

# Factors Influencing Consumers' Choice of Telecommunication Service Providers in Chengdu, China

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Received: August 4, 2023. Revised: February 16, 2024. Accepted: February 29, 2024

## Abstract

This independent study aims to identify factors that influence customers' choice of telecommunication service provider in Chengdu, China, and examine the relationship between these factors and customer choice. The study also aims to demonstrate the relationships between these factors and customer choice in the telecommunications industry. Four significant independent variables, including marketing mix 7Ps, brand equity, consumer behavior, and their effect on the dependent variable of customer choice, are discussed in this paper. The study collected 400 research questionnaires from customers at China Telecom, China Unicom, and China Mobile service centers in Chengdu using judgment and convenience non-probability sampling. Finally, the study concludes with its findings.

China Mobile dominates both male and female segments, and most age groups, except baby boomers, are dominated by China Telecom.

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However, China Telecom has a relatively strong market share in the married segment. Customers prefer China Mobile with a master's degree, while customers with bachelor's degrees are evenly split between China Mobile and China Telecom. China Mobile dominates most occupation segments, except for students, whom China Telecom dominates. Middle-income customers prefer China Telecom, while high-income customers prefer China Unicom. China Telecom dominates almost every hobby, while China Unicom dominates online shopping and collection. All three operators' customers play mobile games and go online for several hours using their mobile phones daily.

A series of hypothesis tests were conducted to determine if product, price, place, promotion, people, process, physical evidence, brand awareness, brand personal, brand identity, brand recognition, brand preference, brand loyalty, brand experience, and consumer behavior significantly influence consumer choice. The results showed that, except for brand awareness, personality, identity, preference, loyalty, experience, and behavior, all other factors did not significantly influence consumer choice in Chengdu, China.

**Keywords:** Choice decision, Telecommunication service, marketing mix

## Introduction

Industry 4.0 is a digitization and integration process that spans the entire organization, from product development to service. The technology enables real-time access to data, process efficiency, quality management, and operations planning, augmented by AR and optimized through an

integrated network. Leading companies in the industry are expanding their offerings with disruptive digital solutions, such as complete, data-driven services and integrated platform solutions, to generate additional digital revenues and optimize customer interaction and access. The technological landscape of Industry 4.0 includes mobile devices, IoT, location detection, human-machine interfaces, 3D printing, smart sensors, big data analytics, multilevel customer interaction, and customer profiling. The industry will continue to grow due to the popularity of digital marketing and technological advancements such as AR, VR, and cloud computing.

According to PwC IAB Internet's 2016 annual report, digital video has been viral, especially digital video on mobile, and the video consumption trend is \$1.6 billion. This is a 178 percent increase from 2015.

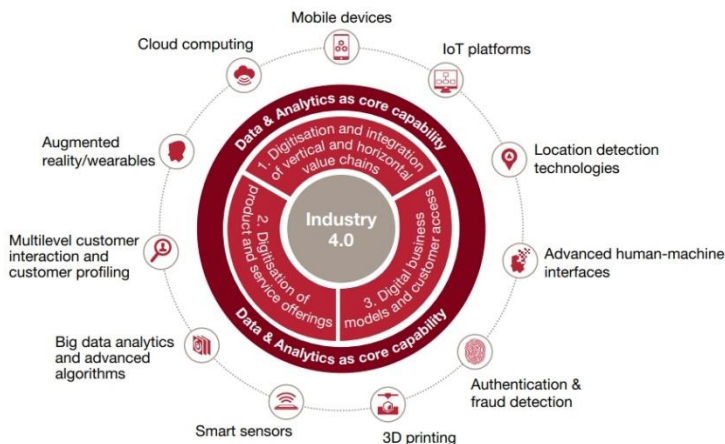


Figure 1 Industry 4.0 framework and contributing digital technologies

## Refer to PwC IAB. (2022). Internet Advertising Revenue Report Industry 4.0: Building the Digital Enterprise

Telecommunication plays a significant role in our daily lives, especially mobile phones, which have various functions beyond just making calls. Due to low purchase prices and device availability, mobile phone numbers have increased globally, especially in developed countries. The expansion of the telecommunication industry has led to a worldwide revolution in communication and innovation, creating endless jobs and other opportunities for people. Wireless communication technology, especially cellular networks, has spread rapidly over the past few decades in China, making it the dominant form of telecommunication. The mobile market has undergone significant changes in recent years, with substantial increases in mobile data usage and a shift from 4G to 5G networks.

The telecommunications industry in China is dominated by three state-run businesses: China Telecom, China Unicom, and China Mobile. The three companies were formed by restructuring launched in May 2008, directed by the Ministry of Information Industry ( MII ) , National Development and Reform Commission ( NDRC ) , and the Minister of Finance. Since then, all three companies have gained nationwide fixed-line and cellular mobile telecom licenses in China. In 2019, all three telecoms were issued 5G national licenses.

Following China's entry into the World Trade Organization in 2001, a new regulatory regime allowed foreign firms to access the market under restrictions. Huawei Technologies became the world's largest telecom equipment vendor in 2012. As of 2021, there are over 989 million internet users and around 1.62 billion mobile phone subscriptions in China, with the telecom sector's monthly revenue of over 100 billion yuan (\$15.52 billion). China is the only country known to work towards a single-stack IPv6 network, with plans to lead globally in IPv6 adoption by 2025 and achieve full nationwide rollout by 2030.

China's 5G Infrastructure market was pegged at US\$ 10561.3 million in 2021. The market is expected to increase during the forecast period, mainly due to the presence of leading 5G equipment manufacturers such as ZTE and Huawei. The growing investments by Chinese telecom companies to upgrade their networks and deploy 5G RAN across major cities, including Shanghai, Chengdu, Shenzhen, and Guangzhou, are expected to boost the market positively. These cities have also formulated roadmaps and local strategies to promote developing and deploying 5G technologies. China has also constructed over 180 million 5G terminal connections and around 700,000 5G base stations. China Telecom, China Unicom, and China Mobile have announced pilot DSS solutions across a few provinces, cooperating with suppliers such as Huawei, ZTE, and Ericsson.

The communication system plays a vital role in our daily lives and is continuously evolving to cater to the growing number of consumers.

Mobile phones have become increasingly popular due to their ability to facilitate communication easily and their multi-functionality, such as watching movies, listening to music, playing games, and internet surfing. The increasing mobile phone usage is particularly prominent among vocational students and working age groups. The availability of mobile phone signals in almost every area of the country has facilitated their widespread use. Consequently, mobile phone service providers face tough competition, which affects consumers' behavior when choosing service providers. The researcher seeks to understand the needs of consumers to aid the development of various mobile phone service companies and their marketing strategies to penetrate different markets. The study aims to identify the factors influencing the choice of telecommunication service providers in Chengdu, China. It will help improve and develop the network, adjust promotions, and align them with the needs of the target groups, particularly the vocational students and working age groups.

This study would determine how these factors relate to customers' choice of mobile service firms. This study explores the influence of marketing mix 7Ps, brand equity, consumer behavior, and consumer choice decisions. The study focuses on factors that affect consumers' choice of telecommunication service providers in Chengdu, China. The dependent variable is consumer choice of the telecommunication service provider in Chengdu, China, and the three significant independent variables include marketing mix 7Ps, brand equity, and consumer behavior.

## Research Objectives

1. To study the relationship between marketing mix 7Ps and consumer choice of the telecommunication service provider in Chengdu, China
2. To study the relationship between brand equity and consumer choice of the telecommunication service provider in Chengdu, China
3. To study the relationship between consumer behavior and consumer choice of the telecommunication service provider in Chengdu, China

## Research Methods

This research is a quantitative research study that uses a questionnaire as a tool to collect data. According to Given, Lisa M. (2008). quantitative research systematically investigates observable phenomena via statistical, mathematical, or computational natural and social sciences techniques.

It aims to investigate the relationship between marketing mix 7Ps, brand equity, consumer behavior, and consumer choice of telecommunication service providers in Chengdu, China. The study involves surveying 400 customers with experience with China Telecom, China Unicom, and China Mobile in Chengdu, China. All participants are voluntary and agree to use their data for the study.

The population for this study is customers who have experience using China Telecom, China Unicom, and China Mobile telecommunication services in China, and a sample of 400 was selected using a non-probability convenient sampling method. The study was conducted in Chengdu, which has a population of 9,478,521 (World Population Review, 2022). The sample size 400 was determined based on Yamane's (1973) formula, with a confidence level of 95% and a margin of error of  $\pm 5$ .

The research instrument for this study is a questionnaire consisting of two parts. Part one gathers general information and demographic data, while part two measures variables using a 5-point Likert scale. The scale ranges from 1 (strongly disagree) to 5 (strongly agree).

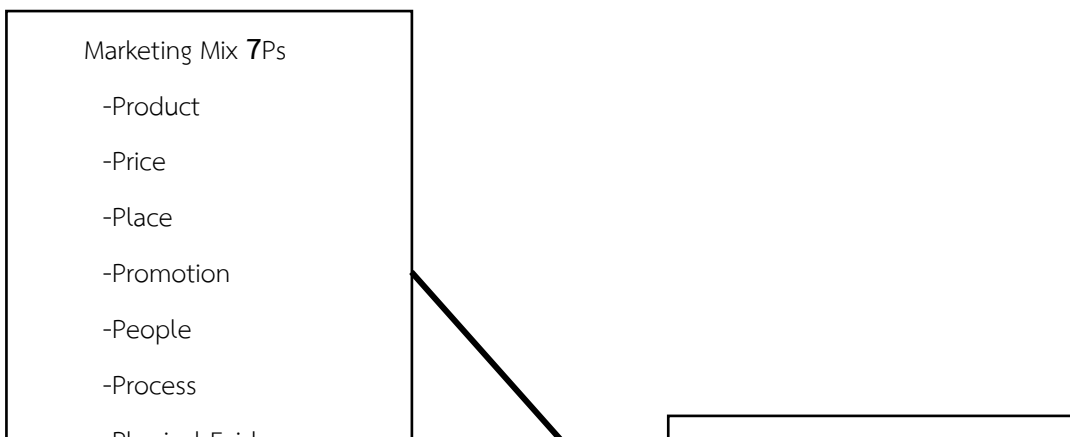
The questionnaire examines two critical aspects, content validity and reliability, to ensure that the respondents have a shared understanding of the questionnaire. After that, they can answer based on facts, feelings, and experience as statistical reliability of the questionnaire.

**Content Validity:** Every question on questionnaires is from a conceptual framework. To ensure content validity, the researcher submitted this questionnaire to an independent study advisor and five qualified experts with experience in related fields. Researchers use the Index of Item Objective Congruence (IOC) method to determine the consistency between questions and objectives. The method calculates the consistency by dividing the total assessment points given by qualified experts by the number of experts. The assessment points are given based

on a scale of +1, 0, or -1 for each question's consistency with the questionnaire objective. Questions with a consistency index value of more than 0.5 are chosen and adapted to ensure consistency.

Reliability Assessment: Reliability analysis determines the amount of random error in test scores that can be attributed to the measurement process. Highly reliable scores are considered to be accurate. Reliability coefficients specify the amount of error in the scores and range between 0.00 (indicating a high amount of error) and 1.00 (indicating no error). According to Olorunniwo et al. (2006), the acceptable alpha value should be about 0.70. The overall Cronbach's alpha coefficient value from this questionnaire is all higher than the value of 0.70; therefore, the quality and accuracy of the questionnaire are high in reliability level, and the desirability level is excellent (Cronbach, 1951; Olorunniwo et al., 2006). Reliability Summary of Cronbach's Alpha: Product (0.802), Price (0.830), Place (0.798), Promotion (0.829), People (0.848), Process (0.789), Physical Evidence (0.850), Brand Awareness (0.845), Brand Personal (0.726), Brand Identity (0.718), Brand Preference (0.773), Brand Loyalty (0.749), Brand Experience (0.751) and Consumer Behavior (0.743)

## Conceptual Framework



## Research Results

For demographic testing: For gender, China Mobile is dominant in both males and females. For age, China Mobile became dominant in almost every generation; however, China Telecom became the dominant among the baby boomer generation. Moreover, China Mobile's share in the married segment is relatively weak compared to China Telecom, so China Mobile might want to be more aggressive in acquiring more married customers to gain market share instead of trying to compete more for single customers whom China Mobile already dominates. China Mobile

got more attention from customers from all education levels, and customers with master's degrees prefer to use China Mobile. However, customers with bachelor's degrees mostly use China Mobile and China Telecom. For occupations, China Mobile was dominant in almost every occupation; however, China Telecom was dominant in student occupations. Middle-income customers prefer China Telecom, and high-income customers are more likely to use China Unicom. China Mobile draws customers from equally different income levels. China Telecom is dominant in almost every hobby; however, China Mobile draws customers' attention equally in other hobbies, and China Unicom has become dominant in online shopping and collection. China Mobile's Customers Spend Their Holidays Going To The Beach China Telecom's customers spend their holidays in the mountains. China Unicom's customers spend the same amount of time on holiday activities. Part of traveling abroad Most of the customers of the three telecommunication service providers have never been abroad. All telecommunication service providers are used mainly by customers at any number of hours that customers are online per day, and there is a minimum number of customers to choose to use at all levels of hours that customers are online per day. Customers of all three telecom operators use their mobile phones to play mobile games.

For Hypothesis testing:

(Accept) H1o: The product does not significantly influence the consumer choice of the telecommunication service provider in Chengdu, China.

(Reject) H1a: The product does not significantly influence the consumer choice of the telecommunication service provider in Chengdu, China.

(Reject) H2o: Price does not significantly influence the consumer choice of the telecommunication service provider in Chengdu, China.

(Accept) H2a: Price does not significantly influence the consumer choice of the telecommunication service provider in Chengdu, China.

(Reject) H3o: Place does not significantly influence the consumer choice of the telecommunication service provider in Chengdu, China.

(Accept) H3a: Place does not significantly influence the consumer choice of the telecommunication service provider in Chengdu, China.

(Reject) H4o: Promotion does not significantly influence the consumer choice of the telecommunication service provider in Chengdu, China.

(Accept) H4a: Promotion does not significantly influence the consumer choice of the telecommunication service provider in Chengdu, China.

(Reject) H5o: People do not significantly influence consumer choice of telecommunication service providers in Chengdu, China.

(Accept) H5a: People do not significantly influence consumer choice of the telecommunication service provider in Chengdu, China.

(Reject) H6o: Process does not significantly influence the consumer choice of the telecommunication service provider in Chengdu, China.

(Accept) H6a: Process does not significantly influence the consumer choice of the telecommunication service provider in Chengdu, China.

(Reject) H7o: Physical evidence does not significantly influence consumers' choice of telecommunication service providers in Chengdu, China.

(Accept) H7a: Physical evidence does not significantly influence the consumer choice of telecommunication service providers in Chengdu, China.

(Accept) H8o: Brand Awareness does not significantly influence consumer choice of the telecommunication service provider in Chengdu, China.

(Reject) H8a: Brand Awareness does not significantly influence the consumer choice of the telecommunication service provider in Chengdu, China.

(Accept) H9o: Brand personnel does not significantly influence the consumer choice of the telecommunication service provider in Chengdu, China.

(Reject) H9a: Brand personnel does not significantly influence the consumer choice of the telecommunication service provider in Chengdu, China.

(Reject) H10o: Brand identity does not significantly influence the consumer choice of telecommunication service providers in Chengdu, China.

(Accept) H10a: Brand identity does not significantly influence the consumer choice of telecommunication service providers in Chengdu, China.

(Accept) H11o: Brand Recognition does not significantly influence the consumer choice of the telecommunication service provider in Chengdu, China.

(Reject) H11a: Brand Recognition does not significantly influence the consumer choice of the telecommunication service provider in Chengdu, China.

(Reject) H12o: Brand preference does not significantly influence consumer choice of telecommunication service providers in Chengdu, China.

(Accept) H12a: Brand preference does not significantly influence consumer choice of telecommunication service providers in Chengdu, China.

(Reject) H13o: Brand loyalty does not significantly influence the consumer choice of telecommunication service providers in Chengdu, China.

(Accept) H13a: Brand loyalty does not significantly influence the consumer choice of telecommunication service providers in Chengdu, China.

(Reject) H14o: Brand Experience does not significantly influence the consumer choice of the telecommunication service provider in Chengdu, China.

(Accept) H14a: Brand Experience does not significantly influence the consumer choice of the telecommunication service provider in Chengdu, China.

(Reject) H15o: Consumer behavior does not significantly influence the choice of the telecommunication service provider in Chengdu, China.

(Accept) H15a: Consumer behavior does not significantly influence the consumer choice of the telecommunication service provider in Chengdu, China.

## Research Discussion

The discussion of the findings is about the objectives of the study. Factors such as product, price, promotion, people, process, brand awareness, brand personality, brand identity, brand preference, brand loyalty, and consumer behavior can significantly influence a customer's choice of a telecommunication service provider in Chengdu, China. It's determined that if China Telecom, China Unicom, and China Mobile operators strive to improve the factors (product, price, promotion, people, process, brand awareness, brand personality, brand identity, brand preference, brand loyalty, and consumer behavior), they will get the benefit of attracting customers attention, and make a purchase decision. The reason should be that customers pay more attention to the cost of telecom services, the conveniences, the entire service process that staff provides customers, and the brand benefit that the telecommunication company creates, directly influencing customers' purchase decisions.

## Research Suggestions

### Policy suggestions

1. Improve Brand Equity: As the study shows that brand equity is a significant factor in consumers' choice of telecommunication service providers, providers need to invest in building a solid brand identity, recognition, and loyalty. This can be done through various marketing activities, such as advertising, sponsorships, promotions, and partnerships with famous brands.

2. Focus on Targeted Marketing: The study also highlights the importance of demographic segmentation in the telecommunication market. Providers should target specific market segments, such as baby boomers, married customers, or students, with tailored marketing messages and offerings. This approach can help providers to differentiate themselves from competitors and gain a competitive advantage.

### Practical suggestions

1. Target the married segment: The study found that China Mobile has a weaker market share than China Telecom. Therefore, China Mobile could aggressively acquire married customers to gain market share.

2. Focus on brand equity: The study found that brand equity significantly influences consumer choice of telecommunication service providers in Chengdu, China. Therefore, telecommunication service providers should focus on building brand equity to attract more customers.

## References

- Cronbach, L.J. (1951). **Coefficient alpha and the internal structure of tests.** *Psychometrika*, 16 (3), 297-334.
- Given, Lisa M. (2008). **The sage encyclopedia of qualitative research methods.** Thousand Oaks, CA Sage.
- Olorunniwo, F., Hsu, M. K., & Udo, G. J. (2006). Service quality, customer satisfaction, and behavioral intentions in the service factory. **Journal of Services Marketing**, 20(1), 59-72.
- PwC IAB. (2022). **Internet Advertising Revenue Report Industry 4.0: Building the Digital Enterprise.** Retrieved June 20, 2022, from <https://www.pwc.com/gx/en/industries/industries4.0/landing-page/industry-4.0-building-your-digital-enterprise-april-2016.pdf>
- Taro Yamane. (1973 ). **Statistics: An Introductory Analysis.3rdEd.** New York.Harper and Row Publications.
- World population review. (n.d.). Retrieved June 20, 2022 from <https://worldpopulationreview.com/>