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**PRACTAL STUDIES OF BRAND MANAGEMENT BASED ON  
THE FACTOR OF CONSUMER VALUES**

**CHEN KE**

**SINGAPORE MANAGEMENT UNIVERSITY**

**2021**

**PRACTAL STUDIES OF BRAND MANAGEMENT BASED ON  
THE FACTOR OF CONSUMER VALUES**

**CHEN KE**

Submitted to Lee Kong Chain School of Business  
in partial fulfillment of the requirements for the  
Degree of Doctor of Business Administration

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SINGAPORE MANAGEMENT UNIVERSITY

2021

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I hereby declare that this PhD dissertation is my original work  
and it has been written by me in its entirety.

I have duly acknowledged all the sources of information  
which have been used in this dissertation.

This PhD dissertation has also not been submitted for any degree  
in any university previously.

A handwritten signature in brown ink, consisting of stylized, overlapping loops and a long vertical stroke extending downwards.

Chen Ke

December 12, 2021

## **ABSTRACT**

# **PRACTAL STUDIES OF BRAND MANAGEMENT BASED ON THE FACTOR OF CONSUMER VALUES**

**CHEN KE**

2021 will be the final year of the centenary goal of “building a moderately prosperous society in all respects”. Looking back over the past century, China has not only witnessed an increase in national income, but also ushered in abundant changes in social culture and people's spiritual world, and completed the transformation from a traditional single homogeneous cultural society to a flexible and diverse heterogeneous cultural society. In this process, brands become the product of values change and multicultural shock, and consumers shop not only to meet the needs of material functions, but also to express their personal values. To establish an effective relationship with consumers, brands must understand their value demands.

However, traditional brand research rarely focuses on the fact that brands are the product of changing consumer values, and consumer research is mostly limited to the rational level. This leads to the questions: what is the role of consumers' perceptual values for brands? Is there a method to quantify and apply the intangible perceptual values? Is there a way to study and guide the application of intangible perceptual values in a quantitative way?

To solve the above questions, we adopt abductive reasoning method to explore the following points: first, we put forward the core hypothesis -- consumers' perceptual value has a positive impact on brand development, and CVBBM (Customer-values-based Brand Management) is an effective perceptual value research tool.

CVBBM is an original consumer research tool that helps brands identify their core consumer groups and their perceptual value points. Based on the brand management practice of a certain brand, we elaborate on the theoretical basis, operation process, output results and landing guidance of CVBBM. Further, to evaluate the impact of perceptual value on brand development and verify the effectiveness of CVBBM tool, we use fuzzy-set qualitative comparative analysis (fsQCA) to explore the impact of perceptual value and other conditions and their combinations on brand performance growth.

Finally, we've found that: 1) brand development is not the result of a single point of force, but the product of the interaction of multiple factors, and no single variable can constitute a sufficient and necessary condition for brand performance improvement; 2) there are a variety of success paths for brands, but consumers' perceptual values are the overlap of these success paths and the necessary condition to drive performance improvement; 3) CVBBM can help brands define perceptual value, drive multi-dimensional practice optimization and performance improvement, and is an effective tool

for perceptual value research.

**Keywords:** consumer, perceptual value, self-regulation, abductive reasoning, CVBBM, brand management practice, fsQCA

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## ACKNOWLEDGEMENT

It is another quiet night. I am sitting at my desk, recalling my journey of writing this paper in recent two years. Mixed feelings and memories come to me. At the beginning of 2020, when I started this paper, the Covid-19 pandemic broke out in the world. Wuhan was locked down at that time; alarms were sounded in the entire country and the number of infections stayed high worldwide. In distress, what we can do is to keep our initial aspirations and wear the trouble out calmly. We should treat ourselves and others honestly, accept the reality and cope positively. In that special period of time, dramatically changing environment transformed my inherent linear perceptions of things. I stayed inside my study for a dozen of hours a day, reading literature, making summaries and preparing the framework of this paper. It was the support and encouragement from my family, teachers, friends and classmates that helped me slowly to my feet when I was doing my doctoral dissertation research.

One of the charms of academics is to examine the essence of things in a selfless manner, extract philosophical ideas and discover rules from the natural world and the human environment. I can clearly recall that holiday night when I completed the chapter of literature review; I am pleased with the moment of epiphany when I got the full picture of previous theoretical researches and the moment of returning to be myself and the real world from a state of selfless for days. One of my supervisors told me: “The process of doctoral dissertation research is to make new theoretical and practical

contributions on the basis of previous theoretical and practical researches...”

I want to thank sincerely my great teachers, Professor Geng Xuesong, Professor Zhu Rui and Professor Cheng Chi-Ying. Their guidance, enlightenment and warmth give me an in-depth knowledge of the charms of academics. I get a deep understanding of the meaning of life via communications with them: to live is to leave your gift to this world and let people around you, the environment and the future world benefit from it forever.

Different people have different definitions as to what is a perfect life. But it is everyone’s wish to live a perfect life. I want to thank for my good luck in nearly two years when I wrote this doctoral dissertation. It is a period of time when I have encountered all the beauty in life and this journey has filled my life with loads of great memories. I want to thank my supervisors Professor Geng Xuesong, Professor Zhu Rui and Professor Zheng Jiying again. You help me feel the charms of academics and the true, good and beautiful aspects in people. I want to thank all professors, scholars and teachers who have offered me guidance at SMU and CKGSB. Your knowledge and insights are of great benefit to me professionally and your warmth and tolerance give me room to become better self. Moreover, I want to thank Ms. Yao Wei, Ms. Zhao Jingjing and Ms. Wu Tongrong. Your professionalism and empathy make me feel lucky to be your students. I also want to thank my dear classmates and friends. Your companion makes my

life richer and happier. Finally, I want to thank my precious family for constant understanding, encouragement, support and compassion for all these years.

I will keep learning for the rest of my life and improving myself. To help others is to help ourselves!

## **CHAPTER I: INTRODUCTION**

### **1.1 Research questions and background**

China's rapid economic development has skyrocketed the wealth of many consumers in recent years, whose consumption values, however, have failed to keep pace with their wealth. Many super-rich people born into ordinary families continue to use affordable common brands as they did, and even people with the same income level favor different brands. Say BMW and Mercedes-Benz consumers as an example. They differ in value appeals: the former focus more on the sense of technology, driving pleasure, etc., while the latter pursue perceptual values such as nobility and luxury.

Studies on the social development of typical countries around the world reveal that new brands can be the product of changes in values and multicultural impact. With the improvement of Chinese people's living standards and well-rounded development, China has transformed from the traditional homogeneous and monocultural society to a flexible and diversified society with cultural heterogeneity. For example, the mainstream values have turned from "tradition", "pragmatism", and "striving for progress", etc. into richer and diversified combinations, such as "popularity" and "quality" at the mass level, "new super cool" and "individuality" among fashionable young people, "elegance" and "vitality" of the emerging elite groups, and "dignity" and "classic" pursued by the

affluent.

In most cases, it is perceptual values that ignite the “desire” to own a brand and serve as a key to the purchase decision. Correspondingly, rational values can only “adjust” or “prevent” purchases. In most cases, consumers may be unaware of their perceptual motives for a particular purchase decision. Therefore, such motives may not be well expressed by consumers. Even if they are known, those motives may not be recognized by consumers. The superficial consumption behaviors of consumers are complex and changeable, while the inner values of consumers are firm and stable.

From the perspective of consumers, shopping can not only meet their basic material function needs, but also express their individual values. Chinese consumers are increasingly inclined to achieve self-coordination in consumption, with the hope that in the process of cognition and purchase, the values delivered by brands are precisely what they pursue. Consumers are not buying goods; they are completing a process of value perception.

From a brand perspective, the brand is selling not only a set of products, but also one of value propositions which help consumers make positive purchases. In other words, the more satisfied consumers are with the brand’s value statement, the more loyal the consumers will be to that brand and/or the more frequently the purchases will happen. Besides, as

mentioned above, the value systems of different consumer groups vary. A brand can't satisfy the value systems of all consumer groups. It can only increase the odds of success by finding targeted core consumer group and satisfying the value system of that group.

Traditional marketing research neglects that brand is the product of changes in consumer values. As a result, traditional brands mostly carry out marketing activities around the functional attributes of products. The research on consumers is largely confined to the rational dimension of consumers, such as age, income, and occupation. We have seen numerous business practice cases where businesses have splurged on brand marketing every year but yielded little gains, among which some of the world's leading companies are no exception.

Case: Founded in 1837, the Procter & Gamble Company (P&G) has evolved into a global leader in daily chemical products after hundreds of years of development. Its major marketing strategy featuring intensive advertising of product functions used to be known as the P&G Model. As one of the world's largest advertisers, P&G has remained at the forefront in marketing spending for years. Only from 2017 to 2019, its global marketing spending increased from 46.2 billion yuan to 74.5 billion yuan, and the proportion of marketing spending in operating costs rose from 14 percent to 17 percent, with the marketing spending up 27 percent. Take the Chinese market as an example. In 2005, P&G became the first

international top bidder of CCTV with 385 million yuan, and remained at the top for three consecutive times. However, P&G's sales and consumer minds have declined across the board in the past ten years. Its high investment in marketing has not been duly reciprocated. For example, from 2010 to 2017, the market share of P&G's household care products fell by nearly 2 percent, and the market share of its cosmetics products dropped by more than 5 percent. In response to the situation of sluggish development, P&G has taken a series of countermeasures in recent years, including optimizing sales channels and product features and increasing marketing spending. However, without keeping pace of the times, intensified brand aging has been aroused from the lack of deep emotional recognition for consumers. Under such circumstances, the function-oriented marketing strategy of intensively placing scandalously expensive advertisements leads to a continued slide in market shares under the strong impact of rivals.

In addition, studies on the social development of some typical countries around the world indicate that new brands are usually bred by changes in values and multicultural impact. The birth of new brands seems to be accidental, but actually represents the voice of the times and consumers. Every successful new brand is more like a cultural symbol, carrying the values, attitudes and tastes of a specific group under the context of specific social development and multicultural impact. It can be

found from the social development of some typical countries that the rapid social development and consumption upgrading is usually accompanied by the differentiation of social classes and the fusion and collision of cultures. Meanwhile, the gradual fission of consumer values has further fueled the birth and growth of brands. Take the United Kingdom as an example. During the post-war economic recovery in the United Kingdom, workers confronted the aristocracy while the emerging bourgeoisie was rising, in which case the diversified social culture derived a rich variety of youth subcultures, including the Mods in the emerging bourgeoisie, the Skinheads of the labor class, Teddy Boy, and so on. These young subcultural groups sought fashion symbols representing their self-assertions; brands such as Paul Smith and Fred Perry (uniform of the Mods) thus came into being. For another example, a number of subcultural groups also emerged in the post-war period in Japan. In breach of the mainstream value advocating “Clarity, Righteousness, and Tenacity,” the subcultural groups, including Shibuya and Otaku, questioned themselves, behaved rebelliously, and copped out on society. Some representative brands like Beams thus came into being. The United States has bred the brand POLO Ralph Lauren representing elite clubs and Stussy representing black street culture in the irreconcilable conflicts of multi-cultures. Similar cases can still be found in Chinese situations: the new generation of young people in China has experienced a more special period in which the economic



development is fast and the globalization is accelerating. They are being influenced by cultural globalization. FILA China happens to capture elegant and exquisite people, who start to upgrade their consumption while pursuing a status of sporty hipster. The case of Li-Ning is actually more typical. The booming of national confidence & pride and self-identification in China has greatly catalyzed the success of Li-Ning.

The case of Procter & Gamble suggests that marketing activities would be ineffective when ignoring the perceptual value system of consumers and focusing solely on product functional attributes. The logic of success in the incremental era when demand is greater than supply is being eliminated in the stock era, and high marketing spending will neither help consumers build their minds nor help businesses increase their profitability. By contrast, brands born under the background of changes in values and the impact of multiculturalism have succeeded as they have fully satisfied consumers' value appeals at both the perceptual core level and the rational presentative level.

The business practice cases can make us clearly or vaguely recognize the existence of such a problem and the great significance of solving this problem, but traditional consumer research primarily focuses on rational dimensions. Despite numerous studies and discussions on the perceptual values of consumers, they mostly stay at the theoretical level. Quantifying consumer values is not easy, not to mention the cross-matching of

consumer values and brand personality. The main difficulties lie in:

- i. Lack of quantitative statistical tools for consumers' perceptual values;
- ii. Lack of methods for cross-analysis of consumer values and brand personality (even after sorting out the perceptual value of consumers, the input value to brand management remains limited);
- iii. Research on consumers' perceptual values is disconnected from the practice of brand management, and it is difficult to verify the intervention effect of perceptual values on brand management practices.

In view of the values and difficulties aforementioned, this paper proposes a set of research methods of brand management practice based on consumer values, compensates for the shortcomings of theories at the practical level, and further combines specific business cases to demonstrate empirical case study, analyze brand management practices (focusing on spokesperson matrix and merchandise management) and verify the intervention effects.

## **1.2 Research significance and innovation**

Based on the research of consumer and brand management theories, this paper supplements, perfects and verifies the brand management theory

based on consumer values in practice. A set of valid business practice methods are proposed to supplement the shortcomings of theories at the practical level, thereby providing more practical reference and verification methods of intervention effects for the development of brand management based on consumer values.

In terms of research significance, the contributions and innovations of this paper are as follows:

- i. **Integrate consumers' perceptual values and position consumer portraits accurately:** Consumer portraits serve as the basis for brand management. Inaccurate consumer portraits have limited and even incorrect guidance for brand management at the practical level. Compared with traditional methodologies based on the rational dimensions of consumers (such as age, income, and occupation), this paper pinpoints the importance of consumers' perceptual values (such as care, freedom, and coolness), and proposes a consumer research method integrating the perceptual and rational dimensions of consumers, so as to solve the inaccuracy in consumer portraits which occurs as traditional methodologies only focus on the superficial needs of consumers.
- ii. **Build a brand management model based on consumer values:**  
This paper proposes the Customer-values-based Brand

Management (CVBBM) model. Theoretically, previous theories, such as self-congruity theory, market segmentation theory, brand asset management theory, brand personality and brand value proposition, are pieced together like a jigsaw puzzle, offering theoretical support for CVBBM model. Practically, a complete set of business practice tools and methods is constructed and illustrated in detail with actual business cases. That includes the consumer quantitative statistical methods based on consumers' perceptual values; and making the direction choice of brand concrete and verifiable through the cross-matching of consumer values and brand value propositions.

- iii. Propose matching execution strategies and corresponding evaluation & verification methods:** this paper uses fuzzy-set Qualitative Comparative Analysis (fsQCA) to validate the CVBBM model. FsQCA is an effective method to explore the influence of multiple factors. It focuses on the influence of conditions and their combinations on the outcome variables, emphasizes multiple concurrent causality and the interdependence of various conditions, and is well adapted to small sample and multi-variable verification scenarios. Based on actual business cases, this paper takes the brand performance before and after CVBBM intervention as the results, and sets a series of endogenous (such as selection of spokesperson,

product management, etc.) and exogenous conditional variables (such as industry growth rate, market competition, etc.) to analyze the intervention degree of each combination of conditions on the results.

### **1.3 Research ideas and theoretical framework**

In general, this paper aims to supplement, perfect and develop consumer and brand management theories from the practical perspective on the basis of research on consumer and brand theories. The core is to propose a set of business practice methods to solve the shortcomings of theories from the practical level based on previous academic researches on consumer and brand management theories, thereby offering more practical references for the development of brand management.

Regarding the composition of the theoretical framework, this paper mainly relies on theories of consumer behavior, consumer psychology, self-congruity theory, market segmentation theory, brand asset management theory, brand personality theory, spokesperson selection & evaluation and other related theories to review and refine the previous theories on consumers and brands, and also to provide theoretical support for the core ideas hereof. Furthermore, the input of practical cases helps complete the development and extension of past theories.

### **1.4 Paper organization and structure**

This paper includes 5 chapters, appendix and reference:

Chapter 1 describes the questions and background of the research, the significance and innovation of the research, and the organizational framework of the research.

Chapter 2 analyzes the literature. It mainly sorts out the origin and development of consumer research and brand management research, and demonstrates the core achievements, theoretical crossovers and limitations in academia.

Fuzzy-set Qualitative Comparative Analysis (fsQCA) was used to validate the CVBBM model. FsQCA is an effective method to explore the influence of multiple factors. It focuses on the influence of conditions and their combinations on the outcome variables, emphasizes multiple concurrent causality and the interdependence of various conditions, and is well adapted to small sample and multi-variable verification scenarios. Based on actual business cases, this paper took the brand performance before and after CVBBM intervention as the results, and set a series of endogenous (such as selection of spokesperson, product management, etc.) and exogenous conditional variables (such as industry growth rate, market competition, etc.) to analyze the intervention degree of each combination of conditions on the results.

## CHAPTER II: LITERATURE REVIEW

Centering around the research topic - Research on the Practice of Brand Management Driven by Consumer Values, this part elaborates the development of the two research fields (consumer research and brand management research), and relevant key theories, research methodologies, theoretical contributions and practical applications. It not only lays a solid theoretical foundation for this paper, but also points out the challenges and difficulties existing in each theory and further verifies the significance and innovation of the research topic.

- **Objective of literature review (theoretical support and supplement)**

**For one thing, on the basis of an in-depth understanding and analysis of relevant key theories, the theoretical studies of the original discipline systems are built into a theoretical support like a puzzle, so as to solve a complete business practice scenario.** For example, the self-congruity theory holds that people generally act in the way of maintaining and improving their self-concepts. When consuming, they usually consciously or unconsciously compare the brand image with their own actual, ideal, social and ideal social self-concepts. The self-congruity theory qualitatively interprets the way in which individual self-cognition is formed and the underlying logic of its application fields objectively and subjectively, providing theoretical support for analyzing consumer behaviors through personality structure. Yet, the self-congruity theory

does not explain how to quantify consumers' personality attributes, the theoretical support of which can be found in Jennifer Aaker's theory of brand personality. Then, the market segmentation theory is defined through value propositions. In a specific market segment, these attributes and value propositions are delivered to consumers who are highly self-congruent with the brand image through marketing activities (appropriate spokespersons).

**For another, by conducting a comprehensive analysis of the relevant key theoretical systems, this paper points out the existing problems and deficiencies, solves the existing problems of the absence of both theories and complete business practices, as well as the incoherence of the theoretical systems in business scenarios, and attempts to solve the conflicts between the conclusions of different theoretical research.** For example, the research of consumer psychology focuses on the interpretation of consumer psychology, while the research of consumer behavior focuses on the theoretical analysis of behaviors but pays little attention to applied practice; the specific application links mostly rely on the enterprise's own content interpretation and implementation capability; in the absence of clear application guidance, analysis and verification are missing for the implementation degree and impact. The practical research of self-consistency theory in consumer behavior is merely carried out around experimental data; although such



researches on individual consumers based on experimental data have played an inspirational role for practical activities, they lack complete verification of business practice and neglect consumer groups. For another example, the theory of brand personality is only on a brand footing, rather than understand what the portrait of consumers with the same personality attributes (value appeal points) is like. In today's era of stock competition, brands have no idea about where the consumers with the same personality attributes (value appeal points) are and what are needed. In terms of celebrity-brand fit and evaluation, researchers' use of different research methods from different matching dimensions may lead to divergent results. Both the conflicts between different theoretical research conclusions and the contradictions between hypothesis and reality indicate that the evaluation of celebrity selection is yet to be perfected.

- **Summary of literature review (theoretical limitations, interdisciplinary intersections, significance)**

<b>Discipline theories</b>	<b>Limitations</b>	<b>Interdisciplinary intersections</b>	<b>Significance</b>
<b>Self-Congruity Theory in consumer Behavior</b>	- Customers are measured according to the brand dimension table versus measured against typical user self-	-There exists congruity between brand image (brand personality) and	- The self-congruity theory serves as the theoretical basis for brand

	<p>image; there may be a risk of reduced consistency due to the use of irrelevant image dimensions.</p> <ul style="list-style-type: none"> <li>- Consumers' actual/ideal image consistency is defined and measured as static perceptions in various contexts.</li> <li>- Lack of complete verification for commercial practice applications.</li> </ul>	<p>self-image (self-concept). In other words, self-congruity theory constructs the correlation between consumers and brands.</p> <ul style="list-style-type: none"> <li>- The self-congruity has been applied in source credibility and harmony of the match (congruity).</li> </ul>	<p>image and consumer self-image. This paper locates the brand personality by determining consumer interests (core values), and verifies it through commercial practical cases.</p> <ul style="list-style-type: none"> <li>- Build business practice methods of brand management practice analysis and effect</li> </ul>
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			<p>comparison</p> <p>after the</p> <p>intervention of</p> <p>consumer</p> <p>interests (core values)</p>
<p><b>Market Segmentation</b></p>	<p><b>Demography/consumer behavior/consumer psychology (lifestyle segmentation):</b></p> <p>- Only external characteristics of consumers are used as the basis of segmentation and not enough to predict future purchase behaviors of consumers.</p> <p>- Targeting only on existing customers makes it impossible to define and evaluate potential customers on a</p>	<p>- Consumer psychology (interest segmentation) integrates consumer psychology, consumer behavior and self-congruity theory. Based on consumer interests, market segmentation is carried out through direct</p>	<p>- Compared with brand management with brand/product as the starting point, <b>market segmentation approach centered on the interests of consumer products is the core starting point of this paper.</b> With</p>

<p>large scale.</p> <p>- Consumers are studied from an objective manner and no further light has been shed into the underlying purchase motives and value orientation of consumer purchase behaviors.</p> <p><b>Consumer psychology (interest segmentation):</b></p> <p>- You may not get new product interest information by asking customers directly.</p> <p>- When self-defining consumer interests, additional socio-demographic variables are needed for market segmentation, which</p>	<p>inquiry and consumer</p> <p>perceptual mapping, and the concept of self-congruity theory (the congruity between brand image and self-concept) is used to carry out brand positioning.</p>	<p>consumer interests (core values) as the focus and facts and data taken as guidance, quantitative methods are used to identify, study and analyze consumer interests (core values), and carry out market segmentation.</p>
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	incurs high costs and requires complex multivariate measurement techniques (such as cluster analysis) to identify different consumer groups.		
<b>Brand Asset Management System - Kevin Lane Kelle</b>	Keller's (2003) theoretical system based on the induction method and experimental data cannot have obvious effect in guiding business practices due to lack of verification and application in the process of actual business operations.		
<b>Brand Personality - Jennifer Aaker</b>	- The theory only takes into consideration of the position of brands and fails to understand what	- Brand Dimensions Scales (BDS) answer the	- A practical research is conducted based on

	<p>is the consumer portrait with the same personality attributes (value appeals). In an age of stock competition of today, brands with no clear insight into whereabouts of consumers with same personality attributes (value appeals) will never accurately allocate their limited marketing resources and can waste ad resources. Their brand personality might deviate due to potential short-term interests/pressure in competition.</p>	<p>quantitative problem of brand image in Keller's brand asset management theory.</p> <p>-The influence of regional culture (market segmentation) on brand personality</p>	<p>representational consumer values and CVBBM model.</p>
<p><b>Spokesperson congruency</b></p>	<p>- Researches from different dimensions and</p>	<p>- In combination with the self-</p>	<p>- A quantitative analysis</p>

with different research methods can result in different conclusions. - As indicated by Amos et al. (2008), the academic circle has no uniform or clear criteria as to where (dimensions) celebrity-product/brand congruency is required and how to achieve such congruency.	congruity theory, it is applied to both source credibility (the higher the credibility, the greater the effect of persuasion) and spokesperson selection (if consumers perceive higher congruency, the endorsing effect will be better).	method for quantification of qualitative issues (AHP) is established for quantifiable verification of commercial practices.
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## **2.1 Consumer research**

Consumer research involves numerous research methodologies, perspectives and concepts. A large number of experts, scholars and practitioners have enriched the theories in consumer research based on the times and industries in which they are involved. This paper mainly reviews the documentation of consumer psychology and consumer behavior to understand the theoretical research and practical results of consumers' thinking and doing, so as to lay a solid theoretical foundation for this research, as well as point out the difficulties concerning theories in business practice, and further propose corresponding solutions.

In general, consumer psychology and consumer behavior are similar to a great extent. However, consumer behavior studies start from consumers' external behaviors and primarily discuss the characteristics and laws of consumers' activities during consumption. When it comes to psychological level, consumer behavior research mainly relies on the Stimulus - Response (S-R) Theory in behavioral psychology. Unlike consumer behavior, consumer psychology is a theoretical system based on core disciplines such as psychology and marketing. It can be said that consumer psychology provides theoretical support for consumer behavior to a large extent. Consumer psychology is the law of summarizing and refining consumer behaviors based on the observation of consumer behaviors and characteristics, but it is difficult to quantify, while for



consumer behavior, it is easier to verify the results.

## **2.1.1 Development stages of consumer research**

### **2.1.1.1 Consumer behavior**

As an important science in business studies, Consumer Behavior combines the psychological characteristics and behavioral rules of consumers for products and services (Deli. Hawkins. 2002). From the perspective of marketing, it shows an understanding of consumer behaviors, as “marketing is a discipline that tries to influence consumer behaviors” (Drucker). In general, academic research on consumer behavior has roughly undergone three stages:

i. In the first stage (infancy from 1930s to 1960s), single concepts related to consumer behavior were proposed, including Family Environment, Lifestyle, Working Class and Social Class. These concepts explain consumers’ behaviors and motivation, and can be used to classify consumers. Being single-dimensional, these concepts are relatively clear, independent and easy to quantify. At that time, when both the crowd structure and product selection were relatively simple, the concepts could help enterprises clarify their corresponding consumer groups.

ii. In the second stage (rapid development in the 1960s and 1970s), with the rapid impact and iteration of social culture in European and American countries after World War II, the reduction in production of

military supplies led to capacity expansion of civil consumer goods. Meanwhile, consumer groups differentiated swiftly and showed more dimensions of consumer characteristics. During this period, consumer research entered a stage of rapid development, in which research methods gradually tended to be quantitative, and research topics were greatly extended from a single concept. A typical theory is Maslow's Hierarchy of Needs proposed by Abraham Harold Maslow, the founder of Humanistic Psychology. All of these indicate that consumer behavior research has shifted from single-dimensional to multi-dimensional level, and from quantitative research of purely phenomenon record analysis to explanatory research and causal research. The research topics of this period, however, mainly revolved around individual consumers rather than consumer groups.

iii. In the third stage (deep development from the 1980s to the present), whole new theories of consumer behavior have emerged. Among them, the research on consumer behavior based on the Self-concept proposed by psychologist William James has promoted the transformation of consumer behavior interpretation from the perspective of individual external factors to deeper consumer self-introspection. On this basis, numerous consumer behavior researches have been continuously deepened with the development of social production and science and technology, including the Planned Behavior Theory from the economic

perspective, Consumer Culture Theory from the sociocultural perspective, and research on “how digital technology changes consumer behavior” and “new methods to accurately understand consumers” in the current era of artificial intelligence and big data. Although the theoretical research on consumer behavior has made great progress, most of the studies remain merely based on practical observation and purely theoretical. Even if there are practical applications, they are all based on experimental consumer behavior data, and there is no real touch on the deep-seated value driving of consumers’ purchase motives.

#### **2.1.1.2 Consumer psychology**

Consumer psychology is another major field of consumer research. Its core theme is to explain the psychological phenomena and psychological characteristics of consumers in consumer activities, and to summarize and refine the laws of consumer behaviors.

In general, academic research on consumer psychology has roughly undergone three stages:

- i. The first stage lasted from the first social division of labor (the separation of animal husbandry from agriculture) and the second social division of labor (the separation of handicraft from agriculture) to the 19th century. Eastern and Western thinkers discussed or explored the following important categories, but the early studies were mostly naive hypotheses

and literary creations. In the East, Fan Li, a well-known businessman in the late Spring and Autumn Period in China, proposed the Seven Strategies from the perspective of analyzing consumption needs, while Xuncius proposed that production should “satisfy people’s desires and meet people’s needs” (*Xuncius·Theory of Rituals*), that is, satisfying the psychological wants of consumers. In the West, the ancient Greek idealist philosopher Aristotle put forward the proposition that “desire is the resource of mental movement, emotions, needs, actions and will.” Sismondi, the terminator of the French Classical School, put forward the view that the purpose of social production is to meet the needs of consumers.

ii. The second stage, lasting from the late 19th century to the 1970s, can be defined as the stage of system formation. During this period, the economic crisis triggered by the rising capitalist social contradictions stimulated researchers’ interest in consumer psychology, the scope of which was therefore expanded. Meanwhile, the interpenetration of related subject theories accelerated the development and maturity of consumer psychology research, and the internal logic law of consumer psychology as a research discipline system was gradually constructed. In addition, the fusion of modern consumption thought and traditional consumption thought around the 19th century greatly promoted the integration of consumer psychology and consumer economic theory. This stage mainly

presents three typical characteristics. (1) The theoretical system became gradually complete. The publication of numerous psychology books laid a solid theoretical foundation for establishing the consumer psychology research system. For instance, Harlow Gale (1999) published *Psychology of Advertising* in 1900, which first explored the application of psychological theory behind corporate marketing activities. Elliot Aronson published *Social Psychology* in 1908, which opened up the research field of group consumer psychology. From 1920 to 1930, Daniel Starch wrote and published *Starch's Guide on Advertising Memories* and *Advertising Principles*. The following 20 years witnessed the maturation of the system of consumer psychology research, with numerous books published, such as *Business Psychology*, *Industrial Psychology* and *Management Psychology*. These publications explored the problems of consumer psychology from various aspects and provided the prerequisites for the systematization of consumer psychology. (2) A large number of experimental research results emerged. The experimental research results helped consumer psychology research turn to the guidance on business management practices. Examples include John Broadus Watson's research on advertising psychology in 1920 and Ernest Dichter's (1992) research on consumption motivation in 1938. After 1960, the research interest and the amount of literature in this field had increased significantly. The research on consumer expectations and attitudes by G. Cartona from the

Survey and Research Center of the University of Michigan, research on Perceived Risk by R. A. Bauer of Harvard University, Preliminary Design Study of New Product and Positioning Study by Roger Nolan at Nolan Group, and several research reports by Perrian and Cartona, et al. provides bases for this system (3) Some new problems: Around the 1960s, psychologists further collated and absorbed the previous research results, and integrated the theories and methods of operations research, simulation model and formal model to perfect the system of consumer psychology.

iii. The third stage lasts from the mid-1970s to the present, which can be defined as the stage of innovative development. Up to now, consumer psychology has become one of the most frequently interdisciplinary research fields with the most diverse research topics. Psychology, marketing, mathematical statistics, business administration, law and many other fields are converging and merging. The scope of discussion on related topics is also expanding step by step. In addition to consumption ecological issues, cultural consumption issues and decision-making mode issues, there are also issues of consumer protection, consumer policy, consumer information processing (procedural research), the internal structure of consumer psychology ("clinical "research), consumer credit, consumer law, consumer psychological control and other related fields. Compared with the dominance by American scholars in the second stage, scholars from different countries have actively been

involved in the innovation development of the discipline.

Although the theoretical research of consumer psychology and some experimental discussions at the practical level have greatly fueled the development of consumer psychology as a subject system, consumer behavior has also put forward theoretical guidance and experimental verification for the core issues that should be paid attention to in practice. However, due to the longtime differences in the division of labor and the lack of communication between the academic world and the industry, a new challenge is facing researchers and business operators, that is, how to implement the research results at the practical level and genuinely create value for the brand. The research of consumer psychology focuses on the interpretation of consumer psychology, while the research of consumer behavior focuses on the theoretical analysis of behaviors but pays little attention to applied practice; the specific application links mostly rely on the enterprise's own content interpretation and implementation capability; in the absence of clear application guidance, analysis and verification are missing for the implementation degree and impact. The absence from theory to business practice is also the research gap that this paper is expected to fill.

## **2.1.2 Relevant key theories**

### **2.1.2.1 Summary of key theories and the fields to be explored**

Given the problems to be solved in this paper, the literature review of consumer research primarily focuses on the following fields.

i. Self-congruity theory in consumer behavior: The self-congruity theory determines four self-concept motives (self-congruity, self-esteem, social congruity and social identity) from four self-concept dimensions (practical, ideal, social and social self-image in ideal). Accordingly, people always behave in the way of maintaining and improving their self-concepts as mentioned. When consuming, they usually consciously or unconsciously try to match the brand image with their self-image. Meanwhile, people deliver information about self-concepts to others by buying and using products, such as strengthening self-concepts through the product brands they own. For example, consumers may perceive Mac users as "creative" and in return they may also perceive themselves as "creative". In this case, the brand's user image matches the consumers' self-concepts (i.e., a high degree of self-congruity) and vice versa. The self-congruity theory (Sirgy. 2018) qualitatively interprets the way in which individual self-cognition is formed and the underlying logic of its application fields objectively and subjectively, providing pivotal theoretical support for analyzing consumer behaviors through personality structure. However, most of the practical studies of self-consistency theory in consumer behavior are merely carried out around experimental data; although such researches on individual consumers based on



experimental data have played an inspirational role for practical activities, they lack complete verification of business practice and neglect consumer groups. This is what to be solved in this paper.

ii. Market segmentation: Two branches have emerged according to different market concepts: Product-oriented market segmentation and customer-oriented market segmentation. The consumer product market adopts standards of customer-oriented market segmentation, which mainly include demographic segmentation, consumer behavior segmentation, and consumer psychology segmentation. The consumer psychology segmentation is further divided into lifestyle segmentation and benefit segmentation. Demographic segmentation, consumer behavior segmentation, and consumer psychology segmentation (lifestyle segmentation) are all based on post-analysis of the people who constitute market segments. These methods rely on ex post descriptive variables rather than causal variables. Therefore, the first three segmentation systems can't be used to effectively predict the future behavior of buyers. However, consumer psychological segmentation (interest segmentation) is a market segmentation method based on causal variables rather than descriptive variables. The strength distinguishing it from traditional segmentation methods lies in that it excavates the real interests through the superficial behavior, attitude and motivation of customers, and can effectively predict the future purchase behavior of consumers. The

technology of consumer psychological segmentation (interest segmentation) is also relatively complete. For example, fitting analysis, factor analysis, cluster analysis, etc. are the most widely used and effective research methods in practice.

#### **2.1.2.2 Self-congruity theory in consumer behavior**

It is the wish and an inevitable choice of all brands in an age of product homogeneity to build a widely needed but differentiated brand to meet consumers' demand for symbolic significance of products. Self-congruity in consumer behavior is the mental process and result of comparisons by consumers. Specifically, it refers to congruency between consumers' perceptions of brands (including brand traits or brand user portrait) and self-concept (such as factual self, ideal self, social self and social self in ideal). For example, consumers may consider Mac users as "creative" and consider themselves as "creative". In this way, brand user image would match consumer self-concept, saying they are congruent (i.e. high self-congruity). On the contrary, if they consider Apple Mac users as "creative", but do not consider themselves as "creative", then there is an incongruence (i.e. low self-congruity). Such self-congruity is the degree of brand recognition by consumers.

- i. **Self-concept:** a number of researchers focusing on consumer studies believe that factual self-image reflects “the image in consumers’

own cognition. But consumer self-concept involves four aspects rather than just one. They are factual self-image, ideal self-image, social self-image and social self-image in ideal (Sirgy, 1998). Factual self-image is an attribute to show self-identity. Ideal self-image is what consumers wish to become. Social self-image is what consumers believe how people they consider important see them. Ideal & social self-image is the way consumers hope themselves to be seen by people they consider important.

Self-concept is the method for consumers to process self-related information and recognize themselves. It is also the result of consumer behavior in social interactivity and an entire system full of inner contradictions, featuring dynamic system structure and functions. In the field of psychology, self-concept has been considered as an essential part of personality structure, showing individual experience of their own existence. It involves individuals' growing understanding of themselves via experience, introspection and feedbacks from others. Studies show that there is a positive connection between consumer self-concept and brand personality. When consumer self-concept is consistent with brand personality (value appeal), consumers will have stronger intention to buy products of such brands. When purchase intention of such consumers has been strengthened to a certain degree, consumer behaviors occur.

The premise of researching on consumer behavior via consumer self-concept is to define what is consumer self-concept. In terms of consumer

behavior, self-concept is generally defined in five aspects, including feedback assessment, social comparison, self-perception, objective criteria and introspection.

- Feedback evaluation, also known as reflexive evaluation, refers to the process of getting self-related information from others and using others' opinions of oneself as self-concept measuring criteria. However, some studies show that self-concept is not quite consistent with opinions from others, although appraisals and opinions from others do affect self-concept construction. Before individual values are formed, positive evaluation can help individuals establish good self-concept. Such individuals tend to repeat behaviors being recognized in actions that follow. While negative evaluation undermines understanding system of self-concept, leaving negatively evaluated individuals passive and prone to escape.

- Social comparison refers to the process of determining self-measurement criteria via comparing with others. But conclusions drawn about themselves from social comparisons are highly dependent upon the objects of comparison. Studies show that there is usually a tendency of "upward comparison" or "downward comparison".

- Self-perception refers to the way one sees oneself. Individual behaviors and achievements in practices will become self-perception

measurement criteria. Via such criteria, individuals gain a perception of their physical strength, intelligence, emotion, willpower and morality, thus establishing a self-knowledge and evaluation system.

- Objective criteria: Although self-concept can be formed via comparison against objective criteria, in reality, there is usually no objective criterion fitting specifically to personal traits. Many personal traits cannot be accurately measured in fact. It is just like that individuals are not able to measure how smart or sincere they are with the help of the information from the objective world. In such case, it is important to set objective criteria. For example, we cannot say one is tall or short simply by reading his/her body height, but we can get an answer to this question by comparing with the widely accepted objective criteria.

- Introspection: Individual self-evaluation is different from the evaluation from others. To some extent, our self-observation and self-analysis are not as neutral as others' observation and analysis of us when they see us as objective objects. Self-observation and self-analysis tend to be more subjective. For example, when individuals in experiments are asked to compare themselves with others' traits, they usually describe themselves with very positive words.

Main applications of self-concept include:

- Self-direction: To keep consistent self-perception, including

external and internal perception (self-explanation). Self-concept directs individual behaviors via self-congruity. For example, when people believe that their morality or ability is poorly considered by others, they tend to loosen restraints on themselves. This is related to cause & effect and motivation of self-respect and self-expression. Meanwhile, experience works differently on self-interpretation and significance for each individual. For example, A and B have both finished a marathon race. This is the first time A participates in such a run and he/she had little previous experience in long-distance run. So A is happy that he/she can finish the race. For a semi-professional racer, B is frustrated that he/she didn't finish the race in three hours. This shows that self-satisfaction level is not only related to achievement, but also to self-explanation level in self-concept and the significance of doing something added to individual psychological perception.

- Self-expectation: All future actions of individuals depend upon the definition of their self-expectation. For example, getting a high score in a test meets an excellent employee's expectation of himself/herself and will boost his/her self-confidence. For employees usually have poor work performance, they will be very excited about occasional good results. But getting bad results will intensify their negative self-concept and gradually-increased negative readiness will make them lose the confidence and interest in making progress, resulting in a vicious circle.

- **Self-attribution:** The attribution theory is a theory to explain individual behaviors based on their own positions. It believes that motivation is the intermediation between stimuli events and individual behaviors in response to such events, rather than the result of personal characters. To be more specific, after one individual responds to a stimuli event, he/she will come up with attributions in three aspects both internally and externally for the consequences of his/her behavior based on experience he/she got and with reference to all his/her knowledge. Internal attributions include natural ability, individual effort, mood and physical condition, while external attributions include difficulty of event, luck and others' reactions. Individual attribution after success or failure will greatly affect the level of motivation when he/she engages in similar behaviors.

**ii Self-congruity:** Since 1960s, the self-congruity theory has been applied in academia (Sirgy,1986): According to those researches:

**Influence on pre-purchase behaviors:** Self-congruity has significant influence on consumers' pre-purchase behaviors, such as value perception, brand evaluation, and brand selection Consumers tend to select those brands that can be consistent with their self-concept. Purchasing products with inconsistent self-concept usually results in incongruity and psychological discomfort, threatening their self-belief (Sirgy, 1986).

- **Influence on post-purchase behaviors:** Self-congruity of consumers affects their behaviors, such as consumer satisfaction, trust in

and commitment to brands and work of mouth. In other words, the higher the congruency between brand user image/brand personality and consumers' self-concept, the higher the consumer satisfaction.

- **Increased brand loyalty:** The perceived similarity between brand image (brand personality) and consumer self-congruity is an important predictive factor of attitude and loyalty to the brands. Brands congruent with consumer self-congruity can have higher product sales (Kressmann et al., 2006) and lower the attraction of other alternative brands to consumers (Yim et al., 2007).

- **Brand image:** In order to define the concept of brand traits, Jennifer Aaker (1997; 1995) and her colleagues come up with a brand dimensions scale to measure how consumers consider whether a brand personality can match consumers' self-concept when making purchase decisions. Therefore, when consumer self-concept is congruent with brand personality, consumers have positive evaluation of the brand personality; when it is not, the evaluation is negative. The researches on brand image also prove the influence of fixed brand user image on consumer behaviors. Brand user image can be told from stereotype image of typical brand users. For example, when consumers think of the image of an Apple Mac, they think of a typical user image characterized by creativity, artistic quality, fashion and independence (Sirgy, 1982, 1985a, 1985b). Such brand image is related to the brand personality concept defined by Jennifer Aaker and



Sengupta (2000).

### **iii Relationship between self-congruity and self-concept motive:**

Researches show that there is a connection between self-congruity and self-concept motive. Sirgy (1982) defines four self-concept motive (self-congruity, self-esteem, social congruity and social identity) from four self-concept perspectives (factual self-image, ideal self-image, social self-image and ideal & social self-image) to generate four types of self-congruity: factual, ideal, social and the social one in ideal.

According to the self-congruity theory, people usually act to maintain and improve self-concept. During consumption, they unconsciously compare brand images against their self-image. Meanwhile, people convey messages about self-concept to others via purchase and use of products. For example, they strengthen self-concept via product brands they have, want to have and don't want to have. For example, consumers think Benz users are "distinguished". When they believe they are or want to be "distinguished", they will go through such process of psychological effect and act accordingly to show self-congruity. When a product with brand user image (or brand personality) congruent with self-congruity of consumers, such consumers tend to have positive evaluation of the product, otherwise they will have negative evaluation of the product. And the potential motive of such a result is individuals' demand for self-congruity (Epstein, 1973; Sirgy, 1986). When consumers have strong belief about

themselves, they will have remarkable demand for self-congruity

The ways consumers purchase and use products/services help them consolidate and confirm their identity, while behaviors and results incongruent with self-congruity will cause cognitive dissonance. The self-verification theory believes that people have the motive to verify or confirm views they hold currently (Burke & Stets, 2009). Verification can boost confidence, promote social interactions and produce active attitude evaluation. On the other hand, lack of verification of self-concept can result in negative emotions.

- **Factual self-image congruity:** The predictive theory system about self-congruity is a powerful brand selection predictor. Ample experimental evidences show that brand images selected by consumers are congruent with their factual self-image. For example, researches show that tourists can be encouraged to visit destinations that strengthen their self-concept to satisfy their demand for self-congruity (Prentice, Guerin, & McGugan, 1998).

- **Ideal self-image congruity:** People tend to do things to enhance their self-awareness and avoid relaxation. When consumers are aware that products and services represent their self-image, they will take initiative to evaluate them to better satisfy their demand for self-esteem. By purchasing and using such products and services, consumers help

themselves fulfill their ideal selves - who they are longing to be, in order to improve their self-esteem. For example, researches show that the clothes consumers wear is congruent with the clothes image of their ideal selves (Ericksen & Sirgy, 1992). Consumers have greater preferences for brands endorsed by celebrities congruent with their self-image (Krishen & Sirgy, 2016). They donate money to social welfare because it is congruent with their ideal selves (Shang, Reed, & Croson, 2008).

- **Social self-image congruity:** Consumers' congruity to their social self-image affects their behavioral motives via social congruity and consumers are encouraged to maintain their images in the eyes of others (Sirgy, 1982; Sirgy & Samli, 1985). If an individual believes that others see him/her in a certain way, he/she will act in such a way and reinforce and consolidate such acts to maintain others' congruent perception of himself/herself. In the case of social self-congruity, individuals are encouraged to reinforce and consolidate their social identity to maintain their social self-image (Burke & Stets, 2009; Large & Marcussen, 2000). Consumers will purchase a certain type of products to strengthen their social identity, especially identity with a certain group of whom the consumers approve. By contrast, lack of socially enhanced sense of identity will result in anxiety and other negative feelings about themselves. For example, consumers will feel anxious about their acts incongruent with others' opinions of them. An experimental evidence for this comes

from some researches on the tourism industry where the effect of tourists' reference groups on destination selection is analyzed (Kim & Hyun, 2013; Mansfeld, 1992; Pearce, 1989; Robinson, 1979). Tourists will plan their holiday based on their reference groups (Hung & Petrick, 2011).

- **Social self-image congruity in ideal:** social self-image congruity in ideal affects consumers' decisions via social identity motive. In other words, consumers are motivated when they think those will make other people think highly of them. They believe it is very likely to gain recognition from others when they act to fulfill their ideal & social self-congruity, while behaviors incongruent with their ideal & social self-image may lead to social incongruity (Riley, 1995; Sirgy & Samli, 1985).

### **2.1.2.3 Market segmentation theory**

In 1950s and 1960s after the WWII, military production capacity was quickly used to produce civil consumer goods. Sharp increase in the production capacity within a short time transformed many product markets in the US from seller's market to buyer's market. Under such context, enterprises were in urgent need of new marketing ideas and strategies to define differentiated consumer demands, identify target markets and improve economic benefits. Under the background of theoretical development and growing urgency of market demand, Wendell R. Smith, a market scientist in the US came up with the concept of market

segmentation. At that time, there were two branches of the theory: product-oriented market segmentation and customer-oriented market segmentation.

As the result of adjustment to the relation between supply and demand caused by economic development and as a research focus of this paper (research on brand management practices based on consumer values), modern branding and marketing idea has basically shifted from product orientation to customer orientation. Thus, customer-oriented market segmentation will be the focus of this paper. A key aim of market segmentation by enterprises is to understand different consumer demands and get greater economic benefits by offering corresponding products/services. Differentiation is bound to result in increase in both production and sales promotion cost. Therefore, market segmentation should be supported by the following principles of effectiveness: quantifiable measurement boundary, scale support profitability, clear difference and relative stability.

The customer-oriented market segmentation criteria in the consumer goods market mainly include demographic segmentation, consumer behavior segmentation and consumer psychology segmentation, in which consumer psychology segmentation is further divided into lifestyle and interest segmentation.

- Demographic segmentation: The basic assumption of demographic segmentation is that there is a certain connection between demographic characteristics, geographical factors and customer demand. Geography is a key dimension of demographic segmentation and consumers can be divided by geographical position, size of town/city, terrain and weather. For example, people from the north in China tend to have large body size and those from the south have smaller form. This results in different product sizes produced by enterprises. Consumers can also be divided in terms of age, gender, occupation, income, family size, family life cycle, ethnic group, religion and nationality. Since other variables can be measured more easily and have a wide scope of application, demographic variables have always been an important basis of consumer market segmentation. However, many scholars believe that in demographic segmentation, only external characteristics of consumers are used as the basis of segmentation and not enough to predict future purchase behaviors of consumers.

- Consumer behavior segmentation: Consumer behavior segmentation means to classify consumers by analyzing existing consumer behavior data with support of IT, including time of purchase or use of certain product, quantity of purchase, purchase frequency and brand loyalty. Two mainstream models of such segmentation in the academic circle are RFM analysis from Hughes (1994) and customer value matrix

from Marcus (1998). In an age of Internet big data, consumer behavior-based market segmentation is no doubt a convenient method. But behavior segmentation should be built upon historical data and target only on existing customers. Inability to define and evaluate potential customers is the Achilles' heel in this type of segmentation.

- Consumer psychology segmentation (lifestyle) : As the consumer psychology develops, scholars begin to classify consumers from the perspective of consumer psychology. Consumer psychology segmentation has two branches: lifestyle segmentation from objective perspective and interest segmentation from the perspective of subjective motives. Lazer (1963) came up with the idea of identifying and segmenting customers based on lifestyle, but he didn't provide a definition for it. Later, Wells & Tigert (1971) and Plummer (1974) improve and add new content to the theory to expand the meaning of lifestyle to four dimensions, including activity performance (how people use their spare time), hobby (degree of attention to surrounding environment), evaluation (various comments about themselves or environment) and demographic characteristics (educational background, living environment, income and social stratum). This approach of segmentation shows consumer groups with different habits of life differ from each other in psychological needs during consumption and helps further study the characteristics of the connection between consumers and products. But in lifestyle

segmentation, consumers are still studied from an objective manner and no further light has been shed into the underlying purchase motives and value orientation of consumer purchase behaviors.

- Consumer psychology segmentation (interest): Russell L. Haley, an American marketing scientist, believes that the method of market segmentation is based on the concrete measurement of the consumer value system. Russell Haley proposed several steps to apply the interest segmentation method. (1) What are the main interests that consumers pursue when buying a certain product? (2) Who are the consumers seeking certain interests? (3) What interests can be met by competing brands in the market? What interests have not been met? (4) Clarify the competition situation and tap new market opportunities through the above analysis. The most typical practical case is Russell L. Haley's segmentation of the toothpaste market in the United States.

Features	Sensory	Social	Worried	Independent
<b>Seek basic interests</b>	Taste, product packaging	White and bright teeth	Dental care	Price
<b>Demographic highlights</b>	Children	Teens	Extended family	Man
<b>Special behavior characteristics</b>	Prefer fragrant toothpaste	Smoker	Addict	Addict
<b>Preferred brand</b>	<b>Colgate</b>	<b>Super clean</b>	<b>Crest</b>	<b>Discounted brands</b>
<b>Personality traits</b>	High self-participation	High sociality	Health care	High autonomy



<b>Lifestyle features</b>	Hedonic	Active	Conservative	Value-oriented
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There are generally two methods for evaluating the interests of consumers.

**Direct Questioning:** Respondents are asked to evaluate potential interests of a specific product category, for which a 5-level (or other, such as 10-level) scale is employed to indicate how much people value the potential interests when choosing a specific product. Then, the answers are directly clustered or a factor analysis is made to figure out if there is some more underlying interest structure. In interest-seeking research, direct questioning has two limitations: (1) People are sometimes reluctant to truthfully say what is important to them, and their responses may constitute the so-called Social Desirability Bias; (2) They may not have a clear idea of what is important to them. When asked why they make a particular choice, consumers may not have a clear answer; or, their answer is not the real reason.

**Perceptual Mapping:** Perceptual Mapping is a visual representation of consumers' perception and preference for a certain series of products or brands. The product is shown as a point on the coordinate axis; the distance between two products indicates the psychological similarity between different consumers. The interest that consumers seek is an ideal point in the perceptual mapping. The position of a consumer's ideal point on the map is the place that the ideal product should occupy. According to the congruity theory, people are more likely to choose products/brands that are close to their ideal points. Consumers are heartfelt, individualized and unique. Since their ideal points represent different interest requirements, interest

segmentation therefore becomes practically feasible in this range.

## **2.2 Brand research**

### **2.2.1 Development stages of brand research**

Since 1950s, researches on brand-related theories grew quickly as management practices increased. On the whole, brand research goes through four stages: brand concept, brand strategy, brand equity and brand management.

i. In the first stage from 1950s to 1960s, the topic of research was "what is a brand". The Definition Committee of the American Marketing Association gave a general definition of brand.

ii. In the second stage from 1960s to 1980s, the topic of research was "how to create a brand". In this stage, the main academic ideas of brand include the brand creativity theory from James Webb Young, an advertising specialist in the US and the brand image theory from David Ogilvy, another advertising specialist in the US.

iii. The third stage was from 1980s to 1990s. In this stage, scholars came to realize that the brand was the most important intangible asset of an enterprise. But academic and industrial researches on brand were huge and complicated. Different enterprises had different perceptions of brand management, isolated and independent from each other. The topic of researches in this stage was "what is brand equity and how to evaluate

brand equity". In this stage, the main academic ideas include the brand equity management theory from Kevin Lane Keller, a scholar in the US and the brand portfolio theory from David A. Aaker, another scholar in the US.

iv. The fourth stage was from 1990s to the beginning of 2000s. The topic of researches in this stage was "how to manage brands". A typical academic theory in this stage was the brand personality theory from Jennifer Aaker, a scholar in the US.

## **2.2.2 Key theories in the paper**

### **2.2.2.1 Summary of key theories and areas for breakthrough**

In consideration of problems to be solved in this paper, the literature review will be done in three logic progressions.

i. Brand equity management theory system: To focus on the brand equity management theory from Kevin Lane Keller, a complete theory system is summarized from brand equity theory, implementation of brand establishment model, eight theoretical dimensions of applied performance evaluation and implementation guidelines for strengths and weaknesses of regular brand review of schools (Keller et. al, 2014) On the basis of laying theoretical foundation for the brand equity management theory, it is also pointed out in the paper that Keller's theoretical system based on the induction method and experimental data cannot have obvious effect in

guiding business practices due to lack of verification and application in the process of actual business operations.

ii. Brand personality: The brand dimensions scale (BDS) came up with by Professor Jennifer Aaker, Stanford Graduate School of Business has more referential significance in business practices compared to the brand equity management theory of Keller. Jennifer Aaker's BDS can help brands get an insight into their personality attributes (value appeals). Such attributes and value propositions can be conveyed to consumers by the means of marketing based on the value proposition determination theory of James and Guo, (2014). It is a pity that the theory only takes into consideration of the position of brands and fails to understand what is the consumer portrait with the same personality attributes (value appeals). In an age of stock competition of today, brands with no clear insight into whereabouts of consumers with same personality attributes and their demands will never accurately allocate their limited marketing resources. Their brand personality might deviate due to potential short-term interests/pressure in competition.

iii. Spokesperson selection and evaluation: When enterprises define their brand value propositions, what comes next in marketing communication is the selection of spokespersons. A summary of literature concerning brand spokespersons reveals that selection of spokespersons is a very complicated issue, because in researches on celebrity-product

congruency, there are conflicts between different theoretical research conclusions and between assumptions and reality. Researches from different dimensions and with different research methods can result in different conclusions. With reference to the methods used in previous researches, the analytic hierarchy process (AHP), a multi-objective and layered decision-making method for fuzzy quantification of stationarity indicators in the operations research is introduced in this paper to further prove feasibility and effectiveness of AHP-based spokesperson selection and evaluation method from the perspective of business practice.

#### **2.2.2.2 Brand equity management theory system - Kevin Lane Keller**

In terms of theoretical research, researches by Kevin Lane Keller, Lifetime Professor of Stanford Graduate School of Business and David A. Aaker, Honorary Professor in Marketing, University of California-Berkeley, Haas School of Business in the field of brand equity management have gained wide recognition from the academic circle. Many later researches are expanded and built upon their theories.

Keller's brand equity management theory system has combined key elements and important ideas from previous researches on brands. Relations between all elements help built a relatively complete logical relationship. In fact, Keller has established a set of complete brand equity

management theory system from brand equity theory, implementation of brand establishment model, eight theoretical dimensions of applied performance evaluation and implementation guidelines for strengths and weaknesses of regular brand review.

Keller's outstanding contribution to the brand equity theory is obvious and her supporting practice guidelines with clear logic is also admirable. We can see that this theory has covered almost every aspect of business operations, with the hope that brands can perform well in all aspects as far as possible. This is obviously a goal worth fighting for, but in reality, it is very hard to achieve. Such a theoretical system based on the induction method and experimental data can hardly guide business practices due to lack of verification and application in the process of actual business operations.

i. **Brand equity theory model:** Keller (1993) has come up with the customer-based brand equity model (CBBE). Keller believes that brand value and equity are built upon consumer perceptions. Compared with products without a brand, brand marketing campaigns based on consumer perceptions should have different consumer response. If the response is positive, it means the brand marketing campaign in question has positive value to the brand; otherwise the value is negative. According to Keller's CBBE, brand equity consists of the following four dimensions

(in logical and chronological order): brand identity, brand meaning, brand response and brand relationship.

ii. **Brand establishment management model:** Keller has come up with the brand establishment management model to facilitate implementation on the basis of the brand equity model theory. The model consists of three groups of tools: (1) selection of brand identity and meaning, including brand name, logo, symbol, package, slogan and value appeals; (2) brand response, where Keller introduces the 4P theory from Professor Jerry McCarthy (1953), The University of Michigan, including four aspects: product strategy reflects product functions and consumer interests; price reflects product value; channel strategy is the application of product sales strategy; communication strategy is integrated to communicate and show brand value; (3) brand relationship, including country of origin and endorsing brands of brand products, with the aim to build more rich brand association, help enhance brand reputation and popularity and render brands more significance. Keller hopes to point directions for enterprises theoretically and enhance brands' popularity and association in the mind of consumers via effective synergistic control of these three tools in order to finally create brand value (performance improvement).

iii. **Brand performance evaluation theory dimensions:** Keller has proposed eight dimensions to evaluate brand equity and promote

ultimate effect, including brand loyalty, resistance to damage caused by competitive marketing, greater marginal profit, resilience to price drop, consumer insensitivity to price rise, improved effect and efficiency in marketing communication, possible licensed income and more active response to brand extension. These eight dimensions can serve as theoretical guiding principles for enterprises to measure brand establishment and improvement effect on the whole.

iv. **Implementation guidelines for regular brand review:** By building brand report cards, Keller regularly reviews strengths and weaknesses in relevant product characteristics of her brands via ten attributes for measuring brand strength (Brand Report Card: Score Your Brands [J]. HBR, 2004(04M):36-49) and compares these strengths and weaknesses with those of other brands under the same product category. Such comparison is used to determine what have these brands done well and what remains to be improved for brands to understand more about their characteristics from more aspects.

### **2.2.2.3 Brand personality - Jennifer Aaker**

In the market competition where your enterprises participate, there bound to be newcomers who sell products with similar performance at lower prices. Enterprises can make adjustment to their price strategy to prevent newcomers from snatching the market share But what is the



consequence of such adjustment in the long term? Your sales might increase in the short term, and consumers from other market segments may even shift to buy your products because of the lowered brand prices. But will existing customers give up your products, thinking that your brand has lost its original connotation? It is hard to seek a balance between gain and loss. If you choose on the ground of short-term performance, original brand personality may shift ultimately, resulting in the brand losing its expected personality performance.

Keller's brand equity management theory only has a complete theoretical framework from the perspective of brand operators and takes no consideration of the important role of brand personalization in the competition environment.

Professor Jennifer Aaker, Stanford Graduate School of Business developed a systematic brand dimensions scale in 1997 on the basis of the Five-Factor Western Personality Theory and the research method of the personality psychology. Jennifer Aaker's BDS has been widely applied in western marketing theory researches and practices. Jennifer Aaker's BDS can help brands get an insight into their personality attributes (value appeals). Such attributes and value propositions can be conveyed to consumers by the means of marketing based on the value proposition determination theory. But it is a pity that the theory only takes into consideration of the position of brands and fails to understand what is the

consumer portrait with the same personality attributes (value appeals). In an age of stock competition of today, brands with no clear insight into whereabouts of consumers with same personality attributes and their demands will never accurately allocate and ultimately waste their marketing resources. Their brand personality might deviate due to potential short-term interests/pressure in competition.

i. **5 dimensions and 15 layers of brand personality:**

In this scale, brand personality is measured against five dimensions in total and each of them can be interpreted from multiple layers.

- Sincerity: practical, honest, healthy and happy
- Exciting: bold, brave, imaginative and stylish
- Reliable: reliable, intelligent and successful
- Sophisticated: noble and charming
- Ruggedness: rough and outdoor

ii. **42 brand personalities from 15 layers**

The 42 brand personalities are interpreted from 15 layers.

- Practical = practical, family-oriented and town-based
- Honest = honest, sincere and truthful
- Healthy = healthy and primary
- Happy = happy, emotional and friendly

- Bold = bold, fashionable and exciting
- Brave = brave, cool and young
- Imaginative = imaginative and unusual
- Stylish = stylish, independent and modern
- Reliable = reliable, hardworking and safe
- Intelligent = intelligent, skillful and team-spirited
- Successful = successful, leading and confident
- Noble = noble, attractive and beautiful
- Charming = charming, female and soft
- Outdoor = outdoor, male and western
- Rough = strong and coarse

In terms of application, for example, consumer groups of BMW and Benz have different value appeals. BMW users pay more attention to intelligence and fun, while Benz users think higher of nobility, luxury and success.

iii. **Effect of regional culture on brand personality:** The BDS proposed by Aaker in 1997 includes dimensions, layers and brand personality characteristics built on the basis of American brands. In 2001, Jennifer Aaker cooperated with scholars from Japan and Spain to examine the brand personality dimensions and their structure in Japan with oriental

culture and Spain with Latin culture via the method used in the BDS. Then changes in brand personality dimensions in three countries were compared with America-based research results by Jennifer Aaker in 1997 and causes of such changes were analyzed. The result shows that ruggedness is the unique dimension among American brand personality dimensions. In Japan, it is peacefulness and in Spain, it is passion.

iv. **Brand value proposition:** Brand enterprises can use the method in the BDS to analyze brand dimensions, layers and brand personality characteristics in the regions where they are operating and draw conclusions accordingly. Then the next step is about how to convey your brand personality effectively to consumers. When it comes to determination of brand value proposition, advertising master James Webb Young offers three general principles from the perspective of marketing: (1) truthfulness and reliability of proposition; (2) uniqueness of proposition; (3) sales force of proposition. For example, the brand value proposition of Mengniu is "the nature offers you more". Its brand association is prairie and mellow milk and its value is nature. The brand value proposition of Yili is "to make dreams possible" and its brand value is realizing dreams and success.

#### **2.2.2.4 Spokesperson congruency and evaluation**

After the value proposition of a brand is defined, the next important step in marketing communication is spokesperson selection. Current theoretical researches on selection of spokespersons mainly focus on the following aspects:

- i. **Source credibility:** American psychologist Carl Hovland (1960) points out that the higher the credibility, the greater the effect of persuasion. Typical views of elements in source credibility include the following: (1) Scholars (Erdogan, Baker, and Tagg, 2001) found that advertising practitioners believe that five most important factors in spokesperson selection is congruence, credibility, profession, popularity and obtainability; (2) Wang and Ma (2004) have investigated ordinary consumers in Chinese mainland and pointed out after analysis that source credibility factors of spokesperson mainly include character, attractiveness, celebrity-product congruency and professionalism. (3) Seno and Luka (2007) have further divided spokesperson-related factors into source-based factors and management-based factors. Source-based factors refer to factors under independent control of the spokespersons, including credibility and attractiveness; management-based factors are related to advertising activities, including celebrity-product congruency, celebrity multiplicity and activation; (4) Scholars also believe that major source credibility factors include such as celebrity performance, negative information etc. (Amos, Holmes, and Strutton 2008).

ii. **Harmony of the match:** Harmony of the Match is mainly reflected by celebrity-product congruency (Till & Busier, 2000). Such congruency is usually considered as one of the decisive factors of endorsing effect. If consumers perceive higher congruency, the endorsing effect will be better.

Kamins (1994) research and find that spokesperson credibility, attractiveness and product attitude are significantly higher when celebrity-product congruency is high than when the congruency is low. Erdogan et al. (2001) have investigated advertising practitioners and found that they tend to select spokespersons. For technical/attractiveness-unrelated products, advertising agency managers believe that the public trust and expertise are more important than physical attractiveness, familiarity and likability; for non-technical/attractiveness related products, they believe physical attractiveness, familiarity and likability are more important. But different researches on this topic have drawn different conclusions. Till & Buster (1998) have found that spokesperson expertise and product category have remarkable match-up effect; The connection between spokesperson physical attraction and product category is not obvious, but physical attraction has positive effect on attitude to brand and purchase intent.

Stone et al. (2003) have raised an assumption about celebrity-product congruency: athletic stars mainly appear in ads related to athletic

equipment and products calling for healthy lifestyle. But after an analysis of over 4,000 relevant ads, they find that this assumption cannot be verified. Above-mentioned products and services only account for 12% - 16% of all ads of athletic stars, far lower than their tobacco & alcohol ads. Moreover, Moorman (2006) has pointed out that, in addition to athletic shoes, uniforms and sports equipment, athletic stars also endorse soap, soda, cars, under-wear, financial planning services, Internet services and bubble gum.

It can be told from the above theories that celebrity-product congruency is a very complicated issue, because there are conflicts between different theoretical researches and between assumptions and real situations. Researches from different dimensions and with different research methods can result in different conclusions. As indicated by Amos et al. (2008), the academic circle has no uniform or clear criteria as to where (dimensions) celebrity-product/brand congruency is required and how to achieve such congruency. In this paper, it is an important achievement to verify in terms of business practices via a reasonable way of analysis.

iii. **Spokesperson selection and evaluation method: analytic hierarchy process (AHP):** Spokesperson selection and evaluation is undoubtedly a problem remaining to be completely solved in terms of academic and business practices. In most cases, enterprises' evaluation of

spokespersons is simply based on celebrity popularity or increase in performance, which is purely qualitative judgment. In consideration of multiple indicators in spokesperson source credibility and comparison between multiple spokespersons, with reference to the methods used in previous researches, the analytic hierarchy process (AHP), a multi-objective and layered decision-making method in fuzzy quantification of stationarity indicators in the operations research is introduced in this paper to enable layered decision-making concerning different spokespersons on the basis of source credibility factors selected and to further prove feasibility and effectiveness of AHP-based spokesperson selection evaluation method from the perspective of business practice.

Professor T. L. Saaty, University of Pittsburgh and famous operations research specialist in the US came up with a useful decision-making method for quantification of qualitative issues - AHP in 1990s. AHP is the process of taking a complex multi-objective decision-making problem as a system, dividing the objectives into multiple sub-objectives or norms and further into multiple indicators (or norms or restraints) at different layers, then finding optimal weights of all factors at one layer against a certain factor in the previous layer by the means of finding matrix eigenvector and finally hierarchically merging final weight of all candidates against the general objective via weighted sum. The candidate with the largest final weight is the best candidate. In 2004, He Lihong &



Yue Wenhua, School of Management, Lanzhou University established a model of brand spokesperson selection & evaluation and decision making with the help of AHP, performed AHP model calculation for specific spokesperson selections and successfully exported relevant results. In this way, they completed test and application of AHP in spokesperson selection and evaluation.

## **CHAPTER III: RESEARCH METHODOLOGY**

This chapter describes the methodologies that are applied in this research, including Literature Review, Abductive Reasoning, Questionnaire, Cluster Analysis and Multivariate Analysis of Variance. Each chosen methodology is explained from the aspects of definition, function, origin and development, and its use in this research.

### **3.1 Literature review**

Literature Review refers to a survey of documentation gathered on a specific topic, aiming to ascertain the nature and status of the research object and elicit the author's own views from it.

According to Hannah Snyder's traceability study of literature review (2019), literature review is one of the oldest research methodologies and is aimed at building one's research on and relating it to existing academic knowledge. It is the building block of all academic research activities, but there has been a longtime lack of a rigorous definition on it in the academic world. Since the 1990s, the development of disciplines and technological progress have been accompanied by accelerated academic production in many fields and continuous emergence of interdisciplinary knowledge. Meanwhile, scholars are facing significant challenges brought by decentralization and diversification in their research. Under such circumstances, literature review has been more relevant than ever. In 1997, Baumeister & Leary redefined literature review as a way of collecting and

synthesizing previous research results, and effectively reviewing the existing theories to gradually refine the nature of the research object, so as to achieve the effect that previous single research fails to have. Subsequently, scholars actively enriched the content of literature review method by constantly refining the research norms in collection and review of previous research results. Thus, literature review has gradually become a rigorous and routine research method.

Fundamentally, literature review helps researchers form a general impression about the research object based on previous theoretical research. It helps grasp the historical dynamics of the research object, identify the existing research flaws, and somewhat elicit research problems and improvement direction, thereby laying a foundation for subsequent theories.

Using the method of literature review, this research collects documentation on the two fields of consumer research and brand management research, sorts out the development history, research topics, research methods, research significance and practical applications of the two fields, and then raises the problems concerned and provides the theoretical basis and research methods for reference, helping further ascertain the research object and draw out the author's own views and methods.

### **3.2 Abductive reasoning**

Abductive Reasoning starts with a set of existing facts and then seeks to derive the best explanation by comparing hypothetical theories with experience, thus proving the validity of the theories. The process of abductive reasoning can be summarized as: (1) A certain fact or phenomenon E is observed but can't be explained with the existing theory; (2) A new hypothesis H is therefore proposed to explain E; (3) Since the authenticity of hypothesis H can't be proved directly, inferences C1, C2... are proposed based on the hypothesis H; (4) If inference C1 is falsified, hypothesis H is false; (5) If inference C1, C2 or... is proved to be true, hypothesis H is true; the more inferences that are proven as true, the more likely that hypothesis H is true.

According to the research by German scholar J Reichertz (2009) (Abduction: The Logic of Discovery of Grounded Theory), abductive reasoning was first proposed by the ancient Greek philosopher Aristotle, and it originally means Reduction. In the 1960s, the American scholar Pierce translated it as Abduction or Retroduction, and elaborated its logical principles and methods of operation. To be specific, abductive reasoning is aimed at making an inference based on a widely accepted fact or premise and proving the reasonableness of that inference by testing the deductions arising therefrom.

To date, abductive reasoning has been increasingly applied in academic research and business analysis. In 2020, Finnish scholars Zeerim

Cheunga, Eero Aaltoc, and Pasi Nevalainenb published “Research on Institutional Logic and Internationalization of State-owned Enterprises: Assessing International Development of Finland Telecom from 1987 to 1998”, in which they verified the impact of the shift in the idea of government intervention in SOEs on the international development of SOEs through abductive reasoning; the article can also help better understand abductive reasoning as a research method.

The authors first observed that under the wave of European liberalism and the privatization of SOEs, several SOEs have not been wiped out but have grown stronger, and the number of multinational companies has increased significantly. This is contrary to the traditional cognition (SOEs will be faced with the dilemma of development if they escape from government intervention), and it has also made the academic circle wonder how the change in the idea of government intervention has impacted the internationalization of SOEs. Yet, as existing studies primarily focus on the government and pay little attention to how SOEs adapt to the change of government ideas and how to adjust the internationalization strategies, current phenomenon can't be fully explained. To figure out the problem, the authors take Finn Telecom as the object of analysis. They traced the practice of this SOE to explore the influence of the shift in the idea of government intervention in SOEs (from government-led to market-led) on the international development of SOEs

in the 1980s and 1990s. The authors first put forward the hypothesis: The logical shift in system of government intervention in SOEs has affected the international development of SOEs. In order to verify the hypothesis, the authors used abductive reasoning to trace the business practice of Finland Telecom from 1987 to 1998, compiled 54,000 pages of original data, and proposed an original methodology for digital analysis of historical information. In addition, they adopted historical positivism and longitudinal qualitative analysis to probe into the specific political and economic background such as the evolution of capitalism and the tide of globalization in Western European countries in the 1980s, so as to dig deep into the era factors behind the data and avoid the impact of contingency factors. A series of inferences have been proved through the above analysis: The shift in the idea of government intervention has affected the relationship between Finland Telecom and the government; it has affected Finland Telecom's cognition assessment of international development opportunities; Finland Telecom's change in cognition of international development has further affected its choice of overseas markets and partners. The one-by-one verification of the above inferences finally proved the influence of the idea of government intervention on the process of internationalization.

It can be found based on the tracing of research methods and analyses of related papers that there are two core advantages of abductive reasoning:

First, it starts from existing facts, which conforms to the objective laws that scientific research often starts with observation of facts and then forms theories through reasoning; second, with argumentation progressing layer by layer, it provides credible explanations for complex realities that are difficult to explain. Abductive reasoning is an effective method to discover new rules, and is even deemed by some scholars as “the only logical operation that can introduce new ideas.”

The application of abductive reasoning showcases the core logic of this paper. First, a series of phenomena (E) are observed in the market: Some brands have achieved success by matching consumer value needs, while some other brands fail to meet consumer value needs and get into trouble. Consumers’ perceptual values are very likely to have a deep impact on brand growth. However, it is difficult to quantify and explain these phenomena with existing theories and methods. Hence, based on actual market demand and previous theories, this paper puts forward a core hypothesis - consumers’ perceptual values can help boost brand growth (H), aiming to explain the phenomenon (E). In order to prove the validity of this view and model, this paper constructs an evaluation model of the intervention effect of consumer values on brand growth, and proposes two inferences: Consumers’ perceptual values can affect the brand’s product system and drive performance growth (C1); consumer values can affect the matching spokesperson matrix and help boost brand growth (C2). If

the product system and spokesperson matrix under the influence of perceptual values successfully fuel brand growth, the original view (consumer perceptual values can help boost brand growth (H)) is proved to be true.

### **3.3 Questionnaire and survey**

Questionnaire refers to a survey method in which investigators ask the selected respondents for information or opinions through uniformly designed questions. The questionnaire survey is generally carried out in the order of designing questionnaires, selecting respondents, distributing questionnaires, recovering and reviewing questionnaires, and conducting statistical analysis and theoretical research on the results. Among them, designing questionnaires, selecting respondents and conducting statistical analysis are the most critical.

Questionnaire survey was originally created by the British scientist Galton. In 1882, Galton established the Anthropometric Laboratory in London, UK, which engaged in printing the questions to be investigated into volumes and then sending them out, thus studying the physiological and psychological characteristics of human beings. Since then, this research method has gradually become popular in countries around the world. Today, attributed to the development of computer utilization and statistical methods, questionnaire surveys are faster and more scientific in collecting and collating data than before, providing necessary objective



conditions for the extensive applications of questionnaire survey (Coxe, West, & Aiken, 2009).

Fundamentally, questionnaire survey helps researchers conduct large-scale, structured, and quantifiable surveys and collect relevant data extensively, laying a solid and objective data foundation for subsequent analyses and verifications.

The method of questionnaire survey is employed twice in this research.

First, as a part of the original methodology proposed in this paper (Profiler, also known as Consumer Research Tarot), questionnaire survey is conducted to gather data on consumer behavior and psychology, so as to identify the composition of consumers in the market and clarify the value points of various types of consumers, and help companies target core consumer groups and their value points, thus completing the key transformation of consumer perceptual values from qualitative and vague level to quantitative and specific level.

Second, as a part of verifying the intervention effect of perceptual values on brand, questionnaire survey is conducted to collect the data of consumers' brand perception, and aggregate and calculate key indicators such as brand recognition and brand equity index to identify changes in brand mentality, thus verifying the intervention effect of consumers'

perceptual values on brand growth.

### **3.4 Cluster analysis**

Cluster Analysis refers to a statistical analysis technique that classifies the research object set comprising specific physical or abstract objects into relatively homogeneous groups according to certain means or rules. Its purpose is to collect data for classification on the basis of similarity. Cluster analysis is exploratory. In the process of classification, the classification required by the cluster is unknown, and the classification criteria can be artificially defined as per requirements.

According to *Clustering Approaches*, a special research work on cluster analysis by scholar Abbas Alkarkhi (2009), cluster analysis is one of the earliest methods used for pattern recognition and data mining tasks. In the 1930s, scholars Hotelling and Fisher had already presented a concept similar to cluster analysis in their paper, namely dividing samples according to certain characteristics while retaining core information as much as possible. In 1963, Ward proposed Hierarchical Clustering for the calculation of the similarity between nodes through a certain similarity measure. Researchers then can sort them from high similarity to low similarity, and then reconnects the nodes step by step to form a hierarchical nested clustering tree. This is an algorithm very in line with people's intuitive thinking, and remains in use today. Some implementations of hierarchical clustering, including SLINK and CLINK, were born in the

1970s. Subsequently, clustering methods have been used to study large databases in various applications. The k-means algorithm, EM algorithm, and Mean Shift algorithm emerged successively. With the development of the computer industry and the big data industry, clustering algorithms have aroused more and more attention.

Cluster analysis helps quickly acquire data distribution from a huge database, observe the characteristics of each cluster of data, effectively filter interference or inefficient data, and identify key clusters, so as to further analyze the specific clusters, which improves the pertinence and effectiveness of the research.

As an important part of the original methodology (Profiler, also known as Consumer Research Tarot) in this paper, cluster analysis is carried out using SPSS. To be specific, the huge database built based on consumer questionnaire survey is divided into several consumer groups that are similar in emotional and rational characteristics and can be cross-matched with the brand's own value points, so as to identify the core value groups of the brand and the corresponding emotional value points.

### **3.5 Fuzzy-Set Qualitative Comparative Analysis**

Fuzzy-Set Qualitative Comparative Analysis (QCA for short) is a systematic research methodology based on set theory and Boolean algebra. It deems cases in reality as a combination of multiple causes, conditions and results. Based on existing factual data, the relationship between conditions and results is investigated

from the perspective of sets rather than single linear factors, and the causal relationship of research topics is constructed based on small sample data (Charles C. Ragin, 2008).

QCA was born in the late 1980s. Proposed by Charles C. Ragin in 1987, it uses set theory to analyze the necessity and sufficiency relationship between variables. The variable measured reflects the membership degree of a case in a specific concept set. The maximum value of the variable is 1 (indicating that the case completely belongs to the corresponding concept set), while the minimum is 0 (indicating that the case does not belong to the corresponding concept set at all). QCA surpasses traditional case study methods. It systematically examines the interaction and combination of possibilities between the causes of events and internal factors, in order to deepen the understanding of the multiple causality behind the complex reality. Besides, QCA is especially applicable to comparative studies where the number of cases is greater than 10 but less than 60 (Bennett & Elman, 2006: 470), which is helpful for rigorous and systematic comparison of cases with midsize samples, so as to obtain the causal path influencing the results (Huang Ronggui, Zheng Wen, Gui Yong, 2015). It has been widely used in sociology, management and other fields.

This paper adopts QCA to verify the intervention effect of consumers' perceptual values and related practices on brand growth. It is difficult to account for the comprehensive and complex results of brand growth by a single factor. The impact of different combinations of brand endogenous factors (perceptual value

input and its influencing practical behavior, business model and management level, etc.) and exogenous factors (market growth rate, competitive environment, etc.) on the results must be taken into consideration. Therefore, this paper takes brand growth, including performance improvement and mental growth, as the outcome variable; factors such as whether there is perceptual value input, whether to optimize the spokesperson matrix, whether to optimize product management, whether the market competition is less fierce, and whether the market is growing faster as conditional variables; 2016~2019 as the research interval; and data of multiple brand sets in the above interval (including brands with perceptual value input and corresponding practices and brands with non-perceptual value input and related practices) as the research objects. Then, a QCA model is constructed to obtain multiple causal paths leading to the results, and the intervention effect of the combination of consumer perceptual value input and other conditional variables on brand growth is systematically explored.

### **3.6 Analytic Hierarchy Process**

Analytic Hierarchy Process (AHP) is a practical decision-making method of quantification of qualitative problems put forward by T. L. Saaty, a famous American operational research expert and professor of University of Pittsburgh. Its basic idea is to decompose a complex problem into a number of combination factors, which are grouped into a recursive hierarchical structure according to the dominant relationship of their system. The relative importance of each factor in the hierarchy can be determined by comparison, and then the order and weight of

the relative importance of each factor can be determined by comprehensive experience judgment, which has the characteristics of flexibility and practicality. The choice of brand spokesperson can be understood as a multi-objective decision-making issue, and the analytic hierarchy process is used to solve the multi-objective decision-making issue, so that the whole process can be quantified and optimized, and the subjectivity and uncertainty in the selection process can be reduced.

In this paper, analytic hierarchy process (AHP) model is used to verify the correlation between the selection of spokesmen and the research on consumer values, and the influence of consumer values on practical behavior is quantitatively evaluated. The model of AHP to evaluate spokesmen matrix is set up as follows:

- i. Hierarchize the selection of spokesperson and construct a hierarchical structure model. The model is divided into three levels: the highest objective level is the right decision for the company (choosing the most suitable spokesperson A), the middle level is the criterion level, using several key indicators (B1, B2...Bn) as criteria to influence the final decision, and the lowest level is the solution level, i.e., the available options (i.e., spokesperson C1, C2).

- ii. Construct the judgment matrix and its scale. According to the relative importance of each factor in each layer of the hierarchical model, a list of judgment values is given and a judgment matrix is formed. The judgment matrix represents the comparison of the relative importance of a factor in the previous

level with the factor in the current level.

iii. Calculate the weight of the factors associated with a factor in the upper level based on the judgment matrix, i.e., calculate the maximum eigenvalue of the judgment matrix and the corresponding eigenvector, and normalize the eigenvector to get the weight of each quantity. However, since the calculation method is complicated, and only a rough estimate of the judgment matrix  $A$  can be obtained, it is not necessary to calculate the exact eigenvalues. In practice, the summation method or the follow method can be used to calculate the approximation of the eigenvalues.

iv. In order to check the consistency (compatibility) of the judgment matrix, the consistency is checked using the difference between  $\lambda_{max}$  and  $n$ .

v. Finally, carry out the consistency test by applying the summation method or the follow method to calculate the approximation of the eigenvalues by substituting the selection of spokespersons by the brand over the years. Then, the scores of the spokespersons in the above indexes ( $B_1$ - $B_n$ ) are aggregated to calculate the total scores of the spokespersons over the years, so as to evaluate whether the selection of the spokespersons is reasonable.

## **CHAPTER IV: RESEARCH AND FINDINGS**

### **4.1. Research objectives**

#### **4.1.1 Challenges of Perceptual Value Studies in practice and its solutions**

The theoretical “jigsaw puzzle” of customer-values-based brand management has been depicted through the literature research on brands and consumers. The research significance and practical value of customer-values-based brand management have also been learnt in the first chapter. Then how to identify, research and analyze consumer values in a quantifiable way? This includes how to conduct crowd insights and crowd segmentation scientifically in practical operations. What can be done to align brand management with customer values? This includes what factors are involved in selecting future target market segments and how to develop differentiated brand strategies based on the attributes and consumption preferences of target consumers. These are common challenges at a practical level for all consumer goods companies that recognize the importance of consumer value proposition.

These are the common challenges and difficulties facing all consumer goods companies that have recognized the importance of consumer value orientation at the practical level. These companies are in sore need of a set of effective tools to integrate consumers’ rational characteristics and perceptual appeals, draw comprehensive and accurate consumer portraits, and develop corresponding brand strategies and guidance, so as to drive overall brand growth. Most companies have



long been in the state of exploration all alone. Studies on consumers' perceptual values remain at the level of mind or academic studies. There is still a huge gap between such studies and the real practice & value creation. In practical management, to some extent, the perception of consumers' perceptual values is mostly used for concept design or solely for copywriting, which easily makes the study stay in a superficial level and strays away from the actual business management of the company.

Based on the author's years of research on business cases in the consumer retail and consulting industry, it is concluded that there are two major challenges affecting the implementation of consumer-values-oriented brand management in business practices:

- **Absence of tools to quantify consumer values effectively:** Consumer value is an invisible and touch-less subjective intention composed of multiple interrelated, crossed and even contradictory value points. Each consumer has his/her own value system. How to accurately sort out the consumer value system and accurately extract the core value points and visualize them has become the core challenge perplexing companies.
- **Absence of a systematic approach to cross-analysis of consumer values and brand values:** Both consumer values and brand values are relatively “illusory” conceptual systems. After defining the consumer value system, companies need to distinguish their target consumers by matching the proposition of consumers and the value of their own brands, meanwhile need

to establish the value system to continuously and deepen the connection with consumers. Since there exist deviations between the value orientation in the minds of consumers and the values that the brand wants to deliver in actual businesses, accurately measuring such deviations has become the premise for brands to calibrate their positioning and meet consumer demands. Therefore, there is an urgent need for enterprises to figure out how to cross-analyze and interpret the gap between consumer values and brand values.

To cope with the mentioned challenges and to better distinguish and identify consumers' value appeals and describe consumer characteristics across the board, it is necessary to analyze the consumer portraits. Multiple analysis tools have therefore come into being, and can be divided into three categories as per the research orientation and data sources:

Type 1: **Product-oriented**, such as Alibaba Panorama Insight. The analysis is made based on the purchase information of hundreds of millions of users on Taobao and Tmall into consumers of any category and any brand (model), so as to understand consumer spending, number of transactions, age, gender, consumption level, educational background, Taobao level, buyer level, large area, city level and other characteristics, restore consumer portraits, analyze consumer shopping behaviors, conduct in-depth potential customer mining, and directly reach potential customers with precise ad placement. The advantage is that it can achieve significant sales conversion through accurate product push. The overall logic is the directional push model that regards the products clicked/purchased by the consumer as a reference

for recommending other products to the customer. This solution is applicable to quick and smooth sales promotion, but is deficient in its emphasis on rational factors and lack of understanding of consumer values, so it is not suitable for long-term brand building.

- **Type 2: Brand-oriented**, such as Kantar (Brand Structure Analysis: BSA).

Through consumer research, the analysis aims to find out the underlying brand image that drives the brand power, and figure out the interactional relationships between brand attributes through factor analysis and structural analysis based on the comments. Besides, it gives a structured insight into the driving force of categories from the user's perspective, and finally produces a thermodynamic chart of brand attributes, which visually showcases the distinct and non-distinct brand attributes as well as the driving strength between attributes and high-order factors, so as to clarify the path of brand power building. The advantage of such tools lies in the profound analysis of brand image from the brand perspective, providing a strong input to brand building. But the defect lies in the relatively weak research on consumers, which is constrained to consumers' brand cognition and lacks attention to consumers' social attributes, purchasing behavior, etc.

- **Type 3: Consumer-values-oriented**, such as the Customer-values-based Brand Management (CVBBM). This solution is built upon consumer values, and by means of questionnaire surveys, in-depth consumer interviews, cluster analysis and other tool methods, fully restores the rational and perceptual

factors that affect consumers' purchasing behavior, and further draws a precise portrait of consumers. Meanwhile, the test of consumers' brand recognition helps provide brands with appropriate core value points and core customer group input. The advantage lies in the integration of rational and perceptual value points, the comprehensive cognition of consumers, and the three-dimensional and objective brand input. The disadvantage lies in the relatively complex process tools, and the high professional quality requirements for the personnel engaged in the clustering and interpretation of consumers.

Considering the above challenges and comparing the strengths and weaknesses of existing solutions, the questions that need to be answered in this chapter include: how to concretely understand consumer values? What methods are used to align brand personality with consumer values? They will be answered by introducing the CVBBM model and analyzing actual business cases.

#### **4.1.2 Challenges and solutions in the implementation of perceptual values**

Based on the identification, research and analysis of consumer values, what methods should the brand use to implement the research results of perceptual values to the actual level of work, so as to keep brand management consistent with customer values?

For a long time, the main challenges in business practice also include: how can we communicate the brand values that are approved by the target customers to them? How do we choose a spokesperson that matches the brand image (brand personality) and consumer impression (self-concept)? How do we further

communicate the brand values through the categories and products that meet the consumer's value demands?

In business practice, many enterprises try to establish a consumer-centered brand management model, but few of them actually implement it and create value. Even if some enterprises decide the direction of brand development based on the research on consumers, they still lack enough practical ability and patience. As a result, the research on consumer values has not been implemented effectively and it is difficult to create real value. The main causes include unclear practical strategies of brand implementation matching perceptual values, lack of strategic disassembly ability, and lack of strategic willpower.

At the same time, after completing the transition and disassembly of the research on consumers' perceptual values to the practice of brand management, and strengthening the value connection with target customers through various practices, will it really help to improve the brand performance? On the one hand, the failure of enterprises in implementation of perceptual values may come from the unclear matching strategy of implementation; on the other hand, it may also come from the lack of systematic evaluation of phased implementation effect, resulting in the lack of effective incentive and attribution analysis in the process of implementation. As we know, the improvement of brand performance is the ultimate result of the interaction of a series of complex factors. How do we determine the effect of the research on consumers' perceptual values and its related practices? That is, how do we evaluate the effectiveness of the research

on consumers' perceptual values and its impact on the implementation of brand management practices using the CVBBM model? This is another major challenge that perplexes enterprises in the practice of perceptual value implementation.

In the actual business practice, we observed that there are many successful cases of brand strategy implementation. There are two major types of strategy implementation and effect evaluation methods:

- **Type 1: Huge marketing promotion of advertising concept and sales-oriented concept.** Some brands catch the eyes of consumers through high-frequency advertising such as TV advertisements, elevator advertisements or other hard advertising, and promote sales through dazzling promotion and intensive channel layout. In the era of product homogeneity where demand exceeds supply, this approach enables some enterprises to gain brand awareness and increase sales. According to my observation, there's one type of application in some subdivided industries. Due to the fact that consumers have not formed the brand association cognition for the category in a specific period and in a specific geographical scope, this "preconception" enables some enterprises succeed due to the rapid construction of brand category correlation. Another type of application is the improvement of brand awareness and sales growth in a short time. High input in a short time may bring significant results in short term. However, in the era of supply

exceeding demand, consumers are becoming more mature and have more self-judgment ability. The pattern of each subdivided industry is gradually stable, and the success rate of huge advertising investment relying solely on creative advertising is getting lower. The short-term accumulated brand awareness is not certain to bring about the improvement of brand reputation and conversion of purchase rate, but there are uncertainties for the long-term improvement of brand equity. Some enterprises have gone bankrupt because of the huge amount of advertising concept marketing that relies on creativity.

- **Type 2: Strategy matching with equal emphasis on brand equity and sales volume.** Kevin Lane Keller (1993) proposed that brand management activities based on consumer cognition should have positive and different responses, which is also the core concept of brand equity management. For example, for the Customer-values-based Brand Management (CVBBM) model, the brand management strategy is determined based on its direction, and the relevant consumer benefits are quantifiable and measurable. Relevant brand strategy matching measures are logic-based and well-documented, and there are clear brand equity and performance indicators to ensure that the implementation process can be measured regularly.

Both of the above two models have actual success cases. However, in today's fierce environment where consumer demand is increasingly differentiated and brand competition is more intense, enterprises adopting type 1 are experiencing a continuous decline in the input-output ratio, and those adopting type 2 are more suitable for the current market environment, but require more relevant tools and experience.

Therefore, by proposing a set of research methodology of consumers' perceptual value, this chapter constructs a set of guiding strategies and intervention effect evaluation model of brand performance to implement the research of consumer values into practice, and is illustrated in detail with actual business cases to help enterprises put the research results into practice and create value after completing the research on consumers' perceptual values.

## **4.2 CVBBM model**

### **4.2.1 Concept introduction**

- Core concept of CVBBM: it is necessary to identify the core concept and rationale before importing the model. Traditional brand and marketing concepts are product-oriented, while the brand concept of CVBBM is customer-oriented. The traditional brand concept starts with the product, and adjusts the details of the product through consumer research. The product determines both the brand and the product attributes and the benefits to consumers (value appeals). In this context, understanding the customer is just a means of selling the product, which determines the brand concept. According



to the concept of CVBBM, products, marketing and channels are all designed to serve and reflect consumer values that determine the brand. Based on this, CVBBM helps understand consumers' perceptual values and the logic behind them. Therefore, CVBBM starts by sorting out those perceptual value points:

- **Formation of value points (3 main steps as follows):**

- ◆ **Qualitative survey** on consumers is conducted through focused groups. Consumers are presented with dozens of statements, each related to a particular value point, in an effort to fully explore the emotional factors that influence their purchase decisions. For example, the value of belonging is identified by what respondents respond like "the best things I've done are completed with friends and family," and the value of stimulation is identified by the respondents' answer like "the most important thing is to live in the present moment.
- ◆ Direct measurement method is **used to rate each statement on a scale of 1 to 4**. This step aims to have quantitative processing of qualitative problems and identify the effective value points that affect people's buying behavior among the complicated and highly subjective value points. For example: "I think the most important thing in shopping is to get fair value for the money spent and to spend every penny wisely" is related to the value point of "cost performance". Consumers' recognition of this statement directly

reflects consumers' recognition of the value point of "cost performance".

- ◆ The correlation of each value point is analyzed by means of cluster analysis. This step aims to discard the dross and keep the finer part. After cluster processing of approximate or weakly correlated value points, **repetitive, vague or unexplainable parts are eliminated**, so as to concentrate the value points that have an impact on people. Generally speaking, we end up with about 20 relatively universal value points, but there may be different value points in different countries and industries. For example, the "progressive" value point common among Chinese consumers is extremely rare among European and American consumers, while the "equal" and "sustainable" value points prevalent among European and American consumers is often less important in the mind of Chinese consumers. Therefore, in the study of each actual business case, despite the relatively universal value pedigree, researchers still need to carefully explore and sort out the perceptual value points based on factors such as consumer characteristics and social and cultural development stage.

It is worth mentioning that in the practical application of CVBBM model, in order to maximize sample utilization and optimize cost, multiple chapters such as perceptual value test and consumer behavior test are often

set in the same questionnaire to ensure that multiple tests such as value point, consumption habit and income level can be efficiently completed for the same batch of samples.

- **Distribution of value points:** After the completion of the perceptual value point mining, it is more important to formulate the distribution map of the perceptual value points, which lays the foundation for the subsequent perceptual value positioning of various consumers. The commercial analysis value of each value point is relatively limited. Only by aggregating them can we restore a series of subjective factors that affect consumers' decisions and have the greatest analysis value. However, the correlation between consumers' perceptual value points is complex and diverse, and the distribution principles of these value points also vary. Therefore, in the actual business case analysis, the model operator can complete the logical correlation of each value point with the scale position on the coordinate axis through the judgment of industry experience or mathematical model calculation. In general, we use a two-dimensional diagram to represent the distribution of value points. The general principle is that value points that coexist are relatively close to each other, while value points that repel each other are relatively far away. For all the samples in the case analysis, the value points shared by most of the investigators are in the middle. At the same time, although the principle of value point distribution (i.e.,

the selection of coordinate axis) varies greatly, generally speaking, the vertical axis is mostly consumption level/consumption grade, to reflect the price sensitivity of consumers; and the horizontal axis can be selected according to industry characteristics and actual research needs. Taking the distribution map of value point of the consumer research project of a German automobile brand in 2012 as an example, with "price sensitivity" and "demand diversity" as two axes, about 20 value points are arranged to reflect the emotional demands of automobile consumers. According to the map, "Thrill& Entertainm.", "Cool&Trendy" and "Careless" are also relatively closely related to the intrinsic emotion, which is also located in the upper right corner. "Total Cost" and "Smart Shopping" are very similar in value orientation, which is also reflected in the map.

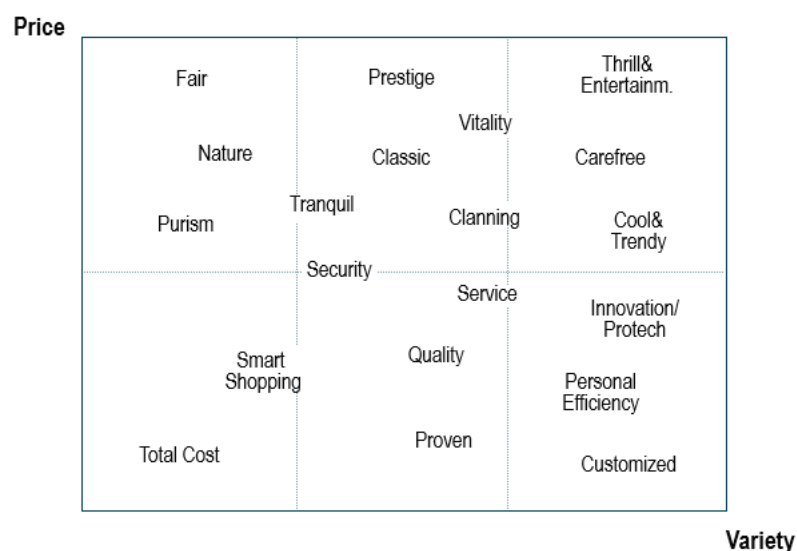


Fig. 1: Distribution Map of Value Point

- **Prediction of consumer type:** The distribution of the above value

points can identify a number of typical consumer groups. For example: consumers pursuing cost first, smart shopping, and every penny spent wisely are mostly money-oriented ones, and the best way to reach them is to optimize the cost performance. Consumers pursuing fashion trends are progressive hedonist. Consumers who pay attention to innovation and technology and pursue the best efficiency are mostly enterprising professional groups. These category predictions can help us better identify the characteristics of consumers in the subsequent research, and place a large number of consumers on the distribution map of value points, so as to comprehensively and deeply understand the composition of consumers in the current market and the perceptual value orientation of core consumer groups. However, the following consumer research will continue to deepen consumer cognition and optimize the classification of consumer types based on the demands of the brand side and the actual data.

#### **4.2.2 Implementation steps**

##### **Formation of Consumers database**

- Consumer research (quantitative): Based on perceptual value points and integrating rational factors such as income, age and region, the consumer survey questionnaire is designed to provide first-hand consumer research data for the brand. The questionnaire generally includes 6 parts (actual process can be adapted to industry attributes and customer needs):

1. Concept clarification: This includes brand names, core products, channels, value points and other core concepts in the research process, ensuring that the subjects have a consistent understanding of the core definitions of this survey;
2. Sample screening: Ensure that the survey samples meet the needs of this survey, and the different sample sizes meet the corresponding quotas;
3. Social attribute research: Understand the social characteristics of consumers, including occupation, age, region, and family situation;
4. Perceptual value research: Be used to sort out consumers' perceptual value points, understand their logical connections and create a map of perceptual value points to lay the foundation for subsequent consumer value placement.
5. Brand recognition research: Understand consumers' awareness of customer brands and competing brands in order to better understand the status and image of each brand in users' minds, generally including brand funnel test, brand image test, brand premium test, brand value point association test, and brand extension acceptance test;
6. Purchase behavior research: Understand consumers' purchase intentions, purchase process, purchase channels, product preferences, influencing factors of purchase, etc.

Consumer research (qualitative): Focused Group Interview is an

important component of qualitative research that outputs views on specific topics based on the interaction and discussion among participants in the way of a structured interview (primarily consumer discussion). It can also provide important input for quantitative analysis. Focused group interviews aim to achieve three major goals: Understanding basic viewpoints, generating demand assumptions to support quantitative research, and having an in-depth insight into consumers' thinking logic based on key issues. Focused group interviews generally involve 8-12 people. Participating users have similar backgrounds or characteristics to the product or topic concerned. Under the guidance of a well-trained moderator, the users' understanding of specific topics such as products and concepts can be learnt. Focused group interviews also aim to create a positive conversation atmosphere, in which the situation that a few users are unwilling to express in one-on-one interview can be effectively avoided, and the participants are motivated to express their true thoughts and attitudes; the interaction between participants can also stimulate new ideas and in-depth thinking.

#### **Analysis of consumer database:**

- Cluster analysis and division of target groups: The huge consumer database can be divided into several consumer groups through the following six steps, and by analogy, the composition of the overall

consumer groups in the market can be divided, and the combination characteristics of various consumers in the perceptual (psychological) and rational (social) dimensions can be defined, which will serve as the basis for the future target consumer selection and brand positioning. Generally, cluster analysis is carried out using SPSS tools, for the purpose of classifying all samples with similar attributes into corresponding consumer groups.

1. Axis layout: Filter out the final two dimensions for consumer segmentation, lay out the coordinate axis, and complete other basic work;
2. Import the sample database: Import the original database, and distribute the samples between the two coordinate axes according to the preference of each sample to the dividing dimensions;
3. Randomly select the initial representative samples: The number of categories to be clustered is preliminarily set artificially, and the initial representative sample (cluster center) of each category is randomly selected by computer.
4. Make preliminary clustering, adjustments and determine new cluster centers: All samples are grouped into the closest cluster center as per the principle of minimum spacing to form a category. The average eigenvector of samples in the same category is then calculated and taken as the new cluster center.



5. Repeat the above operation until stability is achieved: By iterating the original cluster center repeatedly with the improved cluster center, the computer continuously converges the sample features until the distance between clusters is significant enough and the distance between samples within the cluster is small, and the classification situation does not change
6. Define the ideal final clustering method by comparing the clustering effects of setting different number of categories: The number of initial categories can be changed, and the above operations can be repeated to obtain different clustering situations. In the case that the sample size in the category is not too small and the sample size that is not clustered is not too large, the optimal cluster number and results are obtained through comparison and selection.

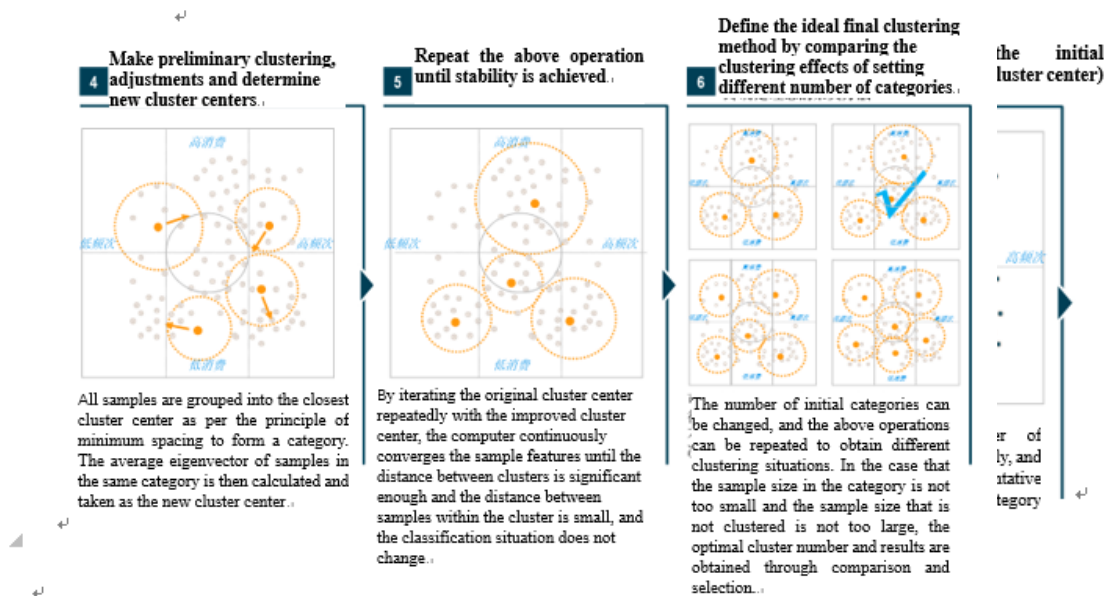


Fig. 2: Clustering Process

The huge consumer database can be divided into several consumer groups through the above steps, and by analogy, the composition of the overall consumer groups in the market can be clarified, and the perceptual and rational characteristics of various consumers can be defined, which will serve as the basis for the future target consumer selection and brand positioning.

- **Overall layout of consumer groups:** The consumer research data is subdivided as per aforementioned analytical dimensions and methods, the process of which can be perceived as the process of building the correlation between value points. Based on the clustering results of consumer groups, the results of the brand recognition test in the consumer sample database (including the brand funnel test, brand image test, brand premium test, brand value point association, brand extension acceptance test, etc.) are reviewed to identify the awareness and consumption intention of different consumers towards each brand, so as to draw a distribution map of the main consumer groups corresponding to each brand in the current market, locate the current core consumer groups of the brand, and also identify the deviation between the expected value point of the brand and the actual perception of consumers, helping the brand evaluate and verify the actual brand building results. By analyzing the relative value (non-absolute value) relationship between value points, the overall layout of consumer groups and the characteristic portraits of various consumer groups can be formed. For example: In analyzing the overall layout of six consumer groups in a mobile phone industry, it is found that the

most preferred value of the functional-oriented consumers is innovation, while their most rejected value is stimulation. They are 40 years old on average, and mostly male. 56 percent of them earn more than 20,000 yuan a month. Meanwhile, they attach great importance to quality and service, favor proven feasible solutions rather than personalized solutions, and are not price sensitive. The distribution of value points is directly related to the range of sample selection. For instance, for understanding western fast-food brands such as McDonald's, the distribution map formed by comparing catering industries as the consumer sample may not provide a desired clear guidance; while the distribution map formed by comparing western fast-food brands as the consumer sample may give a clearer insight into the conclusion.

#### **4.2.3 Results**

- **Market analysis:** The CVBBM model is primarily built upon the assumption that the brand attracts one type/several types of people with similar values. Then, in the actual business cases, which consumer value groups should the brand understand that are strongest in economic power? What is their potential spending power? How do their values affect their consumption patterns and preferences? What are their rational characteristics (age, gender, income, region, etc.)? For example, the research on a jewelry industry starts from different consumer groups based on the value dimensions, analyzes and ranks the dimensions such as population proportion, population size, correlation with product categories, and consumption power, and then sorts out the total ranking

by consumption group, thereby providing input for the selection of brand direction.

- **Competition analysis: the consumer questionnaires and focus group interviews would not only portrait the image of the brand itself i but also examine the main competitors in the market (see "Typical examples" for relevant questions).** In accordance with the aforementioned dimensions and methods of dividing consumer groups, the brand and rivals are put into the overall layout chart, thus forming an overview map covering all value-based consumer groups. It can be seen from the map that which potential markets are still empty, which markets are in a highly competitive state, and even several brands under a multi-brand group compete with each other for the same consumer groups. For instance, the main brand of a cosmetics group company attracts the “luxury consumption” consumer group with high economic value. It is found through the analysis of CVBBM competition map that the needs of “self-focused” and “unconventional” consumer groups are not fully met; to tackle this, the group company has repositioned its other similar brands and developed new brands, achieving favorable results.
- **Corporate self:** The analysis of corporate self includes two parts: the current position of the brand and the choice for the future. The above competitive analysis allows the brand to know its position in the market competition. The market range for the future is the sum of the market segments in which the brand hopes to attract consumer groups. Say a women’s shoe brand as an

example. The current most economically valuable group of the brand is “radical and function-oriented.” The brand is also found to be attractive to “traditional and pragmatic” group. The two groups share some basic value points, such as “function” and “quality.” By focusing on these value points, the brand will be able to consolidate its position among its existing core customers while attracting more consumers with high economic value. In addition, it is vital to pay attention to some “anti-value” points, as the “anti-value” is another embodiment of brand personality. A brand without “anti-value” is likely to be a mass brand that meets consumers’ “rigid demands.”

#### **4.3 Model Validation**

##### **4.3.1 Strategy Matching**

Any choice of strategic direction is worthless if it is not well executed. After the brand has determined the consumer values to be satisfied, it needs to establish a clear and coherent matching strategy to ensure that the perceptual value points really influence the brand practice and effectively convey to the consumer level. For example, the brand direction of a self-run department store chain brand is to focus on the core value points of "innovation" and "efficiency", supplemented by the value points of "personalization" and "new-super-cool", and to increase the value demands of "quality" and "service". The brand mainly serves 18-35 years-old and middle-income consumers in second- and third-tier cities. They are radical, stubborn, competitive, performance-oriented and insensitive to price. Therefore, the department store chain brand ensures the consistency of strategy

implementation and direction selection through the following methods in three dimensions:

- i. Marketing: Theme marketing is carried out by selecting a spokesperson who meets the requirements of "innovation", "efficiency", "personalization" and "new-super-cool" at the same time. In terms of communication strategy, advertisements that meet these demands are also satisfied.
- ii. Commodities: Strengthen fashion and leisure, and expand business formal wear categories to meet consumers' demands for competition and performance. The overall display of commodities is clear and simple to meet the performance oriented and price insensitive quick buyers.
- iii. Channel: In terms of store location, flagship stores in the city center are the main ones, supplemented by the stores which had many consumers. In terms of decoration, the stores reduce the use of wood elements, and add marble, glass and stainless-steel materials, as well as cash registers and fitting rooms to improve the efficiency and experience of shopping.

#### **4.3.2 Evaluation of implementation**

CVBBM model is a model covering from consumers to brands and from research to practice. How to verify the role of the model in brand practice and brand growth is the core topic in the process of model promotion. In actual business society, most enterprises have their own brand management. The improvement of brand performance is the result of a series of complex factors. As there are too many factors involved in the process of brand operation and

management, most enterprises lack clear measurement methods and inspection standards for each factor, and it is difficult to identify which factors are at work in the end. As John Wanamaker said, "I know that half of the money spent on advertising is useless, but the problem is I don't know which half."

This paper argues that brand growth, especially the improvement of business performance, is the comprehensive result of the interaction of various factors, and also the ultimate reflection of the effect of CVBBM model. To verify the effectiveness of CVBBM model, it is necessary to analyze the role of consumers' perceptual value points and their influence on brand management practices in the growth of brand performance. But at the same time, it should be noted that external market factors such as market growth rate and competitive pattern also play a very significant impact on the growth of brand management, and even fundamentally determine the success or failure of brand management. Therefore, the effect evaluation of CVBBM model in brand performance should not only consider the influence of a single linear factor, but also objectively consider the combination of different factors that affect brand management from the perspective of combination, and explore the compound causal path that really contributes to brand growth.

To this end, this paper uses Fuzzy-Set Qualitative Comparative Analysis (FSQCA) to evaluate the effect of CVBBM model and verify the causality of the research topics through relatively small sample data. Then the causal relationship of research issues is verified by relatively small sample data, and the

combinatorial relationship between conditions and results is evaluated from the perspective of set theory. In terms of conditional variables, internal factors (perceptual value input, spokesperson matrix, product management, channel management, and business model) and external factors (market size growth and market competition) that affect brand growth should be comprehensively considered. These are also process variables in the implementation stage after the direction of brand value is clear, and brand sales performance is taken as the outcome variable of this model.

#### Effect evaluation: fuzzy-set qualitative comparative analysis

- Method introduction: fuzzy-set qualitative comparative analysis (FSQCA) is a systematic research method based on set theory and Boolean algebra. Based on the existing factual data, the relationship between conditions and results is investigated from the perspective of a set rather than a single linear factor, and the interaction and combination of possibilities between the causes of events and the factors that affect the results are systematically investigated, so as to deepen the understanding of the multiple causal relationships behind the complex reality. A variable measure reflects the membership of a condition in a particular set.
- Case selection: FSQCA is applicable to the comparative study of cases with the number greater than 10 but less than 60 (Bennett & Elman, 2006:470), and the qualitative comparative study should be based on the essence of cases.



Therefore, case must be strictly selected based on reality to ensure that each case has actually occurred and meet the requirements of academic ethics. At the same time, each case (as a whole) in the FSQCA model is a complex entity, and the integrity of the case should be maintained throughout the analysis, and the different parts of each case are interrelated. Therefore, the evaluation of the variable effect should be placed in the overall context of the case. To put this idea into practice, the case is portrayed as a combination of variables.

- Variable setting: This includes condition variables and outcome variables. The outcome variable is the core research phenomenon observed in practice, and the condition variable is the correlation factor affecting the observed result. Each condition variable represents a set of specific concepts that affect the results. The reflection of different cases in each condition variable is the membership degree of corresponding concepts. Researchers can set specific condition variables and outcome variables based on actual research needs and their own understanding, in which the outcome variables must have a strong logical relationship with the condition variables, otherwise the model cannot explain the actual phenomenon.
- Variable measurement: The maximum value of the variable is 1, indicating that the result is completely subordinate to the corresponding concept set; the minimum value of the variable is 0, indicating that it does not belong to the corresponding concept set at all. Although the variable can in principle be any value between 0 and 1, in practice, the study's requirement for measurement

accuracy and the actual variation of the variable are often taken into account to determine the assignment scheme. In this study, we adopted a 6-value scheme (including 0, 0.2, 0.4, 0.6, 0.8, 1) to assign the fuzzy-set score of the variables.

- Computational logic: Qualitative comparative analysis uses consistency indicators to describe the relationship of necessity and sufficiency between variables. If the condition  $X$  is necessary for the result  $Y$ , then the set corresponding to  $Y$  is a subset of the set corresponding to  $X$ , and the value of the necessity consistency index should be greater than 0.9:  $\text{Consistency}(Y_i \leq X_i) = \sum[\min(X_i, Y_i)] / \sum Y_i$ . On the contrary, if the necessity consistency index is less than 0.9, we cannot regard  $X$  as a necessary condition for  $Y$  (Schneider, C.Q. & Wagemann, C., 2012). Similarly, if the condition  $X$  can be regarded as a sufficient condition for the result  $Y$ , then the set corresponding to  $X$  is a subset of the set corresponding to  $Y$ , then the value of the sufficient Consistency index should be greater than 0.8 :  $\text{Consistency}(X_i \leq Y_i) = \sum[\min(X_i, Y_i)] / \sum X_i$ . When the consistency is satisfied, we can describe the explanatory power of condition  $X$  to result  $Y$  by calculating the coverage index. The greater the coverage index, the greater the empirical explanatory power of  $X$  to  $Y$ . At the same time, FSQCA makes a comprehensive description of the case by drawing truth table, which combines all the data with logically possible causal association conditions in the form of matrix. By aggregating cases in a truth table, researchers can evaluate which cases embody consistent causal conditional construction.

## **4.4 Typical case**

### **4.4.1 Background**

FILA was established in Italy, 1911. The century-old sports and fashion brand was sold to the US company Sport Brands International Ltd (SBI) in 2003 and to FILA Korea in 2007 due to poor business performance. In the second half of 2007, FILA Korea transferred all the rights and interests in the FILA brand in China (including Hong Kong and Macau) to Belle International for US\$48 million. However, Belle International, which has a lot of experience in running successful brands, has run FILA very badly. Belle Group's product and channel strengths were mainly in women's footwear, and the management team lacked experience in developing international sports brands in China, making its market expansion unsuccessful. At the same time, the financial crisis in 2008 led to weak consumer demand and FILA, which was positioned in the high-end market, was affected by this to a certain extent. At that time, Full Prospect and FILA Marketing were both wholly-owned subsidiaries of Belle, which owned and managed the FILA China trademark in Hong Kong, Macau and the Mainland, and were responsible for the retail sale of sportswear, footwear and accessories bearing the FILA China trademark. According to the information, Full Prospect's net loss of RMB5.53 million in 2007 widened to RMB32.182 million in 2008, while FILA Marketing's loss of HK\$5.43 million in 2007 reached HK\$6.996 million in 2008. Belle Group considered that it would be difficult to improve the brand operation of FILA in the short term and therefore decided to sell the FILA business and focus on developing

its own footwear operation.

In 2009, Anta, which was determined to develop its international business, acquired the trademark usage and operation rights of FILA in China from Belle International at a price of RMB332 million. In 2010, FILA began its brand transformation, with both sports and fashion lines moving forward, greatly accelerating its recovery. In 2014, FILA turned a loss into profit and gradually became an important growth engine for Anta Sports. FILA's revenue of RMB3.23 billion and net profit reached RMB214 million.

From 2011 to 2016, FILA relied on its high-end positioning of both professionalism and fashion, effectively filling the market gap and rapidly growing to nearly 800 shops. However, with shop efficiency far exceeding that of its competitors, a new problem also arose: how to ensure sufficient brand personality under high growth?

Therefore, at the beginning of 2017, FILA used CVBBM model to consolidate the choice of brand direction on the basis of understanding the perceptual value demands of core consumers, and further clarified the corresponding matching strategy. As a member of the project, the author participated in the whole process of the project. In this paper, the factual data observed are taken as the case evidence of the practical application of CVBBM model.

#### **4.2.2 Application of model**

##### **Overview of survey**

- **Time of survey:** At the beginning of 2017, FILA conducted a survey of consumers' perceptual values and brand promotion project based on CVBBM model. The survey began in February 2017, consumer data collection ended in March, consumer data analysis and FILA brand strategy design ended in May, and then brand strategy disassembly and implementation began. The output of the project has profoundly influenced FILA's brand management practices for years to come.
- **Sample selection:**
  - ✧ **Quantitative - questionnaire survey:** The sample of this survey was randomly selected to represent a "broad and real" consumer group in China's sneaker wear market. To ensure that all the samples meet the requirements of the questionnaire, the section of "screening" is set in the questionnaire (see the appendix for screening questions and sample collection), and the age of consumers (18-50 years old), cities (the proportion of first-tier to third-tier cities is over 80%), and the frequency of purchasing sneakers and clothing in the past year (more than or equal to one time) are tested, so as to ensure that the surveyed objects belong to the consumer groups of sports shoes and clothing market. This is a very important step in a successful questionnaire survey. Without screening, the results of a survey may be meaningless. A total of 327 qualified samples have been collected through the screening of the above questions.

- ✧ **Qualitative - focus group interviews:** Considering that the essence of focus group interview is to select representative consumers, it is best to communicate with homogenous consumers in groups, so as to gain in-depth understanding of the relevant issues as soon as possible. Therefore, on the basis of consistent communication with FILA executives, we selected four first-tier and second-tier cities, Beijing, Shanghai, Chengdu, and Shenyang, to conduct focus group interviews, 2 to 3 sessions in each city, and each group generally included 8 participants, basically ensuring the consistency of each group in terms of family income, purchasing frequency, sports habits, and other aspects.
- **Questionnaire design:** The survey questionnaire is composed of six sections of consumer screening test, consumer social life survey, consumers psychological value test, consumer sports test, consumer brand awareness, consumer buying behavior testing (including pre-/in-/post-buying, consumer products, channel preference tests), 70 questions in total. The answers to these questions will connect the social, psychological, behavioral and other characteristics of different samples, and ultimately lead to the consumer portrait and brand strategic direction in the current market. See the appendix for the core questions and sample collection in the questionnaire.

**Data analysis:**

- **Analysis dimension of consumer group:** Based on the distribution map of consumers' perceptual value points, the positioning of perceptual value of massive consumer data can be completed, and the composition and value orientation of consumer groups in the current market can be identified. To show the sports attributes and consumption characteristics of various groups in a simple and vivid picture, we first need to clarify the principle of the arrangement of value points, that is, to determine the order in which about 20 value points are arranged, so as to best reflect the characteristics of consumers in the sports shoes and apparel industry. Based on the expert judgment of the project team, we selected two dimensions of "sports index" and "consumption index". The sports index was taken as the horizontal axis to reflect consumers' sports habits and willingness. The higher the consumers' sports frequency and desire to improve their professional sports performance, the higher the sports index would be. Taking the consumption index as the vertical axis, it represents the consumer's consumption behavior. The higher the consumer's income and purchase expenditure, and the more diversified and progressive the demand, the higher the consumption index will be. The value orientation of the two analysis dimensions is as follows:

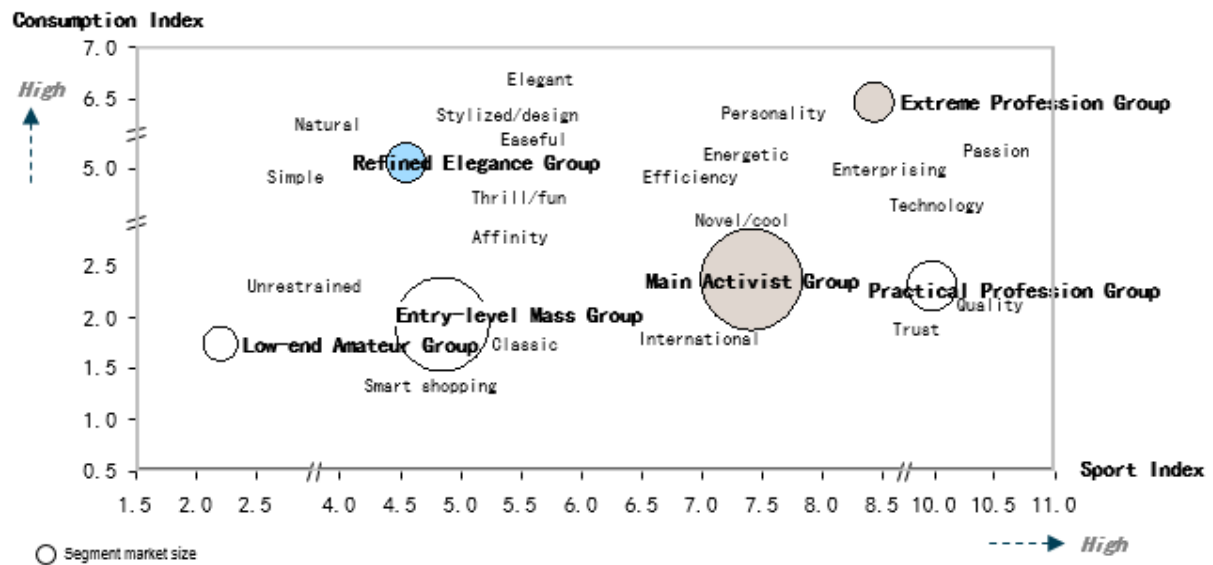


Fig. 3: Division of Target Consumer Groups

As shown from the graph, each category has its own focus in terms of sports and consumption habits. Categories saying the "extreme professional" and the "professional and practical" had the highest sporty indexes, while categories such as the "Ultimate Professional" and "Elegant and Sophisticated" had the highest consumption indexes. However, in terms of the contribution of spending, categories such as the 'Mainstream Aggressive' and 'Popular Entry' accounted for the most significant share of the market. The "Elegant and sophisticated" group was characterised by a refined and elegant lifestyle, enjoying the ease and pleasure of sport, integrating sport into their lifestyle, desiring good quality, elegant and efficient sport, and not pursuing absolute frequency of exercise. The average age of this group was 30.2 years old, the longest among the six groups, and their income level and average annual expenditure on sports shoes and clothing were at a high level among all groups.



## Position Mapping

Based on the results of consumer clustering, this research selected FILA's main competitors (i.e. mainstream sports brands in the Chinese market) and conducted tests on brand associations, brand purchase intentions and actual purchase choices through questionnaires and in-depth interviews, so as to analyse the overlap of brand demographics and identify consumers' awareness and acceptance of different sports brands. The results show that the "extreme professional" group prefers high-end professional brands, such as Asics and Andromeda. Adidas and Nike are more popular with "mainstream aggressive" and "professional and practical" consumers. Consumers are more popular with the "mainstream aggressive" and "professional and practical" segments. The "elegant and sophisticated" group is the most compatible with FILA.

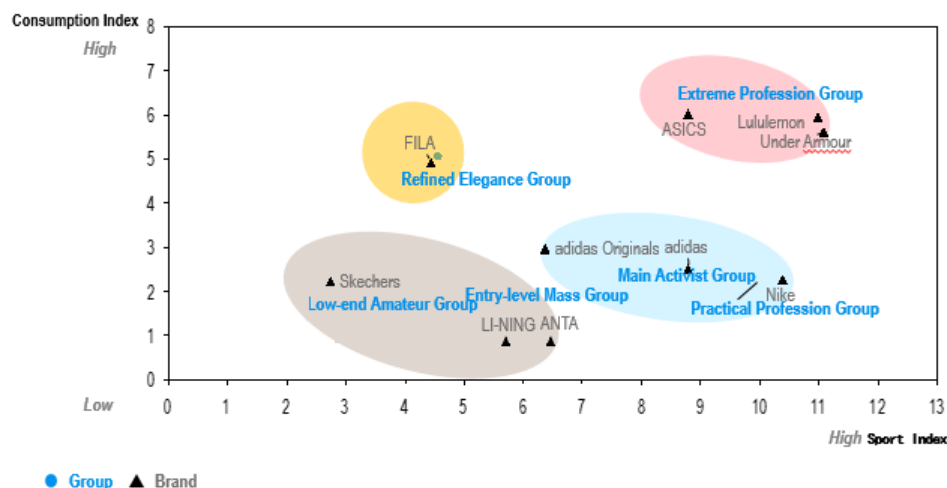


Fig 4: Analysis on the coincidence degree of consumer groups of various brands

The results of the specific questions show that the "elegant and sophisticated"

segment has a significantly higher purchase rate for the FILA brand than the other segments. This is shown in the chart below:

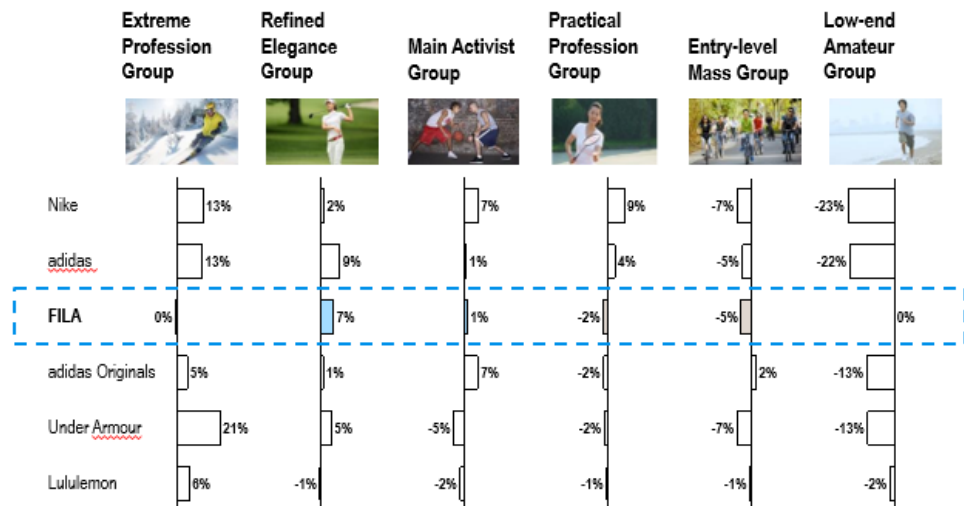


Fig 5: Group-based purchase rate of core brands

- From the point of view of the purchase intention, the "elegant and sophisticated" has the highest purchase rate; the "extreme professional" and "mainstream enterprising" have a high level of "consider buying FILA", while the "popular beginner" and "low-end amateur" have the weakest consumption intention for FILA.
- Through consumer cluster analysis and brand cross-testing, it can be seen that currently as the core consumer group, the "elegant and sophisticated" is the innate strength of FILA. In addition, the "extreme professional" and "mainstream aggressive" are relatively compatible with FILA in terms of spending power and slightly higher than FILA's current level in terms of sports attributes, and have a higher interest in and willingness to purchase FILA. FILA can expand into the "extreme professional" and "mainstream

aggressive" segments by improving the professionalism of the brand.

- Based on the consumer profile, FILA's brand marketing strategy can provide core insights. Firstly, for brand positioning, FILA should take the "elegant and sophisticated" crowd as its core audience and "elegance". For category selection, FILA should grasp the target consumers and build competitive advantages in elegant sports such as tennis, yoga etc. In terms of marketing strategy, FILA should target the core customer group and build a spokesperson matrix that fits the core value point of the brand, "phased" and "smart and accurate".

#### 4.4.3 Implementation guidelines and brand practice summary

At the beginning of 2017, FILA made use of CVBBM model to clarify the perceptual values of consumers and the choice of brand direction. To match the implementation of research results in the practical level of brand management, FILA carried out relevant strategy matching and implementation in the dimensions of marketing, merchandise and channel: **(1) marketing:** be oriented to core consumer groups (elegant and delicate), build a spokesperson matrix matching core values, and formulate marketing content based on the characteristics of the audience and spokesperson; **(2) commodities:** match the demands of core consumer groups (elegant and delicate), expand the categories of elegant sports commodities, adjust the design concept of elegant sports goods and the proportion of shoes and apparel accessories; **(3) channel:** no significant change (because the core group's purchasing channel and information acquisition

channel remain relatively stable in 3 years). Considering this business practice case, the channel structure has not changed before and after the CVBBM model intervention, and the marketing method has not changed significantly. Therefore, this paper will focus on the two key points of brand management practice (spokesperson matrix and product management), and then sort out the brand management practice and verify the driving factors accordingly.

i. **Marketing - spokesperson**

FILA takes "elegance and refinement" as the core consumer group, and builds the first window to display the brand image by optimizing the brand spokesperson matrix, so as to cultivate the core grasp to strengthen the brand mind of consumers.

FILA's spokesperson matrix is divided into brand spokesperson, brand ambassador, and brand friend. FILA Tennis selects its spokesperson from the signed and sponsored athletes. Since 2017, when using CVBBM model after finishing study consumers' perceptual values, the FILA main brand and FILA Tennis adjust the spokesperson matrix every year, hoping to approach the goal of "elegance". For example, in 2017, the FILA main brand replaced the spokesperson Shu Qi to Gao Yuanyuan, and signed Chen Kun. In the brand ambassador and friend level, it chose elegant sports (equestrian) star Hua Tian and a series of beautiful performing stars with elegant appearance. FILA Tennis focuses on professional players, signing young Grand Slam champions like Barty and Kenin. FILA Kids has not signed a spokesperson for the time being due to

its short launch time and relatively limited resources.

After understanding the context of the FILA spokesperson matrix adjustment, how can we judge whether these adjustments are reasonable?

For a long time, it has been difficult to quantify whether the spokesperson is suitable or not. In this study, we use the Analytic Hierarchy Process (AHP) to regard the choice of brand spokesperson as a multi-factor decision problem. After building a set of hierarchical analysis structure, we decompose a complex problem into several combination factors, and group these factors into a hierarchical structure according to their system's dominant relationship. Finally, a quantitative judgment is given on the rationality of the spokesperson's decision, and it is verified whether the 2017-2019 FILA spokesperson matrix is closer to "elegance".

Specifically, the AHP spokesperson matrix evaluation model is divided into three layers: the highest target layer is the correct decision of the enterprise, that is, to select the most appropriate spokesperson A who can best interpret the value point of "elegance"; the middle layer is the criterion layer, that is, several key indicators ( $B_1, B_2 \dots B_n$ ) as the criterion to influence the final decision, the weight of each indicator should be calculated and the scores of the spokesperson in each indicator should be given (see appendix for indicator interpretation, scoring criteria and weight calculation); the bottom layer is the solution layer, which is the alternative solution, namely spokesperson C1, C2, and so on.

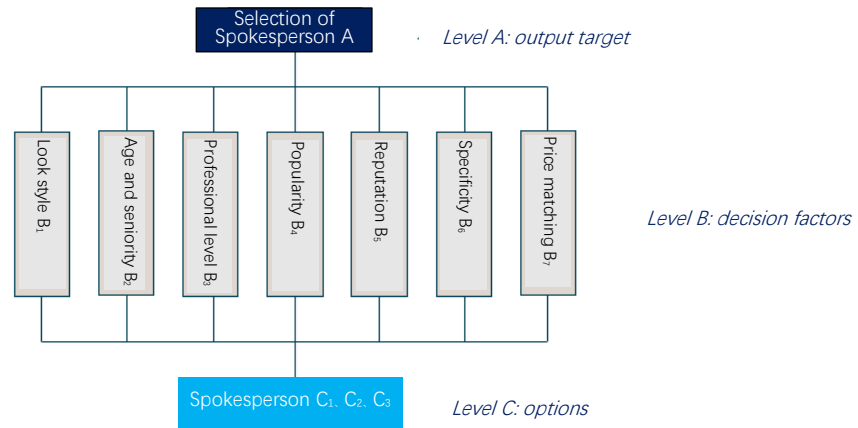


Figure 6: Schematic Diagram of Spokesperson Evaluation AHP model

Based on the model structure and the actual speaker matrix, it is necessary to construct the judgment matrix and its scale, that is, according to the relative importance of each factor in each layer of the hierarchical model, the judgment matrix is formed by giving a list of judgment values. According to the judgment matrix, the weight value of the factors related to the upper level is calculated, that is, the maximum eigenvalue and the corresponding eigenvector of the judgment matrix are calculated, and the eigenvector is normalized to get the weights. In practice, the summation method or the root method can be used to calculate the approximation of the eigenvalues. To test the consistency of the judgment matrix, the difference between  $\lambda$  Max and n is used to test the consistency. Finally, we put the spokesperson selected by the brand over the years in the method, used the summation method or the follow-up method to calculate the approximate value of the characteristic value, and carried out the consistency test. Finally, we summarized the scores of the spokesperson in the above indicators (B1-B7), calculated the total scores of the spokesperson over

the years, and evaluated whether the selection of the spokesperson matrix has a stronger interpretation of "elegance". Since the FILA spokesperson matrix contains spokespersons, ambassadors and friends, the number of spokespersons varies from year to year, so the average score of spokespersons at all levels is taken every year. (Considering space limitations, see appendix for the complete calculation process)

Finally, after the above calculation steps, the scores of FILA and FILA Tennis 2016-2019 spokesperson are as follows:

	2016	2017	2018	2019
FILA main brand	0.061384	0.057804	0.07533	0.077723
FILA Tennis	0.065658	0.083566	0.083566	0.097941

It can be seen that the average matching total score of FILA and FILA Tennis spokesperson increased year by year, having a stronger interpretation of “elegance”. In 2017, due to the replacement of Shu Qi and the addition of Gao Yuanyuan, Chen Kun and relatively young idol actor Xu Weizhou, the score of FILA's main brand spokesperson decreased slightly, but later by adding highly-fit spokesperson such as Ma Sichun and Hua Tian, its ability to interpret elegance gradually improved. While FILA Tennis contracted Grand Slam champions and rising stars, especially from Querrey, to Pliskova, to Barty and Kenin, with increasing popularity, professionalism, look and style, which highly matches the brand image.

## **ii. Product management**

Product category is the core carrier of transmitting brand image, shaping

brand mentality and supporting performance development. This dimension mainly focuses on the support of FILA product structure for brand management before and after perceptual value intervention. Based on the results of the 2017 survey, FILA conducted a series of product management optimizations to maximize the needs of target consumers. This chapter will focus on qualitative research to review and sort out fila's product management practices from 2017 to 2019.

At the commodity management level, measures for using and implementing the research result of consumer emotional values include three major aspects:

- **Enriching elegant sports commodity categories (golf, yoga and ski):** to target more accurately on sport demands of the "refined elegant group", FILA strives to constantly expand the categories of "elegant sports". According to the result of the consumer survey, (1) in terms of exercise frequency, the "refined elegance group" is most frequently engaged in indoor exercises (yoga and integrated training), tennis, golf and ski. (2) In terms of elegant sports perceived by consumers, the result of the survey shows that golf, yoga, tennis, and ski are most frequently perceived as elegant sports by consumers. Therefore, when these two results are combined, we can see that sports preferred by the core consumer group are highly consistent to the elegant sports perceived by consumers.



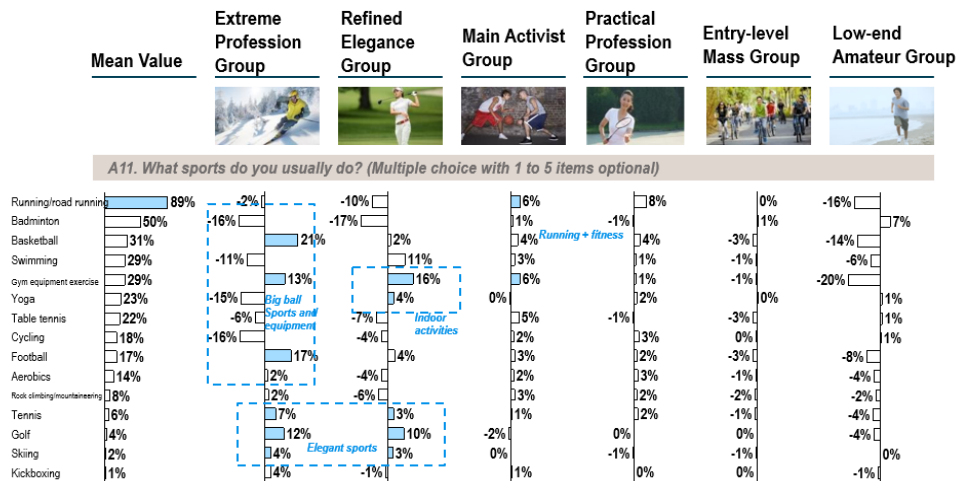


Fig 7: Group-based exercise preference

According to the above data and based on CVBBM model, FILA extended and overlapped the categories with the core value of "refined elegance", established a product composition before 2017 consisting of running, integrated training, tennis and leisure life and added the category of golf in 2017, ski in 2018 and yoga in 2019.

- **Adjusting the design concept of elegant sports commodities --- sports are**

**beauty:** on the basis of defining FILA brand orientation and category expansion direction, FILA blends the concept of elegance in the design of sports shoes & apparel and interprets the concept of "sports are beauty" in their product design. For example, at the color level, FILA transforms the tradition of fashion and sports brands of focusing on brilliant and innovative colors, deconstructs its more representative colors of blue, red and black and sets the elegant and bright tone with stylized innovative colors. At the level of lines, many elegant sports products in the market are designed to be complex. While FILA deconstructs differentiated competitive edge of elegant sports products via simple lines and concise design. Moreover, elegant FILA sports product line introduces functional fabric (such as ComFiTM series fabric) to show the

elegant texture with fabric, focuses more on offering dry, cool and breathable sport experience for exercisers and gives equal attention to such functions as keeping warm and resistance to wind and water, to ensure excellent protection in complex sport environment and offer all-weather matching options for elegant wearers in matches, outdoor scenarios or gyms.

- **Elegant sports shoes, apparel & accessories - filling the gap of cross-occasion matching demand:** on the basis of defined commodity categories and design concept, FILA starts to expand its design team, enrich elegant sports product line and adjust the combinations of shoes, apparel & accessories. Based on special demands of such sports as tennis and yoga and holding on to the orientation of elegance, such as high apparel matching requirements, high-frequency replacement and high consumption of such accessories as hair bands and wristbands, FILA redefines its elegant sports shoes, apparel & accessory SKU proportion to 60: 30: 10 in order to best meet the special commodity demand of the elegant sports category and best show its elegance gene via the core carrier of commodity.















							FILA Performance
Sports apparel	<b>Tops</b>	 Sports underwear	3%	1%	2%	6%	~40%
		 Tights	1%	1%	7%	0%	
		 T-shirt	15%	15%	15%	11%	
		 Coat	11%	17%	13%	8%	
		 Vest	1%	1%	4%	11%	
		<b>Total</b>	<b>31%</b>	<b>35%</b>	<b>41%</b>	<b>36%</b>	
	<b>Bottoms</b>	 Pants	11%	11%	17%	14%	~20%
		 Leggings	4%	3%	9%	25%	
		 Skirt	1%	1%	0%	1%	
		<b>Total</b>	<b>16%</b>	<b>15%</b>	<b>26%</b>	<b>40%</b>	
Sports shoes		 Sports shoes	48%	45%	14%	0%	~30%
Accessories/Other		 Accessories /Other	5%	5%	19%	24%	~10%

Fig 8: SKU Proportion of Sports Apparel and Shoes

After the category expansion, concept redesign and shoes-apparel-accessory proportion adjustment, FILA made marked progress in its operating performance of the elegant sports category from 2017 to 2019. (Chart to be added):

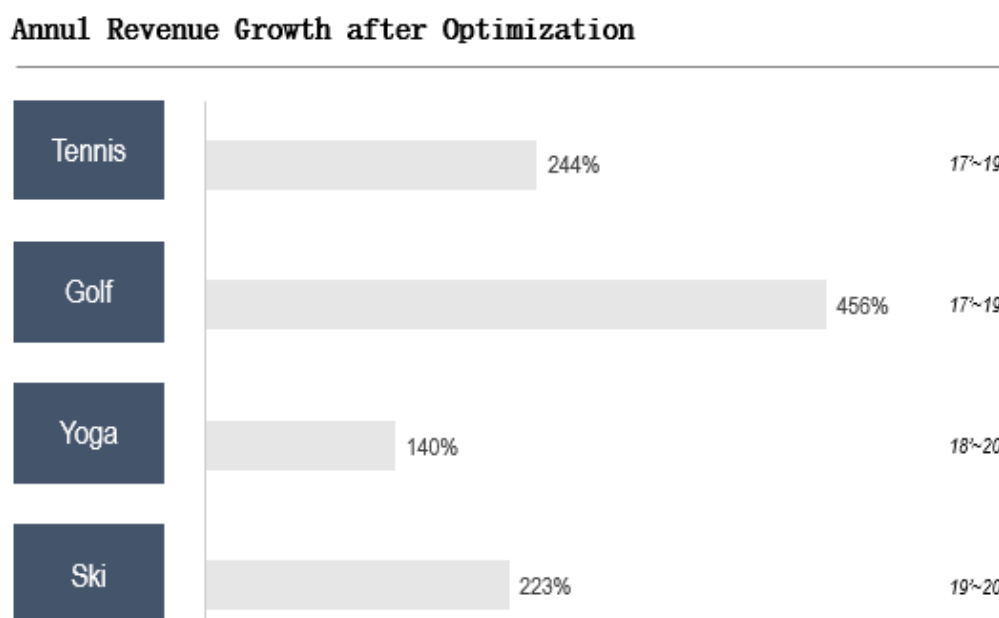


Fig 9: Annual Revenue after Optimization

As can be seen from the above figure, during 2017-2019, FILA business performance has made significant progress, in the traditional advantage of Tennis category, after the spokesperson adjustment and product optimization, FILA Tennis achieved 223% annual compound growth, far more than the average growth rate of China's Tennis industry of 7%. The golf series have been launched on the market since 2017, with a growth rate of 140% from 2017 to 2019. In 2020, the golf series surpassed the tennis series and became the first fashion sports category. Yoga and skiing achieved a compound annual growth rate of 456% and 244% respectively, becoming the fastest growing segments in the fashion and sports field.

#### 4.4.4 Evaluation of perceptual values and related practical effect

Input of consumers' perceptual value, optimization of spokesperson matrix and product management and other practices are conducive to the improvement of brand performance. But in fact, the change of brand performance is the result of a series of complex factors (including endogenous factors and external factors). What factor is working? What combination of factors contributes most to brand performance?

Considering the complexity of brand operation, it is very difficult to investigate the influence of a single variable on brand performance. Therefore, from the perspective of set theory, we regarded various cases in reality as the composite of multiple causes, conditions and results, and investigated the relationship between conditions and results from the perspective of set rather than a single linear factor based on existing factual data. At the same time, considering the difficulty of case collection, we must excavate the causal relationship behind the case based on limited factual cases.

In this paper, to study the complex motivation behind FILA's performance growth, we selected about 40 existing cases, constructed the causal relationship of the research topics, and evaluated the effect of perceptual value and related practices on brand growth.

### **(1) Research object:**

In this paper, a number of sports shoes and apparel brands as the research object. To ensure the availability of data, flexibility of authorization, we selected a series of brands of Anta, including FILA, FILA Kids, FILA Tennis and other brands, a total of 9 brands.

Taking 2016-2019 as the research interval, this paper covered the years before and after FILA used CVBBM model to obtain the input of perceptual values, and excluded the year 2020 which was seriously affected by the epidemic, to explore the dynamic relationship between the brand performance improvement of the above 9 brands and the combination of multiple conditional variables in the four years. In consideration of information confidentiality requirements, with the exception of FILA and its sub-brands, the remaining 6 brands are indicated as brand 1, Brand 2..., brand 6, and the same brand in different years of the case is distinguished by year.

Thus, 36 factual cases form this fsQCA model:

No.	Case
1	FILA-2016
2	FILA-2017
3	FILA-2018
4	FILA-2019
5	FILA Tennis-2016
6	FILA Tennis-2017
7	FILA Tennis-2018
8	FILA Tennis-2019
9	Fila Kids-2016
10	Fila Kids-2017
11	Fila Kids-2018

12	Fila Kids-2019
13	Brand1-2016
14	Brand 1-2017
15	Brand 1-2018
16	Brand 1-2019
17	Brand2-2016
18	Brand2-2017
19	Brand2-2018
20	Brand2-2019
21	Brand3-2016
22	Brand3-2017
23	Brand3-2018
24	Brand3-2019
25	Brand4-2016
26	Brand4-2017
27	Brand4-2018
28	Brand4-2019
29	Brand5-2016
30	Brand5-2017
31	Brand5-2018
32	Brand5-2019
33	Brand6-2016

34	Brand6-2017
35	Brand6-2018
36	Brand6-2019

## **(2) Variable setting and measurement:**

To build the fsQCA research model based on the fact case base, it is necessary to further clarify the variable setting. This model takes brand performance as the outcome variable; whether there is perceptual value input, whether the spokesperson matrix is optimized, whether the product management is optimized, whether the difficulty of market competition is low, and whether the market growth rate is fast are taken as the conditional variables. The above condition variables can be divided into internal factors and external factors. Through different combinations of the above conditional variables, a variety of causal paths leading to the results can be obtained. Through fsQCA model operation, the intervention effect of combination of conditional variables such as consumers' perceptual value on brand growth can be systematically explored.

After clarifying the variable setting, it is necessary to clarify the variable measurement method. The variable measurement in the fuzzy-set qualitative comparative analysis reflects the membership degree of a case in a specific concept set. The maximum value of the variable is 1, indicating that the case completely belongs to the corresponding concept set; the minimum value of the variable is 0, indicating that it does not belong to the corresponding concept set at all. Although the variable can be any value between 0 and 1 in principle, in

specific studies, researchers often decide the assignment scheme in combination with the requirements for measurement accuracy of the study and the actual variation of the variable. In this study, we adopted a six-value scheme (including 0, 0.2, 0.4, 0.6, 0.8, and 1) to assign the membership degree of each variable for each case.

The specific variable setting, scoring standards and data sources are shown as follows:

- **Process variables (internal factors):** including three dimensions of consumer values, business model and brand operation strategy (marketing, goods and channels, namely "people - goods - site")
- ✧ **Input of consumers' perceptual value:** whether the core value of the brand and the portrait of the target group are clear. For brands that use CVBBM model to represent consumer values and provide clear choices for brand direction, they are denoted as 1. For the brands that do not use CVBBM model, according to the brand value points and the clarity of the target population portrait, the expert opinions and brand self-evaluation are comprehensively assigned.
- ✧ **Optimization of spokesperson matrix:** the analytic hierarchy process (AHP) is used to quantitatively score the spokesperson matrix of each brand every year, and assign points according to the scoring results of AHP. In general, the annual AHP score is 1 if it



is  $>0.07$ , 0 if it is  $<0.04$ , and  $+0.2$  if it is higher than 0.01. The data come from the internal data of each brand and the calculation result of AHP model.

✧ **Product management optimization:** according to the direction of the brand, if the product category, shoe and apparel matching ratio and design style are adjusted accordingly, the score is 1; if no item is adjusted, the score is 0; if 1 item is adjusted, the score is 0.4; and if 2 items are adjusted, the score is 0.8. The data come from the internal information of each brand.

✧ **Channel management optimization:** according to the direction of the brand, if the channel type, proportion, assessment mechanism, management team and incentive mechanism are adjusted, the score is 1; if no item is adjusted, the score is 0; for each item adjusted, the score is added by 0.2. The data come from the internal information of each brand.

✧ **Business model and operation:** points are qualitatively assigned according to the brand business model and operation efficiency. The higher the operation efficiency is, the higher the score is. Generally speaking, the direct business model is 1, and the wholesale model is 0. The data come from expert opinions and self-evaluation of each brand.

- **Process variables (external factors):** including three dimensions of

strategic analysis (industry, competition, and itself).

✧ **Industry growth rate:** The market size of the brand segment is growing faster than that in last year. If the growth rate is higher than 20%, the score is 1; if the growth rate is lower than 0, the score is 0; for each growth rate of 5%, the score is added by 0.2. The data come from Euromonitor.

✧ **Market competition:** points are assigned based on the market concentration of the subdivision track in which the case brand is located, and the total market share of all competing brands ranked higher than the established brand is calculated. If the volume of the case brand is too small, the market share of the top 10 brands in the market segment is calculated. If the total share of competing products is >50%, the score is 0; for each 10% lower, the score is added by 0.2; if the total share of competing products is <10%, the score is 1.

- **Outcome variable:** Take brand business performance as the outcome variable, and perform anchoring analysis and verification of the combination of various condition variables.

✧ **Brand performance:** Business performance is an objective and ultimate reflection of the market's acceptance of a brand. In general, when the brand operation is consistent with consumer value, it will have a positive impact on sales performance. In this study,

operating income is taken as the core indicator to reflect the changes in the performance of CVBBM model before and after intervention. The data come from enterprise sales collection or listed company annual report.

Based on the above variable settings and data sources, we have completed the collection of original data, and the 6-value scoring by following the above scoring standards. See the appendix for specific data and scores.

### **(3) Calculation:**

This fuzzy-set qualitative comparative analysis uses the fsQCA program package of University of California, Irvine for calculation, which was first established by the founder of fsQCA, American scholar Charles C. Ragin. It was developed by Charles C. Ragin and continued to iterate in continuous research. The package and analytical methods have been widely used in sociology, management, economics, psychology, political science, geography, medicine and other research fields. As of 2016, 23 English literatures applying fsQCA model have been published in top management journals and 87 in mainstream management journals. In China's academic circles, 2 articles have been published in class A journals ("Management World" and "China Industrial Economics").

The calculation of fuzzy-set qualitative comparative analysis includes four steps: data import and coding, the necessity analysis of single condition variable, the sufficiency analysis of single condition variable, the consistency and coverage analysis of each causal path. The operation process and results of each step are

shown as follows:

✧ Data import and coding:

When case selection, data collection and variable measurement are completed, data import, calibration and coding are completed according to fsQCA software requirements (7 condition variables are recoded as A-G and outcome variables are recoded as R).

The coding of each variable is shown as follows:

Category	Name of variables	Code
Condition variables	whether there is perceptual value input	A
	Whether the spokesperson matrix is optimized	B
	Whether the product management is optimized	C
	Whether the channel management is optimized	D
	Whether it is in the high-growth track	E
	Whether the difficulty of market competition is low	F
	Whether the market growth rate is fast	G
Outcome variables	Whether the brand performance is increased	R

The data import interface is shown as follows (see appendix for the complete interface):

fsqca												
File Variables Cases Analyze Graphs												
	A	B	C	D	E	F	G	R				
FILA-2016	0	0.8	0	0	0.6	0.6	0.6	0.2				
FILA-2017	1	0.8	1	0	0.8	0.4	0.6	1				
FILA-2018	1	1	1	0	1	0.4	0.6	1				
FILA-2019	1	1	0.8	0	0.8	0.4	0.6	1				
FILA-Tennis-2016	0	0.8	0	0	0.4	0.8	0.6	1				
FILA-Tennis-2017	1	1	0.8	0	0.4	0.8	0.6	1				
FILA-Tennis-2018	1	1	0.4	0	0.4	0.8	0.6	1				
FILA-Tennis-2019	1	1	0.4	0	0.4	0.8	0.6	1				
FilaKids-2016	0	0.2	0	0	0.6	0.8	0.4	0.8				
FilaKids-2017	1	0.2	0.4	0	0.8	0.8	0.4	1				
FilaKids-2018	1	0.2	0.4	0	1	0.8	0.4	1				
FilaKids-2019	1	0.2	0.4	0	0.8	0.8	0.4	0.8				
品牌1-2016	0	0.6	0	0	0.4	0.4	0.2	0.2				
品牌1-2017	0	0.6	0	0	0.4	0.4	0.2	0.2				
品牌1-2018	0	0.6	0	0	0.4	0.4	0.2	0.4				
品牌1-2019	0	0.6	0	0	0.4	0.4	0.2	0.4				
品牌2-2016	0	0.2	0	0.4	0.6	0.4	0.2	0				
品牌2-2017	0	0.2	0	0	0.6	0.4	0.2	0				
品牌2-2018	0	0.2	0	0	0.6	0.4	0.2	0.4				

#### Necessity analysis of single condition variable:

In the formal operation process, it is necessary to first explore the influence of a single regulating variable on the results, and carry out the necessity and sufficiency analysis of each variable. Necessity analysis includes necessary consistency and necessary coverage analysis.

Necessary consistency analysis aims to determine whether a condition is necessary for a result to occur, i.e., without the condition, the result would not have occurred. If the condition X is necessary for the result Y, then the set corresponding to Y is a subset of the set corresponding to X. The criteria for the consistency of necessary conditions are relatively uniform, with a higher threshold of 0.9 adopted in most literatures. Coverage has no reference significance, but is used to judge the empirical explanatory strength of the subset relationship after it is confirmed. The greater the coverage indicator, the greater the empirical explanatory power of X to Y. After the necessity operation

of a single condition variable, the following results are obtained:

#### Analysis of Necessary Conditions

Outcome variable: R

Conditions tested:

	Consistency	Coverage
A	0.431373	0.977778
B	0.598039	0.782051
C	0.431373	0.956522
D	0.117647	0.461538
E	0.666667	0.647619
F	0.509804	0.650000
G	0.627451	0.888889

The above results show that the necessary consistency of condition variables A-G is all less than the threshold value of 0.9, which means that A-G is not a necessary condition for the generation of R results, so the coverage value is meaningless.

#### ✧ Sufficiency analysis of single condition variable:

The sufficiency analysis includes sufficient consistency and sufficient coverage analysis. The sufficient consistency analysis aims to determine whether conditions are sufficient conditions for the occurrence of results. If the condition X can be regarded as a sufficient condition for the result Y, then the set corresponding to X is a subset of the set corresponding to Y.

In fsQCA operations, the sufficiency analysis of a single condition variable is also called subset/superset analysis. Subset and superset analysis aims to explore whether all condition variables and their combinations constitute sufficient conditions for results. When there are N condition variables, there are  $2^N$  combination forms, whose sufficiency can be explored by subset/superset analysis (see appendix for complete subset/superset analysis

output results). Most literatures used 0.8 as the threshold for sufficient consistency. After sufficient consistency is satisfied, the coverage indicates empirical correlation of consistent supersets. The results of subset/superset analysis of each single condition variable are shown as follows:

```
*****
SUBSET/SUPERSET ANALYSIS
*****

Outcome: R

              consistency  raw
              -----  coverage
A              0.977778    0.431373
B              0.782051    0.598039
C              0.956522    0.431373
D              0.461538    0.117647
E              0.647619    0.666667
F              0.650000    0.509804
G              0.888889    0.627451
```

The above results show that A, C and G all meet the requirement of 0.8 sufficient consistency threshold, which is a sufficient condition of result R. Raw coverage indicates how many successful cases can be explained by this path. It can be found that G has the highest raw coverage among all sufficient conditions, indicating that its consistent superset has a high empirical correlation, and about 62.7% of the successful cases can be explained by path G, which is the single condition variable that can best explain the results.

✧ Consistency and coverage analysis of each causal path:

In real life, brand growth is the outcome of the interaction of many factors. The influence of condition variables A-G on the result R is not independent, and the influence of different combination of condition variables on the outcome must be investigated simultaneously. Therefore, we need to construct

the truth table with consistency index to present condition and outcome explain the different combination of variables, and use the Boolean minimization algorithm to simplify the truth table, and lead to the result of multiple causal path; at the same time, evaluate the outcome of different causal paths constitute the consistency and coverage of a fuzzy subset.

This step consists of 3 sub-steps: truth table building, filtering, and

Type	Cause and effect paths/groupings	Consistency	Raw Coverage	Unique Coverage	No. of Case
Threshold	-	0.9	-	-	1
Simple Solution	A	0.97778	0.431373	0.431373	9
Complex solution	$A*B*\sim D*\sim E*F*G$	1	0.127451	0.0588235	3
	$A*\sim B*\sim C*\sim D*E*F*\sim G$	1	0.0882353	0.0588235	3
	$A*B*C*\sim D*E*\sim F*G$	1	0.147059	0.0686275	3
Medium Solution	$A*B*\sim D*\sim E*F*G$	1	0.127451	0.0588235	3
	$A*\sim B*\sim C*\sim D*E*F*\sim G$	1	0.0882353	0.0588235	3
	$A*B*C*\sim D*E*\sim F*G$	1	0.147059	0.0686275	3

analysis:

The first step is to input all condition variables and outcome variables to initially construct the truth table. At this time, the truth table covers all the



combination forms of the condition variables, but some configurations do not exist in the fact cases, and the correlation with the results is weak. In this case, standards need to be established to simplify the truth table.

The second step is to set the relevant criteria/thresholds for the initial screening of truth table rows. The threshold consists of two items. One is the frequency threshold, which determines the minimum case frequency to avoid an empirically trivial configuration. In small sample studies (typically 10 to 40 cases), researchers may consider a minimum case frequency of 1 or 2; large sample studies should consider higher case frequency, but retain about 80% of the original case number. The second is the consistency threshold value, that is, to determine the consistency standard of each truth table to ensure the explanatory strength of each state. 0.8, as the standard of sufficient consistency, is a standard used in most studies at present. In addition, where conditions permit, some studies use higher conformance standards, such as 0.85 (Gupta et al, 2020); 0.87 (Jacqueminet and Durand, 2020); 0.9 (Park et al., 2020); and 1.00 (McKnight and Zietsma, 2018), etc. The specific selection of the two threshold values depends on the researchers' disciplinary experience and research purpose. The core goal is to screen out configurations with stronger subset relationship and reduce the number of configurations. According to the sample number and distribution characteristics of this study, the minimum case frequency of 1 and the threshold of sufficient consistency of 0.9 are used to construct the following truth table:

Edit Truth Table

File Edit

A	B	C	D	E	F	G	number	R	raw consist.	PRI consist.	SYM consist.
1	0	0	0	1	1	0	3	1	1	1	1
1	1	1	0	1	0	1	3	1	1	1	1
1	1	0	0	0	1	1	2	1	1	1	1
1	1	1	0	0	1	1	1	1	1	1	1
0	0	0	0	0	0	1	3	0	0.823529	0.714286	0.714286
0	0	0	0	1	0	1	4	0	0.8125	0.7	0.7
0	1	0	0	0	0	1	1	0	0.740741	0.533334	0.533333
0	1	0	0	0	1	1	1	0	0.681818	0.3	0.3
0	0	0	0	1	1	0	1	0	0.642857	0.230769	0.230769
0	1	0	0	1	1	1	1	0	0.636364	0.2	0.2
0	1	0	0	0	0	0	4	0	0.617647	0.35	0.35
0	0	0	0	1	0	0	8	0	0.510204	0.294118	0.294118
0	0	0	1	1	1	0	4	0	0.285714	0	0

Reset Cancel Specify Analysis Standard Analyses

The third step is to perform further standard analysis and output three solutions after the filter and simplification of truth table rows are completed: complex solution, parsimonious solution and intermediate solution (Ragin, 2008). Complex solutions are based on raw data without any counterfactual analysis, and usually contain more configurations and antecedent conditions. Parsimonious solution goes through simple and difficult counterfactual analysis, and introduces simplified assumptions in the analysis process to filter out unnecessary conditions and get a more concise causal path. Therefore, the number of configurations and conditions of the parsimonious solution is relatively minimum among the three solutions. The intermediate solution considers a simple counterfactual analysis, and includes the logical remainder in line with the theoretical expectations and empirical evidence. The intermediate solution with reasonable evidence and moderate complexity is usually the first choice for reporting and interpretation in QCA research. At

present, the published academic papers applying fsQCA are all about the result analysis of the intermediate solution.

After the above steps, the final output result of fsQCA truth table operation is shown as follows:

Type	Causal Path/Configuration	Consistency	Raw Coverage	Unique Coverage	Corresponding Number of Case
Threshold	-	0.9	-	-	1
Parsimonious Solution	A	0.97778	0.431373	0.431373	9
Complex Solution	$A*B*\sim D*\sim E*F*$ $G$	1	0.127451	0.0588235	3
	$A*\sim B*\sim C*\sim D*$ $E*F*\sim G$	1	0.0882353	0.0588235	3
	$A*B*C\sim D*E*\sim$ $F*G$	1	0.147059	0.0686275	3
Intermediate Solution	$A*B*\sim D*\sim E*F*$ $G$	1	0.127451	0.0588235	3
	$A*\sim B*\sim C*\sim D*$ $E*F*\sim G$	1	0.0882353	0.0588235	3
	$A*B*C\sim D*E*\sim$ $F*G$	1	0.147059	0.0686275	3

In the parsimonious solution, non-essential factors in the output path of complex solution are simplified, and the final output is a simple causal path that has a decisive influence on the success of the result. The final output results show that condition A is the only causal path. Therefore, it can be said that after

the introduction of simplified assumptions and the removal of all non-necessary conditions, A is the only necessary condition that affects the occurrence of results.

In the intermediate solution, the fuzzy-set qualitative comparative analysis reveals three causal paths. These three causal paths all appear at least once in the actual cases, and the consistency index with the successful results is all more than 0.9, indicating that the above paths can actually be realized and can lead to the improvement of brand performance. The overall and solution coverage of the three causal paths is 0.26, indicating that the three causal paths can successfully explain 26% of the results. Among the three paths, the most important one is the third path ( $A*B*C*-D*E*-F*G$ ). The raw coverage of this path is 0.15, indicating that 15% of cases can be successfully interpreted by this path. The unique coverage of this path is 0.07, indicating that 7% of results can only be interpreted by this path. This path shows that when A, B, C, E and G work together, the result is more likely to occur. The first path ( $A*B*-D*-E*F*G$ ) also has a high raw coverage (0.13). The path shows that when conditions A, B, F and G coexist, the result is more likely to occur. Conditions A, B and G all play a significant role in these two causal paths with strong explanatory power. The second path ( $A*-B*-C*-D*E*F*-G$ ) has a smaller raw coverage, indicating that its explanatory power for the results is smaller. At the same time, it can be noted that the first path and the second path overlap on A, B and F, indicating that when conditions A, E and F work together, the result

may be more likely to occur. Among them, it is worth noting that the existence of condition A exists in all three paths output by the intermediate solution, which proves once again that the existence of condition A may be a necessary condition leading to the success of the result. Conditions B, C, E, F and G all have two states of existence and absence in the three paths, indicating that the existence of conditions B, C, E, F and G does not constitute a necessary condition for the success of the results, while condition D is in a missing state in the three paths, indicating that the absence of condition D does not affect the occurrence of the results. At the same time, when A, B and C exist simultaneously (the third path), the coverage is higher than the other two.

#### **4.4.4.1 Core conclusion**

Through the analysis of fsQCA model, we can explore a variety of causal paths leading to the result of brand growth, and evaluate in detail the intervention effect of the combination of consumers' perceptual value input and other conditional variables (spokesperson matrix) on brand growth.

First of all, through the analysis of the sufficient necessity of single factor, it can be seen that the input of consumers' perceptual value, optimization of spokesperson matrix, optimization of product management and other single conditions cannot constitute the sufficient and necessary conditions for the result of brand growth. However, both the perceptual value input and product management and operation mode can constitute the necessary conditions for the growth of the brand, that is, the continuous improvement of the business

performance of a brand is inseparable from the clear input of consumers' perceptual value, product management optimization and high-level operation mode, while the optimization of the spokesperson matrix, channel optimization and other factors are not highly relevant to the improvement of brand performance.

At the same time, the intervention effect of the combination of conditional variables on the results is analyzed by virtue of the truth table, and three causal paths driving the improvement of brand performance are obtained -- each path is composed of the combination of perceptual value and other conditional factors.

It can be seen that **the improvement of brand operating performance is not the result of single point optimization, but the product of multi-factor interaction.** The most influential path to the improvement of brand performance is: clear input of consumers' perceptual value, optimization of spokesperson matrix, high-level business model and high-speed market growth. Among them, consumers' perceptual values are the common denominator of the three causal paths, and have the biggest influence on the brand growth results, while optimization of channel management has little influence on the brand growth. It can be seen that the improvement of brand operating performance is not the result of single point optimization, but the product of multi-factor interaction. The most influential path to the improvement of brand performance is: clear input of consumers' perceptual value, optimization of spokesperson matrix, high-level business model and high-speed market growth.

Based on the output results, in addition to measuring the significance of consumers' perceptual value to brand growth and demonstrating the value of CVBBM model, it can also validate or overturn our empirical cognition and refresh our understanding of brand management:

i. **Consumers' perceptual value is not an isolated factor, but a determinant of a series of internal and external variables**

The establishment of brand perceptual value points not only affects specific practices such as spokesperson selection and product management, but also subtly influences the choice of brand market segments, thus further determining the difficulty of competition and business model, which also explains why perceptual value is the only simplified solution. For the brand side, the perceptual value is not a castle in the air, but a beacon guiding a series of brand management and business practice. After the completion of consumer research and perceptual value mining, the battle for comprehensive upgrading of brand management has just started. It is necessary to select appropriate competitive courses based on the direction of brand core value, and continuously strengthen many practices such as spokesperson matrix, product management and channel management.

ii. **Among the three dimensions of “people-goods-site”, the sufficient correlation between spokesperson and brand performance growth is the highest**

The results of the sufficiency analysis of single condition variables

show that the coverage of spokespersons is significantly higher than that of goods and channels, and the sufficient correlation with performance growth is the strongest. This result can be seen as a refutation to the theory that spokesperson is useless, which leads us to think: compared with the factors such as goods, channels and business models, which have low communication efficiency and are not easy for consumers to perceive, spokesperson may be an efficient means to quickly occupy consumers' minds and improve brand cognition. On the contrary, if an inappropriate spokesperson is selected, the collapse of brand cognition and the consumers' mental damage will be more severe. Especially in the Chinese market, with the development of social media, the maturity of fan culture and the normalization of celebrities' products, the importance of spokesperson continues to rise. It's not wise for brands to underestimate the importance of spokesperson. AHP model can be used to better evaluate the rationality of spokesperson and improve the fit between spokesperson and brands.

- iii. **Brands with clear perceptual values and good market environment can achieve high growth even if its people/goods/site/business model are backward**

In the output path A\*-B\*-C\*-D\*E\*F\*-G, the following information is displayed: if a brand has a clear and definite input of consumers' perceptual value (meaning that it has successfully captured the value demands of target consumers), fast market growth and low competitive pressure, then even if



it is relatively backward in terms of product management, spokesperson selection, channel management and business model, its brand performance will still achieve high growth. To some extent, this confirms the view that "as long as the external force is large enough, people who know nothing can also succeed with the momentum", and further inspires us that for brand development, choice is actually more important than efforts, and choosing the right direction is far more important than hard work without thinking.

When a brand confronts a development dilemma, it should not only solve specific problems in a short-sighted way, but also consider the market environment and brand value positioning.

- iv. **Brands need to face up to the pressure of competition. Fierce competition is not necessarily bad, and loose competition can easily lead to complacency and satisfaction**

"A\*B\*C-D\*E\*-F\*G" is the causal path with the highest coverage, which means that the brands matching this path combination (clear perceptual values, highly-fit spokesperson, excellent product management, fast market growth, high-degree competition and leading business model) are most likely to achieve high performance growth. For brand side, it has become increasingly difficult to find a real blue ocean market. In this case, brands need to realize that they should not be discouraged by the fierce competition. As long as the market is large enough and growing fast enough, they can still achieve high growth in a fully competitive market environment

under the condition of exploring perceptual value and practicing internal skills. Furthermore, highly competitive pressure is not necessarily bad for enterprises. The more competitive the track, the more likely it is to inspire the maximum potential of the brand, driving enterprises to constantly break through themselves in terms of people, goods, site, business model and other dimensions, in order to surpass the industry leader and do the best. However, in a loose market environment, it is not easy for enterprises to find targets for standards and beyond, and they are more likely to be self-satisfied and complacent, which to some extent will limit the motivation of enterprises to break through themselves and keep moving upward.

Through the above analysis of the condition variables, and their combination path, we systematically investigate the causes behind the brand growth, a variety of condition variables, and the interaction between probability combination, and finally prove that the input of consumers' perceptual value is a necessary condition to drive the improvement of brand performance, but any strategic direction guidance cannot be separated from excellent implementation. For the brand side, it not only needs to clarify the perceptual value of consumers, but also needs the guarantee of excellent implementation practice, and cannot do without a good external market environment. With practice test of FILA and FILA Tennis, it can be considered that CVBBM model is an effective tool to indicate the direction of brand building, and provide guidance for track selection and basis for a series of brand practices.

## **Chapter V: RESEARCH VALUE, LIMINATIONS AND FURUTRE PROSPECTS**

### **5.1 Research value**

On the basis of the theoretical research on previous literature on brands and consumers, it is clearly pointed out in the paper that marketing management of traditional brands is mostly examined from the perspective of brands and the researches on emotional values of consumers only are only in theory without quantitative statistical tool, effectiveness validation method and implementation method to guide business practices.

To address such deficiency, abductive reasoning is applied in this research and a brand management model (CVBBM) from the perspective of consumers is proposed to approach the issue of quantitative measurement of consumer emotional values. Furthermore, a breakthrough has been made in this paper in general correlation analysis and validation method. FSQCA model is used for effectiveness validation of CVBBM model and practical cases are combined for explanation and verification. There are three levels of research values in the entire paper:

- i. Establish brand management model (CVBBM) from the perspective of consumers and based on corresponding quantitative measurement tool & method**

The brand personality theory and the Brand Dimensions Scales (BDS) proposed by Jennifer Aaker from the brand perspective contribute to the traditional brand management research, solve the brand image quantization problem in the brand equity management theory of Kevin

Keller and explain the influence of market segmentation on brand personality. However, her theory is built only upon the perspective of brands rather than that of consumers. In an age of stock competition nowadays, failure to understand the emotional value appeals of consumers will result in inaccurate allocation and ultimate waste of marketing resources as well as deviated brand personality due to potential short-term interests/pressure in competition.

In this paper, the full picture of consumer values is depicted from the perspective of consumers to build a brand management model based on consumer emotional values --- CVBBM model. Compared with the brand personality theory from the perspective of brands, CVBBM model starts from the perspective of consumers to establish a complete set of quantitative statistical tools of consumer emotional values and a crossmatching method between consumer values and brand value appeals. Via a research on consumer values, the model looks closely at the gap between existing and ideal brand positioning in order to guide further brand management practices.

- ii. **Optimize the definition and apply fsQCA to validate combinations of condition variables affecting CVBBM model**
  - **Innovate the model validation tool and apply fsQCA for effectiveness comparative analysis and validation of CVBBM model**

Previous effectiveness validation of various brand management tools consists basically of simple controlled experiments and correlation analysis. But in such validation, complexity and correlation of brand growth are easily neglected --- there is no brand in the world subject to the influence of only one variable. In the meantime, the difference in one variable can cause chain reactions from multiple dimensions. However strictly the variables are controlled, there are always some variables which will never be expressed regardless of their influence on the results. Additionally, such validation requires a large number of cases. As a general rule, the influence of specific variables can be derived from comparison in a large sample size when the number of cases (brands) is big enough.

In this paper, fsQCA is applied for effectiveness validation of CVBBM model and such method adapts perfectly to the case conditions of small sample size and multiple factors. It converts the influence factors of CVBBM model into multi-dimension conditional factors, which are combined with other dimensions the model fails to affect to form a combination system of internal and external condition variables affecting brand performance. fsQCA operations are adopted to select the condition combinations with the greatest power of explanation from complex causal paths to further validate the practical guidance value of CVBBM model for brand management.

As a qualitative comparative analysis method, fsQCA at present is used by most scholars in researches of specific theories and phenomena (such as fsQCA-based research on cross-border e-commerce brand attachment and its prohibition and contribution factors; research on influence of policy and cultural factor configuration on enterprise innovation). Its application to validate the effectiveness of model tools is rare. After a retrieval in authoritative Chinese and foreign academic search engines including Google Scholar, Intute, CNKI and Baidu Xueshu, we find that it is the first time fsQCA is used for effectiveness validation of brand management tools in this paper, especially in the field of research of consumer emotional values.

- **Make reference to and innovate brand equity model, define condition variables affecting CVBBM effectiveness and strengthen market orientation and localization**

In this research, the theoretical basis of the application of fsQCA for effectiveness validation of CVBBM brand management model is the brand equity model theory of Kevin Keller. Meanwhile, comprehensive consideration has been given to external market environment and key indicators in the consumer goods industry in China, so as to establish the combinations of condition variables affecting CVBBM model.

In the fsQCA model in this paper, the outcome variable is brand performance and some condition variables are based on the brand equity

management model theory of Kevin Keller. For example, emotional value and spokesperson correspond to brand identity and meaning respectively; commodity and channel correspond to brand response. However, Kevin Keller's brand equity management model is built merely upon an endogenous factor --- brand marketing and neglects the influence of external environment and other operational factors on brand marketing outcome. In this paper, such condition variables as growth rate of the industry of a brand, competition environment and enterprise business model have been added. For enterprises, selecting a right track may be more important than efforts made. To go with the flow is a precondition of brand building and effective management. At the same time, business model, organizational capability and operational efficiency of an enterprises also have direct influence on brand performance.

**iii. Build a guiding model for CVBBM implementation --- CVBSM is helpful for implementation and practice of emotional values and efficient brand growth**

- **Help CVBBM model in better transition from research to practice**

In this paper, the brand management model (CVBBM) driven by consumer values and relevant quantitative measurement tool & method is established. The definition of fsQCA is improved and the model is applied to validate combinations of condition variables affecting

CVBBM model. To further help brand enterprises effectively implement the model in business practices, an implementation guiding model --- Consumer Value Beam Spreading Model (CVBSM) is further proposed in this paper and practical cases are combined for explanation and validation.

CVBSM model starts from input of consumer emotional values and follows the progressive hierarchy of emotional values' influence on brands. When consumer emotional values are clear, they will firstly guide brand positioning and matrix optimization so as to inform relevant brands in adjustments to their business models, organizational culture and management teams. In this way, superstructure optimization and organizational improvement can be completed. Subsequently, a series of more concrete and visible reforms can be triggered in terms of people, goods and venue. After mining of emotional values, brands select suitable consumer emotional values based on their own brand positioning and promote brand management upgrade and reform with reference to CVBSM model.

Fig:

- **Use together with fsQCA tool to improve brand management implementation efficiency and help long-term optimization of fsQCA model**



As a brand management implementation guiding model, CVBSM consists of four levels: emotional value - brand - organization operation - people & goods & venue and covers all aspects of management and operations of consumer goods enterprises. It can offer comprehensive guidance for enterprises to implement the research results of CVBBM

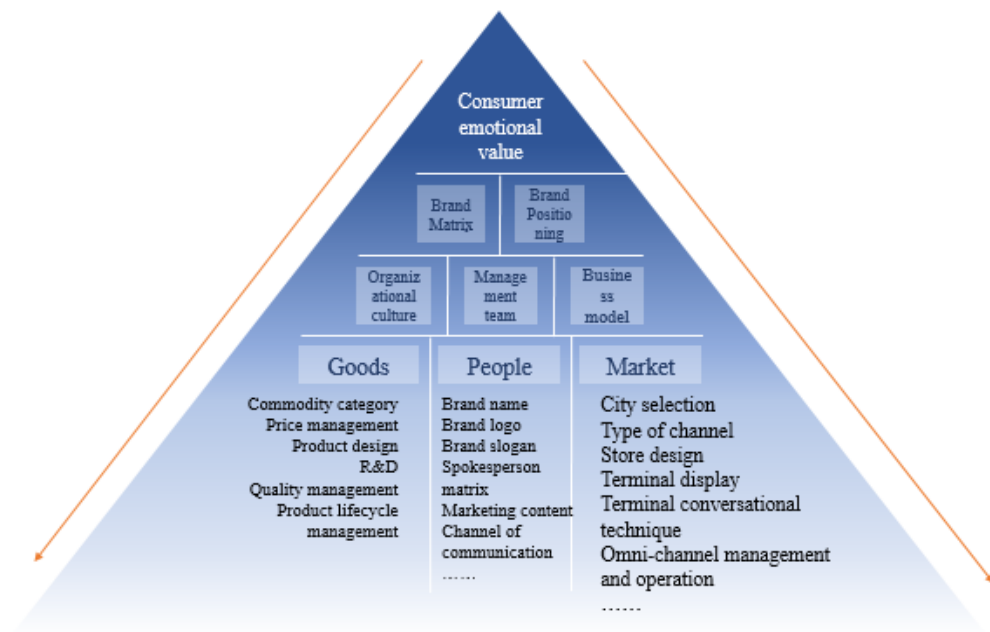


Fig 10: Consumer Value Beam Spreading Model

model in practice. However, for individual enterprises, not all practices in CVBSM model are necessary. They can flexibly select different types of practices from different dimensions based on their own conditions. After implementation and practice for a certain period of time, fsQCA model can be applied to examine and evaluate which types of practice are most valuable to enterprises. This is how fsQCA is brought into play.

Enterprises can find combinations of conditions with high correlation with brand growth based on fsQCA output and identify the

effectiveness of brand management implementation practices in the past period of time. In the meantime, the gap in their own brand management implementation practices can be identified by comparing with CVBSM model and new directions of practice can be selected to fill the gap and replace low-value practice variables, in order to help themselves better select directions and allocate resources and continuously improve the implementation efficiency.

On the other hand, fsQCA comparative analysis operations require the setting of a series of condition variables which should be free from repetition or omission and closely related to the outcome variable. Enterprises can get a full picture of spontaneous practices affecting brand growth via CVBSM model, make timely adjustment to condition variables (especially endogenous variables) according to changes in brands practices within each cycle, keep improving the operation accuracy and practice value of fsQCA model and promote enhancement in brand management in a better way.

## **5.2 Research limitations**

After reflections on the author's management practices and experience in the consumer goods and retail industries, it is concluded that the limitations in this research mainly lie in case selection, tool validation and industrial application, with details as follows:

- 1) Limitations of case: there is a shortage in channel-specific practices and

the influence on brand growth is uncertain. The sample of cases selected in the paper has low score in the dimension of channel. It shows that such brands have stable channel strategies during the period of this research. Even brands with astonishing rise in brand performance barely change their channel strategies, leading to a research result showing that the more conservative the channel management (namely no obvious change in channel type, percentage, assessment mechanism, management team and incentives), the more easily the brands succeed. Such result is inconsistent with our daily experience, but is logical considering the sample selection and model operation in this research. The underlying cause, in addition to the sample selected (the channel strategies of all involved brands have entered a stage of stable development with only small change), is that the sports clothes and footwear industry in China remains relatively stable within the period of the research. Therefore, it is hard to clearly identify the influence of channel practices on brand growth via fsQCA model operation. So it is not possible to draw the conclusion that channel management is of low importance to brand performance growth.

- 2) Limitations of tools: brand growth is subject to the influence from various and complex factors which cannot be fully restored by fsQCA model. As an effective method for exploring multi-factor influence, fsQCA focuses on influence of conditions and their combinations on outcome variables and emphasizes multiple concurrent cause & effect and interdependency

between various conditions. Hence, the setting of condition variables is of great importance. Brand growth is the result of social culture, business competition and consumer selection within a specific period of time and it has infinite and interactive influence factors. In consideration of data availability, comparability and independence, the model cannot fully restore all factors influencing brand growth. Founding scholars of fsQCA such as Ragin and Schneider have imposed requirements on the number of condition variables. Although available data has been fully utilized to restore internal and external influence factors of brand growth, some relevant conditions may still be neglected or excluded, such as core management team capability, technological level and policy support. As new condition variables are added, the number of potential combinations of conditions increases exponentially. The model output will be affected ultimately.

- 3) Limitations of application: it has been verified that CVBBM is suitable for some mid-to-high-end consumer goods brands. But its influence on popular consumer goods brands and other industries remains to be validated. CVBBM is a brand management tool based on consumer emotional values. Mid-to-high-end brands are sensitive to consumer values and need more in-depth and differentiated ways to impress consumers. Thus, CVBBM is inherently suitable for mid-to-high-end brands theoretically. Generally speaking, mid-to-low-range brands focus

more on competitions in functions and prices and are not sensitive to emotional values. Simple products and price tests seem not enough to meet the customer acquisition demand of brands. Is it reasonable to assume that mid-to-low-range brands don't need complex CVBBM model for input of consumer emotional values? Meanwhile, CVBBM model currently only finds application in such consumer goods industries as the shoes & clothes, cosmetics and home furnishing sectors and the automobile industry. There are rare cases of its application in generic consumer goods industry such as the food & beverage sector and other industries. So further subsequent validation in this respect is required.

### **5.3 Future research prospect**

In consideration of the research limitations listed above, the focus of future researches can be planned:

- 1) On the basis of such limitations, the focus can be laid on implementation practice in terms of channel of CVBBM model in the future, in order to further validate the influence of channel practices on brand growth. Due to data availability and the stable context of the consumer goods industry in China which has only limited changes in recent years, the cases selected and used in this research have conservative channel reform background. Therefore, the range of case selection can be expanded properly in future researches to improve the comprehensiveness of distribution of membership degree of the cases to various condition

variables (especially from channel reform dimension), in order to explore the level of intervention to brand performance growth by channel practices.

- 2) In terms of the limitation of inability by fsQCA model to fully restore factors intervening brand growth, combinations of condition variables can be improved constantly in the principle of "no repetition or omission" to enhance the degree of restoration of internal and external intervention factors in the future. In current literature of fsQCA, comprehensiveness and reasonableness of setting of condition variables are common problems. For such problems, a commonly used solution is to set relevant variables on the basis of the academic frameworks demonstrated in previous researches to avoid building new frameworks from scratch. In future researches, longitudinal and cross-sectional study can be added on intervention factors of brand growth to select research frameworks already gone through strict academic demonstration and with high degree of industrial recognition, build upon previous researches, combine expert opinions and industrial experience, and constantly improve condition variables' restoration of facts.
- 3) Keep exploring the influence of emotional values on popular consumer goods brands and other industries, further clarify the applicability of the model to brands of different grades, promote to enable wider application of the model and build more universal model tools and implementation

guidance applicable to other industrial/business models. Under the influence of current state of productivity development and the richness of current material and cultural life, there are less and less brands depending purely on price and single function points. It has become a common pursuit of the industry to get rid of over-reliance on product brands and trigger resonance with psychological values of consumers. Hence, targeted CVBBM model application and effectiveness validation can be performed for popular consumer goods brands in future researches in order to objectively evaluate the influence of CVBBM model and consumer emotional value points on popular brands via fsQCA model under the condition that clear input is given and proper implementation is in place. Additionally, such model can be promoted to generic consumer goods industry such as the food & beverage sector and other industries in the future. Taking the food & beverage sector as an example. It is traditionally believed that such sector should focus on competitions in taste, price and channel. However, as consumer lifestyles shift and competition forms develop, such subsectors as new tea drinks burgeon as a result of psychological appeals such as happy coach potato philosophy, pressure relieving, Buddha-like social networking and Buddha-like health preserving of young consumers. Therefore, CVBBM model can be better blended into the fierce-competing and fast-changing Internet social consumption in future researches to explore its application in more

industries in order to give it to full play in wider fields.



## Reference

- Aaker, D. (1999). The Malleable Self: The Role of Self-Expression in Persuasion. *Journal of Marketing Research*, 36(1), 45–. <https://doi.org/10.2307/3151914>
- Aaker, D. (1991). *Managing brand equity: capitalizing on the value of a brand name*. Free Press.
- Aaker, D. (2011). *Brand relevance: making competitors irrelevant (1st ed.)*. Jossey-Bass.
- Aaker, D., Kumar, V., & Day, G. (2007). *Marketing research (9th ed.)*. Wiley.
- Alkarkhi, A., Alkarkhi, A., Ismail, N., Ismail, N., Ahmed, A., Ahmed, A., Easa, A., & Easa, A. (2009). Analysis of heavy metal concentrations in sediments of selected estuaries of Malaysia—a statistical assessment. *Environmental Monitoring and Assessment*, 153(1), 179–185. <https://doi.org/10.1007/s10661-008-0347-x>
- Aaker D. (2004). Leveraging the Corporate Brand. *California Management Review*, 46(3), 6–18. <https://doi.org/10.2307/41166218>
- Aaker, & Sengupta, J. (2000). Additivity Versus Attenuation: The Role of Culture in the Resolution of Information Incongruity. *Journal of Consumer Psychology*, 9(2), 67–82. [https://doi.org/10.1207/S15327663JCP0902\\_2](https://doi.org/10.1207/S15327663JCP0902_2)
- Aaker, & Williams, P. (1998). Empathy Versus Pride: the Influence of Emotional Appeals Across Cultures. *The Journal of Consumer Research*, 25(3), 241–261. <https://doi.org/10.1086/209537>
- Amos, C., Holmes, G., & Strutton, D. (2008). Exploring the relationship between celebrity endorser effects and advertising effectiveness: A quantitative

- synthesis of effect size. *International Journal of Advertising*, 27(2), 209–234.  
<https://doi.org/10.1080/02650487.2008.11073052>
- Arora, S., Parida, R., & Sahney, S. (1C.E.). Understanding consumers' showrooming behaviour: a stimulus–organism–response (S-O-R) perspective. *International Journal of Retail & Distribution Management*, 48(11), 1157–1176. <https://doi.org/10.1108/IJRDM-01-2020-0033>
- Baker, T., Chari, S., Daryanto, A., Dzenkovska, J., Ifie, K., Lukas, B., & Walsh, G. (2020). Discount venture brands: Self-congruity and perceived value-for-money? *Journal of Business Research*, 116, 412–419.  
<https://doi.org/10.1016/j.jbusres.2019.07.026>
- Coxe, West, S. G., & Aiken, L. S. (2009). The Analysis of Count Data: A Gentle Introduction to Poisson Regression and Its Alternatives. *Journal of Personality Assessment*, 91(2), 121–136.  
<https://doi.org/10.1080/00223890802634175>
- de Montlibert, Hovland, C. I., & Janis, I. L. (1960). Personality and Persuability. *Revue Française de Sociologie*, 1(3), 375–.  
<https://doi.org/10.2307/3319918>
- Dichter. (1992). A Remembrance of Ernest. *Marketing News*, 26(1), 21–.
- Executive summary of “Testing self-congruity theory in the context of nation brand personality.” (2015). *The Journal of Product & Brand Management*, 24(1). <https://doi.org/10.1108/JPBM-01-2015-0792>
- Gale, H. (1999). Psychological studies, by Harlow Gale. The author, 1900.

- Greckhamer, Furnari, S., Fiss, P. C., & Aguilera, R. V. (2018). Studying configurations with qualitative comparative analysis: Best practices in strategy and organization research. *Strategic Organization*, 16(4), 482–495.  
<https://doi.org/10.1177/1476127018786487>
- James, & Guo B., (2014). *The Principles of Psychology*. Jiangxi Education Press.
- Jo Reichertz. (2009). Abduction: The Logic of Discovery of Grounded Theory. *Forum, qualitative social research*, 11(1).
- Keller, Wu, Shuilong, & He, Yun. (2014). *Strategic brand management building, measuring, and managing brand equity*. China Renmin University Press.
- Keller. (2003). Brand Synthesis: The Multidimensionality of Brand Knowledge. *The Journal of Consumer Research*, 29(4), 595–600.  
<https://doi.org/10.1086/346254>
- Kressmann, Sirgy, M. J., Herrmann, A., Huber, F., Huber, S., & Lee, D.-J. (2006). Direct and indirect effects of self-image congruence on brand loyalty. *Journal of Business Research*, 59(9), 955–964.  
<https://doi.org/10.1016/j.jbusres.2006.06.001>
- Mark Yi-Cheon Yim. (2014). The U-Shaped Relationship Between Hedonic Shopping Motivation and Consumers' Changes in Purchase Decisions. *Advances in Consumer Research*, 42, 820–.
- Marketing research (Chicago, Ill.). (1989). American Marketing Association.

- Saraçlı, Doğan, N., & Doğan, İ. (2013). Comparison of hierarchical cluster analysis methods by cophenetic correlation. *Journal of Inequalities and Applications*, 2013(1), 1–8. <https://doi.org/10.1186/1029-242X-2013-203>
- Seno, & Lukas, B. A. (2007). The equity effect of product endorsement by celebrities: A conceptual framework from a co-branding perspective. *European Journal of Marketing*, 41(1/2), 121–134. <https://doi.org/10.1108/03090560710718148>
- Sirgy. (2018). Self-congruity theory in consumer behavior: A little history. *Journal of Global Scholars of Marketing Science*, 28(2), 197–207. <https://doi.org/10.1080/21639159.2018.1436981>
- Sirgy, M. (1998). *Integrated Marketing Communication: A Systematic Perspective*. Tsinghua University Press.
- Williams, & Aaker, J. L. (2002). Can Mixed Emotions Peacefully Coexist? *The Journal of Consumer Research*, 28(4), 636–649. <https://doi.org/10.1086/338206>
- Yim, Gu, F. F., & Hung, K. H. (2007). A Social Institutional Approach to Identifying Generation Cohorts in China with a Comparison with American Consumers. *Journal of International Business Studies*, 38(5), 836–853. <https://doi.org/10.1057/palgrave.jibs.8400288>

## Appendix

### ONE: Example of the application of CVBBM

The purpose of this chapter is to accompany the main text with detailed examples of the 2017 FILA consumer research project and to further clarify the operational process and the logic behind the CVBBM model in its practical application.

The questions presented in this chapter will cover the six chapters of Consumer Screening Test, Consumer Social Life Survey, Consumer Psychological Value Test, Consumer Exercise Habit Test, Consumer Brand Perception Test and Consumer Purchase Behaviour Test, as well as information about the images cited in the main text, including the questions, options and sample recall.

In consideration of constraints and confidentiality, only two to three questions and some of the sample returns are shown in each section, with further details on key pages and questions appearing in the previous sections. In view of the sensitivity of the information, all sports footwear and apparel brands are indicated by coding such as Brand A and Brand B, except for FILA and its sub-brands involved in the cases.

- i. Consumer screening tests
  - i. [Vertical Questionnaire] What is your actual age? [Fill in answer and choose one option]

Record age:_____		Share
Choose one option		
Up to and including 18 years of age	1(End)	0%
18-20	2	5%
21-25	3	10%
.....	.....	.....
50 and above	9(End)	0%

- ii. [Vertical Questionnaire] Have you purchased any sports apparel in the past 1 year? [Fill in answer and choose one option]

Yes	1
No	2 (End)

- ii. Consumer lifestyle survey

- i [Vertical Questionnaire] Which from the following can best describe your **occupation**? [Fill in answer and choose one option]

Option	Sample Collected	Share
Governance officials	2	0.6%
Governance admins	13	4.0%
Management in SOEs (Manager or above)	33	10.1%
.....	.....	.....
Sum	327	100.0%

ii [Vertical Questionnaire] What's your highest degree? [Fill in answer and choose one option]

Option	Sample Collected	Share
No formal education	0	0.0%
	0	0.0%
Junior Highschool	0	0.0%
.....	.....	.....
Total	327	100%

iii. Consumer psychology tests

- Direction

[Horizon Questionnaire, then Vertical Questionnaire] How much do you agree with each of the following descriptions? [Fill in answer and choose one option]

No.	Value Description	Totally disagree	Partly disagree	Partly agree	Totally agree
R1	I prefer the goods I have tried or referred by others	1	2	3	4
R2	I don't want the product to be discarded quickly, I want it to last as long as possible	1	2	3	4

R3	I love art and taste and want to show taste and beauty in my daily consumption	1	2	3	4
...	.....	...	.....	...	.....

- Questionnaire Collection (example)

1	Options	Number of samples collected	Share
I prefer products that I have used or that have been recommended by others	Totally disagree	19	5.8%
	Partly disagree	79	24.2%
	Partly agree	169	51.7%
	Totally agree	60	18.3%
	In sum	327	100.0%
I don't want the product to be discarded quickly and I want it to last as long as possible	Totally disagree	25	7.6%
	Partly disagree	101	30.9%
	Partly agree	155	47.4%
	Totally agree	46	14.1%
	In sum	327	100.0%
I love arts, have a taste to it and I want to show my taste and appreciation from my	Totally disagree	7	2.1%
	Partly disagree	33	10.1%
	Partly agree	168	51.4%
	Totally agree	119	36.4%



daily consumption	In sum	327	100.0%
.....	.....	.....	.....

iv. Consumer sports habit test

i. What is the core purpose of your participation in sport? [Vertical Questionnaire]

Option	Number of samples collected	Share
Enhance sports performance	47	14.4%
Fat burning and body shaping	85	26.0%
Health/Stress Reduction/Stretch	194	59.3%
.....	.....	.....
In sum	327	100.0%

2) What's the frequency of work outs? [Vertical Questionnaire]

Option	Number of samples collected	Share
1 time or more every day	63	19.3%
5-6 times every week	99	30.3%
3-4 times every week	117	35.8%
.....	.....	.....
In sum	327	100.0%

v. Consumer brand awareness test

- Examples of questions
  - i. What is the first Brand that comes to your mind when you think of sports footwear? [Fill in the blank]
  - ii. [Vertical tab] Among the following brands, please tick as many as you know of?
  - iii. [Vertical tab] For the following brands you just know, have you ever considered buying them in the past 2 years? [Vertical check].
  - iv. [Vertical tab] For the following brands that you have just considered buying, have you actually bought them in the past 2 years? [Vertical check].
  - v. [Vertical tab] For the following Brand that you have purchased in the past 2 years, have you made any repeat purchases in the past 2 years? [Vertical check].
  - vi. [Longitudinal tab] For the following brands that you have purchased repeatedly in the past 2 years, which one do you buy most often? [Vertical radio check].

	1)	2)	3)	4)	5)	6)
	First think of this Brand	Know this Brand	Have purchased	Have purchased within 2 years	Have purchased more than 1 time	Most frequently purchase

					within 2 years	(Single Choice)
Brand A						
Brand B						
FILA						
Brand C						
Brand D						
.....						

- Sample collected example:

- i. [Vertical Card] In the following Brand, please tick as many as you know of? [Vertical Choice]

	Number of samples collected	Share
Brand A	308	94.2%
Brand B	309	94.5%
FILA	154	47.1%
Brand C	260	79.5%
Brand D	216	66.1%
.....	.....	.....
In sum	327	100.0%

- vi. Consumer Purchase Behavior Test

- i. [Vertical Card] Please recall which of the following descriptions fits best the occasion when you are buying sports footwear? [Vertical Choice]

	Number of samples collected	Share
Planned purchase (I have a clear intention of the goods that I would like to buy)	20	6.1%
Impulsive spending (I had no intention of buying sports footwear and decided to do so on the spur of the moment)	163	49.8%
Both may happen	144	44.0%
In sum	327	100%

- ii. Which channel do you currently buy your sports footwear from most often? [Vertical Multiple Choice, 1 option at least and 3 options at most]

Option	Number of samples collected	Share
Street shops	47	14.4%
Department store	81	24.8%
Shopping mall	199	60.9%

.....	.....	.....
In sum	327	100.0%

vii. Consumer Portraits

- Based on the above questions and the sample recovery, a series of characteristics of different samples in social, psychological and behavioural dimensions can be strung together. Importing all the sample data into SPSS and after cluster analysis, it can be found that these samples can be broadly classified into six categories in the value point distribution chart.
- Clustering result

Option	Number of samples collected	Share
Type1	42	4.7%
Type2	133	14.9%
Type3	123	13.8%
Type4	38	4.3%
Type5	294	33.0%
Type6	261	29.3%

- Differences in key questions among the six categories of consumers

Each of these six categories of consumers has characteristics in terms of age, income, exercise habits and level of consumption, which are reflected in the various questions and present different answers, for example.

At the age level, each of the six categories has a different age profile.

Option	Type1	Type2	Type3	Type4	Type5	Type6
Under 18 years old (excluding 18 years old)	0	0	0	0	0	0
18-20	3	6	11	2	14	9
21-25	6	11	16	2	27	28
.....	.....	.....	.....	.....	.....	.....
In sum	42	133	123	38	294	261

In terms of sports habit, the results are as follows:

Option	Type1	Type2	Type3	Type4	Type5	Type6
1 time or more every day	0	133	0	15	0	0
5-6 times every week	0	0	0	23	0	261
3-4 times every week	37	0	0	0	294	0
.....	.....	.....	.....	.....	.....	.....
In sum	42	133	123	38	294	261

There are also significant differences between the six groups in terms of spending levels:

- Questions example:

- i. [Vertical card] On average, how many pieces of the following professional sports footwear and apparel categories (excluding casual sports products) do you purchase each year? [Fill in the blanks vertically] [Restrict consumers to enter information attributes to numbers 0-10, retaining a maximum of 1 as a decimal].
- ii. [Show the horizontal card, then the vertical one] For the professional sports footwear category you would buy each year, what is the average amount you spend per piece? [Horizontal single choice]

	Category	Pieces purchase d each year	Average amount of each piece (RMB)						
			100 or below	101- 200	201- 300	301- 400	...	901- 1000	1000 or above
Tops	Sports underwear								
	Tights								
	Sports T- shirt								

	.....								
Bottom s	Tights								
	Trousers								
	Shorts								
	.....								
Shoes	Professional sports shoes								
Others, please specify									

- Sample collected:
  - i. On average, how many of each of the following professional sports footwear categories (excluding casual sports) do you purchase each year? (For reasons of space, only the frequency of purchase of "professional sports shoes" is shown here)

Pieces purchased each year	Type1	Type2	Type3	Type4	Type5	Type6
0	1	4	8	0	23	8
1	0	24	56	2	69	47
2	4	40	37	1	95	81
3	8	35	10	2	74	67
4	7	19	6	9	16	36



5	7	7	1	5	11	9
.....	.....	.....	.....	.....	.....	.....
Total	42	133	123	38	294	261

- ii. What is the average amount you spend per item of professional sports footwear that you buy each year? (For space reasons, only the average amount spent on "professional sports shoes" is shown here)

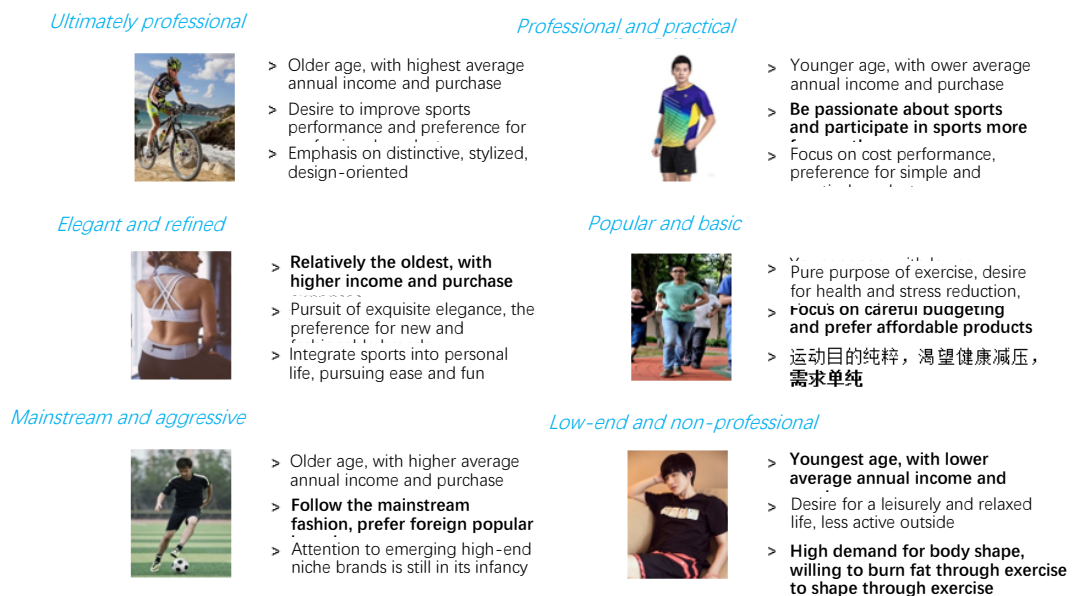
Average Cost of each piece (RMB)	Type1	Type2	Type3	Type4	Type5	Type6
100 and below	0	2	0	0	0	0
101-200	0	3	12	0	8	3
201-300	2	13	15	0	29	21
301-400	5	15	16	0	38	29
401-500	1	23	26	1	46	52
.....	.....	.....	.....	.....	.....	.....
In sum	42	133	123	38	294	261

The distribution of the answers to questions 1 and 2 can be combined to reveal that: Type 5 and 6 consumers on average buy significantly more professional sports shoes per year than Type 2 and 3, and the average price is also significantly higher, reflecting their stronger sporting

attributes and spending power; while Type 1 and 4, despite the relatively dispersed average annual purchase quantity and price, have limited reference value due to the small sample size.

### Portraits of six types of consumer

Based on the differences of the six types of consumers in different dimensions (mainly the consumption index and the sports index), the core characteristics of each type of population can be summarized, the different populations can be named and the consumer portraits of each type of population can be completed, with the following results.



### viii. Other questions

Figure 5: Purchase rate of FILABrand among different segments (the "refined" segment has a significantly higher purchase rate of FILABrand than the other segments)

Among the following Brand, which sports footwear Brand have you purchased most often in the past 1 year? [Vertical check].

	Average	Elegant and sophisticated	Professional and Practical	Low-end amateur	The ultimate professional	Entry level	Mainstream
BrandA	82.4%	85.7%	92.5%	61.0%	97.4%	76.9%	90.8%
BrandB	68.9%	81.0%	75.2%	49.6%	86.8%	66.7%	72.8%
FILA	30.6%	38.1%	28.3%	30.7%	42.1%	25.2%	33.0%
BrandC	19.6%	23.8%	26.3%	9.8%	31.6%	18.0%	20.3%
BrandD	8.6%	19.0%	10.5%	.8%	28.9%	8.2%	7.3%
.....	14.6%	11.9%	18.0%	6.5%	42.1%	12.2%	15.7%

- Figure 7: Type of preferred sports among different audiences

Among the following sports Type, what is the type of sports you regularly participate in during the week? [Vertical check]

	Average	Elegant and sophisticated	Professional and Practical	Low-end amateur	The ultimate professional	Entry level	Mainstream
Running	89%	79%	97%	73%	87%	89%	95%
Badminton	50%	33%	49%	57%	34%	51%	51%
Basketball	31%	33%	35%	17%	52%	28%	35%
.....	.....	.....	.....	.....	.....	...	.....

### iii. AHP Model

#### a) Introduction to the model

Hierarchical analysis (AHP) is an approach to decision making that combines qualitative and quantitative analysis and quantifies qualitative problems, as proposed by American operations researcher Satie in the early 1970s. The basic idea of this model is to decompose a multi-objective decision problem into a number of combination factors, group these factors into a progressive hierarchy according to their systematic dominance; the decision maker uses experience to judge the relative importance between each criterion, and reasonably gives the weights of each

criterion for each decision option, and uses the weights to find out the order of merit of each option.

The selection of the spokesperson can be understood as a multi-objective decision-making problem. In the past, the evaluation and selection of spokespersons was mainly based on qualitative evaluation, which had the shortcomings of high subjectivity and low credibility. The hierarchical analysis method quantifies the qualitative issues, and by constructing a hierarchical analysis structure model, a quantitative multi-dimensional rating of the spokesperson can provide an objective, comprehensive and intuitive assessment of the reasonableness of the spokesperson to a certain extent.

#### b) Decision-making criteria

The FILA spokesperson evaluation AHP model is divided into three levels: the top objective level, i.e. the right decision for the company (choosing the most suitable spokesperson A); the middle level, the criteria level, i.e. the factors to be considered in the decision and the guidelines for the decision; and the bottom level, the options level, i.e. the options available (i.e. spokesperson C1, C2, C3, etc.). This section aims to detail the middle layer of the AHP model, i.e. the criterion layer, i.e. the factors that should be considered when making a decision on an advocate and the criteria for the decision.

Based on the results of the 2017 FILA consumer survey, the core consumers of FILA are "elegant and sophisticated", the core value point of the brand is "elegance" and the image is positioned as elegant and sophisticated, referring to the application

of the AHP model in the field of spokesperson evaluation. Based on this research, seven key indicators (appearance and style B1, age and qualifications B2, professionalism B3, popularity B4, reputation B5, exclusivity B6 and price matching B7) were selected to establish a spokesperson evaluation index system. The evaluation criteria for these seven criteria are as follows.

- Appearance style B1: As it is necessary to match the Brand image, an elegant appearance of the spokesperson under this criterion is preferred over a wild, sexy or rustic appearance style, and the appearance style score of an acting star is generally better than that of an athlete.

- Age and Qualifications B2: Considering the characteristics of FILA's target group, the best age for a spokesperson is between 25-35 years old, with younger or older age groups being rated lower.

- Professionalism B3: The professionalism of an actor is reflected in their work and the awards they have won; the professionalism of an athlete is directly linked to their performance and whether they are active or not. As FILA's contracted athletes are mainly tennis players, this article measures their professionalism in terms of their ATP/WTB ranking and the number of Grand Slams they have won. The threshold for athletes is higher than that of acting stars, so athletes will perform at a higher level of professionalism than acting stars, especially in sports with a higher threshold.

- Visibility B4: The popularity of each spokesperson is compared with the mainstream popularity selection lists in China, such as the celebrity Forbes list, the Baidu celebrity popularity list and the Weibo celebrity power list.

- Reputation B5: Reputation is the basis and bottom line for measuring the competence of a spokesperson, and is as important as popularity and professionalism. If a spokesperson has been involved in drug use, gambling, doping or other scandals, his or her reputation is reduced.

- Specificity B6: Brands need to avoid endorsers endorsing competing brands at the same time. Generally speaking, the less endorsements a brand has in the same market, the more specific the image endorser is and the greater the effect on the brand, endorsing other sports brands dilutes the effect of endorsing FILA Brand. If only FILA is endorsed, this is a perfect score, while endorsing other sports brands will deduct points accordingly.

- Price Match B7: The cost of the endorser should be reasonable and in line with FILA's annual marketing budget.

All FILA endorsers for 2017 to 2019 were scored based on the above guidelines and the principles of scoring. Each spokesperson can be considered as a spokesperson option, and the numbering of each spokesperson is as follows: Shu Qi C1, Gao Yuanyuan C2, Chen Kun C3, Wang Yuan C4, ....., Isner C13, Kenning C14 and Huatian C15.

The specific scores of the above endorsers are as follows.

a) Principle of decision-making

- This FILASpokesperson evaluation AHP model is divided into three layers: the top objective layer, i.e. the right decision for the company (choosing the most appropriate Spokesperson A); the middle layer, the criterion layer, i.e. the factors to be considered when making a decision and the criteria for the decision; and the bottom layer, the solution layer, i.e. the options available (i.e. Spokesperson C1, C2, C3, etc.). The purpose of this section is to describe in detail the middle layer of the AHP model, the criterion layer, i.e. the factors that Spokesperson should consider when making decisions and the criteria for making decisions.
- Based on the results of the 2017 FILA consumer research, the core consumers of FILA are "elegant and sophisticated", and the core value point of Brand is "elegance". Based on the application of the AHP model in the field of Spokesperson evaluation, this paper selects seven key indicators (appearance and style B1, age and qualifications B2, professionalism B3, awareness B4, reputation B5, exclusivity B6 and price matching B7) to establish a Spokesperson evaluation index system. The evaluation criteria for these seven criteria are as follows.
- - Appearance style B1: To match the Brand image, Spokesperson's elegant appearance under this criterion is preferred over wild, sexy and rustic appearance styles, and the appearance style score of acting stars is generally preferred over athletes.



- - Age and Qualifications B2: Considering the characteristics of FILA's target group, Spokesperson's age is best between 25-35 years old, with younger or older age groups being rated lower.
- - Professionalism B3: The professionalism of an actor is reflected in their work and awards; the professionalism of an athlete is directly linked to their performance and whether they are active or not. As FILA's contracted athletes are mainly tennis players, this article measures their professionalism in terms of their ATP/WTA ranking and the number of Grand Slams they have won. The threshold for athletes is higher than that of acting stars, so athletes will perform at a higher level of professionalism than acting stars, especially in sports with a higher threshold for professionalism.
- - Visibility B4: The popularity of each Spokesperson is compared with other mainstream popularity lists in China, such as the Celebrity Forbes List, Baidu Celebrity Popularity List and Weibo Celebrity Power List.
- - Reputation B5: Reputation is the basis and bottom line for measuring the competence of a Spokesperson, and is as important as popularity and professionalism. If a Spokesperson is involved in drug use, gambling, doping or other scandals, his or her reputation is reduced.
- - Specificity B6: Brands need to avoid Spokespeople endorsing competing brands at the same time. Generally speaking, the less a

Spokesperson endorses a brand in the same market, the more specific the image is and the greater the effect on the brand. FILA Brand endorsements dilute the effect of the endorsement. If only FILA is endorsed, this is a perfect score, while endorsing other sports brands will deduct points accordingly.

- - Price Match B7: Spokesperson fees should be kept within reasonable limits and in line with FILA's annual marketing budget.
- All FILA Spokespeople for 2017-2019 were scored based on the above Spokesperson evaluation criteria and their scoring principles. Each Spokesperson can be considered as a Spokesperson option, and the Spokesperson numbers are: Shu Qi C1, Gao Yuanyuan C2, Chen Kun C3, Wang Yuan C4, ....., Isner C13, Kenning C14 and Huatian C15.
- The specific scores of the above Spokesperson are as follows.

2016:

	FILA Core Brand			FILA Tennis	
	Spokesperson C1	Spokesperson C2	Spokesperson C6	Spokesperson C9	Spokesperson C12
Appearance	10	10	9	9	10
and					
Age and experience	8	8	8	10	10

Professionalism	8	6	5	10	7
Recognition	10	10	8	8	5
Reputation	10	10	10	10	10
Exclusiveness	9	9	8	10	10
Price	9	8	6	7	5
Matching					

- 2017:

	FILA Core Brand				FILA Tennis	
	Spokesperson C2	Spokesperson C3	Spokesperson C5	Spokesperson C6	Spokesperson C10	Spokesperson C13
Appearance and age and experience	10	10	8	9	10	10
Professionalism	6	8	5	5	9	8
Recognition	10	10	9	8	7	6

Reputati 10 10 10 10 10 10

on

Exclusiv 9 10 9 8 10 10

eness

Price 8 9 6 6 6 6

Matchin

g

- 2018:

	FILA Core Brand				FILA Tennis	
	Spokes person C2	Spokespe rson C3	Spokespe rson C4	Spokespe rson C7	Spokesper son C10	Spokesper son C13
Appeara nce and	10	10	8	9	10	10
Age and experien ce	8	8	8	10	10	10
Professi onalism	6	8	6	7	9	8
Recogni tion	10	10	10	9	7	6

Reputati on	10	10	10	10	10	10
Exclusiv eness	9	10	8	9	10	10
Price Matchin g	8	9	7	8	6	6

- 2019:

	FILA Core Brand			FILA Tennis		
	Spokes person	Spokespe rson C4	Spokespe rson C15	Spokespe rson C8	Spokespe rson C11	Spokespe rson C14
C2						
Appeara nce and	10	8	10	9	10	10
Age and experien ce	8	8	10	9	9	8
Professi onalism	6	6	9	5	10	7
Recogni tion	10	10	10	8	8	5

Reputati	10	10	10	10	10	10
on						
Exclusiv	9	8	10	8	10	10
eness						
Price	8	7	10	6	7	5
Matchin						
g						

b) The process of calculation

After completing the Spokesperson scoring, the relative importance of each factor in each level of the hierarchical model can be calculated and a list of judgement values can be given to form a judgement matrix. The judgement matrix represents a comparison of the relative importance of a factor at the previous level with the factor at the current level.

The method of constructing the judgement matrix in the hierarchical analysis method is the consistent matrix method, that is, instead of comparing all the factors together, they compare each other two by two; relative scales are used at this point to minimise the difficulty of comparing different factors with each other in order to improve accuracy. The judgement matrix  $a_{ij}$  scale method is determined according to the expert survey method, using a scale of 1-16 and its reciprocal to establish the evaluation scale.

Judgement matrix  $a_{ij}$  scaling method.

Scale	Definition
1	indicates that both factors are equally important compared to each other
2	Indicates that one factor is slightly more important than the other when compared to two factors
4	Indicates that one factor is significantly more important than the other when compared to the two factors
.....	.....
12	Indicates that one factor is strongly more important than the other when compared to the two factors
16	Indicates that one factor is more extremely important than the other when compared to two factors
3, 5, ..., 15	Median of the above adjacency judgements
Reciprocal	The discriminant of element I in relation of element j is $a_{ij}$ , then compare with element i, the discriminant of element j is $a_{ij} = 1/a_{ij}$

Considering the importance of each criterion for the FILA Spokesperson selection, the relative importance of the seven criteria was assigned according to the expert scoring method, and the values were assigned as follows:

A	$B_1$	$B_2$	$B_3$	$B_4$	$B_5$	$B_6$	$B_7$
Discriminant value	4	1	16	8	8	2	12

Create a discriminant matrix of 7 criteria:

A	$B_1$	$B_2$	$B_3$	$B_4$	$B_5$	$B_6$	$B_7$
$B_1$	1	4	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	2	$\frac{1}{3}$
$B_2$	$\frac{1}{4}$	1	$\frac{1}{10}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{2}$	$\frac{1}{8}$
$B_3$	4	10	1	3	3	5	2
$B_4$	2	6	$\frac{1}{3}$	1	1	3	$\frac{1}{2}$
$B_5$	2	6	$\frac{1}{3}$	1	1	3	$\frac{1}{2}$
$B_6$	$\frac{1}{2}$	2	$\frac{1}{5}$	$\frac{1}{3}$	$\frac{1}{3}$	1	$\frac{1}{4}$
$B_7$	3	8	$\frac{1}{2}$	2	2	4	1

Based on the above matrix, the weights of the factors associated with a factor at the upper level can be calculated, i.e. the maximum eigenvalue in the matrix and the corresponding eigenvector can be calculated, and the eigenvectors can be normalized to obtain the respective weights. However, because of the complexity of the calculation method and the fact that only a rough estimate of the judgement matrix A can be obtained, it is not necessary to calculate the exact eigenvalues. In practice, the approximation of the eigenvalues can be calculated using the summation method or the root method. Here we use the summation method.

1. Normalize the matrix by columns:  $b_{ij} = \frac{a_{ij}}{\sum a_{ij}}$  (i=1,2,3, ..., n)
2. Summation by rows:  $v_i = \sum_{j=1}^n b_{ij}$  (i=1,2,3, ..., n)
3. Normalization  $\omega_i = \frac{v_i}{\sum v_i}$ ,  $\omega_i$  is the eigenvector for each criterion,

the following results are obtained:



$\omega_1$	$\omega_2$	$\omega_3$	$\omega_4$	$\omega_5$	$\omega_6$	$\omega_7$
0.0832	0.0255	0.3425	0.1372	0.1372	0.0511	0.2234

Subsequently, to test the consistency (compatibility) of the matrix, it is necessary to test consistency using the difference between  $\lambda_{max}$  and  $n$ .

Calculation of the definition consistency indicator.  $CI = \frac{\lambda_{max} - n}{n - 1}$  ,

$$\lambda_{max} = \frac{1}{n} \sum_i \frac{(AW)_i}{\omega_i}$$

Test the random consistency ratio of the judgment matrix  $CR = \frac{CI}{RI}$  ,

where RI is the average random consistency indicator. The random consistency indicator RI is calculated as follows.

Level	3	4	5	6	7	8	9	10	11	12
RI	0.52	0.89	1.12	1.26	1.36	1.41	1.46	1.49	1.52	1.54

Normally, as long as  $CR \leq 0.1$ , the consistency of the judgment matrix is considered acceptable, otherwise, a new two-comparison judgment is required. The results of the consistency test are calculated as follows. Normally, as long as  $CR \leq 0.1$ , the consistency of the judgment matrix is considered acceptable, otherwise, a new two-comparison judgment is required. The results of the consistency test are calculated as follows.

$$\lambda_{max} = \frac{1}{n} \sum_i \frac{(AW)_i}{\omega_i} = 7.006$$

$$CI = (7.006 - 7) / (7 - 1) = 0.001$$

$CR = 0.001 / 1.36 \leq 0.1$ , so the matrix passes the consistency test.

Finally, the scores of Spokesperson in the above indicators (B\_1~B\_7) were

aggregated by substituting the Spokesperson selected by Brand over the years, and the total score of Spokesperson over the years was calculated to assess whether the selection of Spokesperson was reasonable.

Based on the weighting and evaluation criteria of the above criteria, the Spokesperson in the FILASpokesperson matrix can be compared with each other and formed into seven judgement matrices.

外形风格	$C_1$	(Professional level)		$C_4$	$C_5$	$C_6$	$C_7$	$C_8$	$C_9$	$C_{10}$	$C_{11}$	$C_{12}$	$C_{13}$	$C_{14}$	$C_{15}$
$C_1$	1	1/4	1/4	1/2	1	1/2	1	1/2	4	1/2	2	4	1/2	1	1/4
$C_2$	4	1	1	2	4	2	4	2	9	2	8	9	2	4	1
$C_3$	4	1	1	2	4	2	4	2	9	2	8	9	2	4	1
$C_4$	2	1/2	1/2	1	2	1	2	1	8	1	4	8	1	2	1/2
$C_5$	1	1/4	1/4	1/2	1	1/2	1	1/2	4	1/2	2	4	1/2	1	1/4
$C_6$	2	1/2	1/2	1	2	1	2	1	8	1	4	8	1	2	1/2
$C_7$	1	1/4	1/4	1/2	1	1/2	1	1/2	4	1/2	2	4	1/2	1	1/4
$C_8$	2	1/2	1/2	1	2	1	2	1	8	1	4	8	1	2	1/2
$C_9$	1/4	1/9	1/9	1/8	1/4	1/8	1/4	1/8	1	1/8	1/2	1	1/8	1/4	1/9
$C_{10}$	2	1/2	1/2	1	2	1	2	1	8	1	4	8	1	2	1/2
$C_{11}$	1/2	1/8	1/8	1/4	1/2	1/4	1/2	1/4	2	1/4	1	2	1/4	1/2	1/8
$C_{12}$	1/4	1/9	1/9	1/8	1/4	1/8	1/4	1/8	1	1/8	1/2	1	1/8	1/4	1/9
$C_{13}$	2	1/2	1/2	1	2	1	2	1	8	1	4	8	1	2	1/2
$C_{14}$	1	1/4	1/4	1/2	1	1/2	1	1/2	4	1/2	2	4	1/2	1	1/4
$C_{15}$	4	1	1	2	4	2	4	2	9	2	8	9	2	4	1

年龄资历	$C_1$	(Age and seniority)		$C_4$	$C_5$	$C_6$	$C_7$	$C_8$	$C_9$	$C_{10}$	$C_{11}$	$C_{12}$	$C_{13}$	$C_{14}$	$C_{15}$
$C_1$	1	1	1	1/2	1/4	2	1/4	1/2	1/4	1/4	1/2	1/4	1/2	1/2	1/4
$C_2$	1	1	1	1/2	1/4	2	1/4	1/2	1/4	1/4	1/2	1/4	1/2	1/2	1/4
$C_3$	1	1	1	1/2	1/4	2	1/4	1/2	1/4	1/4	1/2	1/4	1/2	1/2	1/4
$C_4$	2	2	2	1	1/2	4	1/2	1	1/2	1/2	1	1/2	1	1	1/2
$C_5$	4	4	4	2	1	8	1	2	1	1	2	1	2	2	1
$C_6$	1/2	1/2	1/2	1/4	1/8	1	1/8	1/4	1/8	1/8	1/4	1/8	1/4	1/4	1/8
$C_7$	4	4	4	2	1	8	1	2	1	1	2	1	2	2	1
$C_8$	2	2	2	1	1/2	4	1/2	1	1/2	1/2	1	1/2	1	1	1/2
$C_9$	4	4	4	2	1	8	1	2	1	1	2	1	2	2	1
$C_{10}$	4	4	4	2	1	8	1	2	1	1	2	1	2	2	1
$C_{11}$	2	2	2	1	1/2	4	1/2	1	1/2	1/2	1	1/2	1	1	1/2
$C_{12}$	4	4	4	2	1	8	1	2	1	1	2	1	2	2	1
$C_{13}$	2	2	2	1	1/2	4	1/2	1	1/2	1/2	1	1/2	1	1	1/2
$C_{14}$	2	2	2	1	1/2	4	1/2	1	1/2	1/2	1	1/2	1	1	1/2
$C_{15}$	4	4	4	2	1	8	1	2	1	1	2	1	2	2	1

专业水平	$C_1$	$C_2$	$C_3$	$C_4$	$C_5$	$C_6$	$C_7$	$C_8$	$C_9$	$C_{10}$	$C_{11}$	$C_{12}$	$C_{13}$	$C_{14}$	$C_{15}$
$C_1$	1	4	1	4	8	8	2	8	1/4	1/2	1/4	2	1	2	1/2
$C_2$	1/4	1	1/4	1	2	2	2	2	1/6	1/5	1/6	1/2	1/4	1/2	1/5
$C_3$	1	4	1	4	8	8	2	8	1/4	1/2	1/4	2	1	2	1/2
$C_4$	1/4	1	1/4	1	2	2	1/2	2	1/6	1/5	1/6	1/2	1/4	1/2	1/5
$C_5$	1/8	1/2	1/8	1/2	1	1	1/4	1	1/10	1/9	1/10	1/4	1/8	1/4	1/9
$C_6$	1/8	1/2	1/8	1/2	1	1	1/4	1	1/10	1/9	1/10	1/4	1/8	1/4	1/9
$C_7$	1/2	2	1/2	2	4	4	1	4	1/8	1/4	1/8	1	1/2	1	1/4
$C_8$	1/8	1/2	1/8	1/2	1	1	1/4	1	1/10	1/9	1/10	1/4	1/8	1/4	1/9
$C_9$	4	6	4	6	10	10	8	10	1	2	1	8	4	8	2
$C_{10}$	2	5	2	5	9	9	4	9	1/2	1	1/2	4	2	4	1
$C_{11}$	4	6	4	6	10	10	8	10	1	2	1	8	4	8	2
$C_{12}$	1/2	2	1/2	2	4	4	1	4	1/8	1/4	1/8	1	1/2	1	1/4
$C_{13}$	1	4	1	4	8	8	2	8	1/4	1/2	1/4	2	1	2	1/2
$C_{14}$	1/2	2	1/2	2	4	4	1	4	1/8	1/4	1/8	1	1/2	1	1/4
$C_{15}$	2	5	2	5	9	9	4	9	1/2	1	1/2	4	2	4	1

知名度	$C_1$	$C_3$ Popularity		$C_4$	$C_5$	$C_6$	$C_7$	$C_8$	$C_9$	$C_{10}$	$C_{11}$	$C_{12}$	$C_{13}$	$C_{14}$	$C_{15}$
$C_1$	1	1/2	1/4	1/4	1/2	1	1/2	1	1	2	1	8	4	8	1/4
$C_2$	2	1	1/2	1/2	1	2	1	2	2	4	2	9	8	9	1/2
$C_3$	4	2	1	1	2	4	2	4	4	8	4	10	9	10	1
$C_4$	4	2	1	1	2	4	2	4	4	8	4	10	9	10	1
$C_5$	2	1	1/2	1/2	1	2	1	2	2	4	2	9	8	9	1/2
$C_6$	1	1/2	1/4	1/4	1/2	1	1/2	1	1	2	1	8	4	8	1/4
$C_7$	2	1	1/2	1/2	1	2	1	2	2	4	2	9	8	9	1/2
$C_8$	1	1/2	1/4	1/4	1/2	1	1/2	1	1	2	1	8	4	8	1/4
$C_9$	1	1/2	1/4	1/4	1/2	1	1/2	1	1	2	1	8	4	8	1/4
$C_{10}$	1/2	1/4	1/8	1/8	1/4	1/2	1/4	1/2	1/2	1	1/2	4	2	4	1/8
$C_{11}$	1	1/2	1/4	1/4	1/2	1	1/2	1	1	2	1	8	4	8	1/4
$C_{12}$	1/8	1/9	1/10	1/10	1/9	1/8	1/9	1/8	1/4	1/8	1/8	1	1/2	1	1/10
$C_{13}$	1/4	1/8	1/9	1/9	1/8	1/4	1/8	1/4	1/4	1/2	1/4	2	1	2	1/9
$C_{14}$	1/8	1/9	1/10	1/10	1/9	1/8	1/9	1/8	1/8	1/4	1/8	1	1/2	1	1/10
$C_{15}$	4	2	1	1	2	4	2	4	4	8	4	10	9	10	1

美誉度	$C_1$	$C_3$ Reputation		$C_4$	$C_5$	$C_6$	$C_7$	$C_8$	$C_9$	$C_{10}$	$C_{11}$	$C_{12}$	$C_{13}$	$C_{14}$	$C_{15}$
$C_1$	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
$C_2$	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
$C_3$	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
$C_4$	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
$C_5$	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
$C_6$	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
$C_7$	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
$C_8$	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
$C_9$	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
$C_{10}$	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
$C_{11}$	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
$C_{12}$	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
$C_{13}$	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
$C_{14}$	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
$C_{15}$	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

专一性	$C_1$	$C_3$ Specificity		$C_4$	$C_5$	$C_6$	$C_7$	$C_8$	$C_9$	$C_{10}$	$C_{11}$	$C_{12}$	$C_{13}$	$C_{14}$	$C_{15}$
$C_1$	1	1	1/2	1/2	1	2	1	2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
$C_2$	1	1	1/2	1/2	1	2	1	2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
$C_3$	2	2	1	1	2	4	2	4	1	1	1	1	1	1	1
$C_4$	2	2	1	1	2	4	2	4	1	1	1	1	1	1	1
$C_5$	1	1	1/2	1/2	1	2	1	2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
$C_6$	1/2	1/2	1/4	1/4	1/2	1	1/2	1	1/4	1/4	1/4	1/4	1/4	1/4	1/4
$C_7$	1	1	1/2	1/2	1	2	1	2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
$C_8$	1/2	1/2	1/4	1/4	1/2	1	1/2	1	1/4	1/4	1/4	1/4	1/4	1/4	1/4
$C_9$	2	2	1	1	2	4	2	4	1	1	1	1	1	1	1
$C_{10}$	2	2	1	1	2	4	2	4	1	1	1	1	1	1	1
$C_{11}$	2	2	1	1	2	4	2	4	1	1	1	1	1	1	1
$C_{12}$	2	2	1	1	2	4	2	4	1	1	1	1	1	1	1
$C_{13}$	2	2	1	1	2	4	2	4	1	1	1	1	1	1	1
$C_{14}$	2	2	1	1	2	4	2	4	1	1	1	1	1	1	1
$C_{15}$	2	2	1	1	2	4	2	4	1	1	1	1	1	1	1

价格匹配度	$C_1$	Price matching		$C_4$	$C_5$	$C_6$	$C_7$	$C_8$	$C_9$	$C_{10}$	$C_{11}$	$C_{12}$	$C_{13}$	$C_{14}$	$C_{15}$
$C_1$	1	2	1	1	8	8	2	8	4	8	4	9	8	9	1/2
$C_2$	1/2	1	1/2	1/2	4	4	1	4	2	4	2	8	4	8	1/4
$C_3$	1	2	1	1	8	8	2	8	4	8	4	9	8	9	1/2
$C_4$	1	2	1	1	8	8	2	8	4	8	4	9	8	9	1/2
$C_5$	1/8	1/4	1/8	1/8	1	1	1/4	1	1/2	1	1/2	2	1	2	1/9
$C_6$	1/8	1/4	1/8	1/8	1	1	1/4	1	1/2	1	1/2	2	1	2	1/9
$C_7$	1/2	1	1/2	1/2	4	4	1	4	2	4	2	8	4	8	1/4
$C_8$	1/8	1/4	1/8	1/8	1	1	1/4	1	1/2	1	1/2	2	1	2	1/9
$C_9$	1/4	1/2	1/4	1/4	2	2	1/2	2	1	2	1	4	2	4	1/8
$C_{10}$	1/8	1/4	1/8	1/8	1	1	1/4	1	1/2	1	1/2	2	1	2	1/9
$C_{11}$	1/4	1/2	1/4	1/4	2	2	1/2	2	1	2	1	4	2	4	1/8
$C_{12}$	1/9	1/8	1/9	1/9	1/2	1/2	1/8	1/2	1/4	1/2	1/4	1	1/2	1	1/10
$C_{13}$	1/8	1/4	1/8	1/8	1	1	1/4	1	1/2	1	1/2	2	1	2	1/9
$C_{14}$	1/9	1/8	1/9	1/9	1/2	1/2	1/8	1/2	1/4	1/2	1/4	1	1/2	1	1/10
$C_{15}$	2	4	2	2	9	9	4	9	8	9	8	10	9	10	1

The weight of each endorser under each criterion is derived from the judgment matrix, and the final ranking of endorsers is calculated by

combining the weight of each criterion:  $C_i \text{ weight} = \sum \omega_i * \text{weight of}$

that endorser under criterion i. The results are calculated as follows:

	$C_1$	$C_2$	$C_3$	$C_4$	$C_5$	$C_6$	$C_7$	$C_8$	$C_9$	$C_{10}$	$C_{11}$	$C_{12}$	$C_{13}$	$C_{14}$	$C_{15}$
外形风格	0.0381	0.1418	0.1418	0.0762	0.0381	0.0762	0.0381	0.0762	0.0110	0.0762	0.0191	0.0110	0.0762	0.0381	0.1418
年龄资历	0.0267	0.0267	0.0267	0.0533	0.1067	0.0133	0.1067	0.0533	0.1067	0.1067	0.0533	0.1067	0.0533	0.0533	0.1067
专业水平	0.0695	0.0214	0.0695	0.0214	0.0113	0.0113	0.0347	0.0113	0.1929	0.1124	0.1929	0.0347	0.0695	0.0347	0.1124
知名度	0.0467	0.0846	0.1528	0.1528	0.0846	0.0467	0.0846	0.0467	0.0467	0.0234	0.0467	0.0089	0.0133	0.0089	0.1528
美誉度	0.0667	0.0667	0.0667	0.0667	0.0667	0.0667	0.0667	0.0667	0.0667	0.0667	0.0667	0.0667	0.0667	0.0667	0.0667
专一性	0.0435	0.0435	0.0870	0.0870	0.0435	0.0217	0.0435	0.0217	0.0870	0.0870	0.0870	0.0870	0.0870	0.0870	0.0870
价格匹配度	0.1411	0.0769	0.1411	0.1411	0.0200	0.0200	0.0769	0.0200	0.0385	0.0200	0.0385	0.0121	0.0200	0.0121	0.2217
权重	0.0769	0.0600	0.1023	0.0811	0.0372	0.0317	0.0579	0.0327	0.0983	0.0688	0.0976	0.0330	0.0514	0.0339	0.1371

Once the weights for each endorser were determined, the scores for each year's endorser matrix were calculated and the results were as follows.

	2016	2017	2018	2019
FILA Core	0.061384	0.057804	0.07533	0.077723
Brand				
FILA Tennis	0.065658	0.083566	0.083566	0.097941

#### iv. fsQCA model

##### a) Standard of scoring

- Consumer perceptual value input: Brands that use the CVBBM model to visualise consumer values and provide a clear choice of Brand direction are scored as 1; Brands with unclear value points and target demographics, or those with obvious controversy, are scored as 0.
- Spokesperson matrix optimisation: quantitative scoring of each brand spokesperson matrix using hierarchical analysis, with a score based on the AHP score, where the annual AHP score is  $>0.07$  then 1,  $<0.04$  then 0,  $+0.2$  for every 0.01 higher.
- Optimisation of merchandise management: according to the brand

value positioning, 1 is assigned to those who have made adjustments and optimisations in product categories, the ratio of footwear to clothing and design styles, 0.8 for two changes, 0.4 for one change, and 0.6 for one change, if the design style or product ratio is only adjusted in some categories/series product lines.

- Channel management optimisation: 1 for those who choose to make corresponding adjustments to channel types, ratios, assessment mechanisms, management teams and incentive mechanisms in accordance with the Brand direction, 0.2 for each change that does not change to 0.
- Business model and operation level: qualitative scores are assigned according to the Brand's business model and operational efficiency, the higher the operational efficiency, the higher the score, generally speaking, 1 for the direct mode and 0 for the wholesale mode.
- Industry growth rate: the growth rate of the market in the Brand's industry segment compared to the previous year, with a score of 1 if the growth rate is higher than 20% and 0 if the growth rate is lower than 0, +0.2 for every 5% higher;
- Market competition: calculate the total market share of all competing Brands ranked higher than the established Brand, or if the case Brand is too small, calculate the combined market share of the top 10 Brands in the segment, with a score of 0 if the total competitor share is >50%,

+0.2 for every 10% decrease, or 1 if the total competitor share is <10%.

- Brand performance: the rating is based on the growth rate of the Brand's revenue in the current year compared to the previous year, considering that all brands under Anta Group are mostly in the stage of high growth, the growth rate is 1 if it is higher than 80%, 0.8 if it is 60%~80%, 0.6 if it is 50%~60%, 0.4 if it is 40%~50%, 0.2 if it is 20%~40%, and 0.2 if it is lower than 20%. 0.2 and below 20% is 0.

b) Data introduction

Based on the raw data and scoring rules described above, the following assignment table was obtained, reflecting the affiliation of all cases to the different concepts/variables, and imported into the fsQCA software for subsequent calculations:

	Variab le A	Variab le B	Variab le C	Variab le D	Variab le E	Variab le F	Variab le G	Resulti ng Variabl e R
FILA- 2016	0	0.8	0	0	0.6	0.6	0.6	0.2
FILA- 2017	1	0.8	1	0	0.8	0.4	0.6	1

FILA- 2018	1	1	1	0	1	0.4	0.6	1
FILA- 2019	1	1	0.8	0	0.8	0.4	0.6	1
FILA Tenni s- 2016	0	0.8	0	0	0.4	0.8	0.6	1
FILA Tenni s- 2017	1	1	0.8	0	0.4	0.8	0.6	1
FILA Tenni s- 2018	1	1	0.4	0	0.4	0.8	0.6	1
FILA Tenni s- 2019	1	1	0.4	0	0.4	0.8	0.6	1

Fila Kids- 2016	0	0.2	0	0	0.6	0.8	0.4	0.8
Fila Kids- 2017	1	0.2	0.4	0	0.8	0.8	0.4	1
Fila Kids- 2018	1	0.2	0.4	0	1	0.8	0.4	1
Fila Kids- 2019	1	0.2	0.4	0	0.8	0.8	0.4	0.8
Brand 1- 2016	0	0.6	0	0	0.4	0.4	0.2	0.2
Brand 1- 2017	0	0.6	0	0	0.4	0.4	0.2	0.2
Brand 1- 2018	0	0.6	0	0	0.4	0.4	0.2	0.4



Brand 1- 2019	0	0.6	0	0	0.4	0.4	0.2	0.4
Brand 2- 2016	0	0.2	0	0.4	0.6	0.4	0.2	0
Brand 2- 2017	0	0.2	0	0	0.6	0.4	0.2	0
Brand 2- 2018	0	0.2	0	0	0.6	0.4	0.2	0.4
Brand 2- 2019	0	0.2	0	0	0.6	0.2	0.2	0.2
Brand 3- 2016	0	0.2	0	0	0.6	0.2	0.2	0
Brand 3- 2017	0	0.4	0	0	0.8	0.2	0.2	0

Brand 3- 2018	0	0.4	0	0	0.8	0.2	0.2	0
Brand 3- 2019	0	0.2	0	0	0.8	0.2	0.2	0
Brand 4- 2016	0	0.2	0	0.8	0.6	1	0.2	0.2
Brand 4- 2017	0	0.2	0.4	0.8	0.6	1	0.2	0.2
Brand 4- 2018	0	0.2	0.4	0.8	0.8	1	0.2	0.2
Brand 4- 2019	0	0.2	0	0.8	0.6	1	0.2	0.2
Brand 5- 2016	0	0.2	0	0.4	0.2	0	0.6	0.6

Brand 5- 2017	0	0.2	0.4	0	0.4	0	0.6	1
Brand 5- 2018	0	0.6	0.4	0.4	0.2	0	0.6	1
Brand 5- 2019	0	0.4	0.4	0.4	0.2	0	0.6	0.8
Brand 6- 2016	0	0.2	0.4	0	0.6	0	0.6	0.8
Brand 6- 2017	0	0.2	0.4	0	0.6	0	0.6	1
Brand 6- 2018	0	0.2	0.4	0	0.6	0	0.6	0.8
Brand 6- 2019	0	0.2	0.4	0.4	0.6	0	0.6	1

c) Subset/ Superset analysis

SUBSET/SUPERSET ANALYSIS

\*\*\*\*\*

Outcome: R

	raw		
	consistency	coverage	combined
	-----	-----	-----
A*B*C*D*E*F*G	nan	0.000000	0.000000
A*B*C*E*F*G	1.000000	0.147059	0.381560
A*B*C*D*F*G	nan	0.000000	0.000000
A*B*D*E*F*G	nan	0.000000	0.000000
B*C*D*E*F*G	1.000000	0.019608	0.139326
A*C*D*E*F*G	nan	0.000000	0.000000
A*B*C*D*E*F	nan	0.000000	0.000000
A*B*C*D*E*G	nan	0.000000	0.000000
A*B*C*D*F	nan	0.000000	0.000000
B*C*D*F*G	1.000000	0.019608	0.139326
A*B*E*F*G	1.000000	0.147059	0.381560
B*D*E*F*G	0.800000	0.039216	0.177123
A*B*C*D*E	nan	0.000000	0.000000
A*B*C*F*G	1.000000	0.156863	0.394074
A*B*C*D*G	nan	0.000000	0.000000

$C*D*E*F*G$	1.000000	0.019608	0.139326
$A*B*C*E*F$	1.000000	0.147059	0.381560
$A*B*C*E*G$	1.000000	0.176471	0.417978
$A*D*E*F*G$	nan	0.000000	0.000000
$B*C*D*E*G$	1.000000	0.049020	0.220294
$B*C*D*E*F$	1.000000	0.019608	0.139326
$A*C*D*E*F$	nan	0.000000	0.000000
$A*B*D*E*F$	nan	0.000000	0.000000
$A*B*D*E*G$	nan	0.000000	0.000000
$A*C*D*E*G$	nan	0.000000	0.000000
$A*B*D*F*G$	nan	0.000000	0.000000
$A*C*D*F*G$	nan	0.000000	0.000000
$A*C*E*F*G$	1.000000	0.176471	0.417978
$B*C*E*F*G$	1.000000	0.166667	0.406202
$A*E*F*G$	1.000000	0.176471	0.417978
$A*B*C*D$	nan	0.000000	0.000000
$A*B*C*E$	1.000000	0.215686	0.462092
$A*B*C*F$	1.000000	0.166667	0.406202
$A*B*C*G$	1.000000	0.186275	0.429432
$A*B*D*E$	nan	0.000000	0.000000
$A*B*D*F$	nan	0.000000	0.000000
$A*B*D*G$	nan	0.000000	0.000000

A*D*E*F	nan	0.000000	0.000000
A*B*E*F	1.000000	0.147059	0.381560
A*B*E*G	1.000000	0.176471	0.417978
B*C*D*F	1.000000	0.019608	0.139326
A*C*D*G	nan	0.000000	0.000000
B*C*D*E	1.000000	0.049020	0.220294
A*C*E*F	1.000000	0.176471	0.417978
A*B*F*G	1.000000	0.176471	0.417978
A*C*E*G	1.000000	0.205882	0.451468
A*D*F*G	nan	0.000000	0.000000
A*C*F*G	1.000000	0.186275	0.429432
B*C*D*G	1.000000	0.068627	0.260655
B*C*E*F	1.000000	0.166667	0.406202
A*C*D*E	nan	0.000000	0.000000
B*C*E*G	1.000000	0.264706	0.511917
B*C*F*G	1.000000	0.176471	0.417978
B*D*E*F	0.800000	0.039216	0.177123
A*C*D*F	nan	0.000000	0.000000
B*D*E*G	0.888889	0.078431	0.272965
B*D*F*G	0.800000	0.039216	0.177123
B*E*F*G	0.783784	0.284314	0.461774
C*D*E*F	0.500000	0.019608	0.031311

A*D*E*G	nan	0.000000	0.000000
C*D*E*G	1.000000	0.058824	0.241320
C*D*F*G	1.000000	0.019608	0.139326
C*E*F*G	1.000000	0.196078	0.440588
D*E*F*G	0.800000	0.039216	0.177123
B*C*D	1.000000	0.068627	0.260655
A*B*C	1.000000	0.235294	0.482640
B*C*E	1.000000	0.303922	0.548527
A*B*F	1.000000	0.205882	0.451468
A*B*D	nan	0.000000	0.000000
A*B*E	1.000000	0.215686	0.462092
A*B*G	1.000000	0.205882	0.451468
B*C*G	1.000000	0.294118	0.539608
B*D*E	0.888889	0.078431	0.272965
A*C*D	nan	0.000000	0.000000
A*C*E	1.000000	0.245098	0.492592
A*C*F	1.000000	0.196078	0.440588
B*D*F	0.800000	0.039216	0.177123
A*C*G	1.000000	0.215686	0.462093
B*D*G	0.909091	0.098039	0.306786
B*E*F	0.756098	0.303922	0.451251
A*D*E	nan	0.000000	0.000000

B*E*G	0.833333	0.392157	0.584103
B*F*G	0.804878	0.323529	0.511917
C*D*E	0.750000	0.058824	0.197037
A*D*F	nan	0.000000	0.000000
A*D*G	nan	0.000000	0.000000
A*E*F	1.000000	0.235294	0.482640
C*D*F	0.500000	0.019608	0.031311
A*E*G	1.000000	0.205882	0.451468
C*D*G	1.000000	0.078431	0.278652
C*E*F	0.909091	0.196078	0.433861
A*F*G	1.000000	0.205882	0.451468
C*E*G	1.000000	0.343137	0.582843
C*F*G	1.000000	0.205882	0.451468
D*E*F	0.266667	0.039216	0.019803
B*C*F	1.000000	0.186275	0.429432
D*E*G	0.900000	0.088235	0.291043
D*F*G	0.800000	0.039216	0.177123
E*F*G	0.804878	0.323529	0.511917
A*F	1.000000	0.294118	0.539608
A*E	1.000000	0.313726	0.557305
A*D	nan	0.000000	0.000000
A*G	1.000000	0.235294	0.482640



B*E	0.793103	0.450980	0.593098
C*E	0.951219	0.382353	0.612132
A*C	1.000000	0.274510	0.521311
B*D	0.909091	0.098039	0.306786
C*F	0.916667	0.215686	0.457401
B*F	0.795918	0.382353	0.549599
D*E	0.450000	0.088235	0.051450
A*B	1.000000	0.313726	0.557304
B*G	0.854545	0.460784	0.643977
C*G	1.000000	0.372549	0.607309
D*F	0.222222	0.039216	0.019803
C*D	0.800000	0.078431	0.250490
D*G	0.923077	0.117647	0.337813
E*F	0.671875	0.421569	0.394944
B*C	1.000000	0.343137	0.582843
E*G	0.868853	0.519608	0.691404
F*G	0.822222	0.362745	0.555278
B	0.782051	0.598039	0.669723
A	0.977778	0.431373	0.653497
C	0.956522	0.431373	0.653497
D	0.461538	0.117647	0.059409
E	0.647619	0.666667	0.432049

F	0.650000	0.509804	0.384504
G	0.888889	0.627451	0.772061

d) Results of truth table operations: three solutions to output the original table

- Complex Solution:

```

--- COMPLEX SOLUTION ---
frequency cutoff: 1
consistency cutoff: 1
      raw    unique
      coverage coverage consistency
-----
A*B*~D*~E*F*G      0.127451  0.0588235  1
A*~B*~C*~D*E*F*~G  0.0882353  0.0588235  1
A*B*C*~D*E*~F*G    0.147059  0.0686275  1
solution coverage: 0.264706
solution consistency: 1

```

- Parsimonious Solution:

```

--- PARSIMONIOUS SOLUTION ---
frequency cutoff: 1
consistency cutoff: 1
      raw    unique
      coverage coverage consistency
-----
A  0.431373  0.431373  0.977778
solution coverage: 0.431373
solution consistency: 0.977778

```

- Intermediate Solution:

```

--- INTERMEDIATE SOLUTION ---
frequency cutoff: 1
consistency cutoff: 1
Assumptions:
      raw    unique
      coverage coverage consistency
-----
A*B*~D*~E*F*G      0.127451  0.0588235  1
A*~B*~C*~D*E*F*~G  0.0882353  0.0588235  1
A*B*C*~D*E*~F*G    0.147059  0.0686275  1
solution coverage: 0.264706
solution consistency: 1

```

