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Mobile application value for consumers

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MOBILE APPLICATION VALUE FOR CONSUMERS

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MOBILE APPLICATION VALUE FOR CONSUMERS

ABSTRACT

A mobile application is an additional touchpoint that could enrich the relationship between consumers and retailers, if these latter understand how a mobile application usage is valued by the formers. This study aims to investigate the consumer value of mobile applications. It builds upon the literature on mobile services value and derives empirical findings from 30 semi-structured interviews of smartphone users, analysed with a content analysis assisted with the NVivo software. Grounded in a hierarchical multidimensional structure, the results indicate that the highest-order value of a mobile application is a synchronicity value enabling the consumer to get at the right time, the right place and in the right situation the right mix of value dimensions among the four following dimensions: situational, utilitarian, hedonic and social value. The results also show four outcomes of this consumer value of a mobile application: attitude toward the brand, omnichannel behaviour, word-of-mouth, future use of the application.

Keywords: consumer value, shopping experience, mobile applications

MOBILE APPLICATION VALUE FOR CONSUMERS

1. Introduction

"*If smartphone users spend most of their time with apps but regularly use only about 15, and if few of those 15 are for branded products, the marketing real estate on users' mobile screens is constrained indeed. How can marketers reach and engage these consumers? Instead of buying tiny banner advertisements, marketers should create apps that add value to consumers' lives and enhance long-term engagement with their brands.*" (Gupta, 2013).

What do consumers get from using mobile applications? How can retailers develop mobile applications that offer value to consumers? Answering these questions requires understanding how the value of a mobile application is shaped. This could help executives to develop a content that optimizes its usage in line with business objectives. It is all the more strategic for retailers as they aim to implement omnichannel strategies so that this mobile touchpoint connects well with other touchpoints within an ecosystem (Aubrey and Judge, 2012; Avery et al., 2012). Customers who use a retailer's dedicated application are 21 per cent more likely to convert while in store (Alison et al., 2012). Despite this managerial stake, this issue has received very scant attention in the academic literature so far probably because smartphone adoption, while increasingly exponential, is recent. The literature to date mostly addressed the perceived value of mobile services (Pihlström, 2007; Pihlström and Brush, 2008; Gummerus and Pihlström, 2011). But mobile services cannot be treated as a generic concept and have to be addressed specifically individually (Verkasalo et al., 2010), encouraging for more research on specific mobile devices. When existing research consider mobile applications value, it either focuses on the experiential value only (Maghnati and Ling, 2013) then forgetting other dimensions of value, or it adopts a hypothetical-deductive

approach then missing the specificities of the mobile applications experience (Wang et al., 2013). This study addresses these limitations by investigating and conceptualizing consumers' experience of mobile applications and its consumer value.

To achieve this aim, the research draws on the literature on mobile services value and derives empirical findings from a qualitative study with 30 smartphone users. Its methodological originality consists in adopting a moderate inductive approach (Denzin and Lincoln, 2000). Emergent codes were created during the data analysis and only subsequently confronted to the existing dimensions of value already observed in the academic literature. The highest-order value of a mobile application appears as a synchronicity value enabling the consumer to get at the right time, the right place and in the right situation the right mix of value dimensions among the four following ones: situational, utilitarian, hedonic and social value. Thus, the study contributes to the literature on value in general, and mobile services value in particular, by isolating previously not or not extensively investigated dimensions of value. Moreover, the study sheds light on four outcomes of the value of a mobile application: attitude toward the brand, omnichannel behaviour, word-of-mouth, future use of the application. From a managerial perspective, the research provides a complete repertory grid, structured along the dimensions of the value, to develop mobile applications according to the retailers' objectives.

The paper is organized as follows. First an overview of the literature on mobile services value and its outcomes is discussed. Second the research methodology is detailed by presenting the data collection method and by explaining the data analysis process. Third results are discussed in detail in order to present a conceptual model. Finally the theoretical contributions and managerial implications of the study are presented, as well as suggestions for future research.

2. Literature review

As a topic of great significance, academic research on value is extensive. Focusing on mobile services value, the body of research is much narrower but developing (e.g. Gummerus and Pihlström, 2011). Yet, previous studies provide limited understanding of the value in the context of mobile applications. On the one hand, most of studies are based on classic mobile phones, before the development of smartphones with large capabilities - such as enhanced usability[1], ubiquity[2], synchronicity[3], all in one[4] - and new devices - such as mobile applications. On the other hand, they mostly adopt a hypothetical-deductive reasoning based on research in marketing or information system so they use typologies or scales developed in other contexts especially in the retailing (Babin et al., 1994) or e-retailing context (Mathwick et al., 2001).

Moreover, the evidence on mobile services value remains fragmented when analysed along the three approaches traditionally used in the value literature (for a complete review see Sánchez-Fernández and Iniesta-Bonillo, 2006, 2007; Sánchez-Fernández et al., 2009): (1) the dimensionality of value: one-dimensional conceptualization with costs/benefits trade-offs versus multidimensional conceptualization with each dimension embracing holistically costs and benefits and sometimes hierarchically structured (Woodruff, 1997; Mathwick et al., 2001) ; (2) the moment of the evaluation: before usage i.e. expected value versus after consumption or consumer experience i.e. perceived value; (3) the nature of the experience: is the consumer evaluating a single experience or an accumulation of experiences?[5].

[1] Ability of the smartphone to enable users to enjoy seamless Internet services (Okazaki et al., 2012).
[2] Possibility of using the smartphone anywhere and anytime (Wagner, 2011).
[3] Ability of the smartphone to synchronize temporally and spatially consumers' needs (Shankar et al., 2010).
[4] Ability to perform multiple tasks and to use multiple applications in one tool (Barkhuus and Polichar, 2011).
[5] When not explicitly mentioned by authors, we attempted to derive the implicit conceptualization adopted from the content of the research.

Table 1 shows the diversity of approaches adopted in previous research on mobile services value. First, there is no consensus on the dimensionality of mobile services value. In a one-dimensional approach, authors show the important role of benefits (temporal convenience, quality of information, system and service in the formation of the mobile services value) (Kim et al., 2007; Kleijnen et al., 2007; Wang and Wang, 2010). Research adopting the multidimensional approach suggests various dimensions of value. Second, the moment of evaluation differs from evaluating a mobile service before usage – the expected value of the mobile service - or after its consumption - the perceived value of the mobile service. Third, the nature of the experience in relation to mobile services value concerns either a single experience or accumulated experiences. Finally, the literature review shows no consensus about the outcomes of mobile services value. They vary in nature and number, frequently comprising intention to use or to adopt, intention to positive word of mouth, or repurchase intention.

Table 1 to be inserted about here

Considering both this lack of consensus on mobile services value and the paucity of research in the context of mobile applications, further research is needed to gain clearer insights into the value of mobile applications. Our research contributes to advance this issue. To do so, it adopts the following conceptualization of value: (1) an analysis of the perceived value: we focus on the consumer experience understood as a set of interactions between the individual and the mobile application. The key factor behind the success of a mobile application is not so much its adoption than its use by consumers; (2) a multidimensional approach of value, as previous research in value considers it as richer (e.g. Sánchez-Fernandez et al., 2009) while studies on mobile services value suggest sacrifices are not as

prominent in this sector as it is for products (e.g. Pihlström, 2008). Consumers seem to include, without conscious calculation, the costs and benefits associated with these mobile services to form the different dimensions of consumer value; (3) a cumulative approach of value: the consumer experience consists in the repeated use of a mobile application. This framework structures the object of our research in order to derive evidence on mobile applications value.

3. Research Method

Considering the need of an in-depth understanding of consumer value in the context of mobile applications, a qualitative research methodology was the most appropriate. Consistent with a moderate inductive approach (Denzin and Lincoln, 2000), the existing evidence on mobile services value were put aside during data collection and data analysis and were used only in a second time to discuss the emergent codes, and conceptualise the dimensions of mobile application value.

3.1. Data collection

Data were collected with face-to-face semi-structured interviews as this method of data collection focuses on respondents' expression of their personal experiences (Denzin and Lincoln, 2000). The interview guide was structured around five themes and their possible prompts: smartphone use; mobile applications use; five preferred mobile applications; satisfaction and dissatisfaction with the mobile applications; changes in the consumer behaviour. The research population consists in French young smartphone owners who are the heaviest users of mobile applications (Comscore, 2012). The semi-structured interviews were

conducted in fall 2011 with 30 participants who were selected conveniently given that they exhibited specific characteristics that matched the purposeful sampling objectives (smartphone owner, young people, variety of professional status, level of interest in new technologies). The sample, which characteristics are displayed in appendix A, exhibits high diversity in order to reach a qualitative – not statistical – representativeness (Miles et al., 2013).

3.2. Data analysis

Data were analysed following the guidelines about qualitative data analysis suggested by Sinkovics et al. (2008) and Miles et al. (2013). The 30 interviews were audio-taped and transcribed for analytical needs. The corpus consisted in 556 pages. These raw data were analysed thanks to various rounds of interpretative procedures in order to finally generate a stable conceptualisation of mobile application value. First, a thematic analysis was carried out, in order to organise the raw data into themes that captured the essence of mobile application value as described by respondents. This thematic analysis was done manually and using NVivo9 software, in order to address validity issues. Second data-driven codes were confronted and discussed with the dimensions of value existing in the literature. Various procedures of validation of the final categories were used to ensure credibility, transferability and validity of results (Miles et al., 2013): (i) control of data saturation, (ii) an iterative pattern coding process with an initial coding on the 16 first interviews and a control with the 14 final interviews; (iii) the control of inter-coders validity with a double-blind coding process by three senior researchers on the 30 semi-structured interviews. This data analysis process lead

to a final conceptualization of mobile applications value around five dimensions, from the consumer's perspective[1].

4. Findings

The conceptual model stemming from the content analysis is presented in figure 1. It depicts a multidimensional hierarchical structure similar to Woodruff's (1997) conceptualization of consumer perceived value. In this framework, lower-order dimensions of value lead to higher order dimensions of consumer value, then resulting in the highest order consumer value, namely the synchronicity value. The outcomes can be either related to the synchronicity value or to some dimensions in particular.

Figure 1 to be inserted about here

4.1. Mobile application consumer value

Five main dimensions of a mobile application consumer value emerged from the qualitative data. Table 2 depicts these consumer value dimensions with their definition mostly based on the mobile services value literature, or on a larger scope of the value literature when required.

Table 2 to be inserted about here

4.1.1. Situational value

[1] The various nodes classifications are available upon request.

Most of respondents mention that they derive some value from the experience of a mobile application when it is appropriate - or perceived as such - to a specific situation. This value exists due to the smartphone features, in particular its ubiquity, and corresponds to Lai's (1995) definition of a situational value. For instance, Antoine (I1) says:

> "At one point, I was abroad and I wanted a map of the city and hop! you get it in no time at all..." (p. 3).

Situational value refers to the utility derived from the mobile application ability to meet a need in a given situation. It thus differs from a conditional value (Pihlström, 2008; Gummerus and Pihlström, 2011) as this latter is a necessary and a prior value for the value-in-use of a mobile service.

4.1.2. Utilitarian value

Mentioned by all our respondents, the utilitarian value reflects the ability of an application to achieve a goal (Pihlström, 2008) and to complete a task. This dimension appears as a necessary requirement for its use. Mary (I8) says:

> "It was at the beginning, I had just had my iPhone, so I was downloading everything and anything, and then I limited it a little because I saw that it was not necessarily helpful and I was not regularly consulting it" (p.139)

Content analysis helped highlighting that utilitarian value has five lower order dimensions: economic, monetary, convenience, informational and functional value. The **economic value** seems to play a key role for the respondents who strive to find, through their application, an economic benefit as a result of gains (discounts, cheaper products) or monetary losses avoided through the use of the application. This extrinsic value has already been isolated as one dimension of the experiential value of an e-catalogue (Mathwick et al., 2001), or as one benefit associated with price reductions (Chandon et al., 2000), but is newly identified in the context of mobile services. It differs from a **monetary value**, also identified in our respondents' discourse, in accordance with Yang and Jolly (2006, 2009) and Pihlström and co-authors (2008, 2011) findings, and sometimes called value for money (Turel et al., 2010). Those latters refer to an intrinsic value, namely the "good value for money or low price compared with alternatives" (Sheth et al., 1991) also identified in our content analysis.

The interviews also revealed the importance of the **convenience value** presented by the respondents as the ability of the application to reduce the time and effort required to perform certain tasks (Seiders et al., 2007). Whether these efforts can be physical or cognitive, respondents report that using the application can facilitate and simplify their lives. This extrinsic value identified in the context of a mobile application usage confirms its importance in the context of mobile services in general (Kleijnen et al., 2007; Pihlström and Brush, 2008; Gummerus and Pihlström, 2011).

According to our findings, an application is also valued when it provides the information needed for making a decision. **Informational value** can then be defined as the capacity of the mobile application to provide relevant information in order to resolve uncertainty to make any decision (adapted from Archer-Brown et al., 2013). Informational value and the epistemic value are clearly distinguishable in the respondents' discourses. The informational content of a mobile service has mostly been discussed in its hedonic side,

namely the epistemic value (Pihlström and Brush, 2008; Wang et al., 2013), in other words in its ability to satisfy consumers' need for novelty and variety (Lai, 1995). The utilitarian side of the informational content of a mobile application also emerges from the content analysis when it allows consumers to reduce their uncertainty towards a decision-making process. Rarely discussed as a dimension of the consumer value, the information value refers to the information search stage, when the consumer seeks to improve its decision (Archer-Brown et al., 2013).

A **functional dimension** of an application lies in its capacity of maximizing the quality and performance perception while using it, thanks to its design and its ergonomics (from Sweeney and Soutar, 2001). This dimension has been previously isolated in the mobile services research (Yang and Jolly, 2006, 2009; Wang et al., 2013) but we precise it by underlying the importance of the design and the ergonomics of a mobile application to take into account our respondents' discourse. It differs from the aesthetic value, defined as deriving from the design, the physical aspect and the beauty of the product and service (Mathwick et al., 2001), and defined in this research to relate only to the "beauty" of the application. The functional value is therefore a lower order dimension of the utilitarian value as the design of an application refers to the usability of the application (Shin, 2012), so mostly its utilitarian side. Some respondents underlined the importance of this dimension when suggesting that in case of a negative assessment on this value, the application will be immediately deleted.

4.1.3. Hedonic value

According to our respondents, pleasure and fun seem to strongly pervade the use of mobile applications.

"[I am using mobile applications because] it allows me to indulge myself – I mean – on my phone… (AIR QUOTES)" (Maxime, I24, p.442).

This hedonic value, as defined in Table 2, has been already identified on previous research but the content analysis helped isolate four lower order dimensions of the hedonic value: the recreative, reinsurance, aesthetic and epistemic values. The existence of a **recreative value** appears in respondents' discourse through the vocabulary of entertainment and escape. Respondents thus refer to an intrinsic pleasure derived from the act of engaging in absorbing activities, to the extent of providing opportunities to escape the demanding everyday life (Mathwick et al., 2001). This dimension has been isolated in several studies on mobile services, but under different labels such as enjoyment or playfulness (e.g. Kim et al., 2007; Maghnati and Ling, 2013; Turel et al., 2010).

A **reinsurance value** also stems from the qualitative analysis and corresponds to a valuation of the application in its ability to enhance positive feelings (serenity, calm) or to prevent negative feelings or emotional states (including stress) associated with the perceived risk of the application usage (Hwang and Kim, 2007, Laros and Steenkamp, 2005). Thus, some respondents feel a sense of serenity associated with the reputation of the company, website or download platform. Although the affective dimension of the consumer value is mostly related to an experiential side (e.g. Lai, 1995), this reinsurance value captures the positive affect by its ability to create well-being and to limit a stressful feeling.

The **aesthetic value** already isolated in mobile services research (Pihlström 2008; Maghnati and Ling, 2013; Shin, 2012; Turel et al., 2010) refers to the ability of the application to meet the beauty needs of the consumer (adapted from Sheth et al., 1991 and Lai, 1995).

Finally, respondents appreciate some applications when they satisfy their curiosity, their need for novelty and for knowledge consistent with existing results on mobile services

(Gummerus and Pihlström, 2011; Sheth et al., 1991). This **epistemic value** aims to satisfy the consumer's need of stimulation by exploring new ideas and information or for acquiring knowledge about the passions and interests (Bloch et al., 1986). As discussed earlier, this dimension is considered as a hedonic dimension in opposition with the "utilitarian" informational value.

4.1.4. The social value

A social value of a mobile application goes beyond an esteem value (Gummerus and Pihlström, 2011) and stems also from a linking value and a social learning value. As a higher order dimension, the social value represents the whole capacity of a mobile application to emphasize social interactions, then impacting the esteem of the consumer vis-à-vis others, his relationships with others as well as his learning thanks to the shared knowledge with others.

> « By chatting, in daily conversations, because today it is something that became… that became common to discuss about. Everyone gets out his phone, everyone asks what is new on his phone, et caetera » (Gwendal, I14, p.234)

Interpretive results show that three lower order dimensions of the social value can be identified from a mobile application usage. First the **esteem value** emerges from the respondents' discourse through an expression of a shame on being judged on mobile apps addiction. It is consistent with the definition of the esteem value proposed by Gummerus and Pihlström (2011) which highlights the issue of the social acceptance, the self-respect and the embarrassment avoidance. In the mobile service literature, this value has been mostly

identified under the generic heading of social value (Pihlström and Brush, 2008; Turel et al., 2010; Wang et al., 2013), then only considering one dimension of the social value.

Our evidence also shows that respondents value the interactivity, sharing and dialogue with people interested in the same things via a mobile application. This **linking value** reflects the ability of a mobile application to allow social interactions and fulfill the needs for community belonging and relationship building (adapted from Aubert-Gamet and Cova, 1999; Seraj, 2012). This dimension of the social value is often mentioned when talking about social networks refers to the desire for social action (Bagozzi and Dholakia, 2002).

Finally, our findings show also the sharing of information and knowledge between consumers, then allowing them to gain knowledge. This **social learning value** appears in our respondents' discourse as a mobile app is an enabling technological context for learning, especially through social networks features. People interact with each other, exchange information and knowledge so that they can make empowered decisions (Jayanti and Singh, 2010). This social learning value is then similar of the value obtained from a participation in an online review site or virtual communities (Hennig-Thurau and Walsh, 2003). This information exchange favours the creation and the reinforcement of relationships by nourishing them, and can be connected with a gift and a counter-gift situation (Chiu et al., 2006; Lin et al., 2009; Chang and Chuang, 2011).

4.1.5. The synchronicity value

Overall, a highest order value of a mobile application consists in a value grounded in synchronicity that is to say the ability of an application to mobilize the appropriate mix of value (among utilitarian, social, hedonic and/or situational) at the right time, the right place and the right situation. While the smartphone has the capacity to synchronize temporally and

spatially consumers' needs (Shankar et al., 2010), mobile applications are used by consumers in so much as they extend this capacity as they offer a larger array of value mix. It is less the value of the mobile application usage that is worth than the value of its usage in a specific situation temporally and spatially.

> « When I can, I don't know, it depends, if for instance I am at work and I need an information about a specific medicine, then I take my phone and I use the VIDAL, especially if I don't have it in front of me, that is to say if I don't have the database on the computer, nor the dictionary, then I use my iPhone. Map, it is the same, if I go out and I have an appointment and I am lost, then I take my Map application to locate myself, to know where I am, anywhere » (Zachary I4, p. 72)

4.2. Mobile application value and its outcomes

According to our participants, four major outcomes are related to the overall value of a mobile application: one attitudinal outcome toward the brand and three behavioural outcomes: omnichannel behaviour, word-of-mouth, future use of the application.

4.2.1. Attitude toward the brand

Many respondents also mention the impact of the mobile application value on the attitude toward the brand. Consumers' experiences of a branded mobile application strengthen an already existing positive attitude toward the brand, as illustrated by Fabien. Only when the mobile application value is very low can the attitude toward the brand degrade and can ultimately result in a negative attitude toward the brand, as explained by Justine. These

findings support Bellman et al. (2011)' conclusions according to which interacting with branded mobile phone applications result in a positive attitude toward the brand if most of the thoughts are positive.

> « I had a good image of eBay and it stays as a good image because I find the application well done. » (Fabien, I 16, p. 288).

> « Unless the application is really, really not well made, but I am not even sure it would made me love less the brand » (Justine, I 15, p. 266).

4.2.2. Omnichannel behaviour

Informants reveal that the experience of a mobile application has consequences on their shopping behaviour. Mobile applications being additional touchpoints, the relationships of customers with traditional touchpoints (physical or electronic) are transformed. On the one hand, some of them mention the frequency of visit of existing touchpoints increases or decreases under the influence of mobile application usage. On the other hand, some respondents explain that the mobile application eases the switch from one touchpoint to another. These evolutions in shopping behaviours under the influence of mobile applications usages correspond to the emergence of an omnichannel experience. Consumers now aim to live such an omnichannel experience, namely a flow of seamless shopping journeys within different touchpoints connected in an ecosystem. This evidence adds to previous research in the retailing literature which is mostly devoted to omnichannel strategies from a retailer perspective (Aubrey and Judge, 2012; Avery et al., 2012).

"Yes, it's true it's cool to receive promotions, coupons, reductions of all kinds… (…) it encourages to go back to the store or to order again on the Internet…" (Simon, I 13, p.228)

4.2.3. Word-of-mouth

A positive overall value of the application results in a positive word-of-mouth, either traditional, or electronic, and consists mostly in a willingness to recommend the mobile application. In this context, a positive word-of-mouth is frequently an antecedent of the mobile application adoption. According to our respondents, the smartphone and mobile apps are now a daily topic conversation. These results highlight the importance of a positive word-of-mouth as an outcome of the overall value of a mobile service as it was expected by Turel et al. (2010).

« And after I, when I have a good application, I also post a comment saying that it is good » (Gwendal, I14, p.234)

4.2.4. Future use

Consumers download a mobile application with the intention to reuse it, as they expect the value of the mobile application to be positive. Consequently, the behavioural outcome (intention to reuse the application) appears in its negative valence that is in the intention of not reusing the application, or even suppressing it, in case of a low value. Our findings enlarge previous research which predicted the intention to use as an outcome of positive expected value of a mobile service (e.g. Kleijnen et al., 2007, Turel et al., 2010).

"Having not succeeded in doing what I wanted to do… either not intuitive enough, or too complicated, or maybe not working for what I wanted to do. That is for this type of reason that I uninstall in general" (Jean-François, I 5, p. 93).

5. Conclusion and Implications

This research here contributes theoretically by analysing the specificities of the mobile applications value dimensions, and managerially by offering avenues for developing more successful mobile applications.

5.1. Theoretical contributions

Usability and synchronicity characteristics of the smartphone help to extensively cover the value dimensions in general. The content analysis sheds light on a hierarchical multidimensional structure of the consumer value of a mobile application, then allowing a better understanding of how to reinforce the highest-order dimension. Indeed, our main contribution consists in the conceptualization of the synchronicity value as the meta value of a mobile application. Also, our research contributes significantly in conceptualizing the social value by identifying three sub-dimensions namely the esteem value, the linking value and the social learning value. Moreover, the research contributes in identifying one lower-order dimension never observed in the marketing literature: the reinsurance value. Beyond these main contributions, the situational dimension as well as the informational and economic sub-dimensions of the consumer value of a mobile application are new in the context of mobile services. In addition, two dimensions are confirmed in the context of mobile services: the utilitarian value (Pihlström, 2007; Kim and Ham, 2011; Kim and Oh, 2011) and the hedonic

value (Pihlström, 2007; Kim and Ham, 2011; Kim and Oh, 2011). Six sub-dimensions are also validated in this context: the monetary value (Gummerus and Pihlström, 2011), the convenience value (Pihlström and Brush, 2008; Gummerus and Pihlström, 2011), the functional value (Wang et al., 2013), the recreative value (Turel et al., 2010), the aesthetic value (Cyr et al., 2006; Turel et al., 2010) and the epistemic value (Pihlström and Brush, 2008). In terms of outcomes, three of them previously identified in adoption models are confirmed in a use model: the attitude towards the brand, the word-of-mouth and the future use. But our research specifically highlights the omnichannel behaviour as an outcome of a mobile application consumer value.

5.2. Managerial implications

Our initial questions were: How can marketers reach and engage these consumers (Gupta, 2013)? What do consumers get from using mobile applications? How can retailers develop mobile applications that offer value to consumers? Our research can assist retailers in their mobile application-development projects by providing a complete repertory grid along which developing their mobile applications. By showing a hierarchy between value dimensions, this grid also help retailers to understand how the value is formed and how each lower-order dimension is reinforcing a higher-order one. It also shows that the synchronicity value is the ultimate value that consumers can get from using a mobile application. To develop a mobile application able to offer such a synchronicity value, retailers must find the right mix of value (situation, utilitarian, hedonic and/or social) according to a specific situation temporally and spatially. It means that retailers must identify the different situations of the mobile application usage so that the application can adapt to these ones.

To date, retailers have answered this synchronicity stake by developing several applications to adapt to different situations. The next step is to develop a unique but versatile application that recognizes which content must be emphasized depending on the situation. This recognition could be done depending on:

- the time: retailers could follow the idea of Macy application that can meet temporal situations by adapting the mobile application interface to specific holiday such as the Black Friday;
- the geolocation: retailers could recognize that a consumer is entering a store and then switch the home page of the application from “find a store” to “find a product inside a store”. As an example, Walmart application can feature a Store Mode that kicks in when the phone detects that it is in one of the company's 4,000 stores in the U.S. The app's Store Mode transforms into a different interface that focuses on products in that specific location, as well as quick access to the shopping list, price checker, and the digital version of the store's local ads;
- the situation: retailers could identify that people are in a specific situation (going to work, driving children to activities, being lost…) by combining temporal, spatial and consumers’ habits data. For instance, using a user’s regular departure times and home geolocation, Waze application can recognize that a consumer is going to work in the morning and automatically upload the relevant directions.

Also, our study leads to important managerial implications regarding how to include the smartphone in an omnichannel strategy. The main stake is: How to develop a mobile application that is well connected with other touchpoints? First, retailers could take advantage of the mobile touchpoint to offer some dimensions of value not previously offered in other touchpoints such as the physical store. For instance, the MacDonald’s mobile application GoMcDo allows consumers to avoid queuing by ordering their meals on the mobile

application and collecting them on a dedicated counter. Consequently, the mobile application becomes a link between the different touchpoints.

Finally, the research derives important implications in relation to what consumers do when they value a mobile application: (i) he/she has a more favourable attitude towards the retail brand and feels more proximate with it; (ii) he/she uses it as a link between other touchpoints so he can enrich its omnichannel experience; (iii) he/she speaks well of it: the word of mouth of the adopters will play in favour of the retail brand and of the downloading of the application by future users; (iv) he/she continues to use it: the source of value that is appreciated during the early usages plays a key role in its future use.

5.3. Limitations and directions for future research

This research contributes to a better conceptualization of the value dimensions delivered by a mobile application experience. It contains the limitations inherent to a qualitative methodology. If the internal validity of the results is reached thanks to a rigorous double coding from experts done on the initial coding, the external validity could be extended with additional research, especially in this technological context where devices and usages evolve very fast (e.g. connected glasses or watches).

Moreover, this research highlights a hierarchical structure of dimensions of value and relates it to outcomes without investigating if correlations exist between these dimensions of value as well as relationships between the latters and the outcomes. This limit could be an avenue for research.

Finally, by underlying a social learning dimension of mobile application value, our research confirms the importance of the “recent epistemological shift from an individual and cognitive perspective to knowledge as socially constructed” (Hemetsberger and Reinhardt,

2006). This theoretical background has been mostly developed in an organizational context but the importance of social learning has also been underlined at an individual scope (Meltzoff et al., 2009). This paper then calls for a larger consideration of a learning dimension of the social value for further research on consumers' experiences.

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Nature of value	Antecedents of value (benefices and costs) or dimensions		Moment of evaluation	Accumulation of experiences	Outcomes	Authors	Type of Mobile Service
Uni-dimensional approach	Benefits	Costs					
	Usefulness Enjoyment	Technicality Perceived fee	Post usage of m-Internet	Yes	Adoption Intention	Kim et al. (2007)	M-Internet
	Time Convenience User Control Service Compatibility	Risks Cognitive effort	Post-usage of mobile transactions	Yes	Intention to Use	Kleijnen et al. (2007)	Mobile brokerage services
	Information quality System quality Service quality	Technological effort Perceived fee Perceived risk	Before usage of mobile hotel reservation	No	Behavioural Intention to Use	Wang and Wang (2010)	Mobile hotel reservation services
Multidimensional approach	Dimensions						
	Hedonic value Utilitarian value		Before usage of mobile data services	No	Behavioural intention	Kim and Han (2011) Kim and Oh (2011)	Mobile data services
	Functional value Social value Monetary value Emotional value		Post-usage of mobile data services	Yes	Attitude and behavioural intention to use mobile data services	Yang and Jolly (2006, 2009)	Mobile data services
	Hedonic value Utilitarian value		Post-usage of mobile service	Yes	Commitment to provider Intentions to use provider Intentions to use channel Commitment to channel	Pihlström (2007)	Real estate mobile service
	Conditional value Epistemic value		Post-usage of mobile service	Yes	Repurchase intentions	Pihlström and Brush (2008)	Entertainment mobile service

	Monetary value Convenience value Emotional value Social value			Willingness to pay more Word-of-mouth		
	Visual/Musical appeal value Social value Playfulness value Value for money	Post-usage of mobile ringtones	Yes	Behavioural intentions to use in future Behavioural intentions to positive word-of-mouth	Turel et al. (2010)	Mobile phone ringtones
	<u>Context value:</u> Conditional value <u>In-use value:</u> Emotional value Esteem value Monetary value Convenience value Performance value	Post-usage of mobile service	Yes		Gummerus and Pihlström (2011)	<u>Mobile services in general</u>
	<u>Experiential value:</u> Aesthetic value Playfulness Service excellence CROI	Post-usage of mobile applications	Yes	Usage attitude	Maghnati and Ling (2013)	<u>Mobile applications</u>
	Conditional value Functional value Social value Emotional value Epistemic value	Before usage of mobile applications	No	Behavioural Intention to use	Wang et al. (2013)	Mobile applications

Table 1 – Value conceptualization within the mobile service literature

Dimension of value	Verbatims	Conceptualization of the dimension of value grounded in the literature in marketing and management
Situational value	*"It was to meet the need of the moment so, I actually had some posters and there was Chineaseman showing last Thursday and I wanted to buy the tickets and hop! I looked on Android and awesome"* I1	Value derived from the mobile application experience to satisfy consumers' needs in a specific situation or circumstance (adapted from Lai, 1995)
Utilitarian value	*"I find it very useful."* I2	Value derived from the mobile application experience to allow a consumer to accomplish a task (adapted from Babin et al., 1994)
Economic value	*"It, it changed my consumption habits. Then well it's the same I have more informations so everything like Groupon, Ventes_Privées etc ... Now I'll go where I can get discounts, stuff like that…, not that I'm stingy! (LAUGHS). But we have now so much information about nearby deals that… why go without?"* I12	Value derived from the mobile application experience to provide an economic benefit thanks to gains (e.g. price reductions, cheaper products) or to avoided monetary losses (e.g. avoiding fines) (adapted from Mathwick et al., 2001)
Monetary value	*"For this, it was not bothering me, as long as it is useful I don't mind paying. In addition it is very convenient; it is not 2,000 pages of VIDAL large dictionary. After there is other things that come into account, the price of real VIDAL is 120 Euros so it's much cheaper. So here we go, 30 Euros, it is not very expensive compared to it."* E4	Value derived from the mobile application experience to help perceive a good value for money or low price of a mobile application compared with alternatives (from Sheth et al., 1991)
Convenience value	*"It is just to simplify my life but uh… the train, I use it because I am forced to do it so it did not force me to use more their services. It might be uh… so no, it did not create the need to take the train, it just made my life easier."* I6	Value derived from the mobile application experience to reduce time and efforts necessary to perform some tasks (adapted from Seiders et al., 2007)
Informational value	*"We can also get informations listing the number of calories on some food product […] we can imagine such a usage by scanning the products, we make the assessment and it tells us « well here if you purchase this or that, you will get this or that amount » It can help in making purchase in such a usage."* I11	Value derived from the mobile application experience to provide relevant information in order to resolve uncertainty to make any decision (adapted from Archer-Brown et al., 2013)
Functional value	*"Well I was a little disappointed because I like going to the movies or so, and Allo_Ciné I find it not well done for instance."* I15	Value derived from the mobile application experience to optimize the quality and performance perceptions thanks to its design and ergonomics(adapted from Sweeney and Soutar, 2001)
Hedonic value	*"So collaborative applications like that, it's nice too."* I12	Value derived from the mobile application experience to offer pleasure and fun (Babin et al., 1994)
Recreative value	*« Having fun. »*I14 *« When I want to relax, think about something else. »* I13	Value derived from the mobile application experience engaging the consumer in absorbing activities allowing him to get away from daily demands (Mathwick et al., 2001).
Reinsurance value	*"If there were any problem it would have been known, and the application would have been withdrawn from the App_Store! Full trust !"* I13	Value derived from the mobile application experience to provide reassurance, well-being feelings, or on the contrary to avoid anxiety associated with the perceived risks of the mobile application usage (adapted from Hwang et Kim, 2007)

Aesthetic value	*« And then it makes you want it, aesthetically it was well done, pretty, ergonomic. »* I16	Value derived from the mobile application experience to meet the beauty and aesthetic needs of consumers (adapted from Sheth et al., 1991; Lai, 1995).
Epistemic value	*"Otherwise I have an application, well like Kop_West where I have all the results from the Stade Rennais and everything like that for example .... And then, well I go there to see the results, to keep me informed ... Well about the Stade Rennais."* I3	Value derived from the mobile application experience that entails curiosity for new content and knowledge gained through using services (adapted from Pihlström and Brush, 2008)
Social value	*" It is true that it is a bit of an addiction, I like to see the news of my friends, to keep in touch with them, share photos, videos, etc ..."* I13	Value derived from the mobile application experience to emphasize social interactions, then impacting the esteem of the consumer vis-à-vis others, his relationships with others as well as his learning thanks to the shared knowledge with others.
Esteem value	*"It is quite common I admit, do not judge, it is not a drug but almost, it's even became a kind of need (LAUGHS!)»* I13	Value derived from the mobile application experience "to strengthen internal and external self-esteem when one can behave in a way supporting one's self-concept, when others share this self-concept and when one is able to avoid threats to one's self-concept (embarrassment avoidance)" (from Gummerus and Pihlström, 2011)
Linking value	"*Challenging your friends: it adds a Community dimension to a very individualistic activity, challenging one friend even on the other side of the Earth...: "Run longer than me"…"* I2	Value derived from the mobile application experience to allow social interactions and fulfill the needs for community belonging and relationship building. (adapted from Aubert-Gamet and Cova, 1999 ; Seraj, 2012)
Social learning value	*"On the other hand it's more going to be the word of mouth. For example, there is a famous application which is called la_Fourchette that identifies a restaurant. You choose your cyber restaurant, you choose the menu etc.. It suggests you a good restaurant but then there is the word of mouth side "you know this restaurant" to your friends, just to complete a review. It has not particularly changed, revolutionized the process of buying, just the information process."* I2	Value derived from the mobile application experience to allow the sharing of expertise and experience between consumers for empowered decision making (adapted from Jayanti and Singh, 2010)
Synchronicity value	*"Having an application that scans your card, that allows you to have it all the time on your phone, I think it's great! This is one of the applications I use the most." I2*	Value derived from the mobile application experience to offer the right mix of value dimensions (situational, utilitarian, hedonic and/or social) at the right time, the right place and in the right situation (adapted from Shankar et al., 2010)

Table 2 – Dimensions of a mobile application consumer value

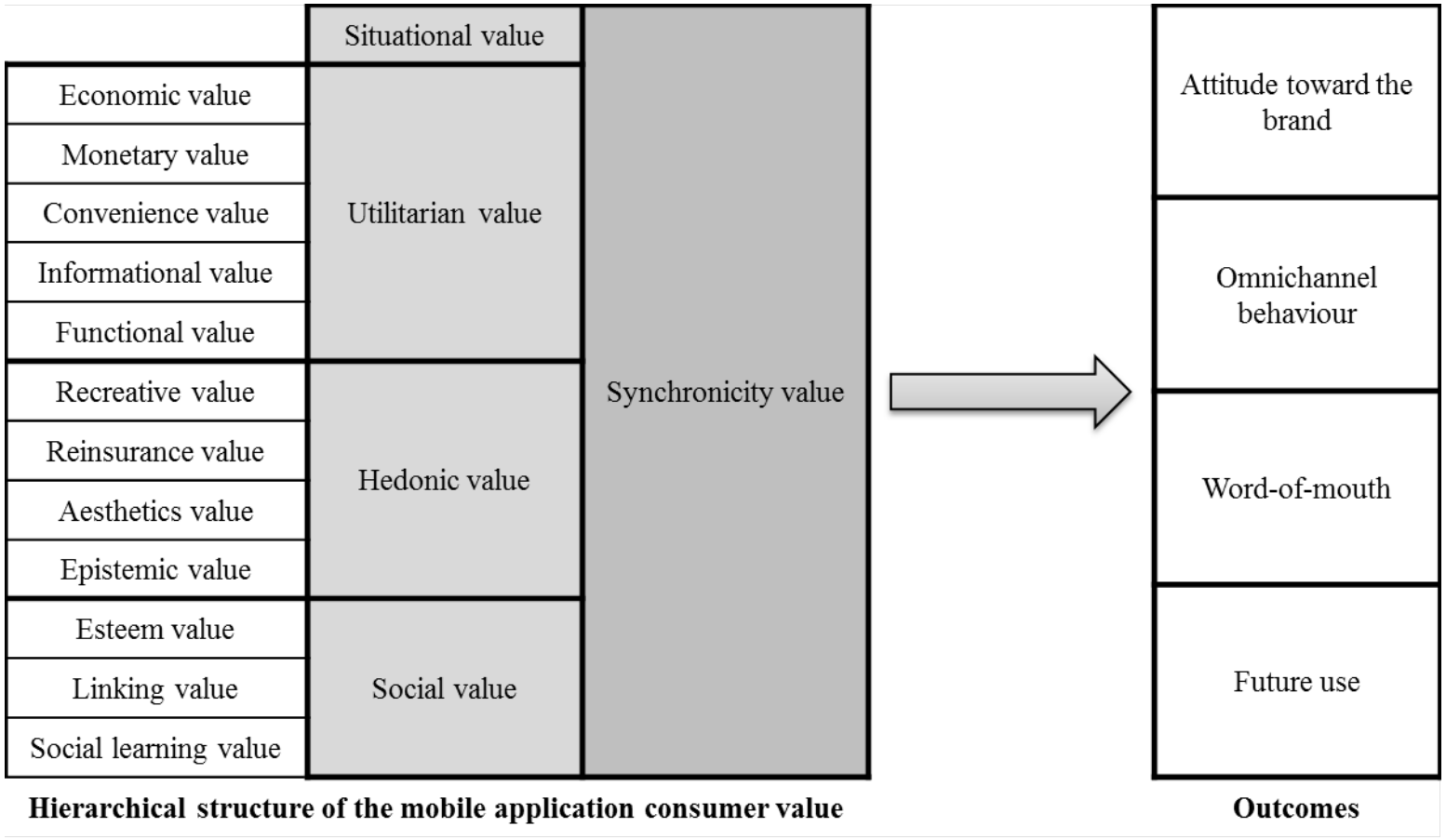

Figure 1 – The mobile application consumer value and its outcomes

		Age (years)	Occupation	Years/months of owning a smartphone	Shopping experience with a Smartphone
I1	Antoine	28	Buyer	6 months	Yes
I2	Sébastien	25	Marketing project manager	6 months	Yes
I3	Séverine	26	Computer graphist designer	1 year	Yes
I4	Zach	23	Clinical research assistant	6 months	No
I5	Jean-François	22	Operations technician	1 year	Yes
I6	Maité	25	Student	6 months	Yes
I7	Yonath	30	Retail agent	3 years	Yes
I8	Mary	30	Professional customer advisor	1 year ½	Yes
I9	Hélène	23	Retailer	1 month ½	Yes
I10	Benjamin	22	Apprenticeship student	2 years	Yes
I11	Olivier	29	Mobile applications developer (Food Reporter)	3 years	Yes
I12	David	26	Mobile Engineer	4 years	No
I13	Simon	22	Student	2 years	Yes
I14	Gwendal	29	Mobile phone customer advisor	5 years	No
I15	Justine	22	Student	1 year	Yes
I16	Fabien	22	Chemist	1 year ½	No
I17	Kevin	21	Work/study student	1 year	Yes
I18	Pierre	25	Customer advisor in a bank	3 months	Yes
I19	Jérôme	25	Student	3 months	Yes
I20	Aloïs	27	Loan analyst	1 year	No
I21	Julien	22	Assistant – certified public accountant	4 months	Yes
I22	Charles	23	Work/study student	3-4 years	Yes
I23	Emilia	21	Student	9 months	No
I24	Maxime	23	Young working person	4 years	Yes
I25	Solenn	22	Student	8 months	No
I26	Chloé	24	Human Resources assistant	1 year	Yes
I27	Toussaint	26	Accountant	3 years	Yes
I28	Anthony	25	Communication agency graphist designer	3 years	Yes
I29	Eve	25	Laboratory trainer	3 years	Yes
I30	Myriam	21	Student	1 year	Yes

Appendix A – Sample presentation

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Working Paper

Mobile application value for consumers

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