CUSTOMER EXPERIENCE MANAGEMENT: THE CASE OF NTT DOCOMO

MARGARET MEILING LUO

Department of Information Management & Institute of Healthcare Information Management
National Chung Cheng University Chia-yi, Taiwan
E-mail: luo@mis.ccu.edu.tw

Abstract - This paper applies the new 4 P's framework in marketing and proposes an approach to managing customer experience in M-Commerce settings. The new 4 P's are: Push-pull-participative, Personalization, Promptness, and Privacy which reflect to the key success aspect of marketing in Internet context. To bring in the new 4'P conceptualization to M-commerce, the new area of businesses to create new opportunity for services and products, a case study of a M-Commerce—NTT DoCoMo is discussed in this study. The case of NTT DoCoMo is discussed in this study to explain how a telecommunication service provider provides services that deliver values to their customers. The new 4 P framework is applied to examine aspects of their strategies for business sustainability.

Keywords - M-commerce, 4P, e-marketing, customer experience

I. INTRODUCTION

M-Commerce tends to move business ahead because it is where the revenue growth is. In 2016, mobile commerce trends include: physical and online worlds will continue to converge; social commerce will remain hot; the mobile web will continue to outpace apps; consumer expectations will drive retailers to focus on mobile campaigns [1]. With the success of mobile commerce, e-marketers have to continuously watch out what is happening and look for new opportunities so they can be ready for actions preventing from being left behind. Year 2015 was a pivotal year for mobile shopping. In holiday season, for example, mobile played a bigger role than ever, with a 45% increase in mobile traffic and 82% increase in revenue.

The growth of mobile will force brands to optimize mobile checkouts. The current economy is referred to as "experience economy" or "attention economy" (Davenport and Beck, 2001). In this economy, marketers shift the focus from product and service marketing to experience marketing. The key for business to win the customer loyalty game is to focus on creating the economic value by "staging experience" for customers [2] at every touch point. The market is no longer defined as segments of customers but as individual customers in their social settings. Thus, effective marketing is the management of individual customer's experience. Each offer must be uniquely tailored for individual customer. Put it differently, instead of buying or receiving a product or service from a company, customers co-create the value according to their personalized needs and wants during the life cycle of transaction from searching to after-sale feedback. The offer usually composes of products, services, and personalized experience from interactions with marketers at different touch points. One of the touch points is on customers' smart mobile devices which is always with customers no matter where they are and when their needs arrive. How to better manage customer experience in the age of mobile commerce?

Therefore, the purpose of this paper is to adopt an extended 4 P's framework in M-Commerce which is an area currently very promising in bringing new business opportunities. We identified how e-marketers can enhance shoppers' experiences over the mobile devices. Customer experience management based on e-marketing concepts using mobile and related technologies often concerns with the issues of privacy and security that need to be well-managed. The paper is organized as follows: First, we present the foundation of e-marketing by briefly discussing the 4Ps model and its extensions. Next, we implement the framework to M-Commerce context and provide examples on how customer experiences can be enhance with approaches and tools.

II. FOUNDATION OF E-MARKETING

2.1 The Framework

Traditionally, marketers embrace the framework of marketing mix or 4Ps model to guide them in marketing planning. The model was championed by [3] who simplified a theory put forward initially by Borden [4]. The model postulates that a product or service is best marketed when marketer employ the right mix of product attributes, pricing, availability (place) and promotion, to the targeted market segment. The marketing paradigm of the time was that of "facilitating exchange" where transaction is the end goal.

The 4Ps framework was formulated in the mass marketing era to guide marketers in allocating marketing resources. It is product-oriented and relies heavily on the push method of mass media based

communication. Today's customers expect a one-on-one relationship with their service/product providers. To succeed marketers cannot rely solely on the marketing framework of the past era; they have to understand the interactive and mobile nature of m-commerce. Evidences show that companies who know how to use the tools on the Internet to enable long term customer relationship will likely get more satisfaction, trust, and repeated patronage from their customers. Responding to the new realities of electronic markets, the 4Ps framework has received several face-lifts. Notably, Kotler and his colleagues [5] redefined the 4Ps into 4Cs as previously suggested by [6]: **c**ustomer needs and wants replace product, **c**osts to customer replace price, **c**onvenience replaces place, and **c**ommunication replaces promotion. The discussion of the 4Ps and 4Cs frameworks is beyond the scope of this paper and such discussion exists elsewhere [e.g., 7, 8]. However, it is worth noting that while the 4Ps framework is product-oriented the 4Cs framework is customer-oriented because it is formulated during the mass customization era of the Internet and it belongs to the customer relationship marketing paradigm. It incorporates the "pull" marketing communication methods of the Internet. The products and services are mass customized to fit the needs and wants of smaller segments of customers. It is a useful framework for e-marketing practitioners, but it also has some shortfalls that we will discuss later.

Thus, we propose a new framework to help online marketers to effectively execute their marketing strategies in the new reality of customer experience marketing paradigm, the 4e-Ps of electronic customer experience management (e-CEM) framework. We contend that, to deliver meaningful experience to today's online customers, e-marketers should communicate with them using the combination of push-pull-participative methods to get to know each customer on a one-to-one basis. Therefore, the offers can be personalized according to the needs and goals of each individual customer and at the same time online marketers need to ensure that customers feel being promptly dealt with and yet they are in control of their privacy.

The contributions of our framework are: (1) it provides a simple communication tool depicting customer experience as the primary focus of e-marketing; (2) it bases on a unified marketing paradigm of our time and doesn't attempt to force fit the components into the old 4Ps paradigm; (3) it incorporates the time sensitive component of promptness and its interactions with other components; (4) it promotes the synergy between marketing practices and technological tools, therefore eliminating the functional silos that plaque many organizations; and (5) it provides practical guidelines for the strategy, evaluation, best practices, and technical tools for successfully implementing the framework.

2.2 e-CEM framework

Today's market space of customers that expect "instant gratification" and "real time" services [9] operates according to four important principles of marketing: the exchange principle, the retention principle, the network effect principle, and the trust principle. The four principles are the pillars of today's Internet marketing. First, the exchange principle dated back to era of mass marketing and early economic transaction theory suggests that entity engaged in a transaction for the meaningful exchange of value and the function of marketing is to facilitate the exchange. When applying to online environment in its optimal state, this principle stipulates that due to the transparency of information made possible by the Internet and communication and mobile technologies, today marketers are able to match a customer needs and wants with an appropriate offer for every transaction. It results in an efficient and personalized match of the products and services at the perfect moment. Second, the retention principle, rooted in the relationship marketing paradigm suggests that retaining current customer is more cost efficient and profitable than recruiting a new one. For instance, according to McKinsey, a ten percent increase in repeat customers would mean a 9.5 percent increase in the corporate coffers [10]. Thus, the aim is repeat business with cross-selling and up-selling of related products and services in the customer life time. To achieve this end, marketers must understand customers' behavior online not only at the moment of transaction but also across time. Third, the network effect principle derived from Metcalf's law, stipulates that the value of a network is the function of the square of the number of individuals participated in the network. Coupled with the view that customers exist in a social context, this principle is very appropriate in today's cyberspace that is dominated by mobile social networking technologies. Finally, the trust principle states that, customers only do business with online marketers that they trust. Due to the faceless nature of online commerce customers don't always feel that they are dealing with a real brand and real people [11]. The four principles of online marketing constitute the driving forces behind the proposed e-CEM framework.

III. CASE STUDY: NTT DOCOMO

DoCoMo was spun off from Nippon Telegraph and Telephone (NTT) in August 1991 to take over the mobile cellular operations. The majority of NTT DoCoMo's shares are owned by NTT (which is 33.71% government-owned). While some NTT shares are publicly traded, control of the company by Japanese interests (Government and civilian) is

guaranteed by the number of shares available to buyers.

With the new 4Ps, we perform analysis of NTT DoCoMo's strategy, practices, E-metrics/Controls, and Technical tools (see Table 1). Here we summarize the new 4Ps and 4 aspects of actions:

(1) Push-Pull-Participative: DoCoMo is working to leverage its advanced technologies to enhance its offerings of unique services that offer high added value. These services include Dieting, Clothing, Accommodation, Transportation, Education, and Recreation. They provided a platform named "d Market". It's include many parts such as dApp for Apps, dTV for watch TV show or Movie, dBook for eBook getting, or like dDelivery for your lunch and dinner delivery, or other like dMusic, or dShopping and etc. All things checked by their identification to see whether an app has been certified by Google's Play store, or Apple's app store already. If it is certified, it could not be identified again. DoCoMo Developer support provides developer support to help developers to develop apps and new software. They provide various API, Tools and variety of information for events such as Hackathon, for every developer.

(2) Personalization: DoCoMo also intends to execute the customer-focused marketing. There are three aims and four directions of this action. The company wants to be with each customer and get to know more detail information from the customers. DoCoMo will satisfy customers at all points of contact selected, propose services tailored to the individual needs of each customer and be of assistance to customers. (See Figure 1). With the personalized services, many applications such as shabette-concier, i Bodymo, docomo phonebook, message service, i-widget, i-concier etc are available. Including the applications have been mentioned, all of these are DoCoMo customization items. The customer satisfaction, churn rate, subscription number and the number of some application content can be used to measure the personalization strategy. DoCoMo have developed the technique for estimating long/short-term collected behavior and estimates behavior using various types of data. These include data obtained from the mobile terminal such as location information and operation logs, data registered by the user (user-created data) such as area names like "home" and "workplace," the locations of those areas, and time slots for everyday activities like waking up, going to bed, and working, and a previously prepared behavior transition table (behavioral model) that models the transitions that take place in user behavior.

(3) Promptness: DoCoMo designed its official website great. It is easy to navigate, responsive and clearly display the right information at the right place. It has no annoying animations and effects, basically only words and pictures so that users can get a clear page and find out what they need. In the "Support" page of the website, DoCoMo sets amounts of Q&A. If a customer gets a problem, he/she just goes to the page and gets the answer immediately. If you can't find out what you need in the website, you can call out the customer support hotline, the hotline even open 24 hours/7days. A customer gets the information he/she needs by the tab menus, site map or using search function so that you won't waste time for searching. Each tab has its own detailed category. A great-designed website does affect much in promptness; it helps DoCoMo to retain customers. While customers can get the information immediately, they feel convenience and will have good impact to the company. The website also decreases the human resource to give responses to customers. When customers can solve their own problems through the website, DoCoMo doesn't need a lot of staffs to hold up the hotlines.

(4) Promptness: NTT DoCoMo recognizes the importance of personal information in terms of conducting its business operations, and places highest priority in ensuring that such information is fully protected. To protect personal information, DoCoMo complies with laws and regulations such as the Personal Information Protection Law and guidelines published by various government authorities. To protect personal information, DoCoMo has an organized system that corresponds to actual operations, and personal information is handled in an appropriate and prudent manner according to internal rules and other regulations. Consignment contracts will stipulate safety and control measures, confidentiality, conditions for redistribution, and other issues regarding the handling of personal information in a proper manner, and DoCoMo will supervise the subcontractor appropriately as required. Consignment contracts will stipulate safety and control measures, confidentiality, conditions for redistribution, and other issues regarding the handling of personal information in a proper manner, and DoCoMo will supervise the subcontractor appropriately as required. Table 1 list all the new 4 P's in correspond to Strategy, Practices, E-Metrics/Controls, and Technical tools in the E-ECM framework.

IV. E-PAYMENT AND M-COMMERCE

Mobile network operator NTT DoCoMo is to take its mobile payments service global from 5 February 2014, in conjunction with MasterCard. The rollout of the new iD/PayPass service will enable NTT Docomo iD mobile credit card account holders in Japan to use their mobile phones to make payments at MasterCard PayPass merchants around the world, as well as at any of 500,000 domestic points of sale that support iD payments today[12].

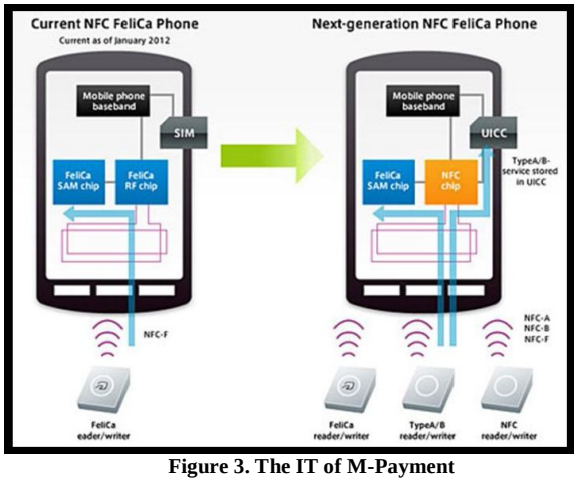

Figure 3. The IT of M-Payment

Compare with Samsung Pay, NTT DoCoMo delivers service that is different from Samsung Pay. With Samsung Pay, users may (1) Use it almost anywhere: find out why it's available in more places than any other mobile payment service. (2) Make secure payments: learn more about the advanced security that keeps your transactions safe. (3) Pay effortlessly: watch and learn how easy it is to swipe, secure and pay at checkout. (4) Get set up in minutes: see how easy it is to set up Samsung Pay on your phone.

V. NTT DOCOMO AND 5G NETWORK

The 5th generation mobile networks (5G) is a new mobile communications system targeted at commercial deployment in 2020 and beyond. The new system is expected to enable new capabilities that exceed existing LTE systems [13]. In white paper 2014, DoCoMo's views on the drivers and requirements, the evolution concept, and potential candidate technologies for 5G radio access are included.

In 2015, DoCoMo successfully conducts 5G trials in actual-use environments. In Nov, 2015 they announced that a 5G trial, conducted with Nokia Networks at the Roppongi Hills high-rise complex in Tokyo on October 13 achieved ultra-high-speed data transmission in excess of 2Gbps. The trial used millimeter-wavelength signals with an extremely high frequency of 70GHz, a key development for the eventual commercial use of 5G wireless technology in actual-use environments.

To date, no test had achieved a 5G data transmission in a commercial complex, such as a shopping mall, due to problems with base stations being out of line of sight and diffused reflections causing the attenuation of highly directional millimeter signals. This time, however, the trial was successful thanks to the use of two new technologies: beamforming, which focuses radio waves in a specific direction, and beam tracking to control beam direction according to the mobile device's location. Also, in a separate trial that DoCoMo conducted with Samsung Electronics in Suwon-city, South Korea on November 12, 2015, a maximum data-receiving speed of more than 2.5Gbps was achieved in a vehicle travelling with a speed of 60km/h. The trial used a 28GHz high-frequency signal in combination with beamforming with a high number of antenna elements and beam tracking.

Other trials conducted recently by DoCoMo in collaboration with vendors include:

1. DOCOMO and Ericsson verified the feasibility of massive multiple-input multiple-output (MIMO) technology by achieving a real-time data-receiving speed of more than 10Gbps using Ericsson 5G radio prototypes with a 15GHz frequency band on November 19.
2. DOCOMO and Fujitsu confirmed a multi-base-station cooperative transmission system by achieving a data-receiving speed of over 11Gbps in total of four mobile devices with a 4.6GHz signal on October 26.
3. An outdoor data transmission trial conducted by DoCoMo, DoCoMo Beijing Communications Laboratories and Huawei Technologies achieved on November 18 a multi-user MIMO (MU-MIMO) transmission of 43.9bps/Hz/cell, which was 3.6-times more efficient than past outdoor trials of LTE-Advanced based MU-MIMO technology.

These successful outcomes of trials will be exhibited at DoCoMo R&D Open House 2015 at the DoCoMo R&D Center in the Yokosuka Research Park near Yokohama, Japan on November 26 and 27. DoCoMo has been collaborating directly with a number of world-leading vendors in trials and development of 5G mobile communication technologies since May 2014. DoCoMo will continue to research and develop advanced network technologies aimed at the commercial launch of a 5G next-generation mobile communications system by 2020 [13].

CONCLUSION

We content that to better manage online customer experience we need a framework that take customer experience front and center. We proposed an electronic customer experience framework or e-CEM that composes of 4 e-Ps: Push-pull-participative communication, Personalization, Promptness, and Privacy. We have further discussed how our framework can help e-marketers identify their customer experience strategies and technical tools to implement the framework. We also offered some examples of how to monitor and evaluate the effectiveness of e-marketing with tangible e-metrics. The framework is applied to the M-Commerce of NTT DoCoMo, by which we can systematically observe how do a telecommunication service provider manage customer experience and improve revenue. Meanwhile their attempts of providing a variety of services opens up the opportunities of strategically aligned with few other business such as Ericsson, Fujitsu, Huawei, and Samsung. In this paper we applied this framework in the context of mobile

commerce to demonstrate that it can be a useful tool for managing customer experience in m-commerce.

REFERENCES

[1] MoovWeb (2016). 7 Mobile Commerce Trends for 2016, http://www.moovweb.com/blog/mobile-commerce-trends-2016/

[2] B. J. Pine II, and J. H. Gilemore, (1997). Welcome to the Experience Economy, Harvard Business Review, July-August, 97-105.

[3] E. J. McCarthy (1978). Basic marketing: a managerial approach, 6th edition, Homewood, IL, Richard D. Irwin, Inc.

[4] N.H. Borden (1984). The Concept of the Marketing Mix, Journal of Advertising Research, pp.2-7.

[5] P. Kotler, G. Armstrong, J. Saunders, V. and Wong, (1999). Principles of Marketing, Second European Edition, Prentice Hall International, London.

[6] R. Lauterborn (1990). New marketing litany: 4P's passé; C-words take over, Advertising Age, (1 October), pp. 26.

[7] E. Constantinides (2006). The Marketing Mix Revisited: Towards the 21st Century Marketing, Journal of Marketing Management, 22, pp. 407-438.

[8] F. Robins (1991) Four Ps or Four Cs or Four Ps and Four Cs. MEG 1991 Conference Proceedings.

[9] R. McKenna, (1999). Real time: Preparing for the Age of the Never Satisfied Customer, Harvard Business School Press.

[10] M.A. Mowrey, (2000). Thank you, please come again, http://www.thestandard.com/article/0,1902,13016,00.html, The Industry Standard, March 20, 2000, Last Access June 11, 2007.

[11] D. Cyr, K. Hassanein, M. Head, and A. Ivanov (2007). The Role of Social Presence in Establishing Loyalty in e-Service Environments, Interacting with Computers. 19:1, pp. 43–56.

[12] Sarah Clark (2013), NTT Docomo sets launch date for global NFC payments.

[13] NTT DoCoMo (2014). DoCoMo 5G White Paper: 5G Radio Acess: Requirements, Concept and Technology, Retrieved from https://www.nttdocomo.co.jp/english/binary/pdf/corporate/technology/whitepaper_5g/DOCOMO_5G_White_Paper.pdf

Table 1: E-Marketing 4P's with M-Commerce with NTT DOCOMO

	Push-pull-participative	Personalization	Promptness	Privacy
Strategy	DoCoMo is working to leverage its advanced technologies to enhance its offerings of unique services that offer high added value.	―Strengthen the company's highly specialized corporate services ―Supporting lifestyles ―Execution of Customer-Focused Marketing	The interface of the website is designed simply so that they don't need waste too much time to operate it.	Places highest priority in ensuring that such information is fully protected.
Practices	―DMarket apps ・DApps ・DTV ・DMusic ・Dshopping ・DDelivery	―Customization item ・Shabette-Concier ・i Bodymo ・docomo Phonebook ・Message Service ・i-Widget ・i-concier	In Support pages, you can concern what problems you meet, click it and you can get the answers quickly.	―Compliance with laws and regulations. ―Handling of personal information ―Measures for security and control ―Maintenance and improvements on the management system
E-Metrics/Controls	―docomo identification ―play store identification ―app store identification	―Customer satisfaction ―Churn rate ―Subscription number ―The number of applications content	The website use tab menus, site map and search to help customers find the information they want easily and quickly.	―Necessary education and training of employees ―Supervise the subcontractor
Technical tools	For developers and cooperation company ―various API ―Tools ―variety of information for events(Hackathon)	―Technique for estimating long/short-term collected behavior ―Human activity recognition based on long/short-term GPS locations ―Collaborative filtering/ recommendation application ―Personalized functional application	CSS helps the web designers to create their imagination of the website so it can be simple and great-designed.	―Omakase Lock ―IC card lock ―Keitai-Osagashi Service ―Remote Initialization Service ―Remote Lock (Remote all lock) ―Data Security Service

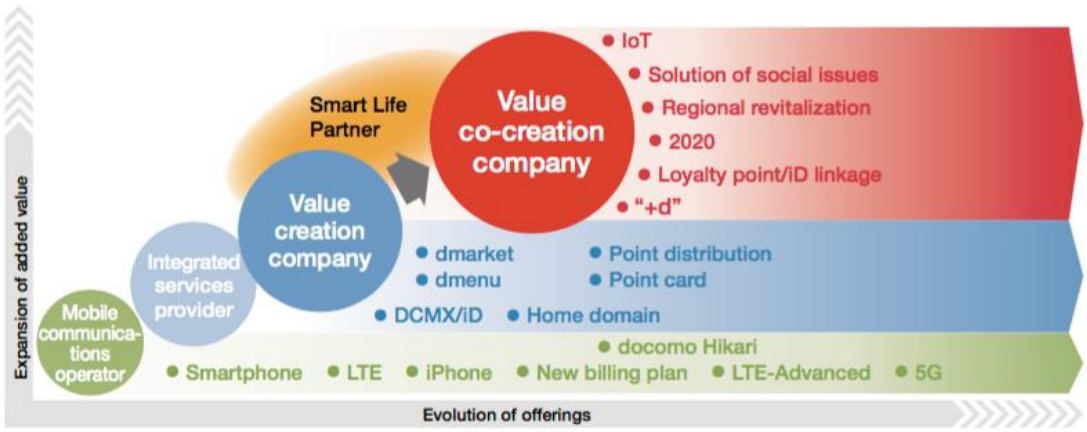

Figure 1. Transformation into a "value co-creation company" through collaboration by DOCOMO



Figure 2. NTT DoCoMo Help Webpage

★★★