

Introduction to the special issue: technology in retailing

From the early days of retailing, and the simple buying, selling, and trading of goods in a central market, retailers have continued to explore ways in which to improve their performance (Leach, 1993). Historically, the improvements in product development, acquisition of goods, and retail operations were aimed at improving the performance of the retailer (Johnston, 2014). Examples such as in-store technology and retail processes (Pantano and Laria, 2012), and the rapid growth of the internet (Laseter and Rabinovitch, 2012) helped lead the retail sector to representing almost one third of the global GDP, with the top 250 retailers in the world generating sales over \$4 trillion USD (Deloitte, 2017). The breadth of the retail sector has resulted in retailing jobs being the leading source of employment in many countries (Luce, 2013), and although the largest retailers are led by traditional bricks and mortar retailers, ecommerce firms such as Amazon and Alibaba are advancing quickly (Gensler, 2017).

The transition of bricks and mortar retailers into providing online shopping, or online ordering and store pick up options, can be linked to the advancement in the use of technology to decrease retailer operational costs while also providing greater flexibility in how consumers shop (Lee, 2015). These advancements are not surprising, given the rapid growth of pure-play online retailers, with Amazon being the most prominent. Retailers viewed technology as a way to decrease costs, both in-store and at the back end (i.e. distribution and supply chain activities), and thus being able to maintain retail price levels. Innovations in the area of in-store displays (Breugelmans and Campo, 2011, and electronic price labels; McKenzie and Taylor, 2016) are just some of the areas where retailers are utilising technology to improve operational and customer performance.

The increased dependency upon technology also provided retailers with greater degrees of data and information, information that can be used to pass on process and operational improvements to their suppliers. Arguably, this drive for cost reduction, particularly on the production side, has reached a trough. There are a number of examples where suppliers have had to turn down large contracts with retailers, as they could no longer meet the retailers' demands for constant price reductions, or even forcing the retailer to accept price increases (Shah, 2017). In turn, traditional retailers were forced to look at ways in which technology would allow them to compete with online retailers, who operated on a lower cost operational model (Rowley, 1996). Retailers needed to refocus on their customer and ways in which they could improve the shopping experience. Through the implication of self-checkout systems, increased online information presence, and greater options in terms of product delivery and pick up, retailers have continued to examine ways in which technology could drive these changes (Renko and Druzijanic, 2014).

In terms of a geographic perspective, technological innovations in retailing have come from many regions of the world (Goldman, 1981). Although the vast size of the US retail sector has led many of these developments, there are a number of examples of technology being developed in other regions. For example, in the UK (Kirby, 1993), and in France (Rolland and Freeman, 2010), the evolving technology has demonstrated ways in which consumers can more fully engage with the retailer's brand. To provide additional insight into retail technology use, two diverse countries are discussed, namely, Russia and Canada, and how these countries, which represent the two largest countries in the world, have had to address similar issues of distance and population dispersion as well as the consumer adoption of technology in retailing (Schlieve and Pezoldt, 2010; Wightman, 1990).



In Russia and other developing markets, despite unfavourable economic environments, new technologies mirror those from the West, but with a noticeable time lag in terms of adoption and implementation (Rodriguez and Melikhova, 2015). Compared with developed economies, Russia's overall spending on retail technology was not significantly less, but investments in retail-oriented software fell much beyond the average level of developed markets (Menn, 2017). Reasons attributed to this lag continue to be a result of Russian firms not developing long-term strategies in general. As a country where long term could be measured in months vs years, an understandable reluctance to make such investments would be readily understood. Therefore, the use of Information Technology (IT-) related solutions, solutions that would be aimed at improvements within a two-year timeframe, are the norm (Popenkova, 2016). As can be suggested, the downside with these types of innovations would be that they do not possess the flexibility to be integrated into larger sophisticated retail management systems.

Furthermore, Russians themselves represent a saturated market for consumer ownership of mobile technology, and therefore emphasis on the internet shopping platform has received the most attention (Nagirnaya, 2015). Although a third of Russian shoppers purchase goods over the internet, expectations are that future growth will come by way of small size, online shops, that deal with storage-sharing as well as delivery-sharing technologies, chat-bots, and cloud robotics (Ustinova, 2017). As stated, IT solutions will be driving the growth. Additional retail sector IT-driven solutions are aimed at handling increased consumer behaviour data. These technologies are actively used for planning and evaluating efficiency of the advertising campaigns (Mikhailova, 2017).

In contrast, as a developed market, for the Canadian retail sector, technology has mirrored that of the USA. Investment in self-checkout solutions continues to grow, while major retailers, many of which are branch plants of those from the USA, have tailored their systems to the Canadian marketplace. After failures in Canada of two very large American retailers, Target in 2015 (Megits and Schuster, 2015), and the bankruptcy and liquidation of Sears Canada stores in 2018 (Wright, 2018), there exists an increased focus on technology-driven opportunities for future growth. Increased use of Omni-channel retailing as retailers became more experienced in balancing the wants and needs of in-store, and online consumers, and flexible solutions for online ordering, and in-store product pick-ups has been the result (Fulgoni, 2014).

In Canada, the areas for continued growth lie in in-store technology, particularly the role out of electronic shelf labels, and the conversion of self-scanner checkouts, and smartphone apps as they relate to consumer behaviour (Deane, 2012). Again, many of these initiatives have been by retailers from the USA, but a continued issue stems from increased concerns on data security, something that has impeded some of the technology acceptance by Canadian shoppers. In addition, Canada's arguable stronger privacy regulations and governmental regulations, in comparison to the USA, have also slowed this growth (James, 2014).

In brief, with an increased focus on retail technology in practice, as well as theory, the papers that were selected for this special issue encompassed a wider range than one may originally think of, with respect to retail technology. Accordingly, the four papers are aimed at both providing current and historical, and direct and indirect perspectives on retail technology, while also providing thought-provoking insight into the future framework of the field.

Overview of the special edition papers

The papers for the special issue component of this edition present a wide-ranging perspective on technology in retailing and address interesting and relevant questions from diverse geographic locations. The first paper explores how digital platforms are transforming the retail exchange logic, and the implications this has on business

managers and consumers. Extensive published material relating to leading firms in the area such as the Alibaba Group, Amazon.com, eBay, and Rakuten Group was analysed.

The second and third papers examine differing facets of advertising and promotion in retailing. The second paper examines different groups of consumers, and their reactions to differing media delivery systems, with the sampling area being Poland. The third paper examines a traditional form of retailing advertising, the sales flyer, but utilises recent advancements in the eye-tracking software to evaluate the effect of sales flyers on consumer emotions. This study was conducted with advertisements and sample subjects from Estonia. The final paper centres on e-marketing and consumer buying behaviour from a Chinese perspective. This forth study restricted their research to a pure online environment. Thus, the four papers each provide insight into a specific behaviour, practice, or theory, but when viewed in totality, create a wider perspective on less common retail technology questions. Finally, all of the studies provide important thoughts and suggestions on future research agendas.

Hänninen, Smedlund, and Mitronen begin their research with an assertion that incumbent business models are, and will continue to be facing challenges from new competition within the sector, but perhaps more importantly changing consumer expectations. These changes are being driven by the advancement of online retail. Retailers that utilise business models and practices within the digital environment may succeed, but there continues to be concerns with management practices that can support these changes.

The authors assert that as the platform economy has impacted change to the retail sector, there exists an increased understanding of how multi-sided digital platforms will operate. This move by retailers from independence to interdependence through shared platforms arguably returns the focus of the retail sector to consumers as the true assets of a firm. Since physical assets will become less a source of competitive advantage, the movement to consumer convenience and product and service selection becomes the goal.

In order to support their aim at a greater understanding of how a platform economy will change the retail sector, there exists a need to better understand multi-sided digital platforms. This was accomplished in two ways. The first was an in-depth analysis of the extant literature in the field, and the second was the use of case study methods to illustrate the implications and impact of multi-sided digital platforms on the retail sector with the analysis and comparison of four leading multi-sided digital platforms. The contribution of their research results from empirical evidence that can assist emerging retail practitioners in establishing themselves in the digital environment as well as how established retailers can respond to the challenges stemming from a greater emphasis on digital platforms.

The paper by Lipowski and Bondos examines a key component of the retail process, the type of, and level of information search conducted by the consumer. The authors explore consumer channel-switching behaviour and identify the influential factors that shape that behaviour. As noted above, with the growth of omni-channel retailing, Lipowski and Bondos were interested in how the three main channels search behaviour, offline, online, and phone, impact upon this process. The authors also include the additional variable of potential generational effects of Baby boomers, Generation X, and Generation Y.

The concept of channel migration strategy is explored, which, as identified by Lipowski and Bondos, although a complex process, can have a direct impact on the effectiveness of service providers such as retailers. Related to the understanding of the channel migration strategy is how service providers can best match the right channel with the right customer. The authors then discuss the literature that has examined the matching of the two.

A key contribution of their findings lies in its ability to identify how differences in the perceived media richness of the three marketing channels. In addition, the variations in the findings can be attributed to differences in each of the three consumer generations. These findings can have great benefit to service providers in terms of online and

offline behaviour. The identified differences such as the perception of the richness of a similar media (channels), as interpreted by the different generations of consumers, help to extend the literature in this field. Thus, service suppliers such as retailers are able to better understand the level of impact on the perception of media richness of marketing channels by their target customers.

The third paper, a methodology piece, makes a strong contribution to the research literature by examining the use of technology in terms of measuring the effectiveness of retail promotional tools, in this case, sales flyers. Pentus *et al.* present a thorough background on the use and value of sales flyers to retailer success, but also highlight many of the ongoing challenges of producing a physical, time-limited, promotional tool, particularly increasing costs vs decreasing customer exposure.

The authors review in detail many of the strengths and weaknesses of sales flyers in terms of development and design, particularly in terms of the complexity of their design. Building on the research literature in this field, Pentus *et al.* also explore the impact of emotions on sales flyer effectiveness. Both of these issues are of importance to retailers' operations, particularly for retailers that may want to transition paper flyers into the online environments. Questions such as how flyer design and emotional impact are consistent across physical and online flyers were explored.

A key contribution of the authors is their use of the eye-tracking technology in carrying out this research. As stated by Pentus *et al.* although research that has utilised the eye-tracking software has examined research questions such as eye fixations and product choice, their study extends this field of study into sales flyers. The authors also extended the simple measurement of subject eye tracking to also include automated facial expressions. Autonomic facial expression measures provide the opportunity to objectively measure subject responses to sales flyers. An interesting insight from their findings is that a lack of integration of measurements can lead to misinterpretations and incorrect conclusions if examined in isolation.

The final paper, by Waheed and Jianhua, examines e-marketing and buying behaviour, with a theorized moderating effect of gender. Their specific research examines these issues within a Chinese context. The authors present a background on how technology has had an important impact in the dispersion of information, and how e-marketing, or online advertising and promotional activities, has been used to communicate information about products and services. The authors state that as China is not only the most populace country in the world, it also has the potential to have the most online users in the world.

Waheed and Jianhua present an in-depth literature review on the history of e-marketing research, and how e-marketing has rapidly extended into the mobile marketing platform. The authors test their hypothesised relationships between the various forms of e-marketing and consumer exploratory buying behaviour. The authors conducted a large sample quantitative survey in China to test their hypotheses. Their findings help to shed light on the challenge that managers face in terms of both the identification of, and the impact of, factors that drive consumers' behaviour in the digital market.

The authors, building upon the existing literature, found that when consumers have a favourable attitude towards a particular advertising campaign, then positive outcomes in terms of effective communication should result. Their work proposes several ideas as to how managers can best utilise as well as exploit such emerging technologies as they relate to marketing practice. A multi-faceted approach that can encompass all or part of e-marketing, mobile marketing, e-mail marketing, intranet marketing, extranet marketing, and internet marketing can each effectively or ineffectively transmit information. Traditional components of advertisement success including the use of eye-catching material not surprisingly extend into the e-marketing environment as well.

The future

Retail trade, in general, the traditional store retailer, online retailing, and combinations of both, are expected to continue to drive interest in research and practice in this field through the next decades. As per historic developments in the retail sector, advancements in technology and creative ways in which to both acquire, but more importantly to retain customers, will continue. What these special edition papers have highlighted is that traditional retail practices are still relevant, but that they must be adaptable to an ever shifting, digital world. It is suggested that success in the retail sector will continue to be dependent upon providing target consumers with products and services (as well as experiences) that meet their wants and needs, but the customers will have a greater say in how those products and services must be delivered.

Retailers who have the flexibility to do this, which is predicted to be highly systems supported, still must be able to identify trends, passions, and aspirations of an increasingly mobile, international, customer. There will still be value in being able to identify variables for differentiation, be they economic, social, or generationally, but the ability to accurately predict these trends must be both dynamic and adaptable. Traditional storefronts may be places for consumer inspiration and opportunities to interact on a face-to-face basis with a retail brand, but less so for actual product acquisition.

A retailer's ability to better track "sales" beyond actual product exchange will result in more and more data, with the successful retailers being able to extract truly valuable information. Thus, this special edition champions a call for a sustained focus on the retail sector, by both academics and practitioners, who, while not ignoring traditional measure of retail practice and success, must extend their research efforts across historic divisions into multi-disciplinary, cross-cultural, cross-national, cross-platform scholarship.

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