



Research article

The relationship between 5G technology affordances, consumption values, trust and intentions: An exploration using the TCV and S-O-R paradigm

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ABSTRACT

5G mobile communication technology is anticipated to merge with many other sectors, spurring innovation and creating substantial ripple effects. Despite the significance of this advancement, current research provides limited knowledge of users' behavioral reactions to the affordances, values, and trust generated from 5G technology. To investigate this relationship, this study used the Stimulus-response theory and the consumption values theory. The empirical data was gathered from 373 consumers in China using a survey method. To validate the model's suggested relationships, the author utilized the partial least squares-structural equation modelling (PLS-SEM) technique. The finding designates that the affordances and purchase intention relationship was mediated by consumption values and trust. Given the significance of 5G technology and its potential, this study investigates what drives and deters consumers from obtaining 5G technology. Original findings insights on the role of affordances in developing marketing strategies and increasing consumer intentions to purchase 5G technology products.

1. Introduction

Considering the past narrative of information technologies, the 5G is expected to further boost the mobile communication industry by introducing innovations [1, 2]. In six major 5G countries (South Korea, Japan, Germany, USA, UK, and Australia), it was observed that data consumption of 5G technology surged between 1.7 and 2.7 times higher than 4G in a few years [3]. With its novel features and technical standards, 5G is projected to bring new advancements and possibilities for companies and industries [4]. As 5G's radiofrequency radiations and electromagnetic fields have been recognized as a novel form of pollution that has long been recognized to cause psychological and physiological health consequences. Consumers have a negative public perception of the potential hazards of new technology products or technology-based activities, also called Technological stigmatization [5, 6]. Pollution has long been recognized to have health related repercussions, with results including lungs, pulmonary, cardiovascular problems, and psychological

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health impacts such as discomfort, anxiety, and stress [7, 8, 9]. Scholars exposed that environmental pollution might provoke hostile feelings due to its harmful impacts on health [10, 11]. As a result, individuals are more likely to assess the harshness of pollution in everyday life. As a result, preventions on 5G technology have been imposed in many places, including Vaud (Switzerland), Belgium, and San Francisco (USA) [12].

Therefore, its validation is an assortment of many elements rather than just a matter of whether the consumer picks to consume it or not. Many studies have been directed to inspect the variables that affect consumers' usage intentions and the effect of values on their choice to embrace technology [12, 13, 14]. Limited works considered the variables influencing consumers' intentions to adopt 5G technology [15, 16, 17, 18]. Our analysis of theoretical research indicates that a theory-based investigation has mostly focused on ideas related to the intention and usage of existing technology [19, 20, 21, 22]. Though these concepts give perception into the technological aspects that promote technology espousal, they provide a partial knowledge of user intents that enable new 5G technology use. Considering the danger involved with 5G technology, safety, and trust are significant elements in future consumers' buying intentions. Our research is based on discovering a novel route for investigating the 5G user's purchasing intentions. Previous research in tourism, food-related choices, and hospitality [13, 23] has also examined the impact of such affordances and values on purchasing intentions. Only limited studies have explored consumer trust in connection to technology goods [15, 24, 25].

The objective of this research is to explore consumers' acceptance of 5G technology in order to gain a better knowledge of the elements that impact acceptance and usage of them. This study adds to adoption research by presenting a theoretical model to investigate factors influencing user acceptance of 5G technology goods and services. This study, based on the research methodology, investigates the influence of personal and marketing variables on 5G acceptability and intention to use. The Structural equation modeling technique is used in this article to analyze the empirical robustness of the linkages in the developed framework. We sought to fill these gaps by putting to the test a research paradigm grounded on the theory of consumption values (TCV) [26] and Stimulus-response theory (SOR) [27].

The findings of this work contribute to the existing literature in a variety of ways. To begin, just two articles [25, 28] have previously investigated the influence of affordance on trust. As a result, the present study contributes to the existing literature by examining the link between affordance values and trust. Furthermore, the function of values and trust as mediators in the link between affordances and purchase intention will be investigated. Second, this study is unique in establishing how specific affordances generated by marketing communication impact consumers' 5G technology practice intent by swaying their values and trust. This is the novel research to explore the role of consuming values (e.g., functional (FV), social (SV), preference (PV)) and trust (TR) in the connection between affordances (e.g., visibility (VA), design (DA), safety (SA), guidance (GA)) and purchases intention (CPI). Recent research [23, 29] has urged academics to investigate contextual values to get a more comprehensive knowledge of what customers want. Therefore, the study compared the use of fundamental consumption values proposed by previous literature to the use of contextual values linked to 5G technology usage. Third, this work contributes to the field of affordances research by giving much-needed statistical results. Finally, in this framework, our study presents the first model to incorporate S-O-R and TCV theory and affordances.

The next part of the article deals with the literature review, followed by a proposed research framework and hypotheses. After that the next part explored the data analyses, and the results. The article concludes by conferring the results and contributions, with limitations and future research considerations on this issue.

2. Literature review

2.1. Affordance theory

Affordance is a notion that comes from visual perception, which is associated with the choices provided by the environment. According to affordance theory, each domain has opportunities or affordances to stimulate specific actions. These affordances, or possibly triggered behaviors, may differ depending on the surroundings. The usage of the term "affordance" in several fields has resulted in various meanings. It has been described in the context of information systems as the capability of guiding the consumer to the preferred action through the interaction of a technological item with the consumer [28]. Likewise, Guo, Zhu [30] enlightened technological affordance as "the potentials and opportunities for action that arise when players interact with a focused technology". Previous studies evaluated the features of affordance, signifying that the aspects may differ depending on the content [31]. These include social contact, visibility, shopping guidance, metavoicing affordances, etc. [32, 33]. According to the relevant research, social commerce affordance has a wide range of effects, including social bonds [34], quick guanxi [32], customer engagement [28], and brand and quality experience [35]. Affordance may impact an individual's cognitive and emotional reactions; therefore, this study shows how affordances influence consumer behavioral intent through trust and consumption values [28, 33, 34, 36].

2.2. Theory of consumption values (TCV)

TCV provides a method for understanding how users choose to buy (or not buy) and pick a specific product among various accessible goods [26]. This research used TCV as a theoretical approach for three reasons. First, it's a well-known and frequently utilized theoretical basis for studying the subtleties of buyers' behavior and retention intents [29, 37]. This idea has already been applied to digital services and technologies to facilitate a better brand experience [23, 29]. Second, prior research has specified that TCV improves behavior knowledge in the circumstances akin to the current study [29, 38]. Third, this theory considers emotional and cognitive components, resulting in a comprehensive understanding of related values [29, 39]. As a result, it's critical to comprehend the consumption values that affect users' behavioral intents and reactions. According to current service quality literature, researchers

should study context-specific values to understand buyer behavior deeper [23]. As a result, we used TCV to develop and evaluate context-specific utilization estimates for 5G technology use. We incorporated functional, social, and preference values in our research (see Fig. 1). A consumer's impression of an item in terms of quality, price, durability, reliability, and consistency is measured by functional value. This is regarded as the primary motivator of consumer decisions [26]. The perceived usefulness of a service or product tied to specific social and socioeconomic, demographics is measured through social value. It is connected to self-image in that the degree to which an item is seen to enhance self-image substantially affects consumer behavior. The preferred values are determined by particular circumstances or contingencies in the scenario.

2.3. S-O-R framework

Environmental stimuli, conforming to the S-O-R approach, may induce behavioral and attitudinal reactions by stimulating emotional and cognitive internal dynamics such as people's experiences and perceptions. Individuals are encouraged by stimulants, and these stimuli may cause a person to behave. In the marketing field, environmental stimuli have been characterized as environmental signals [40]; consumer perceptions are triggered by these signals, which may lead people to do a specific action, either sub-consciously or deliberately [41, 42]. This impact has been shown in research using the S-O-R premise in the retail industry. Consumers engage with the design aspects of the virtual world, which serve as environmental cues [43]. The contextual features with which consumers engage have been highlighted in research [44] using the S-O-R theory as an essential stimulus that influences the involvement practices and successive behaviors. For instance, Fang, Li [35] claimed that persistence, visibility, selectivity, and interaction arrangements are environmental characteristics within the S-O-R context. Based on this theory, the organism has emotional and cognitive inner developments that bridge reactions and external stimuli [20]. These cognitive and emotional practices comprise sensory, emotional, physical, and mental activities [45, 46]. Behavioral replies indicate emotional responses containing active or passive behavioral and attitudinal changes. Various research studies have studied reaction elements in different configurations [47, 48]. The S-O-R is utilized as a theory and structure in the current research for various reasons. First, as previously mentioned, this paradigm has lately been popular in studies of consumer behaviors [49]. Second, the SOR model provides a controlled way to examine how diverse stimuli affect users' experiences, affecting their engagement with new technologies. Another advantage of this theory is that it allows for an integrated model by merging it with other ideas and theories. Therefore this article employs safety, design, visibility, and guidance affordances to express stimuli in the structure of the TCV and S-O-R models, keeping the significant importance of these theories.

3. Hypotheses development

3.1. Effect of visibility affordance on consumption values

The term "visibility affordance" narrates to the endowment of visibility and simple access of product information related with buyer action. Because consumers need supplementary product information before making a choice, thinking about product niceties gives the consumer a sense of absorption. Users are tense to very superior items that may backing them in presenting their possessions and enhancing their social status [50, 51]. This choice of conspicuous products designates an effort to improve social value, equivalent to visible consumerism, which is related with buying things to enhance social prestige. Users may obtain perceived value from physical or social eventualities from consumption-related conditions [22, 26].

Moreover, Lin, Guo [52] hypothesized that exposure to item characteristics such as environmental stewardship, in conjunction with promotional deals, may enhance perceived conditional value. According to research, certain kinds of visibility, like aggressive marketing and infomercials, may affect functional value [25, 53]. Furthermore, Kim and Park [54] discovered that giving information about goods improves product reliability and purchase intentions. Therefore we postulated that:

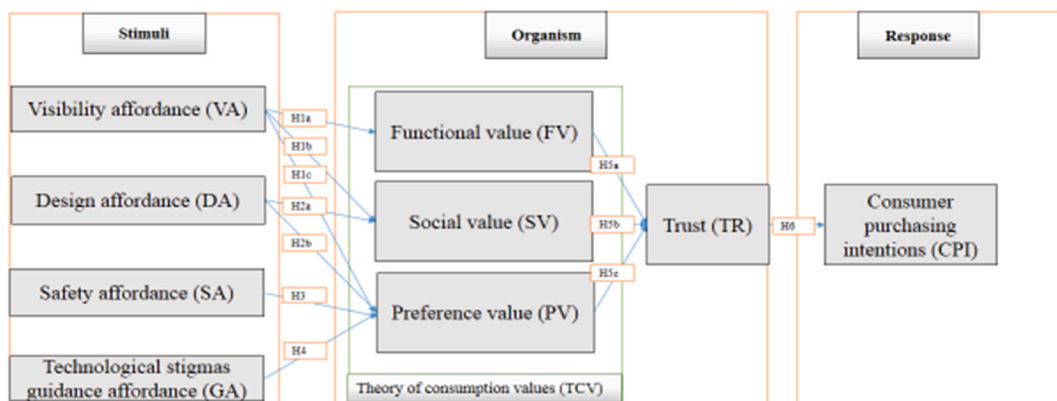


Fig. 1. Proposed SOR model.

H1a. : In 5G technology products, visibility affordance is positively related to functional value.

H1b. : In 5G technology products, visibility affordance is positively related to social value.

H1c. : In 5G technology products, visibility affordance is positively related to preference value.

3.2. *Effect of design affordance on consumption values*

Perceived design affordance is defined as a product's design capacity to enable users to understand the product's applications innately. The affordances assist us in understanding behaviors and responses, facilitating product acquisition and usage. When consumers consider product design affordances to be excellent, they need less assistance in comprehending the product's utility, and its classification, choice, and acceptance are improved [55, 56, 57]. The affordances of figurative aspect of a product must be integrated into the product design affordance notion [58]. This is particularly true when consumers are experiencing a new product; they may perceive what the symbolic design of the product allows them to accomplish or what it conveys to others [59]. According to Nieroda, Mrad [60], although the primary aspects of an item distinction are linked to form and function, such qualities influence the symbolism of these goods since these are very apparent to others. As a result, perceived design affordance improves social and preference values [58, 61]. Hence we can say that:

H2a. : In 5G technology products, design affordance is positively related to social value.

H2b. : In 5G technology products, design affordance is positively related to preference value.

3.3. *Effect of product safety affordances on consumption values*

Product safety affordance is providing safety in products for the intended use. According to KAI-INEMAN and Tversky [62], buyers are habitually risk-averse. Hence, an absence of information will upsurge users' perceived risk of buying products Maziriri and Chuchu [63]. Therefore, their craving to purchase goods drops. We believe that experience and understanding of risks may lead to mounting negative intents towards 5G technology products. The most significant variables influencing a consumer's perception are knowledge, environment, and practice. The health consciousness approach is associated to one's sentiments and self-awareness about health, as well as the amount to which health concerns are incorporated into one's ordinary activities [64, 65, 66]. Folks with health consciousness pay more devotion to their fitness. They develop and sustain their life worth by contributing in vigorous activities [22]. These type of buyers steadily favor an improved environment and feel happy with environmentally friendly goods and technology [12]. In such cases, their understanding of the negative effects of 5G products risk encounters may change their awareness of the harshness of using 5G technology [67]. A consumer's impression of a product in terms of safety is measured by preference value, which is the value they get from its performance [68]. Therefore we can hypothesize that:

H3. In 5G technology products, product safety affordance is positively related to Preference value.

3.4. *Effect of technological stigmas guidance affordance on consumption value*

Technological stigma is a negative folk's impression of the probable risks of novel technology products or services. The stigma can be instigated by imagined or real threats driven by bad images from various sources. Technology stigmas can source fallacies and indecision about the impact of technological actions on public safety and health. Guidance for technological stigmas affordability may be defined as offering a personalized service structure that permits users to swiftly determine germane and genuine information based on their requirements and preferences [25, 34]. To lecture this matter, marketers must shape an infrastructure that tolerates them to offer products that apt the demands of every user [16, 69]. As a result, by enabling consumers to immerse themselves in this adapted service process completely, guidance on technological stigmas affordance may offer genuine information and enhance consumer confidence [70]. We offer the following hypothesis:

H4. In 5G technology products, guidance affordance in technological stigmas is positively related to consumer preference values.

3.5. *Effect of consumption values on trust and consumer purchasing intentions*

The term value has gotten much attention from marketing academics, and some say that the research on perceived value has influenced the services sector literature [71, 72]. According to equity theory, perceived value relates to consumers' judgments of what is proper, reasonable, or warranted, given the product's perceived cost [73, 74]. Traditionally, perceived value is a trade-off between advantages and sacrifices. Sánchez-Fernández and Iniesta-Bonillo [75] distinguish between different models of a perceived value study. In telecommunications, the term value is an essential element in determining both the intention and degree of use of services [76]. Once a service or product arouses emotions and preferences or creates an impact, it has functional, emotional, social, and preferences values. Similarly, trust is essential in creating a good connection between the stakeholders [77, 78]. Trust has been highlighted in various settings as a critical element in minimizing people's uncertainty and dangers [79]. Trust and security are required to minimize consumers' perceived risk [80]. As a result, boosting or developing perceived trust may favorably influence consumer buying behavior. According to Giffin [81], trust is the "dependence on qualities of an item, the happening of an event or conduct to accomplish a preferred but unknown goal in a hazardous scenario". Other academics define trust as the consumer's overall

positive attitude about the counterparty's adherence to the duties in the exchange process, as well as their ability and desire to execute their commitments [82]. Perceived consumption values, trust and purchasing intentions have a clear beneficial relationship [22, 83, 84, 85]. Therefore we can say that:

H5. : a,b, c Consumption values (FV, SV, and PV) are positively related to trust.

H6. Trust is positively related to consumer purchase intentions.

4. Methodology

4.1. Data collection and sampling

Based on the study objectives, data about technology adoption can be acquired in various ways. Several techniques are utilized to enhance the reliability and validity of data. Using techniques from previous literature, in this study, we amended each item to ensemble our research background. In the context of this research, 5G technology affordances have four components: safety, design, visibility, and guidance. These dimensions were derived from [30, 34, 58, 86, 87]. The items used to calculate consumption values have been modified [23, 29, 88]. Items modified from [89, 90] are used to assess trust. The purchasing intention scale was developed from the studies of [12, 16, 91, 92]. The primary method employed in this study is the cross-sectional analysis technique, in which questionnaires are given to respondents. China, the world's most prevalent mobile communication market, is testing 5G technology in many regions. By 2025, 28% of Chinese mobile connections will be consuming 5G technology. It will establish Beijing as the national leader in the 5G deployment [92]. As a result, from August to September 25, 2021, data were gathered from Chinese users through an online poll. The survey's aim was concisely elucidated in the first section of the questionnaire. All respondents were informed that their opinions would be retained as nameless and used exclusively for academic purposes. The questionnaire was ethically approved by the ethics committee of Beijing University of technology. In this way, their consent regarding questionnaire was obtained from all participants. After eliminating several surveys for reasons such as missing data, 373 acceptable questionnaires were involved in the study. A total of 91.6% of the 373 respondents were from Beijing and 10.3% were from other provinces. In terms of gender, 60.05% of respondents were men and 39.94% were women. Regarding education 48.7% of respondents were graduates and 43.6% were undergraduates. The majority were folks, with 51.7% of contributors under 30 years of age and the rest being 30–45 years old. A total of 61.6% were using 4G services while 38.3% of participants were using 5G technology services (As shown in Table 1).

5. Data analysis and results

PLS-SEM was adopted to analyze the structural and measurement models connected to the research model. This assessment was carried out with the help of SmartPLS 3.00. SEM is a set of statistical model that describes the link between variables and depicts the proposed model in detail [92]. Further, the PLS technique has various advantages and benefits over the covariance approach, which influenced the choice of this method. The PLS technique, for example, provides acceptable estimates in complicated models [93]. There are two elements in the PLS method: a measurement and a structural model. The reliability and validity of the model are first confirmed, and then path analysis is used to endorse the hypotheses [16].

5.1. Measurement model

The values of Cronbach's alpha (α) and composite reliability (CR) were used to examine the reliability of the measurement model. The scale's reliability is revealed if these values are more prominent than 0.70 [94]. There are two elements to the validity test:

Table 1
Demographic information.

Measure	Categories	Frequency	Percentage %
Location	Beijing	342	91.6
	Shenzhen	5	1.3
	Shanghai	9	2.4
	Wuhan	3	0.8
	Other	14	5.8
Gender	Male	224	60.05
	Female	149	39.94
Age	21–30	193	51.7
	31–40	138	36.9
	41–55	42	11.2
Education	Other	28	7.5
	Primary Level	0	0
	Bachelor Level	163	43.6
	Master or Above	182	48.7
User	4G	230	61.6
	5G	143	38.3

discriminant and convergent validity. It is adequate for convergent validity if factor loading values are more than 0.4 and the average variance extraction (AVE) is larger than 0.5 [36,95]. The AVE square root value should be larger than the correlation values of the constructions for discriminant validity to be established [12, 94]. All the constructs met the requirement for gaining convergent validity by having an appropriate AVE value. It is also possible to evaluate convergent validity using composite reliability (CR). All constructs have commendably high CR scores that are more than 0.60. Cronbach's alpha values extended from 0.744 to 0.872 for entire variables, whereas the CR ranged from 0.838 to 0.922. Furthermore, factor loading values were more significant than 0.7, and AVE values were greater than 0.5. The test results are presented in Table 2, and Fig. 2. As a result, these data show that the measurement model is trustworthy and has convergent validity. Examining the correlation matrix of the several variables was a common method of determining discriminant validity. Though no off-diagonal item exceeds the corresponding diagonal items, all model builds satisfy this criteria. For this, a threshold of 0.85 has been proposed for HTMT. Table 3 shows that all the HTMT values are stratified. Therefore, it proved discriminant validity. In terms of Goodness-of-Fit, the values of Standardized Root Mean Square Residual (SRMR) should be less than 0.08 ($SRMR < 0.08$) while the Normed Fit Index (NFI) values should be greater than 0.90 ($NFI > 0.90$). Here in this article the conditions of goodness of fit SRMR & NFI (Saturated Model 0.077, 0.087 Estimated Model 0.079, 0.089). As a result, we find no threat to discriminant validity.

5.2. Structural model

The inter-structure hypothesis suggestions were examined at this level. The analysis determined that all proposed hypotheses for direct associations were supported except one. A bootstrapping study was done while calculating these values using SmartPLS. As shown in Fig. 3 and Table 4, all the respective visibility (VA) (H1a $\beta = 0.714$, $P = 0.00$, H1b $\beta = 0.493$, $P = 0.00$, H1c $\beta = 0.083$, $P = 0.04$), design (DA) (H2a $\beta = 0.192$, $P = 0.00$) safety (SA) (H3 $\beta = 0.124$, $P = 0.01$) and guidance (GA) (H4 $\beta = 0.750$, $P = 0.00$) affordances hypothesis are positively related with functional (FV), social (SV) and preference (PV) values. One hypothesis related to design affordance (DA) (H2b $\beta = 0.080$, $P = 0.137$) was insignificant. Similarly, All the consumption values hypothesis (H5a: $\beta = 0.133$ $P = 0.00$, H5b: $\beta = 0.598$ $P = 0.00$, H5c: $\beta = 0.229$ $P = 0.00$) are positively related to trust (TR), while trust (TR) (H6: $\beta = 0.783$ $P = 0.00$) on 5G technology is positively associated with consumer purchase intention (CPI). Finally, the mediation impact of consumption values and trust in 5G technology on the connection between technological affordance characteristics and purchase intention was investigated. An indirect relationship was investigated because the S-O-R theory does not allow us to postulate a direct link between these structures. As shown in Table 5, consumption values and trust in 5G technology partially mediate the impact of affordances on

Table 2
Factor loadings, Convergent reliability, and validity measurement values.

Construct	Reference	Items	FL	C- α	RhoA	CR	AVE
Consumer purchasing intentions	[12, 16, 91, 92]	CPI1: I will use 5G technology products.	0.78	0.77	0.81	0.86	0.68
		CPI2: I will continue to use 5G technology products.	0.87				
		CPI3: I am willing to use 5G technology products.	0.82				
Safety affordances	[86, 87]	SA1: I am anxious about 5G technology safety.	0.75	0.74	0.76	0.83	0.56
		SA2: I am concerned in info about the 5G that I used.	0.70				
		SA3: I frequently read about 5G technology.	0.84				
		SA4: The superiority and safety of 5G these days alarms me.	0.70				
Design affordances	[58]	DA1: As far as I know, product design will allow me to value myself socially.	0.85	0.78	0.78	0.87	0.69
		DA2: As far as I know, the product's shape will reveal its features.	0.85				
		DA3: As far as I know, the context of the product's use will tell me what it can do.	0.79				
Visibility affordances	[34]	VA1: All my friends are using 5G technology.	0.84	0.77	0.79	0.87	0.69
		VA2: I can easily observe others using 5G technology.	0.82				
		VA3: I have had plenty of opportunities to see 5G technology being used.	0.82				
Guidance affordances	[34]	GA1: 5G technology Vendors can provide me with the knowledge to ensure good health. GA2: 5G technology vendors can assist me in identifying my necessities without any limitations. GA3: 5G technology vendors can help me to establish which features best fit my needs.	0.80	0.77	0.78	0.86	0.68
			0.86				
			0.81				
Functional value	[23]	FV1: As far as I know, 5G products will consistently offer various benefits.	0.71	0.82	0.82	0.88	0.66
		FV2: As far as I know, 5G products will charge a reasonable price.	0.85				
		FV3: As far as I know, 5G products will offer good value for money.	0.84				
		FV4: Overall I am happy with the prices of available 5G products.	0.84				
Social value	[23, 29]	SV1: As far as I know, using 5G products will help me gain social approval.	0.72	0.77	0.79	0.87	0.69
		SV2: As far as I know, using 5G will change the way I am perceived by others.	0.88				
		SV3: As far as I know, using 5G technology will help me stand out among my peers.	0.88				
Preference value	[23, 29]	PV1: I will use 5G technology more often if they reduce the charges.	0.87	0.81	0.82	0.89	0.73
		PV2: I will use 5G technology more often if they offer discount.	0.87				
		PV3: I will use 5G technology more often if better promotional incentives are offered.	0.81				
Trust	[89, 90]	TR1: I believe that 5G technology vendors are very trustworthy.	0.84	0.87	0.87	0.92	0.79
		TS2: I believe that 5G vendors are honest.	0.89				
		TR3: I believe that 5G vendors wish to be known for keeping promises.	0.93				

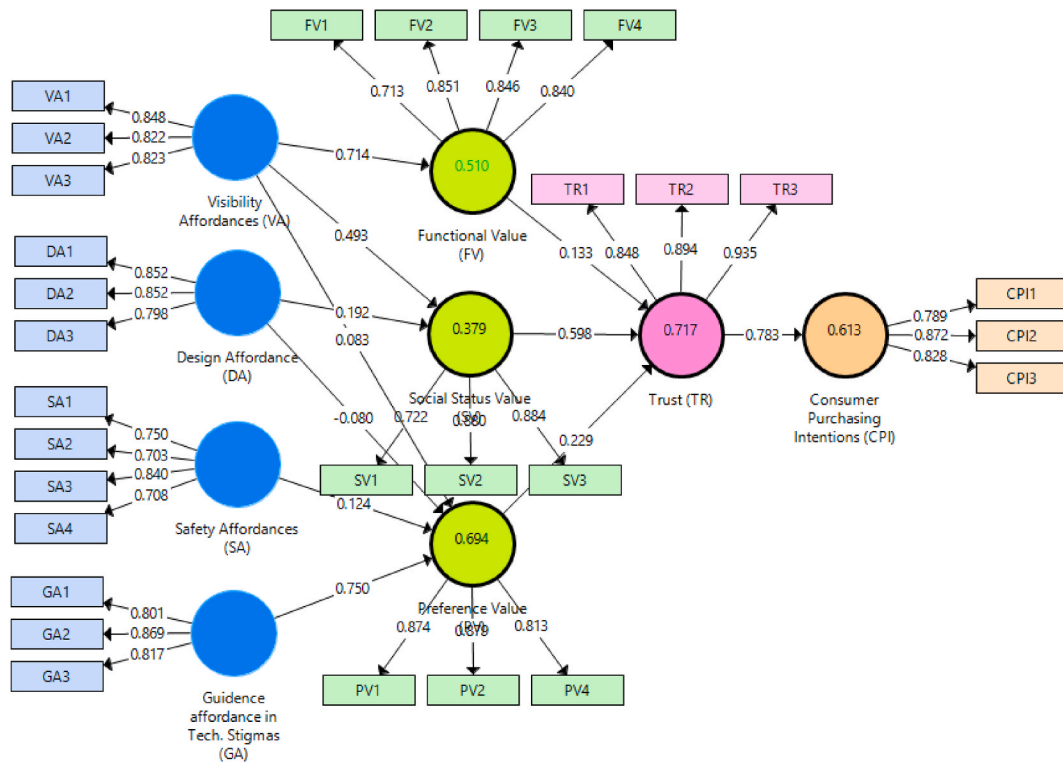


Fig. 2. Factor loadings and coefficients through PLS algorithm estimates.

Table 3
Discriminant validity through HTMT.

	CPI	DA	FV	GA	PV	PA	SV	TR	VA
Consumer purchasing intentions	0.56								
Design affordance	0.71	0.57							
Functional value	0.75	0.73	0.82						
Guidance affordance in Tech. stigmas	0.70	0.72	0.74	0.71					
Preference value	0.81	0.54	0.81	0.73	0.72				
Product affordances	0.80	0.56	0.70	0.73	0.70	0.80			
Social Status value	0.82	0.62	0.72	0.79	0.78	0.81	0.77		
Trust	0.81	0.65	0.81	0.82	0.81	0.81	0.76	0.78	
Visibility affordances									

consumer purchase intention. The respective R square value of the function (0.574), social (0.514), and preference values (0.532) and trust (0.722) show the effect-size measures of each mediator. Thus, these results reveal that 5G technology affordances indirectly impact consumer purchase intention.

6. Discussion and implications

Our study’s primary goal was to inspect the link between 5G technological affordances, consumption values, trust, and buying intention. The link between affordance and intention could not be investigated directly within the S-O-R theory framework; thus, it was investigated indirectly. A model was shaped by incorporating the consumption values (FV, SV, and PV) and the technology affordance lens (SA, DA, VA, GA) into the theory of S-O-R. The conclusions of our study are described below. First, technology affordances (safety, design, visibility, and guidance) were discovered to analyze consumer purchasing intentions in 5G technology products. All our hypotheses received empirical support except one. It might be possible that Chinese consumers do not associate 5G technology DA affordance with preference value due to a large number of its consumers or are already familiar with similar products. However, additional research must be done before conclusions regarding this link can be reached. Our findings also show that all the consumption values and trust acted as partial mediators in the proposed model. The strong relationship between affordances and consumption values, trust, and intentions shows that the manufacturing and advertising of 5G products can influence consumers’ insights into various degrees and forms of value gained from their consumption. Our findings are in line with those of [96], who found that

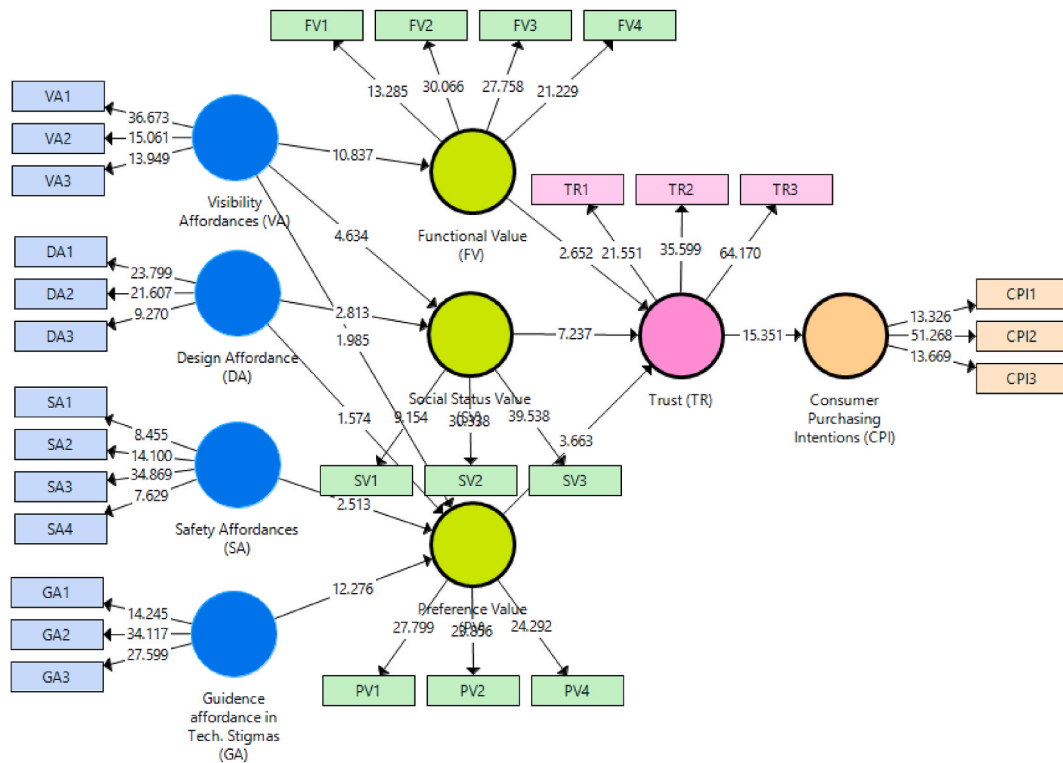


Fig. 3. Tested and validated model through PLS bootstrapping procedures.

Table 4
Total direct mediating effect and Path coefficients through SmartPLS bootstrapping.

Hypotheses path relationship	Standardized regression weight, estimate β	Sample Mean	Standard Deviation	T Statistics	P Values	Hypotheses decision
H2a: Design affordance \rightarrow Preference value	-0.08	-0.06	0.05	1.48	0.13	Not Supported
H2a: Design affordance \rightarrow Social status value	0.19	0.20	0.07	2.64	0.00	Supported
H5a: Functional value \rightarrow Trust	0.13	0.13	0.04	2.69	0.00	Supported
Guidance affordance in Tech. stigmas \rightarrow Preference value	0.75	0.73	0.06	11.93	0.00	Supported
H5c: Preference value \rightarrow Trust	0.22	0.23	0.06	3.58	0.00	Supported
H3: Safety affordances \rightarrow Preference value	0.12	0.12	0.04	2.55	0.01	Supported
H5b: Social status value \rightarrow Trust	0.59	0.58	0.08	6.93	0.00	Supported
H6: Trust \rightarrow Consumer purchasing intentions	0.78	0.77	0.04	15.87	0.00	Supported
H1a: Visibility affordances \rightarrow Functional value	0.71	0.70	0.06	10.79	0.00	Supported
H1c: Visibility affordances \rightarrow Preference value	0.08	0.07	0.04	1.84	0.04	Supported
H1b: Visibility affordances \rightarrow Social status value	0.49	0.47	0.10	4.65	0.00	Supported

emotional, functional, and marketing factors influenced perceptions of new product attributes.

Furthermore, our findings support previous researchers' claims that the increased visibility of the product and its features can impact social value [97]. The most potent aspect of 5G technology items is technological stigmas guiding and safety affordances. This highlights the need to deliver tailored goods and assist with the user's wants and desires. Furthermore, results about the positive relationship between TR and CPI are consistent with prior research [25, 98], indicating that the functional and experiential components of advertising favorably affect users' cognition of derived value, trust, and buying intentions. As a result, while our outcomes contribute to understanding the precursors of values, additional study is required before generalizations can be drawn.

Table 5
Total indirect mediating effects through SmartPLS bootstrapping procedure.

Hypotheses path relationship	Standardized regression weight, estimate β	Sample Mean	Standard Deviation	T Statistics	P Values
Visibility affordances → Functional value → Trust → Consumer purchasing intentions	0.07	0.07	0.02	2.59	0.01
Design affordance → Preference value → Trust → Consumer purchasing intentions	-0.01	-0.01	0.01	1.36	0.17
Guidance affordance in Tech. stigmas → Preference value → Trust → Consumer purchasing intentions	0.13	0.13	0.03	3.73	0.00
Safety affordances → Preference value → Trust → Consumer purchasing intentions	0.02	0.02	0.01	1.86	0.00
Visibility affordances → Preference value → Trust → Consumer purchasing intentions	0.01	0.01	0.00	1.61	0.00
Design affordance → Social status value → Trust → Consumer purchasing intentions	0.09	0.09	0.03	2.92	0.00
Visibility affordances → Social status value → Trust → Consumer purchasing intentions	0.23	0.21	0.06	3.35	0.00

6.1. Theoretical implications

The results of this research add to the recent theoretical literature in various ways. First, we respond to earlier researchers' demand for a more concentrated study into consumer behavior and the intention of new technology. As 5G technology is relatively new and has caused noteworthy disruption in every segment [99], this article contributes to an academic grasp of a niche area and the latest development of prevailing research limits concerning physical and psychological purchasing intent. Second, this study uncovered the influence of affordance on consumer values and trust in the framework of 5G technology. Because prior research in the affordance setting has looked at trust as a moderator variable, this article adds to the knowledge frame by including consumption values. Lee, Lee [100] explored the association between trust and hyperlink affordance. In the current study, affordances, trust, and consumption values were examined more deeply in the context of the new 5G technology. We could not discover any research on the link between affordance, consumption values, and trust in the latest technology environment. As a result, we can state that this is the first study to show a link between these three constructs.

Furthermore, the links between these components have been shown within the paradigm of S-O-R, providing a theoretical foundation for future research. Third, by establishing and evaluating context-specific values in the setting of 5G technology, our work adds to contextualizing TCV [29]. As a result of our research of a technology-enabled platform, we expand the relevancy of TCV to the inspection of new technology acceptance. Fourth, this study offers a significant addition by investigating the role of consumption values and trust in affecting consumers' perceptual, cognitive, and behavioral responses to 5G technology goods. To that aim, we conducted empirical research on the link between values and trust in decision-making. Investigating such mediators can assist researchers in developing a more comprehensive accepting of diverse arrays in consumer behavior.

6.2. Practical implications

The current study's verdicts offer valuable recommendations to academics and policymakers. First, the apparent impact of these variables advocates that 5G technology marketers and developers should concentrate on expounding different methods and procedures for garnering increased affordances to impact users' intent towards 5G technology products and services. Second, improving practitioners' understanding of the ability to deliver personalized products and services to consumer wants and requirements may help improve consumer values and trust. For example, using recommendation systems can enable the creation of particular affordances. According to the scholarship's results, the dimensions of affordability indirectly affect consumer purchase intent. As a result, if practitioners establish methods for 5G availability, this will improve confidence and benefit consumer purchasing behavior. The research results also provide a better understanding of safety and guidance affordances on purchasing intentions. For this purpose, companies should conceive different marketing practices depending on the potentials of their consumers. Third, set our results about the mediating position of values; we propose that vendors concentrate on discovering metrics that might affect users' perceptions of derived values. Marketers, for instance, might use loyalty and co-branding programs to provide consumers with budgetary and social advantages. Besides, marketers can concentrate on building point-of-sale offerings to generate possibilities that can give preference value to encourage actual purchases. Fourth, while technical stigmas guidance affordance has been proven to directly impact trust and mediate the relationship between values and purchasing intention, vendors should instruct consumers about the 5G technology benefits to installing a favorable attitude about utilizing these products. Though this could be accomplished through ads and new visibility-boosting marketing activities, 5G makers can take an extra proactive approach. Designers may include elements on the 5G product edge that highlight a specific distinctiveness, such as the most prevalent items or information about its safety, to increase the legitimacy of its practice or service. Such data might have a beneficial impact on customers' perceptions of 5G.

6.3. Limitations and future research directions

The shortcomings of this research could be considered in future work. First, the limitations of the research are related explicitly to the sorts of questionnaires used. They are recording the observations and views of a subset of the Chinese population at a specific moment, implying that only the causal link of 5G service users in China may be inferred but not proven. Future research may be undertaken longitudinally, leading to a more decisive conclusion. Second, as we concentrated on a single location, our results may be restricted in their generalizability, particularly regarding the values we employed in our agenda. Upcoming studies must try to confirm our results, with a particular emphasis on identifying whether the three values we generated through the qualitative approach apply to specific locations and others. Third, we utilized a cross-sectional strategy of the research and self-reported measures, which have inherent limitations. Future research may overcome this issue using a mixed-techniques technique and realistic and real-time statistics gathering approaches. Fourth, this research is established on 5G in China; other countries have yet to implement this technology because the majority of economies are still utilizing 4G. As a result, a comparison study of 5G and 4G economies should be conducted in the future. Finally, we were constrained by non-probabilistic procedures of sampling, which might have an impact on the generalizability of our results. We encourage researchers to investigate other sample techniques to confirm and enhance our findings to broaden this 5G-focused study topic. Despite these constraints, we propose that academics should investigate incorporating other important ideas from many disciplines to gain complete knowledge of 5G user behavior.

Declarations

Author contribution statement

Sayed Kifayat Shah; Prof. Zhongjun Tang: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data, Wrote the paper.

Prof. József Popp; Prof. Judit Oláh: Performed the experiments; Analyzed and interpreted the data. Ángel Acevedo-Duque: Conceived and designed the experiments; Contributed reagents, materials, analysis tools or data; Wrote the paper.

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Data availability statement

Data will be made available on request.

Declaration of interest's statement

The authors declare no conflict of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.heliyon.2023.e14101>.

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