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Innovation starts at the storefront: modelling consumer behaviour towards storefront windows enriched with innovative technologies

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Keywords:	Consumer innovativeness, storefront windows, interactive technologies, decision making, Innovation theory, consumer behaviour

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3 **Innovation starts at the storefront: modelling consumer behaviour towards storefront**
4
5 **windows enriched with innovative technologies**
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7

8 **Abstract.**
9

10 **Purpose-** Research into the introduction of innovative technologies directly at the storefront
11 window is limited. The aim of this paper is to model the behavioural attitudes and the
12 subsequent benefits of, introducing innovative technologies to the storefront, while also
13 considering the role of personal innovativeness in the decision process.
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18 **Design/methodology/approach-** This study employed a sample of 341 consumers who
19 approached this new kind of storefront in two well-known apparel stores in the centre of New
20 York city. A self-administered questionnaire was used as a tool for data collection.
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25 **Findings-** Findings empirically demonstrate that when consumers sense that there are
26 innovative interactive technologies in the storefront windows, they are willing to enter the
27 store, generate positive word of mouth communication (sharing the positive experience with
28 friends).
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34 **Originality/value-** Our study is the first to investigate the combination of consumer
35 innovativeness and storefront window on the behavioural attitude, supported with
36 quantitative evidence.
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44 **Keywords:** Consumer innovativeness; storefront windows; interactive technologies; decision
45 making; Innovation theory; consumer behaviour
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49 **Paper type** Research paper
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1. Introduction

The importance of storefront windows in terms of consumer behaviour has been recognised by previous academics and practitioners (Cornelius *et al.*, 2010; Jain *et al.*, 2014; Lange *et al.*, 2016; Oh and Petrie, 2012; Pantano, 2016; Sen *et al.*, 2002). Storefronts are the first contact point between consumers and retailers and a means of persuading consumers to enter a particular store (Jain *et al.*, 2014). Hence, storefront windows and their basic features efficiently (i) create a visual impact, (ii) differentiate retailers from other competitors, and (iii) anticipate a further exceptional experience in the store (Lange *et al.*, 2016; Oh and Petrie, 2012; Pantano, 2016).

Moreover, changes in consumer demand, and the availability of innovations that enhance the retail process, including new interactive tools for supporting the shopping experience, may affect consumers' preferences for a certain store, which in turn pushes marketers to try to understand the extent to which consumer behaviour towards retailers varies as a function of different characteristics (Jain *et al.*, 2014; Pantano, 2014). For instance, in the last decades a huge number of points of sale changed their format and layout, the services they offer, and their delivery modalities by integrating advanced technologies with the promise of superior shopping experiences (Kourouthanassis *et al.*, 2007; Ngo and O'Cass, 2013; Pantano *et al.*, 2018; Papagiannidis *et al.*, 2013; Willems *et al.*, 2017), with the aim of gaining the attention of consumers who have been overexposed to traditional marketing approaches (Hutter and Hoffmann, 2014). As a consequence, the retail industry has to offer innovative solutions to create value for consumers (Pantano, 2014; Shankar and Yadav, 2011; Triantafillidou *et al.*, 2017), this constant search for solutions is moving towards an increasing integration of technological, interactive and entertainment technologies, so as to attract more consumers (Bertacchini *et al.*, 2017; Chou *et al.*, 2016; Demirkan and Spohrer, 2014; Hagberg *et al.*, 2016; Padma and Wagenseil, 2018; Pantano, 2014; 2016; Roy *et al.*,

2018). To this end, since 2009 retailers such as Nike at Selfridges or Hugo Boss have started introducing some interactive technological elements directly within storefront windows for a trial period. For instance, during the Olympic Games in London in summer 2012, to attract the huge number of tourists passing by the Selfridge store in the centre of the city (Oxford Street), the storefront windows introduced a mixture of kinetic sculptures and interactive displays. Each of the displays reacted to pedestrians' movement using input from a Kinect sensor to measure characteristics like height and speed, and the storefront window displaying the new jacket detected movement and then shot a volley of strobe lights towards the street. Similarly, in December 2009, Hugo Boss launched the "Black Magic" experience at the store in Sloane Square in London as part of the winter holiday advertising campaign. For three weeks, consumers could pick up a special card to play a virtual game of blackjack at the storefront window and win a voucher to spend in the store.

Another interactive storefront concept was tested in July 2013 in New York (US) by the partnership between eBay and Kate Spade, which allowed consumers to select and buy products through a touch screen located within one of the 4 storefront windows. Thus, customers were able to choose among 30 different products available, while new products were added each Saturday during the opening hours of the store.

An increasingly great number of scholars and practitioners have dealt with the dynamic effect that storefronts may have on consumers' behaviour, while they have also focused on the potential impact and implications that the use of new technologies may entail (Dennis *et al.*, 2010; Jain *et al.*, 2014; Oh and Petrie, 2012; Pantano, 2016; Paradiso and Leo, 2005; Reitberg *et al.*, 2009). However, to the best of our knowledge, no previous attempt has been made to thoroughly review the consequences that the integration of interactive technologies and related services in the storefront window may lead to. Although there are technologies that can be integrated in the storefront which do not require a direct consumers'

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3 interaction (e.g. facial recognition systems that identify consumers), in this paper we will
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5 consider only those technologies which demand a certain degree of interaction with the
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7 consumers. Given that, the aim of this study is to examine the antecedents of consumer
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9 behaviour towards storefront windows which are enriched with innovative technologies. In
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11 particular, it investigates the impact of enriching storefront windows with innovative
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13 technologies on consumers' behavioural attitudes (i.e., entry decision) and the consequences
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15 for retailers in terms of attitude toward the retailer, and word-of-mouth communication. This
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17 study contributes to the literature in the following ways. Our study responds to the call by
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19 Lange et al (2016) for more studies on storefronts and adds new knowledge on the effect of
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21 using storefront technologies on behavioural attitudes, where a limited body of literature
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23 exists (Lange *et al.*, 2016; Pantano, 2016). Lange et al (2106) highlight the importance of
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25 creating new storefront windows based on creativity, while this study integrates this view by
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27 using innovative technologies in the storefronts. Also, the current study extends the work of
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29 Lange and colleagues (2016) by adding attitude toward the retailer and it explains the effect
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31 of the storefronts enriched with interactive technologies on consumer behaviour. In addition,
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33 previous works have considered consumer innovativeness only in relation to shopping
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35 decision or in-store behaviour (Fowler and Bridges, 2010; Kaushik and Rahman, 2016; Kim
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37 *et al.*, 2010); this study additionally examines consumer innovativeness as a driver of
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39 consumer behaviour outside (mainly, in front of) a store, which also extends Pantano's (2016)
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41 qualitative study on the importance of introducing interactive technologies directly on the
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43 storefront.
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51 The remainder of this paper is organized as follows. First, we summarize prior studies
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53 on consumer innovativeness, in order to understand the attitude towards new technologies as
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55 a driver of a preference for storefronts enriched with new technology, storefront windows,
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57 behavioural attitudes, and the subsequent impact on consumers. Next, we outline the design
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of our research methodology. Then, we provide details of the model emerging from our study. This paper is completed with a discussion of the findings, future research directions, and the implications of the findings for storefront windows and their development.

2. Theoretical Background

2.1 Consumer innovativeness

Firms' innovations might fail due to their lack of understanding of consumers' needs (Bartels and Reinders, 2011). In this context, a huge amount of literature focuses on the drivers of consumer acceptance of new products, services, and experiences, as influenced by both consumers' personal traits, innovation characteristics and market efforts (Kim *et al.*, 2010). An important driver in this sense is consumers' innovativeness. Past studies identified consumer innovativeness as a driver of retail patronage both offline and online, including the choice of a particular store, the use of pop-up retail (Fowler and Bridges, 2010; Kim *et al.*, 2010), the adoption of in-store self-service technologies (Kaushik and Rahman, 2016), the adoption of e-commerce (Crepò and del Bosque, 2008; Thakur and Srivastava, 2015) and e-loyalty (Jianlin and Qi, 2010), and it might refer to a specific domain of interest (Goldsmith and Hofacker, 1991).

Innovativeness has been conceptualized as a personal trait related to an innate behaviour such as an individual's tendency to buy new products more often and more quickly than other people (Chao *et al.*, 2012; Im *et al.*, 2003; Roehrich, 2004; Vandecasteele and Geuens, 2010), thus it might vary among individuals (Bartels and Reinders, 2011), and it is related to the desire for novelty (i.e. product novelty, service novelty, etc.), which might further determine the acceptance of a new product or service (Hoffmann and Soyez, 2010; Manning *et al.*, 1995). In other words, it captures consumers' willingness to adopt innovations (in service or products) (Raskovic *et al.*, 2016). Indeed, it characterizes

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3 consumers as innovators (adopters with the highest level of innovativeness) from later
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5 adopters (Truong *et al.*, 2017), which is strictly linked to the ability of risk-taking in the use
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7 of new, unfamiliar and new products/technologies/services. In other words, consumers with a
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9 high level of innovativeness are less likely to engage in risk reduction strategies (Truong *et*
10
11 *al.*, 2017).
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15 Roherich (2004) has further summarized consumers' innovativeness as (i) an
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17 expression of the need for stimulation, (ii) an expression of novelty seeking, (iii)
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19 independence toward other's communicated experience, and (iv) an expression of a need for
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21 uniqueness, which leads to consumers' seeking, testing and purchasing the newest products.
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24
25 Raskovic and colleagues (2016) further defined consumer innovativeness as: (i) innate
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27 consumer innovativeness (as a personal trait), (ii) domain-specific consumer innovativeness
28
29 (related to a specific product category), and (iii) actualized innovative consumer behaviour in
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31 terms of early adoption of new products/services. Indeed, consumer innovativeness is evident
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33 in how the newest technological products are embraced, for example, consumers accept long
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35 queues and high prices in order to have the latest model of a certain smartphone or tablet.
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37 Indeed, consumer innovativeness affects high level of continuance intention in new
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39 technologies (i.e. smartwatch) by enhancing both utilitarian and hedonic value (Hong *et al.*,
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41 2017).
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47 *2.2 Attitude toward storefront and entry decision*

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50 Like the role of store atmospherics, the effectiveness of a store window relies on the
51
52 visual stimuli used to positively influence consumers' behaviour (Kernsom and
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54 Sahachaisaeree, 2012; Oh and Petrie, 2012; Triantafillidou *et al.*, 2017). Capturing the visual
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56 attention of consumers is vital for retailing and visual merchandising; recent research often
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58 uses eye-tracking methods to test this (e.g., Atalay *et al.*, 2012; Hendrickson and Ailawadi,
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2014; Wästlund *et al.*, 2015). Eye-tracking technology enables researchers to quantify the visual attention that consumers direct at stimuli and provides insights into their information processing and decision-making processes (Wedel and Pieters, 2008). These stimuli are similar to the arousal factors that affect in-store consumer behaviour (Mattila and Wirtz, 2001; Menon and Kahn, 2002) and involve (i) design elements, such as brightness, saturation, colour, light intensity, texture, shapes, textual style, and how merchandise is displayed; (ii) product and product positioning (including prices); and (iii) window display style (including concept, content, season and product) (Kernsom and Sahachaisaeree, 2012; Oh and Petrie, 2012). In terms of the design elements, certain colours are able to solicit more positive feelings in consumers and creating a particular mood potentially pushes consumers to make a purchase (Jain *et al.*, 2014). For instance, before Valentine's Day, most of the stores use red, which is usually associated with passion and love, thus inviting consumers to buy a Valentine's gift. Concerning the products and product positioning, products can be located at the centre of the display surrounded by other elements, or they can occupy only a limited part of the scene. Similarly, the price or details on price and promotion might or might not be visible from the storefront. The right amount of displayed information might solicit consumers' attention without totally satisfying it, in order to influence their behavioural attitude. In terms of the display style, windows often tend to reproduce the characteristics of the season, for instance in the winter time they tend to recreate winter and snow scenes, or at Christmas they use Christmas trees and other Christmas decorations.

Previous literature draws a more detailed distinction in terms of window typologies: (i) Oh and Petrie (2012), for example, have distinguished between the so-called merchandise typology that emphasises *understating* and the artistic one which centers on *exploration*; (ii) Yildirim *et al.* (2007), on the other hand, discuss the differences and affinities between the flat, the arcade, and the corner window. Based on their work, the flat window is built on the

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3 concept of a straight line aligned with the store entrance, as opposed to the arcade category
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5 which expands from a shop's entrance set back between two windows aiming to augment the
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7 size and value of the window allowing a greater number of products to be showcased; the
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9 third and last type they identified is the corner window, is fundamentally exploited and ideal
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11 for stores that are located on a corner. (iii) Last but not last, certain scholars have also drawn
12
13 a distinction between the thematic and non-thematic windows having as a criterion their
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15 design (Oh *et al.*, 2008), with the thematic demonstrating the items sold in alignment with a
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17 specific story or concept, generating a lifestyle-type atmosphere.
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22 Meaningful examples of thematic windows are often found in luxury large department
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24 stores and luxury branded stores. For instance, in (late) October 2015, Harrods (London, UK)
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26 celebrated Halloween by covering its storefronts with a large witch, whose legs and feet came
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28 out of the storefront and onto part of the pavement. Similarly, Dolce & Gabbana frequently
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30 design storefronts based on Sicilian art and culture, to which their collections are devoted.
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34 To date, the literature has provided studies which offer preliminary indications of the
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36 basic factors needed to design effective storefront windows (see Oh and Petrie, 2012),
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38 without taking into account the possible ripple effects of interactive technologies on these
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40 factors, or how the traditional elements of a window and new technologies can be
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42 successfully merged.
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46 Storefront windows are a powerful tool for communicating about products and
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48 motivating consumers to enter the store (Lange *et al.*, 2016; Yildirim *et al.*, 2007). This
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50 decision might be further influenced by a desire to collect more information on the products
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52 they saw at the window display or to learn more about the sales and promotions announced
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54 there, etc. (Oh and Petrie, 2012; Sen *et al.*, 2002). Therefore, we hypothesize that:

55
56 H1: The higher the attitude toward a storefront window the stronger the influence on the
57
58 storefront based entry decision.
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2.3 Attitude toward retailer and entry decision

A firm's (i.e. store) image is deemed to be a product of individuals' perception of reality (Bernstein, 1986) on the basis of their beliefs, emotions, feelings (Barich and Kotler, 1991). Store image enhances store quality perception and purchase intention (Bao *et al.*, 2011) and consequently loyalty (Darley and Lim, 1999; Erdil, 2015). Lin (2016) points out innovative consumers are attracted by the innovative image of a specific retailer. Similarly, past studies identified the meaningful positive association between consumer innovativeness and their behaviour intention; in other words, past studies demonstrated the extent to which consumer innovativeness influences their usage of a certain product because they feel they have more control over it, while showing low emotional resistance towards it (Dai *et al.*, 2015). When consumers have a positive attitude toward the retailer, they are likely to exhibit greater willingness to search for product information from the retailer (Kim and Park, 2005). Lin *et al.* (2013), assert that when consumers perceive a retailer's efforts in innovation to give better value, their likelihood of becoming more loyal customers increases. Given that consumers' attitudes generally influence critically their buying intentions (Schiffman and Wisenblit, 2015; Solomon, 2015), their attitude towards a retailer may also influence their store entry decision. Therefore, we hypothesize:

H2: The higher the attitude toward the retailer the stronger the influence on the storefront based entry decision.

2.4 Behavioural response

Literature shows that storefronts influence the storefront based entry decision (Sen *et al.*, 2002; Pantano, 2016; Yildirim *et al.*, 2007). Any behavioural intention can lead to shopping and customer satisfaction and satisfaction with the store in turn can have a positive impact on WOM. Also, consumers' excitement can also cause WOM activities (Lovett *et al.*,

2013). Past studies have shown that a positive experience with a product, a brand or retailer has been linked to positive WOM (East *et al.*, 2007; Ladhari, 2007; de Matos and Rossi, 2008), while a negative one has been associated with negative WOM (Nyer and Gopinath, 2005; Richins, 1983). In retailing settings, studies (Brown *et al.*, 2005; Chang *et al.*, 2015; Fuentes-Blasco *et al.*, 2017; Jung and Seock, 2017; Kumar *et al.*, 2013; Riquelme *et al.*, 2016; Siu and Cheung, 2001), have investigated the WOM as a consequence of satisfaction, service quality, store image, store equity, or various store attributes (i.e. layout, atmospherics), since positive or negative WOM is highly related to consumers' behavioural intentions and thus, affects sales and profits (Jung and Seock, 2017). When a customer holds a positive attitude towards a store there is a high possibility of recommending it or to revisit it (Kamran-Disfani *et al.*, 2017). Therefore, we hypothesize:

H3: Storefront based entry decision has a positive influence on word of mouth communication.

2.5. Moderating effect of customer innovativeness

Customer innovativeness, in terms of the degree to which an individual has a positive attitude towards innovation (Crespo and del Bosque, 2008; Fowler and Bridges, 2010; Kim *et al.*, 2010; Roehrich, 2004), might play a role in shaping customers' behavioural intention when considering a storefront enhanced with innovative technologies. Managers are aware of the importance of customer innovativeness, which might have a strong impact on positive and desired attributes and add value to the image of an organisation (Nijssen and Douglas, 2008). For instance, retailers spend a lot of money and time on, and do a lot of research into, creating and designing a storefront, which influences perceptions among a firm's customers in a positive way. In fact, it can enhance a company's uniqueness, improve its visibility, and have a positive impact on public impressions (Fombrun, 1996; Sen and Bhattacharya, 2001;

Williams and Moffitt, 1997). Innovations in store atmosphere and store design is a serious sign to customers that a retailer is able to fulfil their needs and expectations (Lin *et al.*, 2013).

In particular, the more advanced the technology implemented by the retailer, the stronger the influence on consumer behavioural intentions (Gil-Saura *et al.*, 2016). Fuentes-Blasco *et al.* (2017) found that technological innovations are more meaningful than marketing innovation in shaping image, value and satisfaction. Therefore, we hypothesize:

H4: Consumer innovativeness moderates the effect of the attitude toward a storefront window on the storefront based entry decision.

H5: Customer innovativeness moderates the effect of the attitude toward the retailer on the storefront based entry decision.

3. Research Methodology

3.1 Data collection and sample

In order to assess the research's conceptual model, a pre-test was initially conducted to investigate the validity, suitability, and freedom from error of the measurement items. Then, the main data set was obtained from customers outside two well-known apparel stores with digital interactive store window designs (i.e. digital signage showcasing new product lines) in the centre of New York, US, between July 19th and August 8th, 2015, by employing a structured self-administered questionnaire. Two appropriately-trained field research assistants were recruited, and 526 customers were approached to participate in the study after having stopped to look at the above-mentioned storefront. The questionnaires were distributed each day and at different times of the day to improve randomness (Haj-Salem *et al.*, 2016). A total of 341 usable completed questionnaires were processed and analysed, achieving a 64.8% response rate which was sufficient to satisfy the required ratio of at least five observations per estimated parameter for structural equation modelling (SEM) (Bollen and Paxton, 1998). The

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3 respondents took on average 12 minutes to complete the questionnaire. Each participant
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5 received a \$2 gift voucher to buy water/soft drink as a token of appreciation for completing
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7 the questionnaire. In this sample, 49.3% were men and 50.7% were women. Regarding the
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9 age, 41% of the participants were aged between 20 and 29, 29.6% were aged 19 to 17 years
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11 old (Table 1).
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15 **“INSERT TABLE 1 HERE”**
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19 3.2 *The survey measures*

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21 Specifying the content domain from the appropriate literature was achieved by
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23 employing multi-item scales for each construct (Churchill, 1979). The research construct
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25 items were inspected for face and content validity by 5 faculty members in the department of
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27 marketing who are familiar with the topic (Bearden *et al.*, 1993). Some items were eliminated
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29 or modified based on the received recommendation. There are five main constructs under
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31 study here: (i) consumer innovativeness, (ii) attitude toward the storefront, (iii) storefront
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33 based entry decision, (iv) attitude toward the retailer, and (v) word-of-mouth. The previous
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35 literature was comprehensively accessed in order to develop the items measured for the
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37 current research constructs. The measurement items for attitude toward the storefront (Kerson
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39 and Sahachaisaeree, 2012; 2010; Müller *et al.*, 2010; Oh and Petrie 2012; Sen *et al.*, 2002)
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41 and storefront based entry decision were employed from previous research (Oh and Petrie
42
43 2012; Sen *et al.*, 2002). Consumer innovativeness was adopted from the existing scales (e.g.
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45 Chao *et al.*, 2012; Crespo and del-Bosque, 2008; Fowler and Bridges 2010; Manning *et al.*,
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47 1995). The measurement for attitude toward the retailer was based on previous studies
48
49 (Foroudi *et al.*, 2014; Williams and Moffitt, 1997). Word-of-mouth (Srinivasan *et al.*, 2002)
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51 also obtained from existing scales. The items employed in the current study are shown in
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Appendix 1. All respondents were asked to indicate their level of agreement using a seven-point Likert scale (1=strongly disagree, 7=strongly agree).

4. Data analysis and Results

The preliminary research measurement items were subjected to a series of factor and reliability analyses as an initial examination of their performance within the entire sample. This research followed a measure validation procedure through a two-step approach based on Anderson and Gerbing (1988). The analysis was run employing Analysis of Moment Structures (AMOS). To deal with the measurement model's validity and reliability, exploratory factor analysis (EFA) as a statistical procedure was ran through SPSS to attain the theoretically expected factor solutions and to describe such variables in terms of their common underlying factors (Hair *et al.*, 2006). In this stage, 4 items (CIN1, CIN2, ATS1, ATS2, and SFED1) were excluded for multiple loadings on two factors, and the total correlation was less than .50 (Hair *et al.*, 2006). The Cronbach's alpha measures the consistency of each component with its relevant items and confirmed that the items in each factor were internally consistent and reliable (Cronbach's alpha <.905) (Nunnally, 1978). The sampling adequacy was tested from KMO (.922>.6), which proposes appropriateness for EFA, furthermore the associations among the items are statistically significant and provide a parsimonious set of factors (Tabachnick and Fidell, 2007). Also, Bartlett's test of Sphericity shows the relationship between the research measurement items (higher than .3) and the appropriateness for EFA (Hair *et al.*, 2006).

Confirmatory factor analysis (CFA) was employed in the advanced stages of the research process to assess the construct uni-dimensionality through AMOS; the examination of each subset of items was internally consistent and validated the constructs on the basis of the measurement models (Anderson and Gerbing, 1988). Convergent validity and

discriminant validity were examined on the basis of construct reliabilities (Anderson and Gerbing, 1988). The results of discriminant validity illustrated that relationships between factors were less than the recommended value of .92 (Kline, 2005). The average variance extracted (AVE) for each construct ranged from .613 to .778. A good rule of thumb is that an AVE of .5 or higher indicates adequate convergent validity (Appendix 1).

The structural model fit was inspected through goodness-of-fit indices (X^2 -Chi-square, 743.993; df-degree of freedom, 200; CFI-Comparative fit index, .931 which is an incremental index that evaluates the fit of a model with the null baseline model (Hair *et al.*, 2006). Based on the IFI-Incremental Fit Index (.931) and TLI-Tucker-Lewis index (.916), the 'favourable' fit values provide a satisfactory fit to the data and therefore indicate the unidimensionality of the measures (Anderson and Gerbing, 1988). Based on the standardized parameter estimates for the hypothesized relationships between the research constructs, Table II provided support for a relationship between customer innovativeness and storefront behavioural intention (H1: $ATS \rightarrow SFED$ $\beta=.380$, $t=5.547$). In the hypothesized model the effect of storefront attitude on storefront behavioural intention did reach significance (H2: $ATR \rightarrow SFED$ $\beta=.348$, $t=6.013$). H3 indicates that there are relationships between storefront behavioural intention and word-of-mouth ($SFED \rightarrow WOM$) ($\beta=.530$, $t=9.443$). Figure 1 illustrates the validated model. Furthermore, customer innovativeness (CIN) strengthens the positive relationship between attitude toward a storefront window (ATS) on the storefront based entry decision (SFED) as well as the positive relationship between attitude toward the retailer (ATR) and the storefront based entry decision. Therefore, hypotheses 4 and 5 were accepted. Figures 2 and 3 illustrate these moderating effects respectively.

“INSERT TABLE 2 HERE”

“INSERT FIGURE 1 HERE”

“INSERT FIGURE 2 HERE”

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8 **5. Discussion and conclusion**

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10 A huge deal of research investigated the extent to which interactive and entertainment
11 technologies provide useful solution to attract more consumers (Bertacchini *et al.*, 2017;
12 Chou *et al.*, 2016; Demirkan and Spohrer, 2014; Hagberg *et al.*, 2016; Padma and Wagenseil,
13 2018; Pantano, 2014; 2016; Roy *et al.*, 2018). However, these studies mainly focus on the
14 effect of technology when consumers are already in the store. In the present research, we
15 make a step back trying to understand the effect of the technology on consumer behaviour out
16 of the store. The aim of this paper was to investigate, through a quantitative approach, the
17 effect of innovative technologies directly at the storefront window on consumers’ behavioural
18 attitude and on store image. To date, retailers are clearly not conscious of how using
19 innovative interactive technologies could represent an opportunity to develop consumer
20 interest and gain a competitive advantage directly at the storefront (Hagberg *et al.*, 2017;
21 Pantano, 2016). Despite some examples of temporary interactive storefronts around the world
22 (i.e. Hugo Boss and the ‘Black Magic’ at the store in Sloane Square in London in 2009; Kate
23 Spade and eBay in New York (US) in 2013), there are no retailers consistently offering
24 interactive technologies at their storefront windows. Our empirical study on the effect of
25 these innovations on consumer behaviour in terms of behavioural attitude, store image
26 building aim to help retailers better understand the technological opportunities from shifting
27 from static windows to interactive ones. In conclusion, our results quantitatively verify that
28 storefront windows can positively affect consumers’ behavioural attitude to a store, while
29 underlining the importance of integrating innovative technologies to enrich the decision. Also,
30 the findings confirmed that customer innovativeness has a significant moderating effect
31 between i) the attitude toward a storefront window and the storefront based entry decision
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3 and ii) attitude toward retailer and the storefront based entry decision. In other words, our
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5 results demonstrate the extent to which consumer innovativeness influence consumers
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7 appreciation of a window enriched with interactive technologies, while acting as a moderator
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10 of the store entry decision.
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13 14 15 *5.1. Theoretical contributions*

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17 Interestingly, we found that customer innovativeness and storefront window have a strong
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19 effect on consumer behavioural attitude, which in turn influence positive word-of mouth
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21 communication. A key implication is that, while there is recognition of the importance of
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23 storefront windows on patronage behaviour (Cornelius *et al.*, 2010; Jain *et al.*, 2014; Lange *et*
24
25 *al.*, 2016; Oh and Petrie, 2012; Pantano, 2016; Sen *et al.*, 2002), the progress in technology
26
27 has compelled retailers to successfully innovate even at the storefront. Currently, consumers
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29 are attracted to innovations available at the point of sale through cross-technologies synergies
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31 (Demirkan and Spohrer, 2014; Dennis *et al.*, 2010; Hagberg *et al.*, 2016; Kourouthanassis *et*
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33 *al.*, 2007; Pantano, 2014; Willems *et al.*, 2017), thus the seamless experience of both
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35 interactive technologies and storefront windows is becoming more necessary than a strategic
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37 advantage. As supported by our empirical findings, the storefront window includes
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39 innovative interactive technologies and consumers' personal traits in terms of innovativeness,
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41 which in turn emphasizes the beneficial effects of innovating at the storefront windows.
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43 Indeed, our study extends the preliminary studies on the possible technologies to be
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45 introduced (Paradiso and Leo, 2005; Reitberger *et al.*, 2009) with empirical evidence. In
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47 other words, we demonstrate that when consumers sense that there are innovative interactive
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49 technologies in the storefront windows, they are willing to enter the store, generate positive
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51 word of mouth communication (sharing the positive experience with friends), and perceive
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53 the store as having a better image. These results add to the previous studies containing
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3 quantitative evidence which have investigated the importance of interactive technologies in
4 the storefront towards influencing entry decision (see Pantano, 2016). In the current work, we
5 have described the impact of consumers' innovativeness (as a variable that cannot be handled
6 directly by retailers) on the store entry decision, which results into positive word-of-mouth
7 communication and attitude towards the retailer.
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15 Moreover, our findings extend the work of Fowler and Bridges (2010) who
16 demonstrated the effect of consumers' innovativeness on retail format, by including this
17 influence in the behavioural attitude (i.e., entry decision). Our study is also the first to
18 investigate the combination of consumer innovativeness and storefront window on the
19 behavioural attitude. Previously, literature (Kernsom and Sahachaisaeree, 2012; Jain *et al.*,
20 2014; Oh and Petrie, 2012; Pantano, 2016) only highlighted the main features of storefront
21 window as a driver of the behavioural attitude (i.e., entry decision). As a result, the consumer
22 is able to interact with retailers at multiple touch points and is exposed to a rich mix of offline
23 sensory information 24/7. Finally, the novelty related to the new storefront windows would
24 overcome the sense of overexposure to traditional advertising messages, as anticipated by
25 Hutter and Hoffmann (2014), by offering a new environment able to solicit
26 consumers/pedestrians' attention.
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45 *5.2. Managerial implications*

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47 Whereas previous studies (Lange *et al.*, 2016; Pantano, 2016), on the importance of storefront
48 window focused on behavioural attitude our study figures out the extent to which the
49 storefront has impact for retailers in terms of image, positive word of mouth communication.
50 Thus, the results have managerial relevance by improving the understanding of the overall
51 consequences of a successful storefront window for retailers. Storefronts should acquire more
52 importance in retailers' communication strategies as vehicles to create more traffic, which
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3 can be emphasized through the usage of interactive technologies. Retailers use the emerging
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5 interactive technologies to help them achieve competitiveness and to be appealing to
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7 consumers (Pantano *et al.*, 2017; Priporas *et al.*, 2017; Varadarajan *et al.*, 2010). Specifically,
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9 our findings show that the interactive storefronts would contribute to the creation of a
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11 positive retailer image (Cornelius *et al.*, 2010). Additionally, interactive storefronts might
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13 improve the consumers flow within the store. Nowadays, retailers, in order to differentiate
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15 themselves in the marketplace, are required to be more visually stimulating to attract and
16
17 draw customers (Nobbs *et al.*, 2015). Indeed, this is true as retailers feel pressure to find new
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19 ways to capture and hold consumers' attention, especially those of Generation Z who are
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21 characterized as technologically savvy, innovative, creative and less loyal to retailers
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23 (Priporas *et al.*, 2017). Moreover, the interactive technologies could make it possible to
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25 extend the opening hours of the retail service.
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33 *5.3 Limitations and further research*

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35 Our study has some limitations. The first one is based on the fact that the interactive
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37 storefront windows are temporary; thus, interviewees might refer to some that they have
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39 appreciated but which are not available anymore. This might limit the possibility of
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41 replicating the study in other places with a similar retail environment, which may have
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43 consequences for the generalizability of the findings. Within this context, we considered
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45 exclusively the technologies requiring a direct and immediate interaction with the consumers.
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47 Future studies could include technologies that do not require a direct form of interaction (i.e.
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49 facial recognition systems employed to identify consumers). Secondly, our study did not
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51 distinguish between the typology of store adopting the interactive storefront window; luxury
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53 stores, department stores or food stores such as Starbucks might influence consumers
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55 differently. Thirdly, we tested the model on consumers who approached this kind of
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3 storefront at least once, thus our model is missing data on consumers' exposure to the
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5 interactive storefronts that might generate a different retail patronage. Fourth, future studies
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7 could check for any moderation effects exerted by consumer demographics.
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Table 1: Demographic profile of the visitors of digital interactive shop window design compared with the main population figures

Sample size (N)			Sample size (N)		
	N	%		N	%
Gender			Occupation		
Male	168	49.3	Student	152	44.6
Female	173	50.7	Owner of a company	13	3.8
Age			Lawyer, dentist or architect etc.	54	15.8
19 to 17 years old	101	29.6	Office/clerical staffs	24	7.0
20 to 29 years old	140	41.1	Worker	33	9.7
30 to 39 years old	56	16.4	Civil servant	12	3.5
40 to 49 years old	38	11.1	Craftsman	16	4.7
50 to 59 years old	6	1.8	Housewife	26	7.6
Education			Retired	11	3.2
High school	65	19.1			
Undergraduate	99	29.0			
Postgraduate and above	177	51.9			

Table 2: Results of hypothesis testing

Regression paths			Estimate	S.E	C.R	<i>p</i>	Hypothesis
H1	Attitude toward the storefront	---> Storefront based entry decision	.380	.068	5.547	***	Accepted
H2	Storefront based entry decision	---> Word-of-mouth	.530	.056	9.443	***	Accepted
H3	Attitude toward the retailer	---> Storefront based entry decision	.348	.058	6.013	***	Accepted

*** $p < 0.001$

Notes: Path = Relationship between independent variable on dependent variable; S.E. = Standard error; p = Level of significance.

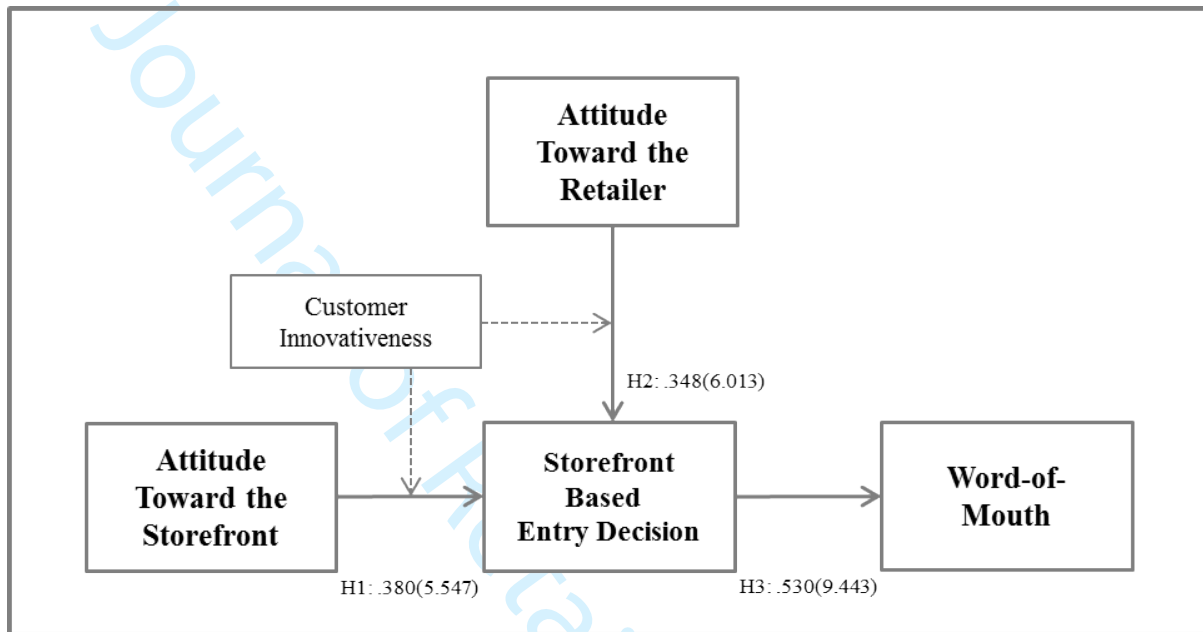


Figure 1: Validated Structural Model

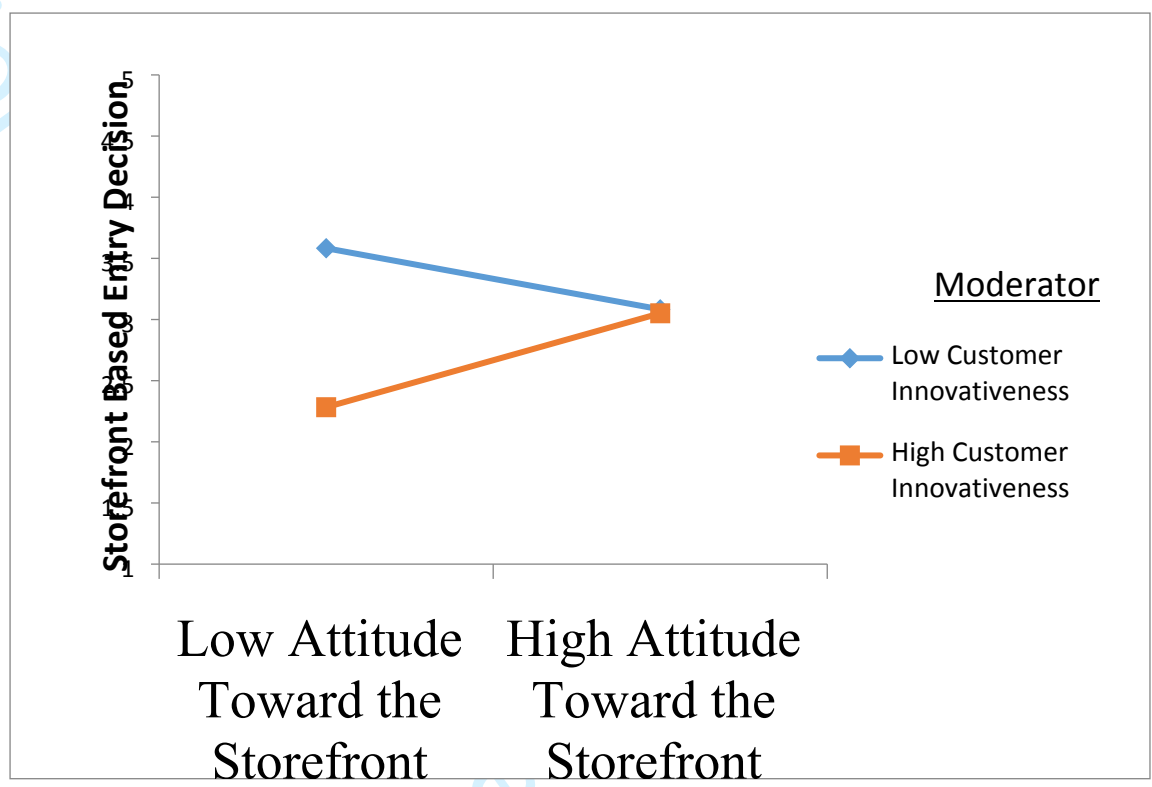


Figure 2. Moderating effect of customer innovativeness on the attitude toward the storefront-storefront based entry decision relationship

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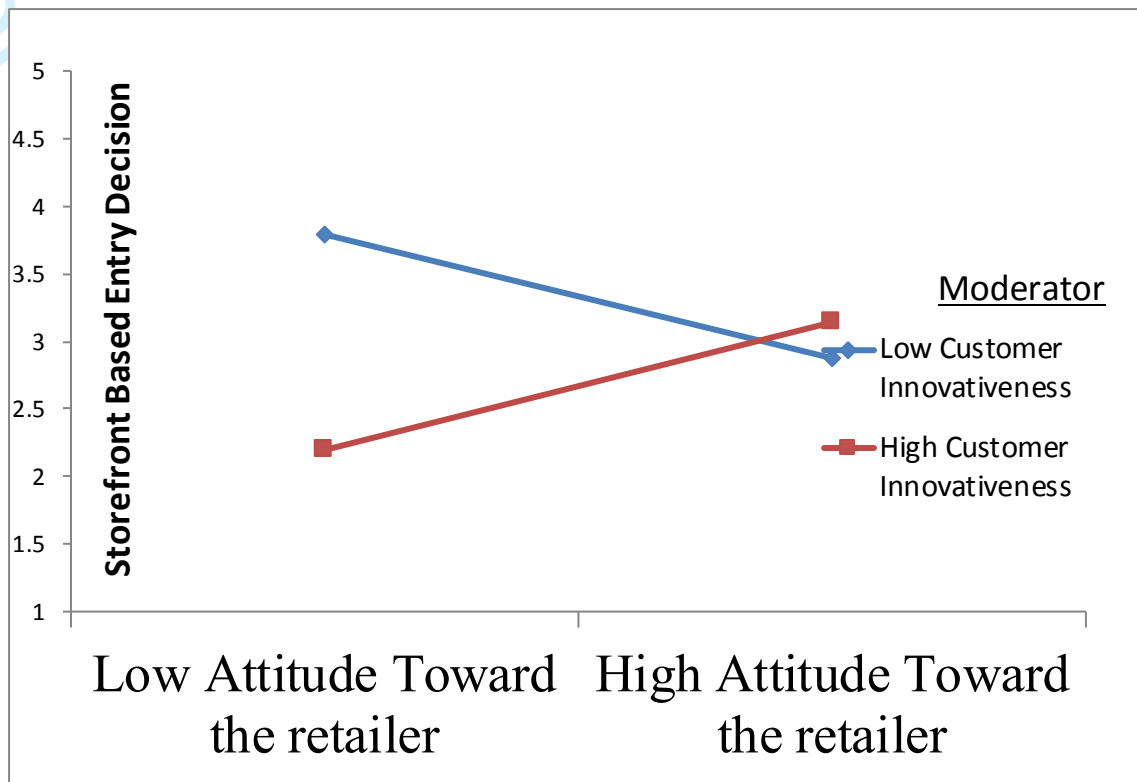


Figure 3. Moderating effect of customer innovativeness on the attitude toward the retailer-storefront based entry decision relationship

Appendix 1: The main scale dimensions and item sources, definitions, reliability measures and for each construct

Variable	Items	Cronbach's alpha	References	Factor loading	Mean	Std.D	AVE	Cons. Reliab.
Consumer Innovativeness (CIN) @.967							.726	.836
Consumer innovativeness is a personal trait related to an innate behaviour such as an individual's tendency to buy new products more often and more quickly than other people related to the desire for novelty (i.e. product novelty, service novelty, etc.) (Roehrich, 2004),								
CIN1	Usually, I am among the first in my circle of friends to buy a new product/technology when it appears		Goldsmith and Hofacker, 1991	Removed due to multiple loadings on two factors EFA				
CIN2	I like introducing new brands and products to my friends		Fowler and Bridges 2010	Removed due to multiple loadings on two factors				
CIN3	I often seek out information about new products and brands		Manning et al., 1995	.839	5.9032	1.24594		
CIN4	I frequently look for new products, brands and services		Manning et al., 1995	.864	5.8592	1.21660		
CIN5	I like seeking new products experiences		Manning et al., 1995	.838	5.8387	1.23685		
CIN6	I take advantage of the first available opportunity to find out about new and different products		Manning et al., 1995	.823	5.7771	1.29826		
CIN7	Among my peers, I am usually the first to try out new technology, brand or product		Crespo and del Bosque, 2008	.869	5.8387	1.29947		
CIN8	I am usually favorable to accept new ideas		Chao et al., 2012	.879	5.7977	1.29369		
Attitude Toward the Storefront (ATS) @.921							.613	.824
Attitude toward the storefront is the degree to which a consumer likes a specific storefront window and affects his/her behaviour (Pantano, 2016)								
ATS1	I would like to spend more time looking at this storefront window if I had the time		Oh and Petrie, 2012	Removed due to Multiple loadings on two factors				
ATS2	I would enjoy exploring more of this storefront window		Oh and Petrie 2012	Removed due to low reliability, item to total correlation is less than 0.5				
ATS3	I like the design elements of the storefront (colour, light, merchandise display, etc.)		Kerson and Sahachaisaeree, 2012	.732	5.6188	1.18624		
ATS4	I like the product positioning within the storefront windows		Kerson and Sahachaisaeree, 2012	.802	5.9648	1.13963		
ATS5	I like the window display style (novelty, modern, theme, etc.)		Kerson and Sahachaisaeree, 2012	.775	5.7683	1.19398		
ATS6	For me, looking at storefront windows is an important part of the shopping experience		Sen et al., 2002	.769	5.3900	1.23565		
ATS7	Before entering a store, I usually check out its storefront windows		Sen et al., 2002	.827	5.6188	1.19858		
ATS8	I like the possibility to interact with product/information directly from the storefront windows		Mueller et al., 2010	.788	5.7243	1.15820		

Storefront Based Entry Decision (SFED) @.905				.718	.884
Storefront based entry decision is consumer's decision to enter a store, influenced by a desire to collect more information on the products they saw at the storefront windows or to learn more about the sales and promotions announced there, etc. (Oh & Petrie, 2012; Sen et al., 2002).					
SFED1	I entered the store solely because of its storefront windows	Sen et al., 2002		Removed due to low reliability, Item to total correlation is less than 0.5	
SFED2	My decision to enter a store depended on its storefront widows	Sen et al., 2002	.879	5.2551	1.47409
SFED3	I often enter a store because of what I see in its storefront windows	Sen et al., 2002	.890	5.2170	1.48318
SFED4	I would like to step into a store with these storefront windows to obtain additional information	Oh and Petrie, 2012	.767	5.4340	1.36313
Attitude Toward the Retailer (ATR) @.956				.778	.726
Attitude toward the retailer is the favorable or unfavorable evaluation that a consumer holds toward a particular retailer and has an impact on behaviour (Foroudi et al., 2014).					
ATR1	I like the store	Williams and Moffitt (1997)	.871	5.6891	1.34060
ATR2	I like the store compared to other stores in the same sector	Williams and Moffitt (1997)	.899	5.9091	1.36142
ATR3	I think other consumers like the store as well	Williams and Moffitt (1997)	.876	5.9238	1.36125
Word-Of-Mouth (WOM) @.945				.706	.771
WOM is a face to face communication between consumers regarding an experience with a brand, a product, an organization, or a service (Kumar et al., 2006).					
WOM1	I say positive things about this store to other people.	Srinivasan et al. (2002)	.809	5.6979	1.27405
WOM2	I recommend this store to anyone who seeks my advice.		.829	5.7038	1.28233
WOM3	I do not encourage friends to visit this store		.880	5.7449	1.21849
WOM4	I hesitate to refer my acquaintances to visit this store		.842	5.7038	1.25685

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3 **Innovation starts at the storefront: modelling consumer behaviour towards storefront**
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5 **windows enriched with innovative technologies**
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7

8 **Abstract.**
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10 **Purpose-** Research into the introduction of innovative technologies directly at the storefront
11 window is limited. The aim of this paper is to model the behavioural attitudes and the
12 subsequent benefits of, introducing innovative technologies to the storefront, while also
13 considering the role of personal innovativeness in the decision process.
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19 **Design/methodology/approach-** This study employed a sample of 341 consumers who
20 approached this new kind of storefront in two well-known apparel stores in the centre of New
21 York city. A self-administered questionnaire was used as a tool for data collection.
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26 **Findings-** Findings empirically demonstrate that when consumers sense that there are
27 innovative interactive technologies in the storefront windows, they are willing to enter the
28 store, generate positive word of mouth communication (sharing the positive experience with
29 friends).
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35 **Originality/value-** Our study is the first to investigate the combination of consumer
36 innovativeness and storefront window on the behavioural attitude, supported with
37 quantitative evidence.
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44 **Keywords:** Consumer innovativeness; storefront windows; interactive technologies; decision
45 making; Innovation theory; consumer behaviour
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49 **Paper type** Research paper
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1. Introduction

The importance of storefront windows in terms of consumer behaviour has been recognised by previous academics and practitioners (Cornelius *et al.*, 2010; Jain *et al.*, 2014; Lange *et al.*, 2016; Oh and Petrie, 2012; Pantano, 2016; Sen *et al.*, 2002). Storefronts are the first contact point between consumers and retailers and a means of persuading consumers to enter a particular store (Jain *et al.*, 2014). Hence, storefront windows and their basic features efficiently (i) create a visual impact, (ii) differentiate retailers from other competitors, and (iii) anticipate a further exceptional experience in the store (Lange *et al.*, 2016; Oh and Petrie, 2012; Pantano, 2016).

Moreover, changes in consumer demand, and the availability of innovations that enhance the retail process, including new interactive tools for supporting the shopping experience, may affect consumers' preferences for a certain store, which in turn pushes marketers to try to understand the extent to which consumer behaviour towards retailers varies as a function of different characteristics (Jain *et al.*, 2014; Pantano, 2014). For instance, in the last decades a huge number of points of sale changed their format and layout, the services they offer, and their delivery modalities by integrating advanced technologies with the promise of superior shopping experiences (Kourouthanassis *et al.*, 2007; Ngo and O'Cass, 2013; Pantano *et al.*, 2018; Papagiannidis *et al.*, 2013; Willems *et al.*, 2017), with the aim of gaining the attention of consumers who have been overexposed to traditional marketing approaches (Hutter and Hoffmann, 2014). As a consequence, the retail industry has to offer innovative solutions to create value for consumers (Pantano, 2014; Shankar and Yadav, 2011; Triantafillidou *et al.*, 2017), this constant search for solutions is moving towards an increasing integration of technological, interactive and entertainment technologies, so as to attract more consumers (Bertacchini *et al.*, 2017; Chou *et al.*, 2016; Demirkan and Spohrer, 2014; Hagberg *et al.*, 2016; Padma and Wagenseil, 2018; Pantano, 2014; 2016; Roy *et al.*,

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3 2018). To this end, since 2009 retailers such as Nike at Selfridges or Hugo Boss have started
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5 introducing some interactive technological elements directly within storefront windows for a
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7 trial period. For instance, during the Olympic Games in London in summer 2012, to attract
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9 the huge number of tourists passing by the Selfridge store in the centre of the city (Oxford
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11 Street), the storefront windows introduced a mixture of kinetic sculptures and interactive
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13 displays. Each of the displays reacted to pedestrians' movement using input from a Kinect
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15 sensor to measure characteristics like height and speed, and the storefront window displaying
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17 the new jacket detected movement and then shot a volley of strobe lights towards the street.
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19 Similarly, in December 2009, Hugo Boss launched the "Black Magic" experience at the store
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21 in Sloane Square in London as part of the winter holiday advertising campaign. For three
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23 weeks, consumers could pick up a special card to play a virtual game of blackjack at the
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25 storefront window and win a voucher to spend in the store.
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31 Another interactive storefront concept was tested in July 2013 in New York (US) by
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33 the partnership between eBay and Kate Spade, which allowed consumers to select and buy
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35 products through a touch screen located within one of the 4 storefront windows. Thus,
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37 customers were able to choose among 30 different products available, while new products
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39 were added each Saturday during the opening hours of the store.
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43 An increasingly great number of scholars and practitioners have dealt with the
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45 dynamic effect that storefronts may have on consumers' behaviour, while they have also
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47 focused on the potential impact and implications that the use of new technologies may entail
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49 (Dennis *et al.*, 2010; Jain *et al.*, 2014; Oh and Petrie, 2012; Pantano, 2016; Paradiso and Leo,
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51 2005; Reitberg *et al.*, 2009). However, to the best of our knowledge, no previous attempt has
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53 been made to thoroughly review the consequences that the integration of interactive
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55 technologies and related services in the storefront window may lead to. Although there are
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57 technologies that can be integrated in the storefront which do not require a direct consumers'
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3 interaction (e.g. facial recognition systems that identify consumers), in this paper we will
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5 consider only those technologies which demand a certain degree of interaction with the
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7 consumers. Given that, the aim of this study is to examine the antecedents of consumer
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9 behaviour towards storefront windows which are enriched with innovative technologies. In
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11 particular, it investigates the impact of enriching storefront windows with innovative
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13 technologies on consumers' behavioural attitudes (i.e., entry decision) and the consequences
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15 for retailers in terms of attitude toward the retailer, and word-of-mouth communication. This
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17 study contributes to the literature in the following ways. Our study responds to the call by
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19 Lange et al (2016) for more studies on storefronts and adds new knowledge on the effect of
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21 using storefront technologies on behavioural attitudes, where a limited body of literature
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23 exists (Lange *et al.*, 2016; Pantano, 2016). Lange et al (2106) highlight the importance of
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25 creating new storefront windows based on creativity, while this study integrates this view by
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27 using innovative technologies in the storefronts. Also, the current study extends the work of
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29 Lange and colleagues (2016) by adding attitude toward the retailer and it explains the effect
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31 of the storefronts enriched with interactive technologies on consumer behaviour. In addition,
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33 previous works have considered consumer innovativeness only in relation to shopping
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35 decision or in-store behaviour (Fowler and Bridges, 2010; Kaushik and Rahman, 2016; Kim
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37 *et al.*, 2010); this study additionally examines consumer innovativeness as a driver of
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39 consumer behaviour outside (mainly, in front of) a store, which also extends Pantano's (2016)
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41 qualitative study on the importance of introducing interactive technologies directly on the
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43 storefront.
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51 The remainder of this paper is organized as follows. First, we summarize prior studies
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53 on consumer innovativeness, in order to understand the attitude towards new technologies as
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55 a driver of a preference for storefronts enriched with new technology, storefront windows,
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57 behavioural attitudes, and the subsequent impact on consumers. Next, we outline the design
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of our research methodology. Then, we provide details of the model emerging from our study. This paper is completed with a discussion of the findings, future research directions, and the implications of the findings for storefront windows and their development.

2. Theoretical Background

2.1 Consumer innovativeness

Firms' innovations might fail due to their lack of understanding of consumers' needs (Bartels and Reinders, 2011). In this context, a huge amount of literature focuses on the drivers of consumer acceptance of new products, services, and experiences, as influenced by both consumers' personal traits, innovation characteristics and market efforts (Kim *et al.*, 2010). An important driver in this sense is consumers' innovativeness. Past studies identified consumer innovativeness as a driver of retail patronage both offline and online, including the choice of a particular store, the use of pop-up retail (Fowler and Bridges, 2010; Kim *et al.*, 2010), the adoption of in-store self-service technologies (Kaushik and Rahman, 2016), the adoption of e-commerce (Crepo and del Bosque, 2008; Thakur and Srivastava, 2015) and e-loyalty (Jianlin and Qi, 2010), and it might refer to a specific domain of interest (Goldmish and Hofacker, 1991).

Innovativeness has been conceptualized as a personal trait related to an innate behaviour such as an individual's tendency to buy new products more often and more quickly than other people (Chao *et al.*, 2012; Im *et al.*, 2003; Roehrich, 2004; Vandecasteele and Geuens, 2010), thus it might vary among individuals (Bartles and Reinders, 2011), and it is related to the desire for novelty (i.e. product novelty, service novelty, etc.), which might further determine the acceptance of a new product or service (Hoffmann and Soyeze, 2010; Manning *et al.*, 1995). In other words, it captures consumers' willingness to adopt innovations (in service or products) (Raskovic *et al.*, 2016). Indeed, it characterizes

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3 consumers as innovators (adopters with the highest level of innovativeness) from later
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5 adopters (Truong *et al.*, 2017), which is strictly linked to the ability of risk-taking in the use
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7 of new, unfamiliar and new products/technologies/services. In other words, consumers with a
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9 high level of innovativeness are less likely to engage in risk reduction strategies (Truong *et*
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11 *al.*, 2017).

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15 Roherich (2004) has further summarized consumers' innovativeness as (i) an
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17 expression of the need for stimulation, (ii) an expression of novelty seeking, (iii)
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19 independence toward other's communicated experience, and (iv) an expression of a need for
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21 uniqueness, which leads to consumers' seeking, testing and purchasing the newest products.
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25 Raskovic and colleagues (2016) further defined consumer innovativeness as: (i) innate
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27 consumer innovativeness (as a personal trait), (ii) domain-specific consumer innovativeness
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29 (related to a specific product category), and (iii) actualized innovative consumer behaviour in
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31 terms of early adoption of new products/services. Indeed, consumer innovativeness is evident
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33 in how the newest technological products are embraced, for example, consumers accept long
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35 queues and high prices in order to have the latest model of a certain smartphone or tablet.
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37 Indeed, consumer innovativeness affects high level of continuance intention in new
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39 technologies (i.e. smartwatch) by enhancing both utilitarian and hedonic value (Hong *et al.*,
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41 2017).
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47 *2.2 Attitude toward storefront and entry decision*

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49 Like the role of store atmospherics, the effectiveness of a store window relies on the
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51 visual stimuli used to positively influence consumers' behaviour (Kernsom and
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53 Sahachaisaeree, 2012; Oh and Petrie, 2012; Triantafillidou *et al.*, 2017). Capturing the visual
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55 attention of consumers is vital for retailing and visual merchandising; recent research often
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57 uses eye-tracking methods to test this (e.g., Atalay *et al.*, 2012; Hendrickson and Ailawadi,
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2014; Wästlund *et al.*, 2015). Eye-tracking technology enables researchers to quantify the visual attention that consumers direct at stimuli and provides insights into their information processing and decision-making processes (Wedel and Pieters, 2008). These stimuli are similar to the arousal factors that affect in-store consumer behaviour (Mattila and Wirtz, 2001; Menon and Kahn, 2002) and involve (i) design elements, such as brightness, saturation, colour, light intensity, texture, shapes, textual style, and how merchandise is displayed; (ii) product and product positioning (including prices); and (iii) window display style (including concept, content, season and product) (Kernsom and Sahachaisaeree, 2012; Oh and Petrie, 2012). In terms of the design elements, certain colours are able to solicit more positive feelings in consumers and creating a particular mood potentially pushes consumers to make a purchase (Jain *et al.*, 2014). For instance, before Valentine's Day, most of the stores use red, which is usually associated with passion and love, thus inviting consumers to buy a Valentine's gift. Concerning the products and product positioning, products can be located at the centre of the display surrounded by other elements, or they can occupy only a limited part of the scene. Similarly, the price or details on price and promotion might or might not be visible from the storefront. The right amount of displayed information might solicit consumers' attention without totally satisfying it, in order to influence their behavioural attitude. In terms of the display style, windows often tend to reproduce the characteristics of the season, for instance in the winter time they tend to recreate winter and snow scenes, or at Christmas they use Christmas trees and other Christmas decorations.

Previous literature draws a more detailed distinction in terms of window typologies: (i) Oh and Petrie (2012), for example, have distinguished between the so-called merchandise typology that emphasises *understating* and the artistic one which centers on *exploration*; (ii) Yildirim *et al.* (2007), on the other hand, discuss the differences and affinities between the flat, the arcade, and the corner window. Based on their work, the flat window is built on the

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3 concept of a straight line aligned with the store entrance, as opposed to the arcade category
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5 which expands from a shop's entrance set back between two windows aiming to augment the
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7 size and value of the window allowing a greater number of products to be showcased; the
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9 third and last type they identified is the corner window, is fundamentally exploited and ideal
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11 for stores that are located on a corner. (iii) Last but not last, certain scholars have also drawn
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13 a distinction between the thematic and non-thematic windows having as a criterion their
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15 design (Oh *et al.*, 2008), with the thematic demonstrating the items sold in alignment with a
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17 specific story or concept, generating a lifestyle-type atmosphere.
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22 Meaningful examples of thematic windows are often found in luxury large department
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24 stores and luxury branded stores. For instance, in (late) October 2015, Harrods (London, UK)
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26 celebrated Halloween by covering its storefronts with a large witch, whose legs and feet came
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28 out of the storefront and onto part of the pavement. Similarly, Dolce & Gabbana frequently
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30 design storefronts based on Sicilian art and culture, to which their collections are devoted.
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34 To date, the literature has provided studies which offer preliminary indications of the
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36 basic factors needed to design effective storefront windows (see Oh and Petrie, 2012),
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38 without taking into account the possible ripple effects of interactive technologies on these
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40 factors, or how the traditional elements of a window and new technologies can be
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42 successfully merged.
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46 Storefront windows are a powerful tool for communicating about products and
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48 motivating consumers to enter the store (Lange *et al.*, 2016; Yildirim *et al.*, 2007). This
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50 decision might be further influenced by a desire to collect more information on the products
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52 they saw at the window display or to learn more about the sales and promotions announced
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54 there, etc. (Oh and Petrie, 2012; Sen *et al.*, 2002). Therefore, we hypothesize that:

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56 H1: The higher the attitude toward a storefront window the stronger the influence on the
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58 storefront based entry decision.
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2.3 Attitude toward retailer and entry decision

A firm's (i.e. store) image is deemed to be a product of individuals' perception of reality (Bernstein, 1986) on the basis of their beliefs, emotions, feelings (Barich and Kotler, 1991). Store image enhances store quality perception and purchase intention (Bao *et al.*, 2011) and consequently loyalty (Darley and Lim, 1999; Erdil, 2015). Lin (2016) points out innovative consumers are attracted by the innovative image of a specific retailer. Similarly, past studies identified the meaningful positive association between consumer innovativeness and their behaviour intention; in other words, past studies demonstrated the extent to which consumer innovativeness influences their usage of a certain product because they feel they have more control over it, while showing low emotional resistance towards it (Dai *et al.*, 2015). When consumers have a positive attitude toward the retailer, they are likely to exhibit greater willingness to search for product information from the retailer (Kim and Park, 2005). Lin *et al.* (2013), assert that when consumers perceive a retailer's efforts in innovation to give better value, their likelihood of becoming more loyal customers increases. Given that consumers' attitudes generally influence critically their buying intentions (Schiffman and Wisenblit, 2015; Solomon, 2015), their attitude towards a retailer may also influence their store entry decision. Therefore, we hypothesize:

H2: The higher the attitude toward the retailer the stronger the influence on the storefront based entry decision.

2.4 Behavioural response

Literature shows that storefronts influence the storefront based entry decision (Sen *et al.*, 2002; Pantano, 2016; Yildirim *et al.*, 2007). Any behavioural intention can lead to shopping and customer satisfaction and satisfaction with the store in turn can have a positive impact on WOM. Also, consumers' excitement can also cause WOM activities (Lovett *et al.*,

2013). Past studies have shown that a positive experience with a product, a brand or retailer has been linked to positive WOM (East *et al.*, 2007; Ladhari, 2007; de Matos and Rossi, 2008), while a negative one has been associated with negative WOM (Nyer and Gopinath, 2005; Richins, 1983). In retailing settings, studies (Brown *et al.*, 2005; Chang *et al.*, 2015; Fuentes-Blasco *et al.*, 2017; Jung and Seock, 2017; Kumar *et al.*, 2013; Riquelme *et al.*, 2016; Siu and Cheung, 2001), have investigated the WOM as a consequence of satisfaction, service quality, store image, store equity, or various store attributes (i.e. layout, atmospherics), since positive or negative WOM is highly related to consumers' behavioural intentions and thus, affects sales and profits (Jung and Seock, 2017). When a customer holds a positive attitude towards a store there is a high possibility of recommending it or to revisit it (Kamran-Disfani *et al.*, 2017). Therefore, we hypothesize:

H3: Storefront based entry decision has a positive influence on word of mouth communication.

2.5. Moderating effect of customer innovativeness

Customer innovativeness, in terms of the degree to which an individual has a positive attitude towards innovation (Crespo and del Bosque, 2008; Fowler and Bridges, 2010; Kim *et al.*, 2010; Roehrich, 2004), might play a role in shaping customers' behavioural intention when considering a storefront enhanced with innovative technologies. Managers are aware of the importance of customer innovativeness, which might have a strong impact on positive and desired attributes and add value to the image of an organisation (Nijssen and Douglas, 2008). For instance, retailers spend a lot of money and time on, and do a lot of research into, creating and designing a storefront, which influences perceptions among a firm's customers in a positive way. In fact, it can enhance a company's uniqueness, improve its visibility, and have a positive impact on public impressions (Fombrun, 1996; Sen and Bhattacharya, 2001;

Williams and Moffitt, 1997). Innovations in store atmosphere and store design is a serious sign to customers that a retailer is able to fulfil their needs and expectations (Lin *et al.*, 2013).

In particular, the more advanced the technology implemented by the retailer, the stronger the influence on consumer behavioural intentions (Gil-Saura *et al.*, 2016). Fuentes-Blasco *et al.* (2017) found that technological innovations are more meaningful than marketing innovation in shaping image, value and satisfaction. Therefore, we hypothesize:

H4: Consumer innovativeness moderates the effect of the attitude toward a storefront window on the storefront based entry decision.

H5: Customer innovativeness moderates the effect of the attitude toward the retailer on the storefront based entry decision.

3. Research Methodology

3.1 Data collection and sample

In order to assess the research's conceptual model, a pre-test was initially conducted to investigate the validity, suitability, and freedom from error of the measurement items. Then, the main data set was obtained from customers outside two well-known apparel stores with digital interactive store window designs (i.e. digital signage showcasing new product lines) in the centre of New York, US, between July 19th and August 8th, 2015, by employing a structured self-administered questionnaire. Two appropriately-trained field research assistants were recruited, and 526 customers were approached to participate in the study after having stopped to look at the above-mentioned storefront. The questionnaires were distributed each day and at different times of the day to improve randomness (Haj-Salem *et al.*, 2016). A total of 341 usable completed questionnaires were processed and analysed, achieving a 64.8% response rate which was sufficient to satisfy the required ratio of at least five observations per estimated parameter for structural equation modelling (SEM) (Bollen and Paxton, 1998). The

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3 respondents took on average 12 minutes to complete the questionnaire. Each participant
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5 received a \$2 gift voucher to buy water/soft drink as a token of appreciation for completing
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7 the questionnaire. In this sample, 49.3% were men and 50.7% were women. Regarding the
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9 age, 41% of the participants were aged between 20 and 29, 29.6% were aged 19 to 17 years
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11 old (Table 1).
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15 **“INSERT TABLE 1 HERE”**
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19 3.2 *The survey measures*

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21 Specifying the content domain from the appropriate literature was achieved by
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23 employing multi-item scales for each construct (Churchill, 1979). The research construct
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25 items were inspected for face and content validity by 5 faculty members in the department of
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27 marketing who are familiar with the topic (Bearden *et al.*, 1993). Some items were eliminated
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29 or modified based on the received recommendation. There are five main constructs under
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31 study here: (i) consumer innovativeness, (ii) attitude toward the storefront, (iii) storefront
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33 based entry decision, (iv) attitude toward the retailer, and (v) word-of-mouth. The previous
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35 literature was comprehensively accessed in order to develop the items measured for the
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37 current research constructs. The measurement items for attitude toward the storefront (Kerson
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39 and Sahachaisaeree, 2012; 2010; Müller *et al.*, 2010; Oh and Petrie 2012; Sen *et al.*, 2002)
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41 and storefront based entry decision were employed from previous research (Oh and Petrie
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43 2012; Sen *et al.*, 2002). Consumer innovativeness was adopted from the existing scales (e.g.
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45 Chao *et al.*, 2012; Crespo and del-Bosque, 2008; Fowler and Bridges 2010; Manning *et al.*,
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47 1995). The measurement for attitude toward the retailer was based on previous studies
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49 (Foroudi *et al.*, 2014; Williams and Moffitt, 1997). Word-of-mouth (Srinivasan *et al.*, 2002)
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51 also obtained from existing scales. The items employed in the current study are shown in
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Appendix 1. All respondents were asked to indicate their level of agreement using a seven-point Likert scale (1=strongly disagree, 7=strongly agree).

4. Data analysis and Results

The preliminary research measurement items were subjected to a series of factor and reliability analyses as an initial examination of their performance within the entire sample. This research followed a measure validation procedure through a two-step approach based on Anderson and Gerbing (1988). The analysis was run employing Analysis of Moment Structures (AMOS). To deal with the measurement model's validity and reliability, exploratory factor analysis (EFA) as a statistical procedure was ran through SPSS to attain the theoretically expected factor solutions and to describe such variables in terms of their common underlying factors (Hair *et al.*, 2006). In this stage, 4 items (CIN1, CIN2, ATS1, ATS2, and SFED1) were excluded for multiple loadings on two factors, and the total correlation was less than .50 (Hair *et al.*, 2006). The Cronbach's alpha measures the consistency of each component with its relevant items and confirmed that the items in each factor were internally consistent and reliable (Cronbach's alpha <.905) (Nunnally, 1978). The sampling adequacy was tested from KMO (.922>.6), which proposes appropriateness for EFA, furthermore the associations among the items are statistically significant and provide a parsimonious set of factors (Tabachnick and Fidell, 2007). Also, Bartlett's test of Sphericity shows the relationship between the research measurement items (higher than .3) and the appropriateness for EFA (Hair *et al.*, 2006).

Confirmatory factor analysis (CFA) was employed in the advanced stages of the research process to assess the construct uni-dimensionality through AMOS; the examination of each subset of items was internally consistent and validated the constructs on the basis of the measurement models (Anderson and Gerbing, 1988). Convergent validity and

discriminant validity were examined on the basis of construct reliabilities (Anderson and Gerbing, 1988). The results of discriminant validity illustrated that relationships between factors were less than the recommended value of .92 (Kline, 2005). The average variance extracted (AVE) for each construct ranged from .613 to .778. A good rule of thumb is that an AVE of .5 or higher indicates adequate convergent validity (Appendix 1).

The structural model fit was inspected through goodness-of-fit indices (X^2 -Chi-square, 743.993; df-degree of freedom, 200; CFI-Comparative fit index, .931 which is an incremental index that evaluates the fit of a model with the null baseline model (Hair *et al.*, 2006). Based on the IFI-Incremental Fit Index (.931) and TLI-Tucker-Lewis index (.916), the 'favourable' fit values provide a satisfactory fit to the data and therefore indicate the uni-dimensionality of the measures (Anderson and Gerbing, 1988). Based on the standardized parameter estimates for the hypothesized relationships between the research constructs, Table II provided support for a relationship between customer innovativeness and storefront behavioural intention (H1: $ATS \rightarrow SFED$ $\beta = .380$, $t = 5.547$). In the hypothesized model the effect of storefront attitude on storefront behavioural intention did reach significance (H2: $ATR \rightarrow SFED$ $\beta = .348$, $t = 6.013$). H3 indicates that there are relationships between storefront behavioural intention and word-of-mouth ($SFED \rightarrow WOM$) ($\beta = .530$, $t = 9.443$). Figure 1 illustrates the validated model. Furthermore, customer innovativeness (CIN) strengthens the positive relationship between attitude toward a storefront window (ATS) on the storefront based entry decision (SFED) as well as the positive relationship between attitude toward the retailer (ATR) and the storefront based entry decision. Therefore, hypotheses 4 and 5 were accepted. Figures 2 and 3 illustrate these moderating effects respectively.

“INSERT TABLE 2 HERE”

“INSERT FIGURE 1 HERE”

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8 **5. Discussion and conclusion**

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10 A huge deal of research investigated the extent to which interactive and entertainment
11 technologies provide useful solution to attract more consumers (Bertacchini *et al.*, 2017;
12 Chou *et al.*, 2016; Demirkan and Spohrer, 2014; Hagberg *et al.*, 2016; Padma and Wagenseil,
13 2018; Pantano, 2014; 2016; Roy *et al.*, 2018). However, these studies mainly focus on the
14 effect of technology when consumers are already in the store. In the present research, we
15 make a step back trying to understand the effect of the technology on consumer behaviour out
16 of the store. The aim of this paper was to investigate, through a quantitative approach, the
17 effect of innovative technologies directly at the storefront window on consumers’ behavioural
18 attitude and on store image. To date, retailers are clearly not conscious of how using
19 innovative interactive technologies could represent an opportunity to develop consumer
20 interest and gain a competitive advantage directly at the storefront (Hagberg *et al.*, 2017;
21 Pantano, 2016). Despite some examples of temporary interactive storefronts around the world
22 (i.e. Hugo Boss and the ‘Black Magic’ at the store in Sloane Square in London in 2009; Kate
23 Spade and eBay in New York (US) in 2013), there are no retailers consistently offering
24 interactive technologies at their storefront windows. Our empirical study on the effect of
25 these innovations on consumer behaviour in terms of behavioural attitude, store image
26 building aim to help retailers better understand the technological opportunities from shifting
27 from static windows to interactive ones. In conclusion, our results quantitatively verify that
28 storefront windows can positively affect consumers’ behavioural attitude to a store, while
29 underlining the importance of integrating innovative technologies to enrich the decision. Also,
30 the findings confirmed that customer innovativeness has a significant moderating effect
31 between i) the attitude toward a storefront window and the storefront based entry decision
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3 and ii) attitude toward retailer and the storefront based entry decision. In other words, our
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5 results demonstrate the extent to which consumer innovativeness influence consumers
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7 appreciation of a window enriched with interactive technologies, while acting as a moderator
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9 of the store entry decision.
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14 15 5.1. Theoretical contributions

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17 Interestingly, we found that customer innovativeness and storefront window have a strong
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19 effect on consumer behavioural attitude, which in turn influence positive word-of mouth
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21 communication. A key implication is that, while there is recognition of the importance of
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23 storefront windows on patronage behaviour (Cornelius *et al.*, 2010; Jain *et al.*, 2014; Lange *et*
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25 *al.*, 2016; Oh and Petrie, 2012; Pantano, 2016; Sen *et al.*, 2002), the progress in technology
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27 has compelled retailers to successfully innovate even at the storefront. Currently, consumers
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29 are attracted to innovations available at the point of sale through cross-technologies synergies
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31 (Demirkan and Spohrer, 2014; Dennis *et al.*, 2010; Hagberg *et al.*, 2016; Kourouthanassis *et*
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33 *al.*, 2007; Pantano, 2014; Willems *et al.*, 2017), thus the seamless experience of both
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35 interactive technologies and storefront windows is becoming more necessary than a strategic
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37 advantage. As supported by our empirical findings, the storefront window includes
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39 innovative interactive technologies and consumers' personal traits in terms of innovativeness,
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41 which in turn emphasizes the beneficial effects of innovating at the storefront windows.
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43 Indeed, our study extends the preliminary studies on the possible technologies to be
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45 introduced (Paradiso and Leo, 2005; Reitberger *et al.*, 2009) with empirical evidence. In
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47 other words, we demonstrate that when consumers sense that there are innovative interactive
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49 technologies in the storefront windows, they are willing to enter the store, generate positive
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51 word of mouth communication (sharing the positive experience with friends), and perceive
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53 the store as having a better image. These results add to the previous studies containing
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3 quantitative evidence which have investigated the importance of interactive technologies in
4 the storefront towards influencing entry decision (see Pantano, 2016). In the current work, we
5 have described the impact of consumers' innovativeness (as a variable that cannot be handled
6 directly by retailers) on the store entry decision, which results into positive word-of-mouth
7 communication and attitude towards the retailer.
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15 Moreover, our findings extend the work of Fowler and Bridges (2010) who
16 demonstrated the effect of consumers' innovativeness on retail format, by including this
17 influence in the behavioural attitude (i.e., entry decision). Our study is also the first to
18 investigate the combination of consumer innovativeness and storefront window on the
19 behavioural attitude. Previously, literature (Kernsom and Sahachaisaeree, 2012; Jain *et al.*,
20 2014; Oh and Petrie, 2012; Pantano, 2016) only highlighted the main features of storefront
21 window as a driver of the behavioural attitude (i.e., entry decision). As a result, the consumer
22 is able to interact with retailers at multiple touch points and is exposed to a rich mix of offline
23 sensory information 24/7. Finally, the novelty related to the new storefront windows would
24 overcome the sense of overexposure to traditional advertising messages, as anticipated by
25 Hutter and Hoffmann (2014), by offering a new environment able to solicit
26 consumers/pedestrians' attention.
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45 *5.2. Managerial implications*

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47 Whereas previous studies (Lange *et al.*, 2016; Pantano, 2016), on the importance of storefront
48 window focused on behavioural attitude our study figures out the extent to which the
49 storefront has impact for retailers in terms of image, positive word of mouth communication.
50 Thus, the results have managerial relevance by improving the understanding of the overall
51 consequences of a successful storefront window for retailers. Storefronts should acquire more
52 importance in retailers' communication strategies as vehicles to create more traffic, which
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3 can be emphasized through the usage of interactive technologies. Retailers use the emerging
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5 interactive technologies to help them achieve competitiveness and to be appealing to
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7 consumers (Pantano *et al.*, 2017; Priporas *et al.*, 2017; Varadarajan *et al.*, 2010). Specifically,
8
9 our findings show that the interactive storefronts would contribute to the creation of a
10
11 positive retailer image (Cornelius *et al.*, 2010). Additionally, interactive storefronts might
12
13 improve the consumers flow within the store. Nowadays, retailers, in order to differentiate
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15 themselves in the marketplace, are required to be more visually stimulating to attract and
16
17 draw customers (Nobbs *et al.*, 2015). Indeed, this is true as retailers feel pressure to find new
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19 ways to capture and hold consumers' attention, especially those of Generation Z who are
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21 characterized as technologically savvy, innovative, creative and less loyal to retailers
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23 (Priporas *et al.*, 2017). Moreover, the interactive technologies could make it possible to
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25 extend the opening hours of the retail service.
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33 *5.3 Limitations and further research*

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35 Our study has some limitations. The first one is based on the fact that the interactive
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37 storefront windows are temporary; thus, interviewees might refer to some that they have
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39 appreciated but which are not available anymore. This might limit the possibility of
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41 replicating the study in other places with a similar retail environment, which may have
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43 consequences for the generalizability of the findings. Within this context, we considered
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45 exclusively the technologies requiring a direct and immediate interaction with the consumers.
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47 Future studies could include technologies that do not require a direct form of interaction (i.e.
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49 facial recognition systems employed to identify consumers). Secondly, our study did not
50
51 distinguish between the typology of store adopting the interactive storefront window; luxury
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53 stores, department stores or food stores such as Starbucks might influence consumers
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55 differently. Thirdly, we tested the model on consumers who approached this kind of
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3 storefront at least once, thus our model is missing data on consumers' exposure to the
4
5 interactive storefronts that might generate a different retail patronage. Fourth, future studies
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7 could check for any moderation effects exerted by consumer demographics.
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10 11 12 **References**

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We would like to thank both reviewers for the detailed comments and suggestions provided. Please see our responses below, in which we have addressed the comments point-by-point. Please note that all changes are highlighted in red throughout the revised manuscript.

Reviewer 1

Comments:

First of all, I commend the author(s)' efforts in clarifying the theoretical contribution of their manuscript. Now the introduction and the theoretical sections are clearer.

However, I was, and I still am, quite skeptical about H4 and H5, and I feel that the author(s) have not thoroughly addressed the similar points that I raised at the previous round of review. Even though the author(s) are not referring to TPB or TRA, hypothesizing that attitudes follow behaviors is quite uncommon. Indeed, the work by Lin et al. (2013) the author(s) use to support the direction of the hypothesis does not focus at all on attitudes, but rather reports some patterns from quality, convenience, emotions or price toward loyalty. Furthermore, beyond not addressing at all the role of attitudes, the manuscript cited by the author(s) posits that a behavioral consequence such as loyalty is an outcome, not an antecedent. Accordingly, I would expect the author(s) to reverse the causality hypothesized in H4.

Analogously, H5 seems not to be adequately supported by the literature cited by the author(s) at the present stage of development of the manuscript. Indeed, paragraph 2.3.2 Cognitive Response does not address clearly and explicitly the role of consumer innovativeness. The author(s) might find useful, for instance, referring to the work by Im et al. (2003) on JAMS, and the literature citing it. This would allow to better clarify whether it is more appropriate to keep Consumer Innovativeness as an antecedent or rather a moderator as I suggested in the previous round.

From the clarification of these two hypotheses, it follows that author(s) should at least partially revise the estimated model as long as the causal directionality of H4 is reversed and/or innovativeness is addressed as a moderator.

I encourage the author(s) to dedicate their efforts on these two remaining issues that still limit the publishability of their work at the present stage of development of the manuscript.

Thank you for your good words and suggestions.

- 1) We have revised the causal directionality of H4 (H4: Storefront based entry decision influences the attitude toward the retailer positively). In the current revised version is H2: *The higher the attitude toward the retailer the stronger the influence on the storefront based entry decision*. The hypothesis development is described in section 2.3 Attitude toward retailer and entry decision (p. 9).

2.3 Attitude toward retailer and entry decision

A firm's (i.e. store) image is deemed to be a product of individuals' perception of reality (Bernstein, 1986) on the basis of their beliefs, emotions, feelings (Barich and Kotler, 1991). Store image enhances store quality perception and purchase intention (Bao et al., 2011) and consequently loyalty (Darley and Lim, 1999; Erdil, 2015). Lin (2016) points out innovative consumers are attracted by the innovative image of a specific retailer. Similarly, past studies identified the meaningful positive association between consumer innovativeness and their behaviour intention; in other words, past studies demonstrated the extent to which consumer innovativeness influences their usage of a certain product because they feel they have more control over it, while showing low emotional resistance towards it (Dai et al., 2015). When

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3 consumers have a positive attitude toward the retailer, they are likely to exhibit greater
4 willingness to search for product information from the retailer (Kim and Park, 2005). Lin et al.
5 (2013), assert that when consumers perceive a retailer's efforts in innovation to give better
6 value, their likelihood of becoming more loyal customers increases. Given that consumers'
7 attitudes generally influence critically their buying intentions (Schiffman and Wisenblit, 2015;
8 Solomon, 2015), their attitude towards a retailer may also influence their store entry decision.
9 Therefore, we hypothesize:

10
11 H2: The higher the attitude toward the retailer the stronger the influence on the storefront
12 based entry decision.
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15 2) Regarding the consumer innovativeness, in the current revised form we use it as a moderator
16 (see figure 1). Section 2.5 and figures 2 and 3 (interaction plots) describe the moderating effect
17 of consumer innovativeness.
18

19 2.5. Moderating effect of customer innovativeness

20 Customer innovativeness, in terms of the degree to which an individual has a positive attitude
21 towards innovation (Crespo and del Bosque, 2008; Fowler and Bridges, 2010; Kim et al., 2010;
22 Roehrich, 2004), might play a role in shaping customers' behavioural intention when
23 considering a storefront enhanced with innovative technologies. Managers are aware of the
24 importance of customer innovativeness, which might have a strong impact on positive and
25 desired attributes and add value to the image of an organisation (Nijssen and Douglas, 2008).
26 For instance, retailers spend a lot of money and time on, and do a lot of research into, creating
27 and designing a storefront, which influences perceptions among a firm's customers in a
28 positive way. In fact, it can enhance a company's uniqueness, improve its visibility, and have
29 a positive impact on public impressions (Fombrun, 1996; Sen and Bhattacharya, 2001;
30 Williams and Moffitt, 1997). Innovations in store atmosphere and store design is a serious sign
31 to customers that a retailer is able to fulfil their needs and expectations (Lin et al., 2013). In
32 particular, the more advanced the technology implemented by the retailer, the stronger the
33 influence on consumer behavioural intentions (Gil-Saura et al., 2016). Fuentes-Blasco et al.
34 (2017) found that technological innovations are more meaningful than marketing innovation
35 in shaping image, value and satisfaction. Therefore, we hypothesize:

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37 H4: Consumer innovativeness moderates the effect of the attitude toward a storefront
38 window on the storefront based entry decision.

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40 H5: Customer innovativeness moderates the effect of the attitude toward the retailer on the
41 storefront based entry decision.
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