

Mobile Marketing Evolution: Systematic Literature Review on Multi-Channel Communication and Multi-Characteristics Campaign

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Abstract - Mobile technologies have become a significant part of marketing operations. Since most of the traditional marketing campaigns are integrated onto mobile handhelds, mobile services are considered as powerful and innovative tools for delivering marketing messages. In this paper, we follow a three step review protocol and conduct a systematic literature review covering 230 academic journal papers in the mobile marketing area. We explore three specific characteristics for mobile services and discuss theories applied to mobile marketing research. We also use a meta-analysis approach to evaluate the relationship between mobile technology generation and mobile marketing evolution. Our work provides a roadmap of current trends and gaps in the literature in the field of mobile marketing.

Keywords-component; systematic literature review, mobile marketing evolution, mobile generation, multichannel campaign

I. INTRODUCTION

Mobile marketing is defined as process of delivering marketing messages from businesses to consumers using permission-based and interactive communication services over mobile communication media. Most mobile marketing campaigns are derived from traditional marketing approaches [1]. The area of mobile marketing is very rich and is also moving very quickly. Therefore, it is useful to provide a meta-analysis of the literature providing a roadmap as to current trends in research, in terms of areas with inclining and declining trends, as well as an overview of the models and theories used.

In order to provide such a road map of the literature review, we undertake a systematic literature review of modern mobile marketing papers and we report the findings of the systematic literature review. We then provide some discussion as to patterns of development in mobile marketing and we conclude that the future of this research area is in multi-channel marketing. First, we must provide

an overview of the relevant literature which provides the framework for our systematic literature review.

The previous literature investigated mobile marketing with a single communication tool [2-4]; in addition most mobile marketing research studies examined the business perspectives and behavioral issues (e.g. attitude and acceptance) [5, 6]. Our research study particularly focuses on mobile marketing operations, in order to evaluate the impacts on mobile service and to track the trends of research in this area.

II. LITERATURE REVIEW

In this section, we firstly identify and describe the four different types of mobile marketing channels; voice, messages, web and television. We also identify three specific characteristics that differentiate mobile marketing from other types of marketing approaches; location-based, personalization and interactivity. Furthermore, we identify 5 theories that have been applied to mobile marketing research: they are permission and acceptance, attitude and behavior, development and implementation, value chain and decision process. Technology acceptance (TAM) as a favorite theoretical model, and structured equation modeling (SEM) technique are also examined.

A. Mobile Marketing Generations

This section describes various mobile communication tools along with mobile technology generations; these tools are used as communication channels in different types mobile marketing campaigns. Our review of mobile technology generations also indicates research interest for mobile marketing in different stages.

- Mobile Voice (1st Mobile Generation)

Using 1st generation of mobile technology, the main communication was via voice. During the 1st generation, the costs of the use of mobile technology to perform telemarketing related activities were greatly decreased. This has encouraged the brand owners to perform telemarketing over the mobile platform. The advantages of mobile telemarketing are threefold. Besides inheriting all the properties from the traditional fixed-line telemarketing manner, mobile telemarketing also has the added advantages of personalization. A mobile device can serve as a personal identity. The mobility of the device also means that marketers can reach the consumer at any point in time.

- Mobile Messages (2nd Mobile Generation)

Using 2nd generation mobile phone technology, SMS/MMS services were successfully designed to be complementary to the voice communication of mobile phones. By having this service, mobile users can not only communicate by voice, but also send messages in text. This helps to reduce or eliminate the chance of getting incorrect information through voice, especially in cases when the message contains important information such as email addresses, names or physical addresses that are not easy to remember or that could be spelt wrong by voice communication [7]. The mobile messaging marketing approach also provides a cost-effective way to send messages to the receiver, compared to the standard voice communication [8]. In fact, mobile message is a successful replacement marketing tool for the traditional pager-based service [9]. SMS/MMS enable full automation of the message sending process, whereas the pager service requires a call made to the control center to initiate the message sending. Therefore, although other more advanced mobile features exist, SMS is still an important and popular feature for simple text communication [3].

Thus, the advantages of using mobile messaging marketing are fourfold. Firstly, the cost of sending the message is the lowest for both the brand owners and consumers compared to other mobile marketing approaches [8]. Secondly, the lifetime of the message delivered to the consumer is substantially longer than for voice communication because the message is stored in memory so that the consumer could retrieve the message again when needed [10]. Thirdly, messages can store information that is difficult to communicate by voice, such as voucher number, name of contact and address [11]. Finally, since the SMS/MMS system is based on digital communication, it is very easy to allow the computer system to recognize the contents of the messages, enabling full automation for the sending and receiving processes [12].

- Mobile Internet / Web (3rd Mobile Generation)

Using 3rd generation mobile phone technology, mobile internet marketing was introduced. Mobile Internet marketing is quite different from Internet marketing. The regulations for the use of mobile communication are well defined. These regulations are expected to be able to resolve the issues in privacy and security that exist for Internet marketing [13]. First of all, the costs of use of mobile Internet are higher than the normal Internet. Although it may prevent quite a few brand owners from participating in this area, it ensures that the players who have joined are powerful enough to enforce control over the content and the processes [4]. Additionally, not all of the web resources are able to be displayed on mobile devices. In fact, due to screen size limitations, mobile web resource must be designed specifically for that device to very strict standards [5].

There are multiple ways on the Internet platform to perform marketing activities. The most popular way is marketing through subscription of email newsletters, which the topics are specified by the subscriber. There are also other advertisement approaches, such as embedded advertisement on instant messenger applications (e.g. MSN Messenger, Yahoo Messenger), website advertisement, forums and blogs. Unfortunately, due to the lack of appropriate controlling mechanism in contents, privacy and security [5]. Furthermore, the seriousness of spamming on the Internet platform has become so unfavorable that it is so difficult for consumers to trust this kind of communication approach, and brand owners may simply avoid the usage of the Internet to maintain their reputation [13]. Brand trust is very important to mobile Internet marketing deployment. In New Zealand, mobile service provider (e.g. Vodafone) use web portals to market their own or third party products, Vodafone Live is a well-implemented mobile Internet marketing campaign.

- Mobile Television (4th Mobile Generation)

The promise of true 4th generation mobile technology is television delivered to the mobile phone. There are some limitations on the traditional television marketing approach, due to its one-way broadcasting channel. The content of the TV marketing approach through broadcasting media is usually dynamic and volatile, and therefore it is necessary to repeat the contents of these marketing messages several times in order to assist consumers in remembering or understanding [14]. TV marketing allows hi-tech involvement in the marketing processes and, in addition, it hits the consumers' psychological perception [15]. The dynamic feature of such a communication channel allows the sellers to update the contents of their messages in real time; therefore the contents are more valid and accurate [16]. In addition, it also introduces new elements such as animation and sounds, which can further deepen the

consumers' impressions [15]. Furthermore, the correctness of the message delivered to the consumers could also be increased by using live verbal and visual communication.

Current TV service use Internet protocol as communication medium, known as IPTV or interactive TV; traditional TV programs are now available on computer devices and mobile phones. Vodafone New Zealand has deployed mobile TV service to end users, however national deployment requires fast bandwidth and high standard quality of mobile receptions. Using mobile phones for TV advertising is considered as mobile TV marketing, which allows mobile users to select TV program or content based on their permissions and willingness [17]. Furthermore, there is an interaction between the program owners and the end users.

At present, the GSMA (GSM Association) and the OMA (Open Mobile Alliance) are working together to establish a standardized platform for mobile services, which can enable globalization across mobile networks spanning across multiple countries and provide an abstraction layer. Mobile marketing services therefore can be isolated from the underlying mobile network infrastructure, lowering the entry barriers for small to medium enterprises to deploy and implement mobile marketing services, i.e. mobile Internet and mobile television.

B. Mobile Marketing Characteristics

● Location Based

The mobility of mobile devices can eliminate the physical limitations within the coverage of the network. Location awareness of marketing is always an important factor for brand owners and consumers to carry out marketing activities [18]. To most of the businesses, there are usually three levels of location based services: country based, city based and suburb based. To achieve different level of location based marketing objectives, brand owners need to establish marketing strategies in different scopes, such as local advertisement, local directory listings, local telemarketing, and so on [19].

The problems associated with this approach are that, the costs are not certain if the brand owners would like to open a new marketing in a different area, they will have to perform extra local marketing activities in the target area [19]. There are barriers in cross boundary marketing activities in traditional ways, and extra administration effort is required to perform marketing activities at a specific location (not area) [19]. To the consumers, it is not always easy to find out services or products of a specific brand owner in a random area, as most of the sources of information require a static access point, such as yellow

pages, a computer with Internet connection, and so on [2]. With these difficulties, location based marketing can only be performed with consumers who have already lived in a specific area for a period of time, which means a limited number of consumers to the brand owners.

The global positioning system (GPS) is presently a common and popular service to track and identify the current position of a specific user, and the size of the device has been greatly minimized. With the GPS service integrated, a mobile device can not only perform normal mobile related services, but also the GPS features such as knowing the current position globally, providing an online map of the surrounding area and even services or products provided nearby [20]. This allows the consumers to quickly seek out a desired product or service even at an unfamiliar location, and enables the brand owners to communicate to the consumers with more valid, accurate and timely information [21].

● Personalization

Mobile service allows personalization which means that in some situations, after careful authentication and verification, it could be used as a substitution of personal identities such as credit cards, bank cards or social security identification [22]. Since mobiles are a personalized communication system, brand owners may store the profiles of consumers' in their own system (e.g. database system) which allows them to identify whose mobile is related to a particular profile for further reference. Unlike the Internet, where it may be highly risky to supply personal information to a remote party, mobile systems are usually highly regulated and, most of the time, the information storage is local and contextual [4]. It is also suggested that gaining permission from the consumers is required to precede further activities, and this is vital to establish reciprocity and understanding [22]. Furthermore, the communication and interactions between the brand owners and consumers are also protected by the mobile network, but the extent is dependent on the level of security implementation of the system [23].

● Interactivity

Unlike static marketing media, which are mainly focusing on information delivery, mobile devices allow timely communication to take place, emphasizing interactivity [13]. There are two types of marketing approaches: push marketing and pull (interactive) marketing. In the marketing field, 'push' is used to describe activities that are initiated by the product or service providers; for example, mobile telemarketing or mobile SMS marketing services are usually considered as push marketing. In this situation the consumers are passive, and the 'push' approach usually doesn't obtain high consumer response rate; whereas 'pull'

refers to those activities that are initiated proactively by the consumers. Thus, pull marketing campaigns should allow consumers to give their permission and the opt-out [24]. Another advantage of the 'pull' approach is that consumers and businesses can obtain immediate results from each other because of the interactivity of mobile technology [9].

C. Mobile Theories, TAM and SEM

In this section, we review TAM (Technology Acceptance) model and SEM (Structural Equation Modeling) method. We also outline five categories of theories as they are applied to mobile marketing research.

- Permission & Acceptance

No matter which type of marketing approach used, obtaining the user permission is the most vital success factor [4]. Mobile marketing is well accepted and has a higher response rate from the customers, because mobile marketing applies the interactive or pull approach and permission-based campaigns [18].

- Attitude & Behavior Theory

The most imperative success factor for mobile marketing is user acceptance. Even though the user may have already accepted mobile phones, and the behavior of whether a user accepts a new concept may depend on their attitude [5, 10, 11].

- Development & Implementation Theory

The success of mobile marketing campaigns is significantly tied with market needs, available technological availabilities and user expectations. Both real-life contexts as well as the existing literature, need to be evaluated [25]. Moreover, the development and implementation should align with the marketing strategies and business' needs [26].

- Value Chain Theory

The value-chain model suggests that communication with customers must be central to any marketing campaign [27]; It is also essential to emphasize the interaction between consumers and brands in order to allow only authorized communication to occur. Mobile marketing is considered a value-added service to brands and consumers in some models [28].

- Decision Process Theory

Consideration of the decision process for mobile marketing is important for mobile marketing success as success is significantly dependent on the customer's desire

and willingness to receive marketing messages [20]. In addition, the decision process model should help guide future research into the diffusion of mobile marketing and other permission-based marketing services [22].

- TAM Model

TAM is an adoption model often used for understanding specific information systems. Most of the mobile communication theories are based on this model. In addition, TAM also examines the perceived usefulness and perceived ease of use of technologies and then determines the users' intention to use a system [29]. TAM has been used in several studies already to evaluate user acceptance of mobile marketing services [6, 9, 30].

- SEM Method

SME is a statistical technique for testing theories and estimating causal relationships. In some mobile marketing literature, researchers apply SME for addressing the confirmatory viability or native usefulness of the constructed models or frameworks [12, 15]. SEM was used widely to test the TAM or relevant theories in the field of mobile marketing.

The purpose of this paper is to provide a meta-analysis of the current mobile marketing literature. In the literature review we have described each of the areas of the literature. In the next section we provide details of a systematic literature review where we analyze some trends for the research area; also we provide an overview of the systematic literature review protocol used.

III. RESEARCH METHOD

In this systematic literature view of the recent scholarly mobile marketing literature, the authors reviewed 230 journal papers in the field of mobile marketing. There was a three-step review process and protocol built for cutting down the paper number to 52. The authors followed guidelines for conducting systemic literature reviews proposed in previous examples [31, 32]. Both a qualitative and quantitative analysis was conducted for the selected papers.

A. Review Protocol Step1 (230 Papers)

For out systematic literature review, eight databases were included. These databases were:

- i. Google Scholar
- ii. IEEE Xplore
- iii. EBSCO MegaFile Premier

- iv. ACM Digital Library
- v. Wiley InterScience
- vi. InderScience
- vii. Emerald Full-Text
- viii. Proquest

Search Conditions:

- i. Phases: “mobile marketing” or “mobile advertising”
- ii. Locations: “title” or “abstract”
- iii. Date: “from 2003 – current”
- iv. Publication type: “journal”

230 papers were found from 62 academic journals worldwide. Table 1 summarizes the name of the journals where more than three papers were found:

Table 1: Review Protocol: Database & Journal

Journal	Database	Number
International Journal of Mobile Marketing	EBSCO MegaFile Premier	64
International Journal of Mobile Communications	InderScience	44
Journal of Targeting, Measurement and Analysis for Marketing	Emerald Full-Text	8
Journal of Advertising Research	Proquest	8
International Journal of Electronic Commerce	EBSCO MegaFile Premier	7
International Journal of Internet Marketing and Advertising	Wiley InterScience	7
Psychology and Marketing	Wiley InterScience	7
Journal of Interactive Advertising	Wiley InterScience	4
IEEE Journal	IEEE Xplore	4
Business Process Management Journal	Emerald Full-Text	3
Journal of Database Marketing & Customer Strategy Management	EBSCO MegaFile Premier	3
Journal of Electronic Commerce Research	Google Scholar	3
Others (50 Journals)	Google Scholar	68

B. Review Protocol Step2 (90 Papers)

Step two cut the number of research papers from 230 to 90,

by applying three selection criteria:

- i. Supported by empirical data / evidences
Or
- ii. Referred to existing model / framework
Or
- iii. Construct a new model / framework

C. Review Protocol Step-3 (52 Papers)

The third step cuts the number of research papers from 90 to 52, by applying three selection criteria:

- i. Supported by empirical evidences
And
- ii. Mention at least one communication tool for mobile marketing (Voice, SMS/MMS, Web, TV)
Or
- iii. Mention at least one specific service for mobile marketing (Location-based service , Personalization service and Interactivity service)

Based on this three-step review protocol, next section describes and analyzes the collected data from the 52 chosen reviewed articles.

IV. DATA ANALYSIS

Table 2 demonstrates the distribution of media channels and services used in mobile marketing in the 52 selected literatures (31 survey studies, 4 focus group studies, 5 interview studies, 4 experiment studies and 8 multi-case studies). The categorization was recorded in endnote

- a) **V=Voice** (searching words: voice, audio, sound)
- b) **M=Messages** (searching words: message, SMS, MMS)
- c) **W=Web / Internet Application** (searching words: online, Internet, web)
- d) **T=Television** (searching words: Television, TV)
- e) **L=Location-based Service** (searching words: LBS, location,)
- f) **P=Personalization Service** (searching words: personalize, personalization)
- g) **I=Interactivity Service** (searching words: interact, interactivity, interaction)

Table 2: Communication Channels and Characteristics

Paper	V	M	W	T	L	P	I
1. Reference [1]		X					
2. Reference [2]			X		X		
3. Reference [3]		X					
4. Reference [4]			X			X	
5. Reference [5]		X	X				
6. Reference [6]	X	X					
7. Reference [7]		X				X	
8. Reference [8]		X	X				
9. Reference [9]		X					X
10. Reference [10]		X					
11. Reference [11]		X	X				
12. Reference [12]		X				X	
13. Reference [13]		X					X
14. Reference [14]				X			
15. Reference [15]		X	X				
16. Reference [16]		X		X			X
17. Reference [17]				X			
18. Reference [18]		X	X		X	X	X
19. Reference [19]		X	X		X		
20. Reference [20]		X	X		X		
21. Reference [21]			X		X		
22. Reference [22]		X				X	
23. Reference [23]		X	X			X	
24. Reference [24]		X					
25. Reference [25]		X	X				
26. Reference [26]	X	X	X			X	
27. Reference [27]		X	X	X			
28. Reference [28]		X	X				
29. Reference [29]		X					
30. Reference [30]		X					
31. Reference [33]		X	X				
32. Reference [34]		X					
33. Reference [35]		X					
34. Reference [36]		X			X		
35. Reference [37]		X					
36. Reference [38]		X				X	
37. Reference [39]		X					
38. Reference [40]		X					
39. Reference [41]		X	X				
40. Reference [42]		X					
41. Reference [43]		X	X				
42. Reference [44]		X					
43. Reference [45]		X					
44. Reference [46]		X	X				
45. Reference [47]		X					
46. Reference [48]		X				X	
47. Reference [49]		X					X
48. Reference [50]		X				X	X
49. Reference [51]			X	X			
50. Reference [52]			X				
51. Reference [53]		X				X	X
52. Reference [54]		X	X				X
Total	2	45	22	4	6	11	8

Table 2 also shows a tally of papers that include the various communication tools and characteristics in mobile marketing campaigns, along with the mobile technology generation. Notice that nearly 90% of papers include message channels. Very few papers include voice (2) and television (4). Almost half (22) include web/internet applications. The statistic shows present research interest

Table 3 demonstrates how mobile marketing tools are reflected in our sample of literature. This sample reflects the development of mobile phone technology through the 1st, 2nd and 3rd generations. Voice communication does not retain research interest in the field of mobile marketing at present (1st generation). Messaging marketing and mobile web marketing are well accepted and deployed (2nd & 3rd generation). Mobile TV is the most recent marketing channel where marketing research has been undertaken (4th generation).

Table 3: Mobile Technology & Marketing Tool Evolution

Mobile Technology Evolution	M-Marketing Tool Evolution	No. of Paper	Comments
1G: Voice Communication	Mobile Telemarketing	2	No longer retain research interest
2G: Data Communication	Mobile SMS/MMS Marketing	45	Achieve its success in 21 st century
3G: Internet Communication	Mobile Web/Internet Marketing	22	End service from the convergences
3.5 – 4G: Fast Internet and Multimedia	Mobile Television Marketing Multiple Tools & Channels	4	An innovative service & new research area

Due to mobile technology development, mobile tools become communication channel for mobile marketing campaigns. These mobile channels are all active and are often used concurrently. We expect that more research focus will be given to 4th generation mobile marketing campaigns which are multichannel and draw upon capability from all mobile technology generations.

In the 52 reviewed journal articles, 12 papers specifically referred to TAM (Technology Acceptance Model), six papers applied SEM either to test TAM or theories based on TAM. The five main mobile theories discussed in section 2.3 were widely applied in the rest (34) of the articles reviewed (see Table 4).

Table 4: Mobile Marketing Theories

Theories	in Paper
Permission & Acceptance	[4, 7, 8, 13, 16, 18, 33, 38, 42, 50, 52]
Attitude & Behavior	[5, 10, 11, 36, 37, 39, 40, 43, 45, 51]
Development & Implementation	[25, 26, 34]

Value Chain	[2, 14, 17, 27, 28]
Decision Process	[1, 3, 18, 20, 22]

Based on the statistical analysis, next section discusses the findings and results of the systematic literature review.

V. DISCUSSION

In this section we provide some discussion of the results from our structured literature review. Readers are reminded that this review does not cover conference papers and that there could be papers of this type that may be developed further and published in a journal shortly.

Overall, the most popular research approach in this area is the survey method, with 31 papers using this approach. The next most popular approach is the multi-case study, with 8 examples. This finding reflects a developed research area with empirical studies being used to support the findings in the majority of research projects.

Our analysis shows a very clear pattern matching the mobile phone technology generations with a proliferation of current technologies (messaging and web/internet) and very few papers about the more established voice marketing channel and the newly established television channel. Therefore, it can be seen that researchers should include more of web/internet and television channels and less of the traditional voice channel in their ongoing research.

From our analysis, it can be seen that the occurrence of location-based, personalization and multi-channel services are not high with 25 papers covering these areas, and only three times be applied to a theory [21, 23, 53] and only one article mentions multichannel mobile communication [54]. Therefore, it is likely that more research and publications would be helpful in this area. Moreover, our analysis also shows that the application of the TAM has been fully explored in this area. The most sensible approach to future research in this area will be to apply TAM for the next generation mobile marketing campaign.

The analysis and knowledge of the industry shows the evolution of the mobile marketing paradigm. When mobile technology and communication are used for doing marketing activities, traditional marketing approaches are mostly enabled on mobile devices. The current mobile communication channel is now capable of delivering marketing messages from brand owners to customers, and presenting the marketing information over various types of communication media. Single channel mobile marketing

approaches (e.g. SMS/MMS, web/Internet) have achieved success and are well-accepted by consumers as our review shows.

From a technical point of view, since the pattern of mobile marketing evolution matches that of mobile technology generations, it can be expected that new available communication tools for mobile services enable new mobile marketing channels. The older mobile communication tools (e.g. voice & messages) are still valid for current mobile marketing campaigns, and it is likely that next generation mobile marketing campaigns will be multichannel based, and that the specific mobile characteristics (location-based, interactivity and personalization) will be extensively integrated into future mobile marketing campaign design and implementation.

VI. CONCLUSION

In this paper we have presented a systematic literature review of recent scholarly mobile marketing articles. We have provided a literature review that underpins the relevant categories identified. Based on our analysis of the results from our structured literature review in mobile marketing, we have put forward an analysis of mobile marketing trends which can help researchers to place their work in the current context of the research discipline. Based on our literature analysis, researchers can build their own applications to incorporate multi-channel communication as well as the integration of current mobile attributes into their future research in the field of mobile marketing. Further research can examine the deployment requirements, implementation issues and user acceptance for multi-channel mobile marketing services.

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