2015

Mobile Apps for Omnichannel Retailing: Revealing the Emerging Showroom Phenomenon

Chris Lazaris
ELTRUN, School of Business, Department of Management Science & Technology, Greece, lazaris@aueb.gr

Adam Vrechopoulos
ELTRUN, School of Business, Department of Management Science & Technology, Greece, avrehop@aueb.gr

Georgios Doukidis
ELTRUN, School of Business, Department of Management Science & Technology, Greece, gjd@aueb.gr

Aikaterini Fraidaki
ELTRUN, School of Business, Department of Management Science & Technology, Greece, fraidaki@aueb.gr

MOBILE APPS FOR OMNICHANNEL RETAILING: REVEALING THE EMERGING SHOWROOMING PHENOMENON

Complete Research

Lazaris Chris, ELTRUN - The E-Business Research Center, Athens University of Economics & Business, School of Business, Department of Management Science & Technology, Greece, lazaris@aueb.gr

Vrechopoulos Adam, ELTRUN - The E-Business Research Center, Athens University of Economics & Business, School of Business, Department of Management Science & Technology, Greece, avrehop@aueb.gr

Doukidis Georgios, ELTRUN - The E-Business Research Center, Athens University of Economics & Business, School of Business, Department of Management Science & Technology, Greece, gjd@aueb.gr

Fraidaki Katerina, ELTRUN - The E-Business Research Center, Athens University of Economics & Business, School of Business, Department of Management Science & Technology, Greece, fraidaki@aueb.gr

Abstract

The transformation of the smartphone into a key integrating factor of the online & offline retailing environment has lead to the development of mobile applications that shape the omniretailing landscape. The present study provides evidence of the mobile retailing apps frequency of use inside physical stores and explores mobile retailing app assisted shoppers' preferences of in-store omniretailing practices & technologies. Results reveal that price comparison that could lead to showrooming is of utmost important for consumers. In parallel, consumers that attach great importance to such practice significantly differ from the rest, in terms of the importance they attach to salespeople & omnichannel integration criteria, in order to purchase offline. In contrast, there weren't found statistically significant differences in terms of the importance they attach to online & offline store atmosphere. Nevertheless, the importance attached to online store atmosphere is high among mobile retailing app assisted shoppers. Drawing on these results, the study provides feedback to retail entrepreneurs regarding the optimal design and features of the future physical retail store.

Keywords: Omnichannel Retailing, Mobile Apps, Consumer Behaviour, Showrooming, Store Atmosphere.

1 Introduction

It is evident that smartphones have become an important part of everyday life. They could be described as life companions, since users seem to integrate them into their daily activities[1]. This phenomenon can be attributed to several factors. First of all, having internet access at all times provides value added services that enhance the users' physical activities. In addition to this, users are able to

1 http://www.emarketer.com/Article/Smartphones-In-Store-Shopping-Companions/1010800

take advantage of hardware-assisted internet features that smartphones provide them, such as sensors, location based services and cameras. Finally, the combination of always-on internet access and hardware supported features is complemented with new user interfaces that outperform the conventional web environment experience provided by modern web browsers: the mobile applications (apps) GUI. Mobile apps seem to be the driving force of smartphones, creating ecosystems that engage users and influence their behaviour.

From a retailing perspective, smartphones play an important role integrating retailing channels, blending online with offline, since consumers inside physical stores are at the same time mobile-assisted online shoppers. Multichannel retailing transforms into a complex, diversified form of retailing, recently characterized as "omnichannel retailing" or "omniretailing". On the one hand, reports[2] show that physical retail stores will continue to be consumers' preferred point of purchase and that online sales will only account for a small portion of total sales. While there are several reasons for that forecast, an obvious one is the clear superiority of the physical environment in comparison to the online one: it attracts more physical senses, with tactile being the most important one, according to lab experiments (Spence & Gallace, 2011).

Conversely, e-commerce provides unique benefits to shoppers that are absent from the physical store. Online features such as instant price comparison, fast checkouts, recommender systems and product reviews accessibility are quite popular in e-tailing. In early m-commerce era, such practices were impossible or difficult to perform within the physical store since mobile phones were not smart enough (software and hardware-wise) for consumers to take fully advantage of them. Whilst smartphones' hardware specifications continually evolve along with innovative software features in the form of mobile apps, they provide consumers with a convenient access to the online retailing environment, inside the physical one, transforming them into "omnishoppers".

The purpose of this study is to explore the consumers' retailing mobile app & in-store internet penetration within the physical store. Furthermore, the study attempts to clarify which omniretailing technologies & practices are most important for mobile app assisted in-store internet users. Finally, consumers' preferences are analyzed providing feedback for retailing entrepreneurs that are interested in designing the future retail store and enhancing it with omniretailing features.

2 Literature Review, Research Hypotheses and Methodology

At first, internet services were meant to be utilized by the use of internet browsers. Early browsers were optimized for the desktop environment, whereas web content consisted mainly of document files (html) and few multimedia elements (e.g. images, audio). Next, the Web 2.0 era emerged as the internet experience included dynamic web pages, asynchronous network communication and richer content, converting the web into an application environment (Mikkonen & Taivalsaari, 2011). Since the introduction of the mobile as a new internet access device, several attempts were made in order to transfer the internet experience on the move. Early mobile phones featured small, non-touch screens and low hardware specs which resulted in poor internet browsing, which followed the WAP protocol. As the devices became more powerful and their screens improved, both in size and in quality, the internet experience could be offered by html browsers. Still, usability remained an issue, since small keyboards, or even touch pens could not provide efficient and effective human-computer interaction.

It was the advent of the Apple iPhone that brought true revolution to this domain. The success of the iPhone was not only because of its superior hardware (capacitive multi-touch screen, sensors, etc), but also because of the mobile apps ecosystem it introduced, creating the true smartphone. Users were now able to benefit from online services not only by using the internet browser, but also by utilizing

2 http://www.emarketer.com/Article/Retail-Sales-Worldwide-Will-Top-22-Trillion-This-Year/1011765?ecid=1001

mobile applications, downloaded from the application store of the platform. Mobile apps soon became a strong alternative to web sites, and the latter also became mobile friendly. Nowadays, online services can be encountered in the following variants in smartphones: Standard web site (desktop version), Web site featuring responsive design (desktop version adapts to smaller screens), Mobile web site (separate from the desktop version), Native mobile app and Hybrid mobile app (web pages wrapped into native mobile app). Overall, the key differences between mobile app and web site implementations are the following:

- Mobile apps run compiled code, written in C & Objective C (Apple iOS), Java (Google Android), .NET (Windows Phone), whereas mobile web sites typically utilize mobile frameworks, running interpreted code (Charland & Leroux, 2011). Therefore, mobile apps perform faster than mobile web sites (Huy & van Thanh, 2012).
- Mobile apps are device-specific and difficult to implement and maintain, mobile web sites, on the other hand, are typically cross-platform and can be instantly updated (Wisniewski, 2011).
- Mobile apps offer deep mobile OS integration (e.g. alerts and notifications), featuring specific APIs that access device hardware (sensors, cameras, gps, etc) directly, whereas web sites have limited hardware API support, although HTML5 seems to gradually adapt to this situation (Charland & Leroux, 2011; Wisniewski, 2011).
- Mobile apps provide superior user interface (Charland & Leroux, 2011), suitable even for one-handed operation, featuring hardware acceleration and customized software buttons and gestures, web sites, conversely, rely on the web browser interface in order to interact with the user.

Based on the previous differences, it can be assumed that for retailing purposes mobile apps seem to be a more suitable choice for consumers in-store, since they can assist users with more natural interaction (e.g. augmented reality, camera-based product recognition), less clicks featuring one-hand operation (retailing optimized interface), employing more hardware functions (e.g. sensors, bluetooth), and with faster response (Wisniewski, 2011; Mikkonen & Taivalsaari, 2011). In addition to this, mobile apps seem to be the most appropriate way to seamlessly integrate online & offline features, due to direct hardware API & OS support (Huy & van Thanh, 2012). In fact, this could be the key point achieving omnichannel state within the physical store.

Omnichannel stems from the latin word omnis (meaning: all, everything) and it was first introduced by practitioners in order to differentiate from multichannel. The concept was that consumers utilize retailing channels simultaneously and not just in parallel (Parker & Hand, 2009; Ortis & Casoli, 2009). In academic literature, it was first encountered by Rigby (2011, p.4) who defined omnichannel retailing as "an integrated sales experience that melds the advantages of physical stores with the information-rich experience of online shopping". Besides, Omniretailing was introduced as "a coordinated multichannel offering that provides a seamless experience when using all of the retailer's shopping channels" (Levy, et al., 2013, p.67). Recently, Fairchild (2014, p.1) states that "omnichannel commerce involves combining traditional commerce with online commerce by integrating processes in a harmonious and complementary way throughout the organizational and IT chain, and includes external logistics partners in these processes". Finally, recent omnichannel-specific literature poses specific mention to mobile apps and the mobile channel referring to it as a "disruptive change in the retail environment" (Verhoef et al., 2015). Consequently, omnichannel includes several aspects of retailing ranging from the consumer point to the retailer or even the whole supply chain. In the remaining of this study we attempt to explore the consumers' perspective regarding the simultaneous use of channels, inside the physical retail store, utilizing mobile apps as the key integrating technology of the online & offline environment.

There are several studies & reports that depict consumers' omniretailing practices within the physical store. Some refer to them as mobile-assisted shoppers (Luo et al., 2014; Quint et al., 2013) focusing on

consumers' efforts to assist themselves in-store. Other focus on the online practices they use (Wurmser, 2014; Lazaris et al., 2015) and there are also other studies that attempt to explain their behaviour (Agrebi & Jallais, 2015; Lazaris et al., 2014). All studies and reports agree that mobile plays an important role in in-store shopping and that there is a growing percentage of consumers that adopts omniretailing practices (Adobe, 2013). Following these directions, our initial research question is whether consumers utilize not only mobile internet in-store but also mobile apps. Also, if there is a relationship between in-store internet frequency of use and retailing mobile apps frequency of use by shoppers. Related literature shows that enjoyment, behavioural intention to use mobile internet, educational level, subscription of a flat rate and ease of use are correlated with mobile internet usage criteria (Gerpott & Thomas, 2014). Ease of use is attributed to mobile apps (Charland & Leroux, 2011) and therefore we could assume that apps correlate with mobile internet usage criteria. In addition to this, it was found that mobile apps increase internet traffic to the provider's corresponding mobile website, and therefore mobile internet use (Xu et al., 2014). For that reason, if mobile apps were used in-store, it would also lead to increased in-store internet use. Therefore, the following research hypothesis is formulated:

H1: *There are statistically significant differences between shoppers with different levels of retailing mobile app frequency of use, in terms of their in-store Internet frequency of use levels.*

An aftermath of this hypothesis is what retailing-assisting mobile app users want to do with internet in-store. Previous insights suggest that they want to engage in omniretailing practices utilizing e-commerce technologies that they are familiar with from the online channel, seeking for the omnichannel experience. But which online practices & technologies are most important for them? In a recent related business report, several omniretailing practices inside physical store are presented, with price comparison appearing to be the most favourite (Wurmser, 2014, p.11). The report referred to price comparison in-store, in relation to showrooming. Quint et al. (2013) were among the first that presented this topic in a report entitled: "Showrooming and the Rise of the Mobile-Assisted Shopper", where they also enlist other accompanying consumer practices. Showrooming, was only recently defined in academia by Rapp et al. (2015, p.360) as "a practice whereby consumers visit a brick-and-mortar retail store to (1) evaluate products/services firsthand and (2) use mobile technology while in-store to compare products for potential purchase via any number of channels". The study investigated the role of the salesperson towards this behaviour. Similarly, Luo et al. (2014) examined the showrooming intention of mobile-assisted shoppers in a multichannel retailing environment, regarding it as an important phenomenon, with pricing and employee knowledge competency to play an important role in it. At the same time, Willmott (2014) presented several statistical findings and reports that showrooming goes mainstream among mobile shoppers as a common practice.

Nonetheless, price comparison was also a favourite online practice years ago, when Burke (2002) investigated 128 different aspects of the shopping experience online & in-store, conducting a national survey with 2.120 online users. Price comparison online was considered "must have" for 28,1% of respondents and "should have" for 66,9% of them. Although the study incorporated in-store shopping features, price comparison was not included among them at that time probably because neither smartphones nor efficient online price comparison shopping engines existed. Also, price comparison was not included by Mahatanankoon et al. (2005) who explored consumer perception of 44 mobile applications at early days of m-commerce. Apart from price comparison and showrooming, several other research papers offer recommendations about mobile app features. Zhao & Balagué (2015) provided recommendations for branded mobile apps features and categorized them in tool-centric, game-centric, social-centric, m-commerce centric & design centric. Similarly, Magrath and McCormick (2013) presented a product & services design m-marketing design framework depicting several features for mobile fashion retail apps. Based on the previous studies and business reports, we selected 18 online practices and technologies that are compatible with omnichannel retailing, in order to rank and explore the importance that mobile retailing app consumers attach to them in-store. Consequently, based on previous literature, the following research hypotheses are formulated:

H2: *There are statistically significant differences across a series of online practices & technologies applied inside physical stores in terms of the importance that in-store Internet retail mobile app assisted shoppers attach to them.*

In addition to this, we postulate that between retail mobile app and non mobile app assisted in-store internet shoppers significant differences exist. The reason for this is the nature of mobile apps, the additional hardware-assisted features that they support and the overall differentiated smartphone features, as presented above. Therefore, we also propose the subsequent hypothesis:

H3: *There are statistically significant differences between retail mobile app and non mobile app assisted in-store Internet shoppers in terms of the importance they attach to a series of online practices & technologies applied inside physical stores (18 sub-hypotheses in total, as the number of online practices & technologies).*

Next, a subsequent research question emerges: if price comparison and more specifically showrooming intention is high among in-store internet users, what could be done to prevent it? This subject remains an open issue and literature reveals several approaches that could be followed. Chiu et al. (2011) provided 3 effects that have an impact on cross-channel free-riding behaviour, a term similar to showrooming: searching for product information in retail channel and then purchasing it in another one (Chiu et al., 2011, p.1). According to their study, the "push" effect is consumers' perceived multichannel self-efficacy that positively influences showrooming. The "pull" effect is the attractiveness of competitor's physical retail store, which also has a positive effect on showrooming. In other words, a consumer may leave a store in order to purchase from another one which has more attractive store atmosphere. Finally, the "mooring" effect, which are lock-in levels within the retailer negatively impact showrooming. That is, factors that make it difficult for the consumer to switch to another retailer (e.g. time consuming or involving complicated procedures). Nevertheless, we should mention that this study only examined free-riding from the online channel to the offline one (research online, purchase offline). Next, Shukla & Babin (2013) discovered that regarding store switching behaviour, hedonic values are more important that utilitarian ones and, therefore, retailers should pay attention to the retail store environment in order to reduce consumer defection. In contrast, Heitz-Spahn (2013) addressed three motives to cross-channel free-riding behaviour: shopping convenience, flexibility and price comparison. Interestingly, they discover that channel aesthetics as components of store atmosphere, although important, do not influence retailer & channel choice and therefore showrooming. They also suggested that utilitarian motives (e.g. pricing) are more important than hedonic ones (e.g. design, ergonomics) towards this issue. They also proclaimed that mobile applications are turning to be a significant research direction towards this area.

At this point it should be noted that store atmosphere notion is applicable both online and offline, with different components and definitions characterizing it throughout the years. Eroglu & Machleit (1993), reported that store atmospherics consist of "all of the physical and non-physical elements of a store that can be controlled in order to enhance (or restrain) the behaviors of its occupants, both customers and employees". In parallel, Dailey (2004, p.796) stated that a web atmospheric cue is "comparable to a brick-and-mortar atmospheric cue and can be defined as any web interface component within an individual's perceptual field that stimulates one's senses". In fact, atmospherics also extend to the mobile domain in the form of m-atmospherics (Manganari et al., 2007).

Only recently, Pantano & Viassone (2015) considered store atmosphere & channels availability to impact purchase intention. These factors are also found to affect service quality perception, which is also affected by technology and/or salesperson interaction. The study concluded indicating that consumers evaluate all channels simultaneously and therefore retailers should integrate them seamlessly through the use of mobile technologies such as iBeacon, mobile apps and smartphones. In fact, they suggested that multichannel integration is the right step towards avoiding cross-channel free riding behaviour. Also, regarding multichannel integration, Zhang & Oh (2013) exploring customer switching behavior, proposed that retailers should focus on providing innovative cross-channel services in order to retain customers and enhancing service convenience. As far as service is concerned, Monteleone & Wolf-

erseberger (2012) suggested that although pricing is an important showrooming aspect, store associates and in-store assisting technologies play important role as well. Correspondingly, Rapp et al. (2015) elaborated on the relationship between showrooming and the salesperson and found out that retailers should invest in salesperson-consumer interaction through specific strategies and behaviours. In our case, we selected four criteria for consumers in order to purchase from a physical store, based on the previous showrooming-related factors: conventional store atmosphere, online store atmosphere, service support by salespeople utilizing sales supporting electronic technologies and a store's multichannel integration in order to create a seamless shopping experience. Store atmosphere in both offline & online variants was included, since in our case we investigate the omniretailing environment. The effect of retail salesperson was empowered with electronic technologies, in order to test omniretailing effects to him, too. It should be noted that although salespeople could be regarded as part of the conventional store atmosphere (human factor), in our case we examine them separately. The reason is twofold: to test human (e.g. personal selling techniques) vs environmental atmospheric effects and to separately examine the combination of human-technology effects on consumers' preferences. Omnichannel effects to showrooming were also incorporated as a criterion, based on its definition: a multichannel integration in order to create a seamless shopping experience (Levy, et al., 2013, p.67). As a result, our hypothesis is formulated as follows:

H4*: There are statistically significant differences between in-store internet users with different levels of showrooming intention, in terms of the importance they attach to conventional (H4.1) & online store atmosphere (H4.2), salespeople (H4.3) & omnichannel integration (H4.4) criteria in order to purchase from the physical store*.

Finally, it would be intriguing to discover if there are any differences regarding retailing mobile app and non app shoppers in relation to the previous offline purchase intention criteria. In other words, if retail mobile app assisted in-store internet shoppers attach more importance to each of these criteria in order to purchase from the physical store, in relation to non mobile app assisted in-store internet shoppers. That could be attributed to the enhanced mobile app UI and features, which could make these users to differ in terms of the previous criteria in relation to the others. Therefore, the following hypothesis could be originated:

H5*: There are statistically significant differences between mobile app and non mobile app assisted in-store internet shoppers, in terms of the importance they attach to conventional (H5.1) & online store atmosphere (H5.2), salespeople (H5.3) & omnichannel integration (H5.4) criteria in order to purchase from a physical store*.

For testing the research hypotheses, the study employs an exploratory quantitative empirical research design that took place in Greece in November 2014, in the context of an annual ELTRUN - The E-Business Research Center eCommerce survey. The data collection instrument of the national survey was an online questionnaire which received 815 valid answers from Internet users. The questionnaire was created in the Google forms platform and internet users were invited to participate via e-mail campaigns, display banners on popular Greek news sites & e-shops and social media. Questions included frequency of internet use at various channels, retailing-assisting mobile app utilization, as well as questions regarding 18 omniretailing practices & technologies within the physical store. These omniretailing practices & technologies were sorted according to the shopping process encounter, i.e. from the store entrance to the store checkout. Finally, they were asked about the importance they attach to the four aforementioned criteria, in order to purchase from a physical store. Statistical analysis was performed using SPSS version 20, and its outputs are presented and discussed at the following sections.

3 Findings And Discussion

Descriptive statistics confirm the forecast that was made back in 2011 that mobile internet will surpass desktop internet usage by 2014 (Wisniewski, 2011): 86% choose mobile phones for internet utiliza-

tion, whereas 78% use desktops. It was also found that 80% of retailing mobile app users use internet in-store and 46% of them do it often. What's more, 70% of in-store internet users use retailing mobile apps in order to assist their purchases & 56% of them attach great importance to in-store retail-assisting mobile app or mobile sites. Besides, 39% use them often, whereas 31% rarely. It seems obvious that they use them along with internet inside physical stores, in order to facilitate shopping, and 60% of them respond that they attach great importance to them. Our initial research question is partially answered by the previous descriptive statistics. Retailing mobile app consumers definitely utilize them in-store. However, in order to validate hypothesis H1 additional statistical tests should be applied. Specifically, ANOVA was performed in order to test whether there are significant statistical differences between shoppers with different frequency of retailing mobile apps use, in terms of their in-store internet use. Shoppers were separated into three groups in order to perform the test: Group 1: Non-app users, Group 2: Rare mobile retailing app users, Group 3: Frequent mobile retailing app users. Frequency of in-store internet use was measured on a 5-point likert scale. Descriptive statistics of these groups are shown in Table 1.

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Non	264	2,080	,9419	,0580	1,965	2,194	1,0	4,0
Rare	285	2,102	,9606	,0569	1,990	2,214	1,0	4,0
Frequent	266	2,733	,8469	,0519	2,631	2,835	1,0	4,0
Total	815	2,301	,9658	,0338	2,234	2,367	1,0	4,0

Table 1: Descriptives of the Frequency of Internet use inside Physical Stores

ANOVA results (Table 2) reveal that the null hypothesis is rejected (p value < .05), and that significant statistical differences exist only between frequent user group and all the others (Table 3).

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	73,922	2	36,961	43,786	,000
Within Groups	685,428	812	,844		
Total	759,350	814			

Table 2: ANOVA for Groups of Different Frequency of Internet use inside Physical Stores

Dependent Variable: Frequency of Internet use inside Physical Stores - Tukey HSD						
(I) Frequency of Mobile Retailing Apps use	(J) Frequency of Mobile Retailing Apps use	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Non	Rare	-,0222	,0785	,957	-,206	,162
	Frequent	-,6535	,0798	,000	-,841	-,466
Rare	Non	,0222	,0785	,957	-,162	,206
	Frequent	-,6313	,0783	,000	-,815	-,447
Frequent	Non	,6535	,0798	,000	,466	,841
	Rare	,6313	,0783	,000	,447	,815

Table 3: ANOVA Post Hoc Multiple Comparisons Test

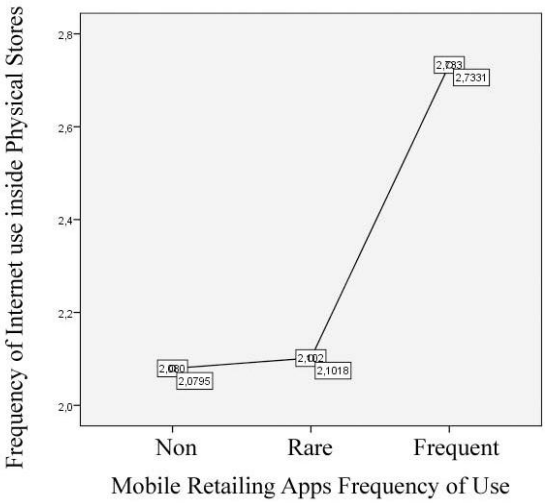

Figure 1: Frequency of Mobile Retailing Apps - In-Store Internet Use Plot

Drawing from the ANOVA results and also Figure 1 (Frequency of Mobile Retailing Apps - In-Store Internet Use Plot) we predict a positive correlation between mobile apps use and in-store internet use, which is statistically significant. Therefore, we validate our hypothesis by performing a correlation test. A Pearson product-moment correlation was run (Table 4) to determine the relationship between shoppers' mobile apps use and their in-store internet use, which was found to be significant ($r = .273$, $n = 815$, $p < .05$). Consequently, hypothesis H1 is accepted.

		Frequency of Internet use inside Physical Stores	Frequency of Mobile Retailing Apps use
Frequency of Internet use inside Physical Stores	Pearson Correlation	1	,273
	Sig. (2-tailed)		,000
	N	835	815
Frequency of Mobile Retailing Apps use	Pearson Correlation	,273	1
	Sig. (2-tailed)	,000	
	N	815	965

Table 4: Pearson Correlation for Frequency of Mobile Retailing Apps - In-Store Internet Use

In order to test hypothesis H2, we compared the 18 online practices & technologies inside the physical stores separating them at 18 groups, while performing ANOVA between them, in terms of the importance that in-store Internet retail mobile app assisted users attach to them. In this way not only we will grade them in terms of mean scores, but also we can identify significant statistical differences between them.

	Online practices & technologies applied inside physical stores	Mobile Retailing App Consumers Means	Non App Consumers Means
Importance attached by consumers	16. Fast electronic checkouts without queues	4,27	3,96
	3. Ability to buy in-store with internet prices, as a result of an electronic check-in in the physical store	4,20	3,99
	6. In-store price comparison, which could lead to showrooming	4,09	4,11
	1. Free in-store wifi	3,91	3,64
	11. Product stock electronic availability	3,89	3,83

	15. Product electronic search & map navigation to them	3,82	3,75
	4. Special prices, coupons, offer alerts at the store's entrance	3,80	3,93
	12. Loyalty points electronic access	3,67	4,01
	14. In-store location-based offers	3,59	3,76
	8. Access to user opinions, product presentations & reviews	3,57	3,28
	18. In-store retail-assisting mobile site (accessible via wifi) or mobile app	3,55	3,53
	17. Mobile payments	3,52	3,11
	5. Access to electronic profile & purchase history	3,46	2,95
	13. Self-service assisting technologies	3,43	3,17
	7. Electronic recommender systems	3,28	2,51
	9. Product/service posts and comments on social networks	3,13	2,65
	10. Email send & receive	3,06	2,51
	2. Electronic check-in in the physical store (e.g. via wifi, foursquare, swarm, facebook, etc)	2,83	2,51

Table 5: Mean Ranking of Importance attached to Online Practices & Technologies Applied In-Store by Mobile Retailing App Consumers Vs Non App Consumers

The ranking of these practices and technologies according to their mean scores is presented in Table 5. The three most preferred ones are "Fast electronic checkouts without queues", the "Ability to buy in-store with internet prices, as a result of an electronic check-in in the physical store" and "In-store price comparison, which could lead to showrooming". It should be noted that they are the only ones with mean scores above 4 in the 5-point likert scale and that ANOVA post-hoc comparison showed that there are no significant statistical differences between them. In contrast, significant statistical differences do exist between these three practices and all the rest. The "Ability to buy in-store with internet prices, as a result of an electronic check-in in the physical store" also depicts consumers' price sensitivity, which strikingly elevates the "Electronic check-in in the physical store" feature from the last place (score: 2,83) to the second one (score: 4,20). In addition to this, we calculated the percentage of consumers that attach great importance (over 4 points at the 5-point likert scale) to the previous practices. It appears that "In-store price comparison, which could lead to showrooming" now comes first, surpassing the other two (Table 6). All these results advocate that hypothesis H2 is accepted.

Next, we aim at exploring hypothesis H3, that is whether the previous results differ in terms of whether the users utilize mobile apps for retailing or not. Our test sample consisted only in-store internet users, therefore it would be interesting to explore if web-only users have the same technology preferences with mobile app users. Table 5 depicts their preferences (mean scores) by comparison. We performed an independent samples t-test which showed that null hypothesis is rejected for 12 sub-hypotheses. As a result there are significant statistical differences between mobile app and non mobile app assisted in-store internet shoppers, in terms of the importance they attach to these 12 online practices & technologies applied inside physical stores. "In-store price comparison, which could lead to showrooming" practice ranks first among non retailing mobile app consumers and wasn't among the 12 ones supported by our hypotheses. Overall, the practices that didn't show significant statistical differences, and thus the related sub-hypotheses were rejected, were the following:

1. In-store price comparison, which could lead to showrooming
2. Product stock electronic availability
3. Product electronic search & map navigation to them
4. Special prices, coupons, offer alerts at the store's entrance
5. In-store location-based offers
6. In-store retail-assisting mobile site (accessible via wifi) or mobile app

Therefore, these practices are considered by both retail mobile app and non retail app customers to be of equal high importance. Furthermore, half of these technologies feature location-based services (#3, #4, #5). It seems that the attached importance to these services is equal to both user groups, although only mobile app consumers have full access to them (e.g. iBeacon, gps). This finding shows that these technologies should be implemented into both technology approaches (#6 verifies that, too). On the other hand, there is low availability of these types of apps in the application stores. Therefore, non app consumers may utilize apps if retailing apps that lie in these categories are available, since they share the same preferences for them as the other mobile app consumer group.

	Mobile Retailing App Consumers Percentage	Non App Consumers Percentage	Percentage Differences
6. In-store price comparison, which could lead to showrooming	83%	89%	-6%
16. Fast electronic checkouts without queues	81%	67%	14%
3. Ability to buy in-store with internet prices, as a result of an electronic check-in in the physical store	76%	78%	-1%
11. Product stock electronic availability	71%	71%	0%
4. Special prices, coupons, offer alerts at the store's entrance	66%	76%	-10%
8. Access to user opinions, product presentations & reviews	63%	44%	18%
1. Free in-store wifi	62%	53%	9%
12. Loyalty points electronic access	60%	67%	-6%
15. Product electronic search & map navigation to them	59%	63%	-4%
18. In-store retail-assisting mobile site (accessible via wifi) or mobile app	56%	63%	-7%
14. In-store location-based offers	54%	58%	-5%
17. Mobile payments	51%	39%	12%
5. Access to electronic profile & purchase history	49%	39%	10%
13. Self-service assisting technologies	49%	34%	15%
7. Electronic recommender systems	45%	22%	22%
10. Email send & receive	38%	6%	32%
9. Product/service posts and comments on social networks	35%	23%	12%
2. Electronic check-in in the physical store (e.g. via wifi, foursquare, swarm, facebook, etc)	33%	22%	11%

Table 6: Percentage of Consumers that attach great importance to the Online Practices & Technologies Applied In-Store

Finally, we calculated the percentage of non retail app users that regarded each technology of utmost importance (4 & 5 in the 5-point likert scale of preference). At Table 6 we rank these preferences, in comparison with mobile app users. In-store price comparison, which could lead to showrooming gathers the highest percentage of the sample that consider it to be of utmost importance, highest than retailer mobile app users (89% vs 83%). In addition to this, non app consumers score higher than mobile app ones regarding "In-store price comparison, which could lead to showrooming" in the mean scores (Table 5), which is striking since mobile apps feature easier price comparison techniques, e.g. through camera barcode recognition. That could be attributed to either low performance of mobile apps in this

category (e.g. troublesome barcode recognition) or higher desire for appropriate apps by non app consumers because they do not have them available.

Finally, we observe that "Email send & receive" & "Electronic recommender systems" are the two technologies with the highest differences in percentages of users that regarded each technology of utmost importance (32% & 22% respectively). The differences are in favour of retailing mobile app consumers, which, in the case of email, indicates that these users attach more importance to checking emails via apps in-store than the others, since apps provide push mechanism though the OS, which is more efficient. However, email activities rank 17th at our standings. The higher percentage of user preference to "Electronic recommender systems" probably indicates that it is a feature best implemented through apps, since it involves more complicated functionalities and UI.

Next, drawing from our results regarding in-store price comparison, which could lead to showrooming, we aim at testing hypothesis H4 regarding showrooming intention. For this purpose we performed an independent samples t-test between the respondents group that attach high importance to in-store price comparison, which could lead to showrooming and those that don't. Results show that in-store internet users that attach great significance to in-store price comparison, which could lead them to showrooming, consider service support by salespeople utilizing sales supporting electronic technologies (H4.3) and a store's multichannel integration in order to create a seamless shopping experience (H4.4) more important than those that don't attach great significance to it (Table 8). Salespeople utilizing sales supporting electronic technologies is considered to be the most important (Table 7). In contrast, there are no statistically significant differences between these consumer groups in terms of the importance they attach to online & offline store atmosphere in order to purchase from a physical store (Table 8). Therefore, sub-hypotheses H4.1 & H4.2 are rejected.

	In-store price comparison, which could lead to showrooming	N	Mean	Std. Deviation	Std. Error Mean
Store's conventional atmosphere	>= 4,0	523	3,780	1,1225	,0491
	< 4,0	78	3,885	,6026	,0682
Service support by salespeople utilizing sales supporting electronic technologies	>= 4,0	523	4,340	,9091	,0398
	< 4,0	88	3,886	,8767	,0935
Online store's atmosphere	>= 4,0	523	3,975	1,1130	,0487
	< 4,0	88	4,000	,6781	,0723
Multichannel integration in order to create a seamless shopping experience	>= 4,0	523	4,036	,9926	,0434
	< 4,0	78	3,756	,9828	,1113

Table 7: Descriptives of offline purchase intention criteria between in-store internet users with different levels of showrooming intention

		t-test for Equality of Means						
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Store's conventional atmosphere	Eq. var. assumed	-,805	599	,421	-,1045	,1299	-,3595	,1505
	Eq. var. not assumed	-1,243	170,572	,215	-,1045	,0841	-,2704	,0614
Service support	Eq. var. assumed	4,356	609	,000	,4540	,1042	,2493	,6587

by salespeople utilizing sales supporting electronic technologies	Eq. var. not assumed	4,470	120,674	,000	,4540	,1016	,2529	,6550
Online store's atmosphere	Eq. var. assumed	-,203	609	,839	-,0249	,1223	-,2651	,2154
	Eq. var. not assumed	-,285	177,683	,776	-,0249	,0871	-,1968	,1471
Multichannel integration in order to create a seamless shopping experience	Eq. var. assumed	2,326	599	,020	,2799	,1203	,0436	,5162
	Eq. var. not assumed	2,344	101,863	,021	,2799	,1194	,0430	,5168

Table 8: T-Test between in-store internet users with different levels of showrooming intention regarding offline purchase intention criteria

We also performed Pearson's correlation for each of the aforementioned criteria, regarding showrooming intention. Results reveal that there is a positive correlation between showrooming intention and importance attached to service support by salespeople utilizing sales supporting electronic technologies in order to purchase from a physical store, which is statistically significant ($r = .244$, $n = 611$, $p < .05$). In addition, there is a positive correlation between showrooming intention and importance attached to a store's multichannel integration in order to create a seamless shopping experience in order to purchase from a physical store ($r = .187$, $n = 611$, $p < .05$). On the contrary, there is no positive correlation between showrooming intention and importance attached to a store's online ($r = .033$, $n = 611$, $p=0.410$) & offline ($r = .043$, $n = 611$, $p=0.292$) store atmosphere in order to purchase from a physical store.

Last but not least, regarding hypothesis H5, we perform an independent samples t-test between mobile retailing app users and non app users regarding the same criteria of hypothesis H4. It turns out that there are statistically significant differences between mobile app and non mobile app assisted in-store internet shoppers, only in terms of the importance they attach to online store atmosphere (H5.2) in order to purchase offline (Table 9). This result probably indicates that due to the additional and superior UI that mobile app assisted in-store internet shoppers interact, they respond more to online atmospherics, in order to purchase from the physical store. Thus, only sub-hypothesis H5.2 is accepted.

		t-test for Equality of Means						
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Store's conventional atmosphere	Eq. var. assumed	,302	608	,763	,0289	,0957	-,1590	,2168
	Eq. var. not assumed	,279	279,119	,780	,0289	,1036	-,1750	,2328
Service support by salespeople utilizing sales supporting electronic technologies	Eq. var. assumed	,952	618	,341	,0774	,0813	-,0822	,2369
	Eq. var. not assumed	,921	305,154	,358	,0774	,0840	-,0880	,2427
Online store's atmosphere	Eq. var. assumed	3,923	609	,000	,3663	,0934	,1830	,5497
	Eq. var. not assumed	3,355	246,478	,001	,3663	,1092	,1513	,5814

Multichannel integration in order to create a seamless shopping experience	Eq. var. assumed	,135	608	,893	,0121	,0903	-,1651	,1894
	Eq. var. not assumed	,136	309,261	,892	,0121	,0891	-,1632	,1875

Table 9: T-Test between Mobile Retailing App Consumers and Non App Consumers regarding offline purchase intention criteria

4 Implications for Retail Entrepreneurs

The present study provides several managerial implications for mobile app entrepreneurs, as well as retail managers alike, towards developing the future retail store. Retailing mobile apps that provide consumer assisting features are still at their infancy. Mobile app developers should focus not only providing a supplemental shopping assistant interface, but also integrate this interface with hardware features that blend the physical and the online world seamlessly. In that way, they could provide the best of the two worlds, creating a superior shopping environment that could deter showrooming and provide added-value services. It should be noted that some retailers have already leveraged mobile apps as omniretailing assisting technologies either by providing in-store location based services & promotions (e.g. Apple stores app, Macy's Shopbeacon, Carrefour China app), loyalty points & social media integration (Guess Mobile app) or augmented reality support (American Apparel).

Observing Tables 5&6 we can extract several guidelines regarding the features that omniretailing mobile apps should offer. More specifically, they should offer deep integration with backend IS and POS systems in order to facilitate fast checkouts, unified pricing and realtime stock availability. Additional technologies such as in-store location based services are second runners, but shouldn't be neglected, either.

In addition to this, it seems that mobile apps could prove to be even more beneficial for store associates. Consumers value the salespeople-technology combination the most, therefore mobile apps could empower employees in a more powerful fashion. In that case, apps could be more effective by utilizing them on tablets, in order to provide a more spacious UI. Regarding, showrooming avoidance, literature also shows that specific personal selling techniques & strategies should also be adopted by salespeople, since technology on its own is not enough (Rapp et al., 2015). Therefore, retailers should invest on their human capital, while transforming into omniretailers, embracing omnichannel retailing principles and guidelines. Taking into consideration Table 6, we should advice mobile app entrepreneurs to offer anti-showrooming services for salespeople's mobile devices. Indicatively, these could include price comparison and price matching functionalities. Towards these directions, new apps, mainly for salespeople tablets, start to emerge (e.g. Shopkeep, Entersoft Mobile Retail Sales Assistant).

In sum, the future retail store should offer deep omnichannel integration, providing a 360 degree view of the customers (e.g. incorporating universal analytics), unifying the offline and the online shopping experience. To that end, new omniretailing software platforms were recently introduced aiming at merging online & offline operations providing universal analytics (e.g. Euclid Analytics, Index, RetailNext, Prism). This integration could additionally be assisted with the use of apps, but stores should be also enhanced with supplemental technologies that offer location-based services (e.g. iBeacon), efficient & beneficial electronic check-in for consumers, as well as fast electronic checkouts without queues. Towards the last direction, the store could support mobile payments, or even eliminate checkouts completely. In vision of that, a recent Amazon patent (Amazon, 2015), employing RFID technology and ubiquitous video cameras, shows that the online retailer may attempt to disrupt the physical

retail domain towards that direction by opening bricks 'n' mortar stores[3] that offer automated check-outs[4].

5 Conclusions, Limitations and Future Research

As E-Commerce practices are desired by consumers in the physical stores, retailing mobile apps seem to play an important role in this behaviour, integrating retail channels. Increased use of these apps has been found to take place in-stores, accompanied with increased use of mobile internet. Price-centric apps dominate users' preferences with "In-store price comparison, which could lead to showrooming" to gather the largest percentage of them that regard it of utmost importance. Hence, showrooming intention is high among in-store internet users, both retailing mobile app and non app ones. Interestingly, for that target consumer group (high showrooming intent), service support by salespeople utilizing sales supporting electronic technologies and omnichannel integration were found to be regarded as more important than the group that didn't care about showrooming. This finding leads us to believe that apart from price-matching strategies (since these consumers seem to be price-centric), increased importance should be placed at the role of salespeople in the physical store, as well as at omnichannel integration strategies.

Regarding the role of salespeople, the results are consistent with related studies (Zhang & Oh, 2013; Monteleone & Wolferseberger, 2012; Rapp et al., 2015; Pantano & Viassone, 2015) which emphasized on the dominant role that store associates play, coping with that emerging consumer behaviour. In particular, Zhang & Oh (2013) stressed on the role of service support, Monteleone & Wolferseberger (2012) on salespeople assisting technologies, Rapp et al. (2015) on salesperson-consumer interaction and Pantano & Viassone (2015) on service quality perception as an outcome of technology and/or salesperson interaction. Therefore, our criterion of "Service support by salespeople utilizing sales supporting electronic technologies" is validated as a means of battling showrooming, since users that tend to engage in such behaviour attach significantly more importance to it (more than any other criteria) in order to purchase from the physical store that they have visited.

As far as the omnichannel integration criterion in concerned, that is, a store's multichannel integration in order to provide a seamless shopping experience, Pantano & Viassone (2015) provided empirical evidence that it can prevent showrooming and suggested the use of channel integrating technologies to accomplish it (iBeacon, mobile apps and smartphones). This finding is also consistent with our statistical findings regarding these technologies that gather increased attention by consumers. In addition to this, Zhang & Oh (2013) also suggested that cross-channel services lead to customer retain. Nevertheless, Chiu et al. (2011) found that multichannel self-efficacy positively affects showrooming; therefore multichannel integration should be carried out cautiously. On the other hand, store atmosphere, both in conventional and online variants, though considered important, it doesn't attract consumers with showrooming intention more than the others. However, these results are not consistent with Shukla & Babin (2013), Pantano & Viassone (2015) and Chiu et al. (2011) findings indicating that store atmosphere affects showrooming. On the contrary, they are in line with Heitz-Spahn (2013) claims that channel aesthetics as components of store atmosphere do not influence cross-channel free-riding behaviour. However, they propose that this behaviour could be fought with appropriate mobile applications.

3 http://www.theguardian.com/technology/2015/feb/03/amazons-first-store-opens-indiana

4http://www.retailwire.com/discussion/18195/could-amazons-brick-and-mortar-invention-eliminate-checkout-lines?utm_campaign=RW%20Discussions&utm_content=13995290&utm_medium=social&utm_source=twitter

Captivatingly, retailing mobile apps in-store internet users regard a store's online store atmosphere of utmost importance in order to purchase from that store's physical counterpart. The importance mean score they attach is even higher than the store's conventional store atmosphere equivalent. What's more, among this consumer group and those that don't use retailing mobile apps, there were found to be statistical differences only regarding the online store atmosphere's importance in order to purchase offline. As a result, that could mean that proper mobile app atmospherics could also influence retailing mobile app consumers' showrooming intention in-store.

The study encloses several limitations that are mainly attributed to the research setting and method. First of all, our sample consisted of solely internet users and, therefore, our results cannot be generalised to the whole population, who may not be interested in online practices within physical stores. In addition to this, consumers were asked which practices & technologies they considered most important in-store and not which they actually employ. The reason for that was the availability of most practices & technologies, which were too advanced at that time for stores to support them, especially in the form of mobile apps. For that reason, consumers could respond differently if they had actual experience of them in the conventional shopping environment. Last but not least, to the best of our knowledge, the store atmosphere notion has not been transferred to the mobile apps domain. While web atmospherics components could be applied to mobile web one with little modifications (Manganari et al., 2007), mobile apps, as discussed, provide features unique to the online world that may influence our online atmosphere-related results.

In order to verify and expand our findings, researchers are encouraged to employ experimental design approaches in real physical stores, in order to test omniretailing effects in practice. Field experiments should definitely exploit the use of retailing mobile apps, since they are the most suitable choice towards blending physical with virtual experiences. Also, the interplay of multiple atmospheric cues, both online & offline, through omnichannel integration remain unexplored. Hence, in would be intriguing to explore consumer behaviour and the showrooming phenomenon specifically, inside the future retail store, where the Omnichannel Retailing Store Atmosphere is present.

References

Adobe. (2013). *Mobile shopping: retail app usage on the rise*. Retrieved from http://blogs.adobe.com/digitalpublishing/2013/01/mobile-shopping-retail-app-usage-on-the-rise.html

Amazon. (2015). *Transitioning items from a materials handling facility*. Retrieved from https://www.google.com/patents/US20150012396

Agrebi, S., & Jallais, J. (2015). "Explain the intention to use smartphones for mobile shopping." *Journal of Retailing and Consumer Services*, *22*, 16–23.

Burke, R. R. (2002). "Technology and the Customer Interface: What Consumers Want in the Physical and Virtual Store." *Journal of the Academy of Marketing Science*, *30*(4), 411–432.

Charland, A., & Leroux, B. (2011). "Mobile application development." *Communications of the ACM*, *54*(5), 49.

Chiu, H.-C., Hsieh, Y.-C., Roan, J., Tseng, K.-J., & Hsieh, J.-K. (2011). "The challenge for multichannel services: Cross-channel free-riding behavior." *Electronic Commerce Research and Applications*, *10*(2), 268–277.

Dailey, L. (2004). "Navigational web atmospherics." *Journal of Business Research*, *57*(7), 795–803.

Eroglu, S. A., & Machleit, K. A. (1993). „Atmospheric Factors in the Retail Environment: Sights, Sounds and Smells." *Advances in Consumer Research*, *20*(1), 34.

Fairchild, A. M. (2014). "Extending the Network: Defining Product Delivery Partnering Preferences for Omni-channel Commerce." *Procedia Technology*, *16*, 447–451.

Gerpott, T. J., & Thomas, S. (2014). "Empirical research on mobile Internet usage: A meta-analysis of the literature." *Telecommunications Policy*, *38*(3), 291–310.

Heitz-Spahn, S. (2013). "Cross-channel free-riding consumer behavior in a multichannel environment: An investigation of shopping motives, sociodemographics and product categories." *Journal of Retailing and Consumer Services*, *20*(6), 570–578.

Huy, N. P., & vanThanh, D. (2012). "Evaluation of mobile app paradigms." In *Proceedings of the 10th International Conference on Advances in Mobile Computing & Multimedia - MoMM '12* (p. 25). New York, New York, USA: ACM Press.

Lazaris, C., Vrechopoulos, A., Doukidis, G., & Fraidaki, K. (2015). "The Interplay of Omniretailing & Store Atmosphere on Consumers' Purchase Intention towards the Physical Retail Store." In *12th European, Mediterranean & Middle Eastern Conference on Information Systems (EMCIS)*. Athens, Greece.

Lazaris, C., Vrechopoulos, A., Fraidaki, K., & Doukidis, G. (2014). "Exploring the "Omnichannel" Shopper Behaviour." In *AMA SERVSIG, International Service Research Conference, 13-15 June*. Thessaloniki, Greece.

Levy, M., Weitz, B., & Grewal, D. (2013). *Retailing Management*. McGraw-Hill/Irwin; 9th edition.

Luo, Q., Oh, L.-B., Zhang, L., & Chen, J. (2014). "Examining the showrooming intention of mobile-assisted shoppers in a multichannel retailing environment." In *Pacific Asia Conference on Information Systems (PACIS)* (p. Paper 141).

Magrath, V., & McCormick, H. (2013). "Marketing design elements of mobile fashion retail apps." *Journal of Fashion Marketing and Management: An International Journal*, *17*(1), 115–134.

Mahatanankoon, P., Wen, H. J., & Lim, B. (2005). "Consumer-based m-commerce: exploring consumer perception of mobile applications." *Computer Standards & Interfaces*, *27*(4), 347–357.

Manganari, E., Siomkos, G., & Vrechopoulos, A. (2007). "Atmospheric qualities in mobile commerce: an initial approach." In *Proceedings of the 36th European Marketing Academy Conference (EMAC)* (pp. 1–7). Reykjavik, Iceland: McGraw-Hill.

Mikkonen, T., & Taivalsaari, A. (2011). "Apps vs. open web: The battle of the decade." In *Proceedings of the 2nd Workshop on Software Engineering for Mobile Application Development* (pp. 22–26).

Monteleone, P., & Wolferseberger, J. (2012). *Showrooming and the Price of Keeping Buyers In-Store*. *GroupM Next*. Retrieved from https://www.scribd.com/doc/103349382/GroupM-Next-White-Paper-Showrooming-and-the-Price-of-Keeping-Buyers-In-Store#download

Ortis, I., & Casoli, A. (2009). Technology Selection: IDC Retail Insights Guide to Enabling Immersive Shopping Experiences. *IDC Retail Insights*. Retrieved from http://idg.com/www/pr.nsf/ByID/IDGC-8MBQMJ

Pantano, E., & Viassone, M. (2015). "Engaging consumers on new integrated multichannel retail settings: Challenges for retailers." *Journal of Retailing and Consumer Services*, *25*, 106–114.

Parker, R., & Hand, L. (2009). *Satisfying the Omnichannel Consumers Whenever and Wherever They Shop*. *IDC Retail Insights*. IDC Retail Insights. Retrieved from http://www.amazon.com/Satisfying-Omnichannel-Consumers-Whenever-Wherever/dp/B002PW0G46

Quint, M., Rogers, D., & Ferguson, R. (2013). *Showrooming and the rise of the mobile-assisted shopper*. *Columbia Business School - Aimia*. Retrieved from https://www4.gsb.columbia.edu/filemgr?file_id=7313935

Rapp, A., Baker, T. L., Bachrach, D. G., Ogilvie, J., & Beitelspacher, L. S. (2015). "Perceived customer showrooming behavior and the effect on retail salesperson self-efficacy and performance." *Journal of Retailing*, *91*(2), 358–369.

Rigby, D. (2011). The Future of Shopping. *Harvard Business Review*, *89*(12), 64–75.

Shukla, P., & Babin, B. J. (2013). "Effects of consumer psychographics and store characteristics in influencing shopping value and store switching." *Journal of Consumer Behaviour*, *12*(3), 194–203.

Spence, C., & Gallace, A. (2011). "Multisensory design: Reaching out to touch the consumer." *Psychology and Marketing*, *28*(3), 267–308.

Verhoef, P. C., Kannan, P. K., & Inman, J. J. (2015). "From Multi-Channel Retailing to Omni-Channel Retailing." *Journal of Retailing*, *91*(2), 174–181.

Willmott, B. (2014). "Retail showrooms, mobile sales." *Journal of Direct, Data and Digital Marketing Practice*, *15*(3), 229–232.

Wisniewski, J. (2011). "Mobile That Works for Your Library." *Online*, *35*(1), 54–57.

Wurmser, Y. (2014). *Retailers Playing Catch-Up with Consumers*. *eMarketer*. Retrieved from http://www.emarketer.com/public_media/docs/state_of_omnichannel_retail.pdf

Xu, J., Forman, C., Kim, J. B., & Van Ittersum, K. (2014). "News media channels: Complements or substitutes? Evidence from mobile phone usage." *Journal of Marketing*, *78*(4), 97–112.

Zhang, L., & Oh, L.-B. (2013). "Determinants of Multichannel Consumer Switching Behavior: A Comparative Analysis of Search and Experience Products." In *WHICEB 2013 Proceedings* (pp. 205–212). Wuhan, China.

Zhao, Z., & Balagué, C. (2015). "Designing branded mobile apps: Fundamentals and recommendations." *Business Horizons*, *58*(3), 305–315.