Fall 11-28-2008

An Analysis of M-Commerce Services in Digital Content Markets: Six Societal Environments Effecting M-Commerce

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Abstract — **The research question dealt with 'whether m-commerce services fulfil the expectations both of customers and of service developers and if market demand is being met'. The methodology of the research was qualitative and findings were based on both the content analysis of m-commerce value-chains and open-ended interviews. The six environments of m-commerce worked as a framework for the questions in an open-ended interview. Two m-commerce value-added services, which presented two different types of business models: a closed operator and a customer centric m-commerce model were chosen. Two types of m-commerce services were described and analysed. The sample of interviewees (n=17) consisted of spokespeople for them and a few experts. Research findings were that m-commerce services differ from traditional and e-commerce services in terms of time, context and location, the value-chains of m-commerce are unclear and consumers are not very aware of existing m-commerce services and of the m-commerce services enabled by existing technology.**

Keywords — *m-commerce, society, value-chain, value-added services, case study*

I. INTRODUCTION

In the changing business environment, the status of organisations and companies involved in value-added content markets has changed. Development of mobile technology, creation of m-trust and keeping up m-habits, which are the successors of e-trust and e-habits, are crucial issues in terms of creation of the new digital content market and one organisation is not likely to have different aspects. The content and services on offer from any traditional provider are on the way to m-commerce.

From an organisational point of view, the chance to also provide digital content can be given a bias and is two-fold; on the one hand there are obvious benefits:

- creating new markets for new service portfolios
- searching more specific customer segments through joint marketing
- taking advantage of niche markets
- helping to find the competitive advantage.

II. LITERATURE REVIEW

The literature review handles definitions of m-commerce, the problem of turning the flow of digital information and services into revenues and the customer's point of view of m-commerce.

2.1. M-Commerce

In this research, the definition of e-commerce follows the definition given by the OECD [1] and it has two criteria:

- automation of transactions, and
- spatial separation of transaction and delivery.

The description of the m-commerce solutions lifecycle has been divided into five phases by Kalakota and Robinson [2]:

1. messaging – m-commerce was in the first phase in 2002 when their division was introduced. Messaging means short message services (SMS)-based m-commerce.

2. info-connectivity – web based m-commerce where the user needs an enhanced device with an xhtml-extension. To some extent, m-commerce has experienced this phase in Finland.

3. transactions – this means an m-commerce strategy for organisations in order to evolve revenue-generating m-commerce. M-commerce has introduced applications that support phase three to some extent, but end-users, either individuals or organisations, have not found them to any great extent.

4. transformation – this means that m-commerce is interconnected and implemented into business processes within and between organisations. The largest gains in terms of business value will be found in this phase.

5. infusion mobility and m-commerce is a normal way to do business – this means a culture change from one, in which technology is occasionally handed over to the other one where technology is an accepted part. During this

phase, the m-commerce industry will undergo strong consolidation.

2.2. M-Commerce Customers

What are customers' opinions and what aspects affect customers' purchasing decisions? The consumer's point of view is important and, because of the nature of the new non-established phenomenon of m-commerce, a lot of questions remain unanswered in the documentation available.

Privacy issues as well as transaction procedures, the reliability and usability of the service and the issues to offer either push or pull services are the most important questions to be addressed when discussing m-trust. Barnes [3] raises the question of privacy and standards.

It is an assumption that the customer will choose to use mobile value-added services to meet a specific need. User-friendliness, low price or added value can be the triggers for a user to get introduced to a new service [4].

The mobile communication system is divided into four categories [ibid.]:

- user, where user segmentation is crucial
- place, where mobile communication takes place at a real location and value-added services should be designed to fit into a different user context
- process, where the component of process is divided into two subsystems: leisure and business processes
- time, where mobile communication is temporally short, cyclic or anti-cyclic.

Customisation of m-commerce portals seems to be more crucial than on the web [5]:

- communication: e.g. voice mail, messaging, SMS and e-mail
- personalised content and alerts: e.g. news, sport, weather, stock prices and betting
- personal information management
- location-specific information: e.g. traffic reports, nearest location of some service or other.

According to Dholakia and Dholakia [6], the key dimensions on which m-commerce will be founded, are:

- user experience for easy communication
- flexible location for use everywhere
- on-the-go flexibility for all mobile use
- geographic positioning for navigation
- third party applications for paying for, buying and selling goods
- enterprise integration for work-related use
- multi-transaction services for scheduled and on demand use

- different terminals covering as wide a range as possible.

2.3. Theorectical Frame

The theoretical frame was set up by Numberger and Rennhak [7] who built a six-phase environment around the concept of e-commerce. The e-commerce and its environments create the whole ecosystem of particles that most likely correlate to each other. The environments concept is the theoretical background to the questionnaire of this survey and is applied to m-commerce.

In this research, m-commerce is considered as a theoretical framework adapted from e-commerce. The main assumption is that although m-commerce is different to e-commerce in some ways, the environmental forces around it remain the same.

Numberger and Rennhak have created an e-commerce environment according to Jürgen Habermas' societal evolution and come up with an e-commerce context with six environments [ibid.]:

- societal environment
- socio-political environment
- market environment
- technology environment
- retail outlet environment, and
- distribution environment.

Each of these has factors that affect the m-commerce value-chain either from the individual level or from the surroundings. M-commerce is at the heart of the model, containing the demographic, goods-related, subjective views of pricing and everyday life indicators. All of the environments are connected to each other [ibid.].
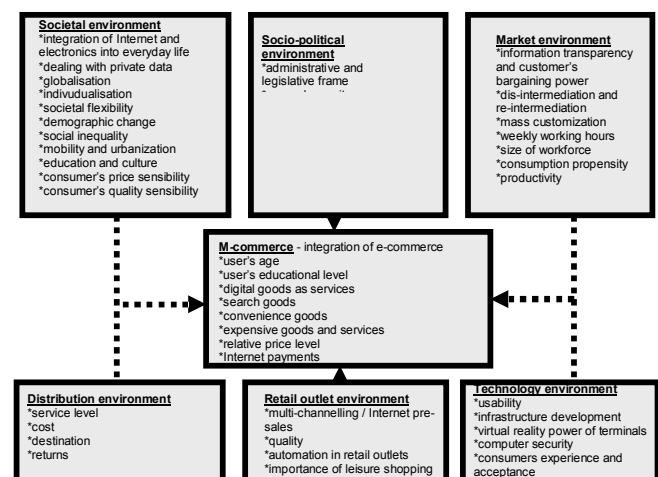

Picture 1: M-commerce and its six environments according to Numberger and Rennhak [7].

III VALUE-CHAIN MODELS

Recreation of the value-chain is obvious in order to position the different stages of digital media developers and creators. Barnes [8, 9] has analysed the m-commerce value-chain and differentiates content on the one hand and infrastructure and services on the other. Barnes [5] has derived two new m-commerce models from this.

One is a closed operator model and the other is a customer centric model. In the first model, the closed operator model, m-business participants, information and service providers create m-portals, which are distributed by operators to their customers. In this model, there are two gatekeepers: the portal owner and the operator. The first case analysed in the open-ended interview presents this kind of model and is called Armas m-commerce service in the Hämeenlinna district of Finland.
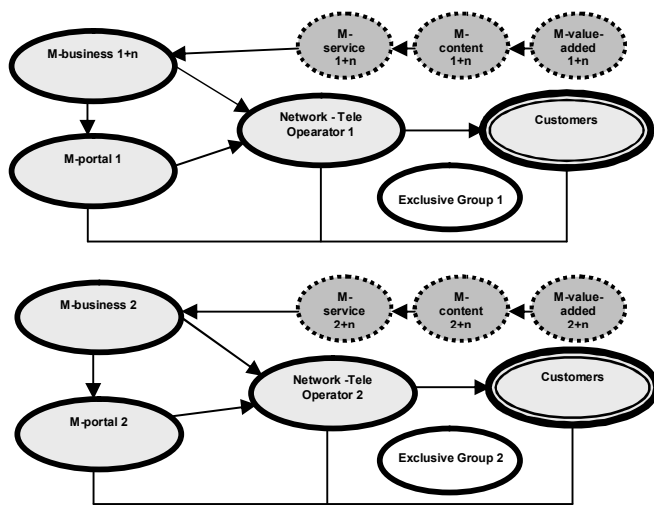
Picture 2: Closed operator m-commerce model [5].

In the second model, the customer centric model, both the m-business and m-portals interact directly with the customer. The m-business and m-portal also create alliances, but they are not visible and do not act as gatekeepers for customers. [ibids.] The other m-commerce case presents this kind of model, Trescape, a mobile web browser application detailing the history of Tampere, Finland, together with a multimedia message enhancement for the short orientation tour.

There is a group of companies called 'enablers', who bridge the gap between services, including content providers [10]. It can be argued if the customer centric model is enough to generate m-services for everyday user needs.
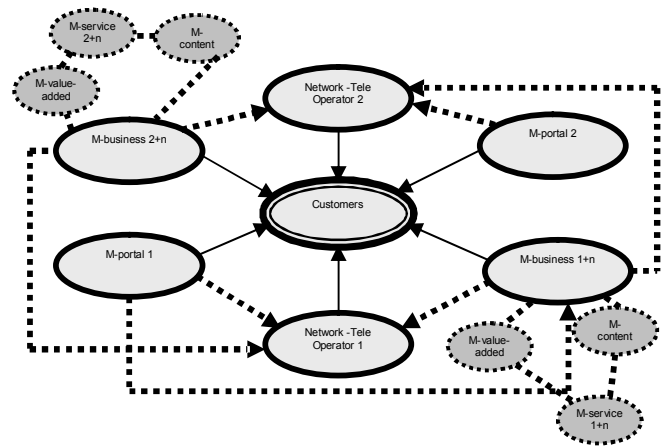
Picture 3: Customer centric m-commerce model [5].

IV METHODOLOGY

In this qualitative research, m-commerce was studied critically by analysing two of the m-commerce services' value-chains and those involved in them. This was done by case-based [11] open-ended interview research revolving around the theoretical framework based on six aspects to cover the e-markets and the societal-political aspects of society by Numberger and Rennhak. The framework was applied to m-commerce accordingly.

V RESEARCH QUESTION

The research question was to define the crucial points for creating new markets for digital value-added products, comparing customer and company perspectives on the matter, consider the problem of supply and demand and ask:

- what are the crucial points to consider when creating new markets for new, not yet existing mobile value-added products, especially within m-commerce in Finland?

- what actions does an organisation need to take to be able to survive in the changing markets of m-commerce content and service products, if willing to do so?

The research covered Finnish digital markets, but it will be reflected on European and global markets as part of the documentation review. This was simply because of the nature of digital content development:

- digital content and services in general have been considered to be easily localisable products which can be seen as an independent piece of art in the culture
- global markets have been considered to be an opportunity
- media convergence has been obvious

- media examples (TV, music, cinema) have been good examples of homogenous mass customer-based thinking.

The research concluded by defining the short-term and long-term effects on the markets. Different product segment research of m-commerce was also analysed, in particular B2B and B2C. The C2B and C2C approaches are mainly new phenomena in e-commerce and m-commerce and there has not been very much research into this as yet.

VI QUESTIONNAIRE

The research was structured in the following way: two m-commerce service value-chains and their representatives were analysed together with a few expert interviews [ibid.] The questionnaire included nine straightforward questions and some further aspects in order to refresh the discussion and was made available to interviewees in advance.

The first question covered the interviewee's basic information (role within the company, number of years in the industry) and included a short description of the interviewee's company. The company description was included because the interviewee and the company or organisation represented should be suited to the value chain definition.

The civic environment was defined purely as an everyday instrument for customers in m-commerce. The question was an introduction to more complicated and more company-sensitive aspects.

The question about the socio-political environment aspect highlighted governmental and social influence on m-commerce. Is there a socio-political push for companies, or do they feel that they are flagships for m-commerce?

There were two questions about the market environment aspect due to the topic of this research. The first lets the interviewee define the concept of 'a customer' and the next question is about demand for m-commerce products. The latter question is about m-commerce markets and how to penetrate them.

The question about the technology environment aspect questioned the barriers and advantages from a technological point of view.

M-commerce was discussed more closely in two of the questions. Interviewees were asked whether there are advantages in using m-commerce rather than traditional means of buying and selling. What kind of advantages were there? The next question covered interaction with the customer. How does a customer (as defined earlier) feel about m-commerce as a distribution channel for the service that the company provides?

The last question returned to focus on the problems involved and discussed m-commerce and its future in more detail.

VII CASES

In this research two cases were looked in-depth. The most remarkable difference was the m-commerce business model and a different customer approach in both of them.

7.1. Closed Operator M-Commerce Model

Armas connection is the local content service for mobile users in Hämeenlinna, Finland. Its basis is a mobile operator connection managed by Aina Group Ltd., which is a group made up of companies within the area. The value chain consisted of the companies involved.
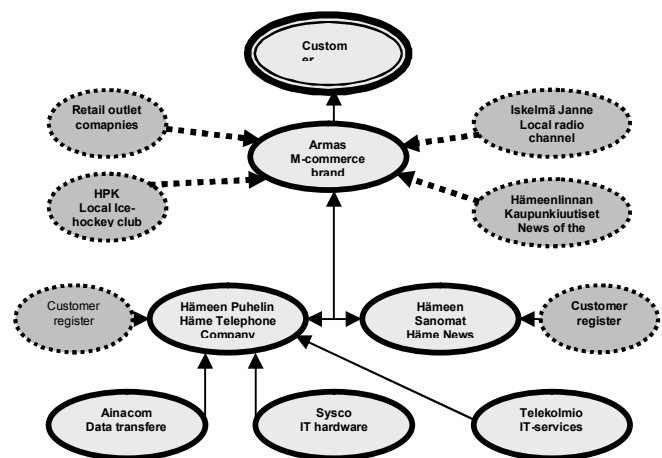

Picture 4: Closed operator m-commerce model Armas.

The service concept is as follows. While a person has an Armas connection, by showing their mobile number, which indicates and identifies the connection, the owner is eligible for discounts in shops. The service can be described as a standby service and is considered to be a closed operator m-commerce model [5, 9].

7.2. Customer Centric M-Commerce Model

These are mobile services customised for tourists. According to Tribe [12] the field of tourism is built from aspects of non-business-related tourism and tourism business studies. Knowledge of tourism is created between society and analysed aspects of it and tourism itself. The area is remarkable for digital content services too, because they are related to the environments. Again development of a business area is affected by other aspects too.

Based on the idea of multimedia messaging and routes around town, Trescape and another non-location data-based

service, Racing the amazing Nokia, were introduced. The concept is about having an adventure by sending an SMS with an answer and the user then receives an MMS with a question or clue. The concept is further developed by tourism SMEs and one organisation. The service is a customer centric m-commerce model [5, 9].
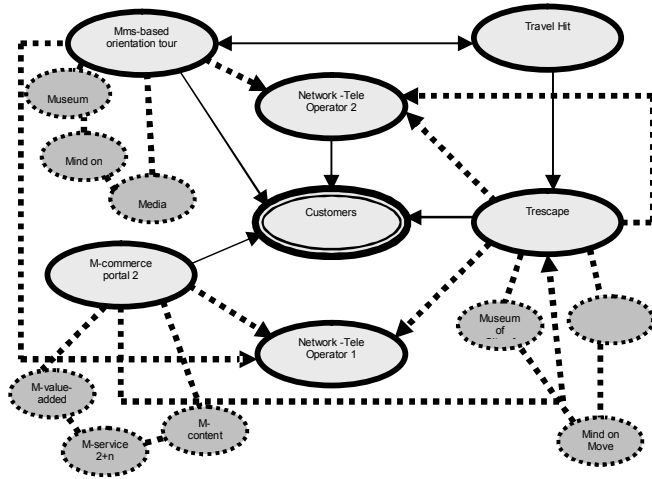
Picture 5: Customer centric m-commerce model Trescape.

VIII DISCUSSION

The discussion addresses the disincentives of m-commerce which have remarkable power in m-commerce culture by affecting everyday use and habits.

Influence. The benefit of m-commerce services for everyday life was highly spoken about, but its influence was considered to be minimal. The use of mobile phones mainly focuses on voice and short messages, as a study in Finland shows that they generate 98% of the turnover of telephone operators [13]. Of course this has led to a situation where speed, m-trust and accessibility have been mentioned as being features of the mobile society. The work-related use of mobile phones was not uncovered, but influence was seen on an individual level. It seems that people tend to use harmless m-commerce services to a greater extent, such as ordering ringtones and logos, while all the more meaningful or complicated services are ignored.

Laggards. Technological development is a fact and people have adopted the use of digital devices amazingly: although there are many laggards who are neither willing nor able to cope with the information society. Political programmes will not help them.

Customer base. Who is using your m-commerce product and why? It is important to create and identify the motive for use: if the customer register is kept up-to-date, the customer base does not have to be large, in order to generate profit. There is enough marketing information, if the company is receiving logs from Mobile Internet service providers (MISP) and has access to the customer register.

Division of revenue. The long value chain also does not encourage m-commerce service providers, with the cost to a customer after telephone operators and other partners have taken their cut being minimal. Therefore, companies and organisations should consider mobile services merely as being more about marketing than about earning revenue. The customer centric m-commerce model case, tourism services of Trescape, clearly shows this phenomenon.

Trust. M-trust is an issue, because a mobile is a very personal device, almost like a wallet in this respect. A person is easier to reach by SMS than by email, because of spam which disturbs email correspondence. SMS is also a trusted way of communication.

Information content. While talking about information, there is no constant solution to the problem of m-commerce information products requiring user loyalty. It is worth noting that typical use of mobile media services is occasional. The advantage is that mobile media is quickly available when needed. Mobile devices are also good feedback devices. Another problem of mobile information is that it cannot be taken out of context. In other words, local and time information for travellers would be very appropriate. Mobile devices are also on their own within corresponding numeric and short notices.

Needs. From a customer's point of view, a company should know about the customer and identify their needs. There should be variety in services in general and one choice could involve m-commerce. I think that potential users would like to reflect their identity by using and showing off mobile value-added services.

To recap, attitudes towards value-added m-commerce services are sceptical because of high expectations of complicated services that have failed.

IX CONCLUSIONS

Value-added m-commerce services still present phase 2 as per Kalakota's and Robinson's [2] structuring though there are expectations to go forward. This research found some of the reasons for that:

M-commerce culture. Organisations wishing to attend to m-commerce should start at the beginning when finding proper m-commerce services either for a work-related solution or individual customer-related solutions.

Government guidance. The technological 'digital divide' can be recognised while innovators and early adapters are compared with laggards who adopt technology last. The cost of the newest technology can be one thing, but the

changing challenges resulting from use of the newest possibility are certainly big (Demoussis and Giannakopoulos, 2006).

Telephone operators' role. The cost of m-commerce value added services was considered as an obstacle to get through before supplying them. In other words, two independent respondents from the same public sector organisations announced that with so many users among the customer segments in a large Finnish town, mass customisation of m-commerce and mass distribution is too expensive. The benefits would be unquestionable, but the data transfer cost is too high.

Simple solutions. Individual customers would appreciate easy-to-use, beneficial mobile services to help them to cope with everyday pressures and problems. The resources that can be saved in working life and process-oriented solutions are used constantly without exception and as new tools. Business users are perhaps the most conservative users of mobile phones, relying on speech, although marketing of m-commerce value-added services has been heavily targeted towards them.

Free samples. The reason for non-existing mobile services can be seen within complicated business models that try to generate revenue from m-commerce services by:

- individual users
- services that are not properly targeted
- within a complicated value-chain
- at particularly low cost
- with a kind of 'nice to have' service aimed at teenagers.

As a result, the combination of well-functioning and useful m-commerce products should be a workable project.

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