

Review to Positive Effects of 5G Network Technology on Customer Service Improvement in Mobile Commerce in Beijing Retailing Industry

Hu Yu, Guan Yuchen*

ABSTRACT

This article is a proposal on the positive effects of 5G network technology affecting the mobile commerce within the retail industry in the current market of Beijing China. There is a great development in the e-commerce industry, together with the online shopping and mobile commerce. This research will focus on the mobile commerce only within the retail industry. Then the research purpose is to study the positive effects of 5G network technology on the customer service improvement in this industry. This research will be conducted within the qualitative research method, then the Semi-structured interview will be applied to collect the data among the participants who are the consumers of mobile commerce industry on how their customer services improved by the application of the 5G network technology on the retail industry in the market. With this study on the 5G network technology and the customer service in the mobile commerce industry, it can be found that there are some contribution of the of 5G to mobile commerce industry, and it can give some practical implications to the mobile commerce industry development, and the retailers to improve their further customers services quality to gain more competitive advantages in the current market.

1. Introduction

The e-commerce has great development. Based on the data from the Statistic, the retail on e-commerce sales has great increase in the worldwide market from 2014 to 2019 (Clement, 2019). For instance, based on Clement (2019), the sales in e-commerce sales

* PhD Candidates, Graduate School of Business, SEGi University

amounted to 3.53 trillion US dollars in 2019 and the estimated e-retail revenues will increase to 6.54 trillion US dollars in 2022. Beside this the online shopping becomes one of the most popular activities in the global market starting from 2016. Similar to the e-commerce, the mobile commerce, also as the m-commerce, is to use the wireless handheld devices like cellphones and tablets to conduct commercial transactions online, including the purchase and sale of products, online banking, and paying bills (Andrew Bloomenthal, 2019), and the m-commerce is important for the retail sales increase in the market.

1.1 Background

5G Network Technology

5G Technology means the 5th Generation on the Mobile technology, with the great development from the generation 1G to 2.5G and from the generation 3G to 5G. Based on Ganesh and Prashan (2014), the wireless communication technology was started from 1970s, then the mobile wireless technology was evolved from 1G to the 5G at present, with different generation features. For instance, the table 1 below shows the different among these generations, the 5G features was estimated by them in 2014.

Table 1 Review to 1G to 5G (Ganesh and Prashan, 2014)

Content	1G	2G	3G	4G	5G (estimated)
Start Time	1970	1990	2004	2014	2020
Data BW	2kbps	64kbps	2Mbps	1Gbps	>1Gbps
MULTIPLE	FDMA	TDMA	CDMA	CDMA	CDMA
SWITCHING	CIRCUIT	CIRCUIT	PACKET	ALL PACKET	ALL PACKET
CORE	PSTN	PSTN	PACKET	INTERNET	INTERNET
NETWORK			N/W		

In 2019, the 5G is developed and quickly applied in the commercial usage. For instance, in May 2019, BBC applied the 5G from HUAWEI for the live broadcast which is UK's first live 5G

broadcast on a commercial network (Joseph OHalloran, 2019). Compare and contrast to the previous 3G and 4G, the mobile network technology can help the e-commerce development in the past. For instance, 3G network is the era of the mobile application and drive the smartphone, the mobile internet boom, and 4G is the era of smartphone and drive the fast network with the lower latency, with the new services, software, apps, and high quality audio and video. 5G networks alongside existing 4G LTE networks can be about 10 to 20 times faster than 4G in the real world (Bernard Marr, 2019). Based on this figure, it is found that the 5G network technology has higher speed in the data transformation and more convenience in the communication technology and information technology.

From the e-commerce and the online shopping to the m-commerce with the Network technology updating and development

E-commerce is as a business model that to conduct the commercial transactions via the electronic networks such as the Internet, with four types of the business models, like Business to Consumer (B2C), Business to Business (B2B), Consumer to Consumer (C2C), and Consumer to Business (C2B). This network can be provided by the 3G technology, because that the 3G technology has the packet network and 2Mbps in the data BW, and these will contribute to the e-commerce further starting with the laptop and the commercial business starting with these networks. Based on the Business Dictionary, the online shopping is the business activities to purchase products and services over the Internet, or online. It is popular mainly because the customers find it more convenient and easier to bargain shop from the comfort of their home or office. With the 4G technology, the data speed reaches 1Gbps with the core network of internet. In this case, the commercial platforms as well as the apps started to make the e-commerce more convenience with the picture view and video

view, together with the quick customer services communication in the e-commerce. Then the mobile commerce is started in the retail, because that the smartphone and tablets widely used among the current customers, and the retailing is more easily conducted by these smart wireless devices process the commercial transactions online, including the purchasing and sales of their products and services, with the online banking (Andrew Bloomenthal, 2019). Hence, the previous data shows that the 5G technology is significant for the business development, no matter on the e-commerce, online shopping and the m-commerce. But in this research, it is focus on the m-commerce development with the 5G technology development.

1.2 Practical questions

With the 5G network technology development in the mobile commerce in the retailing industry, there are many practical questions. For instance, as the 5G network technology development, what customer services can be evolved in the mobile commerce. For instance, Roslyn Layton (2018) suggested that the VR and AR technology can be applied in this kind of e-commerce, because that the 5G network technology improvement can make the VR and AR used in the mobile commerce with high data speed increased, but it required the ethical consideration and policy permission. Then the safety issue with the 5G development can also be considered in these business model. Beside this, it is difficult to determine what services can be added in their retail industry to add more value in their products and services with the 5G network technology improvement to increase their customer satisfaction level in the market.

2 Research objectives

Based on the practical questions, the research objectives in this research are:

- (1) To identify the positive effecting factors of 5G network

technology that influence on the customer service in mobile commerce in Beijing retail industry.

(2) To determine the challenges of 5G network technology improvement on the customer service in mobile commerce in Beijing retail industry.

(3) To explore the influence of 5G network technology on the customer service in mobile commerce in Beijing retail industry.

With these research objectives, the research questions are shown below:

(1) What are the positive effecting factors of 5G network technology that influence on the customer service in mobile commerce in Beijing retail industry?

(2) What are the challenges of 5G network technology improvement on the customer service in mobile commerce in Beijing retail industry?

(4) How does 5G network technology influence on the customer service in mobile commerce in Beijing retail industry?

3.Literature review

3.1 Review to technology improvement and customer services

3.1.1 Technology improvement

The 5G network technology mainly improves the communication technology with faster speed and the information technology with easier transformation. Beside this, among the technologies, the self service technology is also important in the mobile commerce. For instance, this technology can revolutionize the customer service by changing the interaction relationship between the customers and suppliers with the “high-tech and low-touch” model replacing the traditional “high-touch and low-tech” model (Wang et al., 2013). In the mobile commerce in the retail industry, this model of the “high-tech and low-touch” can also be applied in the retailing, but the improvement is that the

"high-tech and low-touch" can be changed into "high-tech and sense-touch". It is because that with the 5G network technology development, the sense of the customers to the products and services can be improved, such as, the picture with different color, the video with sounds and the operations, and the Artificial intelligence can help the customers to view and the 3D print technology can also help the customers more understanding on the retailing products and services, by showing the products in high intelligence and 3D modelling printing.

Berezina, et al., (2019) conducted the research with the technology improvement in the restaurant services, with the robot, the artificial intelligence technology, and the service automation. Beside this, in this kind restaurants, customers can also enjoy the mobile commerce convenience together with the high technology improvement. For instance, they can order the food with their mobile devices (no matter the smartphone or tablets) before the customers entering the restaurants, when the customers are near to restaurants, the foods and related services will be ready for the customers. Then when the customer ordering the food, the artificial intelligence can assist the customers to select the healthy food according the previous records on the foods the customers ate. The robots can also the restaurants staff to provide the better services delivery and food introduction and so on. In this way, the technology is important for the customer service improvement in the mobile commerce.

3.1.2 Customer service

The definition of the customer service is that the customer expectation and the needs which can be translated into the quality and service. Based on Demsey (2009), in the network, there are only services, and the customer service can be the business sector and the customer services mean profit (Hong and Mia, 2007).St Clair (1993) defined the customer service as that there is a good

customer relationship between the service providers and the customers, by the continuing and satisfying contract offered by providers to users or customers. In this relationship, the service providers can strongly understand the customers' expectation, wants and the needs (Kaur and Singh, 2011). In this research, the customer service is the expectations of the customers who are the retail industry in Beijing industry to use the mobile commerce to purchase the products and services in the market. This consists of what the customers received and the approaches they received the services in mobile commerce, with 5G network technology development.

3.1.3 Interaction between Technology improvement and customer services

Based on Lee, M. et al., (2019), that study shows the customer services innovated by applying the new technology in the other industry like the tourism industry and the hospitality industry and the technology can play an important role for the customer service innovation in these industries. On the future technology on the services, there is a relationship between the technology innovation and the values created for the customer (Snyder et al., 2016). When there is technological innovation in the neglected circumstance, there may be a new offer which is not necessary to translate the value to customer (Kristensson, 2019), but Kristensson (2019) also found that the technology can make the value chain to the customers and there will be opportunities for the customers with the technology improvement and also new potential pitfalls for the customers in the future. With the literature review on the technology and the customer service, in the past researches, the technology development can be significant for the customer service improvement for both the service quality and the service approaches, although some researchers have different opinions on the technology to be translated to the customer services quality improvement. Hence, in the further research, the technology development and the customer service will be studied in the mobile

commerce and retail industry in Beijing market, with the 5G network technology development from 2019.

3.2 Review the Theories used

In the past studies, there are some theories have been used. For instance, the Diffusion of Innovation Theory which is firstly adopted by Rogers (1995) to be a well established theory which is used on the information technology research, and this theory is also adopted by Ahmad (2015) to explore the business intelligence to get the competitive advantages in the market. Moreover, the Resource Based Theory (RBT) is also used in the past researches to understand the competitive advantages in the organization sustainable (Barney, 2001; Priem and Butler, 2001). In this theory, there will be some different types factors to influence the organizations or have the effects on the organization to improve this organization or improve the ability, by the resources which include the tangible resources and intangible resources, especially in the intangible resources that may be more significant to generate the profits in the organizations. There are also some theories, like the innovations perceptions theory.

3.3 Review to past research limitations and the research gap

In the recent years, there are many articles on the technology, the e-commerce and customer service in both qualitative research and quantitative research or the mixed method. However, among these articles and researches, they more focus on the relationship between the technology and customer service in the e-commerce and it is found that there is a significant relationship between them. Firstly, this kind study about the e-commerce and mobile commerce are conducted in other industries, such as the tourism industry, the hospitality industry and the restaurants industry. In the retail industry, there is not many related researches and articles in mobile commerce. Secondly, the 5G network technology is new to all the customers and service providers. What can be done currently, and in

the future, to increase the customer service are not clearly at present. Hence, to study the technology improvement within 5G network technology is beneficial for the current service providers in mobile commerce to increase their service quality and competitive advantages. Thirdly, the 5G network technology is not widely used at present, but Beijing, as the capital of China, where the 5G network technology is started, has applied the 5G network technology now. How to apply the 5G technology in other market is difficult for the other service providers, so with the different markets, this research may give them some implications to apply the 5G network technology to increase their service quality and service approaches to gain more competitive advantages in the market. To sum up, this research with the different market, different industry, and different technology key words, will contribute to the current study on the mobile commerce.

4. Methodology

In this research proposal, the qualitative research method will be applied with the related theory to support the research, such as the Resource Based Theory (RBT). Beside to explain the reason why to apply the Resource Based Theory (RBT), the qualitative research method will also be analyzed in this study. With the qualitative research method, the research design, the participants, the data collection and the data analysis will be set in this research methodology.

4.1 Theories used

In this research proposal, the Resource Based Theory (RBT) will be mainly used. It is because that although the Resource Based Theory (RBT) and the Diffusion of Innovation Theory can both used in the research, but the Resource Based Theory (RBT) can be more suitable with the intangible resource to increase the organization competitive advantages in the research, and the 5G technology is intangible, not being seen, just being indicated by

other approaches. Hence, with this theory, it is easy to get what resource can be created by the 5G network technology in mobile commerce in Beijing retail industry, and what technology factors can increase the customer services and competitive advantages in the future markets.

4.2 Qualitative method

Based on Rebert Yin (2014) and Zikmund (2000), the research can be adopted with the qualitative research method that can permit the evaluators to study the selected issues in more depth and more details. These field study acquires the researchers to explore the technology (especially the 5G network technology) and the customer service relationship and the technology positive effects in the mobile commerce in Beijing retail industry. In qualitative research method, the interview will be conducted among the participants who are the different retailers in Beijing market in mobile commerce.

4.3 The research design

The research design is according to the research objectives and research questions setting before, so this research will be conducted to explore what are the success factors or the positive effects of the 5G network technology to the customer service in the mobile commerce in the retail industry in Beijing market. Based on this research objective, the research place is the Beijing market and the detailed industry is the retail industry in the mobile commerce. The second research objective is to determine the challenges of 5G network technology improvement on the customer service in mobile commerce in Beijing retail industry. Hence, the questions in the interview should not be include the 5G network technology benefits only, some challenges of 5G network technology also should be researched. Then the influence of 5G network technology will be conducted how the services providers improve their services with the 5G network technology improvement. The semi-structured

questions will be designed in the interview among the target participants.

4.4 Population, sample, sampling technique, sample size and the participants

The definition of the population is entire set of the individuals of interest for particular research questions, and the meaning of the sample is set of individuals which are selected from the population (Frederick and Larry, 2014). Sampling technique is the way to select the samples in the research, and the sample size is how many samples should be selected in the research. In this research, it is on the retail industry in Beijing market, so the population is the all cases of companies in Beijing retail industry. The unit of the sample is the each company in Beijing Retail industry. How to select this companies is important to indicate the Beijing retail industry development situation. As the list of Beijing retail companies with the revenues from top to low, the simple random sampling technique in probability, for instance, every 5 companies can be a group, and the first one in each group can be selected. The sample size is not large in the qualitative research. Once there is any same answers or the responses from the participants, the data collection in the research can be stopped. To explore these retail companies 5G Network technology improvement, the top managers or the middle managers will know their technology innovation strategies in the market, so to interview the managers can collect the related data on the 5G network technology improvement in these retail companies. Then the customer service is well known by the customers, so the interview their customers can get the data on how these companies services improvement. These group of managers and customers are the participants in this research.

4.5 Data collection and data analysis

In the data collection, in each selected company, the interview will be conducted with the related managers and a group of

customers to the 5G network technology improvements information and the customer services quality and service related information to evaluate and analyze the each company. In each companies, the data collection will be stopped when they received the same information in the same interview question among managers in one company. With the information collected among the selected companies, the data analysis will be conducted to explore the positive effect of 5G network technology on the customer service improvement in Beijing retail industry. Then the research finding will give some implication for the service providers in Beijing retail industry in m-commerce.

5. Justification and expected contributions

This research is not very new to explore the interaction between technology and the customer service. However, with the specific conditions, this research is significant for the organizations who are in mobile commerce retail to apply the 5G network technology to create their competitive advantages in the market, not just understanding the 5G network technology and mobile commerce in the market.

6. Research scope

In the further research, the market is Beijing China, and the industry is the retail industry. Hence, to get the positive effects of 5G network technology improvement to influence on the customer services, the participants can be selected with the companies those in the retail industry, such as YongHui superstore, Beijing Easyhome retail development, and Lianhua supermarket holding and so on. With the retail industry research, it will find the positive effect of 5G network technology on the retail in mobile commerce in Beijing. The company can be listed from A to Z, as the past researchers Burns and Grove (2001) did. Then the semi-structured interview can help this further research to do the interviews in depth (McCracken, 1988), and it may be more representative to find the

company's retail business with the 5G technology improvement. With the interview to the case of companies, the research questions can be answered and the research objectives can be targeted.

7. Research schedule

Research schedule is the plan for the further researches on this topic to explore the positive effect of the 5G network technology on the customer service in Beijing retail industry in mobile commerce. As the scheduled, there will be more literature review on the 5G network technology, customer service changes, the mobile commerce and the Beijing market situation. Then the interview questions will be designed to interview the companies (especially the people who are responsible for the marketing strategies implementation and the people who are responsible for the customer services center), this is because that the former will know what technologies have been used in their company and the later will know how the customer services have been provided to the customers and how the customer react to these services. The data analysis will be conducted with the software Nvivo 11 to generate the following result. In this way, the following data analysis results can contribute to the companies' strategies adjustment to improve their customer services by applying more advanced technologies in their retailing industry in Beijing China.

8. Conclusion

In conclusion, this is a research proposal in qualitative research method to explore the positive effects of 5G network technology on the customer service in mobile commerce in Beijing retail industry in China. With the further research, the positive effects and factors can be explored and, it will give the practical implications to the related organization to increase competitive advantages in the future market.

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