

Innovative Approaches in Fashion Retailing*

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Abstract

Intense competition in retailing industry forces retailers to find new ways to attract consumers. Innovation stands out as a way to differentiate a company and gain a competitive advantage in this competitive environment. Like almost all industries, innovation appears to be one of the most crucial success factors in the retail industry. This paper aims to provide insights about the innovative practices of fashion retailers in order to explain the technologies that can be used by fashion companies operating in retailing. Radio frequency identification, body scanning, virtual-try-on, augmented reality and magic mirror are discussed as innovative approaches in fashion retailing. The fashion retailers can benefit from those approaches to better understand and reach consumers.

Keywords: *Innovation, Retailing, Fashion retailing, Fashion, Technology*

Article history: *Received 20 April 2016, Received in revised form 4 November 2016, Accepted 10 November 2016, Available online 30 November 2016*

*This study presented and printed at the proceedings of the 2nd Annual International Conference on Social Sciences, hosted by Yıldız Technical University, 2-4 June, 2016

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1 Introduction

Companies seeking for longtime survival need to adapt to the market conditions and progress. The innovation concept is so recognized that it also became a part of the cultures. Innovation ability has become a characteristic of every successful company in almost all industries (Trott, 2008). Retailing also benefits from innovation. Retailers need to integrate technology and innovative approaches in their strategy to become dominant in the competitive industry environment. Fashion retailing has distinct features that force companies to keep up the latest trends and innovations. Therefore, fashion retailers try to take advantage of technology and innovation more than ever.

As new technologies that can be used in retailing emerges, retailers' need to develop innovative business applications increases. New technologies that decrease costs and at the same time provide an exciting shopping experience are especially valued by retailers (Renko and Druzijanic, 2014). In parallel with that fact, a technology has to have distinct features in order to be successful in retailing. Interaction, personalization and visualization are examples of those features (Apeageyi, 2010). Ease of use, usefulness and enjoyment and aspects such as visual appearance, interaction modalities and controllability associated with the technologies systems used in retailing support the effective usage of the technologies (Pantano, 2014).

In this study, by mentioning the dynamics of fashion industry, a few of the innovative approaches are explained. While there are many ways to use innovation in fashion retailing, this study focused on radio frequency identification, body scanning, virtual-try-on, augmented reality and magic mirror. It is aimed to prove the importance of innovation for fashion retailing and also state the benefits provided by the innovative approaches.

2 Literature Review

2.1 Fashion Industry

Fashion industry is one of the most important industries in many economies of the world (Batista and Ng, 2012). Fashion concept is derived from Latin word "modus" and it implies "something that cannot be limited" (Ertürk, 2011). Fashion is defined as "a way of behaving that is temporarily adopted by a discernible proportion of members of a social group because that chosen behavior is perceived to be socially appropriate for the time and situation" (Tzou and Lu, 2009). Fashion industry consists of textile, apparel and footwear industries (Hines, 2007). Although fashion is a broad term, this study discusses fashion from clothing side.

Clothing is one of the most important basic needs along with food for people. Hence, apparel industry is considered as one of the most crucial and oldest industries of economy since it creates new jobs and products (Hines, 2007; Wong, 2014). While clothing is a basic need, there is also symbolic consumption associated with clothing consumption. Consumers see clothes as a way of expressing themselves and they believe that clothes tell people something about them (Goldsmith, Moore, and Beaudoin, 1999). Fashion shoppers try clothes on not only to be sure that the clothes fit their body but also fit their personal style (Zhang, Matsumoto, Liu, Chu, and Begole, 2008).

Although fashion seems attractive, the industry faces various difficulties. The challenging nature of fashion business stems from the timing issues, short product life cycles and demand uncertainty. Marketing, design and production expenses should be planned to meet the next season's trends. In fashion business, what might draw customers' attention and what might not be adopted by them are uncertain. Therefore, if a fashion company cannot guess right, it is left with excess inventory (Goldsmith, Moore, and Beaudoin, 1999; Barnett, Grolleau, and El Harbi, 2010).

2.2 Innovation In Fashion Retailing

Innovation brings together theoretical conception, technical invention, and commercial exploitation (Trott, 2008). It improves human life by finding creative solutions to difficulties and opportunities and also helps companies to be the pioneer in the industry (Kabukcu, 2015).

Technology is one of the most efficacious factors that shape the retail industry (Varadarajan, Srinivasan, Vadakkepatt, Yadav, Pavlou, Krishnamurthy, and Krause, 2010). The development of technology has provided numerous opportunities for retailers. Especially interactive technologies have changed the market conditions for retailing. Varadarajan, Srinivasan, Vadakkepatt, Yadav, Pavlou, Krishnamurthy, and Krause (2010) define interactive technology as "methods, tools or devices that allow various entities to engage in mediated communication to facilitate the planning and consummation of exchanges between them". The advantages provided by interactive technologies include trials of virtual products, intelligent shopping trolleys, information acquisition, and facilitation of purchase decisions (Varadarajan, Srinivasan, Vadakkepatt, Yadav, Pavlou, Krishnamurthy, and Krause, 2010). Together with those systems retailing has benefited from information and communication technologies such as self-service technologies, touch screen displays, mobile applications for smart phones, RFID (radio frequency Identification) systems, virtual salespersons and intelligent shopping trolleys. Those technologies have changed the traditional retail stores and retailing industry in general (Pantano, 2014).

Along with technology, changing nature of consumers and their consumption patterns played an important role in the shifting process of retailing industry. As Berry, Bolton, Bridges, Meyer, Parasuraman, and Seiders (2010) stated, nowadays consumers have become more value conscious and they buy less and differently. These transformations have led retailers to offer more appealing value propositions, change cost structures, provide more technology oriented service offerings and alter the store brands in a way to support those efforts. Innovation is a central part of all efforts to gain competitive advantage.

Varadarajan, Srinivasan, Vadakkepatt, Yadav, Pavlou, Krishnamurthy, and Krause (2010) classified the impact of technologies on retailing into three categories; namely infrastructure technologies, communication technologies and interactive technologies. According to this classification, infrastructure technologies that affect retailing include electricity, elevators, escalators, automobiles and railroads. On the other hand, telephone, radio, television, catalogs, newspapers and billboards belong to the communication technologies that have an effect on retailing. Finally, e-mail, hyper-text technologies, web browsers, instant messaging, access technologies, cellular phones with web browsing capability, GPS technologies, social networking, bookmarking/ information organization technologies are classified under interactive technologies that affect retailing industry in their study.

Nonetheless, there are also barriers to innovation in retailing. Reynolds and Hristov (2009) explained these barriers to innovation in the UK in their study. According to the study, the biggest problem is associated with costs. Cost of finance and perceived monetary risk of innovation play an important role in innovation in retailing. Other barriers are related to technical, leadership and project management skills.

Fashion brands' fundamental characteristic is being innovative (Ünay and Zehir, 2012) because of the heavy requirements of the industry, fashion retailers have to think in creative and innovative ways in the demanding business environment. In the next section, some of the innovative approaches in fashion retailing are discussed. Those techniques not only provide functional benefits but also enrich the physical shopping experience (Begole, Matsumoto, Zhang, Yee, Liu, and Chu, 2009).

2.2.1 Radio Frequency Identification (RFID)

Radio frequency identification (RFID) is "a generic term used to describe technologies that involve the use of a wireless non-contact system". The aim of using the system is to automatically identify and track

objects with RFID tag. RFID technology has been widely applied across various industries. Some of the areas that RFID is used are "access control, personnel and product identification, fleet management, vehicle identification, production line monitoring, passport security, shipping and baggage handling" (Wong, 2014).

Retailing industry also utilized this technology. RFID technology is one of the most frequently used technologies in fashion retailing. Adopting RFID technology has the potential to make a huge change in retailing. Therefore, the competition in fashion retailing industry has led fashion companies to use technologies like RFID to get the benefits (Moon and Ngai, 2008). RFID provides fashion retailers advantages such as accessing the information (Moon and Ngai, 2008), improving capability of designing, producing and stocking fashion products that change too fast (Elsheikh and El Feky, 2015).

The fact that RFID technology is functional in solving industry-specific problems of fashion retailers is the reason for frequent use of the technology. Those specific features present itself also in supply chain processes. Therefore, RFID technologies are being adopted by fashion retailers at an increasing frequency for identifying and tracking products in supply chain (Wong, 2014). Having definite characteristics have made the supply chain of apparel industry very complicated. Moon and Ngai (2008) explained how RFID technologies support fashion retailers in problem solving:

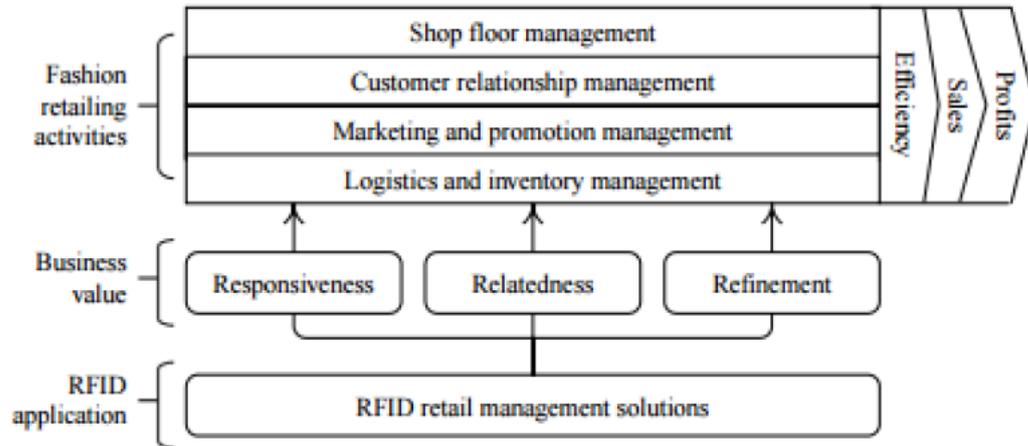
1. Since fashion products have short life cycle, the speed of delivery of the products to stores are crucial. Tracking and tracing capabilities provided by RFID help in increasing efficiency of activities related with supply chain.
2. Fashion retailers require space for exhibiting various products. RFID-based stock management helps in decreasing the complexity by quickly and correctly identifying what the customer needs.
3. Another feature of RFID is giving each product a special identifier. By this way, illegality can be avoided.
4. RFID-based consumer cards help retailers to record the shopping habits of consumers. Due to the reality that fashion consumers are considered as unpredictable, RFID can help retailers customize the stores' offerings for loyal customers.

Moon and Ngai (2008) have developed a business value added framework in order to understand the adaptation of RFID in fashion retailing better. In their framework, they show how RFID can be useful for companies operating in fashion retailing (Figure 1). According to this framework, "responsiveness, relatedness and refinement" can be considered as values generated by RFID-based solutions. RFID also boosts fashion retailing activities and the advancement in these areas leads o "efficiency, sales and profits".

Source: Moon and Ngai (2008). The adoption of RFID in fashion retailing: a business value added framework. *Industrial Management & Data Systems*,108(5), 596-612.

2.2.2 Body Scanning

Body scanning is a technology that can capture and create an image on the computer screen very quickly. Although it is a relatively new technology, its use can provide important advantages for apparel industry. Consumers can see products visualized on the scan of their bodies and select styles and sizes with the help of this technology. Another benefit it provides is the consumer individualization opportunity. Familiarization and perceived risks are other important things to consider while using body scanning technique. Marketing brochures and videos could be used to make the customers discover the process. Also the music types could be adjusted and customization, giving clear information can help in decreasing the risks associated with using this technology (Loker, Cowie, Ashdown, et al., 2004). Body scanning technique provides social and economic advantages for fashion. Retail industry also

Figure 1: **RFID-based business value added framework for fashion retailing**

uses body scanning techniques but because of the fact that the technique is expensive and continuous technical support is needed throughout its use, it has not been accessible for most of the community. Because of these reasons the usage of this technique seems to be limited to high-end department stores and specialist sports retailers (Peng, Sweeney, and Delamore, 2012). The benefit that 3D body scanning technology provides is quick and consistent extraction of body measurements. The technology can also generate customized fit (Apeageyi, 2010).

Specifically, apparel industry can benefit from body scanning technology in various ways. Istook and Hwang (2001) explain why the technology has potential in apparel industry by:

- Endless number of linear and nonlinear measurements of human bodies can be acquired very quickly with the technology.
- The technology is more accurate compared to the traditional measurement process.
- Using body scanning technology shortens the time and decreases error since it allows to measure in a digital format. Therefore, it brings the advantage of producing mass customized costumes.

Consumers' interest in such a technology is important while deciding to use an innovative technology. According to the study by Loker, Cowie, Ashdown, et al. (2004), most women between 35 and 54 years of age were comfortable with using this technology and they expressed that they would be willing to try the body scanning again.

2.2.3 Virtual-Try-On

Virtual-try-on technology is considered as a recent advance in 3D full body scanning (D'Apuzzo and Gruen, 2009). While some people enjoy shopping a lot, some people think it consumes time. Usually, shoppers are concerned with "suit and fit" decisions. Virtual fitting rooms (VFR) that rely on augmented reality (AR) provide the advantage of trying on and matching accessories even when customers are not present in the shop. VFRs combine AR technologies with depth and color information and this benefit addresses the suit and fit concerns of customers. Customers also can see how additional products look on their outfits and they can look at the outfits from multiple angles with this technology (Pachoulakis and Kapetanakis, 2012). Virtual-try-on is used by fashion retailers in different

fields. That technology lets virtual examination of clothes on digital human body models (D'Apuzzo and Gruen, 2009).

Virtual fitting rooms help clothing stores by increasing conversion rates and decreasing returns. By using this technology, customers can also try the clothes online with the help of their web cam since the product can be overlaid on consumers' real-time video (Martínez, Skournetou, Hyppölä, Laukkanen, and Heikkilä, 2014). Nonetheless, Begole, Matsumoto, Zhang, Yee, Liu, and Chu (2009) discuss some shortcomings of this technology. They argue that people need to wear clothes on their body to get the full experience associated with trying on. Together with this, the virtual fitting technologies can not reflect all of the alternatives that a human can wear clothes. Another issue related with the use of these technologies is privacy concern of customers. The social side of fashion shopping is also ignored.

2.2.4 Augmented Reality

The term "augmented reality" (AR) has been defined diversely by various studies. Nonetheless, this study adopted Azuma (1997)'s definition. Azuma (1997) defines augmented reality as "any system that is interactive in real time, registered in three dimensions and combines real and virtual". In augmented reality, information generated by the computer is overlaid on reality and therefore physical reality is an essential part of augmented reality. In other words, augmented reality applications integrate real with digital (Berryman, 2012).

The benefits of AR are bringing many quick fixes to many fields, providing cost advantages or creating new services and improving missing senses by being used as a "sensory substitution device" (Carmigniani and Furht, 2011). AR systems don't only enhance vision, but also hearing, touch and smell (Sanganee, 2013).

Applications of AR can be seen in almost all fields. Marketing, entertainment, media, sightseeing, industry, fashion, medicine (Berryman, 2012), military, training, education, and retailing (Martínez, Skournetou, Hyppölä, Laukkanen, and Heikkilä, 2014) are some of the areas where augmented reality is used. Augmented reality also has many possible benefits for fashion industry; therefore, the industry uses augmented reality in many forms.

Considering that usage of AR applications is especially crucial in the industries where quick information transfer is very important (Yuen, Yaoyuneyong, and Johnson, 2011), fashion industry needs to integrate this technology into its strategy. AR technology can bring the advantage of showing extra information about products that enhances shopping experience (Martínez, Skournetou, Hyppölä, Laukkanen, and Heikkilä, 2014).

Augmented reality is an area with a lot of opportunities. For instance, as the usage of smart phones with location-based services increases, augmented reality technology draws more attention (Berryman, 2012). Since augmented reality is not yet a mature subject, there are some concerns related with the usage of this approach. First of all, augmented reality is not a simple technology to use and has no standards (Berryman, 2012). Also, social acceptance issues, privacy concerns, ethical concern and user issues such as ease of use and technology acceptance (Berryman, 2012; Carmigniani and Furht, 2011) should be considered in the decision process about adaption of such innovative approaches.

2.2.5 Magic Mirror

Technology improvements have formed new applications of mirrors some of which are developed by advertising and computer sectors (Kachare, Vanga, Gupta, and Borade, 2015).

Magic mirror interface is an application of AR and it is actually an LCD screen that provides the customers the opportunity to see his/her reflections on that screen. Magic mirror shows the customers a virtual model of products they would want to try on. Magic mirror stands out as a promising interface since it eliminates the need to actually try on products in physical stores. That feature brings the time

saving advantages for customers and probability of selling increases for the stores (Carmigniani and Furht, 2011). Therefore, it can be inferred that the tool is both useful for customers and companies. From consumers' side, the technology lets customers to virtually try on fashion products and also share their look on social networking platforms. Traditional fashion retailers use this technology to increase sales, leading customers to their social platforms and online shops and to make it easy for consumers to reach their profile data in the store. The technology also increases fashion stores' social merchandising competence (Batista and Ng, 2012).

3 Conclusion

Considering the competitive industry dynamics, retailers need to be different from their competitors for long time survival. The innovative approaches which can be adopted by retailers appear as an alternative way to gain customers' interest and loyalty. Innovation is considered as a requirement in current circumstances and retailers that fall behind the requirements of the industry are destined to be dropped out of the competition.

Societal and technological changes have affected fashion industry and have made fashion approach to technology management. Fashion industry can use innovation as a competitive tool since innovation is a process that never stops for the industry (Ünay and Zehir, 2012).

When the challenging nature of innovation is considered, retailers should pay attention to effectively managing innovation. In this context, retailers should enhance their knowledge on the strategies to integrate technology in retailing process and use those technologies to back managerial functions while at the same time collecting customer information. It is obvious that the technologies used in retailing provide time, place and purchasing advantages for companies but also the enjoyment associated with those technologies appeals to hedonic value of consumers. The benefits provided by those technologies are not only for customers but also for companies. Managers can easily get information about the decision-making process of consumers via those innovative approaches (Pantano, 2014). Together with this, a technology is valuable for retailers if it makes communication flow easier with their customers and their suppliers (Renko and Druzijanic, 2014).

Although it is obvious that usage of innovative technologies in both retailing and fashion retailing provides numerous advantages, the studies on these areas are still limited. This study provides a conceptual background; future studies could extend the knowledge on innovative approaches to an applied research. Customers' interest, acceptance and attitudes towards these technologies can also be analyzed by future studies.

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