The Uses of Connected Objects and Their Influence on the Customer Experience

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Abstract

"We didn't do anything wrong, but somehow, we lost" that's how Nokia CEO Stephen Elop ended his speech saying during the press conference to announce the mobile phone branch of NOKIA to be sold to Microsoft. Nokia was the king of the mobile phone, but it missed learning and the change led to the collapse of their empire with the iPhone as well as the strategy of smartphones under Windows. Indeed, learning agility is not an option. Digital transformation and technological innovations today bring fabulous opportunities to meet the challenges and without digital adoption the tomorrow's company may not only evolve but disappear for the benefit of more agile and responsive competitors.

In 2010, we already produced, in two days, as many data as humanity in all its history. In addition, the best use of these data allows any company, whatever its sector of activity and whatever the context related to the use of the object, to improve all of its procedures. As a result, all this data, when aggregated and analyzed, offer the opportunity to enhance the customer experience while providing them with tailor-made and fully individualized experiences. The management of the customer experience has become a major focus of strategic business consideration. It is an integral part of the company's offer and can therefore be the source of its difference with its competitors. In the same way, the connected object optimizes the customer experience, helping to make it more fluid, easy and responsive. It also offers an unprecedented experience by providing the opportunity for brands to materialize their services in different customer universes.

1. Introduction

The optimization of uses and more fluid experience

Use is naturally the main focus of influence on the customer experience. That said, it is important to understand the uses of new technologies and how they impact the client's different worlds. Traditionally, a strategy that focuses on the customer experience requires understanding the customer, knowing what they want and measuring their expectations. "The company that successfully applies a value strategy has the gift of empathy. She puts herself in the client's shoes to identify his needs and measure their relative importance without forgetting any of them. It intimately understands the reasons for and conditions under which the customer uses his product or service. She masters the customer experience. " (De Bodinat, 2007). Customer empathy and understanding are essential to a successful customer experience. In this logic, everything that is important for them must be placed at the heart of the company's projects.

To do this, it is best to ask the customer about his expectations. However, it is sometimes necessary for the company, based on the

knowledge of its customers, to decide for them what is important and interesting. This is particularly the case when implementing innovative offers.

"If I had asked my customers what they wanted, they would have answered me:a faster horse. "This famous sentence by Henry Ford clearly shows that this approach is not new but that it is particularly intense and is all the more relevant in a context where technologies are constantly emerging. Are customers able to understand what new technologies such as connected objects, artificial intelligence or virtual reality could bring them? It is likely that the answer is negative for the majority of them. In this case, the company must take risks, make a bet and offer its customers something new that can create a need, a positive experience.

Determining the right way to provide a positive customer experience or improve an existing one by using innovative technologies may seem complicated or confusing. Fortunately, there are tools that provide answers, leads and a methodological framework.

Customer experience dimensions

To try to model and understand what connected objects can offer the customer as an experience, it is possible to use a concept proposed by Pierre Daems[1] as well as by Wided Batat and Isabelle Frochot (2014). It is a model that focuses on several dimensions of the customer experience. Each of these dimensions represents a way of influencing the proposed experience. These dimensions can be used in a very advanced way depending on the sector of activity or type of experience studied. However, these dimensions can be used simply to Directly and efficiently classify, study and verify easily the contributions to the experience that connected objects or other innovations bring. Indeed, a non-exhaustive list of dimensions accompanied by a description of the value that the connected objects and their data could bring :

- **Accessibility :** This dimension makes the company's offer more accessible. It can

be a lever acting on temporal access or on physical and geographical access. This dimension can be materialized by an object allowing access to the offer without moving, or it can be an artificial intelligence interacting with the customer late at night.

- **Reliability :** This dimension concerns the impacts related to the client's reinsurance on what he will experience through a demonstration of the company's mastery. For example, they may be connected objects made available to provide a reliable waiting time based on real-time data.

- **Conviviality :** This dimension, which could rather be highlighted in the context of a human relationship, because it particularly plays on the customer's emotions, in all its place in all the levers to be activated by innovations related to connected objects, since it is possible to significantly improve already automated interactions by offering, for example, an adaptation based on video and audio analyses of emotions, but also by equipping intelligent interfaces with humorous or empathetic capacities.

- **Clarity :** This dimension influences the company's transparency towards its customer. It can be very important in certain sectors or contexts. It is possible to imagine objects to provide information to the customer on regulatory indicators.

- **Prevenance :** This dimension concerns the levers related to the anticipation of the client's needs. The analysis of the data generated by the connected industrial objects allows preventive maintenance to be carried out. Similarly, it is possible to predict customer needs by equipping objects to order their consumables according to their use, for example, or to offer a service based on the detection of a cycle, a habit.

- **Responsiveness :** This dimension acts on the time-related lever in the customer experience. It is about providing an immediate experience, in real or near real time. Many objects exploit this

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1P. Daems, Aube Conseil, Customer Experience Dimensions, National Bank of

Canada, 2014.

improvement by offering buttons connected to their customers in order to access services more quickly, if not immediately.

- **Ease :** This is the dimension most exploited by connected objects. The characteristic of this dimension is to optimize processes, make the customer experience simpler, more intuitive, effortless. Connected objects offer the possibility to fluidify the experience in many fields and contexts such as home automation, health, energy, entertainment, by removing the frictions related to the complexity of using other interfaces. Artificial intelligence can also contribute significantly to the experience by supporting complex interactions.
- **Esteem :** This dimension corresponds to the contributions that connected objects, the analysis of their data and the intelligence that exploits them can make to the customer experience by personalizing it, making it truly unique and onmeasure. These objects can, for example, make it possible to physically greet a customer by name.
- **Credit :** This is a dimension that influences the client's ability to have an incomplete or uncertain experience. In some contexts, the advice and skills of companies are important to ensure a positive customer experience. This lever is traditionally linked to the values of the company's employees. When the human is not necessarily available or operating, artificial intelligence offers the ability to respond to this.

These dimensions are applicable at each of the key moments when the customer interacts with the company. These moments have a strong impact on the customer experience. Once these key moments of the customer experience have been mapped, it is therefore possible to ask questions to guide thinking and determine the opportunities of new technologies that could be offered to customers. For example:

"What dimension could be activated at this moment of truth to bring a positive experience or improve the customer experience? »
"Does this new technology activate a dimension that can improve or make the customer experience positive at this key moment ?"
"How to use this technology to propose an improvement on such a dimension of the experience at this key moment ?"

Even without necessarily applying this analysis grid, some companies have long understood the value of these dimensions and their positive impact on the experience at all times during their customers' careers. We can use these dimensions to assess how the customer experience is changed.

In addition, other brands use connected objects to enhance the customer experience, such as Disney and its Magic Band or some insurance companies. These objects can influence one or more key moments in the customer's journey. The graph below illustrates how these objects improve the experience through the prism of customer experience dimensions. This analysis, which uses an empirical classification, shows that the vast majority of life moments proposed by connected objects highlight ease or reactivity. This is therefore the primary use that brands make of these technologies in the customer experience: to meet an expectation of ease or simplicity, reactivity or immediacy.
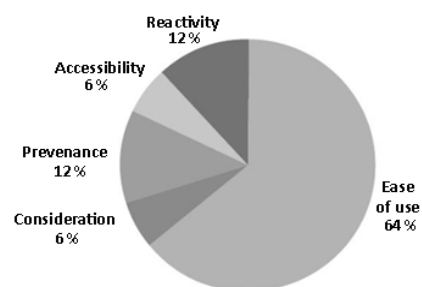

Fig. 1 - The proportions of the activated dimensions

Connected objects, such as the Magic Band, designed and designed to be fully integrated into the entire customer experience, make it possible to activate a panel of various sizes even if those of ease and reactivity remain largely represented.

Among these dimensions, thoughtfulness stands out because the object makes it easier to identify the customer and therefore to personalize his experience by anticipating his needs. It can be noted that being identified through an object used only in this context may be better perceived by customers than if the identification and localization were done by the smartphone, which is more personal.

The application of the other dimensions of the grid is for the moment less present in this evaluation of connected objects, but reliability could be highlighted by a connected object: for example, the taxi company "Uber" could have proposed the real display of waiting time via the object which, thus making the information more reliable, would reassure the customer. User-friendliness, clarity and competence seem to be further removed from the customer experience that can be provided by technology such as connected objects. However, they can, thanks to the data they generate, provide other technologies, such as artificial intelligence, with the ability to activate them. In addition, new objects and new ways of using their data are emerging from day to day that will certainly cover all dimensions and possibly others that are still missing from the practical sheet.

Connected objects therefore present many possibilities and, because it is a new technology, they are the subject of high expectations on the part of customers. However, we must be vigilant about the risks associated with this novelty and the expectations that could be imagined. Indeed, we can think that an object such as a light bulb, a button or a bracelet, even if it has communication capabilities to offer services, is ultimately only a simple gadget, as an article in La Tribune suggests: "Owning an activity tracker, a connected pair of jeans or a refrigerator that sends an alert the day before the yogurt expiry date is still perceived as part of the gadget"[2]. The connected object would in this case be "an object for which the promise of satisfaction is most often based on novelty, accessory, futility and/or strangeness: all characteristics likely to naturally attract the consumer's attention and trigger an impulse purchase. "It would be a "purchase amplifier" but would have a "very short life cycle". "Anglo-Saxon professionals sometimes use the expression "bells and whistles", which is literally untranslatable, but which refers to all the options and other gadgets added to a commodity to seduce a wider target group".[3]

In this definition of gadget, the notions of futility and impulse purchase but also of life cycle will shed light on the real opportunity of these objects to meet a need for companies and customers. Le Monde already mentioned this point of vigilance in 1966 : "an object that does not aim at any aesthetic research, that claims no service, that is useless or whose function is so futile that one can guess that its creation was not dictated by a need". It is easy to find examples on the Internet of connected objects that you might find futile or even useless. Objects that do not really meet a need. For example, we can mention a connected oven that can be remotely activated when you are away but which therefore requires you to leave the food at room temperature for hours. Or a connected object that sends an alert when a smoke detector rings and is about five times more expensive than a real smoke detector.

In addition, the smartphone is a very complete connected object, it is even an Internet connection hub for many other connected objects. It is an object that the customer often wears. It has significant computational capabilities and an interface that allows for intuitive and complex interactions. It can therefore easily perform functions that connected objects could offer and relegate them, therefore, to the rank of gadgets because their usefulness would immediately be questioned; even if these connected objects did contribute to positive dimensions of the customer experience.

It is therefore important to ask the question of the substitution of the object for the mobile phone when selecting the project: can the smartphone provide the same experience? This is the question that Chronodrive asked itself for Izy, for example, to which their supplier Hiku answered: "The Hiku 1D linear scanner is a

2S. Rolland, « Pourquoi les objets connectés ne décollent pas (encore), » La Tribune, 11⦾ Septembre 2015.

3Lehu, J. M., (2012), L'Encyclopédie du marketing, commentée et illustrée, Eyrolles.

dedicated hardware component that scans more than 50 times per second, making instant scans very accurate. With a mobile application only, every time you want to scan an item you have to find your phone, unlock it, find your application, launch it, tap "add", choose the scan function, wait for the camera to load, point it to the barcode and then wait for the results. With Hiku you press a button and you are done »[4]. In this example, we realize that the object has a real interest in relation to the mobile phone.

Participation in the strategy

The connected objects and the data they generate make it possible to differentiate the offer offered to the customer via the service or via customer experience management. Indeed, the extent of this differentiation will be more or less important depending on the place that the project holds in the company's strategy.
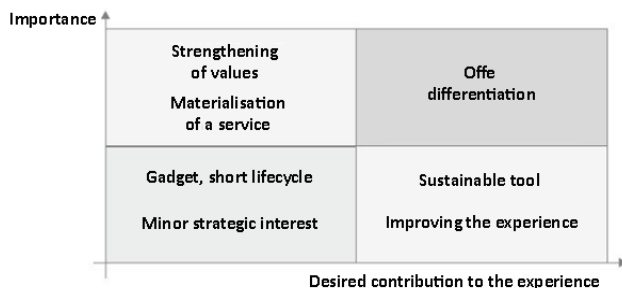

Fig. 2 - The strategic opportunities of the connected object

The more important the implementation of connected objects and the intelligent processing of their data will be in the company's strategy, the more they will bring a real gain to the customer experience and help differentiate the company's offer from that of its competitors.

However, a connected object can be offered for strategic reasons for the company without significant contributions for the customer. The purpose will be to support a marketing or communication policy.

On the other hand, if the connected object has a low impact on the customer experience and does not contribute to the company's various

strategic axes, then it will only be a gadget with no real interest for the customer and the company.

Marketing and communication levers

The connected object is perceived as an innovative component of the customer experience in a wide variety of sectors. The sectors of activity concerned may be transport, distribution, entertainment or insurance. It is interesting to note that while connected objects can meet local objectives dedicated to customer experience management, they also contribute to the company's overall objectives and vision.

For some, these technologies can be used to promote and make more visible their premium service and experience, which are the hallmarks of their brand promise. The connected object can thus become a representation, a physical embodiment of a service, a strategic opportunity to strengthen its image.

Image enhancement

Brand image is an extremely important aspect in the customer's experience with the company, since it is one of the first links to which they will be attached. Often the first impression that the company will give will be made via the image it conveys. This is why brands compete with each other in imagination to make this impact as positive as possible.

To achieve this objective, brands naturally have a large number of marketing tools at their disposal. One of them is to communicate about integrating new technologies. This allows the brand to emphasize its innovative character in the era of time. This effect can be assimilated to the cultural dimension of consumption.

This principle, further developed by the CCT (Customer Culture Theory)[5], shows that consumers live their experience in a personal way. Indeed, ideological, socio-cultural and symbolic aspects influence his experience with companies or with the product he consumes.

Typical examples of the influence of such factors include eco-responsibility, manufacturing

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4 https://support.hiku.us/hc/fr

5W. Batat, I. Frochot, Experiential Marketing: how to design and stimulate the

customer experience, Dunod, 2014.

in foreign countries, social considerations, but also new technologies, science and innovation, which are cultural factors in their own right.

Communication oriented towards new technologies

"The experience expected by the client is also based on the memorization of past experiences and is now also increasingly influenced by the stories of other clients. With globalization and the relocation of production workshops, consumers are offered a wider range of products, and can often benefit from better prices. Let's take a minute to imagine the number of artisans, manufacturers, existing brands and products created every day around the world : a phenomenally huge number. Lost by the diversity of similar offers on offer, how can we differentiate between this and that product today? Future generations of customers are no longer interested in it: today, what matters is the customer experience and the company's brand image. Not satisfying a customer costs money when his satisfaction pays off. It is important to remember that setting up interactions with the customer to improve the perception of his buying experience does not generate high costs, but on the contrary these interactions are synonymous with ROI (Return on Investment). This shopping experience is part of the customer's memory, whether good or bad, and is not without consequences on his consideration and future behaviour towards the brand concerned. Not all experiences are memorable, but only those that go beyond initial expectations are memorable. However, an effective customer satisfaction strategy is not to seek this overcoming over the entire customer relationship but to target it to specific contact points in the customer journey.

The improvement of the customer journey can be defined around three main axes. First of all, it is relevant to develop a strong affinity with the brand through multi-channel interactions before, during and after the purchase act, on all the customer's experience factors (fluidity, reactivity, quality, etc.). It is also essential to identify and analyse all the contact points in order to choose them and integrate them as closely as possible into the company's

strategy. The proposed route must be consistent and coherent with the company's image, values and products. Finally, it is essential to understand and identify the profitability of this approach by measuring the quality of customer satisfaction and its financial impact. This monitoring will also make it possible to identify potential improvements for defined customer segments and in a given competitive environment.

With the advent of Web 2.0, consumers can freely exchange their opinions: on blogs, through comments, forums but also on social networks. The brand, or rather the company, can no longer control its reputation: it evolves independently of its goodwill. Thus, the brand reputation is built by customers but also by non-customers: this is a horizontal communication. The multiplicity of digital exchanges between consumers, and the nature of their content, today create a real ecosystem of recommendations that is decisive for the company's reputation and sustainability.

This ecosystem is particularly important when the offer is experiential in nature, given the difficulty of pre-testing it. In addition, product offers also increasingly tend to transform the act of buying into a shopping experience. "With digital, the customer's opinion, his voice, are sacred. "The difficulties of controlling these interactions are not without importance and consequence for companies. Potential customers will consider with interest the opinions of other users and will thus create an expectation or reluctance towards the company.

Notices left on the Web influence consumer satisfaction by changing the criteria and waiting threshold, both upwards and downwards. However, as stated above, satisfaction is "the consumer's response to the evaluation of the perceived gap between his or her previous expectations and the current performance of the product as perceived after consumption. " (Tse and Wilton, 1988). This is why it is very important to seriously consider the opinions left after each user experience and to establish a strategy. It is in the company's best interest to feel responsible for these interactions and to manage them. Indeed, general

dissatisfaction could lead to behaviour that is detrimental to the company, such as negative word of mouth or infidelity. On the contrary, general satisfaction would ensure better sales and a profitable ROI.

Digital interaction in response to good and bad opinions would be an essential part of the company's strategy. First of all, it is relevant to accept, listen and acknowledge the defects of the service or product. Through this transparency and responsiveness, the customer will feel respected and listened to. Thereafter, it is important to prevent this type of crisis. For example, H&M removed and apologized as soon as possible on social networks following the release in early January 2018 of the "Coolest Monkey" sports sweatshirt worn by a young black skinned model. Finally, it is necessary to ensure regular monitoring of this monitoring and to provide information on answers, thanks or compensation to customers in order to establish a so-called vertical interaction : a two-way interaction between the company and its customers.

Thus, artificial intelligence, virtual reality, and more recently the blockchain, but also connected objects, have become trophies to be displayed in a window, covered by the media in a multi-channel way. The customer therefore obtains information about the brand through social networks, word of mouth, reputation. The experience that the customer expects is built from these marketing and communication actions.
However, the experience expected by the client is also based on the memory of past experiences and is increasingly influenced by the comments of other clients. It is therefore necessary for the company to provide its customers with an experience that respects its vision and values. These may be more or less known to customers, but influence their perception.

When Amazon, a major player in online commerce, renowned for its excellent logistics and delivery management, makes an announcement about the project to launch an express delivery service using autonomous

drones[6], the company operates an excellent communication channel. Indeed, this innovative and technological object in the brand's colours would ideally be aligned with the values and image that the company conveys. On the other hand, for a company whose logistics and delivery are not the main strengths, which can even be sources of dissatisfaction, it would not be appropriate to follow the same strategy. The effect could be the opposite and the customer could reject the brand experience.

It is important for the company to integrate digital or digital aspects so that they are in harmony with its strategy, but also with its values because they are also the values of its customers: "For the customer experience to be memorable, engaging, robust and fascinating (Gilmore and Pine, 2002)", it must contain strong attributes that are in line with the company's values" (Elisabeth Lefranc, 2013).

Differentiation through customer experience

The concept of customer experience management has become widespread in companies over the past few years. An accelerating factor in this evolution is the increasing presence of technologies in the interactions between companies and their customers. Thus, the notion of customer experience is often mentioned when mentioning the Web, social networks, and more generally all the channels more or less related to new technologies, as well as the way to tune them and orchestrate them to elicit a reaction and create a link with the customer.

All sectors of activity take this concern into account and the task is complex. If there was a time when customers could only exchange with their salespeople through a very limited number of channels, by going to the store or writing a letter, they can now engage in a conversation through a variety of channels : Web, e-mail, SMS, social media, phone, chat, etc. Customers are mastering these new means of communication, which are multiplying and contributing to their experience with the brand.

6https://amazon-presse.fr/Nos-communiqu-s/Nos-communiqu-s/Communiqu-

/amazon/fr/2019-06-18/

The resulting technologies and communication methods have evolved very quickly and had to be integrated very quickly. The management of the experience was initially based on the physical point of sale and the telephone. Then, the Internet revolutionized the concept with the appearance of e-commerce sites. The development of the smartphone and mobile application concept in 2007 has created a new upheaval. The customer was able to access the Internet on the move, in a more ergonomic and practical way. This has changed the uses, the possibilities of contact points, and has democratized other channels such as social networks and features such as geolocation or payment via the Internet.

Connected objects are a source of questioning. Indeed, they offer the possibility of more intuitive interactions with objects and the client's direct environment, they strengthen the link thanks to the particular connection they offer. This is a new perspective of more spontaneous and positive exchanges between the brand and the customer. Thus, the more the connected objects help to differentiate the company's offer from that of its competitors in terms of experience, the more they will represent a strategic opportunity for the company. The axis of differentiation can be so strong that it can imply a totally new offer for the customer and give the company a significant competitive advantage.

For brands, retailers, producers, it is interesting to note that the role of connected objects in the customer experience and their place in the company's strategy could be considered in a much more significant way. Indeed, mastering the object and its data also implies controlling the potential for creating services and the associated customer experience. This is the case for resellers, for example, who know their customers but also the products they sell and can thus combine this knowledge to offer new services and a new experience to their customers. Above all, this would make it possible to anticipate an intermediation of its services by household equipment manufacturers, since the connection of objects somehow brings the customer closer to the reseller but also to the manufacturer.

Therefore, mastering the information generated by the algorithms that analyze the data of connected objects is currently of critical strategic importance, particularly because it will provide the best customer experience and thus have a competitive advantage that allows for privileged positioning. In this context, it is therefore an important issue for distributors of connected products, but also for manufacturers, in order to position themselves in the value chain. This is true for all sectors: energy, insurance, etc.

This is pointed out by M. Porter and J. Heppelmann (2014) in specifying the opportunities that connected objects present for manufacturers: "Connected and intelligent products enable companies to maintain deep and solid relationships that can reduce the need for partners' distribution channels. Companies can also remotely diagnose product performance or failure problems, sometimes maintaining, reducing dependence on partner services. By reducing the role of intermediaries, companies can potentially capture more revenue and boost their margins »[7]. For insurers, for example, achieving one of their major objectives, which is prevention, requires a strategy based on the experience provided by connected objects. This strategy will have to be developed over the long term, since it is based on a necessary change in the uses and habits of their policyholders. It is therefore easy to understand why they need the most complete and sustainable vision possible of

7Porter M., Heppelmann J., « How Smart, Connected Products Are Transforming Competition », Harvard Business Revue, November 2014

the customer, and that they must rely on objects to increase their access to information.

This desire to differentiate competitors through the customer experience can be a major component of the strategy of some companies, which use new technologies to achieve these objectives. This methodology can be applied in a quasi-obsessive way by some successful companies. They advocate innovation at the service of the customer.

This is, among other things, the case of Chronodrive, which advocates a breakthrough in the way it does its shopping to offer its customers an optimal experience by following a strategy of differentiation through customer experience that allows it to create an offer that Chronodrive was alone to offer by launching the concept of a "drive" based on technological innovations related to mobile applications. It is in this spirit that the brand was also the first to offer a new way of shopping with a connected object. The Chronodrive brand was once again the only one to offer this experience, until its competitors adapted, since the concept was then adopted by other brands.

This connected object is therefore part of a strategic approach based on a break in the customer experience. The direct objective is to continue to differentiate the brand's offer for household purchases. The disruptive capacity of this offer could be significant. Customer use will determine this in the future. This new experience is in any case remarkable enough for direct competitors in the sector to also launch their objects about a year later.

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