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Research Article

Understanding The Effect of Augmented Reality Interactive Technology on Fashion Shopping: Insights from The Review of Academic Literature and Market Trends

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Abstract: The Augmented Reality Interactive Technology (ARIT) enabled fashion shopping market is expected to grow significantly in the coming years. Fashion brands are investing in ARIT devices in-store and enabling AR experiences in their online stores to engage customers. ARIT devices provide augmentation, interactivity, and utilitarian functions, impacting ARIT adoption. This paper investigates how customers can be motivated to invest their resources, viz., time, money, and effort, to engage in ARIT-enabled shopping of fashion goods. The paper also studies how this growth in ARIT-enabled fashion shopping can drive customer co-creation and, in turn, drive innovation and sustainability. Bibliometric analysis is used to study approximately 1000 papers in customer engagement and ARIT and provide answers. The findings from the bibliometrics are presented as research propositions for future research and as guidance to fashion industry practitioners on how ARIT can be best deployed to enhance customer engagement and, hence, business growth. Multiple theories and frameworks are studied, viz., service-dominant logic enabled customer engagement, diffusion of innovation, TPB, TRA, sustainable consumption, open innovation, and social exchange theory. Novel theoretical associations that impact customer resource investment and sustainable consumption outcomes are also proposed.

Keywords: Augmented Reality, Smart Fitting Rooms, Interactive Mirrors, Smart Glasses, Service-Dominant Logic, Customer Engagement, Fashion Shopping.

INTRODUCTION

Augmented Reality Interactive Technology (ARIT) in fashion shopping is forecasted to grow significantly in the coming years. ARIT (Augmented Reality Interactive Technology) in fashion includes ARSG (Augmented Reality Smart Glasses), Virtual Try-Ons, SFR (Smart Fitting Rooms), and IM (Interactive Mirrors). The Augmented Reality Interactive Technology (ARIT) market size is estimated to grow to USD 198 billion in 2025 (Statistica, 2025). The global virtual fitting room market will be worth $12.97 billion in 2028 (Fortune Business Insights, 2021). The prominent SFR brands include Detego, Scala, TRC, and Advantech. The ARSG market is projected to reach $33.16 billion by 2027 (Allied Market Research, 2021). The prominent ARSG brands include Google Glass Enterprise 2 and Microsoft HoloLens 2. The global smart mirror market will be $1,183.54 million by 2033 (Future Market Insights, 2023). The prominent IM brands include the Prestop company, Electric Mirror, Inc., and ProDisplay. How can all these investments by fashion and technology brands fuel the forecasted growth? Will ARIT improve customer engagement, in-store and online? Will ARIT devices penetrate the fashion industry, as forecasted? Will customers play an active role in co-creation with the fashion brand using ARIT? Will ARIT also help fashion brands and consumers drive sustainability-aware purchases? These questions, from the perspective of academic research and the point of view of fashion industry practitioners, will be explored using the framework of Service-Dominant Logic (S-D Logic) (Vargo and Lusch, 2004) aligned with customer engagement (CE) (Hollebeek *et al.*, 2019). We will investigate (i) how ARIT can drive customers to invest their time, money, and efforts in their purchase cycle – referred to as "Customer Resource Integration" (CRI) foundational process within the framework (ii) how ARIT can drive customers to share their ARIT knowledge and experience (referred to as "Customer Knowledge Sharing" (CKS) foundational process) with others, including with the fashion brand and co-create (referred to as one of the benefits of "Customer Co-Creation" (CCO). CCO is a CE benefit driven by CRI and CKS. This paper will then submit research propositions as future research directions in ARIT-enabled fashion shopping. These propositions will also help fashion industry practitioners and their technology partners drive innovation in enhancing ARIT, driving customer engagement, penetration of ARIT, and business growth. Table 1 shows the existing research in S-D Logic, CE, and the effect of augmented reality and artificial intelligence and highlights the respective limitations. This paper will list the research propositions to address some of these limitations. Nine propositions have been developed in this

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paper. Proposition 1 is a novel proposition that identifies factors that drive customers to invest their time, money, etc., in interacting with the fashion brand. Propositions 2 and 3 provide future research directions on how customer co-creation can drive innovation and sustainable consumption outcomes. Propositions 4 and 5 provide directions for research on sustainable consumption and customer co-creation. Propositions 6a to 6d provide effects of ARIT that will enhance (or dampen) customer engagement to be studied further.

Table 1: Research Gap

Author(s)	Background of study	Variables explored	Methodology	Study context	Research Gap
Hollebeek, *et al.*, 2021	The more seamless AI, the lower the likelihood of customers being aware that their interaction is with a machine (vs. human frontline staff)	Impact of AI automated interactions on CE. AI included ML, RPA, and deep learning	Literature review to present propositions for future research	The customer investing their resources (e.g., time, efforts) to engage. Customer sharing information Machine intelligence designed to emulate humans. Customer co-creation	The paper proposes future research to study how AI-based interactions are best designed for services.
Prentice, *et al.*, 2023	Understand the intrinsic motivations of consumer engagement. how consumer engagement may result in individual outcomes for the consumer (e.g., well-being)	How CE leads to Well-being, using AI Voice Assistants	259 responses on MTURK. Smart PLS for analysis.	The consequences of customer engagement (e.g., well-being) Moderating effects of MI (machine intelligence – AI, AR, VR)	The paper proposes future research on moderators that drive CE
Li Gao, *et al.*, 2022	Effects of artificial intelligence (AI) stimuli on customer engagement - customers who consumed intelligent service robot.	Perceived interactivity and Perceived Personalization, enabled by AI, impact on Customer Engagement (CE), driving Value Co-Creation	Total 426 respondents who consumed intelligent service robot. Empirical study using AMOS	Impact of AI on Co-creation, by studying impact of AI on CE	As per S-D logic-informed CE, customer co-creation is an outcome of CRI and CKS. The paper proposes as future research, to split the dimensions of customer engagement in a more precise way so as to study the impact of different dimensions of CE on value co-creation in more depth
Borges, *et al.*, 2020	The use of the new generation of AI technologies can create competitive advantages by improving customers' experience and engagement through the applications designed based on digital strategy.	Integrate AI to create business value	Systematic Literature review	The customer investing their resources (e.g., time, efforts) to engage. Customer building product and brand knowledge. The MI's purpose is to enhance customer experience and generate insights.	The paper concludes that AI impact on CE has not been fully studied, as it can create competitive advantage for businesses. The paper also proposes areas how AI can impact innovation, creation of new products and services.
Verma, *et al.*, 2021	Identify customer needs and expectations, acquire and retain customers and users, enhance the customer experience and satisfaction, and generate customer and market insights.	Impact of AI on the 4P of marketing was studied through literature review	Bibliometric analysis of literature on AI in marketing (4P)	The customer investing their resources (e.g., time, efforts) to engage. Customer building product	The paper proposes as future research, Co-creation of knowledge as area of study.

				and brand knowledge. The MI's purpose is to enhance customer experience and generate insights. Customer growth in product and brand knowledge The customer investing their resources (e.g., time, efforts) to engage. Actors including machine intelligence in customer engagement. Gamification as material to engage.	
Elmashhara, *et al.*, 2023	Incorporating gamification into AI systems by investigating the impact of utilitarian and hedonic motivations facilitated by gamified chatbots on various dimensions of customer engagement (cognitive, emotional, and behavioral), as well as the subsequent effects of these dimensions on customers' purchase behaviour.	Study the hedonic and utilitarian motivations driven by chatbots on CE	177 participants engaged with a chatbot. SEM/ AMOS was used for analysis.		The paper proposes future research, on WOM. It also proposes use of moderators that may drive CE and CE outcomes
Muhammad, *et al.*, 2023	Digital multisensory cues such as exposure to the product image and virtual touch sensations, allow consumers to zoom/rotate the images with their fingers, which enables them to improve their perceptual engagement with the brands. Moderate the relationship between AI-powered digital assistance and customer engagement.	AI digital assistance as moderator between CE and online shopping experience	273 consumers of luxury brands, in Oman. PLS-SEM for analysis.	Customer learning the product and brand. Customer building product and brand knowledge. Processes designed in machine intelligence (MI)	The paper proposes as future research, to apply the unified theory of acceptance and use of technology to study AI-enabled CE. It also proposes to integrate constructs like innovation to study impact of AI on online shopping
Lim, *et al.*, 2022	CE research is manifested as a means to influence consumption experiences, customer engagement in social media, customer engagement as a strategy to win customers, differences in customer engagement behaviour, customer relationship management through customer engagement, and customer engagement in electronic commerce.	CE articles	Bibliometric analysis of 861 CE articles	Customer engagement themes Purpose(s) of MI Actors impacted by MI	This paper proposes as future research to study impact of AI and Augmented Reality on CE. The paper also proposes study of sustainable consumption and building customer awareness.
Mariani, *et al.*, 2023	Predictive (innovation) analytics from big data can help identify and select new customer problems as well as	Identify the antecedents and consequences of AI in the context of	Systematic Literature review, 724 articles	The consequences of customer engagement (e.g.,	The paper studies AI impact on innovation and driving SDG through literature review. The paper

		identify new product solutions. Predictive (innovation) analytics from big data can help identify and select new customer problems as well as identify new product solutions.	Innovation.		innovation) Moderating effects of MI	encourages scholars to undertake inter- and multi-disciplinary research incorporating constructs and concepts from innovation management, and AI for comprehensive answers
Rodrigo, et al., 2021	Reshaping the contexts of online customer engagement behaviour via artificial intelligence: A conceptual framework	Online customer engagement behaviors that act as stimuli for artificial intelligence organisms to process customer-related information resulting in both artificial intelligence and human responses which, in turn, shape the contexts of future online customer engagement behaviors.	Concept creation	Customer-Brand interactions Impact of MI		The paper proposes studying various dimensions of AI-enabled CE to enhance online customer behaviour online
Roy, *et al*., 2023	The more autonomy (i.e., freedom) and competency (i.e., capability) the users perceive they possess, the more likely they are to engage behaviourally (e.g., by spending energy, time, and effort)	Studies the antecedents and consequences of customer engagement (customer motivation) in a digitalized interactive platform of an online shoe retailing	SEM Analysis, of 325 responses on MTURK	Customer resource Adoption purpose of MI	integration.	The paper proposes that more CE dimensions are studied, including brand-related. The paper also suggests that integrating other and/or complementary theoretical lenses into its investigation, including social exchange

Moriuchi, *et al.*, 2020	E-services have been the centre of attention in this highly technology-reliant society. E-services are often referred to as assets-information, business processes, computing resources, and apps, made available via the Internet as a means of creating service efficiency.	Study consumers' attitude and engagement with AI when used in a retail environment	PLS-SEM analysis of 68 responses	Customer resource integration and development of product and brand knowledge Processes of MI	The paper also suggests that integrating other and/or complementary theoretical lenses with S-D logic-informed CE. The paper also suggests study of customer-brand interactions
Vlacic, *et al.*, 2021	Knowledge integration and knowledge integration outcomes. The applications of AI are generally deemed more suitable for the acquisition of explicit knowledge	map the intersection of the research fields of marketing and AI	Literature review of 164 articles and SPSS analysis	Customer growth in brand and product knowledge for self and others Customer knowledge sharing	The paper proposes development of empirical and theoretical models. Study the acceptance of AI, and user adoption; and also attitude towards AI
Cheng, *et al.*, 2021	New frontiers and future directions in interactive marketing	AI, VR and AR on consumer brand interactive relations and shopping experience	Editorial	Customer-brand related interactions. Impact of MI.	The paper proposes investigating customer behaviors and interactivities in varying electronic platforms; applying AI, VR, and AR in interactive marketing.
Ming, et al., 2021	A strategic framework for artificial intelligence in marketing	AI (feeling AI, mechanical AI, thinking AI) in marketing	Concept creation	Impact of AI on marketing functions. Impact of MI.	The paper proposes future research into how AI can be used for

					creating new products and services
Daniel, et al., 2024	Let's go thrift shopping: Exploring circular business model innovation in fashion retail	Developed and validated a circular business model that supports clothing reuse	Collaborative Research	Research reveals that consumer centricity drives circular business model innovation	The paper suggests that scholars investigate the role of consumers in accelerating the circular economy by engaging and participating in circular business models to achieve social change and sustainable transition.
Leanne, et al., 2022	Sustainably sustaining (online) fashion consumption: Using influencers to promote sustainable (un)planned behaviour in Europe's millennials	What channels millennials' sustainability values translate into action when it comes to fashion garments.	448 European millennials	Sustainable consumption actions.	The paper suggests future research in understanding of the sustainability intention-behaviour gap would be better understood
Virginie, et al., 2023	The emperor's new clothes: self-explorative engagement in virtual try-on service experiences positively impact brand outcomes	Antecedent and outcomes of the personalized self-explorative experience central to Virtual Try Ons (VTOs)	Online quasi-experiment (N = 500) was conducted in the context of fashion and beauty VTOs	AR experience in fashion shopping.	The paper suggests future research to study of how incorporation of branded products into the self happens through a process of increasing knowledge of the object
Fatma, et al., 2020	Evaluating garments in augmented reality when shopping online	Study examined whether AR conveys reliable apparel product information in terms of fit, size, and	This research was designed as a within-subject quasi-experimental study using	AR experience in fashion shopping.	Future studies should also investigate factors such as visual imagery on AR fitting experience

		product performance; and how AR affects attitudes toward apparel and purchase intentions when shopping online	repeated measures in two conditions: virtual try-on using the AR technology vs. physical try-on.		
Terry, et al., 2023	Can augmented reality impact your self-perceptions? The malleability of the self and brand relationships in augmented reality try-on services	Research offers new insights into the role of AR interface in consumer-brand relationships and highlights the impact of AR on consumer's self-perception. Innovative	116 respondents on MTRUK. Experimental design.	Customer-Brand relationships enabled by AR.	Paper suggests future research into how consumers' demographics and personality types impact their self-perceptions when engaging with various brand product categories.

BACKGROUND STUDY

Service-Dominant Logic

Service-dominant logic (S-D Logic) (Vargo and Lusch 2004) proposed a significant shift from the goods-dominant logic, defining service as the key instrument of exchange between the producer and the buyer or any other player in the supply chain. Service was understood as a process and not as an output. Goods are vehicles delivering service to customers and other 'actors' in the supply chain. Producers of goods, for example, fashion apparel, footwear, or accessories, can only communicate a value proposition; they cannot deliver value to their customers. Value is delivered when the customer uses the product. Hence, value is delivered in use.

Service-Dominant Logic-Informed Customer Engagement

The *S-D logic* (Vargo and Lusch 2004) – *informed customer engagement, integrative framework* (Hollebeek et al. 2019) defined customer engagement (CE) as three foundational processes of "Customer Resource Integration (CRI)", "Customer Knowledge Sharing (CKS)", and "Customer Learning". The interaction of these processes delivers the three key benefits of "Customer Co-creation" (CCO) and "Customer Interpersonal/ Individual Resource Development". This paper will study CRI, CKS, and CCO for its investigation.

Customer Resource Integration (CRI)

CRI is the customer's investment of resources, for example, time, money, and effort to engage with the fashion brand and other actors involved in the purchase or post-purchase cycle. (Vargo and Lusch 2008a, 2016)

Customer Knowledge Sharing (CKS)

Customers' inherent nature to share fashion brand-related information and their experience of using the ARIT-enabled shopping experience with other customers. The intent of sharing knowledge is to create value for oneself or others. (Ho and Ganesan 2013; Kumar and Pansari 2015; Flint and Woodruff 2001, p. 322).

Customer Co-Creation (CCO)

Customers engage with the producer or other actors to improve or modify the product or process of the fashion brand. (Vargo and Lusch 2008a, 2016; Ranjan and Read 2016).

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LITERATURE REVIEW

1411 papers from Web of Science and 952 papers from Scopus have been identified from 2019 to 2024. The keywords used included service-dominant logic, sustainability, service design, sustainability, customer engagement, customer knowledge sharing, customer learning, customer resource integration, customer co-creation, machine learning, artificial intelligence, virtual reality, augmented reality, extended reality, and machine intelligence. The papers were then further limited to the period 2019 and 2024. The category of papers was further filtered to limit to business and management, computer, and social science. The papers were then limited to only ABDC-ranked A and A* journals. See Figure 1:

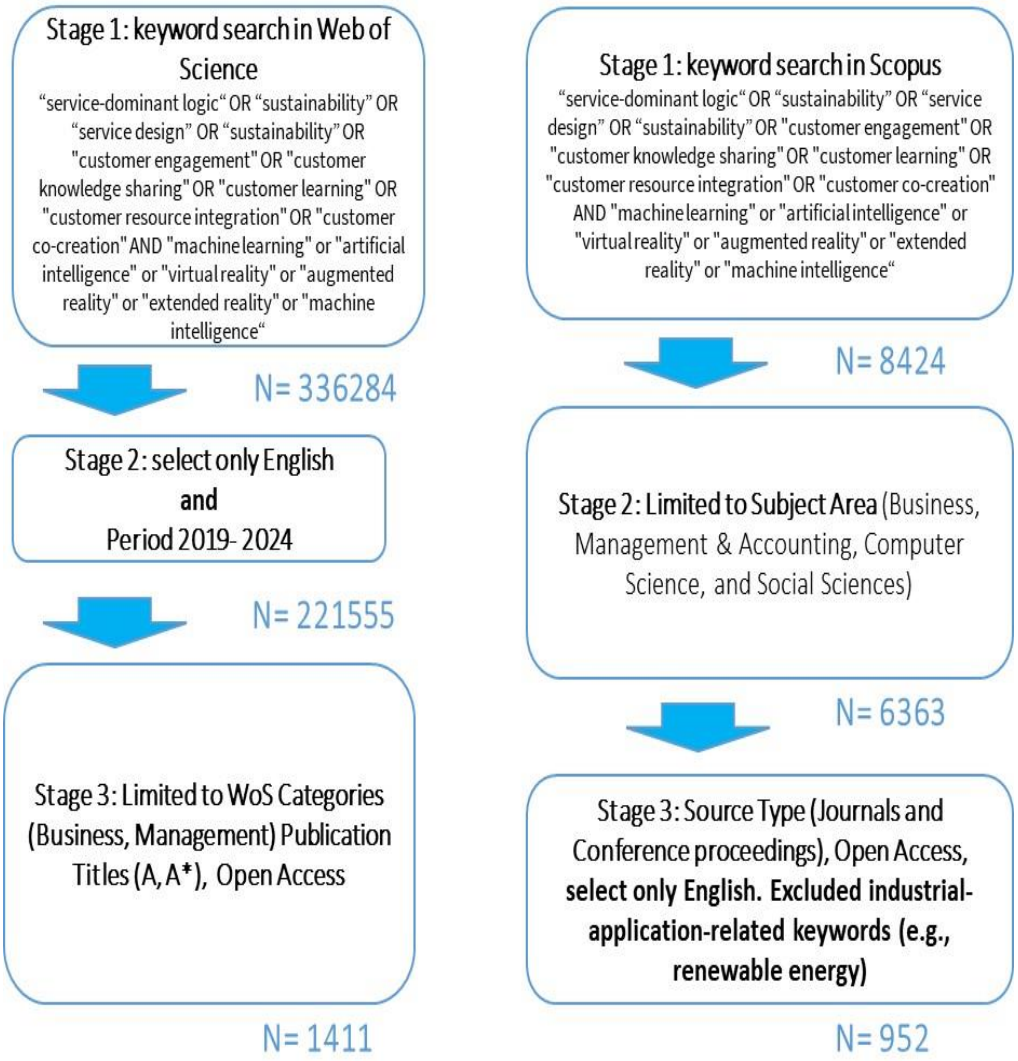


Figure 1: Papers identified from Web of Science and Scopus

Journal of Business Research, Journal of Retailing and Consumer Services, Journal of Research in Interactive Marketing, and Journal of Services Marketing were the top 4 most relevant sources of literature. Bibliometric analysis was chosen, over other methods, because it allows researchers to process large amounts of data to identify possible "hidden patterns", which provides a better understanding of the state of the art in a research field, its evolution, and gaps (Kraus et al., 2022). See Figure 2.

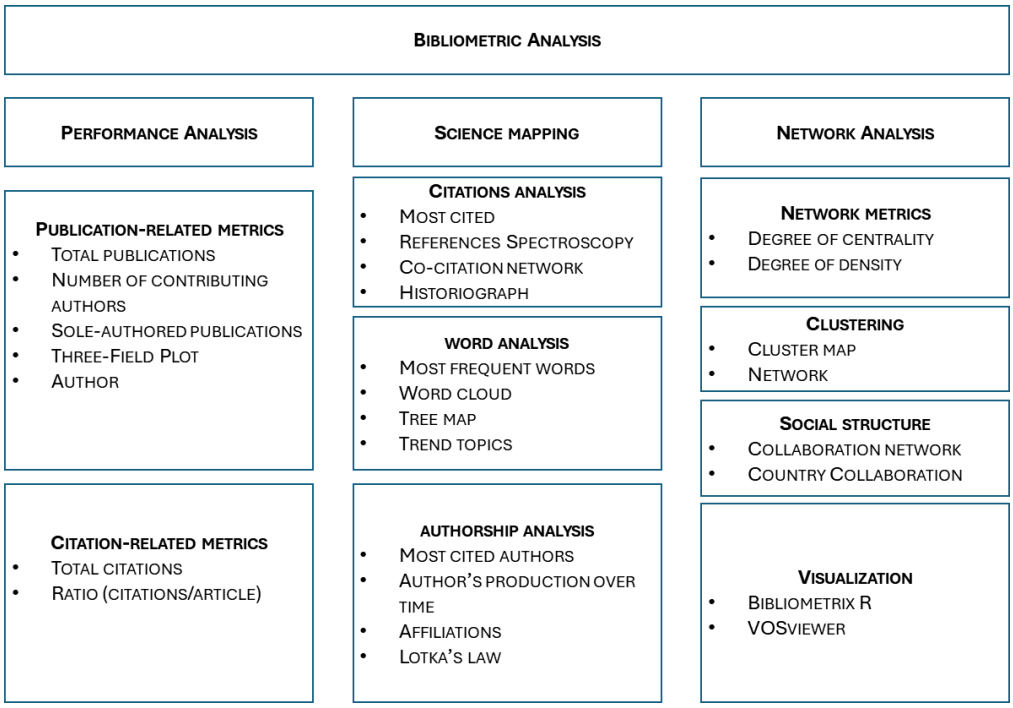


Figure 2

Performance Analysis evaluates the literature's performance: including total publications and their production over time the years of study et al The 1411 papers from Web of Science were from 19 sources, and authored/co-authored by 3836 authors, out of which 88 were single-authored papers. An average citation per paper of 26.19. Total references of 87,948. Similarly, in Scopus, the 952 papers were sourced from 381 sources, and authored/ co-authored by 3600 authors. Of which 74 papers were single-authored. Average citation per paper of 13.47%. Referenced from 61704 papers. The Three Field Plot uses the 'Source-Author-Keywords': from WoS and presents Hollebeek with a significant contribution as an author. Her S-D logic-informed customer engagement framework (Hollebeek, et al., 2019) provides the theoretical grounding for this research paper. This framework has been cited 489 times between 2019 and 2023. See Figure 3.

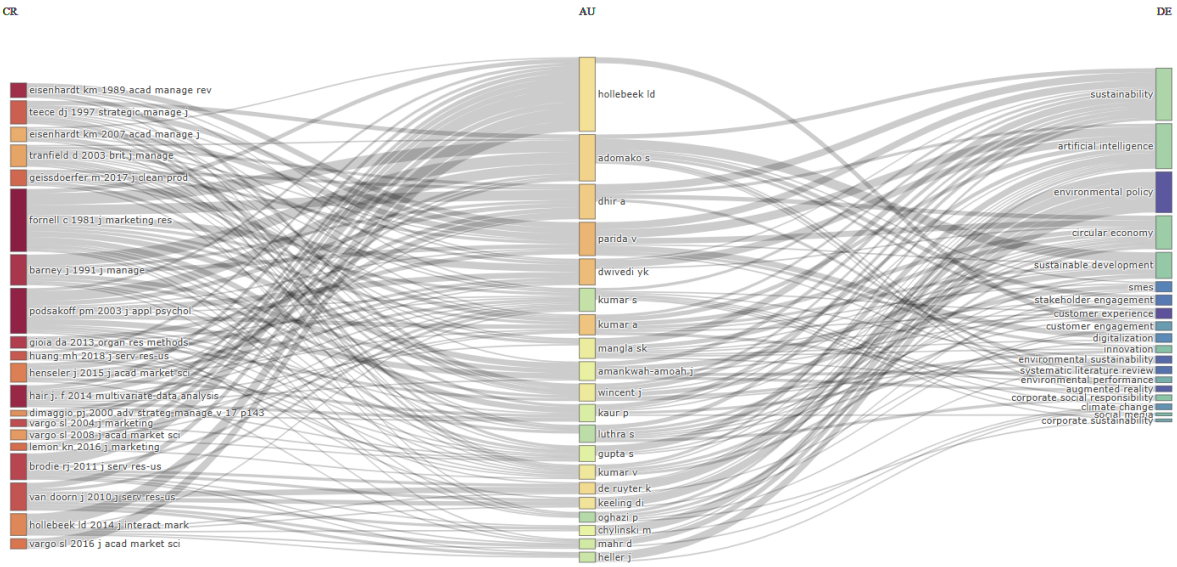


Figure 3

Science Analysis: The Corresponding author's countries' view gives insights into, country-wise articles that have multi-authors (MCP) and those that have single-authors (SCP). WoS gives country-wise insights. The country name (MCP, SCP) data: UK (183, 143), Netherlands (51,48), Germany (46,45), Italy (41,42), and Sweden (37, 43) as the Top 5. See Figure 4.

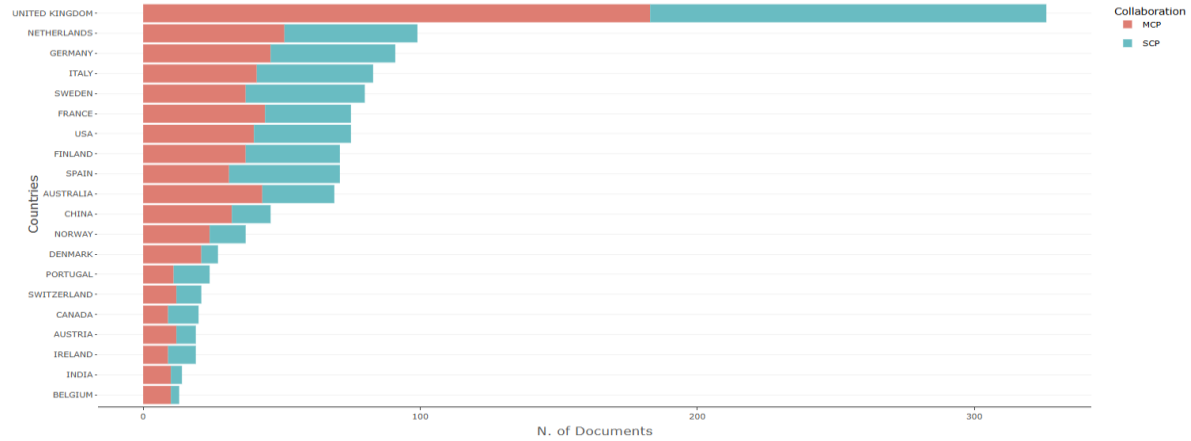


Figure 4

Co-occurrence network: WoS co-occurrence of keyword analysis also presents Cluster 1 (green), artificial intelligence, customer experience, and innovation; Cluster 2 (blue), sustainability and innovation. See Figure 5.

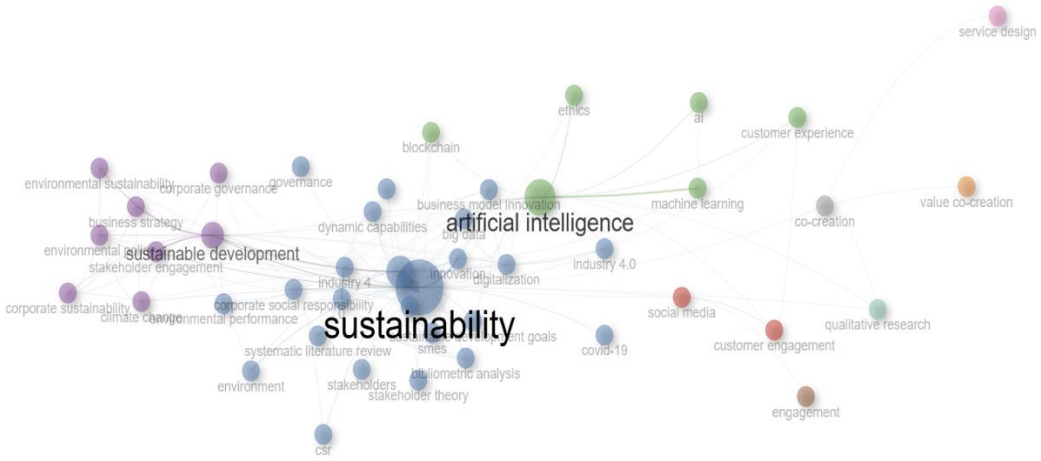


Figure 5

Thematic Analysis: Clustering by coupling, technique is used to study the clustering of documents based on the author's keywords and local citation. Co-creation, Service Innovation, and service-dominant logic are at the intersection of niche (highly developed) and emerging (weakly developed) themes. Basic themes (weakly developed but important in the research field) – sustainability development, consumption and engagement. Artificial Intelligence, CE, and Customer Experience are at the intersection of niche and motor (developed and important) themes. See Figure 6.

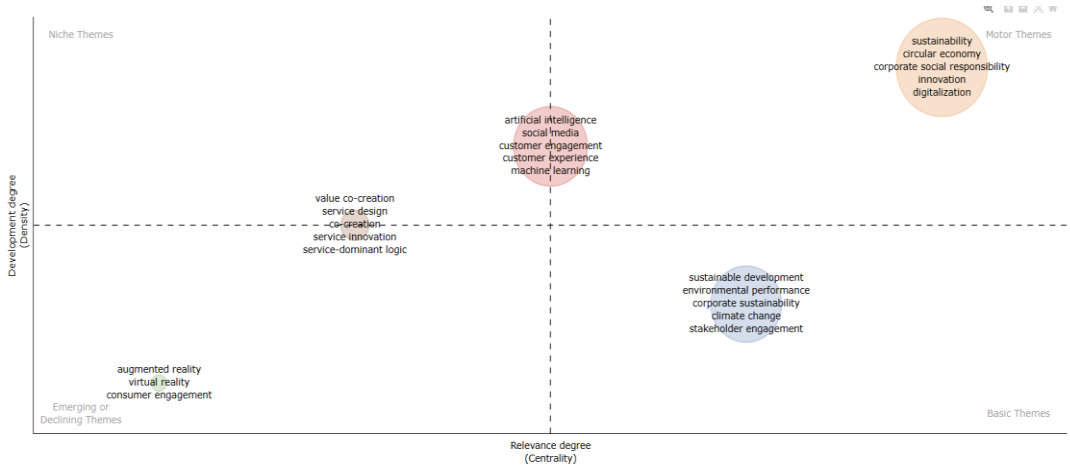


Figure 6

THEORETICAL BACKGROUND, AND PROPOSITIONS

UTAUT2

UTAUT (Unified theory of acceptance and use of technology) (Venkatesh et al. 2003) identified four factors that impact how users would respond to technology, adopt, and use it. However, UTAUT was primarily within the organizational context. UTAUT2 identified key additional factors that were relevant for consumers. The factors motivate users (customers) to use new technology, for example, the ARIT device. Let us study the UTAUT2 factors. The more a customer invests time, money, and effort into engaging with the fashion brand, the more knowledge they gain and the more comfortable they become. (Hollebeek, et al. 2019). Engaging with the brand over time is akin to building a habit, one of the factors that will motivate the customer to accept a new technology like ARIT. (Venkatesh et al. 2003). The environment in which you use an ARIT device also impacts your continued interest. For example, resource availability (Hollebeek et al. 2019) like a stable internet connection, is a must to use ARSG (Smart Glass) for online fashion shopping. The UTAUT2 facilitating condition is akin to resource availability for CRI. Customer Engagement is contingent on focal context-specific characteristics in service systems (Hollebeek et al. 2019). For example, technologies like augmented reality applications provide hedonic services. (Markus et al., 2019). Hedonic motivation is another factor in UTAUT2.

Proposition 1: *There is a novel theoretical association between the UTAUT2 factors and CRI*

Innovation Diffusion Theory

The 'Diffusion of Innovation' (Rogers 2003) theory explains how new technology spreads and is adopted within a group. The proliferation of technology can be understood as a process where multiple actors engage and adopt new technology (e.g., ARIT) and usher in change. (Vargo et al.., 2020). As several people engage, the technology spreads within the group. (Vargo et al., 2020). Innovation is impacted through a continuous feedback loop. (Vargo et al., 2020). Customer co-creation also involves feedback to the producer and other actors for product improvement or modification. See Table 2 for detailed theoretical associations of CCO driving Innovation.

Concept/Definitions – Diffusion of Innovation	**Consequences of CCO on Perceived Innovation – Theoretical Associations**
Diffusion of innovation can be conceptualized as an emergent, co-creative process that involves multiple actors integrating new resources and altering their institutional arrangements (Vargo et al., 2020)	As the number of individuals who integrate with a new resource increase, the diffusion process spreads throughout the wider ecosystem. (Vargo et al.., 2020)
Innovative ideas can spread horizontally across a particular application and applications. (Vargo et al., 2020). Moreover, novel ideas can also "travel" vertically across the industry or social landscapes (c.f. Geels, 2002)	Multi-directional movement of new knowledge helps solve specific problems or legitimizes an underlying idea, which in turn facilitates its diffusion across, often unrelated, problems (e.g., sharing economy). (Vargo et al.., 2020)
The diffusion of ideas might be thought of in terms of conceptual, recursive transvections, which, while heterogeneously influenced, represent feedback loops that can lead to a more or less homogeneous, intersubjective convergence. (Vargo et al., 2020).	It is the collective enactment of new institutional arrangements that drive institutional change. (Vargo et al., 2020)
The process for innovation is recursive. Equilibrium in complex adaptive systems is maintained through nonlinear positive and negative feedback loops. (Vargo et al., 2020).	Positive and negative feedback are provided to the originator of the idea and to the wider social system. Positive feedback supports the spread of an idea, and negative feedback limits or restricts diffusion and prevents institutional change (Colyvas and Jonsson, 2011).

Table 2: CCO driving Innovation – theoretical associations

Proposition 2*: Customer Co-creation drives Innovation as an outcome in customer engagement*

Open Innovation

Open innovation (Chesbrough et al., 2003) explains how knowledge is spread beyond the organization to drive business growth (e.g., growth in ARIT-enabled fashion shopping) or drive responsibility goals like sustainability in shopping. Sustainability may be a non-profit goal driven by the fashion brand. It may attract customers to purchase such products in the collective interest of protecting the environment. Co-creation enables knowledge and experience to be shared among customers and can be a vehicle to spread awareness of sustainability. (Lüthje and Herstatt, 2004; Urban and von Hippel, 1988). Open innovation propagates the need to integrate organization and external capabilities to innovate (e.g., to drive sustainability). Similarly, in customer co-creation, the customer and other actors share ideas and knowledge and collectively innovate. See Table 3 for detailed theoretical

associations of CCO driving Sustainable Consumption.

Concepts/Definitions – Open Innovation	**Consequences of CCO on Sustainable Consumption – Theoretical Associations**
Sustainability challenges can provide organizations and individuals with a deep sense of purpose for which nonpecuniary mechanisms are powerful drivers. This deep sense of purpose can bring people together within and across organizations.	Co-creation enhances awareness of products and increases their acceptance among a broader public so that the final product will be accepted and successfully spread in the marketplace (Lüthje and Herstatt, 2004; Urban and von Hippel, 1988)
Addressing grand challenges such as those embodied in the SDGs requires a great deal of imagination, collaboration, and perspiration. Because the actions of multiple parties must be orchestrated over an extended period of time to have any hope of achieving an effective response to a grand challenge, it is imperative that stakeholders provide hope and validation at interim phases for reaching the final goals of the project. "Early wins" are an important way to achieve this.	Co-creation is a way of sharing, combining, and renewing each other's resources and capabilities between firms and active users to create value through new forms of interaction, service, and learning mechanisms (Zwass, 2010; von Hippel, 2005).
User integration into innovation processes leads to higher acceptance, risk reduction of product flops, decrease of information asymmetries between consumers and producers, higher efficiency in product usage and quality, knowledge transfers (McNally et al., 2011; Manikutty, 2010; Etgar, 2008; Hoffmann, 2007; Prahalad and Ramaswamy, 2004).	The co-creation concept, the value creation of goods and services, is necessary in a more coordinated way because of the increased number of actors
'Open innovation' - a process combining external and internal competences in the innovation process by using different tools (Hoffmann, 2007; Franke et al., 2006; Lilien et al., 2002).	Users and companies interact increasingly and act as shared innovators (von Hippel 1978, 1988).
The open innovation model is based on the needs and cocreation activities of the users and user communities	User integration addresses co-creation processes including (future) customers and users in the innovation process on a targeted basis (Hoffmann, 2007)
	Environmental and social standards, sustainable strategies and investments as well as products and services are mostly discussed or mutually developed in sustainability-related co-creation processes (Arnold, 2010; Hoffmann, 2007).

Table 3: CCO driving Sustainable Consumption – theoretical associations

Proposition 3*: Customer Co-creation drives Sustainable Consumption as an outcome in customer engagement*

Social Exchange Theory

The theory explains that interactions between individuals lead to commitments. (Emerson 1976). These interactions are dependent on the actions taken by other individuals. (Blau, 1964). One is obligated or committed to share knowledge with fellow employees in a company environment". (O'Reilly and Chatman, 1986). Similarly, customers feel a responsibility in sharing their experiences and knowledge with others. (Ting-Peng et al 2008). Social interaction is defined by the amount of time you spend and how often you communicate with others. Similarly, such interactions provide an opportunity for customers to share knowledge. (Ting-Peng et al 2008). See Table 4 for the theoretical associations of Social Exchange Theory in explaining the Customer Knowledge Sharing process.

Concepts/Definitions – Social Exchange Theory	***Customer Knowledge Sharing– Theoretical Associations***
Organizational commitment: the level and type of psychological attachment an employee has with an organization". (O'Reilly and Chatman, 1986).	One's commitment may encourage him or her to share knowledge due to a sense of responsibility to help others within that collective. (Ting-Peng et al 2008). Customer knowledge sharing denotes a customer's communication purpose of creating value for themselves, the recipient(s), or both (Hollebeek et al. 2019)

Perceived benefit: the individuals' subjective perception of gain from their behaviors."(Forsythe, 2006).	Some people may expect that their contributions will help them build a good reputation and improve their status within their social group. (Ting-Peng et al 2008). Customer knowledge sharing denotes a customer's communication purpose of creating value for themselves (Hollebeek et al. 2019)
Social interaction: The strength of the relationships, the amount of time spent, and the frequency of communication among members.	Social interaction provides the opportunity to combine and exchange knowledge. (Ting-Peng et al 2008). Parties with whom customers tend to share their knowledge include other customers, friends, service employees, and the focal firm (Ho and Ganesan 2013; Sohi et al. 1996).
Trust: A set of specific beliefs primarily about the integrity, benevolence, and ability of another party (Chiu et al., 2006).	Trust creates and maintains exchange relationships, which in turn may lead to the sharing of good quality knowledge. (Ting-Peng et al 2008)
Organization Support: The general perception that an organization cares for the well-being of its employees and values their contributions (Eisenberger et al., 1997).	The relationship between employees and their employer is built on the trade of effort and loyalty for benefits such as pay, support, and recognition. (Ting-Peng et al 2008). Customer knowledge sharing is important to communicate and action particular institutions and institutional arrangements. (Vargo and Lusch 2016)
Reward Systems: The incentives provided by an organization to its members for shaping their behaviors (Cabrera and Bonache, 1999) or driving employees' performance (Lee and Kim, 2001).	Explicit/hard rewards that organizations provide to motivate employees to share knowledge are popular. (Ting-Peng et al 2008). Customer knowledge sharing is important to providing service either to the self or others. (Vargo and Lusch 2016)

Table 4: Theoretical Association of Social Exchange Theory in Explaining Customer Knowledge Sharing

Proposition 3: *Social Exchange is the basis for Customer Knowledge Sharing*

Sustainable Consumption

Sustainable fashion is an important area of research and practice in the industry. There are three sustainability pillars viz., economic, social, and environmental (Hansmann, Mieg, & Frischknecht, 2012). The industry is experimenting with several methods, including:

- Ethical clothing (Reimers et al., 2016): clothes that reduce the impact on the environment.
- Slow fashion (Sung & Woo, 2019): Customers buy fashion clothing that has been created using responsible methods. (Zarley Watson)
- Eco-fashion (Niinimäki, 2010): clothes that can be used longer.
- Seasonless clothing: Consumers who strive to purchase clothing that can be worn through several seasons
- Sustainable fashion, Brismar (2019): fashion that is made to measure, and hence fits well and there is no returns or wastage. Rent a dress or buy a used dress instead of buying a new one.

Schahn and Holzer (1990), in their study highlighted that knowledge was distinguished into abstract and specific domains. Abstract domain concerns the perceived environmental impact of clothing products and the perceived social impact of clothing products. Whereas, specific domain concerns the knowledge customers have that they are purchasing sustainable clothing and they have the knowledge how to use and dispose the fashion clothing. This study will investigate specific customer knowledge leading to solutions: (1) Knowledge about sustainable purchase, and (2) knowledge about sustainable use and disposal, in investigation of Sustainable Consumption, within the context of ARIT-enabled fashion shopping

Proposition 4: *Specific knowledge on purchase, use, and disposal drives Sustainable Purchase of fashion clothing*

CUSTOMER CO-CREATION

Customer co-creation has four constructs: development, feedback, advocacy, and helping. (Yi and Gong, 2013). Feedback provided to the fashion brand may not be obvious to the public, but it is the most definitive share possible. Advocacy is voluntary is usually driven by emotions and is less cognitive. Helping is about assisting other customers who may not be familiar with using the ARIT device. Development is generating new ideas for the ARIT device to enhance fashion shopping.

Proposition 5: *How ARIT affects development, feedback, advocacy, and helping in enabling customer co-creation.*

Effect of ARIT device on fashion shopping

Significant, yet siloed, academic research exists in ARIT. Based on the literature review, the following key features and functions of ARIT impact customer engagement. This paper investigates ARIT as an operant resource bundled with the fashion brand.

- ***Interactivity and augmentation***
  - The theory of interactive media effects (TIME) (Sundar et al., 2015) studied the ARIT features of interactivity and augmentation.
  - Customers experience a psychological state due to the interactivity of ARIT (Wu, 2006, pp. 91).
  - Interactivity can allow customers to act using the ARIT and communicate with other 'actors' (e.g., the fashion brand website (Javornik, 2016, pp. 993; Sundar et al., 2015).
  - Customers can co-create example mix and match fashion items as they virtually try on at the store or online (Fiore and Jin, 2003; Fiore et al., 2005; Pachoulakis and Kapetanakis, 2012).
  - Augmentation helps customers to virtually wear shoes and walk in their work or home environment (Cho and Schwarz, 2010; Javornik et al., 2016; Yim et al., 2017).
  - Augmentation provides near-real experiences in the virtual space. (Preece et al., 2015).

- ***Utilitarian functions and adoption intent***
  - The utility of ARIT devices for fashion shopping provides benefits of virtual try-on and this builds a utilitarian attitude towards ARIT devices. (Hanna, et al., 2020).
  - ARIT provides multiple features and options during virtual try-on and motivates customers at a cognitive and affective level. (Chowdhury and Salam, 2015; Sundar, 2004; Van der Heijden and Sangstad, 2003).
  - Customers will find ARIT to help them achieve their goals (tasks) in fashion shopping. (Van der Heijden and Sangstad, 2003, pp. 4). For example: make sustainable purchases.

Proposition 6a: Customer's ARIT device adoption intention drives customer resource integration
Proposition 6b: Customer's ARIT device adoption intention enables customers to co-create
Proposition 6c: ARIT device interactivity helps customers communicate and share their shopping experience
Proposition 6d: ARIT device augmentation helps customers make sustainable consumption

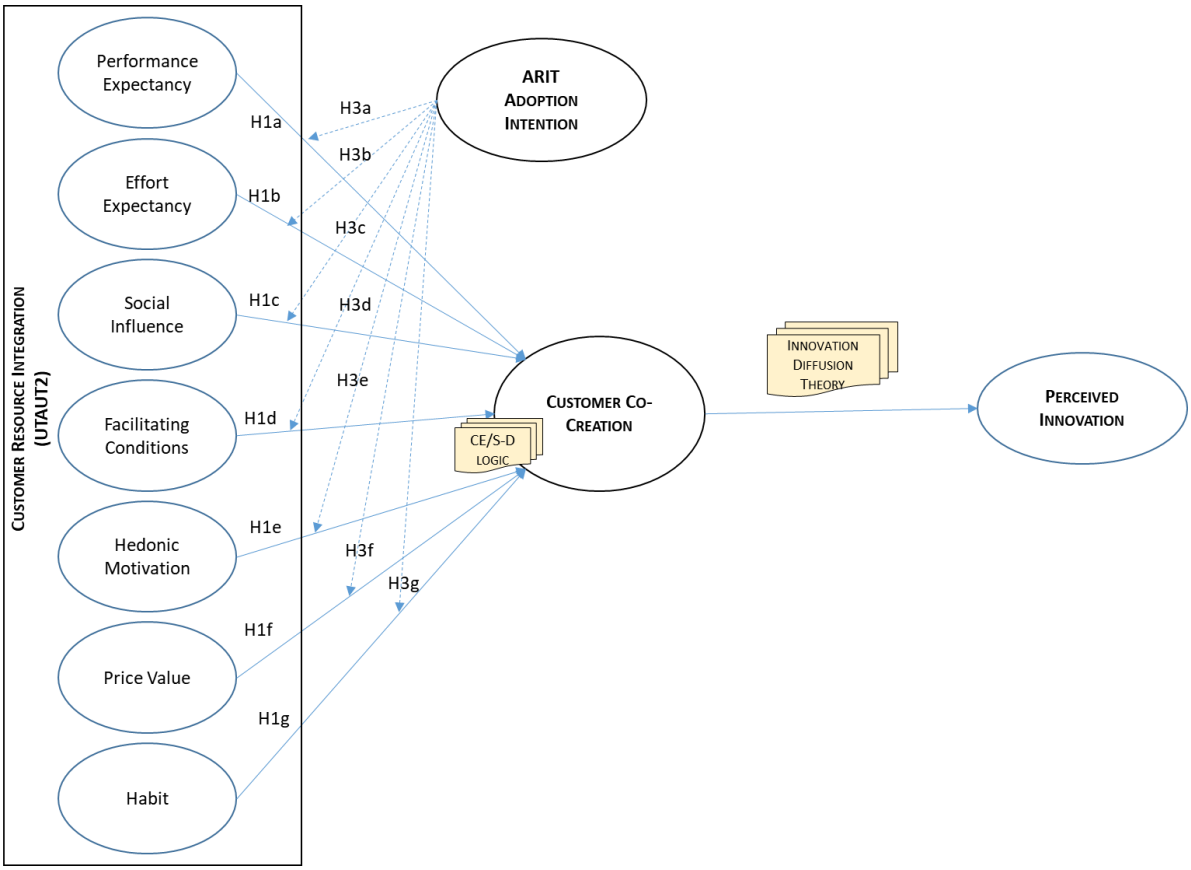
CONCEPTUAL FRAMEWORK

Based on the literature review, the paper presents the conceptual framework as future research directions. It also guides practitioners to investigate the moderating effects of ARIT on customer engagement and how it can drive customers to invest their time, money, and effort in interacting with their fashion brand, as well as how customers can be motivated to co-create, driving innovation and sustainable purchases. The paper proposes three key areas for future research:

Drivers of Perceived Innovation in ARIT-enabled fashion shopping

This model will address the questions raised by this paper: ARIT will improve customer engagement, in-store and online? The diffusion of innovation will address the penetration of ARIT devices in the fashion industry. The following propositions will drive future research and help practitioners in the industry to investigate as they invest in ARIT devices to enhance customer engagement, and drive innovation.

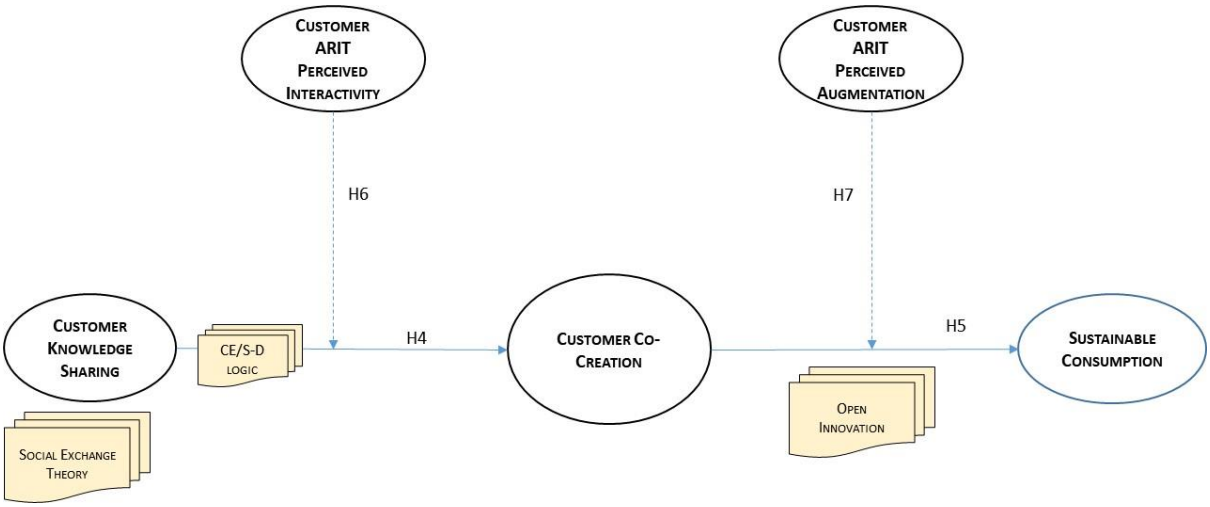
Proposition 1: There is a novel theoretical association between the UTAUT2 factors and CRI
Proposition 2: Customer Co-creation drives Innovation as an outcome of customer engagement
Proposition 6a: Customer's ARIT device adoption intention drives customer resource integration
Proposition 6b: Customer's ARIT device adoption intention enables customers to co-create



Drivers of Sustainable Purchase in ARIT-enabled fashion shopping

This model will address the questions raised by this paper: Will ARIT improve customer engagement, in-store and online? Will ARIT also help fashion brands and consumers drive sustainability-aware purchases? The following propositions will drive future research and practitioners in the industry to investigate as they invest in ARIT devices to enhance customer engagement and drive sustainable consumption.

Proposition 3: Social Exchange is the basis for Customer Knowledge Sharing
Proposition 4: Specific knowledge on purchase, use, and disposal drives Sustainable Purchase of fashion clothing
Proposition 6c: ARIT device interactivity helps customers communicate and share their shopping experience
Proposition 6d: ARIT device augmentation helps customers make sustainable consumption

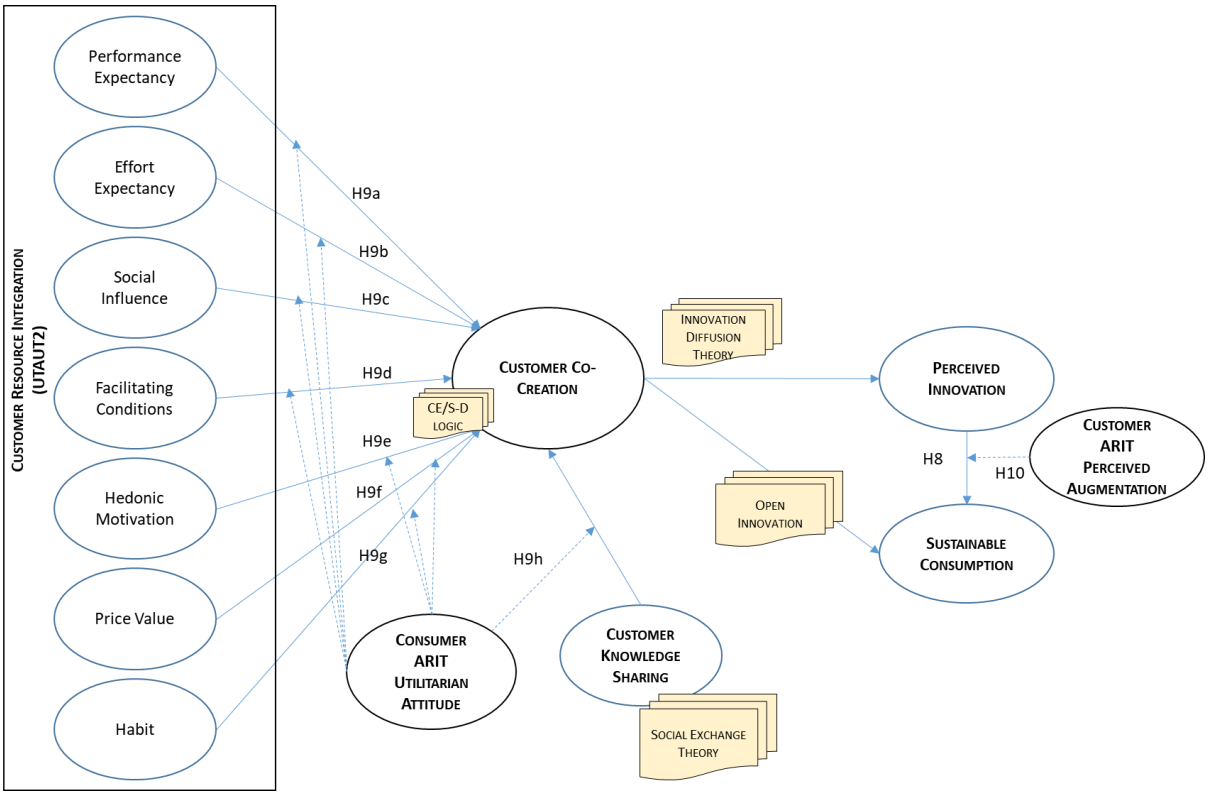


Antecedents and consequences of Customer Co-creation

This model will address the questions raised by this paper: How can all these investments by fashion and technology brands fuel the forecasted growth? Will ARIT improve customer engagement, in-store and online? Will ARIT devices penetrate the

fashion industry, as forecasted? Will customers play an active role in co-creation with the fashion brand using ARIT? Will ARIT also help fashion brands and consumers drive sustainability-aware purchases? The following propositions will drive future research and practitioners in the industry to investigate as they invest in ARIT devices to enhance customer engagement and drive sustainable consumption.

Proposition 5: How ARIT affects development, feedback, advocacy, and helping in enabling customer co-creation.
Proposition 6a: Customer's ARIT device utilitarian function drives customer resource integration
Proposition 6c: ARIT device utilitarian functions will motivate customers to communicate and share their shopping experience



CONTRIBUTIONS

Contribution to Academia

The paper investigates the ARIT impact on fashion shopping, using the framework Service-Dominant Logic (S-D Logic) (Vargo and Lusch, 2004) aligned with customer engagement (CE) (Hollebeek *et al.*, 2019). Based on the literature review across Web of Science and Scopus, the paper develops propositions for future research and empirical study. The novel association of CRI and UTAUT2, the drivers of perceived innovation within the context of ARIT-enabled shopping. The paper also provides propositions as future directions for research on the drivers of sustainable purchases in fashion shopping, using ARIT-enabled fashion shopping and its impact on customer engagement. The novel mediating impact of perceived innovation in the relationship between customer co-creation and sustainable purchase is also developed for future study.

Contribution to Practice

With numerous fashion brands implementing ARIT and enabling their e-commerce site with AR, competition is only expected to grow in this space. It is therefore critical that leaders in the fashion industry understand the impact of ARIT on key customer engagement touchpoints. This paper covers an end-to-end study of customer engagement, within the context of ARIT-enabled fashion shopping. It developed propositions that explain how customers will invest their resources in engaging with fashion brands, in-store or online. Get customers motivated to provide feedback and share their experiences of using AR-enable devices like 'Smart fitting rooms', interactive mirrors, and smart glasses. The interplay of customer knowledge sharing, and customer resource integration to drive customer co-creation, leading to perceived innovation and sustainable purchases.

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