

## Research Article

# Service Delivery and Branding Management in Digital Platforms: Innovation through Brand Extension

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*Purpose.* Resources and experiences may give platform owners an advantage to expand their business to new areas of possible growth. However, can the winner take it all? Or is the spandex rule—“just because you can, does not mean you should”—valid for platforms, as well? The present study is aimed at narrowing this research gap by focusing on the innovation through brand extension impact on customer satisfaction and brand loyalty in an ever-greater area of the service sector. *Design/Methodology/Approach.* The partial least-squares structural equation modelling (PLS-SEM) is applied to analyse the questionnaires and explore the relationships between the proposed research model's constructs. *Findings.* The results reveal that service innovation through brand extension impacts customer satisfaction and loyalty favourably. Customer satisfaction mediates the relation between innovation through brand extension and brand loyalty. Parent brand reputation intensifies service innovation through the impact of brand extension on customer satisfaction and loyalty, while perceived risk deters its effects. Customer innovativeness enhances customer satisfaction. Finally, perceived category similarity (fit) augments customer satisfaction while impacting loyalty negatively. *Practical Implications.* The findings provide a deeper understanding of innovation and brand management in digital platforms and forge a promising path forward for marketing researchers investigating the platform economy. *Originality/Value.* Little remains acknowledged regarding the theoretical interface of innovation through brand extension in the digital platform sphere and its consequences on customer behaviour. Building on this lacuna, the authors adopt an underexplored object that focuses on digital platform innovation through brand extension, customer satisfaction, and brand loyalty.

## 1. Introduction

In an interview with BBC in 1990, Steve Jobs stated, “the person-to-person communication possibility via computers is a revolution that propels the industries.” What was a fringe that day is mainstream today? The social distancing policy adopted due to the COVID-19 pandemic has led individuals to cyberspace for working, socialising, education, healthcare, and consumption, which is predicted to outlive the pandemic [1, 2]. The surveys from the USA, China, UK, Italy, South Korea, Latin American countries (e.g., Brazil, Mexico, Paraguay, and Panama), and the Middle East herald booming e-commerce and delivery economics [3, 4]. Now, the new business can follow the customers to the cyberworld [5], e.g., offline sports changing into e-sports

[6]. However, microbusinesses and small and mid-size enterprises (SMEs) may not afford to handle their digital marketing activity [7]. The detour is to stand on the shoulders of giant digital platforms. However, should a platform take the offer?

With no limitation to reaching far distances and service providers, a digital platform can apply an aggressive launching strategy using technological innovation to present new services through smartphone apps at almost zero marginal cost [8]. It offers customers an opportunity for a faster, easier, or cheaper connection to order online services/products from a wide-ranging provider [9] and results in the growth of the digital platform, which is found to be much more essential for it than profit [10]. New growth opportunities may urge platform providers, especially those of e-hailing

platforms, to extend into new domains. For e-hailing platforms, engagement in logistic services gives them a unique advantage in data resource allocation, which can be applied for various efficient transport purposes [11]. As an example, backed up by the first-mover advantage, a massive grant for an e-hailing platform, Uber preserves its spot as a leader in the e-hailing industry [12]. As a symbol of “what is to come,” Uber expanded its services very fast [13], not only geographically but also in the forms of UberGo, UberTaxi, and UberX as line extensions of car-hailing, as well as Uber Eats as a brand extension (BE) in online food delivery. Uber’s history shows that digital platforms may hold onto their brand in developing new services. Now, should the digital platforms grab these opportunities and extend their brands as much as possible just because it is economically wise? As Frenken and Schor stated, a common strategy in platform expansion, which states “act now, ask for permission later,” may ultimately dilute the platform brand [14].

In the digital world, the effects of e-service innovations on customer satisfaction and loyalty are empirically investigated in telecommunication services [15, 16], portal sites [17, 18], and internet-based games [19]. In the platform context, researchers have already investigated the adoption of line extensions in services, such as the car-sharing service of DiDi from the trust [20, 21] and risk [22] perspectives and Uber from reputation, risk, and electronic word of mouth (E-WOM) viewpoints [23]. The innovations in the service process, such as the adoption of driverless cars regarding risk, parent brand familiarity, and trust aspects [24], and the acceptance of food delivery with drones concerning perceived innovativeness [25], benefits, and image aspects [26] have also been examined. However, calling for further research on the capability of digital services to respond to opportunities in a dynamic environment [27], and “technology-related behaviour in the global crisis” [28], lack of empirical research on BE of platforms [29] and a need for more investigations on customer response to innovation, especially when everything is related to service innovation, [30], e-satisfaction, and e-loyalty, particularly in online food mobile applications [31, 32], highlight a research gap and emergence of a requisite to empirically explore innovation through BE in the digital platforms from customers’ perspectives.

Further to the above, research questions would be proposed as follows.

*RQ1:* how can business service innovation of digital platforms through BE affect customer satisfaction and brand loyalty?

*RQ2:* does customer satisfaction mediate the relation between digital platform business service innovation and brand loyalty?

The BE success factors acknowledged in the services hold a reasonably thin body in branding literature [33]. Factors emphasised in BE evaluation of services include parent brand reputation [34, 35], perceived category similarity (fit) [18, 35], consumer innovativeness, and perceived risk [34].

On this ground, the following research question is proposed.

*RQ3:* how can the moderator factors of customer innovativeness, perceived risk, perceived category similarity (fit), and parent brand reputation impact the relationship of the digital platforms’ service innovation through BE with customer satisfaction and brand loyalty?

The conceptual framework is assessed empirically by the (offline and online) survey of 464 customers of Snapp, a leading e-hailing platform in Iran, which has extended its service to food delivery and has announced that new services are coming.

Today, mega e-hailing platforms, such as Uber, Lyft, Careem, Grab, Ola Cab, BlaBla Car, DiDi, and other disruptive digital platforms in all sectors, are expected to go ahead with the tried-and-true approach to branding. Therefore, we contribute to the theoretically dominated innovation and branding in digital platform literature by adding several empirical pieces of evidence to its branding puzzle and hope this research presents an outline for researchers in the digital platform branding field.

## 2. Research Background

In a digital context, innovation is described as leveraging digital technology to create change or offer a new service/product, process, or business model [36]. A new concept in digital technology literature, “digital maturity,” is delineated as how a firm could acquire the capability to adapt to changes in the environment appropriately by designing and maintaining the high-capacity digital arrangement that empowers continual digital innovation [37]. Due to the flux nature of user needs, purchasing power, digital features, and sociotechnical considerations, the outcome would evolve after launch [36].

Digital platforms, which are categorised in e-service marketplaces, enable communication and value transactions between the sovereign supply side and demand side [38]. Table 1 provides more details about platforms. Ambidexterity, e.g., customer–service provider database, trust, and brand credence inherited from two former stages, makes it feasible for a platform owner to penetrate the complementary market and reestablish a stimulus to finance complementary innovation at the maturity phase [12]. The acquisition remains key to the growth of a platform; however, as soon as the market is saturated, to survive, the platform should drive innovation to meet the new customers’ needs in order to retain them in the platform triangle [38].

Digital resources provide an endless value venue to sense, seize, and create a new value for the platform with “agility and ambidexterity” [27]. Platform service innovation is classified in terms of product innovation, e.g., “new service development, new to market, service line extensions”; process innovation, e.g., “information transfer, interface, channelling, and front/back-office”; and business model innovation, e.g., “cost structure, revenue, new relationship, new resources, new market, profits, new product line, and system design” [40]. Meanwhile, “service process innovation” supports “service product innovation” [41]. In other words, a platform innovation is conceptualised based on (re)configurations of available resources, the connection of

TABLE 1: Platform motivation, resources, and activity.

Item	Description
Motivation	Achieving economic benefits, innovating, reacting to the market dynamics, and forming a constructive relationship
Resources	Market insight (knowledge and particular insight of supply and demand sides), a network of supply side and demand side, and the ability to promote and handle collaboration and stakeholder relation
Activities	Matchmaking (match end users with the service provider), communicating the brand meaning and its proposed value, building trust, mitigating risk, determining and promoting social norms, and lining up practices to the defined norms, so that all stakeholders have a favourable experience and finally resource management

Source: Benoit et al. [39].

involved actors to perform, management of multiactor participation, and facilitation of the accomplishment of innovative value propositions for organisation revitalisation [42]. Complementors can be linked through digital networks on top of a “platform’s core set of resources” to deliver value-added services for ecosystem participants. However, the ulterior motive of the platform is generally to continue the development of an “innovation ecosystem” [43]. Table 2 lists the complementary categories.

In the case of unveiling a new brand, a platform should hack the way as mentioned step of the business lifecycle, and in the case of extension, it will be in the form of line extension or BE. A service line extension is defined as augmentations of the existing service line [51]. In the line extension case, the extension accomplishment is more likely due to high congruities between the parent brand and subextension [52]. But what about the BE?

From a holistic point of view, BE is defined as the “extension of brand name to new or modified products or lines” [53]. BE is usually used when the firms intend to introduce incremental innovation in the market, while in more radical cases, new brands are devised [54]. In the e-service scope, the customers are found to develop a more affirmative attitude to innovative BE, and their present and future usage of BE is heightened [19]. BE benefits high-equity brands by reducing the launching costs in either the same or new markets [55], attracting new customers to the brand community [56], scaling up sales [57], solidifying parent brand positioning, growing brand awareness [58], creating surplus revenue such as value-added services [59], and long-term success and sustainable performance [60].

The prosperity of the future BE and how consumers evaluate it highly depend on the trust in the parent brand [61, 62]. Through BE, the parent brand may gain greater freedom regarding the technological superiority of BEs that the parent brand can offer in the future [19]. Research into the car-sharing services demonstrates that the Uber brand reduces the risk, increases trust, and accelerates the new service adaptation [23]. Other investigations show that when a firm has a high-quality brand, the flaws in innovations have minor adverse impacts on customers’ brand evaluations [54].

Another challenge a service provider should deal with is diseconomies of scope—whether the new offer conflicts with the old offers or not. The service conglomerate diversification strategy involves the significant risk of losing focus on the core service. To avoid this, a growth strategy of concen-

tric diversification, which limits extension to services with synergistic logic around the existing core service, has been recommended [63]. Concentric diversification is associated with economies of scope, as additional service requires only a marginal increase in variable costs [64]. On the other hand, carrying over that inherited attribute of the primary subsystem’s ecosystem of users to derive a second ecosystem facilitates the success of diversification [65]. A subplatform is built on the core interaction and often serves to reinforce it [66] and drive the network effect through value cocreation actions indirectly in preference to directly [41]. Perceived category similarity (fit) impacts the customer propensity toward the BE [67], parent brand image, and brand loyalty [68]. Customers evaluate parent service BE into a service category more positively [33]. Meanwhile, they perceive brand virtual world extension to the virtual world more favourably [17].

In addition to the above, consumer innovativeness is acknowledged as a significant factor in BE’s success [69]. It is interpreted as “the predisposition to buy new and different products and brands rather than to remain with previous choices and consumption patterns” [70]. As “early adopters,” innovative customers actively search for new services/products and transfer their information to “later adopters” on this ground, thus facilitating the adoption process of new products by potential consumers [71]. Innovators are expected to evaluate service BE more favourably than fast-moving consumer goods (FMCG) and durable goods BE [34].

To sum up, platforms foster innovation by identifying new functionalities that may be missing from the core platform and likely form value for users, e.g., new sources of supply, a new option offered by third parties that are valued by customers and deal with threats from competitors [17]. Value consumption is amplified by shaping new practices of consumer behaviour [72]. Providing a unique experience for customers through innovation, firms satisfy customer needs, enhance their market share [73], and develop brand loyalty [74].

### 3. Conceptual Framework and Hypotheses

Snapp was founded in 2014 as a car-hailing platform that matches consumers to car services in many cities around Iran and takes a percentage of the fare for the service [12]. It added motorcycles and trucks and booking of bus and plane tickets to its services. After it provided hotel and hostel

TABLE 2: Complementary categories.

Item	Description
1	Production (demand side) A decrease in the price of X leads to an increase in the quantity of Y [44]
2	Consumption (supply side) An increase in the demanded quantity of X leads to an increased demand for Y [45]
3	Asset price Financial arbitrage opportunities are created by the foreknowledge of the probable impact of innovation [46]
4	Input oligopoly Inputs X and Y will be sold for less if the companies can collude to maximise profits [47]
5	Technology Unlocking some or all of the values of innovation requires additional innovation in one or more horizontal, lateral, or vertical complements; ownership of complements aids appropriability [48]
6	Innovation Improvements in general-purpose technologies (GPTs) improve the productivity of goods in downstream applications [49]

Source: Teece [50].

reservations, Snapp became a combination of Uber and Airbnb. As a leading smart travel and lodging service platform, in 2019, Snapp extended its services to online food delivery (OFD), similar to Uber Eats, under the Snapp brand.

Transaction platforms, where the platform facilitates the value transaction, seem to fit the supply chain [75]. The food delivery service was not new in the market; however, prior food delivery services through the phone were inefficient and nontransparent. OFD is an incremental innovation and a complimentary service, consumption (supply side), for Snapp. As the OFDs scale up, the demand for transport services rises. Complementor food providers extensively profit from the platform through its brand and economic treats, lower “cost of entry” to the complementary markets [75], stimulation in demand driven by network effects [76], and, finally, its sales and distribution network, which is a crucial factor primarily suitable for small businesses that cannot survive in markets without joining a platform’s network [77]. Innovation in the platform that proposes a pool of complementary resources incentivises more customers to join it and consequently produces indirect network effects [78]. Moreover, the momentum of indirect network effects generated across the platform by complementary services builds a rigid barrier to entry to the same market for potential platform competitors, which makes the platform owner invincible by strengthening its foothold in the on-demand market [75].

Customers now benefit from the opportunity to order from various food providers [79], satisfying the variety-seeking needs of customers [80]. In addition, OFD provides convenience to customers and is cost-beneficial, flexible, and time-saving [81]. As already discussed, business innovation is a way to satisfy customers’ newly visible or hidden needs to appeal to new customers and satisfy current loyal customers simultaneously [82]. Now, through its new service, Snapp hopes to make present customers loyal and lock-in the newcomers, on this base, to its brand community.

In light of the above, the following hypotheses are proposed.

*H1*: innovation through BE increases customer satisfaction.

*H2*: innovation through BE increases brand loyalty.

*H3*: customer satisfaction mediates the relationship between innovations through BE and brand loyalty.

Satisfaction is concurrently reported to be one of the indispensable prerequisites for shaping continuance intention to OFD usage [76, 83]. Previous studies have introduced the existence of two different conceptualisations of customer satisfaction. Transaction-specific customer satisfaction involves a postchoice evaluation of a specific purchase in a specific situation, such as receiving a single service from a firm, and cumulative customer satisfaction which is an overall evaluation based on the overall experience with the goods and services of a particular firm over time, such as a service delivery system, vendor, or service provider [84]. In the current research, the cumulative satisfaction approach is applied because it reports customer evaluation of service through a broader spectrum of experiences, leading to a more accurate judgment of Snapp OFD. This approach has been already adopted by researchers in the e-service context [85, 86].

A customer is brand-loyal when s/he exhibits commitment and constancy to repurchase a particular brand’s service/product in the future [87]. It is a multidimensional concept and has been regarded as a three-dimensional construct incorporating behavioural, attitudinal, and composite aspects. The behavioural viewpoint focuses on purchasing behaviours regarding frequency, finances, quantity, intentions to repurchase, and WOM. The attitudinal approach measures emotional connection with a brand, including emotional attachment, commitment, and trust. Finally, the composite approach is a combination of behavioural and attitudinal loyalty [88]. We apply the composite approach to study the extent of loyalty since the composite view offers a holistic understanding of the loyalty concept [89–91]. Accordingly, the following hypothesis can be proposed:

*H4*: increased customer satisfaction leads to greater brand loyalty.

Reputation is also propounded as the value judgment of the brand, resting on the accumulated previous behaviours [92]. In the platform setting, many studies have found that platform participants consider reputation as a substitution for trust [24] and a determinant of satisfaction [93, 94] and further usage [95]. The trust in Uber encourages users to create an Uber account [96], and research into OFD

demonstrates that brand familiarity is favourably linked to consumers' intention to adopt OFD [97]. The customers' trust in Snapp may increase the users' intention to participate in the Snappfood service.

Based on the above, the following hypotheses are put forth.

**H5a:** the greater the reputation of the parent brand, the greater the effect of innovation of BE on consumer satisfaction.

**H5b:** the greater the reputation of the parent brand, the greater the effect of innovation by BE on brand loyalty.

The perceived risk is interpreted as a consumer's credence to the possible undesirable outcomes of the offline and online deals with service/product providers [61]. Perceived risk can be measured in a two-dimensional construct which involves (a) uncertainty about the consequences of making a mistake and (b) uncertainty about the outcome" [98], or multidimensional risk, which includes performance risk, social risk, time-loss risk, security risk, after-sale risk, psychological risk, source risk, privacy risk, physical risk, and delivery risk [99]. We adopted the first approach in the present research as a study by Roy et al. [100].

In the food context, a negative link between perceived risk and satisfaction is observed. The perceived risk is also found to have an impact on brand loyalty indirectly through satisfaction [101]. The increased uncertainty due to COVID-19-related risks in OFD services negatively influences users' behavioural intention to use OFD [102, 103]. Delivery riders are a highly moving population that offer their services to a wide range of clients, including vulnerable populations such as the elderly or those less likely to leave their house for basic needs, raising concerns about transferring disease to the customers [104].

Based on the above, the following hypotheses are put forth.

**H6a:** the greater the perceived risk, the lower the effect of innovation by BE on consumer satisfaction.

**H6b:** the greater the perceived risk, the lower the effect of innovation by BE on brand loyalty.

Perceived category similarity (fit) is observable in three aspects:

- (1) *Complementarity*: whether the extension is perceived to be a complementary to the parent brand offer
- (2) *Substitutability*: whether the extension is an improved or more customised version of the previous offer and thus can be substituted for it
- (3) *Transfer*: the customer perception of the extent to which technological skill in delivering the previous service is applicable in providing the extension [105].

In service scope, complementarity is acknowledged to hold higher priority, while substitutability impacts are not as important [106, 107]. Moreover, BE fit was found to positively moderate BE link to the formation of loyalty [108]. In a service setting, it is intricate to determine the fitness level for service extension because categorising service offerings is a very challenging issue [109]. In our case, some Snapp

customers perceived the Snapp extension in online food ordering close to Snapp's core brand activity which is assumed to be an online service ordering, and others perceived it as an extension far from the main activity, which is opined to be an online travel and accommodation service.

Moreover, the following hypotheses are suggested.

**H7a:** the greater the perceived category similarity (fit), the greater the effect of innovation by BE on consumer satisfaction.

**H7b:** the greater the perceived category similarity (fit), the greater the effect of innovation by BE on brand loyalty.

Consumer innovativeness is "the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than other members of a system" [110]. Moreover, Manning et al. [111] merge consumer innovativeness notions suggested by Midgley and Dowling [112] and Hirschman [113] in the cited order and provide multiscale conceptualisations as follows: (a) "the independent consumer judgment making": the extent that a customer figures out innovation adoptions autonomously from the others' shared experiences and (b) "the consumer novelty seeking": the aspiration to search for new information about a service/product. Consumer innovativeness implies a consumer's positive attitude towards innovation [114]. As an individual characteristic trait, consumer innovativeness predicts purchasing behaviour and adoption of new services/products [115, 116].

In the e-service context, studies indicate that individuals with higher innovativeness tend to demonstrate a more positive attitude and behaviour in innovation adoption [25, 117]. Several innovations and new technologies have affected the food sector [118] and players' strategies [119]. Innovativeness has a significant positive effect on OFD service intentions [120] or OFD delivery by drones [121].

Further to the above, the following hypotheses are suggested.

**H8a:** the greater the customer innovativeness, the greater the effect of innovation by BE on consumer satisfaction.

**H8b:** the greater the customer innovativeness, the greater the effect of innovation by BE on brand loyalty.

Figure 1 depicts the structural model with moderators.

## 4. Method: Procedure, Participants, and Measures

**4.1. Research Scope and Sample Design.** The proposed model is tested in the city of Tehran in Iran as a cross-sectional survey by adopting a quantitative method and the probability technique. Since close to three million Snapp drivers are active in Tehran, and millions of Snapp customers are Tehran inhabitants, we apply Cochran's formula under an infinite population [122] to calculate the minimum approvable sample size with an additional 20% tolerance to increase the reliability of the results [123] (see Table 3).

**4.2. Questionnaire.** The questionnaires from the references listed in Table 4 were used. Measurements are evaluated on a five-point Likert scale (i.e., strongly agree: 1, agree: 2,

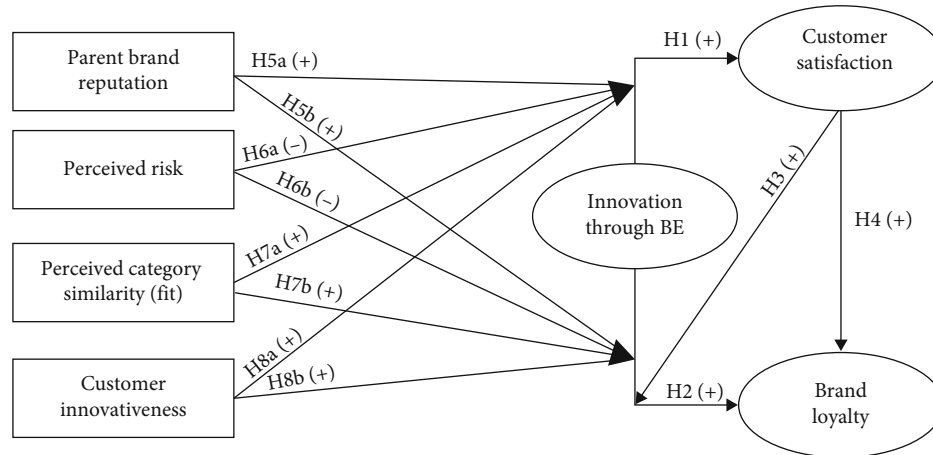


FIGURE 1: Structural model with moderators.

TABLE 3: Demographic characteristics of the samples ( $N = 464$ ).

	Frequency	Percent
<b>Gender</b>		
<i>Offline participants</i>		
Male	46	9.91
Female	70	15.09
Total	116	25
<i>Online participants</i>		
Male	146	31.47
Female	202	43.53
Total	348	75
<b>Age</b>		
Under 35 years old	246	53.02
35-45 years old	162	34.91
45 years old or above	56	12.07
<b>Education</b>		
Associate and less	62	13.36
Bachelor	168	36.21
Master	211	45.47
PhD	23	4.96
<b>Income</b>		
Less than 20M Rials	62	13.36
20~50M Rials	209	45.04
50~100M Rials	172	37.07
More than 100M Rials	21	4.53

Source: own elaboration.

neutral: 3, disagree: 4, and strongly disagree: 5). Four questions about age, education, gender, and income segmentation were also added to the questionnaires, as recommended in internet-based transaction-related research topics [124]. The questionnaire was pretested with a random sample of 35 participants, excluded from the main study sample, in 14 days. After the pretest results were evidenced to be reliable and valid (factor loading  $> 0.5$ , the construct coefficient alphas  $> 0.70$ , and the cross-loading matrix

reported an acceptable correlation between constructs [125]), the main sample survey was performed.

**4.3. Data and Model Analysis.** PLS-SEM is a variance-based approach extensively applied in the marketing management discipline [126]. The PLS-SEM's "prediction-oriented nature" [127] and its reliable function in analysing small-size population data in the case of B2B research, as well as large sample sizes [128], are among its advantages. It is also the most appropriate method to analyse a complex structural model consisting of several constructs and indicators. With models formed of dependent, mediating, and independent variables with many indicators, PLS-SEM estimates mediation more properly [129, 130]. On this ground, PLS-SEM is preferable for the current study, and SPSS and Smart PLS software programs were used to analyse the data, model, and hypotheses.

**4.3.1. Descriptive Analysis.** Descriptive statistics related to study construction are detailed in Table 5. The data average fluctuates between 3.101 and 3.723. The perceived risk has a maximum average, and the perceived category similarity (fit) has a minimum average. The data range is moderate, being less than four. Customer satisfaction has the lowest range, and customers' innovativeness variance is lower than other variables, implying the unity of participants' opinions. Moreover, the mean and mode indicate that the majority of contributors chose agreed and strongly agreed from the options.

**4.3.2. Measurement Model Analysis.** To avoid the construct misspecification, identification, and validation, it is essential to specify whether the model is formative or reflective. The proposed model is reflective as measures (1) are derived from the latent construct, (2) have highly correlated indicator variables, and (3) have no alternation in the conceptual meaning of the latent construct in the case of excluding an indicator [131]. To validate the measurement model, the following criteria should be analysed:

- (1) Loading factor
- (2) Internal consistency criteria including composite reliability (a value between 0.70 and 0.90 points out

TABLE 4: Measurement items.

Variables	Description	$\beta$	t-Statistic
	$\alpha = 0.896; \rho_A = 0.899; CR = 0.910$		
Innovation through BE Alegre et al. [133]	IBE1: I have already been using Snapp, and now, I use its new service (online food ordering).	0.882	64.766
	IBE2: Snapp extended its activities to a new service (online food ordering).	0.928	107.637
	IBE3: I will use Snapp because of its new online food ordering service (Snappfood).	0.902	82.143
	IBE4: Snapp offers a new service (online food delivery) through a new application (Snappfood).	0.896	90.201
	IBE5: Snappfood application is the first online food delivery application that I have used.	0.891	96.643
	$\alpha = 0.903; \rho_A = 0.910; CR = 0.923$		
Customer satisfaction Akroush & Mahadin [134]	SAT1: I was pleased to use Snapp services.	0.895	78.393
	SAT2: the overall feeling I got from the Snapp services was satisfactory.	0.871	51.892
	SAT3: the overall feeling I got from the Snapp services put me in a good mood.	0.913	95.489
	SAT4: I really enjoyed using Snapp services.	0.925	104.979
	$\alpha = 0.901; \rho_A = 0.908; CR = 0.918$		
Brand loyalty Zeithaml et al. [135]	BL1: I will use Snapp services in the future.	0.886	57.024
	BL2: I will say positive points about Snapp services when I talk to my friends or relatives.	0.907	78.544
	BL3: I will recommend Snapp services to my friends or relatives when they need the related information.	0.905	108.895
	BL4: I will encourage my good friends or relatives to use Snapp services.	0.904	110.537
	BL5: Snapp services will be my first choice when I need to use them.	0.917	74.466
	$\alpha = 0.854; \rho_A = 0.873; CR = 0.911$		
Parent brand reputation Hem et al. [34]	PBR1: altogether, I am familiar with Snapp services.	0.891	60.243
	PBR2: altogether, I am very familiar with Snappfood delivery services.	0.920	91.936
	PBR3: altogether, I associate positive things with Snapp services.	0.825	37.871
	$\alpha = 0.894; \rho_A = 0.909; CR = 0.921$		
Perceived risk Kapferer & Laurent [136]	PR1: when I'm looking for an online food ordering service, I always feel rather unsure about what to pick (uncertainty).	0.824	39.501
	PR2: when I want to use an online food ordering service, it is likely to make a wrong choice (uncertainty).	0.845	46.633
	PR3: it is difficult to know what is the best option in the online food ordering market (uncertainty).	0.670	10.911
	PR4: there are some negative consequences if I choose an improper online food ordering service (consequences).	0.882	63.361
	PR5: I should be annoyed with myself if it turns out I have made the wrong choice when choosing an online food ordering service (consequences).	0.857	50.601
	$\alpha = 0.868; \rho_A = 0.874; CR = 0.919$		
Perceived category similarity (fit) Aaker & Keller and Smith & Park [105, 137]	PCS1: an overlap exists between previous services of Snapp (online travel and accommodation) and online food ordering (complementarity).	0.891	95.943
	PCS2: it is the service that was missing from Snapp offered services (complementarity).	0.882	67.708
	PCS3: the online food ordering application of Snapp is user-friendly, just like the online transport application (transfer).	0.894	59.673
	$\alpha = 0.895; \rho_A = 0.902; CR = 0.923$		
Customer innovativeness Steenkamp & Baumgartner [138]	CI1: I am continually seeking new ideas and experiences (novelty seeking).	0.899	75.300
	CI2: when things get boring, I like to find some new and unfamiliar experiences, for example, the online food ordering service, to choose (independent judgment-making).	0.908	88.336
	CI3: I sometimes like to choose risky ways to order food from new food services (online ordering service) (independent judgment-making).	0.716	22.352

TABLE 4: Continued.

Variables	Description	$\beta$	$t$ -Statistic
	CI4: I get surprised when ordering from various food delivery services through online food ordering applications (novelty seeking).	0.878	66.319
	CI5: I like to experience novelty and change in my daily routine food, such as using an online food ordering service (novelty seeking).	0.790	32.862

Notes: all items are measured with a five-point Likert scale anchoring: (1): strongly agree and (5): strongly disagree;  $\alpha$ : Cronbach's alpha; CR: composite reliability;  $\beta$ : loading factor,  $t$ -statistics: bootstrapping.

TABLE 5: Construction variable descriptive analysis ( $N = 464$ ).

Variables	Average	Median	Mod	SD	Variance	Range	Min	Max
Innovation through BE	3.567	3.900	5.000	0.925	0.856	3.880	1.123	5.000
Customer satisfaction	3.256	3.902	5.000	0.931	0.867	3.490	1.510	5.000
Brand loyalty	3.116	3.820	5.000	1.018	1.036	3.700	1.300	5.000
Parent brand reputation	3.362	3.825	5.000	1.006	1.012	3.800	1.200	5.000
Perceived risk	3.723	4.000	4.000	0.738	0.545	3.900	1.100	5.000
Perceived category similarity (fit)	3.101	3.910	5.000	1.134	1.286	3.980	1.020	5.000
Customer innovativeness	3.302	4.000	5.000	0.633	0.401	3.900	1.100	5.000

Note: SD: standard deviation.

“satisfactory to good” reliability), Cronbach's alpha, and  $\rho_A$  (indicates the nearly precise reliability measure and commonly represents an amount between composite reliability and Cronbach's alpha)

- (3) Convergent validity, reported as AVE, which assesses the correlation between both latent variable and its observable indicators and other latent variables and their observable indicators with a threshold value of 0.5 [128, 132]
- (4) Discriminant validity which is evaluated as the squared root of the AVE of one construct (figures highlighted on the diagonal) and has to be always more significant than interconstruct correlations [132].

Meanwhile, to modify the errors resulting from construct-level changes and calculate the  $t$ -value and coefficient of determination of the direct and indirect path, bootstrap analyses with 5000 subsamples are applied.

As per Tables 4 and 6, loading factors, reliability, AVE, and discriminant validity of the data are within acceptable ranges.

The heterotrait–monotrait (HTMT) ratio, which indicates the correlation between two constructs, should be reported to support discriminant validity. The value of less than 0.85 supported the discriminant validity of entire variables [139], as reported in Table 7.

**4.3.3. Structural Model Analysis.** Common method bias (CMB) leads to inaccuracy in structural model analysis by inflating the estimation of structural parameters, which is possible in a cross-sectional research survey. In order to check whether the model is free from CMB, the variance inflation factor (VIF) has to be calculated. Preferably, the

VIF should be near 3, with a maximum value of 3.3 [140]. The VIF values in our study varied from 2.83 to 2.96, which correspond to the specified limit.

The coefficient of determination,  $R^2$ , also known as “model's explanatory power” [141], needs to be reported, as well. In addition, to evaluate the degree of deletion of a particular predictor construct's impact on the endogenous construct's  $R^2$  value, the parameter  $f^2$ , effect size, should be measured.

The out-of-sample predictive power ( $Q^2$ ) was estimated using the PLS prediction technique [127]. This measure uses the “blindfolding procedure” that eliminates “single” items in the data matrix, assigns the deleted item to the mean, and measures model predictive power (see Table 8).

As the root mean squared error (RMSE) is calculated by squaring the errors prior to averaging; larger errors will have higher weights. On the ground, in studies where sizable errors are undesirable, RMSE can be beneficial. Apart from the out-of-sample prediction demonstrated in Table 8, RMSE of the PLS model should be compared to RMSE values revealed by the regression model (LM). If PLS-RMSE measured lower than LM-RMSE for all items, strong predictive power is reported; if it measured lower for a majority of endogenous items, then medium predictive power is construed; if it measured lower for the minority (or equal number), weak predictive power is observed; finally, if it did not measure lower for any of the indicators, there would be no predictive power [142]. The analysis results reported in Tables 8 and 9 verify that our model holds a strong predictive power.

**4.3.4. The Goodness of Fit (GOF).** The goodness of fit, GOF, considers both measurement and structural models and is assessed using the average coefficient of determination ( $R^2$ )



TABLE 6: Discriminant validity matrix: Fornell and Larcker criterion.

Constructs	AVE	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Innovation through BE (1)	0.810	<i>0.900</i>						
Customer satisfaction (2)	0.812	0.795	<i>0.901</i>					
Brand loyalty (3)	0.847	0.794	0.757	<i>0.920</i>				
Parent brand reputation (4)	0.773	0.711	0.702	0.686	<i>0.879</i>			
Perceived risk (5)	0.663	0.764	0.749	0.769	0.689	<i>0.814</i>		
Perceived category similarity (fit) (6)	0.790	0.758	0.725	0.681	0.771	0.702	<i>0.889</i>	
Customer innovativeness (7)	0.708	0.781	0.745	0.711	0.630	0.713	0.632	<i>0.842</i>

Italic numbers on the diagonal show the square root of the AVE. Numbers below the diagonal represent construct correlations. AVE: average variance extracted.

TABLE 7: Discriminant validity analysis: HTMT.

Constructs	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Innovation through BE (1)	—						
Customer satisfaction (2)	0.795	—					
Brand loyalty (3)	0.793	0.757	—				
Parent brand reputation (4)	0.711	0.703	0.686	—			
Perceived risk (5)	0.764	0.750	0.768	0.689	—		
Perceived category similarity (fit) (6)	0.756	0.725	0.681	0.771	0.702	—	
Customer innovativeness (7)	0.780	0.744	0.710	0.631	0.712	0.632	—

TABLE 8: Model prediction power analyses.

Model paths	Hypothesis	$R^2$	$f^2$	$Q^2$
Innovation through BE→customer satisfaction	H1	0.780	0.645	0.624
Innovation through BE→brand loyalty	H2	0.734	0.146	0.691
Customer satisfaction→brand loyalty	H4	—	0.046	—

$R^2$  varies from 0 to 1; the values of 0.75, 0.50, and 0.25 indicate substantial, moderate, and weak explanatory powers;  $f^2$  values larger than 0.02, 0.15, and 0.35 illustrate small, medium, and large effect sizes [143, 144].  $Q^2$  values have to be higher than zero for a particular endogenous construct to validate predictive accurateness of the structural model for specified construct.  $Q^2$  values larger than 0, 0.25, and 0.50 describe small, medium, and large out-of-sample predictive powers [128].

TABLE 9: Assessment of PLS prediction.

Variables		PLS-SEM		LM		PLS-SEM-LM	
		RMSE	$Q^2$	RMSE	$Q^2$	RMSE	$Q^2$
Customer satisfaction	SAT1	0.979	0.613	0.919	0.578	-0.060	0.035
	SAT2	0.912	0.599	0.921	0.564	-0.009	0.035
	SAT3	0.897	0.615	0.912	0.589	-0.015	0.026
	SAT4	0.881	0.618	0.899	0.591	-0.018	0.027
Brand loyalty	LB1	0.985	0.665	0.992	0.654	-0.007	0.011
	LB2	0.963	0.679	0.982	0.669	-0.019	0.010
	LB3	0.875	0.675	0.893	0.662	-0.018	0.013
	LB4	0.984	0.671	0.991	0.659	-0.007	0.014
	LB5	0.788	0.695	0.800	0.673	-0.012	0.022

TABLE 10: Model goodness-of-fit analyses.

Dependent variables	$R^2$	Adjusted $R^2$	GOF	Adjusted GOF
Customer satisfaction	0.780	0.775	0.763	0.759
Brand loyalty	0.734	0.721	—	—

GOF amounting to 0.01, 0.25, and 0.36 is considered as weak, moderate, and substantial, respectively [145].

and the average communality which is calculated based on each reflective indicator's AVE [132] (see Table 10).

## 5. Results

*5.1. Direct Effect of Innovation by BE on Customer Satisfaction and Brand Loyalty.* Table 11 indicates the relationship between the main variables resulting from the PLS-SEM approach and  $t$ -test statistic values. As reported in Table 12, hypotheses H1, H2, and H4 are supported at a confidence level of 0.95. Figure 2 illustrates the main model and the mediator analysis results.

*5.2. Mediating Role of Customer Satisfaction between Innovation through BE and Brand Loyalty.* If an exogenous variable has an insignificant direct but significant indirect effect through a mediator on an endogenous variable, the mediator shows full mediation. In the case of observing significant direct and indirect effects through mediation, the mediator plays the role of a partial mediator [146]. If both direct and indirect effects follow the same direction, it is called complementary mediation. Otherwise, it is known as competitive mediation [147]. We adopt bootstrap sampling distribution to analyse the direct and indirect impacts [146]. As per Table 12, it can be concluded that customer satisfaction partially and complementarily mediates the effect of innovation through BE on brand loyalty. Therefore, H3 is supported at a confidence level of 0.95.

*5.3. Analysing the Moderator's Role on Main Variables.* In moderation analysis, a third variable, which directly impacts the relationship between the independent and dependent latent variables, would be evaluated. In order to examine the moderating effect, the present study employs the "product indicator approach," in which the items of the independent variable are multiplied by the items of the moderator to create a moderating effect as recommended by [146].

Table 13 presents the analysis results of the moderators, and Figure 3 depicts the moderator's impact results.

## 6. General Discussion

According to the data analysis, the leading smart transportation system innovation through brand extension seems to be a proper strategy. The effect of the platform's business service innovation through BE on customer satisfaction and brand loyalty (RQ1) is positive and significant, which agrees with Khan et al. and Diaw and Asar [148, 149]. The higher a customer's perceived value of the original service brand, the higher the chance of adoption of service extensions by them.

When users perceived the advantages of the BE, their attitude toward the BE, and their present and future intentions to adopt the BE will be intensified [19]. A more substantial effect of innovation through BE on customer satisfaction than brand loyalty is also reported, as in the process innovation findings of Khan et al. and Nemati et al. [148, 150].

We found that many Snappfood users are new customers who have joined Snapp services. As the leader in transportation services, Snapp owns about 11 per cent of the total market, but as it claims, a 95% share of online food delivery in Iran belongs to it. Nevertheless, newcomers are satisfied with the new online services provided to them by Snapp. Satisfaction level can alter due to "intrinsic changes" (e.g., changing needs) or "extrinsic changes" (e.g., the emergence of new competitors) [151]. However, service providers must be agile to tailor their services to satisfy evolving customer needs and pave the path for the development and management of innovative practices which concentrate on the customer [59]. Furthermore, the present study shows that females are more loyal than males to Snapp, which is in line with Ma et al. [152] who reported that gender type and age are among the factors that influence risk perception and intention to continue using a service and Leninkumar [153] who claimed that females value long-term relationships more than males.

The answer to RQ2 is also affirmative; customer satisfaction mediates the relation between platform innovation through BE and brand loyalty. When the brands satisfy customers' needs through innovation, customers do not tend to tolerate the risk of switching to another brand. This agrees with Bersali and Guermat [15] in the process of innovation in mobile phones. In addition to the above, our study supports the significant positive impact of customer satisfaction on brand loyalty. The same results were obtained in studies on platforms conducted by Kuswanto et al. and T. Lv and X. Lv [154, 155]. Thus, as already discussed, innovation is a crucial stimulus to customer cocreation, satisfaction, intention, and behavioural loyalty [156]. Moreover, customer satisfaction is a channel through which innovation can lead to loyalty [149].

Regarding RQ3, among BE moderators, taken all together, moderators increase the contribution of innovation through BE to the coefficients of determination of customer satisfaction from 0.780 to 0.800 and brand loyalty from 0.734 to 0.75. Based on the path coefficient, parent brand reputation impacts satisfaction and loyalty in favour of innovation through BE. Previous researchers reported that trust in platform brands encourages users to trust drivers in car-sharing and, as a line extension, to adopt the new service [22, 157]. This implies that a service business must build a strong brand first and then expand, as with Snapp. However, brands are stated to be the "core of the users' conversations," and negative reviews outstrip positive ones [158]. The study shows that if customers realise that criticisms regarding BE increase, their intention to participate in the platform will lower [19].

The second most influential factor is risk perceived by the consumer from newly offered services that deter successful BE. However, the risk's impact on a loyal customer is less

TABLE 11: Mediator analyses.

Independent variable	Hypothesis	Direct effect to brand loyalty	95% bias corrected and accelerated confidence interval	<i>t</i> -Statistic	Indirect effect to brand loyalty through customer satisfaction	95% bias corrected and accelerated confidence interval	<i>t</i> -Statistic	Result
Innovation through BE	H3	0.35***	0.25, 0.53	5.89	0.125**	0.15, 0.29	2.83	Supported

Note: \* *T* - value > 1.96: significant relationship at confidence level  $P < 0.05$  is supported. \*\* *T* - value > 2.58: significant relationship at confidence level  $P < 0.01$  is supported. \*\*\* *T* - value > 3.23: significant relationship at confidence level  $P < 0.001$  is supported.

TABLE 12: Structural model analyses.

Model paths	Hypothesis	Path coefficient	<i>t</i> -Statistic	95% bias corrected and accelerated confidence interval	Result
Innovation through BE → customer satisfaction	H1	0.69***	12.42	0.30, 0.59	Supported
Innovation through BE → brand loyalty	H2	0.35***	5.89	0.25, 0.53	Supported
Customer satisfaction → brand loyalty	H4	0.18**	2.92	0.07, 0.26	Supported

Note: \* *T* - value > 1.96: significant relationship at confidence level  $P < 0.05$  is supported. \*\* *T* - value > 2.58: significant relationship at confidence level  $P < 0.01$  is supported. \*\*\* *T* - value > 3.23: significant relationship at confidence level  $P < 0.001$  is supported.

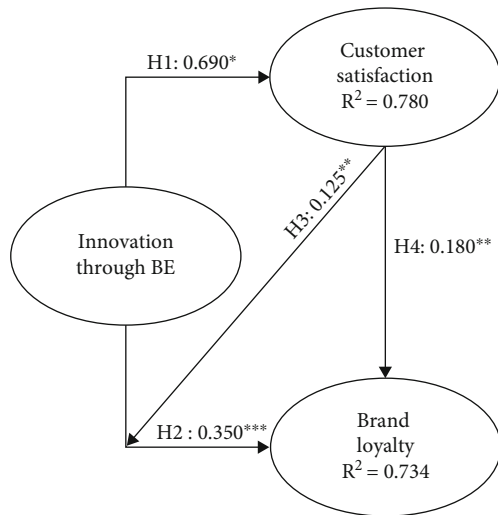


FIGURE 2: Structural model with path coefficient.

intense than customer satisfaction. When customers are convinced that a service firm is well-reputed, they will perceive lower risk and be more inclined to seek long-term collaboration [34]. The information asymmetry between consumers and suppliers leads to a higher perceived risk for the customer and lower intention to act. In e-commerce, in default of face-to-face communication, and sometimes due to the impossibility of examining the offered service/product before their transaction, customers perceive a higher risk than in traditional commerce [159, 160]. Therefore, transactional platforms, such as marketplaces, typically require advanced connection capabilities between participants when information asymmetry between market participants is high.

Repeated claims of Snapp customers which circulated in cyberspace are delivering a cold or deformed meal, fake dis-

count, delay in delivery, unavailability of promoted food, not correctly handling the customer complaints, poor hygiene or unprofessional behaviour of food delivery driver, and delay in refunding needed to be addressed by Snapp properly to reduce the damage. In addition, considering the higher impact of perceived quality from intrinsic traits (e.g., scent and design) and extrinsic attributes (e.g., brand and monetary value) on the brand loyalty of highly engaged consumers [161], service providers should set a high health standard initiative compliance. Although the government's health ministry monitors the businesses involved in the food industry, surpassing the defined standard works as a trust augments of responsibility gesture.

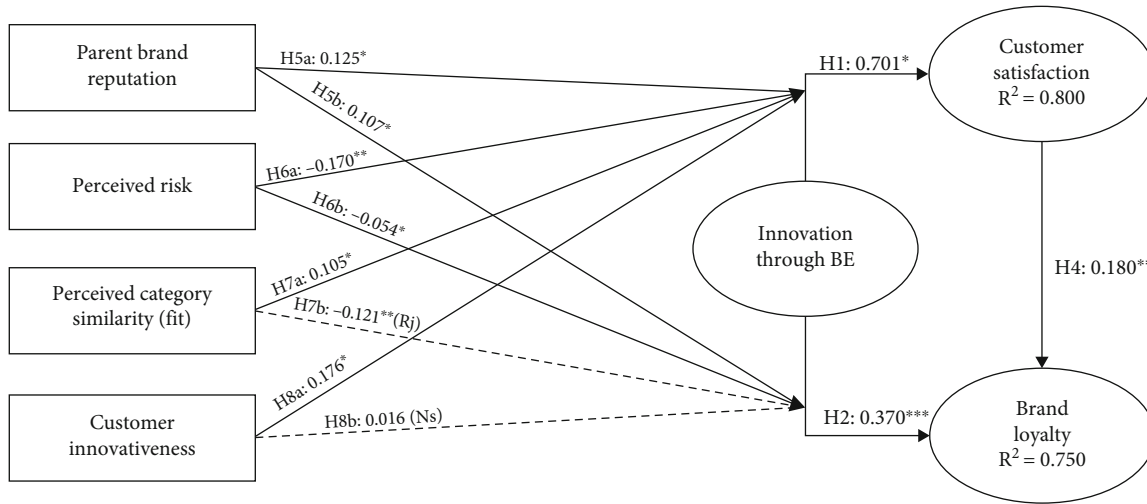
Quick complaint handling helps management to prevent barriers to customer satisfaction and brand credibility [162]. For instance, a filter should be used to oust unqualified service providers. In return, satisfied customers are more encouraged to spread online WOM on social networks, as well as offline WOM, and generate more brand reputation. Furthermore, the adoption of social networks improves their performance [163, 164]. Managers in developing countries can manage existing online communities or develop new platforms to use the interconnectivity of individuals for branding cocreation. The possibility of branding through online communities with customers can be a practical strategy for emerging markets [165].

Corporate social responsibility (CSR) deeds lead to customers' emotional connection and trust in the service firm's brand [166]. As a critical strategy, a digital platform should promote social norms and align CSR activities with the core business. Some examples of such activities include monitoring environmental impacts of business and spreading reasonable optimism in an uncertain time, hygiene and safety enhancement, financial transparency, and adequate proactive training to partner deliverers who are in direct contact

TABLE 13: Moderator’s analyses.

Independent variable × moderator → dependent variable	Hypothesis	Path coefficient	t-Statistic	Result
Innovation through BE × parent brand reputation → customer satisfaction	H5a	0.125*	2.38	Supported
Innovation through BE × perceived risk → customer satisfaction	H6a	-0.170**	2.73	Supported
Innovation through BE × perceived category similarity (fit) → customer satisfaction	H7a	0.105*	2.32	Supported
Innovation through BE × customer’s innovativeness → customer satisfaction	H8a	0.176*	2.48	Supported
Innovation through BE × parent brand reputation → brand loyalty	H5b	0.107*	2.33	Supported
Innovation through BE × perceived risk → brand loyalty	H6b	-0.054*	1.98	Supported
Innovation through BE × perceived category similarity (fit) → brand loyalty	H7b	-0.121**	2.65	Rejected
Innovation through BE × customer innovativeness → brand loyalty	H8b	0.016	1.92	Not significant

Note: \*T – value > 1.96: significant relationship at confidence level  $P < 0.05$  is supported. \*\*T – value > 2.58: significant relationship at confidence level  $P < 0.01$  is supported. \*\*\*T – value > 3.23: significant relationship at confidence level  $P < 0.001$  is supported.



Notes: \* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$ ; Ns: Not significant, Rj: Rejected  
Source: own elaboration

FIGURE 3: Structural Model with moderator, path coefficients, and  $R^2$ . Notes: \* $P < 0.05$ , \*\* $P < 0.01$ , and \*\*\* $P < 0.001$ ; Ns: not significant; Rj: rejected. Source: own elaboration.

with the customer. Moreover, using drone food delivery and self-service pickup machine that mitigate the risk of human contact are suggested technologies the investigated platform can adopt.

Perceived category similarity in band extension aligns with customer satisfaction but weakens brand loyalty. The customers identify the extension complementarity with the congruous transfer skill concerning the parent brand [106, 107], thus evaluating the extension [108]. However, it influences loyalty in the opposite direction, in contrast with previous studies [67, 167]. It implies that customers may be more satisfied when they encounter various services provided by a brand because they will have various choices and can fulfil their previously unanswered needs. Nonetheless, a loyal customer may prefer a company because they offer specific services and therefore may feel brand-diluted when faced with various services to choose from. As a result,

their loyalty declines. Quotations heard everywhere, such as “platforms are eating the world” [168] or “there is an Uber for everything now” [169], may draw a spotlight on platform brands’ dilution. However, on this subject, more research is required to be conducted.

The customer innovativeness as a moderator exhibits a statistically significant impact on customer satisfaction but not a statistically significant effect on brand loyalty. Path coefficient indicates that customer innovativeness is the dominant moderator of customer satisfaction. It also infers that customer innovativeness is more effective on a new customer than on a loyal customer. Our demographic analyses also demonstrate that younger customers show less loyalty to individual businesses than others. During adolescence, consumer innovativeness is distinctive, developing in different ways than it does during other parts of the life cycle [170]. Innovators are interested in acting as “a source of

information about innovations” [171]. On this ground, brands, especially a brand with high-level equity, should be precise in handing out information relevant to innovations [54]. However, innovation can easily lead to complexity, making it more difficult for users to navigate a platform. The platform may pick between bundling—“adding features and additional services to the same platforms” [172]—or constellations—“adding a variety of services in separate platforms which share the same log-in credentials” [173], since each of the above designs has its positive and negative consequences. However, the platform owner should test and choose the outweighed approach when implementing an expansion strategy. Well-designed features, e.g., emojis [174] or interactive types of the platform, can also be a powerful way to increase its usefulness perception, attracting more users and changing them to an active audience.

In general, there is no significant association between the education and income level of the respondents and their overall attitude toward extended brands. It is a result of the availability of various options in offering the service, from high prices to low prices, which meets all the social classes, and with no constraints in the accessibility of service based on geographic locations; users find it equally convenient to join the platform.

The present study enriches branding concepts in marketing literature through the marked observations and the explanatory power of the suggested model. It provides insight into the customer perception and behaviour about innovation through BE on the maturity stage for digital platform managers and service/product provider partners.

## 7. Limitations and Future Research Lines

Although the present study has satisfactory explanatory power, it may still suffer from some limitations. First of all, our findings cannot be generalised. It is suggested that similar studies be performed with a larger and more geographically diverse sample in other countries and cultures, maybe on the most famous similar platforms, i.e., Uber and Uber Eats. We considered two aspects of risk uncertainty about the consequences of making a mistake and uncertainty about the outcome. However, risk can also be perceived financially, psychologically, physically, socially, and time-wise. Future studies may consider other features of risks on successful BE implementation.

Customer innovativeness also affects customer satisfaction by BE more than brand loyalty, which is good news. However, an innovative customer may not become a loyal customer [70]. Further research can be beneficial regarding how to make an innovative customer loyal by innovation through BE, and the factor influences the customers’ innovativeness loyalties. Meanwhile, what is the optimum interval to introduce new services to the innovators in the platform? The links between customer innovativeness and brand are not statistically significant in the present study. In addition, perceived category similarity in BE weakens brand loyalty, which does not agree with previous research. Therefore, more studies need to be conducted to enlighten the mentioned issues. Moreover, a study on customer perception of

a different kind of extension (e.g., line extension or category extension) can be implemented for the platform business model.

## Data Availability

Data are presented in the article text.

## Conflicts of Interest

The authors declare no conflict of interest.

## Authors’ Contributions

The authors contributed equally to this research. All authors have read and agreed to the published version of the manuscript.

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