



The University of Tehran Press

Interdisciplinary Journal of Management Studies (IJMS)

Home Page: <https://ijms.ut.ac.ir>

Online ISSN: 2981-0795

Brand Intelligence: Its Conceptualization, Measurement, and Impact on Firm Performance

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ARTICLE INFO

Article type:

Research Article

Article History:

Received 23 June 2022

Revised 21 July 2023

Accepted 13 September 2023

Published Online 12 June 2024

Keywords:

Brand Intelligence,
Conceptualization,
Firm Performance,
Measurement.

ABSTRACT

Using intelligence in various aspects of business, including branding, allows organizations to reach a worthy competitive position in today's turbulent environment. However, researchers have not yet provided a scale to measure the level of brand intelligence. As a result, the purpose of this study is 1) to provide an operational definition of brand intelligence and 2) to develop a standard scale for measuring this variable. This study reports six studies on developing a brand intelligence scale based on a literature review and interviews with practitioners. This scale shows reliability, internal consistency, construct validity, and nomological validity. The findings show a 24-item measurement scale comprising seven dimensions: monitoring, brand research, predictability, reactivity, learning ability, ability to collaborate, and responsiveness. Also, the results showed that brand intelligence significantly affects market performance and financial performance. Finally, contributions, implications, limitations, and future research directions are discussed.

Cite this article: Varmaghani, M.; Zarei, A.; Feiz, D. & Maleki Minbashrazgah, M. (2024). Brand Intelligence: Its Conceptualization, Measurement, and Impact on Firm Performance. *Interdisciplinary Journal of Management Studies (IJMS)*, 17 (3), 875-887. DOI: <http://doi.org/10.22059/ijms.2023.344777.675178>



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Publisher: University of Tehran Press.

DOI: <http://doi.org/10.22059/ijms.2023.344777.675178>

1. Introduction

Technological applications and innovation improve business performance (Chen & Lin, 2021). Intelligent organizations are more likely to survive and succeed in a rapidly changing world (Sohrabi et al., 2014). Intelligence has been formed in various aspects of the business under business intelligence (BI), marketing intelligence, and so on (Jeong et al., 2021; Moreno et al., 2020). Competition between brands has increased to gain a higher brand position and become the market leader (Siddiqui, 2022). In today's competitive environment, intelligence is a competitive advantage for organizations. (Nte et al., 2020). Therefore, with the increasing global competition of brands, it is necessary to make intelligent brand management practices. Frenzetti Coladon and Grippa (2020) have introduced brand intelligence as a method to evaluate the brand position and improve brand image. To obtain the best results from brands, firms must continuously audit their brand capabilities, evaluate external issues affecting their brands, determine realistic brand objectives, and implement effective strategies to achieve them (De Chernatony et al., 2011). For this purpose, organizations should create a measurement system to monitor, benchmark, and upgrade brand performance. This system includes internal and external metrics of the brand (Brakus et al., 2009; Ewing & Napoli, 2005). Brand intelligence can assess all essential brand metrics simultaneously and achieve a broad view of a brand. Brand intelligence provides valuable information for successful brand management. Brand intelligence is the future of brand management (Fronzetti Colladon & Grippa., 2020).

Nowadays, "agility" and "intelligence" are two essential factors for the success of organizations (Bahrami et al., 2016; Shen et al., 2017). Organizations can make better and faster decisions and be more agile using intelligence (Cheng et al., 2020). However, so far, no study has been conducted to identify the complementary concept of brand agility called "brand intelligence." Brand intelligence research lags behind brand agility research (Zarei et al., 2018). According to surveys, brand intelligence has recently entered the literature of brand management. Previous research has pointed to the introduction of brand intelligence and implementation of the SBS Brand Intelligence App (Fronzetti Colladon & Grippa., 2020). Academic research with a qualitative approach has not been conducted to identify the concept of brand intelligence and its operational definition. Therefore, studies in this field are in their early stages. Also, no quantitative research has been done on brand intelligence. One of the reasons for the lack of quantitative research in this field is that researchers need a valid questionnaire to measure brand intelligence in the target statistical population. This need has not been answered in the existing literature. Therefore, our research objective is to respond to this need and provide an operational definition of brand intelligence. The operational definition is presented as a valid questionnaire consisting of dimensions and items (Anaza et al., 2021). We provide an opportunity for future researchers to conduct further research on brand intelligence using its questionnaire. Therefore, we need this research because in this research the operational definition and standard questionnaire of brand intelligence are presented for future research. Our purpose is to answer these questions. 1) What does brand intelligence mean? 2) What are the dimensions of brand intelligence? And 3) What are the items of brand intelligence?. We use a mixed approach (qualitative-quantitative) to discover and test the validity of brand intelligence dimensions and items (Jahanvi and Sharma, 2021). The results of this study can be helpful to brand managers who want to analyze the internal and external environment affecting the brand and evaluate the current and future situation of the brand.

2. Theoretical foundation

2.1. Brand Intelligence

Strong brands continuously use brand audit and tracking to properly manage their brands (Van den Driest et al., 2016). A brand strategy can create a business that resonates with customers; in such a way that it exploits its strengths and competitors' weaknesses and neutralizes its weaknesses and competitors' strengths. It is necessary to understand the perspectives presented in competitor analysis, customer analysis, and self-analysis to make such a business (Aaker, 1996). Firms should track brand equity over time, including awareness, perceived quality, brand loyalty, and brand association, to decide on necessary brand changes (Gromark & Melin, 2011). Indeed, to properly manage brands, firms must have a clear understanding of their brand equity by identifying what makes them tick and what they are worth (Keller & Lehmann, 2006). Firms need to implement a consistent measurement

system to monitor and upgrade their brand performance (Davis & Dunn, 2002). Bringing the brand to life in the form of intelligence should include the brand metrics, both internal and external (Brakus et al., 2009). These firms set up their structures and processes in such a way as to maximize the importance, consistency, and differentiation of the brand. Brand intelligence ensures the "protection" of brand equity through monitoring, understanding, and organizing knowledge about the brand environment (Fronzetti Colladon & Grippa., 2020).

Conceptualization studies are conducted if a term has recently entered a field, no definition has been provided for that term, and there is no standard questionnaire to measure it. Naturally, the literature related to that term is very limited (Sin et al., 2005; Williams et al., 2021). Brand intelligence has also recently entered the brand management literature. Studies in this field are in the early stages of formation. Therefore, the literature on brand intelligence is very limited. According to surveys, there is only one background in this field. The background of brand intelligence is shown in Table 1.

Table 1. Brand intelligence background

| Study | Overview | Findings | Results |
|------------------------------------|--|---|--|
| Fronzetti Colladon & Grippa (2020) | To better describe the capabilities of the SBS brand intelligence app, the researchers implemented this app in a case study of the 2020 US Democratic presidential primary election. They downloaded 50,000 online articles from the Event Registry database. These online news articles were transformed into networks of co-occurring words and analyzed using methods and tools from social network analysis and text mining. | The application of the SBS BI to a limited period of the US democratic primaries indicates that Joe Biden is the one with the richer textual embedding, spanning boundaries of political discourse, while not discussing enough of issues that were widely addressed by Buttigieg, Warren, and Sanders. | The SBS BI App represents an innovative tool to measure brand importance and brand positioning, relying on methods of text mining, sentiment analysis, and social network analysis. |
| Arora et al (2023) | The purpose of this research was to identify and rank the factors affecting customers' understanding of fin-tech services based on artificial intelligence. Fuzzy-AHP technique was used for this purpose. | Service quality, perceived usefulness, and perceived convenience have a significant impact on customers' experience with artificial intelligence-enabled fin-tech services. | The study's findings will significantly assist businesses in determining the primary aspects influencing customers' experiences with artificial intelligence-enabled financial services. |

3. Scale Development and Validation Process

In this section, we follow detailed steps of scale development. In these stages, a valid and reliable scale of brand intelligence is developed to effectively and correctly measure this construct within an organization. This section, like other research (e.g., Chi et al., 2020; Jahanvi and Sharma, 2021), follows the scale development steps proposed by Netemeyer, Bearden, and Sharma (2003) and Churchill (1979). According to this method, we must first identify the dimensions and items of the scale using literature and interviews. We need to remove items that lack good psychometric criteria. Then we need to connect each item to the respective dimensions and check the validity of the dimensions. Next, we need to connect the dimensions to the brand intelligence scale. Finally, we have to check the effect of this scale on another dependent variable. Our view in this methodology is from the outside to the inside of a nominal network. In this way, reliability and validity are checked for items, dimensions, and scale, respectively. Table 2 explains the scale development stages for brand intelligence.

3.1. Study 1: Conceptualization of brand intelligence

Fronzetti Colladon & Grippa (2020) considered brand intelligence textual data analysis. They evaluated the brand image by analyzing big data based on text mining and analysis of emotions. However, researchers should be cautious in directly applying the definition of brand analysis to the concept of brand intelligence. Textual analysis and intelligence are two related concepts, but intelligence is beyond textual analysis (Ghazanfari et al., 2011). Textual analysis is one of the tools for achieving intelligence (Guarda, 2015). Intelligence focuses on the past, present, and future (Kopalle et al., 2021; Sharp, 2009), whereas brand analysis assesses the current position of the brand (Fronzetti Colladon, 2018, 2020). So, we have to rethink the definition of brand intelligence.

Table 2. The development process of the brand intelligence scale

| Step description | Details |
|---|---|
| Study 1: Conceptualization of brand intelligence | <ul style="list-style-type: none"> Literature review Interview (n = 9 and 7) Identification of seven dimensions |
| Study 2: Item generation | <ul style="list-style-type: none"> Literature review Interview (n = 9 and 7) Creation of 97 items |
| Study 3: Item reduction and refinement | <ul style="list-style-type: none"> Evaluation of face and content validity of the items in three stages: <ol style="list-style-type: none"> Preliminary review of the research team focus group (n = 8 and 9) and iterative classification technique Final focus group review (n = 9) Retention of 36 items |
| Study 4: Scale purification | <ul style="list-style-type: none"> EFA (n = 342) deletion of 12 items and retention of 24 items |
| Study 5: Test of discriminant and convergent validity | <ul style="list-style-type: none"> CFA (n = 386) Confirmation of 24 final items |
| Study 6: Test of nomological validity | <ul style="list-style-type: none"> SEM (n = 186) The significant impact of brand intelligence on market performance and financial performance |

Also, brand intelligence and brand orientation are tightly linked to each other. However, they have differences. Brand intelligence and brand orientation can both help improve a firm's brand and support brand values (Fronzetti Colladon & Grippa, 2020; Tajeddini & Ratten (2020). Brand orientation does this through collaboration with business partners (Tajeddini & Ratten, 2020), but brand intelligence focuses on improving data analyzing capabilities and equipping the organization with new technologies (Fronzetti Colladon, 2018). Brand orientation focuses on cooperating with business partners, communicating with strong business partners, and instructing new business partners about brand positioning (Tajeddini & Ratten, 2020). At the same time, brand intelligence focuses on other internal and external factors that affect brand activities in addition to business partners (Fronzetti Colladon & Grippa, 2020). In brand orientation, marketing strategy focuses on brand identity and does not 'fickle to variations in consumer needs' (Wong & Merrilees, 2005, p. 155). At the same time, brand intelligence monitors the present and future needs of consumers and adapts itself to them (Fronzetti Colladon, 2018). Generally, orientation could drive intelligence, and an orientation task can predict intelligence (Mikellidou et al., 2021).

There is very limited literature on brand intelligence (Fronzetti Colladon & Grippa, 2020). Therefore, in-depth interviews with experts help to increase the comprehensiveness and accuracy of the definition of brand intelligence. For this purpose, 16 in-depth interviews were conducted with university professors (n = 9) and industry (n = 7) experts. The criterion for selecting university professors had a lengthy research background in marketing, branding, and management information systems (MIS). Industry experts also have more than ten years of experience in brand management. In the present study, we selected three sectors to develop a reliable, valid, and parsimonious scale of brand intelligence. These three sectors were transportation, fashion, and technology. Products in these sectors differ in consumers' product involvement, price range, purchase frequency, and consumption status (e.g., communication among users, time, and place). This diversity enriches the usability of the brand intelligence scale. Also, these sectors are dynamic and up-to-date industries. Respondents are familiar with the categories in this study. This familiarity allows them to provide reliable and valid answers to the questionnaire (Jahanvi and Sharma, 2021).

We combined the insights from the interviewees with knowledge of brand intelligence. Literature analysis and interviews led to the conceptualization of brand intelligence using seven dimensions. These dimensions include monitoring, brand research, predictability, reactivity, learning ability, ability to collaborate, and responsiveness. The reason for choosing these dimensions was to find them in interviews and literature. Thus, brand intelligence is a multidimensional and second-order structure conceptualized as the extent to which each of these seven dimensions is enjoyed.

3.2. Study 2: Item generation

Providing a precise definition of brand intelligence and identifying its dimensions makes it possible to produce scale items that can measure the strength of any dimension of brand intelligence in an

organization (Churchill, 1979). We used a multi-source approach to create a pool of items. In addition to reviewing the literature on intelligence and brand analysis in scientific articles (e.g., Fronzetti Colladon & Grippa, 2020), brand intelligence was searched in the Google search engine. Literature about brand intelligence was reviewed on websites such as www.brandintelligence.net, www.brandkoncept.com, morningconsult.com, and blog.loomly.com. The interviews were also analyzed. Finally, 97 items were created. At this step, several important issues were controlled. These issues were redundancy, word clarity, and response formats (Papadas et al., 2017). The items were then labeled and placed in one of seven categories (Items summary is shown in Appendix A).

3.3. Study 3: Item reduction and refinement

After generating the initial items, the face and content validity of the items were evaluated in three stages (Chi et al., 2020). In the first stage, the research team conducted a preliminary review. As a result of this review, duplicated items and items that reduced face validity were eliminated. Terminologies used, and descriptions were also unified. This action resulted in the deletion of 36 items. In the second stage, a focus group of 8 university experts and 10 industry experts were selected. They were asked to rate the understandability and relevance of items to brand intelligence on the 1-7 Likert scale and the 1-7 relevant-irrelevant scale, respectively. Based on the results, items with a score of understandability and relevance less than the midpoint of 4 were removed. Items with a score of 4 were also modified to increase understandability and clarity. As a result, 18 items were removed. Then, similar items were combined using the iterative classification technique (Dey, 2003). As a result of this refinement, seven items were removed. In the next stage, nine experts were selected for final review. Again, experts were asked to rate the understandability and relevance of the items on a scale of 1-7. Feedback showed that the mean scores of all items are greater than 4. Therefore, all 36 items were retained.

3.4. Study 4: Scale purification

Pilot testing reduces the number of items in a primary pool to a more rational number. In pilot testing, it may be sufficient to use comfort samples (like university students), but it is preferable to use a sample of the relevant population (Netemeyer et al., 2003). In this study, two sources and two data collection methods were used to overcome the probable correlation inflation due to underlying effects (time, source, and location) and to guarantee the representation of the sample. Resources included marketing students at the public university ($n = 98$) and brand managers in the transportation, fashion, and technology sectors ($n = 244$). The entry criterion to the survey program for brand managers was having five years of professional experience (see Table 3 for sample characteristics). Methods also included an online survey and an onsite survey. Onsite surveys were used to collect student data, and online surveys were used to collect manager data, considering little monetary motivation for each participant in exchange for completing the online survey. After familiarizing participants with brand intelligence, they were asked to assess the importance of 36 items on a 7-point Likert scale. Finally, 342 data were collected through the cluster sampling method.

Table 3. Demographic Profile of Respondents

| Variable | Categories | EFA (%) ($n = 342$) | CFA (%) ($n = 386$) | SEM (%) ($n = 186$) |
|----------------|--------------------------------|--------------------------|--------------------------|--------------------------|
| Market | B2C | 65.8 | 44.3 | 39.2 |
| | B2B | 23.7 | 25.4 | 28.5 |
| | Both | 10.5 | 30.3 | 32.3 |
| Sector | Fashion Brands | 46.5 | 41.7 | 52.2 |
| | Technological brands | 34.2 | 37.3 | 16.1 |
| | Travel & Transportation brands | 19.3 | 21 | 31.7 |
| Gender | Male | 55 | 63.2 | 70.4 |
| | Female | 45 | 36.8 | 29.6 |
| | Other | 0 | 0 | 0 |
| Age | 18–25 | 28.9 | 16.6 | 5.9 |
| | 26–34 | 37.1 | 43.5 | 15.6 |
| | 35–54 | 22.8 | 28.2 | 52.7 |
| | > 55 | 11.1 | 11.7 | 25.8 |
| Marital status | Married | 38.9 | 45.3 | 64.5 |
| | Unmarried | 61.1 | 54.7 | 35.5 |
| Position held | Top manager | 55.6 | 50.3 | 60.8 |
| | Middle-level manager | 44.4 | 49.7 | 39.2 |

After collecting the data, the normality of the variables was checked. All variables had skewness and kurtosis values less than 2. Thus, all variables were retained (Thompson, 2004). In the next step, EFA, along with varimax rotation, was performed. The Kaiser-Meyer-Olkin (KMO) value was 0.718 (> 0.5). Thus, the dataset is appropriate for factor analysis (Kaiser, 1974). The p-value of Bartlett's Test of Sphericity was less than 0.0001. This value is significant, meaning that the main correlation matrix isn't an identity matrix (Chi et al., 2020). Several factors were ascertained with the eigenvalue criteria > 1 . Items are checked based on specific psychometric criteria (Robinson et al., 1991). These criteria are 1) the factor loading of the item is greater than 0.6, 2) the cross-loading of the item is less than 0.4 (To overcome the multicollinearity issue), and 3) the commonality value of the item is greater than 0.5. Accordingly, 12 items were removed due to a lack of the above criteria. Finally, a set of 24 items was retained.

The new EFA was performed for 24 items. The KMO value in the EFA dataset was 0.748 (> 0.5). The p-value of the Bartlett sphericity test was less than 0.0001. An EFA with varimax rotation exhibit (Black and Babin, 2019).

This structure explains 64.18% of the total variance, more than the proposed value of 60%. Cronbach's alpha was used to assess the internal reliability of the brand intelligence dimensions. Cronbach alpha coefficients were greater than 0.7 for all dimensions, indicating considerable internal consistency (Papadas et al., 2017). Also, all items had the necessary psychometric criteria. As a result, no further deletion is required. The final brand intelligence scale now includes 24 items. Based on the evidence presented, statistically, the seven-dimensional factor structure for brand intelligence is reliable (see Appendix A).

3.5. Study 5: Test of discriminant and convergent validity

At this stage, another large study was performed to conduct confirmatory factor analysis (CFA). A formal questionnaire was prepared based on a 7-point Likert scale. This questionnaire included seven dimensions and 24 items. Finding a perfect sample for this study was challenging. Therefore, the purposive sampling method was used to assess the respondents. For this purpose, the brand managers of three sectors were selected (see Table 3 for sample characteristics). A web-based survey method was used to gather data. Self-administered questionnaires were distributed among individuals. A follow-up request was then sent to those with delays in dispatching the questionnaire. After discarding incomplete questionnaires, 386 complete questionnaires were collected with a response rate of 64.5.

Before the CFA, the EFA was implemented. An EFA with varimax rotation revealed seven factors with eigenvalues > 1 , which explains 65.46% of the total variance. All items met the required psychometric criteria. Cronbach's alpha value for all dimensions was greater than 0.70 (Black and Babin, 2019) (see Appendix A).

At this step, (CFA) was applied. All items were loaded on their relevant dimensions (see Table 4 and Figure 1). The results of CFA showed all items with factor loading between 0.71 and 0.94 were significantly loaded in their relevant factors. The factor structure showed that there is a good fit for the model. The CFI, GFI, and TLI values were 0.982, 0.937, and 0.978 (> 0.90), respectively. The RMSEA value was 0.031 (< 0.08). The value of the model Chi-square was 314.795 ($df = 231$), and the Chi-square/df was 1.363 (< 3) (Tabachnik and Fidell, 2007). The value of the statistical measures is near the standard. Therefore, the factor structure is a good fit for the model. The composite reliability (CR) value of all factors was greater than 0.7. Therefore, the internal consistency of the model is good (Black and Babin, 2019). The Average Variance Extracted (AVE) was greater than 0.5, which indicated convergent validity (Black and Babin, 2019). Also, the squared roots of AVEs of each construct were higher than the correlation between constructs, which points to discriminant validity (Hair et al., 2022). This is shown in Table 5.

3.6. Study 6: Test of nomological validity

At this stage of finalizing the brand intelligence scale, nomological validity was assessed. Nomological validity is assessed by examining the relationships of brand intelligence with one or more consequences in a theoretical network (Kock et al., 2018; Nguyen et al., 2015). In this study, two variables were used as consequences of brand intelligence. These variables are market performance and financial performance. Some studies (e.g., Kopp and Jekauc, 2018; Mariadoss et al., 2014; Shooshtarian et al., 2013) have

examined the relationship between intelligence and firm performance. These studies showed that intelligence could increase the performance of the organization. Therefore, we expect brand intelligence to increase market performance and financial performance. In the existing literature, the concept of firm performance has been viewed from two perspectives. In the first perspective, performance is a subjective concept. In this perspective, the performance of firms compared to the performance of competitors is considered (Golden, 1992). In the second perspective, performance is an objective concept based on absolute criteria (Cronin and Page, 1988). In most firms, the information is confidential, and respondents are reluctant to provide financial data (Sin et al., 2005). Also, past studies have shown a strong relationship between objective criteria and subjective responses (Jaworski and Kohli, 1993). Therefore, a subjective approach was used in the present study. Market and financial performance scales (Khan, 2020) were used to operationalize firm performance (see Appendix A). Then, the relationships between brand intelligence (independent variable) and its consequences, including market performance and financial performance (dependent variables), were evaluated by relying on structural equation modeling (SEM). So, another large study was conducted. A questionnaire with a 5-point Likert scale was used. This questionnaire included 34 questions. Twenty-four questions were related to brand intelligence, and ten questions were related to firm performance. Questions were provided in Appendix A. Brand managers in the transportation, fashion, and technology sectors were selected as sample members. Demographic information is provided in Table 3. A cluster sampling method was used to collect data. After discarding incomplete questionnaires, 186 complete questionnaires were collected with a response rate of 67.8. The structural model estimated presented a good fit ($\chi^2 = 921.810$; $df = 518$; $\chi^2 / df = 1.78$; $p < 0.001$; CFI = 0.90; GFI = 0.90; RMSEA = 0.06; TLI = 0.91) (see Table 6). Also, the results of the convergent and divergent validity tests are shown in Table 7.

Table 4. Study 5 -CFA Results

| Dimensions and items “this brand.....” | Factor Loadings | AVE | CR |
|--|-----------------|-------|-------|
| Responsiveness | | 0.607 | 0.885 |
| 1. Considers brand managers as the principal decision-makers of the organization | 0.76 | | |
| 2. Considers promoting brand equity in all organizational decisions | 0.86 | | |
| 3. Responds quickly to changes in the business environment | 0.80 | | |
| 4. Designs plans and scenarios for different situations | 0.72 | | |
| 5. Takes corrective actions if there is a deviation in the brand promise | 0.75 | | |
| Ability to collaborate | | 0.793 | 0.920 |
| 1. Communicate with other brands | 0.87 | | |
| 2. Collaborates with other brands | 0.94 | | |
| 3. Work better if it cooperates with other brands | 0.86 | | |
| Monitoring | | 0.554 | 0.832 |
| 1. Constantly monitors the status of its metrics | 0.75 | | |
| 2. Constantly monitors the actors that effectively promote brand equity | 0.78 | | |
| 3. Constantly monitors its competitive position | 0.74 | | |
| 4. Warns if a metric exceeds the standard | 0.71 | | |
| Reactivity | | 0.681 | 0.865 |
| 1. Reacts to environmental changes | 0.82 | | |
| 2. Adapts its behavior to changes | 0.85 | | |
| 3. Receives and reacts to the signals before the competitors | 0.81 | | |
| Predictability | | 0.767 | 0.908 |
| 1. Predicts the movements of the competitor in advance | 0.87 | | |
| 2. Predicts the environment and future changes | 0.89 | | |
| 3. Predicts future position of brand equity | 0.86 | | |
| Learning ability | | 0.643 | 0.843 |
| 1. Learns from experiences | 0.81 | | |
| 2. Updates itself regularly | 0.85 | | |
| 3. Improves its performance over time | 0.74 | | |
| Brand research | | 0.550 | 0.786 |
| 1. Collects the necessary data for the decision-making of brand managers | 0.74 | | |
| 2. Systematically analyze the collected data | 0.77 | | |
| 3. Disseminates information throughout the organization | 0.71 | | |

Notes: Chi-square = 314.795, $df = 231$, RMSEA = 0.031, CFI = 0.982, TLI = 0.978.

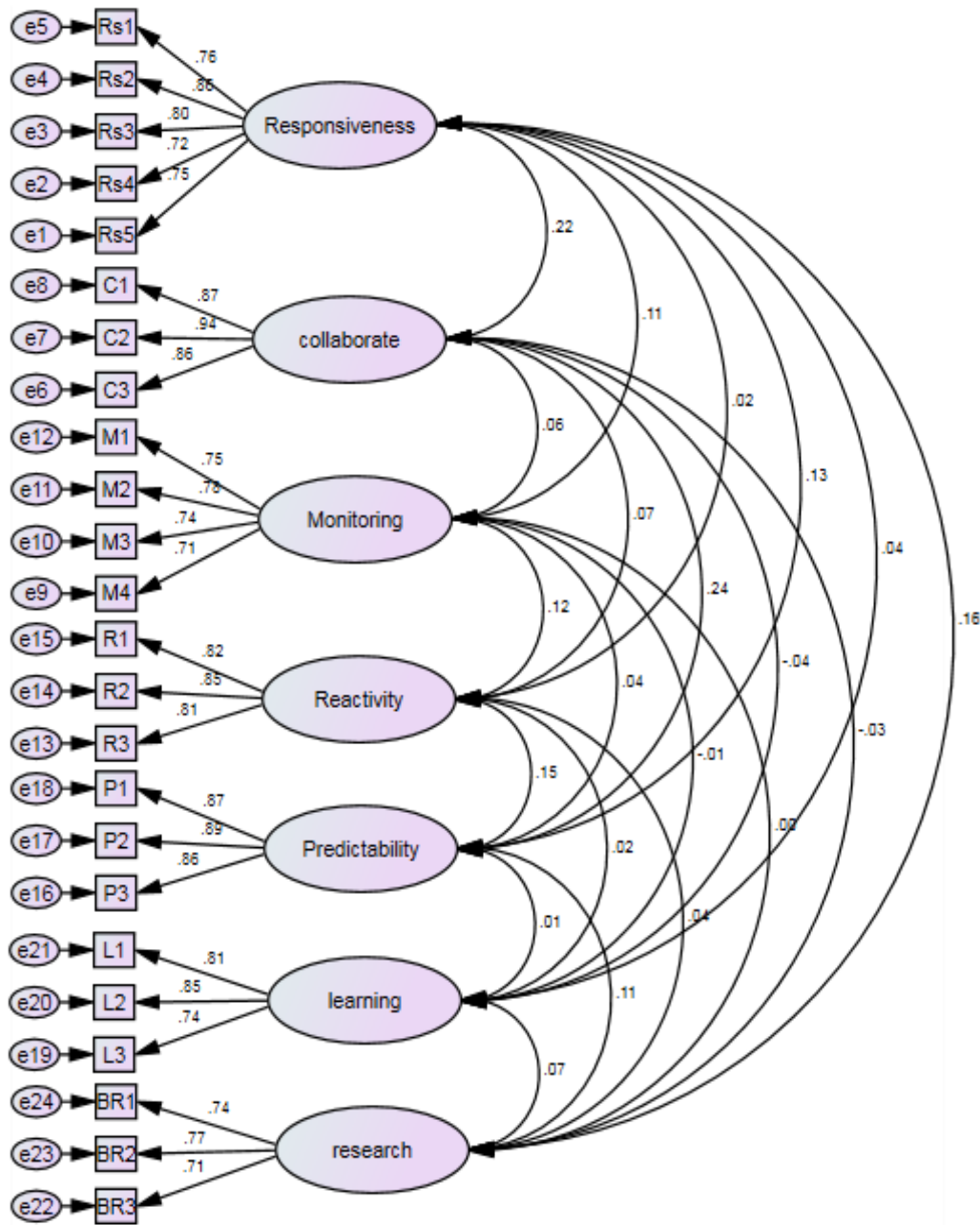


Fig. 1. Study 5 - CFA model results

Table 5. Study 5 - discriminant validity

| Dimensions | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---------------------------|-------|--------|--------|-------|-------|-------|-------|
| 1. Responsiveness | 0.779 | | | | | | |
| 2. Ability to collaborate | 0.221 | 0.890 | | | | | |
| 3. Monitoring | 0.112 | 0.056 | 0.744 | | | | |
| 4. Reactivity | 0.022 | 0.068 | 0.123 | 0.825 | | | |
| 5. Predictability | 0.134 | 0.242 | 0.041 | 0.154 | 0.876 | | |
| 6. learning ability | 0.041 | -0.036 | -0.008 | 0.020 | 0.013 | 0.802 | |
| 7. Brand research | 0.155 | -0.026 | 0.003 | 0.045 | 0.110 | 0.073 | 0.742 |

Notes: The main diagonal values are the square root of AVE and the left and bottom of the main diagonal is the correlation matrix.

Table 6. Study 6 - Model fit

| Model fit Index | χ^2 | df | Chi-square/df | CFI | GFI | RMSEA |
|-----------------|----------|-----|---------------|-------|-------|-------|
| Estimate | 921.810 | 518 | 1.780 | 0.903 | 0.902 | 0.065 |

Table 7. Study 6 - Validity and reliability test

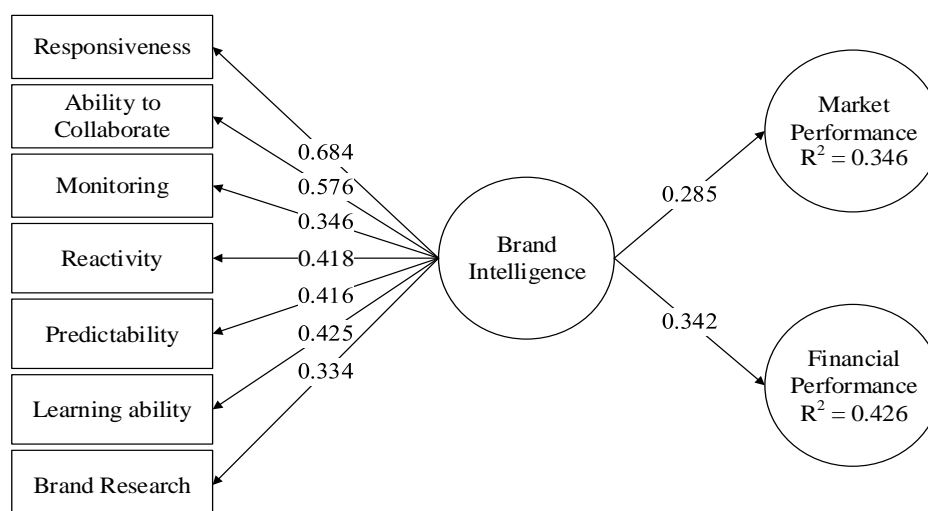
| Dimensions | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---------------------------|-------|--------|--------|--------|--------|--------|-------|-------|-------|-------|
| 1. Responsiveness | 0.860 | | | | | | | | | |
| 2. Ability to collaborate | 0.135 | 0.932 | | | | | | | | |
| 3. Monitoring | 0.060 | 0.072 | 0.838 | | | | | | | |
| 4. Reactivity | 0.097 | 0.157 | 0.090 | 0.897 | | | | | | |
| 5. Predictability | 0.047 | 0.270 | 0.109 | 0.014 | 0.883 | | | | | |
| 6. learning ability | 0.027 | 0.176 | 0.137 | 0.157 | 0.110 | 0.911 | | | | |
| 7. Brand research | 0.217 | -0.011 | -0.027 | 0.083 | 0.073 | 0.085 | 0.835 | | | |
| 8. Brand Intelligence | 0.683 | 0.576 | 0.345 | 0.418 | 0.415 | 0.424 | 0.334 | 0.764 | | |
| 9. Market Performance | 0.443 | 0.021 | -0.029 | 0.111 | -0.007 | -0.018 | 0.122 | 0.284 | 0.892 | |
| 10. Financial Performance | 0.253 | 0.204 | 0.069 | -0.030 | 0.082 | 0.021 | 0.001 | 0.242 | 0.037 | 0.843 |
| α | 0.911 | 0.925 | 0.859 | 0.880 | 0.860 | 0.898 | 0.784 | 0.798 | 0.936 | 0.900 |
| AVE | 0.739 | 0.869 | 0.703 | 0.806 | 0.781 | 0.831 | 0.698 | 0.584 | 0.796 | 0.711 |
| CR | 0.934 | 0.952 | 0.904 | 0.926 | 0.914 | 0.936 | 0.874 | 0.834 | 0.951 | 0.924 |

Notes: all correlations are significant at the 0.01 level.

Table 8. Study 6 - Nomological validity test

| Path | β | t-Value | p-value | Remarks |
|---|---------|---------|-----------|-------------|
| Brand Intelligence → Responsiveness | 0.684 | 3.695 | p < 0.01 | Significant |
| Brand Intelligence → Ability to collaborate | 0.576 | 3.916 | p < 0.01 | Significant |
| Brand Intelligence → Monitoring | 0.346 | 2.163 | p < 0.01 | Significant |
| Brand Intelligence → Reactivity | 0.418 | 3.222 | p < 0.05 | Significant |
| Brand Intelligence → Predictability | 0.416 | 2.694 | p < 0.01 | Significant |
| Brand Intelligence → learning ability | 0.425 | 2.380 | p < 0.01 | Significant |
| Brand Intelligence → Brand research | 0.334 | 2.476 | p < 0.01 | Significant |
| Brand Intelligence → Market Performance | 0.285 | 2.525 | p < 0.01 | Significant |
| Brand Intelligence → Financial Performance | 0.342 | 4.795 | p < 0.001 | Significant |

The results of the structural model test showed seven proposed dimensions: responsiveness ($\beta = .684$, $t = 3.695$), ability to collaborate ($\beta = .576$, $t = 3.916$), monitoring ($\beta = .346$, $t = 2.163$), reactivity ($\beta = .418$, $t = 3.222$), predictability ($\beta = .416$, $t = 2.694$), learning ability ($\beta = .425$, $t = 2.380$), and brand research ($\beta = .334$, $t = 2.476$), significantly loaded on the brand intelligence level. In addition, the results showed that brand intelligence has a positive and significant effect on market performance ($\beta = .285$, $t = 2.525$) and financial performance ($\beta = .342$; $t = 4.795$). Table 8 shows the statistics for the brand intelligence construct paths. Also, according to R^2 values, brand intelligence explained 34% of the variance in market performance and 42% of the variance in financial performance. Accordingly, it is rational to deduce that brand intelligence has good nomological validity. The nomological network of the brand intelligence construct is shown in Figure 2.

**Fig. 2.** Study 6 - structural model

4. Discussion

This study was a response to the trend of brand management in the new era. In this study, we intended to present a standard questionnaire to measure brand intelligence (Table 4). Therefore, we followed the detailed process of scale development presented by Netemeyer, Bearden, and Sharma (2003) and Churchill (1979). In the first step of this process, we created a 7-dimensional brand intelligence scale. Then, running EFA multiple times, we finally built a 24-item scale. Then, we confirmed the good psychometric properties for dimensionality, reliability, and validity by conducting CFA and SEM. In general, the contribution or innovation of our study is that we presented a valid and reliable scale of brand intelligence or an operational definition of brand intelligence. We defined brand intelligence as the abilities of research, monitoring, learning, collaboration, reactivity, predictability, and responsiveness of the brand. These findings are particularly significant because our study is the first to design a standard questionnaire for brand intelligence. This study provides a valuable research tool for future studies and knowledge creation in brand intelligence. Also, this study provides valuable information for strategic planning and management of organizations' brand actions. These results offer helpful theoretical and managerial implications, which are mentioned below.

4.1. Theoretical implications

In general, our results present several theoretical implications. First, this paper introduces the link between the two streams of literature - Intelligence literature and branding literature - by submitting "brand intelligence," consistent with recent conceptualizations of general intelligence. Therefore, we want to spark an exchange of ideas between these fields. We provide a context for IT, marketing, and branding researchers equally .

Second, this study is the first to fill the research gap created by the convergence of the concept of "brand analysis" and the lack of a measurement scale to assess brand intelligence. According to Fronzetti Colladon & Grippa (2020), brand intelligence is a method for predicting the results of election candidates as personal brands. They defined brand intelligence as textual analysis and a method for evaluating and enhancing brand position. But intelligence is beyond textual analysis, and textual analysis is one of the tools of intelligence (Santos, 2015). Intelligence is a broader concept and focuses on the past, present, and future (Sharp, 2009). While brand analysis focuses on evaluating the current brand position (Fronzetti Colladon, 2018). Therefore, there was a need to revise the definition of brand intelligence. A need that we answered in this research. This research has considered all aspects of brand intelligence and made the previous studies more complete. The results of the study emphasize that brand intelligence is conceptually and empirically different from brand analysis. However, the findings of this research are in line with the findings of Fronzetti Colladon & Grippa (2020). In this research, concepts such as prediction and analysis were used in the dimensions and items of brand intelligence. Also, previous researchers have only limited themselves to providing a general definition of brand intelligence and have neglected to identify its dimensions and items. This research adds the standard brand intelligence questionnaire to the existing body of knowledge.

Third, the prominent role of the current research is to create a standard questionnaire to measure brand intelligence. The brand intelligence scale can be used as a valid, reliable, and cost-effective tool in quantitative research due to the numerous samples in different sectors. To the best of our knowledge, this is the first study to provide a comprehensive, psychometric, and valid operational measure of brand intelligence.

Fourth, the brand intelligence scale consists of seven dimensions. These dimensions include responsiveness, ability to collaborate, monitoring, reactivity, predictability, learning ability, and brand research. These results reinforce our theoretical argument that one-dimensional measurement of brand intelligence does not cover the various aspects of an intelligent brand. Although some of the terms expressed in this framework may be familiar to managers and marketers, its value is in integrating these concepts to provide a more general and comprehensive picture of brand intelligence. Thus, the brand intelligence scale is a reflective structure composed of seven interdependent dimensions.

Finally, this paper highlights the value of studying the impact of brand intelligence on firm performance. We tested the effect of brand intelligence on firm performance to explore how brand intelligence affects the organization. In particular, this is the first study to demonstrate the hypothesis

and evidence that brand intelligence significantly affects market performance and financial performance. Our findings contribute to brand intelligence studies by providing subtle insights into its nomological network.

4.1. Managerial implications

This study has practical implications for professionals and brand managers. First, this scale has potential benefits for organizations. For example, brand intelligence equips firms with a diagnostic tool to evaluate their brand performance consistently. Brand managers can first consider a standard for essential brand metrics such as brand image. Then, they can constantly monitor those metrics. Finally, they can design and implement corrective actions if any metric deviates from their standard value. For example, brand managers can use this tool to monitor the firm's movement in line with the brand promise.

Second, brand intelligence affects many firm processes, such as decision-making and human resource management. For example, in such a firm, 1) brand managers should play a key role in organizational decisions, 2) Brand promotion should be considered a default in all organizational decisions, 3) All employees must try to promote the brand, and 4) Information related to the current and future status of the brand should be available to all employees of the units. Brand managers can also work with the help of human resource managers to hire talented human resources to implement brand intelligence properly. They can consider training programs to help improve employees' understanding of brand intelligence. Also, reconfiguring infrastructures is essential to developing brand intelligence in the organization.

Third, the present study has created a list of brand intelligence dimensions and items. This new scale is applicable. Managers must strengthen monitoring, research, predictability, responsiveness, learning, collaboration, and reactivity in their brands to have an intelligent brand. Therefore, firm managers can use these dimensions to make their brand more intelligent. Managers can also use this scale in surveys to determine the level of their brand intelligence. Based on the results of surveys, organizations can be aware of the relative scores of their brand and plan for future improvement.

Finally, our findings confirm that brand intelligence is an essential success factor for firm performance. Firms can effectively improve their performance through the correct implementation of brand intelligence. Therefore, it makes sense for managers to use brand intelligence as an effective strategy to create a competitive advantage.

4.3. Limitations and directions for further research

Our study has limitations. Limitations create significant opportunities for future research. First, we used cross-sectional data in this study. Therefore, we encourage researchers to use longitudinal studies to explain the effect of time-based changes. One of the limitations of this study is that we collected our data from only one Asian country. Extending this study to other countries will help increase the generalizability. Also, we looked to cover all aspects of brand intelligence. However, there may be certain aspects that have been related to the emergence of new trends in brand intelligence. We urge researchers to incorporate these aspects into their research to keep pace with environmental changes. Although the sections represent the majority of our sample, other areas should also be considered. As a result, future studies should focus on specific types of sectors, firms, or industries to obtain comparative results. Fifth, in this study, brand intelligence conceptualization has been done at the organizational level. Future research can promote brand intelligence research on personal brands, place brands, etc. Another limitation is that our study presents the conceptualization of brand intelligence from the perspective of firms. Therefore, it will be interesting to conceptualize brand intelligence from other stakeholders, such as consumers. Seventh, the evaluation of a more comprehensive nomological network was beyond the scope of the study. Future research should investigate the relationship between brand intelligence and other consequences. In general, it is recommended that researchers continue to develop more accurate nomological networks for brand intelligence. Finally, we did not consider the characteristics of firms. It is interesting to examine the characteristics of firms that adopt and implement intelligence brands.

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