

Making in-store payment enjoyable by adopting mobile payment

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The increasing penetration rate of smartphones changes behaviors based on mobile unique features. Our research provides a first attempt to better understand the adoption of in-store smartphone usage to enhance a brick-and-mortar experience. More particularly, it focuses on proximity mobile payment (p-m-payment), which corresponds to a recent tendency of shoppers to finalize the transaction through their smartphone while they shop in a store. Using a perceived value approach, this paper identifies utilitarian, hedonic and social benefits as well as financial and privacy risks as key drivers of adoption for p-m-payment.

A comparison between the drivers of this new in-store mobile usage and the ones for more familiar tasks such as mobile information search, highlights clear differences in what drives intention, as shoppers are more experienced with the latter.

The paper discusses the implications for mobile and channel researches and provides suggestions for retailers to facilitate and take advantage of p-m-payment.

Introduction

In 2022, almost 60% of the global population will own a smartphone (Statistica, 2017). Individuals use their smartphone today as a personal digital assistant for many professional and personal activities such as searching for information, browsing social media or shopping. In the US for instance, 79% of smartphone users are mobile shoppers (hereafter referred to as m-shoppers). However, rate of adoption for m-payment services is still slow, with a conversion rate of mobile purchase (1,55%) lower than with Traditional PCs (4,14%) or Tablets (3,56%) (ComScore Report Q4 2016). Shoppers use their mobile to research, browse, compare products and prices, but only half of them buy products or services via their mobile device (eMarketer, 2015).

Inside a store, shoppers can use their mobile for information search-related behaviors: m-infosearch or purchase-related ones: m-payment. Since the purchase stage is part of every transaction, it seems worth investigating its specificities. In this research we focus on proximity in-store m-payment systems ("p-m-payment" or "p-m-p"), i.e. mobile technologies enabling customers to pay their purchases while they are in-store.

In past research, limited attention has been paid to perceived benefits and risks linked to "p-m-p". Also, the particular role of past experience with mobile has been over-

looked. Given its novelty, p-m-payment may be perceived as more innovative in comparison to m-infosearch.

Our results will help retailers to better meet customers' shopping needs with respect to in-store mobile usage and better communicate on what matters for shoppers in terms of improving their in-store shopping experience with mobile services.

Hypotheses

Theory of perceived value and its components

Value can be evaluated through the benefits offered compared to sacrifices for the acquisition and use of that product and service (ULAGA, 2003; ZEITHAML, 1988). Sweeney and Soutar (2001) consider three sources of value: utilitarian value, emotional value and social value. Transposed into our context, utilitarian value is the utility perceived by the expected performance of using mobile services (good value for money; rapid and easy access to a large quantity of details regarding stores and their merchandise; convenient transactions). Emotional value is the utility derived from the affective states that mobile services generate. Using the smartphone to make a purchase can be considered as pleasant (AGREBI and JALLAIS, 2015). Finally, social value is the utility derived from enhancing social self-concept (SWEENEY and SOUTAR, 2001). Adoption of mobile services can be influenced by

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A passenger pays for bus ticket by quick response (QR) code in Beibei District, southwest China's Chongqing Municipality, August 3, 2017.

“Inside a store, shoppers can use their mobile for information search-related behaviors: m-info-search or purchase-related ones: m-payment.”

the perceived projected image on others (LAUKKANEN *and al.*, 2007).

As far as sacrifices are concerned, we consider perceived financial and privacy risks. The privacy and financial risks are linked to potential monetary and psychological losses due respectively to a lower control over personal information (FEATHERMAN and PAVLOU, 2003; HÉRAULT and BELVAUX, 2014) and to transaction errors or fraudulent uses of banking account information (LEE, 2008). Shoppers may feel concerned about potential risks – related to privacy, personal data and the transaction itself (BAUER *and al.*, 2005). According to prospect theory (KAHNEMAN and TVERSKY, 1979), people are more sensitive to losses than to gains when facing a risky choice. We thus assume that the perceived risks associated with p-m-payment represent a major barrier compared to the benefits.

H1. *The risks associated with p-m-payment are perceived as more important than utilitarian, hedonic or social benefits.*

Drivers of the intention to use in-store m-payment

Consumers make purchase decision such that the negative utility is minimized, the positive utility is maximized and as a result the net utility is maximized. We consider here that positive and negative utilities are respectively perceived benefits and perceived risks. The valence framework has

been used in the past to explain the intention to adopt online shopping (KIM *and al.*, 2009), online banking (LU *and al.*, 2011) and remote m-payment services (YANG *and al.*, 2012). In line with the valence approach, the perceived risks associated with in-store proximity m-payment should negatively impact the usage intention, whereas utilitarian, hedonic and social benefits should positively impact the intention to use in-store p-m-payment.

H2a. *Perceived benefits (utilitarian, hedonic and social) associated with p-m-payment positively impact the intention to use p-m-payment.*

H2b. *Perceived risks associated with p-m-payment negatively impact the intention to use p-m-payment.*

The experience effect

Past experience with a channel is a strong driver of future channel choices. Gensler *and al.* (2012) suggest that the channel experience related to a specific usage situation such as gathering information or purchase a product might have a stronger effect on future channel choices than the effect of general experience with the channel. Given that the smartphone and the associated specific apps can be considered as a complementary channel (FUNK, 2005; 2007) used by shoppers as a supplement to the physical store to search for information and to pay their purchases, we expect that:

H3a. *The greater experience with an in-store m-service (e.g., p-m-payment and m-infosearch), the higher the intention to use the in-store m-service.*

The role of experience is likely to be strengthened with the experience accumulated by shoppers. The effect of experience might be more decisive when shoppers have already developed habits. This may be the case of m-infosearch, since searching on a mobile is nowadays a widespread behavior. Proximity m-payment is, on the contrary, somewhat new to the vast majority of shoppers (COBANOGU and al., 2015; eMarketer, 2015). We thus expect that:

H3b. *The effect of m-service experience on intention to use the m-service is higher for m-infosearch than it is for p-m-payment.*

Channel experience importance differs across stages of the shopping process (GENSLER and al., 2012). In the case of a usage situation for which customers have a long experience (such as m-infosearch), the experience should have a higher impact on usage intent than the benefits and risks. On the contrary, when shoppers have a short or no experience (e.g., p-m-payment), the experience effect on intention will be lower than the perceived benefits and risks. Thus, we foresee that:

H3c. *The effect of experience on the intention to use an in-store m-service is higher than the effects of benefits and risks when shoppers are more familiar with the m-service (e.g., m-infosearch).*

H3d. *The effect of experience on the intention to use an in-store m-service is lower than the effects of benefits and risks when shoppers are less familiar with the m-service (e.g., p-m-payment).*

Finally, given that shoppers have not yet formed any habits with m-payment (COBANOGU and al., 2015), we assume that they will rely on perceived benefits and risks to evaluate p-m-payment. On the contrary, because m-infosearch is a more familiar task, users are more likely to base their evaluation on their past experience.

H3e. *The effect of perceived utilitarian, hedonic and social benefits on intention to use is stronger for p-m-payment, compared to in-store m-infosearch.*

H3f. *The impact of perceived risks on intention to use is stronger for p-m-payment than for in-store m-infosearch.*

Methodology and measures

Data were collected online among 363 GfK French panel members (ConsumerScan) – average 35-year old; 58% male; 61% with at least a university college degree and a medium (65%) to high (24%) occupation level.

We set up a scenario-based survey approach. Respondents were asked to fulfil a set of shopping tasks related to the purchase of a new compact digital camera. We selected such a product because of its high involvement feature. In addition, in a pre-test during which consumers evaluated various products with respect to their willingness to use a smartphone for shopping (e.g., board game, lamp, televi-

sion, digital camera, computer and clothes), digital cameras showed the highest score. We measured the perceived utilitarian; hedonic and symbolic benefits for either in-store information search (m-infosearch) or in-store m-payment (p-m-payment). We also assessed perceived financial and privacy risks. We finally measured the respondent past experience with the task ranging from “never” to “always”. A set of respondents’ socio-demographic characteristics were elicited at the end of the survey.

Results

How is in-store mobile payment perceived?

Table 1 (Appendix) depicts the within- and between-group mean differences. Respondents perceive m-payment firstly as a risky service, secondly as a convenient service, thirdly as a mix of hedonic and utilitarian benefits and finally as socially rewarding. The risks associated with in-store m-payment are perceived as more important than utilitarian, hedonic or social benefits. Regarding the perceived benefits, hedonic benefits do not surpass utilitarian benefits. Convenience remains the first ranked benefit associated with p-m-payment. If we now look at information search services, experiential as well as economic and informational benefits appear on the top of perceptions. Respondent see more benefits towards using their smartphone in-store for information search than perceived risks. The m-payment service is perceived as more risky, more convenient but interestingly more socially rewarding and funny than m-infosearch.

How perceived risks and benefits drive intention to use mobile payment services?

To assess whether perceived benefits and risks impact p-m-payment intentions, we undertook a series of OLS regressions. As we expected, all perceived benefits positively influence the intention to use p-m-payment services, whereas the perceived risks negatively impact it. For m-infosearch, perceived risks do not impact significantly the intention to use the smartphone.

Does past experience play a role?

According to the results of the OLS regressions, the intention to use p-m-payment or m-infosearch seems positively related to past experience ($p < 0.05$ and $p < 0.01$, respectively). A consumer that has already used his/her smartphone for payment or information search purposes is more likely to use in-store m-payment or m-infosearch services. The effect of mobile usage specific-experience has a greater impact on usage intention for m-infosearch than for p-m-payment, a less familiar m-usage. For p-m-payment past experience has the lowest impact on intention to use p-m-payment among all explanatory variables. Inversely, in the m-infosearch group, past experience has the greatest impact on the intention to use in-store m-infosearch. These results thus seem to confirm that experience is more important for information search than for p-m-payment. Given that shoppers are less familiar with p-m-payment than they are with m-infosearch, benefits and risks will have a higher impact on the adoption intention in the p-m-payment situation. Perceived

	Within-group mean differences(1)						Between-group mean differences(2)			
	p-m-payment (N=184)			m-infosearch (N=179)			p-m-payment (N=184)		m-info-search (N=179)	
	Mean	(SD)	Mean rank	Mean	(SD)	Mean rank				
<i>Benefits and Risks</i>										
Convenience	4.538	(1.06)	2	b	4.175	(1.15)	4	b,c	a	b
Econ. & info.	4.097	(1.32)	4	c,d	4.669	(1.21)	2	a	b	a
Enjoyment	4.291	(0.99)	3	c	4.307	(0.91)	3	b	---	---
Experiential stimulation	4.010	(1.06)	5	d	4.736	(0.88)	1	a	b	a
Social	3.436	(1.22)	6	e	3.119	(1.12)	6	d	a	b
Privacy & financial risks	4.915	(1.55)	1	a	4.024	(1.50)	5	c	a	b
<i>Other variables</i>										
Intention to use	3.611	(2.06)			4.112	(1.89)			b	a
Past experience	2.516	(1.87)			3.872	(1.85)			b	a
Smartphone shop. exp.	3.727	(1.83)			4.018	(1.88)			---	---
PC shopping experience	6.009	(1.05)			5.953	(1.26)			---	---
Product involvement	4.645	(1.51)			4.615	(1.47)			---	---
Purchase decision involv.	5.609	(1.31)			5.824	(1.11)			---	---

Table 1: Within- and between-group mean differences.

(1) Within-group t-test for mean difference ($a > b > \dots > e$ with $p < 0.05$) performed with PROC TTEST (SAS 9.4); mean differences are not significant if they share the same letter. For instance, the mean for privacy & financial risks within the p-m-payment group (4.915; rank 1; a) is greater ($p < .05$) than the mean for convenience (4.538; rank 2; b). However, the mean for enjoyment benefits (4.291; c) is not statistically significant ($p > .05$) from the mean for econ. & info. benefits (4.097; c,d).

(2) Between-group post-hoc Tukey test for mean difference ($a > b$ with $p < 0.05$) performed with PROC GLM (SAS 9.4).

risks, convenience, enjoyment and social benefits have a greater impact on the intention to adopt "p-m-payment" than on the intention to adopt m-infosearch.

In conclusion

This research provides a first attempt to analyze in-store smartphone usage and in particular proximity m-payment. We consider smartphones to be a complementary channel which can be used to facilitate and enhance in-store shopping. We identify two main tasks: m-infosearch and proximity m-payment. While p-m-payment can benefit both the shopper (e.g., enhanced shopping experience through more convenience and enjoyment) and the retailer

(e.g., differentiation from competition, transactions tracking, fewer requirements to handle cash), the development of such practice still appears limited. The results highlight the importance of perceived benefits and in particular convenience and enjoyment as well as perceived risks to explain intention to use p-m-payment. Benefits and risks have a stronger impact on p-m-payment as opposed to m-infosearch. Whereas using a smartphone to read an online review is becoming familiar and does not need to be encouraged, paying with a smartphone still needs to bring clear added value. Moreover, we highlight the key role of experience, as accumulated experience with in-store m-services enhances adoption intentions. The identifica-

tion of enjoyment as a key factor influencing adoption is in line with the findings of recent studies highlighting the importance of enjoyment for mobile shopping (AGREBI and JALLAIS, 2015). Moreover, the importance of financial and personal risks confirms previous studies, as customers still have some doubts about the security of virtual transactions (LIÉBANA-CABANILLAS *and al.*, 2014).

This study also has implications for managers by providing a set of potential levers which retailers can use to encourage p-m-payment adoption. One way is to communicate on benefits of this new usage while at the same time preventing risks. Retailers should focus on utilitarian, hedonic and social dimensions. For utilitarian benefits, they could develop p-m-payment services such as mobile coupons, direct link with customers' accounts and loyalty programs or delivery options available on the phone at the time of

payment. For social benefits, they could communicate on the positive image associated to usage of innovative mobile functions, such as proximity m-payment. For hedonic advantages, retailers could make the system pleasant to use working on the aesthetic and interaction functions. At the same time, it is essential that retailers increase financial security of m-transactions and reassure customers regarding privacy concerns.

Another road for persuasion is to encourage customers to use the retailer smartphone applications step by step. If customers have a high intention to use their smartphone for m-infosearch, they will have a more favorable intention to use it for p-m-payment. Thus, a retailer could develop an attractive application for m-infosearch and encourage the users of this service to remain on the same mobile platform to finalize their payment.