Brand Image Design and Competitive Analysis of Energy Enterprises Based on the Evaluation Model

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Abstract

with the fierce market competition in the energy industry, the competition between enterprises has upgraded to brand war from the original extensive growth, and brand force has become the key competitiveness of energy enterprises to maintain the edge in the market. However, in the current market environment, the importance of brand image has not received enough attention from the enterprisers, and the necessary connection between brand awareness among customers and market development is even overlooked by many energy enterprises. Based on this circumstance, this paper tries to elaborate on the importance of enterprises’ brand image building by combing relevant researches and studies from both domestic and international, tries to summarize the main problems existing in the brand image design and brand image building of Chinese energy enterprises. In addition, a competitive analysis of energy enterprises’ brand image is carried out in this paper, based on the evaluation model, in light of the realistic conditions. Combined with the sustainable development strategy, the design of energy enterprises’ brand image can be initiated from the following three aspects: enterprise philosophy, enterprise visual identification and enterprise behavior identification. When creating brand image, energy enterprises should pay attention to the combination of general characteristics of energy industry and its individual company culture, following the principle of unity, and emphasize the ecological philosophy of public benefits, thus to further strengthen the brand image of energy enterprises. It can be seen that the studies on the brand image design of energy enterprise can effectively promote the brand image of energy enterprises and provide valuable reference for the brand building of energy enterprises.

Keywords: Evaluation Model, Energy Enterprises, Brand Image, Design Research.

1. BACKGROUND

1.1 Literature review

As the increasing of economic value of enterprise brand, more and more scholars at home and abroad start to be concerned about the design and management of enterprise brand image. At present, the research on the value and effect of enterprise brand has begun to take shape. For example, the maximum value of a corporate brand is to influence customer perceived value through its role in service quality and customer relationship (Bai et al., 2002). Brand image of corporates have a significant positive impact on consumers’ buying intentions (Wu and Lu, 2009). In recent years, many foreign scholars have also studied the importance and necessity of enterprise brand building. Good corporate brand image plays a key role in the consumers’ psychology of brand ranking. Brand awareness among consumers, affected a consumer’s evaluation of the enterprise and the attitude towards the enterprise, to a certain extent (NaSua et al., 2017). By building a systematic brand belief, employees will take the brand belief into their daily work, and employees’ sense of identity and loyalty for the enterprise will also be further enhanced (Kevin et al, 2016). The research object of the brand image design by these aforesaid scholars is relatively abstract. In recent years, domestic scholars have further studied the brand image design of energy enterprises. For example, in the current market-dominated economic times, energy enterprises’ development and positioning in market needs to rely on their brand images (Chen, 2012). The effective way to build core competitiveness of energy enterprises is to create and develop enterprise brand (Lei and Sun, 2016). Through the above literature review, it is found that to design and shape good brand image has becomes an important direction of energy enterprise development. However, the research on brand image design at home and abroad is usually carried out from a macro perspective, the applicability of which is not very high.
1.2 Purpose

The brand image design of energy enterprises has become the social business card of the enterprise, which directly reflects the social responsibility and public evaluation of the enterprise. By integrating the effective resources from inside and outside of the company, the enterprise can design and manage the brand image properly, thus to promote a good relationship between the enterprise and its consumers and to enable a good public image of the enterprise (Li and Ma, 2014). However, due to the monopoly of energy industry in China, the lack of social responsibility among most of the energy enterprises, and the fuzzy relationship between brand awareness and market development, the brand building of China’s energy enterprises is lagging far behind, compared with the situation in developed countries (Hui, 2014). There’s no doubt that when an enterprise carries on its brand image design and management, it needs to comprehensively measure multiple factors and dimensions before a proper brand image widely recognized by the society and consumers is created. By establishing a relational model, the brand equity of enterprises is divided into three dimensions: market portfolio, enterprise image and brand value (ji-hern et al., 2011). Through a case survey, it is found that the enterprise behavior, enterprise communication, enterprise culture, enterprise strategy and other factors are all important to enterprise image among consumers (Rosmiza et al., 2014). Under this circumstance, this paper tries to elaborate on the significance of corporate brand image design, makes an analysis of the current situation and main problems of brand building of China’s energy enterprises, put forward the ascension path of energy enterprises’ brand image based on sustainable development strategy, in order to improve the international competitiveness and promote the brand influences of Chinese energy enterprises.

2. PROBLEMS EXISTING IN BRAND IMAGE BUILDING OF CHINA’S ENERGY ENTERPRISES

2.1 China’s energy enterprises are generally lack of brand consciousness, which is restricting the transformation and upgrading of enterprises

Brand consciousness and brand strategy reflect the overall planning and thinking of enterprises on brand building, which directly affect the diversification of products development and industry development. In the process of long-term development, China’s energy companies, caused by a lack of brand strategy consciousness, attaches great importance to the production, while ignoring the design of product, attaches great importance to manufacturing while ignoring research and development, attaches great importance to sales performance while ignoring brand image. The phenomenon is rather common. Energy enterprises focus on the promotion of product sales, which leads to the neglect of brand image building and the poor brand awareness and brand self-protection awareness. Moreover, most of the products in the energy industry are homogenized, and there are a large number of unbranded products and non-branded enterprises in the industry, which lowers the added value of energy products. Besides, there’s a monopoly among energy companies products as well as the supply of petroleum, electric power, and coal mining. The monopoly advantage puts energy companies in an undifferentiated competition situation, and no pressure for their management and brand building (Aihwa et al., 2015).

2.2 Brand image design talent is deficient; the professional level of brand management is not high

A lot of the Middle-level brand management in energy companies at present, is directly promoted from internal group. And most of them receive no professional brand management training, therefore are lack of scientific knowledge system of brand image design and brand management. It is mainly because the brand consciousness of China's energy enterprises is not strong, and there’s a lack in the comprehensive high-end talent and professional talent of brand management, leading to the poor ability of enterprise brand development, and to the lack of brand image design with created value. In addition, because the energy industry is an emerging monopoly industry, most of the enterprises’ concept of brand operation is lagging far backward, and functions of the trademark and the brand is neglected, coupled with the lack of domestic trademark agency, all of which may lead to a biased strategic planning of energy enterprises’ brand building, and restrict the development of energy companies to some extent (Barbara et al., 2014).

2.3 The market positioning of the brand is not very clear, and there’s a great blindness in capital investment.

At present, the market positioning of China’s energy enterprise brand is not clear, and there is a great blindness in capital investment, which resulting in a waste of enterprise resources. From a market economy point of view, although the information is open and easy to get today, consumers’ individual choice time is limited, and their recognition of a certain product stays merely on the initial impression of the brand image of the enterprise. If the
brand image design and market positioning of energy enterprises fail to convey a clear and correct piece of information, the brand effect and brand premium will not be achieved, and the enterprise may have to be trapped in a price war. For example, the domestic PV industry brand positioning is not very accurate, and there is a great blindness in capital investment of the industry (Mary et al, 2013).

3 THE CONSTRUCTION OF EVALUATION MODEL

3.1 The construction of evaluation index system

When trying to construct the evaluation model of energy enterprises’ brand competitiveness, seven principles including objectivity, feasibility, relativity, scientifity, comprehensiveness, dynamineness and simplicity shall be followed: and two layers of evaluation index system shall be set up, with the first layer as the primary level A featured with three indexes including brand market capability A1, brand management ability A2 and brand basic ability A3 respectively, and with the second layer as the secondary level B featured with nine indexes. And the evaluation model of enterprise brand competitiveness is shown in Figure 1.

![Figure 1. Evaluation Index System of Brand Competitiveness](image)

3.2 The setting-up of judgment matrixes

According to the evaluation index system mentioned above, the corresponding judgment matrix is set up through pairwise comparison of indexes at each layer, and then the scale value of its relative importance is determined. By adopting analytic hierarchy process, the judgment matrix M is set up. And then compare the important degree of each factor in the matrix pair wisely, and set \( m_{ij} \) as the important ratio of the index \( B_i \) and \( B_j \), namely \( m_{ij} = \frac{1}{m_{ji}} \). Then the judgment matrix \( M = (m_{ij})_{n\times n} \) can be expressed like this:

\[
m_j > 0, m_{ij} = \frac{1}{m_{ji}}, m_{ij} = 1 \quad (i, j = 1, 2, \ldots, n)
\]

Among which, \( m_{ij}(i, j = 1, 2, \ldots, n) \) indicates the importance scale of each secondary evaluation index under the first layer of indexes.

According to the comparison judgment matrix of the structure, the relative importance weight of each layer of indexes can be obtained by solving the maximal characteristic root and corresponding vector. If we set the maximum characteristic root of the comparison judgment matrix \( M \) as \( \lambda_{max} \), and its vector quantity as \( P \), then the characteristic root \( MP = \lambda_{max} P \), is obtained. After normalization treatment, the consistency index is calculated: \( CI = \frac{\lambda_{max} - n}{n-1} \). Among them, the judgment matrix order number is expressed as \( n \), if the randomness ratio \( CR = \frac{CI}{RI} < 0.10 \), then the consistency satisfaction of the judgment matrix is considered to be relatively high.
In order to further determine the corresponding level of each evaluation index, the evaluation set is set up as \( D = \{ D_1, D_2, D_3, D_4, D_5 \} \), with the reviews of each index respectively means excellent, good, medium, bad, worse, and their corresponding standard is expressed as \( \{ d_1, d_2, d_3, d_4, d_5 \} \). The membership degree of evaluation is respectively established as \( D_j \{ j=1,2,3,4,5 \} \). If we set the membership degree of \( B_i \) to \( D_j \) as \( R_{ij} \), and the total number of the experts participating in the evaluation as \( N \), then the membership degree of the evaluation index is calculated as:

\[
B_i = \frac{R_{i1}}{N} + \frac{R_{i2}}{N} + \frac{R_{i3}}{N} + \frac{R_{i4}}{N} + \frac{R_{i5}}{N},
\]

3.3 Fuzzy Comprehensive Evaluation Value

After the single factor evaluation matrix of each index is obtained, the comprehensive evaluation results of the brand competitiveness of the enterprise \( C : C = \varepsilon \) can be obtained by using the known weights \( \varepsilon = (\varepsilon_1, \varepsilon_2, \ldots, \varepsilon_n) \).

When \( B = (c_1, c_2, c_3, c_4, c_5) \), among which \( B = (B_{i1}, B_{i2}, \ldots, B_{im}) \), then the single factor evaluation matrix of each index is \( B_i \{ i=1,2,\ldots,m \} \).

If we set \( c_m = \sum_{k=1}^{5} c_k \), to get \( c_k^* = \frac{c_k}{c_m} \), \( (k = 1,2,\ldots,5) \), then the results of the comprehensive evaluation can be obtained through normalization treatment:

\[
c^* = (c_1^*, c_2^*, c_3^*, c_4^*, c_5^*)
\]

According to the maximal subordination principle, the maximum corresponding review among \( c_k^* \) is the final fuzzy evaluation result. If \( c_k^* \) is set as the weight, then the corresponding values of the comments \( D = \{ D_1, D_2, D_3, D_4, D_5 \} \), are respectively (1.0, 0.8, 0.6, 0.4, 0.2). So the fuzzy quantification score is:

\[
S = c_1^* \cdot 1.0 + c_2^* \cdot 0.8 + c_3^* \cdot 0.6 + c_4^* \cdot 0.4 + c_5^* \cdot 0.2
\]

4. EMPIRICAL RESEARCH

At present, the energy industry products are enjoying a feature of homogenization, so the traditional consumption concept that the value of price reflects the value of product is challenged. In addition to the quality and value of products, brand image and brand value are also influencing the choice of customers. In order to further study the brand image design and competitiveness of energy enterprises, some enterprises in the energy industry are selected as empirical objects.

4.1 Weight of index in evaluation system

According to the principle of analytic hierarchy process, the weight of the enterprise’s brand competitiveness evaluation index is calculated by using AHP model.

<table>
<thead>
<tr>
<th>( \varepsilon_1 )</th>
<th>( \varepsilon_2 )</th>
<th>( \varepsilon_3 )</th>
<th>( \varepsilon_4 )</th>
<th>( \varepsilon_5 )</th>
<th>( \varepsilon_6 )</th>
<th>( \varepsilon_7 )</th>
<th>( \varepsilon_8 )</th>
<th>( \varepsilon_9 )</th>
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<tr>
<td>0.072</td>
<td>0.066</td>
<td>0.047</td>
<td>0.102</td>
<td>0.074</td>
<td>0.067</td>
<td>0.066</td>
<td>0.083</td>
<td>0.073</td>
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According to the research results, the evaluation matrix of single index is set up first, and then the evaluation matrix of brand competitiveness of the enterprise is obtained.

### Table 2 Evaluation matrix of brand competitiveness

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<td>0.066</td>
<td>0.083</td>
<td>0.073</td>
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<tr>
<td>0.120</td>
<td>0.017</td>
<td>0.121</td>
<td>0.126</td>
<td>0.431</td>
<td>0.135</td>
<td>0.073</td>
<td>0.246</td>
<td>0.132</td>
</tr>
<tr>
<td>0.022</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.103</td>
<td>0</td>
<td>0.121</td>
<td>0.313</td>
<td>0</td>
</tr>
<tr>
<td>0.024</td>
<td>0.065</td>
<td>0.125</td>
<td>0</td>
<td>0</td>
<td>0.032</td>
<td>0</td>
<td>0</td>
<td>0.124</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0.005</td>
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### 4.2 Fuzzy comprehensive evaluation results

The comprehensive evaluation result of brand competitiveness of the enterprise is:

$$C_p = \varepsilon_p \odot B_p (0.615, 0.512, 0.065, 0.028, 0.015)$$

According to the principle of maximum membership, the brand competitiveness can be evaluated as "excellent" and the results of the comprehensive evaluation are calculated through normalization treatment:

$$S_p = c_1^* \cdot 1.0 + c_2^* \cdot 0.8 + c_3^* \cdot 0.6 + c_4^* \cdot 0.4 + c_5^* \cdot 0.2 = 0.818.$$  

### 5. THE SPECIFIC STRATEGIES FOR BRAND IMAGE DESIGN OF ENERGY ENTERPRISES

#### 5.1 Focusing on the characteristics of the energy industry and combining the connotation of the enterprise culture

The development of Chinese energy companies, should not only undertake the transfer and the innovation of energy technology, but also explore a win-win model with the coordinated development of society, environment and enterprise, and work out a design scheme of enterprise image with a green concept of sustainable development manifested. Therefore, energy enterprises should pay attention to the characteristics of the energy industry, excavate the cultural connotation of enterprises, and highlight the organic combination of sense and sensibility in the design scheme of brand image. Specifically speaking, based on sustainable development strategy, through the effective combination of external culture and internal brand culture, energy companies should set up brand images that can comprehensively manifest the enterprises’ culture connotation, thus to convey the core value of the enterprise. In addition, energy enterprises should take a thorough study on the relationship between products and enterprise culture, and through the combining of visual and language to manifest the cultural connotation and the features of energy products. And through the effective integration of visual elements, the enterprises should make full use of cultural identity and the penetration of the concept of sustainable development among consumers, work out the design scheme of brand image with perfect visual effect, and narrow the distance between business and its consumers.

#### 5.2 Complying with the principle of unity and demonstrating a systematic brand image

Due to the lack of unified and systematic brand design, it is difficult for many small and medium-sized energy enterprises to form stable brand competitiveness and they can hardly adapt to the fast changing market environment. Energy companies, therefore, should take the sustainable development strategy into consideration, comply with the principle of unity in brand image design, fully demonstrate the high unification between brand image and information communicated, and to establish a clear brand identity, to give clear development-oriented brand value to the public. On the one hand, during the process of design planning, the comprehensive system integration includes image elements such as corporate culture, value concept, etc, and basic elements such as packaging, corporate logo, and forming the fundamental corporate image visual identification system. On the other hand, energy enterprises should use the marketing channels, including print media, video channel, and public appraisal, through comprehensive and multi-channel communication, to strengthen their brand image, and then win the general recognition by the public. In short, energy enterprises should comply with the principle of unity in corporate brand image design, give full play to the enterprise core communication channels and other resources,
transfer enterprises’ sustainable development idea, and then to improve the brand competitiveness of energy companies.

5.3 Emphasizing the ecological philosophy of public benefits and strengthening the promotion of brand image of energy enterprises

At present, enterprise competition has entered into the new era of brand competition. So the brand image of an enterprise has become a sharp weapon to expand its market share. Especially in recent years, countries around the world pay more attention to the harmony of man and nature, try to reduce the demand for traditional energy sources such as coal, oil, and increase the use of solar, wind, biomass, gas hydrate and other new energy supply. Therefore, the development of energy enterprises should not only pay attention to the innovation and research of energy technology, but also to the concepts of public benefits such as being people-oriented, respect the nature, care the environment and lives. In the design of brand image, energy enterprises should focus on the brand effect and cater to the current trends of energy field in the world. At the same time, energy enterprises should use the integrated marketing strategy, emphasize on the propaganda of environmental protection and sustainable development concepts, and provide sponsorship for public welfare activities such as the environmental protection cause, thus to shape a good brand image, strengthen the best psychological perception of the general public to energy companies. In conclusion, China's energy enterprises should pay more attention to the publicity of ecological concepts, which will not only be helpful to the promotion of brand image, but also to the fulfillment of their social responsibility.

6. CONCLUSION

With the increasing change of world energy pattern and the demand, energy companies must pay more attention to the brand image management, promote the further development of their brand influence, and achieve the maximum economic benefits at the same time. In a probe into the problems of China’s enterprise brand building, it is found that the brand image design and public appraisal of most energy enterprises are still at a poor level. The poor brand management of China's energy enterprises is caused by the fact that the brand consciousness of energy enterprises is lagging far behind, there’s a shortage in brand image design talent, and the brand positioning in market is not accurate. These circumstances, to some extent, have impeded the globalization journey of Chinese energy companies. Then the development status quo of China's energy enterprises and the main problems existing in the brand image design is analyzed in this paper. And based on the evaluation model, the energy enterprises’ brand image design and competitive analysis is also put forward in this paper. The research results show that the enterprise brand image design is of great practical significance for the transformation and upgrading of energy enterprises. However, given that the differentiation between each energy product in the field of energy industry is bigger, the further in-depth studies can be carried out from the brand management of renewable energy enterprises, brand image promotion of small and medium-sized enterprises, and other perspectives in the future.

REFERENCES


