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GENERAL RESEARCH

# An evaluation framework for viable business models for m-commerce in the information technology sector

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**Abstract** This paper presents a study of the characteristics of viable business models in the field of Mobile Commerce (m-commerce). Mobility has given new dimensions to the way commerce works. All over the world various stakeholder organisations are consistently probing into the areas where m-commerce can be exploited and can generate revenue or value for them, even though some of those implementations are making the business environment more complex and uncertain. This paper proposes a viable business model evaluation framework, based on the VISOR model, which helps in determining the sustainability capabilities of a business model. Four individual cases were conducted with diverse organisations in the Information Technology sector. The four cases discussed dealt with mobile business models and the primary data was collected via semi structured interviews, supplemented by an extensive range of secondary data. A cross-case comparative data analysis was used to review the patterns of different viable business components across the four cases and, finally, the findings and conclusions of the study are presented.

**Keywords** Business models · M-commerce · Evaluation framework

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## Introduction

The fast pace of development in the field of wireless and mobile technologies is leading to a significant number of mobile applications deployed over faster and cheaper mobile broadband services. As a result of that, the trend of using mobile applications is increasing rapidly (with popular mobile services in the areas of m-shopping and m-payment among others). Because of this trend, there are huge market opportunities and high commercial expectations for mobile commerce. Thus, more and more organizations have been implementing or intend to implement m-commerce as another distribution channel into their day to day operations in order to fulfil high users' expectations and to benefit from the hardware and software infrastructure provided by telecommunications providers and companies such as Yahoo, IBM, Google and Amazon. However, m-commerce is a young field and m-commerce business models are different from traditional business models. The issue of how to build viable business models for m-commerce is becoming very important for both organizations and researchers. Organizations need to understand the key components of viable business model for m-commerce; they need to know how those components help organizations make money. As a result of these concerns, there is a strong motivation for researchers to focus on this field and to work out these important issues for the benefit of successful future m-commerce development and implementations.

The term "business model" at first glance brings an impression of highly sophisticated arcane set ups, mathematical calculations, projection sheets and much more;

however fundamentally a good business model can be described by answering a few simple questions such as: Who is the customer? What does s/he value? And how can money be made out of a business? With the underlying economic logic that explains how we can deliver value to customers at an appropriate cost (Magretta 2002).

The global business environment is very dynamic and forces organisations to consistently improve their business models in order to match the competition. These changes are triggered by many factors such as changes in customer needs and market requirements, labour and resources globalisation, regulatory emphasis, strong rivalry and technology innovations (Kamoun 2008). A good working business model remains crucial to every organisation, whether it's a new venture or an established player (Magretta 2002).

To achieve m-commerce success, people tend to look for innovative 'killer applications' or modifications of existing e-commerce applications in a mobile environment (Xu and Gutiérrez 2006). It is not, though, the application but the business model behind the application that really determines its success (Yuan and Zhang 2003). A viable business model, where all the players, including consumers, operators, content providers, device and equipment manufacturers, portal providers, content producers, distributors or other cooperating in the value chain run a profitable business and extract sufficient incentives to sustain the value network, is one of the dominant factors for the success of m-commerce initiatives (Feng et al. 2006).

## Background

The recent steep growth in mobile innovations has created complex global business systems. Moulding these innovations and services into a sustainable business model is an intricate task. It is assumed that unlike traditional and static value chains, multiple organisations will be co-operating at a high degree and will tend to create a value network, where each player controls different capabilities and resources (Bouwman et al. 2005). However companies face difficulties in framing that type of cooperation and achieving the anticipated benefits. Business models around M-commerce are much more complex than mere strategic alliances in the telecommunications domain. There needs to be more efficient strategies around building business models, which could achieve synergy of services and responsibilities among various stakeholders (Bouwman et al. 2005) thus generating business propositions out of the value network for each participant, and thus sustaining the relationships.

Wireless technologies present an attractive medium for conducting e-commerce for two very strong reasons: ubiquity and localization, these factors should be strongly emphasised in m-commerce applications (Clayton et al. 2004). There is certainly a need to think beyond existing internet based e-commerce business models and search for models more appropriate to m-commerce.

As such, a business model is a blueprint of the way a business creates and captures value from its services, products, or innovations (Kamoun 2008). The concept also defines how a firm interacts and transacts with customers, partners, and suppliers. A business model converts technological characteristics and potentials to economic outputs, thus directing technology investments towards profitable and sustainable economic value creation (Chesbrough and Rosenbloom 2002).

### Purpose of the study

The purpose of this study is to determine and propose an evaluation framework for viable business models for m-commerce in the IT sector. It first looks at various components of a business model in general and then investigates the success factors which may sustain its existence. This study then probes into the relevance of identified business model concepts to m-commerce and presents a framework for a viable m-commerce business model.

### Research questions/objectives

The study addresses the following research questions:

- How does m-commerce impact traditional e-commerce business models?

The first research question explores how m-commerce can be used in accordance with the existing e-business models or how to create new ones.

- What are the success factors that support a viable and sustainable business model for m-commerce in the IT sector?

After gaining a basic understanding about the m-commerce business environment and the key differences as compared to e-commerce, the second research question looks into the critical success factors of a sustainable business model with relevance to m-commerce.

- What are the potential characteristics of an evaluation framework for a viable mobile commerce business model in the IT sector?

This study also probes into the arrangements in which the participants in a given business model share value and earn sufficient incentives to further make their relationship more sustainable, ultimately achieving a stable and suc-

cessful business model. Evaluation frameworks are essential in identifying criteria for either assessing the feasibility and profitability of business models or evaluating a business model against alternative or best practice cases (Pateli and Giaglis 2003).

## Literature review

During the last decade technological developments in wireless communications and mobile computing have led to a new and promising field of mobile commerce aka (M-commerce). There is much talk about the benefits, applications, critical success factors and adoption of mobile devices and commerce via mobile communication, but there is no in-depth discussion on viable business models for m-commerce (Ulhøi and Jørgensen 2008). Understanding the potential effects of mobility on business and identifying various business partners in the m-commerce value chain is the first step towards innovative and adaptive business modelling. Such an attempt can help organisations make the best use of mobility in order to achieve enhanced value creation and sustainable business models.

### 'Business model' defined

With the evolution of dotcom businesses in the late 90s, the concept of business models became significant and since then there has been a consistent production of literature on this area (Pateli and Giaglis 2003). However, the topic of business models is often discussed on the surface and repeatedly without any real understanding of its role and its potential (Osterwalder et al. 2005). In the past, there has been great uncertainty around business models mainly because terms like business model, strategy, business process models, revenue structures and cost models have often been used interchangeably. A viable business model is one that delivers the maximum value proposition and enhances the willingness among target customers to pay given the ability of a provider to optimise the real cost of the provision of services; this generates profits to keep the business sustainable (Fife and Pereira 2008).

A viable business model is a blueprint for the extension of a full business strategy and plan, and it provides direction for business processes. Business models are used by organizations to help them create value in the industry in order to achieve business strategies (Ulhøi and Jørgensen 2008; Moen 2006). A business strategy sits on top of the business model; it provides direction for the business model to help the organization make money (Pateli and Giaglis 2003). The relationship between strategy and business models is shown below in Fig. 1.

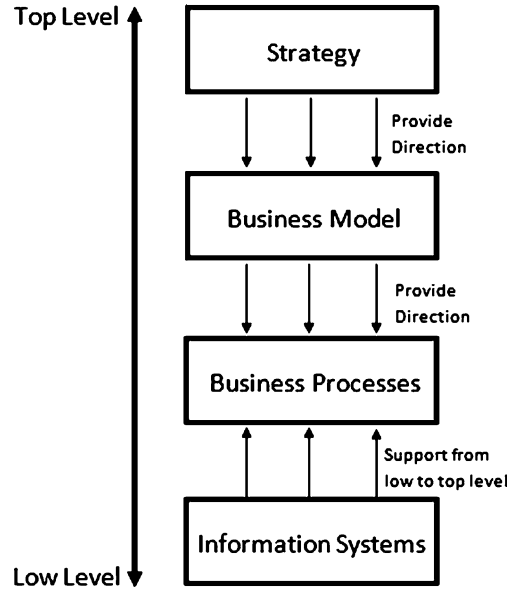


**Fig. 1** Business model definition framework

A viable business model will explain the relationship between technical inputs (goods and services) and economic outputs (business value, profit and price). The most important thing for a viable business model is to transform these technical inputs to economic outputs in order to make money for the organizations. Therefore, the question: "how to make money for the business?" is the key question that must be answered by a viable business model (Seppanen and Makinen 2009).

Over a period of time, researchers have proposed various definitions to explain the significance of business models. On one hand, a business model is presented as an organisation's core logic for creating value (Linder and Cantrell 2000), on the other hand it is defined as a story that makes sense and elucidates how a business works (Magretta 2002). Timmers (1998) also indicated that a business model is an outline of the products and services, along with the business actors and their roles, the potential benefits for the various actors and a description of the flow of revenues for each of them. Similarly, a business model can also be described as a narration of roles and relationships among the stakeholders of an organisation: consumers, customers, alliances and it maps the major flows of information and money, and the key benefits to the participants (Pateli and Giaglis 2003; Weill and Vitale 2001). A Business Model's greatest advantage as a planning tool is that it provides an abstract of how all the elements of a business system fit into a working whole (Magretta 2002).

Another view point in the literature emphasises that a business model can be conceptualised as one that serves as a blueprint of the techniques a specific business follow, and captures value from emerging services, products, or

innovations; also it defines the relationships between a specific firm and its customers, partners, and suppliers (Kamoun 2008). Having an apt business model has now become a key factor in determining how organizations can compete in the business world (Nagle and Golden 2007; Seddon and Lewis 2004).

In reality, business models are dynamic in nature and do not last forever (Reuver et al. 2007a). Given the external changes in their business environment, organizations need to reinvent their business model frequently in order to keep it sustainable. Choices made during the establishment of the initial services, processes and underlying technology, normally change during consecutive stages of the market rollout and commercial exploitation (Bouwman et al. 2008). Therefore, a sustainable business model is one that liberates the concealed potential of a technology, but consistently searches for new alternative models and emerging innovations which are usually brought about by new technologies. The search for a viable business model creates a continuous learning framework and a foundation for economic success in the venture (Chesbrough and Rosenbloom 2002).

## The evolution of business models—a historical perspective

Over the last few years, the concept of business models has evolved from definition, via exploring fundamental components and classifying business models into categories to developing descriptive models (Bouwman and MacInnes 2006). The dot.com boom compelled researchers and authors to suggest several definitions and classifications for business models. Eventually this made the term business model more prominent and this period of time is usually considered the first phase of the evolution of the concept (Rappa 2001; Timmers 1998). In the following phases, authors started to complete the definitions of business models by proposing the potential elements identified in a specific business model. Initially propositions were very simple. In the next (third) phase, authors went one level down in detail and started preparing detailed descriptions of the components of business models (Afuah and Tucci 2003; Alt and Zimmerman 2001; Hamel 2000; Weill and Vitale 2001). In the fourth phase researchers started modelling the individual components which ultimately led to the suggestion of business model meta-models in the form of reference models and theory (Gordijn and Akkermans 2001; Osterwalder et al. 2005). Finally, business models started to be tested and applied in management and information systems applications. Thus there is a trend from researchers to move forward the business model concept from initial definitional levels to further levels such as business model change methodologies, business model viability studies, taxonomies and work that involve higher integration of the associated concepts. The latest stage of the development of the field has seen work done in the areas of change methodologies and evaluation frameworks (Pateli and Giaglis 2003; Bouwman et al. 2008).

## Where do business models fit in an organisation?

Business models should be clearly distinguished from business process models. Strictly speaking business process models are a collection of activities or a snapshot of the processes which focus on how the work is done in an organisation, whereas business model concepts deal with the core logic from which an organisation creates or markets value. As shown in Fig. 2, the business model works as a building plan that allows conceptualising the business structure and systems, including the operational and physical plan of the company and bridges the gap between organisation and strategy that is constantly being affected by external pressures such as social change, new innovations, and market trends (Osterwalder et al. 2005).

## Use of business models

A key contribution to the literature is the VISOR Business Model Framework which defines the following five categories that companies must consider to assess the viability of a business initiative (El Sawy 2005):

- *Value proposition*—The model should explain why the niche customer segment would value a company's products or services and be willing to pay for them.
- *Interface*—The user interface plays an essential role in the successful delivery of products or services. The user interface refers to the ways customers interact with the company and the respective value delivery methods. VISOR suggests that the interface for value delivery between customer and company should be accessible, easy to use, simple, and convenient.
- *Service platforms*—The platform must facilitate and shape the business processes and relationships needed to create value and deliver the products and

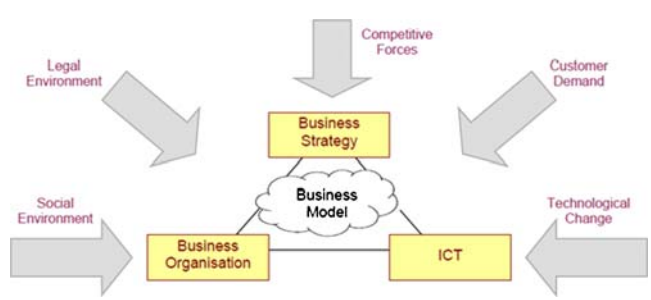


**Fig. 2** The business model's place in an organisation

services. Also it should support and improve the value proposition.

- *Organizing model*—This explains how a set of partners will create a value chain and align business processes and relationships to effectively and efficiently deliver value to end users. Also this should cover the inter organisation infrastructure and capabilities required to generate value.
- *Revenue/cost sharing*—In a viable business model, the interaction between all the categories specified in the VISOR framework should be such that the revenues exceed the investments and all the partners draw reasonable Return on Investment (ROI) to stay involved in the value chain.

Figure 3, adapted from (El Sawy 2005; Sharma et al. 2008) shows the various components of the VISOR business model framework which will be used in this paper to test the viability of business models for m-commerce initiatives in four information technology organisations.

## M-commerce defined

Some of the obvious benefits of mobile computing are convenience, portability and immediate accessibility. One of the promising features of mobility is Mobile Commerce. Undoubtedly, m-commerce has inherited unique characteristics of mobility and differentiates itself from other forms of business processes by providing the users a range of services anytime and anywhere, overlooking geographical boundaries and time constraints (Ulhøi & Jørgensen). The advent of m-commerce and the wireless Internet are thought to be the new wave in the communications industry (Swatman et al. 2006).

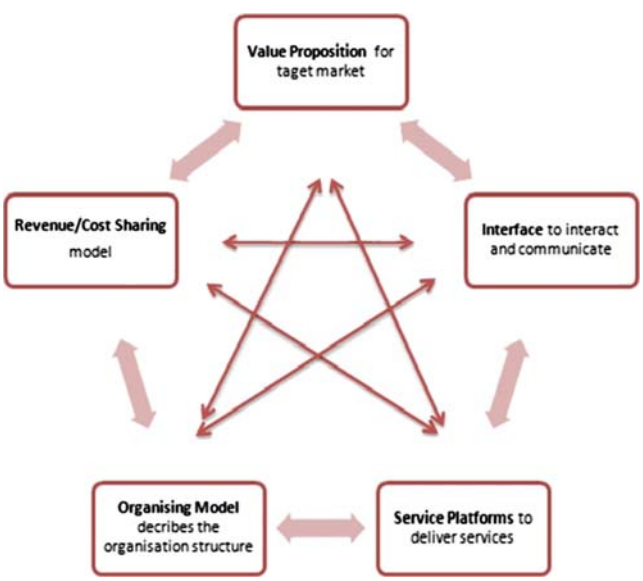


**Fig. 3** The VISOR business model framework

Broadly m-commerce can be defined as a setup that allows transactions, conducted with a commercial potential via mobile devices and using wireless networks (Ulhøi and Jørgensen 2008). Similarly, "m-commerce can be defined as any transaction with a monetary value—either direct or indirect—that is conducted over a wireless telecommunication network" (Ngai and Gunasekaran 2007). Many researchers claim that m-commerce is an extension to e-commerce; in fact they describe m-commerce as a concept that enables e-commerce at any time and location using wireless networks, whereas many others oppose this terminology and refer to m-commerce as a completely different phenomenon with immense potential and unique capabilities (Wang 2007). "Due to the unique characteristics possessed by mobile commerce, business models which have proved viable for e-commerce, not necessarily fit for mobile commerce (Wong and Hiew 2005). Moreover, compared to the traditional technology user, the m-commerce user plays a threefold role i.e. of a technology user, a network member, as well as a consumer, therefore to fully understand the user adoption of mobile commerce all the three perspectives have to be integrated (AlHinai et al. 2007).

Some examples of m-commerce applications that could be seen to have a market potential included mobile auctions, video on demand, mobile payments (ability to pay small amounts using mobile phones), m-banking (managing bank accounts, balances; making transfers on the move), m-entertainment (games, content, music, applications etc.) and other information-oriented services.

## M-commerce business models

With wireless networks getting more and more capable of providing high speed internet, the capabilities of absorbing conventional web based services within mobile commerce are extending. As more companies adapt to mobility, new business models are defined and implemented to meet the pace of the market. Over a period of time the wired web has enabled businesses to broadcast their information globally, build a close relationship with their customers, provide value added services and customised information, streamline transactional processes and enable collaborations. However, it is important to note that m-commerce is not always, classical e-commerce. Even if each of the two terms share aspects of the other, each possesses some unique characteristics that defines their independent state and functionality (Thomas and Mark 2003). Supporting Thomas and Mark several researchers insist that mixing both concepts is misleading because the business models and the value chains for m-commerce are totally different from those used with e-commerce and there is support for the idea that m-commerce is not derived from e-commerce

whereas it's a whole innovative way of conducting time-critical transactions on a real time basis regardless of the location (Feng et al. 2006). M-commerce should not be considered as a new channel for e-commerce or a substitute for purchasing goods and services using desktop computers. The applications which have shown substantial benefits on an e-commerce architecture may not necessarily match up with the same standards in m-commerce due to major fundamental technology differences between both (Yuan and Zhang 2003). Although wireless technologies presents an attractive medium for conducting e-commerce for two very strong reasons: ubiquity and localization, these factors should be strongly emphasised in m-commerce applications (Clayton et al. 2004). There is certainly a need to think beyond existing internet based e-commerce business models and search for models more appropriate to m-commerce.

Understanding the potential effects of mobility on business and identifying various business partners in the m-commerce value chain is the first step towards innovative and adaptive business modelling. Such an attempt can help organisations make the best use of mobility in order to achieve enhanced value creation and sustainable business models. History shows how some organisations developed disruptive technologies, yet failed to capitalise on them due to inefficient business models (Kamoun 2008). Thus to be successful, enabling technologies require as much business model innovation and adoption as innovation in technology and related products or services. M-commerce cannot be taken as an exception to this.

The success of mobile commerce initiatives depends on a company's ability to identify and absorb the latent potential of technology (Clayton et al. 2004). "Is m-commerce just more hype?" The answer to this question is determined by assessing the viability of the underlying business model with regards to a specific m-commerce application and further calculating its appropriateness of generating enough ROI to keep the partners involved and the business sustainable. The failure of dot.com teaches us that an innovative idea by itself is not sufficient to sustain a technology innovation. What's more important is the viability of a niche business logic and a surrounding business model, which could make real profits out of the innovation and sustain the initiatives (Varshney and Vetter 2001; Yuan and Zhang 2003).

The literature states that the concept of business model is still in at an experimental development phase, and the current vision and lifespan of mobile commerce services and business models are very short. According to some authors, little or no value is created from a substantial proportion of mobile commerce initiatives and the prime reason for that is the use of shallow business models (Essler and Andersson 2008). "The term business model is perhaps the most discussed and least understood term in electronic commerce—and thus in mobile commerce as well" (Pousttchi et al. 2007).

Today, telecommunications companies can't solely rely on voice-driven revenues and data communication is much more widespread and presents massive opportunities for them. Consumer expectations are continually increasing with advances in speeds and the capabilities of both wireless devices and networks and a wide range of industries are speculating on the benefits from mobile commerce and convergence in order to generate more revenue. There exists an obvious requirement for developing mobile commerce models—to incorporate network dimension and relationships, which may sustain new opportunities for contributing actors (Ulhøi and Jørgensen 2008).

Companies need to analyse the feasibility of their business models using tools like "what if scenarios", considering important parameters such as financial input, customer behaviour etc. Three levels for measuring and enhancing the performance of a business model outlined by (Afuah and Tucci 2003; Bouwman et al. 2005) are: 1) comparison measure between a firm's profitability and its potential competitor's profitability using heuristics, such as earnings and cash flows; 2) profitability prediction, comparing a firm's profit margins and revenue market share with its competitors; and 3) using benchmarking techniques to compare and appraise the business model components as compared to industry competitors (Pateli and Giaglis 2003).

Companies need to understand the potential opportunities around building relationships with co-partners (Sharma et al.). There is an urgent need to understand how these relationships will be profitable or how companies can develop business models around various value chain partners to make business sustainable and profitable (Morris et al. 2005). This research thus aims to propose an evaluation framework that can help companies, in the IT sector, determine the viability of business models around mobile commerce initiatives.

## Research methodology

This research is based on the assumptions of interpretivism. "The world is best characterized by an interpretivist view" i.e. reality is socially constructed, multiple interpretations and realities exist, and scientific research is time and context dependent (Fitzgerald and Howcroft 1998). Considering the purpose of the research and the paradigmatic assumptions made, qualitative research methods appears to be more relevant for this study. Case studies are recommended when the actual behaviours and events cannot be manipulated. Quite clearly, this research has no control over the actual events related to viable business models for

mobile commerce, which is intrinsic in nature and considerably close to a "real time" business setting thus suggesting a case study research method as the most appropriate method for this work. Additionally, multiple case designs tend to generate more evidence and thus the work becomes more robust.

The unit of analysis has been defined as the business model of a given m-commerce initiative deployed by the organisations studied. The focus of the study is a thorough understanding, using the VISOR model as a lens, of the "business model" of those applications which provide researchers an insight into "what has happened" and "what's happening" in the organisation due to the introduction of a new m-commerce offering.

### Case selection

The selection of cases to be used in this research and the underlying unit of analysis selected emerged from the research problem and the selected research method. The target sample included companies with mobile commerce presence and belonging to the Information Technology sector. The nominated organisations were approached and invited to participate in this research and four organisations were ultimately selected to be included in the study.

### Data collection

Two different methods of data collection used in this research are: interviews (face-to-face and e-mail interviews) and interviewees were nominated based on their current job title and the recommendations from their senior manager. The second form of data, documentation, is largely in the form of printed and published documents, and website-based information gathered to support the interview data.

### Face to face interviews

Face to face interviews were selected as the prime source of data collection in this research study because of its potential in retrieving insightful information regarding the research topic. Due to the exploratory nature of this research, semi-structured interviews were deemed to be the best the data collection tool for this research. Interviews, with their focused, conversational and two-way communication style help in achieving a smooth flow of information and in reaching an elaborated description of the subject. The interviews conducted were recorded in field notes.

### E-mail interviews

All the interviewees were initially interviewed using face-to-face meetings, however some subsequent sessions were conducted using email messages, due to, among other reasons, the availability and comfort of the interviewees, geographic limitations etc. Emails messages proved to be an effective mode of communication for gathering additional information post face to face interviews.

### The data analysis approach

The data analysis strategy employed in this research attempts to identify the common patterns/themes among the cases. Such logic compares an empirically based pattern with a predicted one. The with-in analysis, involves detailed case study write ups for each case (Eisenhardt 1989). There are three known dimensions for information systems: organisational, technical and managerial (Alter 1996). In this study, these three dimensions were identified as: the organisational or value chain dimension, the technology dimension and the sustainability/viability dimension. The three dimensions were effectively utilised in the classification of case data, which facilitated a reduced set of case data for each dimension. Cross-case comparative analysis was conducted along the three nominated dimensions, in order to identify the patterns, relevant to the issues picked up in research questions. The cross-case patterns were ultimately used to provide the answers to the research questions. Table 1 summarises the key events which took place while conducting this research.

## Case studies

The focus and layout of the case studies are kept consistent throughout for comparability reasons. The primary source of data was semi-structured, face to face interviews with business professionals (analysts, business developers, product manager etc.). However, a substantial portion of information was retrieved from a number of secondary sources, including articles, books, online material; company's published information such as annual reports, company strategy documents and business case reports.

## Company A

Company A is the largest telecommunications service provider in New Zealand and offers a comprehensive range of products and services to consumer and business customers. Established in late 1980s, Company A's capabilities extended to the IT service sector, it operates its own national voice and data network and provides a full range of internet, data, voice, mobile and fixed line calling services to its customers.

**Table 1** Research activity summary

| Cases | No. of face-to-face interviews | Total duration (hours) | No. of email interviews | Interview transcripts |
|---|---|---|---|---|
| Company A | 1 | 1 | 2 | 10 |
| Company B | 1 | 1.5 | 1 | 15 |
| Company C | 1 | 1 | 2 | 12 |
| Company D | 1 | 2 | 3 | 11 |

Business case: Txt-a-park

*Background:* New Zealanders living in a few major cities can pay for parking tickets using their mobile phones. Anyone can use the pay by phone facility using a simple to use text based interface to pay for parking. TXT-a-Park has achieved considerable uptake primarily because it does not require pre-registration or the establishment of a pre-paid account, what it does require is a mobile device and an active mobile account. The service started in 2004. However, Company A adopted this service in 2006. The prime responsibilities of Company A in the current business service is to apply the payments to the respective mobile phone accounts (prepay or post-pay) and reconcile the funds to the respective government bodies which own the rights of parking, mainly city councils, at the end of each month.

Figure 4 illustrates the value chain in this particular business model. As shown company A is the centre of revenue. Customers trigger the service by sending an enquiry message, which communicates with company A2's (system developer) systems, which in turns sends an enquiry to company A to ask whether the customer has enough credit or not. According to responses from company A, company A2 then completes or stops the delivery of the parking ticket to the end customer. Once the payment is successful, Company A passes the appropriate revenue to company A2 (a portion of the transaction fee) and a reconciled amount to company A1 (governing body which owns the parking space) at end of each month. Company A3 (vending machine providers) gets its revenue directly from company A1.

## Company B

Company B is a state-owned enterprise based in New Zealand and operates a national telecommunications network and provides broadcast services for the major television and radio networks in the country. Company B's network is primarily based on digital microwave technology; however the company also operates a fibre network running between major cities in the country. Company B also owns usage rights for a variety of broadcast radio spectra and owns and operates a point-to-multipoint CDMA network for lower speed wireless broadband access. Company B had its origins 60 years ago with the establishment and operation of the radio and television network across the country. Today Company B is an experienced Australia-New Zealand based business with a new name and new organisational structure and it's becoming one of the region's leading providers of customised broadcast and telecommunications networks, networks related services, converged solutions and specialised networks. The developed cross-technology expertise enables its customers to take advantage of convergence across multiple service segments.

Business case: Metro Wi-Fi

*Background*: Company B's new Metro Wi-Fi provides 'hot-zone' coverage to CBD locations, hotels, university campuses, event centres, transport terminals, eating outlets, business centres, shopping premises and more, in selected New Zealand towns and cities. Business travellers, construction workers, event organisers or even parking wardens can have access to the wireless internet via WiFi-enabled devices. There is no set up cost and users pay on a usage basis, more precisely using a "pay as you go" model. Company B's Metro WiFi configuration consists of smart network nodes with multiple 802.11 radios linked in a mesh-like network. Company B owns and operates the radio and network infrastructure.

The essence of their network design is that each network customer can manage their own Service Set Identifier (SSID) and therefore may become the 'internet service provider' for the hot spot's coverage area. Starting with major cities, company B is now rolling out the solution to a nationwide network of smart radio nodes that will facilitate wireless broadband access in selected target areas. The advantage of Metro Wi-Fi over hot-spots is that the user log-on is portable and continues as long as the users are in company B's metro Wi-Fi coverage area.

Figure 5 depicts the various value chain partners involved in the Metro Wi-Fi business model. As shown company B is the centre of the business model and facilitates the operational platform, which is a metropolitan Wi-Fi network, for the entire business case. Company B collaborates with hardware vendors to get the required radio transmitters and other required hardware and partners with the city council to set up the sites. Hardware vendors get direct revenue from Company B in the form of the cost of equipment and the city council gets a leased SSID against its services to deploy its portal. Third party

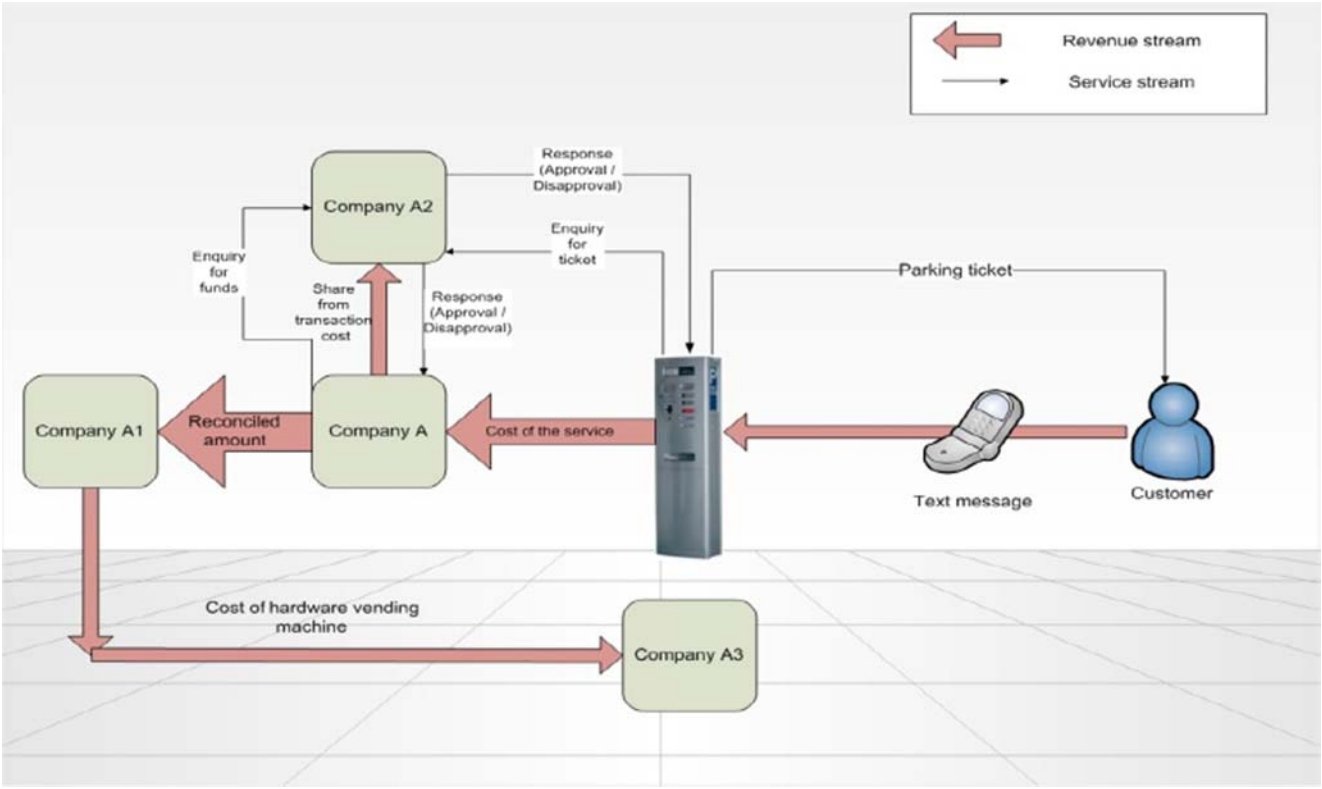


**Fig. 4** Value chain for the txt-a-park business model

providers lease the SSID from Company B and use their own business plan and strategies to generate revenue. A mobile device vendor has the possibility to sign up a contract for wireless service to its potential customers for, usually, a flat service charge. In return the mobile device company generates more revenue and provides a better experience for its customers.

## Company C

Company C is a vibrant and dynamic global mobile telecommunications company active in 40 countries across 5 continents with more than 450 million customers around the world. In New Zealand, company C made its entry into the mobile market in 1998 by acquiring a New Zealand based business with around 138,000 customers. As of June 2008, company C had a customer base of 2.4 million mobile users with over 50% of the country's mobile market. In 2006 company C acquired a fixed line ISP to extend its market presence to the adjacent markets. Company C's mobile centric approach towards delivering satisfying total communication needs gives it a competitive advantage in the marketplace. It focuses on two prime preferences—mobility and personalisation. Company C's motto is to think globally but act locally, i.e. having global strategic guidelines set but provide more localised and personalised services to different demographic areas.

Business case: Mobile internet portal

*Background*: Company C has been in a constant look out for innovative data services as part of its business strategy. Today it offers multimedia data services in more than 20 countries via the company's mobile phone portal. This mobile portal also enables company C's customers to access the Internet as well as enriched content on their mobile phones. The mobile portal needs some customisation of the mobile devices by the handset manufacturers; however company C has collaborations in place with several mobile device vendors to produce portal enabled handsets. Having an interactive and highly usable portal is company C's complementary strategy on provision of mobile data services to its customers. It is one of New Zealand's leading mobile based portals and it gets around 400,000 unique browses each month. The Mobile web give consumers access to the Internet on their phones while on the move. Consumers have instant access to news, sports scorecards, events, weather news, movie or theatre shows listings, email, social community websites, online auctions, shopping websites and much more.

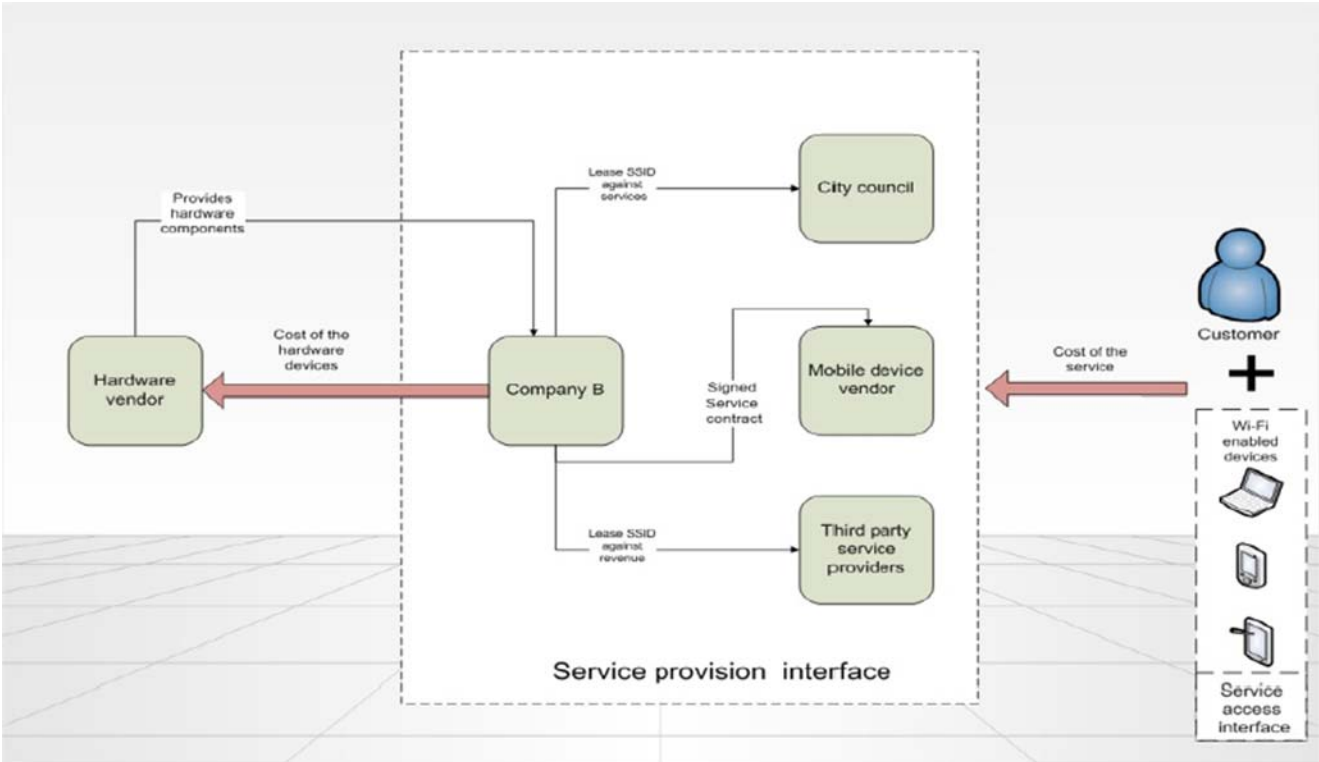


**Fig. 5** Value chain of the Metro Wi-Fi business model

As the mobile market matures, mobile operators all over the world are evolving their business models to incorporate enhanced data services. They are extending the conventional walled garden controlled mobile portal to a more open access mobile gateway to the Internet. This change also enables a range of different billing and charging models for the purchase of music, videos, games and other content with simple downloads for either one time use or unlimited access. During the past few years company C has been optimising its portal and the latest version allows customers to access the sites on their handsets in almost the same way they can do on their computers.

In order to cope with market pressures company C announced partnership agreements with some major internet brands such as eBay, Google, Yahoo! and YouTube. Company C has underlying technology integrated in its network that renders websites down so that customers can have better viewable websites even on devices with small screen sizes.

Figure 6 illustrates the value chain of company C's mobile Internet portal. Company C only performs functional activities such as nominate parties which develop services and media, customer profile creation/editing and relationship management, service brokerage mechanisms and charging and billing operations. As shown there can be multiple service providers, providing single or multiple services. Company C passes on the revenue to these service providers for the services they deliver keeping its own share. Company C also benefits through extra traffic revenue generated by more customer visits and browses. The prime aim of Company C is to increase the average cost per user by inducing customers to do more than just place voice calls and send TXT messages. In return partner companies get more traffic and members and have their own business models lined up for generating extra revenue.

## Company D

Company D was founded in early 2001. The early focus of the company was on providing a unique and specialised web publishing service to the visual arts community through one of their websites using a cataloguing and web publishing application. Over a period of 8 years, the company has emerged as one of the leading web design and web development companies in New Zealand. The company has expanded to provide a full range of web design, web publishing, application development and support services. Looking at the pace of the IT industry, and to keep up with market trends, company D recently stepped into innovative activities such as text marketing and iPhone application development.

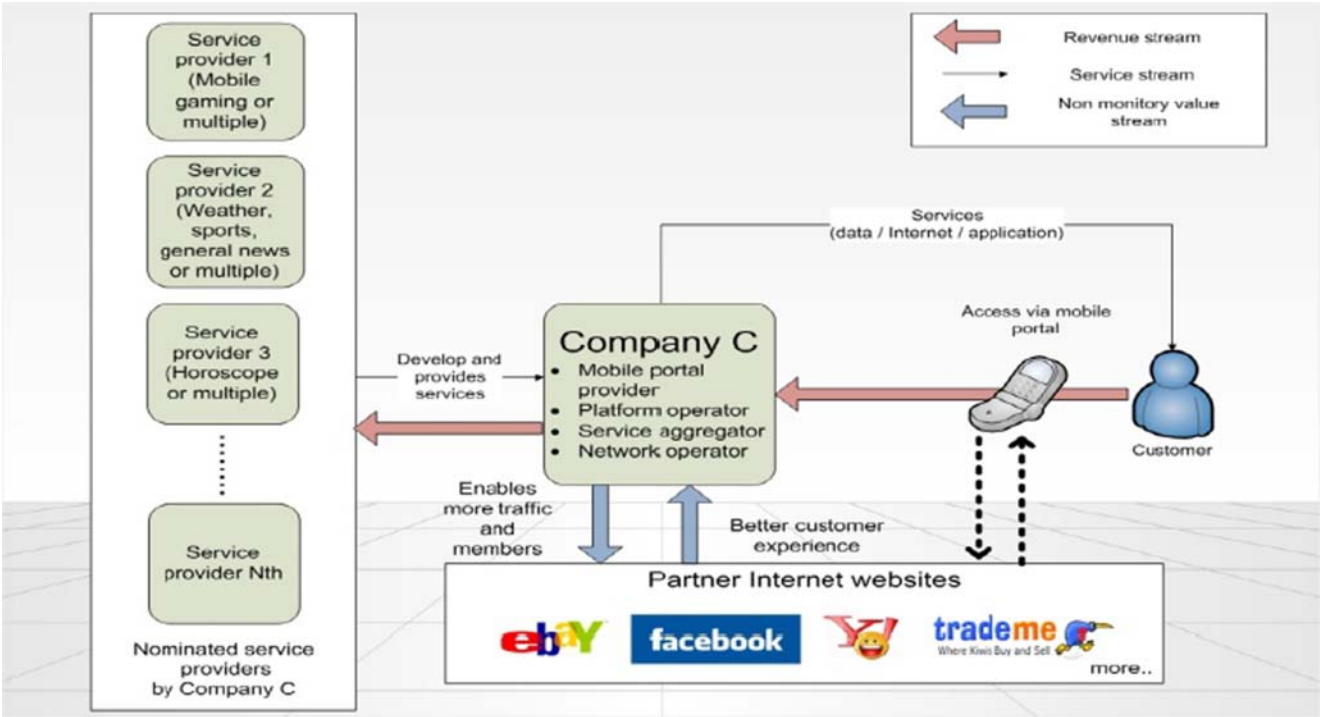


**Fig. 6** Value chain of the mobile Internet portal business model

Business case: Language phrasebook and learning tool

*Background:* The language phrasebook and learning tool is an Apple's iPhone based application. It allows language translations within more than ten prime languages including English, Italian, French, Chinese, and Japanese. Anyone having either an apple iPhone or iPod touch can download this application from Apple's online app store for as low as a few NZ dollars. This application allows users to learn a language, translate key sentences or words from one language to another, and find the cultural relevance of phrases depending on specific languages and regions. The application also has self test features using an interactive language testing questionnaire.

Figure 7 sows the various value chain partners and the revenue and service stream flow among them.

## Summary of results

The key summary of the results, classified according to the research questions of this study, are discussed in the following sections. The findings for research questions 2 and 3 are also grouped in relation to their impact on the service itself or on the organisation studied.

> Research question 1: How does m-commerce impact traditional e-commerce business models?

The findings from this research confirm that e-commerce differs highly from m-commerce and thus e-commerce business models are not obvious solutions for m-commerce. The literature review and the interview data shows that m-commerce value chains are more complex than e-commerce value chains and thus it's not recommended to directly copy over an e-commerce business model to a m-commerce initiative. Fundamental differences were identified in the literature review and data collected, between m-commerce and e-commerce business environments. Some of the key differences are:

- The mobile market is a carrier-dominated market rather than an open market as in the case of the Internet.
- The devices used (mobile phones) are more personal and private in nature.
- M-commerce observes more stringent partnerships within joint ventures rather than relatively loose co operations.
- Reach of service is extended from fixed place destination to an individual person.
- Huge shift from information abundance on the Internet to highly specific and contextual information available on mobile phones.
- Focus more on productivity rather than reduced transaction costs.
- Innovative ways of doing commerce e.g. location based services, context based services.

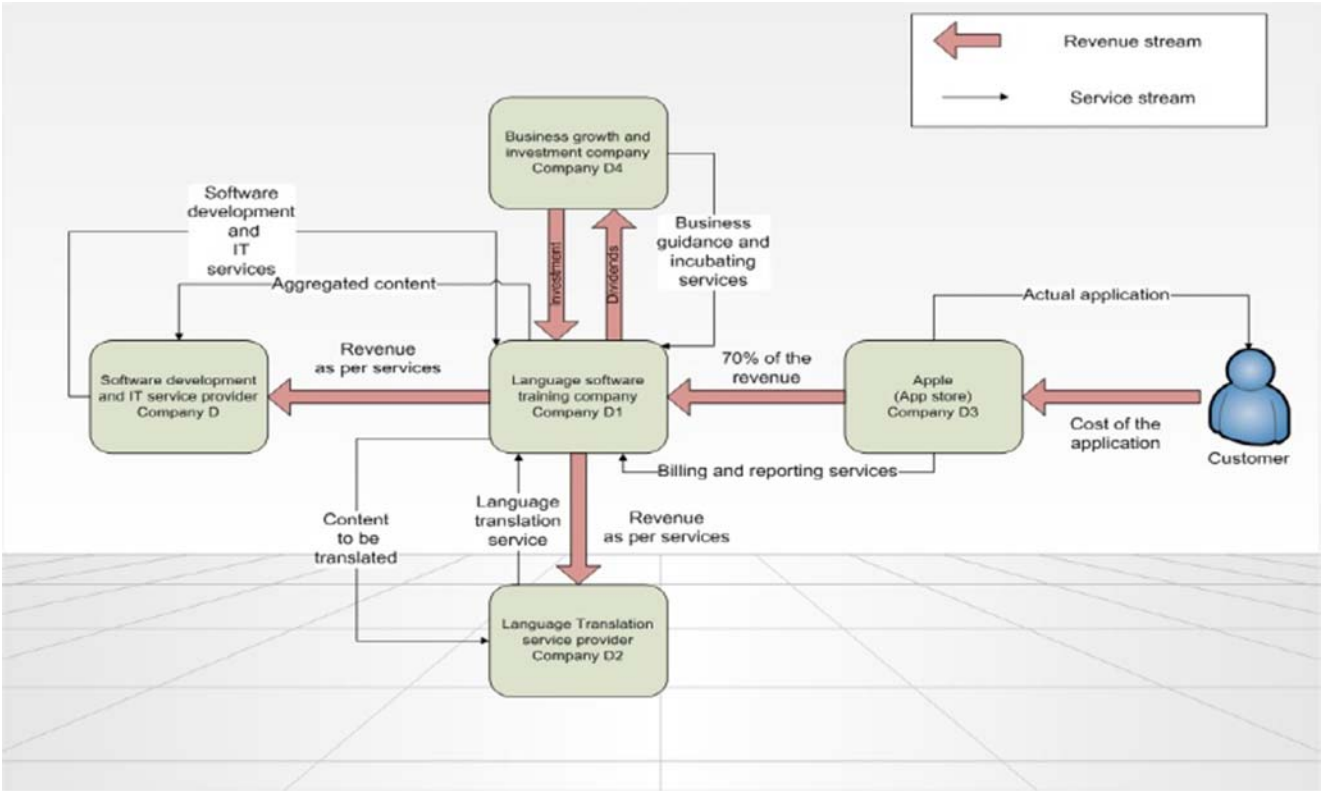


**Fig. 7** Value chain for the language phrasebook and learning tool

- Deviation from flat rate internet access charges in the case of e-commerce to traffic oriented communication charges in m-commerce.

These differences are linked to the shift from a free service dominated environment (Internet) to a mobile operator-owned mobile commerce environment. Heavy traffic in the case of e-commerce does not necessarily generate more revenue or attract additional profits, unlike m-commerce, where customers pay for mobile telecommunication and data services on a usage basis and extra traffic implies extra revenue for the service providers. Content distribution costs over the internet are negligible due to the low cost of storage and bandwidth and due to the availability of alternate advertisement-based revenue sources, but in the case of m-commerce the cost of service delivery is dictated mostly by the mobile service provider. Mobile devices are highly private in nature as compared to computers, and thus create huge potential for mobile operators in maintaining profile-based customers' information databases and thus designing context and profile based services. Mobile devices and users can be geospatially located, opening opportunities for designing Location Based Services. Therefore it's evident that mobile value chains are more complex as compared to conventional e-commerce value chains, and it's not the best practice to straight forward apply the conventional e-commerce models to m-commerce.

Research question 2: What are the success factors that support a viable and sustainable business model for M-Commerce in the IT sector?
Research question 3: What are the potential characteristics of an evaluation framework for a viable mobile commerce business model in the IT sector?

Question three is the principal theme of this research. The findings from the literature review and the comparative analysis were taken as the foundation for extracting the themes to conduct the cross case analysis. The first five characteristics listed are consistent with the VISOR reference model adopted by the study. The last five listed characteristics thus enhance the reference model and it is part of the contribution of this paper.

The major findings came out to be seven critical success factors and ten characteristics of viable mobile commerce business models. It is useful to classify those factors and characteristics according to their impact on the service offered, or alternatively, on the organisation offering the service. The Critical Success Factors are pre-fixed by "CSF" while the characteristics are pre-

fixed by "CH" and those closely related are grouped together.

Service-related issues:

- CSF3—Ultimate customer experience and *CH2—Interface* (Ease of use, accessibility): An interface presents the layer of interaction between a specific business model and its end customers. The relative ease of use, convenience, and accessibility results in a better customer experience and thus core success for the model.
- *CH3—Service offerings*: service offerings include IT or non-IT based services that provide end to end connectivity to various functional blocks of a business model's value chain. If a business model is a story that makes sense, service offerings are the components that make that sense complete and relevant.
- *CH4—Value proposition*: According to the literature review and the data collection the precise definition of value proposition is the description of products and services offered by a specific business to its customers and answers why a customer should invest in a company's products or services. A value proposition defines the comprehensive logic and product offerings that provide value to the customer, better than other competitors, and answers a couple of simple questions: "What products or services are offered to the customers?" and "How do these offerings provide value to the customers?"
- CSF6: Easy payment options
- CSF4: Ability of the business model to change and evolve with time and *CH6—Dynamicity*: It is clear that viable business models are not static and have to be revised over time. Ongoing changes in the global business environment forces companies to regularly review and adapt their business models to sustain their market presence.
- CSF7: Scalable to distinct market parameters (e.g. location, service platforms etc.) and *CH7—Scalability* (flexibility and welcoming): Scalability is a key property of viable business models. It indicates its potential to either handle growing amounts of revenue with ease, or to be readily enlarged. It is highlighted in the literature review, that welcoming or flexible value networks will be more successful over time and replace traditional and linear value chains.
- *CH8—User centric architecture*: Current mobile applications are often inspired by new devices or by new technologies. However, the findings of this study suggest that it is necessary to exploit the synergies of mobile technologies and produce more user-centric business models, which place potential customers in the first place.

Organisation-related issues:

- CSF2: Sharp interest towards extending value-based collaborations and partnerships to the other players in the industry.
- CSF5: Appropriate and standard costing structures
- *CH1—Organising model*: An organising model defines how a set of service providers, or internal departments of a single service provider, organise business processes, value chains, organisational or business strategies, partnerships and collaborations with other value partners to deliver products and services to the end customer.
- CSF1: Good Return on Investment (ROI) to each of the participating partners and *CH5—ROI (Return on Investment) arrangements*: The description of the investment needed in the organisation and the associated cost models explain the costing structure for variable products and services. Both components help in explaining one of the very important drivers of any business case: ROI. It describes the risks, investments and the revenue streams fragmented across various participating actors in the value chain. The entire business model and value chain should be defined in such a way that it generates adequate ROI for all the partners involved and keep them engaged in the value chain. Adequate ROI arrangements emerged as the most crucial component in sustaining a business model.
- *CH9—Collaborations and partnerships*: The capacity to enable m-commerce success substantially depends on external collaborations and partnerships, which also extends the consideration of the roles and responsibilities of various actors and value their participation. It is clear that, at least at the moment, the mobile market is a carrier-dominated one rather than an open market and it requires more stringent partnerships with tightly coupled arrangements rather than loose co-operations.
- *CH10—Responsiveness to market trends*: Looking at the critical success factors for a mobile commerce initiative, the key factor consistently highlighted, by both the literature and the cases, is *market needs* and this has taken precedence over technological issues. An organisation's responsiveness towards changes in market trends gives it an edge in a highly competitive environment. Market trends bring new challenges for specific organisations and direct them towards initiatives uptake.

The summarised case descriptions are presented in the "Appendix". The identified factors are briefly described for all the organisations studied.

M-commerce business model evaluation framework

The ultimate aim of this research is to develop an evaluation framework for viable mobile commerce business models in the IT sector. Ten characteristic components were initially identified. Afterwards these components were used as themes to conduct the cross case analysis. The presence of these components leads a business model towards viability, and thus assessing a business model on the basis of discovered constructs (illustrated in Fig. 8) can help in estimating the viability of a mobile commerce business model.

The constructs selected for the evaluation framework are:

- *User-centric architecture*: There are strong indications from the literature review and case data that a user-centric approach towards developing services leads to enhanced user participation and engagement. User centricity is implied by understanding the behaviour of expected end-users and using feedback in designing the service. The construct identified for this specific characteristic component is:

C1: The objectives of the business are meeting customer requirements; streamlining the services and products according to what the customer thinks, meeting customer expectations and improving the overall quality of the customer's experience.

- *Value propositions*: The central concept in the service domain is value, and is considered as the comprehensive logic behind creating value that the business delivers. To deliver the value proposition to different customers, the firm should ensure that it contains distinct capabilities to use available resources and offer services to the market.

C2: A value proposition is asking a few key questions such as:

– What is the value customers should expect from the business?
– Why a specific company?
– What is the underlying cost for the end product/service?
– What is the appropriateness of the cost?

Answering these questions and determining the appropriateness of solutions with respect to each other helps in determining the value proposition in a business model. The better the value proposition the more value is achieved and thus more viability is recognised in the business model.

- *Organising model*: An organising model describes the arrangement of participating entities aiming to deliver distinct services across the value chain in an efficient manner. In any business model roles and responsibilities are distributed among various participants. In a viable business model the organising model is complete, which means there exists appropriate actors who perform tasks specific to their core responsibilities. The construct for this characteristic component is:

C3: Analysis of the actors, roles and responsibilities in a value chain, and identification of the proper match between an appropriate actor for a specific role or responsibility.

- *Service offerings*: In any business model there are a number of key services required for its proper functioning. Service offerings refer to a set of services that allow a business model to create a market and capture value. The construct for the service offerings characteristics is:

C4: Analyse all the key processes required by the business model to function effectively and determine whether there is an incorporating service component for each of the functions required.

- *ROI arrangements*: The literature and case data highlight that ROI is an important factor for any business and its partners. Thus it is very important to analyse that each participant in the business model is receiving enough ROI to stay involved. Hence the construct for this component is:

C5: Investigate whether every participant is getting sufficient ROI to stay engaged in the value chain by developing a complete revenue-cost map for the business model.

- *Interface*: A good, easy to use, accessible interface is a deciding factor for the success of a business model. The interface is the face of any business model and determines the perceived usability of the business model. The more usable an interface is, the more viable the business model gets. The literature shows that in many cases value propositions are increased several times due to a good interface. The key construct for this component is:

C6: Easy to use, convenient, and accessible interface to the service; clear, complete, consistent and user-centric interface design.

- *Scalability*: Scalability refers to the capability of a business model to extend its services or resources to increase throughput. Thus the construct for scalability as per patterns seen in the cross-case analysis is:

C7: Welcoming, modular and flexible nature of the business model in order to facilitate the addition of services and resources.

- *Responsiveness to market trends*: No business model can work in isolation and it is prone to external market forces. Market trends are dynamic in nature and are controlled by many factors such as technology innovations, increases in customer's expectations and so forth. These further force organisations to change their business models and evolve accordingly. The construct for this specific characteristic is:

C8: Analyse the tendencies of a business model and adjust it according to changing market trends. Investigate how likely or

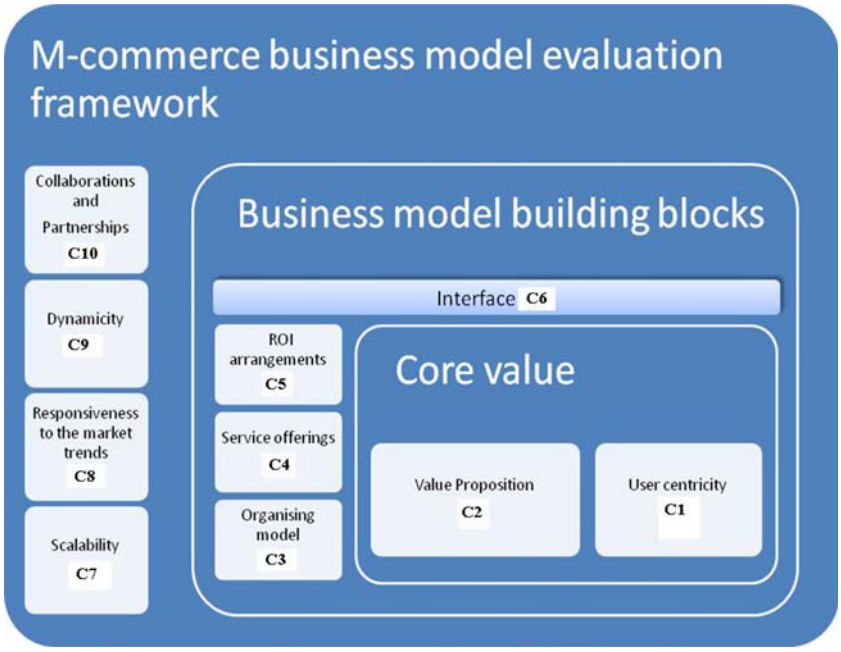


**Fig. 8** M-commerce business model evaluation framework

how capable is a business model to change in response to market trends. More responsiveness implies more sustainability.

- *Dynamicity*: From the cross case analysis all the four companies were found to be dynamic due to their willingness to change their business model to suit the present needs of the market. The literature and the case data support the idea that static business models are not viable and thus reluctance to change to market needs makes them even less viable. Thus the construct for dynamicity is:

C9: Willingness and ability to change in response to a dynamic external environment (market needs, customer expectations, technology innovations, and changing business environment)

- *Collaborations and partnerships*: In the highly competitive mobile business domain, different actors need to collaborate with each other to complement their shortcomings and create valuable propositions for their customers. The construct for this characteristic is:

C10: Existence of value based collaborations and partnerships which ultimately brings additional revenue to the entire value chain.

## Conclusions

The findings and the proposed framework presented in this paper provide value to both theory and practice. The evaluation framework for viable m-commerce business models in the IT sector provide new insights into a number of areas that have largely been ignored while setting up mobile commerce initiatives and defining an incorporating their associated business models.

The findings from this study may also provide value to the relevant practitioners, particularly for organisations aspiring to roll over mobile commerce initiatives in the near future, including mobile operators, software developers, wireless harware vendors, and other IT industry members. It is expected that the value of the study will apply in the near future as long as the following assumptions hold:

- M-commerce will continue to influence the conventional methods of doing business.
- M-commerce will continue to be deployed by distinct value chain partners in a number of innovative ways.
- Telecommunication and mobile technologies will keep emerging to handle more and enhanced features and services.
- The demand for accessing the Internet on an anywhere, anytime basis using mobile devices will keep increasing.
- More and more enhanced devices will kep flooding the market with high computing powers and display provisions leading to increased business capabilities through mobile phones.

At the time of this writing all the assumptions above are very realistic and as the global economy slowly emerges from the 2008/9 recession organisations will return to the search for innovative business models, many of them possibly based on mobile commerce approaches, to help them increase their market share and improve the quality of their earnings. Our paper provides a comprehensive evaluation framework that can be used to assess m-commerce plans.

## Appendix—cross-case analysis: A summary of the data collected

| Identified viable business model key factors | Company A | Company B | Company C | Company D |
|---|---|---|---|---|
| **Dynamicity** | - Dynamic in nature<br>- Has evolved over time with roll out of different payment options | - Dynamic in nature<br>- Company has clear strategies to consistently evolve from core infrastructure owner and product vendor to a solution oriented company. | - Highly dynamic company<br>- Known for its vision to stay ahead in the mobile communication industry and set examples for company branches in the rest of the world. | - Business model is dynamic in nature as evolved from conventional language learning and training mechanisms. |
| | - Eventually recognised the potential of mobile based micro payments and business model was revised accordingly. | -Formulated a whole new business model around conventional technology: Wi-Fi hotspots | - Changed the existing business model behind their mobile portal to make it more adaptable and appropriate to increasing customer's expectations and market needs. | - Whole new value chain was created and partnerships were made to realize the new Apple iPhone based language learning tool. |
| **Scalability** | - Low scalability. | -High scalability | - High scalability | - Moderate scalability |
| | - Source of revenue is limited to the parking costs only. | - Enough scope of introducing value added and innovative capabilities to generate more revenue out of laid Wi-Fi framework. | - Offers scalability to content service providers | - Software based scalability |
| | - Little scope for new partners to engage. | - Ideal for organisations wanting to rapidly deploy their own Wi-Fi network (can leverage company B's metro Wi-Fi) | - Enhance the scalability of mobile data services | - Scope for enhancements to the application |
| | - Only driver for engaging new partners is significant cost reductions; however it's a low profile service so already works on low margins. | - Higher scalable platform that can adapt to a larger group of users. | - Scalable internet access | - Scalable to other platforms |
| | - Only scalable in terms of geographic extension. | | - Room for more collaboration with Internet based partners. | - Scalable to other languages<br>- Little scope for new partners to engage |
| **User centric architecture** | - User centric | - User centric | - User centric | - User centric |
| | - Enhances customer experience | - More freedom to access converged data services on the move | - Only motive to change the business model is to meet the customer's expectations around access to internet via their mobile devices. | - Easy to use and portable language learning tool |
| | - Well formulated less complicated business process | - Better customer (travellers, civilians) experience through council operated public information portal. | - Company C entered into partnerships with Internet branded websites and enabled access customers to their favourite internet websites using their mobile device at anytime, anywhere basis. | - One time download model, thus less complex business process and high usability |
| | -easy to engage customers to pay for the service and encourages them over other parking spots not having mobile payment functionality, thus increases revenue. | - Easy registration and payment process encouraging user to pay and use the services impulsively | | - User oriented application design appropriate for diverse demographics and age groups |

| | | | | |
|---|---|---|---|---|
| **Collaborations and partnerships** | - Explicit recognition of importance of collaborations | - Explicit recognition of importance of collaborations | - Explicit recognition of importance of collaborations | - Explicit recognition of importance of collaborations |
| | - Supported collaboration as well as partnership | - Collaboration with the radio transmitter hardware vendor (cost of the equipment) | - Collaboration with service provider for content and applications against share of revenue been passed over to the service providers. | - Collaboration with essential service provides i. e. data translation services and software and IT based services. |
| | - Collaboration between complementors i.e. third party software vender and third party vending machine providers | - Collaboration with the city council, lease the SSID against allocation and provision of the installation sites by council. | - Value based collaboration with branded internet websites. Primarily against more traffic and increase in number of members. | - Partnership between start up company (Language training software company) and potential investors for start up investments against share in the company profit |
| | - Joint venture partnership with competitor (other mobile operator) to make the investments more appropriate<br>- Collaboration with the core supplier of the service i.e. city council supplying company A access to sell parking space to the customer via mobile phone. | - Joint partnership with mobile device vendor to give its phone buyers access to the company B's internet services against fixed cost contract.<br>- Collaboration with various service providers with a business idea and in search of wireless network partners. | | - Collaboration with online application store operator for online profile and development kit against brokerage taken from the total revenue. |
| **ROI arrangements** | - There exists an effective and rewarding revenue structure for all the participating actors in value chain. | - There exists an effective and rewarding revenue structure for all the participating actors in value chain. | - There exists an effective and rewarding revenue structure for all the participating actors in value chain. | - There exists an effective and rewarding revenue structure for all the participating actors in value chain. |
| | - Each participant has enough source of revenue to stay engaged in the value chain | -Each participant has enough source of revenue to stay engaged in the value chain | -Each participant has enough source of revenue to stay engaged in the value chain | -Each participant has enough source of revenue to stay engaged in the value chain |
| | - Company A is getting its revenue from service transaction costs and service charges from the councils. | - Each participant has their distinct revenue generation logics. | - Company C sells the content from service provider; keep the brokerage and passes over to the service providers. | - Service providers (Language translation and software development) get revenue from language software owner against services they provide. |
| | - Software vendor get their share of revenue partially from the service transaction cost and partially software installation and maintenance cost.<br>- Vending machine vendors get their revenue directly from responsible councils and councils from the end products i.e. parking cost. | - City council getting ROI in form of better customer experience, city marketing, easy access to information for tourists and an image makeover.<br>- Alternative service providers having leased SSID through company B have their own underlined revenue models to generate enough revenue to stay involved in the value chain. | - Internet branded websites gets their ROI from underlined business model in form of more traffic and increased number of registered members, while company B gets revenue by charging customer on fixed charge usage basis. | - Apple keeps the brokerage out of total revenue accumulated by selling application and pass on the rest to the software owner.<br>- Investors get their revenue via dividends. |
| **Organising model** | - Appropriate value chain partner with distinguished roles and responsibilities. | - Appropriate value chain partner with distinguished roles and responsibilities. | - Appropriate value chain partner with distinguished roles and responsibilities. | - Appropriate value chain partner with distinguished roles and responsibilities. |
| | - Complete and comprehensive organising model | - Complete and comprehensive organising model | - Complete and comprehensive organising model | - Complete and comprehensive organising model |
| | - Clear business processes formulated across key value chain partners | - Evolving business processes across key value chain partner. | - Clear business processes formulated across key value chain partner. | - Clear business processes formulated across key value chain partner. |

| | | | | |
|---|---|---|---|---|
| **Responsiveness to the market trends** | - Mobile phone capabilities to pay small amounts effectively | - Recognises the significance of convergence between mobility and telecommunication networks. | - World emerging in web 2.0 era and customers expect to stay connected to internet. | - Customers want their mobile phones to be multi tasking, and provide distinct services. |
| | - Increase in customer's expectations around using their cell phones for paying small amounts. | -Customer's high expectations around availability of connectivity, content and information on anytime, anywhere basis. | - Opportunities beyond voice and basic data services. | - Market is moving very fast towards handy, efficient, easy to use mobile based applications which they can use in their day to day life. |
| | - Worldwide pilots around use of mobile phones to pay small amounts | - Response to business needs for seamless communication. | -Customer expects to be connected to Internet on anywhere, anytime basis | - Prime aim being to reduce the number of different devices and have one ultimate package of all. |
| | - High penetration of mobile devices into mass population.<br>- Need to provide services beyond voice and text messaging services, more converged data services.<br>-mPayment service is perceived as convenient and useful by the potential customers | | - Access to high end content and converged voice, video and data services<br>- Support integration to attract as well as retain more customers to use the portal based internet services. | |
| **Interface (Ease of use, accessibility)** | - Easy to use | - Easy to use portal based access to Wi-Fi internet. | - Next generation mobile portal, highly usable and attractive interface (Company C recently had enhanced version of their online mobile portal). | - Highly renowned for usability standards: Apple iPhone based interface. |
| | - Transparent costs | - Services accessible in prime locations like cafe, restaurants, CBD.'s in major cities, however not accessible everywhere. | - Access to Internet on the basis of anywhere, anytime. | - Highly usable software design, appropriate for diverse population across various countries as well as age groups. |
| | - Easily accessible service vending machines<br>- A simple to use txt based transaction model, usable by mass population.<br>-Highly optimised easy t follow process<br>- Encourages customers to pay through their mobile phones. | - Enhanced Wi-Fi capable mobile devices used to access internet. | - Good, user friendly interface leads to major internet based websites, quickly using the personal portfolio on the portal. | - Easily accessible to external customers via Apple based application store. |
| **Service offerings (completeness of value chain activities)** | - Presence of all enabling services | - Presence of all enabling services | - Presence of all enabling services | - Presence of all enabling services |
| | - Complete value chain | - Complete value chain | - Complete value chain | - Complete value chain |
| | - No gaps were found in terms of services offered. | - No gaps were found in terms of services offered. | - No gaps were found | - No gaps were found. |
| | - Value chain partners have clearly defined service domains. | - Value chain partners have clearly defined service domains. | - Value chain partners have clearly defined service domains. | - Value chain partners have clearly defined service domains. |
| **Value Proposition** | - Good secure proposition | - Next generation converged service provision for integrated video, voice and data. | - Anytime, Anywhere mobile internet services, | - Easy to use, low cost, language learning, translation and self testing application made on highly renowned usable apple iPhone interface libraries and components |

| | | | |
|---|---|---|---|
| - Easy to use low profile costing service<br>- Enhanced/additional mode of payment for the customer.<br>- Easily accessible and don't require any special mobile device to function.<br>-Simple to use Txt based interface. | - Access to high speed broadband on the move.<br>- Huge potential from the context of community services.<br>- Easy to use an pay options, profile based login | - Next generation mobile portal to access enormous libraries of content and apps offered by company C. | -Language support for more than 10 languages<br>-High value proposition for travellers, tourists or students studying abroad.<br>- No ongoing operational or data usages cost.<br>- No connectivity is required so, extremely portable |

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