Providing a communication model of customer engagement and competitive business with social media based on brand: A mathematical approach

Javad Mashhadizadeh, Farzad Karimi*, Mojtaba Aghajani

Department of Management, Mobarakeh Branch, Islamic Azad University, Isfahan, Iran

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Abstract

The purpose of this research was to present a communication model of customer participation and competitive business with social media based on brand (case study: manufacturing and trading companies of Ahvaz). The statistical population of the research was formed by the experts of manufacturing and trading companies in Ahvaz city. In this research, the considered variables were identified by using interviews and examining the opinions of experts of the investigated companies. 10 experts have been selected using the saturation sampling method. This research, using the foundation's data analysis method, is a type of cross-sectional research in which the data was collected for several weeks. In the quantitative part, the research community is the customers of food manufacturing and trading companies in the industrial towns of Ahvaz city which have been selected to fit the model. Due to the unlimitedness of the statistical population, 384 samples have been considered, and finally, 312 questionnaires have been analyzed. Using Maxqda software, interviews and Coding is done. Smart PLS 2.0 and SPSS 22 software were used in the validation section. In this research, to check the validity, the findings of the research were presented to the participants and the text of the theory was studied by them and their points of view were applied. The reliability of the model was evaluated using the Kappa index. Kappa index value equal to 0.788. Calculated and placed at the valid agreement level. 58 open codes have been identified among 256 concepts. 58 primary codes in the form of 18 categories, including company performance, electronic services, customer value, customer attitude, social responsibility, competitive advantage, customer loyalty, customer desire, advertising and marketing, brand awareness, customer trust, social media, validation, sharing Content, customer participation, service innovation, organizational factors, branding. Validation of the model showed that the overall index of fit (GOF) is equal to 0.661, which is a strong index and shows the overall high quality of the model. The identified factors have had a significant impact.

Keywords: customer engagement, competitive performance, branding, social media
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1 Introduction

Brand can be considered as one of the most valuable assets of any company. The higher the value of the brand in the minds of customers, the more benefits the company can gain from customers. Therefore, it can be said that the

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*Corresponding author

Email addresses: javad.mashhadizade@gmail.com (Javad Mashhadizadeh), f_karimi110@yahoo.com (Farzad Karimi), mo_aghajani@yahoo.com (Mojtaba Aghajani)

brand is a long-term and strategic asset for any company that can be effective in helping the customer relationship and related issues such as customer retention and profitable behaviors. Due to the importance of brand for the differentiation and growth of companies, recently this field has been the focus of researchers [35].

Cyberspace has provided new tools for marketers to improve efficiency, effectiveness of marketing communications and new approaches to gain and retain customers. One aspect of cyberspace is online interpersonal interactions [37]. The influence and interpersonal effects of individuals in online environments are effective on the evaluations and decisions of customers regarding the purchase of a product or brand. Electronic word-of-mouth advertising includes a variety of media forms and types of websites where there is the most access to online consumer opinions and statistics [43].

According to the stated contents, for this purpose, in this research, an attempt is made to design and present a communication model of customer participation and competitive business with social media based on brand (case study: production and trading companies of Ahvaz city). To be in the first chapter of this research, the generalities of the research are described. First, the study history of the research subject is briefly stated, and then some information is given regarding the general statement of the problem and its importance. In the following, the research questions, objectives and methodology of the research are introduced and at the end the scope of the research and the applied terms and the general structure of the research are defined.

2   Theoretical foundations and research background

With the advancement of internet technology, businesses use social networking sites to promote and spread information about their brand, and this information is also used by users and causes various activities regarding the introduction of brands on the network. Becomes social

Various types of social media, such as Facebook, Twitter and blogs, have been used for marketing functions regarding brand-to-customer management and product promotion, as well as business-to-business relationship management [13].

Through these tools, companies are able to increase customer loyalty and real sales. Beyond marketing, social media tools are useful for corporate value creation and innovation, human resource management, external communications, external relationships with customers, suppliers, and partners. McKinsey's global report showed that large companies such as Fortune have used social media to gain business value [6].

Past research on social media has mainly focused on social media adoption for one or two specific managerial functions, and most organizational studies of social media have focused on marketing-related outcomes such as sales and customer satisfaction [13, 20, 34]. Many studies have examined business practices in developed countries. The call for a better understanding of social media usage across suppliers, partners, employees, and customers in an organizational setting is limited, especially for emerging markets and developing countries. For the greater scope of social media use, it is necessary to further investigate the impact of social media use on supply chain outcomes, including employees, partners, suppliers, and customers [41].

Today, with the advancement of technology and innovation in industries, the competition between companies has intensified day by day, and contrary to the traditional and old common methods, in examining the position and success of companies, we are talking about the customer's share instead of the market share, most of the companies have realized that their survival and life It is important to have loyal customers, not just satisfied customers, satisfaction, repurchase and loyalty are concepts that are studied as important variables in marketing literature. Considering the above topics and the increasing emphasis on customer loyalty and engagement with companies and organizations and environmental changes, companies should keep pace with these changes and be up-to-date and efficient. ; One of the most important solutions is the use of social networks to create attention, interest, desire, purchase, engagement, and ultimately satisfaction, loyalty, and commitment in customers, customers who have many benefits for companies [17].

At the same time, the economic crisis and its consequences sent a clear message to economic managers that if they want to remain stable, they must first of all maintain existing customers and encourage them to buy from them or use their services. Since e-commerce is very emerging in our country, for this purpose, this can affect the development of online business activities, branding. By expanding the role of social media in people's lives, companies can use these media to communicate with their customers and create interest, trust and loyalty to their brand. In recent years, this industry has faced storms on its way, which can be pointed to the slow growth in emerging markets, the drop in prices, and the change in the taste of customers towards healthier products. However, these companies continue their ups and downs activities and try to use the media to improve their position compared to their competitors. For this purpose, this research aims to answer the following question:

What is an appropriate communication model for customer engagement in a competitive business using social media based on branding?

3 Brand concept

Since brands are considered the most valuable intangible assets of companies, brand is considered a very attractive and controversial topic for marketing researchers [39]. Brands are increasingly looking for ways to communicate core values, on the other hand, brands communicate value systems with value systems, which can be religious beliefs and values, Norms and beliefs [25]. In the context of brands, the characteristics of transferring values, beliefs, and religious beliefs cannot be ignored, considering the desire of consumers, in order to clarify the originality and characteristics of the brand [28]. De Vries [13] believes that modern brand name management represents the integrated management of all brand name contacts as well as consumers, in addition, it is a tool for market communication management. Brands evolve over time. Four types of brand dynamics affect the company's strategic position in global markets:

1- Brand positioning:

Brand positioning is a necessary aspect of the brand, which includes brand identity and brand meaning, often aiming to increase its relationship with customers. Based on past researches, capabilities have an effective role in the company's international performance, new product development process, market-oriented approach, etc [2]. But until now, there has been no research on the relationship between dynamic capabilities and company brand positioning. This is while, according to the statistics published in ISI, one of the most popular topics in the field of management is dynamic capabilities, so that in June 2010, close to 1180 references to this topic were recorded [1] However, the research about the relationship between the concept of organizational capabilities and the company's brand is very limited, and these few researches are ad hoc, conceptual and far from providing a coherent and citationable model. In this context, researchers have recommended that future research should seek to find a clear and specific relationship between various organizational capabilities and the company's brand position [5].

2- Brand extension

It includes the development of the company's proposed product set and refers to the strategy of using a brand name in different fields. The main reason for generalizing an existing brand is to influence it into a new proposed product. Creating a new brand is generally costly and time-consuming, and as a result, companies tend to expand existing brands instead of investing in new brands. Brand generalization is the use of a registered brand in one product category for another category of products; Brand extension strategy helps companies to use their existing brand instead of building a new brand [40]. Therefore, a very attractive method used to reduce the risk of introducing new products is the brand generalization strategy [2].

3- Financial value of the brand

It indicates the company's financial profit from brand ownership and determines the right that should be taken into account in the valuation of the company due to brand ownership. Using different presuppositions can greatly improve the accuracy and consistency of brand value estimates. The financial value of the brand can help to increase the company's cash flow, and create differentiation in its products in order to achieve competitive advantages. Therefore, the financial value of the brand is considered as one of the most valuable intangible assets by most companies [12]. Strong brands emphasize the high financial value of the brand, which in turn is a strategic result of brand management [27].

4- Brand power

It shows the value that the brand has in the customer's mind. It means that a brand will have more power when customers respond to the company's product in a more favorable way. Brand image is an important factor in the process of choosing a brand from the point of view of tourists, and it also plays an important role in determining the positioning strategy of the brand [26]. Earlier, Crompton [9] stated that the brand image of the destination is the sum of the cognitive beliefs and emotions affecting people with a specific destination. Brand image shows brand perceptions [3]. The expectations of foreign customers depend on the country's image, and companies can influence consumers' understanding of products by presenting a good image of the country [16]. Also, researchers have used the term brand power to express brand performance [22].

4 Performance and brand management

The pressure of competing with other brands and differentiating from others has created motivation and a feeling of need for "branding". Numerous studies show that one of the most important business issues is the issue of marketing and especially brand management [33].

Brand performance means the degree of brand success in the market and tends to measure the strategic success of a brand [23]. While many of the discussions are about performance at the macro level (organization performance), an important vital point of view regarding performance is also proposed at the level of micro performance, which is derived from the performance of the company's product and related to the topic of brand.

The success of a brand in the market is a function of the dimensions of the brand's performance. A strategic marketing approach can help a company accurately assess the performance of its brand in relation to its competitors, enable the company to respond to emerging competitive threats, and ensure that new marketing strategies are properly considered [27]. In order to better understand the performance of the brand in the market, companies have used a wide range of scales, and customer-based research often plays a central role in these researches. Lehman [24], in a research to identify the main dimensions of the criteria based on the examination of brand performance and the titles of brand performance structures, including general attitude, innovation, awareness, knowledge, differentiation, reputation, performance, benefits, trust and examining their effects on each other. they pay Also, Ambler [8], in a study, develop a general framework to measure brand performance and marketing based on six measurement criteria: financial, competitive, consumer behavior, intermediate consumer, customer sentiment, direct trade, and innovation. Dorfleitner et al. [14], in a study, describe and compare different approaches in order to find criteria for measuring marketing activities through financial and non-financial criteria. Ngo and Okas [21], in a research with the aim of taking a perspective to create customer-oriented value, to examine views about the effect of business orientations, especially marketing orientation and innovation orientation in order to create customer-oriented value (customer value and brand performance). Findings show that marketing and being innovative play an important role in creating customers, keeping them, and increasing sales and better performance of the brand in the market [21, 32]. A summary of brand performance dimensions is given in the table below.

Table 1: Dimensions of brand performance in the market

structure	dimensions
Innovation	Ngo and Okas [21], Ambler [8], Lehman [24]
Satisfaction	Ngo and Okas [21], Ambler [8]
Access / Distribution	Ambler [8]
Attitude	Lehman [24]
Advertising Advic Oh you	Stephen [37]

Brand management is clear, purposeful and sustainable beliefs and communications based on which companies create value for their target customers and manage their brand in a way. The set of activities under the title of "creating a brand" is not built, because many factors are involved in the formation of a brand [36].

Berthon [4] summarizes brand management in having a strategy for the brand. To manage a brand, having a strategy is a necessity. Brand strategy is an essential element and a determining driving force for companies' marketing plans. Stabilizing the position of a brand compared to competitors and targeting specific consumers, rational pricing, communication with partners and any policy that is done to support the brand are among the factors that are of great importance in this regard. Nandy [29] states that brand management can free many companies from the trap of "brand narcissism" that may trap some, because companies must constantly strive to improve their brand.

4.1 Social media concept

Despite the wide range of social media definitions, most of them focus on the two elements of "sharing" and "interaction". Some definitions have emphasized the production and publication of content and considered social media as a medium in which the production of video, audio, text or multimedia is done by users and published in a social environment and shared among peers, such as blogs and wikis. , or sites hosting video parts. This definition determines examples of social media and considers it to include sites that are formed based on user participation and content creation by users. These media include social networking sites such as LinkedIn, Facebook, social bookmarking sites such as Del.icio.us, social news sites such as Digg or Edit, and other sites that focus on user interaction [19].

Social media feature

With the increasing role of social networks in everyday life and their entry into the flow of small businesses, the owners of large industries also transformed their information and advertising methods and accepted social networks as powerful media. One of the reasons for the rapid popularity of social networks among companies is the spread of information viruses through the Internet. Currently, social media have a much greater capacity to reach the general public than traditional media such as radio, television and magazines. In addition, Internet users have moved away from traditional media and use social networks to search for information as much as possible. Social networks are a strategic tool in The hands of industry owners are for developing brands. An environment that is very cost-effective with extensive communication and interaction with consumers and a small cost to introduce the product. For this reason, companies have turned to social media to attract customers in recent years. On the other hand, consumer-based brand equity is measured with dimensions such as brand awareness, brand connection, perceived quality, and brand loyalty [18].

4.2 Types of social media

The world is subject to media waves. According to the statistics announced by the World Internet Statistics Center in 2011, there are two billion 267 million 233 thousand 742 Internet users worldwide [11]. Today, one of the most common trading methods in global markets is electronic commerce, so that in this century this method has become the main tool for financial exchanges between advanced countries. In online trading, online economic organizations compete with each other with the aim of providing advertisements and gaining customer trust. But this method has problems. The solutions to improve e-commerce are the use of virtual environments, social networks and the use of NGNs. In recent years, among the factors affecting the development of Internet technology, social media has been given much attention. Since the creation of web innovation in the early 2000s, social media have created new challenges and opportunities in the private lives of individuals and organizational business activities, and many applications have been drawn through researchers and industrialists [30].

Social media is a combination of technology and mixed media that is able to create real-time communication and by using the multimedia format and different operating systems, it provides different services with global accessibility [30]. The adoption rate of social media has increased over the past few years. Now there are millions of users of these operating systems [7].
The seven types of social media channels that impact business are:

- Social networks: for example, Facebook, MySpace, LinkedIn, Google+...

- Blogs and microblogs: for example WordPress Blogger, Twitter...

- Content forums or media sharing sites (video/audio/photo/lectures):

- For example, Flickr, YouTube, Dailymotion, Vimeo, Picasa, Pinterest, Slideshare

- Wiki or User Generated Content (UGC): eg Wikipedia, WikiTravel, World66

- Social bookmarking and news sites: eg Digg, Reddit, Diigo, Delicious, Google Reader...

- Discussion forums and message boards: eg Phorum, Yahoo Groups, PHPbb...

- Social events: for example event, Meetup

4.3 Electronic media

On the eve of the 21st century, a new era has begun for the exchange of information in human societies, the most important feature of which is the emergence of electronic or digital media. The human effort for easy, short-term and low-cost access to information and the possibility of analyzing and converting it into knowledge came to fruition in the last years of the 20th century, and now an intelligent person can use hardware and software with the help of computers in A large amount of news and information can be obtained in a very short time. New technology has brought great changes in the field of human communication; in a way, it can be boldly said that the developments of new technologies have appeared in the field of communication more than in other fields. "Speed" in information is the main element that has imposed electronic media (publications) on written publications. Journalists need to learn new competition techniques to exploit this golden speed and precision. A situation in which the audience is not the only

consumer of information, but can easily publish their opinions and address others. Communication has changed from individual to group to group to group, and the power to highlight news that was once available to print media has also been created for small groups and individuals. Due to the variety of communication and multimedia channels, the power of choice has increased significantly. As mentioned in the previous sections, electronic media (publications) are publications that, in addition to printing material in paper versions, provide more information to the audience without the use of paper with the help of other methods and facilities on the computer and virtual space. Present.

4.4 Personal media

Another type of profile-based services is somewhat different. In the "personal media" type of social media, people connect to profile-based accounts published by well-known organizations, famous people, or famous products. Instead of relying on traditional media channels that are owned and operated by media companies, this type of social media gives independent entities the chance to manage their own social media communication channels. Gives Typical examples include Twitter, Weibo, and the Chinese version of Twitter. Communication here only requires one-way initiation and there is very limited screening of accounts. For example, people can "follow" President Obama and receive updates whenever he posts on Twitter. Or they can follow Reuters and get the latest breaking news before it appears on TV or on websites. Similarly, brand managers can create fan sites for their products, publicize any exciting or new product developments, and advertise through personal media on Twitter or Facebook fan pages. . Instead of buying television and/or print advertising time, private media allows government agencies to make announcements freely and as often as they want, at minimal cost. . For example, the White House Twitter account has over 4 million followers, which surpasses Wall Street's 2.1 million followers [44].

4.5 Customer involvement

This term was first introduced in 2006 when the Advertising Research Institute, along with the American Association of Advertising Agencies and the National Advertising Association, tried to define this concept in a broader framework and provide a broader idea that is better than previous concepts. The old term "participation" was introduced by the customers themselves when they started working in the online, collaborative and open social environment. Its main difference from the previous one was customer participation.

4.6 Research Methods

In this research, it has been identified to investigate research variables and provide a communication model of customer participation and competitive business with social media based on brand. Then, based on the models examined on the research variables, general criteria were extracted. Then, based on the opinion of experts, the final criteria have been identified in the studied society. Finally, based on the identified final criteria, the model derived from the foundational data theory method has been subjected to general testing and fitting.

The research method in this research is a mixed method (qualitative-quantitative) so that in the first stage, qualitative data and sub-criteria of the research variables have been collected based on the statements of experts and specialists, through which we reach the initial model of this research. In the second stage of the research, we will provide the final information to investigate the considered relationships through the collection of numerical data and the observation of questionnaire samples and then the supply of these data to the numerical analysis, which is the quantitative part of the research.

4.6.1 The first research method: Foundation data research

In this research, using the data base approach, the pattern of a communication model of customer participation and competitive business with social media based on brand has been extracted. Database theory allows us to develop theories and propositions in various subject areas instead of relying on existing and pre-formulated theories.

4.6.2 The second research method: survey method

At this stage of the research, survey research has been used to test the model obtained from the qualitative research study. In this section, by using an electronic questionnaire, the opinions of the people who bought the products of the food manufacturing and trading companies in the industrial towns of Ahvaz city have been surveyed about the desired criteria and indicators.

According to the nature of the research, the statistical population of this research in the qualitative study section are experts and specialists who have been dealing with this issue for many years. In the quantitative part, the statistical population is the customers of manufacturing and trading companies in Ahvaz city. There were about 2000 people.

4.6.3 Sampling method in quantitative research

Although random sampling techniques provide the best opportunity to obtain unbiased samples, this is not always possible for researchers who use random sampling. In the quantitative part of this research, for sample selection using available random sampling, there is an equal chance to select all members of the research community of customers of food manufacturing and trading companies in the industrial towns of Ahvaz city, who have been selected to fit the model. Became. In the current research, the following Cochran's formula was used to determine the sample size.

$$n = \frac{N \times Z_{\alpha/2}^2 \times p \times q}{\varepsilon^2 \times (N-1) + Z_{\alpha/2}^2 \times p \times q}$$

$$F = \frac{(RRSS - URSS)/N - 1}{URSS/NT - N - K} \tag{4.1}$$

$$COEPS1_{i,t+1} = \alpha + \beta_1 RATEPR_{i,t} + \beta_2 COEPS_{i,t} + \sum_{j=1}^{10} \gamma_{ij} other signals_{ij,t} + \varepsilon_{i,t+1} \tag{4.2}$$

$$\begin{bmatrix} \varepsilon_{Size} \\ \varepsilon_{Ex} \\ \varepsilon_{open} \\ \varepsilon_{GDP} \\ \varepsilon_M \\ \varepsilon_{inf} \end{bmatrix} = A(L) \times \begin{bmatrix} U_{Size} \\ U_{Ex} \\ U_{open} \\ U_{GDP} \\ U_M \\ U_{inf} \end{bmatrix} \tag{4.3}$$

or in the extended form as relation (4.3), it is shown:

$$\begin{bmatrix} \varepsilon_{Size} \\ \varepsilon_{Ex} \\ \varepsilon_{open} \\ \varepsilon_{GDP} \\ \varepsilon_M \\ \varepsilon_{inf} \end{bmatrix} = \begin{bmatrix} a_{11}(1) & 0 & 0 & 0 & 0 & 0 \\ a_{21}(1) & a_{22}(1) & 0 & 0 & 0 & 0 \\ a_{31}(1) & a_{32}(1) & a_{33}(1) & 0 & 0 & 0 \\ a_{41}(1) & a_{42}(1) & a_{43}(1) & a_{44}(1) & 0 & 0 \\ a_{51}(1) & a_{52}(1) & a_{53}(1) & a_{54}(1) & a_{55}(1) & 0 \\ a_{61}(1) & a_{62}(1) & a_{63}(1) & a_{64}(1) & a_{65}(1) & a_{66}(1) \end{bmatrix} \times \begin{bmatrix} U_{Size} \\ U_{Ex} \\ U_{open} \\ U_{GDP} \\ U_M \\ U_{inf} \end{bmatrix} \tag{4.4}$$

$$Inflation_{i.t} = c_t + B_{t-1} Inflation_{i.t-1} + \cdots + B_{t-p} Inflation_{i.t-p} + \varepsilon_{i.t} \tag{4.5}$$

$$\tag{4.6}$$

$$\beta_t = \beta_{t-1} + \mu_t$$

In this method, the regression coefficients of the VAR model are extracted according to a random step process over time. All errors in function (4.5) are uncorrelated with each other and over time, so they have the following structure.

$$\begin{matrix} \beta_{t+1} = \beta_1 + u_{\beta t} \\ \alpha_{t+1} = \alpha_1 + u_{\alpha t} \\ h_{t+1} = h_1 + u_{ht} \end{matrix} \quad \begin{pmatrix} \varepsilon_t \\ u_{\beta t} \\ u_{\alpha t} \\ u_{ht} \end{pmatrix} \sim N \left(0, \begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & \sum \beta & 0 & 0 \\ 0 & 0 & \sum \alpha & 0 \\ 0 & 0 & 0 & \sum h \end{pmatrix} \right) \tag{4.7}$$

$$Inflation_{i.t} = Inflation_{i.t-1} \beta_{i,t} + \varepsilon_{i,t}, \quad \varepsilon_{i,t} \sim N(0, Q_{i,t}) \tag{4.8}$$

It is possible to measure the effect of factors affecting labor productivity, which is linear, by dividing the production function into the labor force and taking logarithms:

$$Ln\left(\frac{Y}{L}\right) = LnA + \varphi Ln\left(\frac{ICT}{L}\right) + \alpha Ln\left(\frac{K}{L}\right) + (\alpha + \beta + \gamma + \varphi_1) Ln(L) + \gamma Ln\left(\frac{H}{L}\right) \tag{4.9}$$

The research model for calculating and estimating capital efficiency is as follows:

$$Ln\left(\frac{Y}{K}\right) = A + \alpha_1 Ln\left(\frac{L}{K}\right) + \alpha_2 Ln(K) + \alpha_3 Ln\left(\frac{H}{K}\right) + \alpha_4 Ln\left(\frac{ICT}{K}\right) + \alpha_5 Ln\left(\frac{ICT \times H}{K}\right) + \varepsilon \qquad (4.10)$$

$$Ln\left(\frac{Y}{K}\right) = 1.223 + 0.013 Ln\left(\frac{L}{K}\right) - 0.023 Ln(K) + 0.005 Ln\left(\frac{H}{K}\right) + 0.0007 Ln\left(\frac{ICT}{K}\right) + 0.0003 Ln\left(\frac{ICT \times H}{K}\right)$$
$$(4.11)$$

In the above formula, N represents the size of the studied population, $Z_{\alpha/2}$ is the confidence level of the statistical population assuming the normality of the distribution, which in this research, the confidence level is 95% ($\alpha - 1$) and the error value is 5% (α). P indicates the probability of success and q indicates the probability of failure. Also, ε represents the estimation accuracy, which is usually chosen between 0.01 and 0.1 in the research, and in the current research, the estimation accuracy value is 0.1. Based on the above formula, according to the number of the statistical population, we will get the number of samples necessary to distribute the questionnaires. 322 people were selected as a sample, and finally 312 questionnaires were analyzed.

5 Description of the "categories" obtained in the foundation data method

The definition and explanation of the categories is done in the database method, looking at the concepts and key points of their subsets. In other words, since the main reliance of this method is on first-hand data and in the process of induction from the key points of open coding, abstract "concepts" and then more abstract "categories" are made, so the definition of each of the concepts and categories according to the path It takes place until their formation and emergence. It is possible that the title of the concept or category in the literature of the subject has a theoretical background, but what is obtained in the way of the database method (even if the title is similar to the similar example in the literature) has a different definition, because the first origin of the theories and The existing documented experiences (second-hand data) and another source of data obtained during the research (first-hand data). Therefore, in order to fully understand the meaning of "concepts" and "categories", it is inevitable to refer to the research data, especially in the open coding phase.

Each of the categories is made up of one or more concepts, which actually express the "characteristics", "conditions" or "situation" of the desired category in the country. Another important point is the simultaneity of "description" and "recommendation" in the main and subcategories of the research. In the sense that the formed categories do not only have a descriptive burden regarding the description of the existing situation or the description of the desired desired situation, but in addition, they also have a prescriptive burden. In other words, there are dos and don'ts for each of them in the way of achieving the desired situation. Paying attention to the prescriptive aspect of the categories, which itself leads to the prescriptive aspect of "theory" resulting from the database method, will be very helpful in a more complete understanding of the outputs of the method.

After identifying the categories by axial coding, their importance can be determined by using the frequency of codes given to the categories. The output of the software related to the frequency of the codes given to the categories separately for each of the interviewees is given in the following tables and figures.

According to the chart and Table 2, the category of customer participation ranks first with 37 code repetitions, customer loyalty ranks second with 28 codes, and advertising and marketing ranks third with 24 codes.

5.1 Selective coding

Selective coding is the process of theory integration and refinement [38]. At the end, in the selective coding stage, according to the results of the previous coding steps, the main category was selected and linked to other categories in an orderly manner, the connections were validated and the categories that needed to be further refined and developed. They improved. It should be noted that the above steps have been carried out in a round trip process. Therefore, the steps of selective coding are not clearly separated from each other and are done through an interactive process along with open and central coding. The final model presented their opinions, most of them approved the obtained model, and some of them had correction opinions, which were applied in a round-trip process, and the final opinion of the experts was also taken on the approval of the model.

In order to integrate and present the final model, after identifying the central category and relating other categories in the form of a systematic paradigm of foundational data theorizing, refining the designed model and developing the main action factors and the final model of the research was obtained as follows Figure 1.

Table 2: Frequency of coding categories of customer engagement and competitive business with social media

	Interview.1	Interview.2	Interview.3	Interview.4	Interview.5	Interview.6	Interview.7	Interview.8	Interview.9	Interview.10	Total
Company's performance	0	1	2	2	3	2	1	3	1	2	17
Electronic Services	0	1	2	6	0	0	4	0	1	0	14
Customer value	0	0	0	2	0	0	0	1	2	0	5
Customer attitude	0	0	0	1	0	1	1	3	2	2	10
Social responsibility	4	0	0	3	0	1	0	0	0	1	9
Competitive Advantage	0	3	1	0	0	0	5	1	1	0	11
Costumer loyalty	1	4	2	2	4	6	4	1	1	3	28
Customer desire	1	0	1	1	2	0	4	2	1	3	15
Advertising and marketing	2	1	4	3	1	3	4	2	2	2	24
Brand awareness	0	0	2	0	1	1	1	1	0	0	6
Customer trust	0	0	3	1	0	0	0	1	0	1	6
Social media	9	0	2	0	2	1	2	4	1	2	23
Validation	0	3	0	0	2	0	0	0	0	0	5
Content sharing	2	4	0	0	1	1	2	1	2	2	15
Customer involvement	6	2	9	1	1	4	5	6	2	1	37
Service innovation	0	2	0	1	3	2	2	0	2	2	14
Organizational factors	1	1	0	0	0	0	0	0	0	2	4
Branding	1	3	1	2	0	1	1	1	1	2	13
Total	27	25	29	25	20	23	36	27	19	25	256

Figure 1 Paradigm model of designing and explaining the model of communication model of customer participation and competitive business with social media based on brand

Based on the results of the measurement model included in the observed factor load in all cases, it has a greater value of 0.5, which shows that there is a proper correlation between the observable variables and their related hidden variables, and also based on the results of the measurement model, the value of bootstrapping (statistics t) is greater than the critical value of 1.96 in all cases, which indicates that the correlation between the observable variables and the related hidden variables is significant; In the case of variables that are explained by a question, the value of factor loading is equal to one, and the probability that the variable is created by this same question is one hundred percent. Therefore, it can be concluded that each current variable has been correctly measured by its manifest variables, and considering the findings of this scale, the research hypotheses can be tested.

1. Cronbach's alpha: Cronbach's alpha coefficient is usually used to determine the reliability that shows the internal consistency and accuracy of the measurement. Cronbach [10] declared a value above 0.7 as an acceptable reliability indicator. The results of Cronbach's test are presented in the table below.

2. Composite reliability: Composite reliability in structural equation modeling is a better measure than Cronbach's alpha. Because in the calculation of Cronbach's alpha coefficient for each component, all indicators are included in the calculations with equal importance; while for the calculation of composite reliability, indicators with a higher factor load are more important. This makes the reliability values of the components to be a more realistic and accurate measure than their Cronbach's alpha. According to Nunnally [31], if the value of CR for each component is above 0.7, it is a sign of appropriate internal stability for measurement models.

As a result, Cronbach's alpha and composite reliability were calculated to measure the reliability of the questionnaire better and more accurately.

According to Table 3, the combined reliability coefficient (CR) and Cronbach's alpha for all dimensions of the studied model are more than 0.7, and therefore it can be claimed that the questionnaire has acceptable reliability.
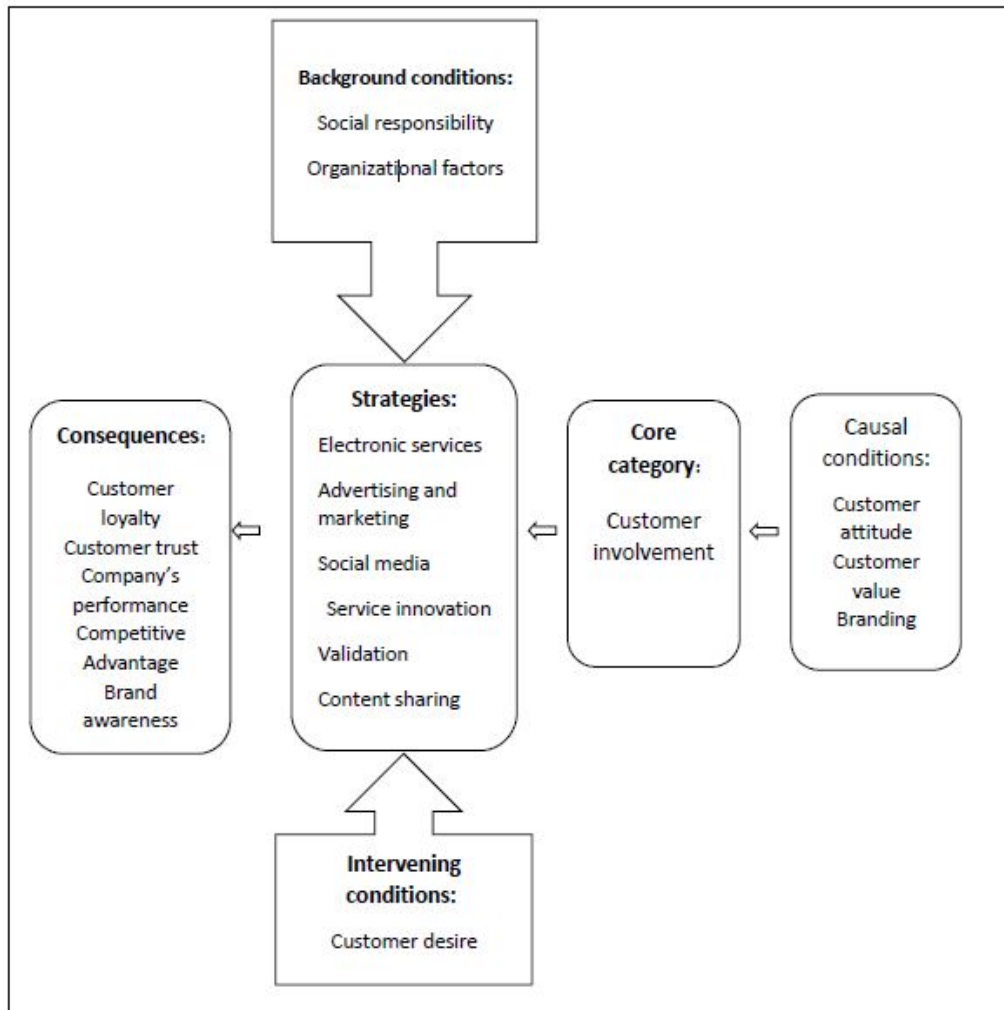
Figure 1: Please write your figure caption here

5.2 Validity of the measurement model:

The concept of validity (validity) answers the question of how well the measurement tool measures the desired characteristic. Validity refers to the logical connection between the test questions and the measured material. When it is said that the test has validity, it means that the test questions accurately measure what is intended. When one or more traits are measured through two or more methods, the correlation between these measurements provides two important indicators of validity. Convergent validity and divergent validity are examined to validate the questionnaire.

1. Convergent validity: If the correlation between the scores of tests that measure a single trait is high, the questionnaire has convergent validity. This correlation is necessary to ensure that the test measures what it is supposed to measure. For convergent validity, average variance extraction (AVE) and composite reliability (CR) are calculated. Convergent validity exists when AVE is greater than 0.5 [15]. Convergent validity exists when CR is greater than 0.7. Also, CR must be greater than AVE. If these three conditions exist, there will be convergent validity.
In short, we have:
$CR > 0.7$
$CR > AVE$
$AVE > 0.5$

It can be seen that the average value of the extracted variance (AVE) is always greater than 0.5, and the combined reliability value is also greater than 0.7 in all cases, which is also greater than the value of the average variance extracted (AVE); Therefore, convergent validity is also confirmed.

Table 3: Cronbach's alpha and composite reliability

Variables	Cronbach 's alpha	Composite reliability (CR)
Brand awareness	0.746	0.855
company's performance	0.774	0.858
customer value	0.777	0.900
Organizational factors	0.788	0.904
branding	0.909	0.937
Content sharing	0.709	0.838
Validation	0.786	0.903
Customer trust	0.719	0.843
Electronic services	0.777	0.900
social responsibility	0.701	0.870
Competitive Advantage	0.827	0.897
Customer involvement	0.926	0.948
Customer attitude	0.783	0.874
Service innovation	0.770	0.867
social media	0.725	0.845
Advertising and marketing	0.850	0.887
Customer desire	0.852	0.900
Costumer loyalty	0.843	0.895

5.3 Examining model fit indices:

To check the quality or validity of the model, the validity check which includes the share validity check index and the redundancy check index has been used. The sharing index measures the quality of the measurement model of each block. Redundancy index, which is also called (Stone and Geisser index), the positive values of these indices indicate the appropriate and acceptable quality of the measurement and structural model.
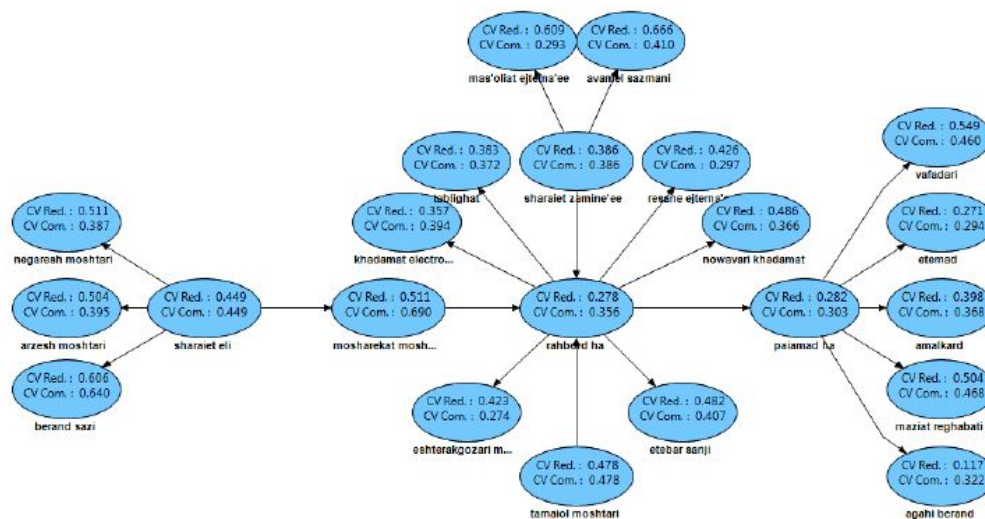

Figure 2: Fit indices of the research model

5.4 General test of structural model quality:

Tenenhaus [42] have introduced the overall index of fit (GOF) to check the fit of the model. The general criterion of fit can be obtained by calculating the geometric mean of the average of common values and the coefficient of

Table 4: convergent validity of research variables

Variables	AVE	CR
Brand awareness	0.663	0.855
company's performance	0.607	0.858
Customer value	0.818	0.900
factors Organizational	0.825	0.904
branding	0.790	0.937
Content sharing	0.633	0.838
Validation	0.824	0.903
Customer trust	0.642	0.843
Electronic services	0.818	0.900
Social responsibility	0.770	0.870
Competitive Advantage	0.744	0.897
Customer involvement	0.822	0.948
Customer attitude	0.698	0.874
Service innovation	0.685	0.867
Social media	0.646	0.845
Advertising and marketing	0.530	0.887
Customer desire	0.693	0.900
Costumer loyalty	0.680	0.895

determination. For this index, values of 0.01, 0.25 and 0.36 are described as weak, medium and strong, respectively.

$$GOF = \sqrt{(\overline{Communality}) \times (\overline{RSquare})} \tag{5.1}$$

Table 5: shared values and

Variable	Amount of subscription	R^2
Brand awareness	0.663	0.173
Company's performance	0.607	0.643
Customer value	0.818	0.628
Organizational factors	0.825	0.806
branding	0.790	0.767
Content sharing	0.633	0.662
Validation	0.824	0.578
Customer trust	0.642	0.408
Electronic services	0.818	0.434
Social responsibility	0.770	0.782
Competitive Advantage	0.744	0.669
Customer involvement	0.822	0.655
Customer attitude	0.698	0.723
Service innovation	0.685	0.710
consequences	0.375	0.771
Strategies	0.416	0.702
social media	0.646	0.656
Causal conditions	0.551	—
Background conditions	0.634	—
Advertising and marketing	0.530	0.723
Customer desire	0.693	—
Customer loyalty	0.680	0.806

As seen in the table above, only endogenous variables have values. After performing the calculations, the numerical value of the GOF index equal to 0.661 is obtained, which is a strong index and shows the overall high quality of the model.

5.5 Research hypothesis test:

The relationship between the investigated variables in each of the research hypotheses has been tested based on a causal structure with the PLS partial least squares technique. In the general model of the research, the measurement model (the relationship between each of the observable variables and the hidden variable) and the structural model (the relationship between the hidden variables) have been calculated. In this model, the output of the Smart Pay software. L. S. The summary of the results related to the significance of the standard factor load and the significance of the relationships of the research variables is presented. The path coefficients and their significance are also given in Table 6.
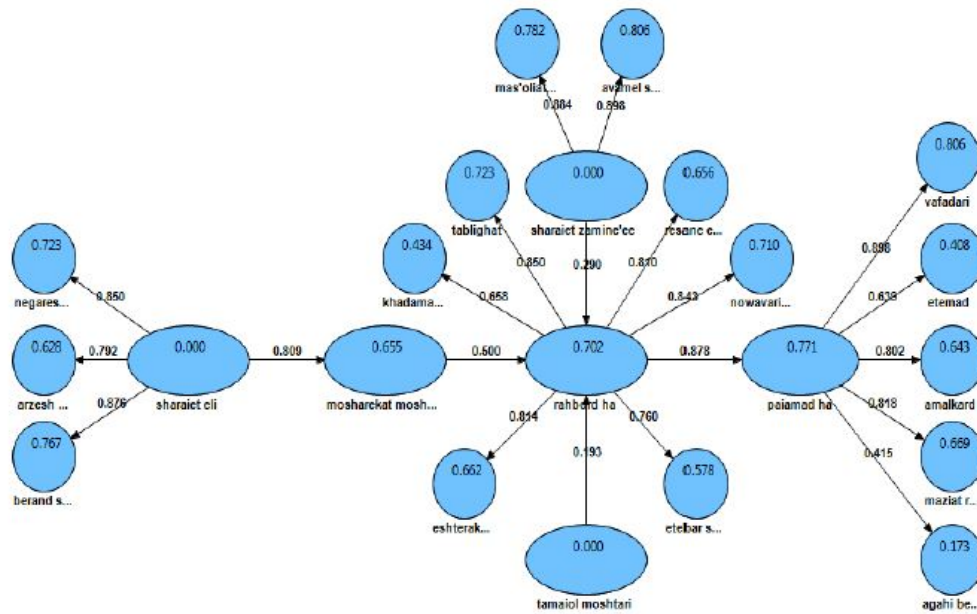
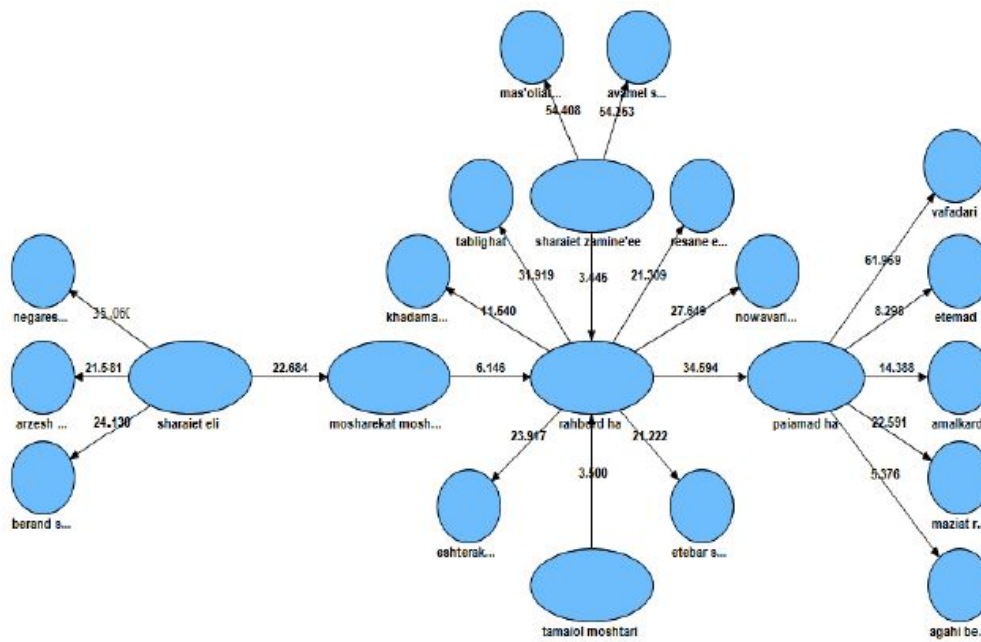Figure 3: General research model with partial least squares technique

Figure 4: T-statistics of the general research model with bootstrapping technique

Table 6: path coefficients

the of direction the path	the effect	Amare T
Customer ngagement $\longrightarrow$ Strategies	0.500	6.146
Consequences $\longrightarrow$ Brand awareness	0.415	5.376
Consequences $\longrightarrow$ Company performance	0.802	14.388
Consequences $\longrightarrow$ Customer trust	0.639	8.298
Consequences $\longrightarrow$ competitive advantage	0.818	22.591
Consequences $\longrightarrow$ Customer loyalty	0.898	61.969
Strategies $\longrightarrow$ Content sharing	0.814	23.917
Strategies $\longrightarrow$ Validation	0.760	21.222
Strategies $\longrightarrow$ Electronic services	0.658	11.540
Strategies $\longrightarrow$ service innovation	0.843	27.649
Strategies $\longrightarrow$ Consequences	0.878	34.594
Strategies $\longrightarrow$ Social media	0.810	21.309
Strategies $\longrightarrow$ advertising and marketing	0.850	31.919
Causal conditions $\longrightarrow$ branding	0.792	21.581
Causal conditions $\longrightarrow$ customer participation	0.809	22.684
Causal conditions $\longrightarrow$ customer attitude	0.850	35.060
Background conditions $\longrightarrow$ Organizational factors	0.898	54.253
Background conditions $\longrightarrow$ social responsibility	0.884	54.408
Background conditions $\longrightarrow$ strategies	0.290	3.445
Customer desire $\longrightarrow$ strategies	0.193	3.500

6 Conclusion

After processing the data by statistical tools and software, the following results were obtained, which can indicate the appropriate answers to the questions raised in the research. The research results showed:

How is the communication model of customer participation and competitive business with social media based on brand?

In this research, to investigate the variables of the communication model of customer participation and competitive business with social media based on brand, based on interviews with research experts, related models and variables have been identified. Finally, based on the identified final criteria, the model derived from the foundation's data analysis method is presented. The results of the open coding of the qualitative data collected using the interview tool show that 58 open codes have been identified out of 256 concepts. 58 primary codes are categorized in 18 categories:

The category of customer participation is in the first place with 37 code repetitions, customer loyalty is in the second place with 28 codes, and advertising and marketing is in the third place with 24 codes. Examining the categories showed that in the company's performance category, the profitability index; electronic services category, social electronic services index; Customer value category, appropriate value acquisition index; The category of customer attitude, the inference index on customer insight; Social responsibility category, social activity index; The category of competitive advantage, index of maintaining the company's competitive environment; Customer loyalty category, customer satisfaction and retention index; Customer preference category, customer need index; Advertising and marketing category, advertising message presentation index and word of mouth recommendation index; brand awareness category, the index of customer recognition and awareness; social media category, index of social networks and channels; validation category, user rating index by getting likes; Content sharing category, sharing index and interaction of opinions and experiences; Customer participation category, communication creation and development index; Service innovation category, innovation index in creating new company services; Organizational factors category, customer voice index; Branding category, brand identity index have the highest frequency. The category of customer trust has indicators with the same frequency.

The intensity of the effect of the central category of customer participation on strategies has been calculated as 0.500, and the probability statistic of the test has been obtained as 6.146, which is greater than the critical value of t at the 5% error level, i.e. 1.96, and shows that the observed effect is significant. Therefore, with 95% certainty, the central category of customer participation has a positive and significant impact on strategies.

The intensity of the effect of causal conditions on the central category of customer participation has been calculated as 0.809, and the test probability statistic has been obtained as 22.684, which is greater than the critical value of t at the 5% error level, i.e. 1.96, and shows that the observed effect is significant. Therefore, with 95% certainty, causal conditions have a positive and significant effect on the central category of customer participation.

The intensity of the effect of the background conditions on the strategies has been calculated as 0.290, and the test probability statistic has been obtained as 3.445, which is greater than the critical value of t at the 5% error level, i.e. 1.96, and shows that the observed effect is significant. Therefore, with 95% certainty, background conditions have a positive and significant effect on strategies.

The intensity of the effect of the intervention conditions of the customer's desire on the strategies has been calculated as 0.193, and the test probability statistic has been obtained as 3.500, which is greater than the critical value of t at the 5% error level, i.e. 1.96, and shows that the observed effect is significant. Therefore, with 95% confidence, the intervention conditions of customer desire have a positive and significant effect on strategies.

The intensity of the effect of the strategies on the results has been calculated as 0.878 and the test probability statistic has been obtained as 34.594, which is greater than the critical value of t at the 5% error level, i.e. 1.96, and shows that the observed effect is significant. Therefore, with 95% certainty, strategies have a positive and significant impact on outcomes.

322 correct data have been collected about research variables. The average scores of the variables were between 3.069 and 3.987, among which social responsibility has the highest average. The highest amount of dispersion in terms of the change range index is equal to 4.00, which is its maximum amount. In terms of the standard deviation index, the competitive advantage variable has the highest dispersion. To check the quality or validity of the model, the validity check which includes the share validity check index and the redundancy check index has been used. Investigations showed that the indicators are positive and greater than zero. It can be said that the model has acceptable quality and reliability. The overall test of the quality of the structural model, the value of the numerical GOF index is obtained as 0.661, which is a strong index and shows the overall high quality of the model.

7 In line with the company's performance, it is suggested:

Today, companies with superior performance in various industries are moving towards maintaining customers and gaining their loyalty, because most markets are in their maturity stage, the competition is increasing and the costs of attracting new customers have also increased greatly. Keeping the customer and gaining their loyalty is considered vital for the continuation of the business. In this regard, it is necessary to provide a network of exchange of opinions with customers and continuous evaluation of people's opinions regarding their level of satisfaction with the quality of services and try to use the critical and constructive opinions of the company's customers.

The essence and nature of social networks is nothing separate from the real human world, which through technologies and software facilities makes people communicate faster and more easily, and like society and the real world, it may be accompanied by challenges, problems and good things. And it is the art and ability of specialists, managers and decision-makers to use these useful platforms in line with the goals of the business. Therefore, it is necessary for the managers of internet transportation businesses to provide the necessary platforms and infrastructures for the development of the use of social networks.

8 In line with electronic services, it is suggested:

The effect that the website and the way of providing services leaves on the visitor or customer during the first visit of that website is very important. The appearance of the website should have a simple, clear and beautiful structure, and it should be easy to visit and browse. Also, it should be loaded quickly and there is no need to download any tools such as Java or Flash to visit it.

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