the customer's vision" (Interviewee 1, 2019, in an interview with the authors). According to Interviewee 2, this division allows MVPs (Minimum Viable Product) to be launched so that it is possible to validate the product's value proposal before investing time and resources in the development of its final version. "We make a first launch and capture feedback from our customers, so we know more needs in the market and we have evolved the product and service accordingly" (Interviewee 2, 2020, in an interview with the authors).

Organizing the firm in order for the innovation process to occur effectively is important, because this process permeates the entire organization (Coral & Geisler, 2008). For these authors, "the first step in implementing an innovation management process in the company is to establish an adequate organizational structure. To this end, it is important that the organization is clear about the main variables that affect its innovative potential" (Coral & Geisler, 2008, p. 45).

After product validation, according to the Customer Development methodology, it is necessary to validate the business model. With regard to this point, Interviewee 2 says that there is no need to validate a business model, as these are units of the company and payment for the use of products is already included in the transfer of revenues made to headquarters.

Another important aspect raised in the interview by Interviewee 1 is the lack of a process to deal with communication during the development of an innovation strategy. Considering that the innovation process encompasses several other processes and that communication is one of them (Damanpour, 1991; Zerfass, 2011), having control of this process is also important for the management of the macro innovation process to be effective, especially the Customer Development process. In the interview, Interviewee 1 stated the following: "I think that the communication process today is not very organized within an innovation strategy itself, because it occurs directly with those involved [...] today we do not have any specific tools to improve the communication

process during the innovation process ", which is worrisome, since noises and communication failures can greatly hamper the development of solutions that actually deliver value to the customer.

In addition, each stage of the innovation process, according to the Customer Development methodology, requires clear and objective communications, so as not to lose the customer's perspective during the execution of the process. In this regard, Interviewee 1 says that "if we think that the cycle starts from listening to the customer, today we use standard market tools, such as WhatsApp and social networks, in order to develop an innovation process".

According to Interviewee 2, the products are distributed to all units that wish to use them, and that is why there is a marketing effort to convince them to use such products. "We do webinars, engagement actions by e-mail, also sending souvenirs (congratulating customers' achievements, thanking them for their partnerships), creating land pages, workshops, sending e-mails to our base, etc." (Interviewee 2, 2020, in an interview with the authors). It is clear, therefore, that after step 1 of the Customer Development process, the company moves directly to step 3, in which it seeks to grow the customer base and scale the execution of the product development.

Finally, it is necessary to consider that, just as and for the same reasons as in step 2, there are no reasons to implement step 4, which concerns the implementation of management processes for the company to scale. However, it is important to plan strategies that enable the scale of the product itself, so that it is possible to serve all units, in case all of them are interested. Regarding this aspect, Interviewee 2 said that after having the product validated, the product support actions and the backlog of improvements and bug fixes are created, which are prioritized by the P.O. taking into account the relevance for the company. If, for example, it is a specific improvement for a unit, the improvement is not prioritized.

Another important fact is that there is no change in the team structure to deal with validated products or in the development processes. According to Interviewee 2, the product development process is cyclical and never ceases to be improved. "We are always receiving ideas for new tools for the product and starting all the processes for validating the solution, including with customers" (Interviewee 2, 2020, in an interview with the authors).

According to the interviews, therefore, the following is summarized: the company's headquarters seeks to talk to the units to understand their needs and, thus, conceive ideas that will give rise to

innovations. During product validation, there are well-defined internal processes, such as software development, but others are still marginal, such as internal communication.

Also, the process contemplates, as the Customer Development process defends, the participation of the customer at various moments in the product development, such as the validation of problems and proposed solutions, even after its development. However, there is no definition of different processes to scale the product after its validation. The company seems to be looking for its scale still in the validation period of the solutions, mainly for the products that are already in its portfolio. "For new products, however, the whole idea and form of operation of the solution needs to be validated in low-fidelity MVPs before being developed and distributed, in scale, to the other units" (Interviewee 2, 2020, in an interview with the authors).

Finally, despite following several steps in the Customer Development process, some steps are not followed, or are not followed at all, due to the characteristics of the company, such as step 2, since there is no need to validate the model of business and sales funnel, and step 4, since the company is already established and has well-defined processes, including for dealing with products already developed and validated.

FINAL REMARKS

It was possible to verify from the analysis of the interview that the company is able to apply only part of the Customer Development process in its new product innovation process. In several responses from the interviewees, it was clear that the corporation seeks to have the participation and collaboration of its customers during its innovation development process, just as it requires the Customer Development methodology. In addition, the inclusion of customers in the process and the results obtained in the validation of problems and solutions are similar to the practices carried out by startups studied by Chanin et al. (2017).

Although this study was applied to understand the application of a methodology in a single company, the results obtained show some interesting results to be highlighted:

1. mature companies have greater difficulty in implementing such methodologies, since their processes are well defined and there are several bureaucracies to be followed in all areas, including technology and innovation;

2. mature companies can also apply the product development process based on the Customer Development methodology. Just as the process is adapted for each startup that applies it, for mature companies this adaptation is even more important so that it can fit into their organizational structure.

3. the application of the methodology requires that all involved understand its importance, as it is possible to conduct the process in a more harmonious way, however in the case of large mature companies this may not be possible, since not all areas understand this need and cannot or they don't want to change the way they already work.

However, despite the description of the process followed, mainly in the first stage, and the various factors that adapt what the firm does to the concept of the Customer Development process, there is still a fundamental question to be analyzed: the impact of the participation of a company unit in the process rather than the end customer, in most cases. Although it is who actually pays to have the product in their solution portfolio, the units' customers use the developed systems, and these are little heard by the headquarters.

In new opportunities, it would be interesting to carry out comparative studies between the implementation and execution of Customer Development processes in corporations with similar characteristics, but from different segments and business models, or even assess the impact of their solutions on the final customer to assess whether in fact the collaboration of the units is representing the needs of its customers.

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