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**EVALUATION OF INTERNET CHANNELS AND THEIR
IMPACTS ON IRISH MOBILE OPERATORS' BUSINESS
MODELS**



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ABSTRACT

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This study finds the impacts of the Internet channels on mobile operators' business models with Ireland as a case. It reflects on the business model concepts, business models of mobile telecom industry and specifically Irish mobile operators; and evaluates and highlights the impacts of the internet channels used by the operators.

This study uses exploratory case study as a methodology and qualitative method as an approach. It utilises literature review, industry reports, companies' documents, observation, and interview as data gathering techniques. The study provides answers to the statement of research problems. The problems addressed are the channels used by the Irish mobile operators as constituents of their business models; the preferred internet channels and their reasons; and the impact of internet channels on the business models of Irish mobile operators.

Mobile service providers can use the findings to choose options that enhance their customer value through the use of the Internet channels. It is a valuable resource to service providers and researchers in Ireland and beyond. It also offers recommendations for future development and re-innovation of internet channels.

Keywords: Business Model, Internet Channel, Mobile Operator, Mobile Telecommunication, Irish mobile operator

LIST OF ABBREVIATIONS

2G	Second Generation Mobile Telephony Service
3G	Third Generation Mobile Telephony Service
ATM	Automated Teller Machine
BM	Business Model
CNTO	Cellular Networks and Telecommunication Operator
ComReg	Commission for Communications Regulation
CSO	Central Statistics Office
GSM	Global System for Mobile Communications
ICT	Information and Communication Technology
IoT	Internet of Things
IS	Information Systems
IT	Information Technology
MNO	Mobile Network Operator
MVNE	Mobile Virtual Network Enabler
MVNO	Mobile Virtual Network Operator
OEM	Original Equipment Manufacturer
POS	Point of Sales
PPC	Pay Per Click
R&D	Research and Development
RoI	Return over Investment
SCF	Service Capability Feature
TELCO	Telecommunications Company
V4	Value Proposition, Value Network, Value Architecture, and Value Finance Dimension
WWW	World Wide Web

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1 INTRODUCTION

The topic of this thesis is "Evaluation of Internet Channels and their impacts on Irish Mobile Operators' Business Models". This study examines the business model concepts in order to capture the previous studies in the field and their relevance to the mobile industry. Business model research has received considerable attention from both academics and practitioners, but there exists wide margin in the viewpoints of researchers. According to Zott, Amit and Massa's (2010), peer-reviewed academic journals indicate the publication of 1,177 business models related papers from 1995 to 2010. These papers address the notion of a business model with the suggestion of some common grounds. The suggested common grounds perceive the business model as a new unit of analysis, an approach on how firms do business with emphasis on activities, and an acknowledgement of the usefulness of value creation (Zott & Amit, 2009; Zott & Amit, 2010) .

Similarly, internet channel, as a viewpoint, is often research in the context of a business model composition. More so, previous studies recognise the channel as a subset of a business model composition, but under value network or value chain as the case may be (Al-Debei, El-Haddadeh & Avison, 2008a; Al-Debei & Avison, 2009; Camarán & De Miguel, 2008; Chesbrough, 2007; Kijl, Bouwman, Haaker & Faber, 2005; Koen, Bertels & Elsum, 2011; Kuoa & Yu, 2006; Österle, Jordan & Kagermann, 2010; Zott & Amit, 2009; Zott, Amit & Massa, 2010). Channel plays a crucial role as an intermediary between "a company and its customers", "value proposition and end-users", and the business model compositions. The benefits of channels are crucial in any organisation's internal and external entities. The terrain of the internet channels has rejuvenated and reinvented ways of value capturing and delivery in business models. The utilisation of channels and internet channels in a business model is enormous and involves such areas as communication, information management, distribution, collaboration, service and support offering, and sales derivation. It is an entity that stimulates and innovates business model concept.

While evaluating the internet channels and their impact and considering a case of Irish mobile telecom industry, the thesis focuses on the seven main and

well-established mobile operators in Ireland. These operators are 3 or Three Ireland, eMobile, Meteor Ireland, O2 Ireland, postfone, Tesco Mobile Ireland, and Vodafone Ireland. The results and findings focus on business models used by Irish mobile operators, the channel choices and impacts of internet channels on their business models, and recommendations based on the evaluated internet channels.

1.1 Objective and Motivation

The business model concept is one of the most valuable domains in the field of Information Systems because of the rapid growth, and the adoption of Information and Communication Technologies (ICTs) by many organisations (Al-Debei, El-Haddadeh & Avison, 2008a). This study focuses on the internet channels used by Irish mobile operators and their impacts on the operators' business models.

Why Ireland and the Internet Channels?

Few researchers look at the cellular technology domain but only examine the technical issues concerning its infrastructure (Al-Debei, El-Haddadeh & Avison, 2008b; Al-Debei & Avison, 2009). Scholars, who study different aspects of new business models, examine the ways companies utilise supply chain reconfiguration to the ways they generate revenues (Zott et al., 2010).

Researchers often consider the Internet Channel as a constituent of a business model for mobile industries, but there were previous studies for manufacturing, retail, and marketing industries (Frambach et al., 2007; Geyskens, Gielens, & Dekimpe, 2002; Hulland, Wade & Antia, 2007; King & Liou, 2004; Lee, Lee & Larsen, 2003; Tu & Hou, 2011; Wei, Shen & Ji, 2008; & Zhu & Cai, 2011). Limited empirical studies evaluating the values resulting from the adoption of the internet channels exist (Tu & Hou, 2011).

Interest and curiosity in knowing more about the Irish mobile industry and the impacts of the Internet on their business operations led to this study. People consider Ireland as the EU Internet hub because of the influx of the world's internet giants like Google, Microsoft, Facebook, LinkedIn etc. (Smyth, 2011) and the rapid adoption of e-commerce by the government and businesses (Benko, 2001). Ireland is within reach because the researcher resides there and facilitates the empirical aspect of the study since he is able to interview the management staffs of some of the mobile operators. More so, mobile operators like O2, Tesco Mobile, and Vodafone have global operations and manage common business models for their subsidiaries.

1.2 Statement of the Research Problems

In consideration of the viewpoint of this study which is the internet channels, the curiosity to understand more about business models in general and especially that of Irish mobile operators, and the limited study about the internet channel as a constituent of a business model; this study considers the following research questions:

1. *(a) What channels are used by the Irish mobile operators as constituents of their business models?*
(b) Which internet channels are used by these operators?

The research questions address the business model concepts in general, the business models of mobile operators in Ireland, and channels as components of business models. Review of the existing literature on the business model concepts and channels provide answers to these problems in one part. In the other part, the interview, operators' websites and reports help to understand the business models and identify the channels used by the mobile operators. The answers to the problems identify, describe and evaluate the different business models and the channels used by the operators..

2. *Which internet channels Irish mobile operators prefer and why are these channels preferred?*

This research question handles the Irish mobile operators' selection of internet channels and the reasons behind it. Resources such as existing literature, interviews, companies' websites, and reports are able to find solutions to this problem. The findings reveal the preferred Internet Channels by the operators and the reasons for their preference.

3. *How do internet channels favour the business models of Irish mobile operators?*

This research question focuses on the impact of internet channels on Irish mobile businesses. The assessment of the operators' websites, annual reports, and interviews provide answers to the problem. The findings identify, describe and evaluate the roles the internet channels in Irish mobile business operations.

1.3 Methodology

This study is an exploratory case study research and uses Irish Mobile operators as cases. Yin (2003), defines case study research as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly

evident." In support of the definition, Woodside (2010) explains that case study research focuses on describing, understanding, predicting, and/or controlling the individual (such as process, people, organisation). Therefore, Woodside submits that an objective of a case study research may combine any of description, understanding, prediction, and control.

As an exploratory case study research, Irish mobile operators serve as cases in the context of the research. For this research, exploratory case study is an appropriate method because the study requires new information about mobile operators' business models in the viewpoint of the Internet channels. This study focuses on seven mobile operators in Ireland; their business models and utilisation of Internet channels to strengthen their business operations as recognised in their own business models.

The researcher reviews the previous literature on business models and the Irish mobile operators with consideration of the companies' annual reports, financial statements, industry reports, and website resources. He interviews the staff of the operators to support the empirical aspect of this study. The study utilises exploratory case study as the methodology and qualitative research method as the approach; while the interview and documents such as annual and industry reports serve as the data collection methods.

Data Collection Methods and Literature Research Process

Literature reviews provide comprehensive overview knowledge of business models and the available channels. Interview, annual reports, industry reports and the companies' websites substantiate the method for data collection. The researcher reviews the available information about main mobile operators and their business models with respect to the internet channels.

In this view, this study uses qualitative method and open-ended questions for interviewing the management staffs of the operators. The empirical study supports the findings from the literature review and other sources. The researcher records and transcribes the interviews for analysis to capture the key themes and their relevance in the context of this study.

The literature research follows the approach which takes the form of a case study, literature search and interviews. Searching for literature is challenging because it is necessary to understand the right keywords and efficiently align the viewpoints in previous research to the current scope of the study.

The use of peer-reviewed journals and scholarly articles during the literature research and review processes support this study. This study considers academic databases like ACM Digital Library, Computer and Information Systems Abstracts, Electronics and Communications Abstracts (ProQuest), IEEE/IEE Electronic Library, ProQuest Computing (ProQuest), ProQuest Telecommunications, Science Direct (Elsevier), Springer Link, and Web of Science (WoS). NelliPortal and Google Scholar serve as intermediaries in searching for information this study uses.

Annual reports, industry reports and operators' websites provide sufficient information for this study. Empirical studies through interviewing of the management staffs of some of the operators, further consolidate the outcome of the research. The use of multiple sources of evidence such as interviews, literature review, industry reports, observation and companies' documents for information collection increases the validity and reliability of the study as Yin (2003) supports.

1.4 Structure of the Thesis

This Subchapter briefly highlight the key areas examined in this study according to the context presented in the chapters.

Chapter 2 reflects on the business model overviews by looking into the business model concepts and definitions in scholarly research in the IS field. It also elaborates on the business model topology with respect to attributes, potential strength and weakness; business model components or elements. While reviewing the distribution channel domain already addressed in business models, the elements of business model generation are also highlighted. It treats the evolution of business models, business model perspectives and viewpoints, notable business models of mobile telecom industry; issues and concerns of mobile operators' business models, and the importance of business models in the mobile telecom industry.

Chapter 3 treats channels and the Internet with reflections on channel overview, the Internet, types and functions of channels, factors for selecting appropriate channels, and importance of channels in business operations. More so, it examines internet channel and its type in tandem with their classification. It considers the issues and concerns affecting Internet Channels, and the key factors to consider in evaluating internet channels.

Chapter 4 considers the brief scenario of mobile telecom industry with respect to Ireland, and the notable business Models of Irish Mobile Operators from the literature perspective. This chapter explains mobile business arena elucidating on the actors and environment of mobile ecosystem; and the characteristics of Mobile Business Industry. It also reflects on the Internet adoption and use in Ireland.

In Chapter 5, case method is treated in detail. In presenting the case method, it elucidates on why case study is appropriate, type of case study method used, frame of reference guiding the data gathering and analysis, data sources, interview details, and data analysis method. Since this study is about mobile operators in Ireland, this chapter handles the case companies and their corresponding background information. It identifies and tabulates the products and services of Irish mobile operators and their relevant channels.

Chapter 6 of this study covers the results that take cognisance of the empirical studies. It reflects on the business models of Irish mobile operators as reflected in the interviews and companies' reports. It explores in details the

internet channels used by operators and to what extent they use them, most especially in the areas of customer-centric web portals. Importance and impact of internet channels, which directly affect Irish mobile operators and their businesses conclude the chapter. Chapter 7 features the discussions about the case results in comparison with the literature review and the thoughts of the researcher. It also reflects on the recommended frameworks for assessing channels and internet channels by functional classification.

Chapter 8 reflects on the conclusions, recommendations, and limitations. The chapter reflects on the whole study and justifies the outcome of the study. While concluding with the usefulness of the findings to the industry, it also offers recommendations for future improvement and re-innovation of internet channels and their use. The chapter ends with limitations and implications for future research.

2 AN OVERVIEW OF BUSINESS MODELS

This chapter focuses on the general overview of business models by elucidating on the previous research about business model concepts and definitions in scholarly research in the field of information systems. It also includes the business model topology with consideration for its attributes, potential strengths and weakness; and components or elements. While reflecting on the distribution channel domain treated in previous studies, it also highlights the elements of business model generation. The business model research encompasses the evolution of business models, business model perspectives and viewpoints, notable business models of mobile telecom industry; issues and concerns of mobile operators' business models, and the importance of business models in the mobile telecom industry.

According to Zott et al. (2010), the business model concept rises to stardom through the advent of the Internet in the mid 1990s, and it has been a point of interest since then even though Teece (2010) confirms its existence from being an integral to trading and economic behaviour since pre-classical times. The year 1990 seems to be the beginning of boom for business model concept as Nielsen and Per Bukh (2008) disclose that it was synonymous with e-business and the emergence of the new economy. Al-Debei et al. (2008a) describe a business model as an essential intermediate layer between business strategy and business processes. A business model entails various activities to create future opportunities such as offering innovative value propositions, identifying market segments, determining cost structures and other key processes to support business growth. Weiner and Weisbecker (2011) follow up that business model describes business logic and provides an aerial view on several elements of a business such as the value proposition, customer segments, revenue streams and key processes. Business survival and success depend on a well-nurtured business model that ensures the alignment between business strategy and business processes. It has been established that business models should be revised continuously to fit the changing technology, market, regulatory conditions, and meet up the competitiveness desired (Al-Debei et al., 2008a; de Reuver et al., 2007).

Over the past few years, the concerns of business model research focus on business model definitions with concern for business model components, categorisation of business models, and development of descriptive models (Kijl, Bouwman, Haaker & Faber, 2005). There has not been a unanimous definition of business model because researchers consider the concept from different perspectives and as such offer definitions based on their perceptions. Researchers and managers often research business models without explicitly defining the concept despite its widespread adoption (Leif & Per, 2007; Pousttchi, Schiessler & Wiedemann, 2007; Weill, Malone, D'Urso, Herman & Woerner, 2005; Zott et al., 2010). At 2005, Osterwalder, Pigneur & Tucci also support the variety of understanding of business models among people and especially between business-oriented and technology-oriented ones. The extent of variation in the business model description and the amount of conceptualism led to the confusion of business model with other business terms like strategy and process modelling. Meanwhile, Zott and Amit (2010) argue that business models can be viewed as templates that guide companies on their business conducts, value delivery, and market segmentation.

In consideration of various perceptions and intuitions of the researchers that offer definitions for business models; and understanding the holistic views of the concepts from a different perspective; there is a need to delve into the selected scholarly definitions of business model concepts. Al-Debei et al. (2008a) examine the basis of business models definitions from the previous research and tabulate them as shown in the following table (TABLE 2.1). The table while showcasing the various scholarly definitions from different authors also reflects on the authors' viewpoints about business models.

TABLE 2.1 Selected Scholarly Definitions of the Business Model Concept (Al-Debei et al., 2008a, p. 2-3)

Authors	BM Definition	Basis of BM Definition
Timmers (1998, p. 4)	An architecture for products, services and information flows, including a description of various business actors and their roles; a description of the potential benefits of the various business actors, and sources of revenues.	Product architecture, value proposition, and revenue sources
Venkatraman & Henderson (1998, p. 33-34)	A strategy that reflects the architecture of a virtual organisation along three main vectors: customer interaction, asset configuration and knowledge leverage	Organisation architecture and organisation strategy
Rappa (2000: Online)	A BM is the method of doing business by which a company can sustain itself, that is, generate	Revenue sources

	revenue.	
Linder and Cantrell (2000, p. 1-2)	The organisation's core logic for creating value.	Value proposition and revenue sources
Petrovic et al. (2001, p. 2)	A business model describes the logic of a "business system" for creating value that lies beneath the actual processes.	Business logic and value proposition
Amit & Zott (2001, p. 4)	A business model depicts the design of transaction content, structure, and governance so as to create value through the exploitation of new business opportunities.	Value proposition
Torbay et al. (2001, p. 3)	The organisation's architecture and its network of partners for creating, marketing and delivering value and relationship capital to one or several segments of customers in order to generate profitable and sustainable revenue streams.	Value proposition and collaborative transactions
Stähler (2002: Online, p. 6)	A model of an existing business or a planned future business.	Current and future business reality simplification
Magretta (2002, p. 4)	The business model tells a logical story explaining who your customers are, what they value, and how you will make money in providing them that value.	Value proposition and revenue sources
Bouwman (2002), source: Camponovo & Pigneur (2003, p. 4)	A description of the roles and relationships of a company, its customers, partners and suppliers, as well as the flows of goods, information and money between these parties and the main benefits for those involved, in particular, but not exclusively the customer.	Collaborative transactions and value proposition
Camponovo and Pigneur (2003, p. 4)	A detailed conceptualization of an enterprise strategy at an abstract level, which serves as a base for the implementation of business processes.	Intermediate theoretical layer
Haaker et al. (2004, p. 610)	A blueprint collaborative effort of multiple companies to offer a joint proposition to their consumers.	Collaborative transaction and value proposition
Leem et al.	A set of strategies for corporate	Organisation

(2004, p. 78)	establishment and management including a revenue model, high-level business processes, and alliances.	strategy
Rajala & Westerlund (2005, p. 3)	The ways of creating value for customers and the way business turns market opportunities into profit through sets of actors, activities and collaborations.	Value proposition and collaborative transactions
Osterwalder et al. (2005, p. 17-18)	A business model is a conceptual tool that contains a set of elements and their relationships and allows expressing the business logic of a specific firm.	Business logic, value proposition, and organisation architecture
Andersson et al. (2006, p. 1-2)	Business models are created in order to make clear who the business actors are in a business case and how to make their relations explicit.	Collaborative transactions
Kallio et al. (2006, p. 282-283)	The means by which a firm is able to create value by coordinating the flow of information, goods and services among the various industry participants it comes in contact with including customers, partners within the value chain, competitors and the government.	Value proposition

Based on the different viewpoints shown in the table above, Al-Debei et al. (2008a) define a business model as an "abstract representation of an organisation, be it conceptual, textual, and/or graphical, of all core interrelated architectural, co-operational, and financial arrangements designed and developed by an organisation, as well as all core products and/or services the organisation offers based on these arrangements that are needed to achieve its strategic goals and objectives". Value is a keyword in most of the business models' definitions and concepts. It is hard to define business models without considering the roles of value which may be proposed or created, and captured or delivered. In this thesis, the *business model concept* refers to a set of activities a company performs and its relationship with external partners or customers to propose a compelling value delivered through effective channels to its customers for the purpose of generating recurring profitable revenues.

When an organisation sees a business model as a business strategy, Nielsen and Per Bukh (2008) suggest that the strategy and its qualities must be clearly explained to the actors and stakeholders by considering certain attributes, which reflect on potential strengths and weaknesses of the adopted topologies. In order to provide a clear and detailed explanation of the business

model, they propose three typologies of business model definitions with respect to certain attributes along with potential strengths and weaknesses as the following figure (FIGURE 2.1) highlights:

Typology	Attributes	Possible strengths	Possible weaknesses
Generic business model definitions	<ul style="list-style-type: none"> ▪ Components that constitute the business ▪ General industry attributes ▪ A meta model or ontology for business models 	<ul style="list-style-type: none"> ▪ The advantages of aggregation, i.e. gaining an understanding of the basics of the companies value creation 	<ul style="list-style-type: none"> ▪ Picture conveyed becomes too general to convey anything relevant about the specific business
Broad business model definitions	<ul style="list-style-type: none"> ▪ The method of doing business ▪ Focus on the whole enterprise system ▪ The architecture for generating value ▪ Description of roles and relationships 	<ul style="list-style-type: none"> ▪ Value creation must be understood across the whole value chain in which the company participates 	<ul style="list-style-type: none"> ▪ Not sufficiently focused on the core value creating processes ▪ Includes factors not completely controlled by the company
Narrow business model definitions	<ul style="list-style-type: none"> ▪ Describe the uniqueness of internal aspects ▪ Infrastructure for generating value ▪ Detailed accounts of links, processes, and networks of causes and effects 	<ul style="list-style-type: none"> ▪ The level of detail regards the functioning of the specific firm ▪ Precise and relevant descriptions 	<ul style="list-style-type: none"> ▪ Accounts may become too specific to make sense ▪ Loss of overall understanding

FIGURE 2.1 Attributes and possible strengths/weaknesses of the three types of business model definitions (Nielsen & Per Bukh, 2008)

The roles of business strategies are critical to the successes of business model implementation. As such, business model cannot be separated from business strategy, but rather organisations' strategies must be inculcated into their business models. Al-Debei et al. (2008a) adds that a business model is independent and intersects with a company's business strategy as well as its business processes which involve several actors and activities. According to Zott and Amit (2009) business model is an activity system that comprises set of activities performed by organisations, and the method and timeframe to perform the activities which include training, development, manufacturing, budgeting, planning, sales, and service. Obviously, these sets of activities must generate money for the company as Dent (2011, p. 5) emphasises in his business model definition. Chesbrough (2007) in his article highlights six parameters that identify where innovation might generate new value in an industry. The parameters are value proposition, target market, value chain, revenue mechanism, value network or ecosystem, and competitive strategy. While complementing the identified parameters, Osterwalder and Pigneur (2010)

propose in a simpler way, a business model that integrates nine building blocks cutting across customer segments, value propositions, channels, customer relationships, revenue streams, key activities, key partnerships, key resources, and cost structures. The Osterwalder's proposition relates with Nielsen and Per Bukh's topology of narrow business model definitions which describe the uniqueness of internal aspects and detailed accounts of links, processes, and network of causes and effects. According to Chesbrough (2007, p. 12) "Every company has a business model, whether they articulate it or not. At its heart, a business model performs two crucial functions: value creation and value capture".

The business model outlines the economic relationship between a compelling value proposition to effective value distribution at an appropriate cost. In delivering value at an appropriate cost without compromising the desired quality in an efficient and effective manner, the channel has a key role to play. The channel is one of the building blocks of business models that serve as middlemen between companies and their own customers. The trio of communication, distribution and sales channels ensure the delivery of value propositions to the customers (Osterwalder & Pigneur, 2010. p. 27). As Dent (2011, p. 11) relays that "distribution businesses are inherently difficult businesses to get right", so also value creation / proposition without adequate capturing is a mere idea. According to Osterwalder et al. (2005) previous studies have already addressed the distribution channel realm in business models but offer less attention to the internet channel. The table below (TABLE 2.2) briefly highlights the viewpoints of the researcher concerning the distribution channels in the field of IS:

TABLE 2.2 Distribution Channel Domain Addressed in Business Models

Business Model Ontology	Viewpoints	Researchers
Distribution Channel	Channels	Weill & Vitale 2001
	Customer relations model	Petrovic, Kittl et al. 2001
	Channel model	Linder & Cantrell 2000
	Fulfilment and support, information and insight	Hamel 2000
	How can we deliver value at an appropriate cost?	Magretta 2002
	Marketing/sales model	Applegate & Collura 2001

Adapted from Osterwalder et al. (2005)

According to Hulland et al. (2007, p. 110) in their citation, strong interest exists in the IS literature about the impacts of information technologies on the success of the online channel ventures. They also reflect on two dominant streams of research. The two streams of research address issue such web customers' attraction, retention, behaviour and satisfaction; and explore the roles of IT investments on online initiative performance. These two streams discover the

importance of the interaction between IT resources and other company assets and capabilities, and also support the reciprocal advantage of IT and non-IT resources in achieving firm-level benefits, and enhancing business ethics in the context of online commerce.

While considering the impact of IT and non-IT resources; it is necessary to recognise the input of a properly executed and complete business model combined with sales and distribution strategy. The approach, when considered as one of the key business processes in concert with value propositions, differentiation approach, a method of capturing value, key skills, and key resources, is sufficient for competitive advantage (Shorey, 1997). Channels play crucial roles in value capturing and user terminals such as the web, mobile phone / PDA, Fax, Personal Computer, TV, in-stores, vehicles, and social media support channels. The previous studies do not consider channel as an entity in the business model components but under value chain or value network. Osterwalder and Pigneur (2010) recognise channel as a component to consider in business model generation as a result of its importance.

Business model generation gets a new dimension when core activities and elements synthesised and broadened to address in detail the hidden aspects such as channels. In simplifying the concept and the generation of business model for entrepreneurs and companies, Osterwalder and Pigneur (2010. p. 27) develop a framework that focuses on a nine element decomposition that describes a business model with respect to channels. The figure below (FIGURE 2.2) illustrates the framework:

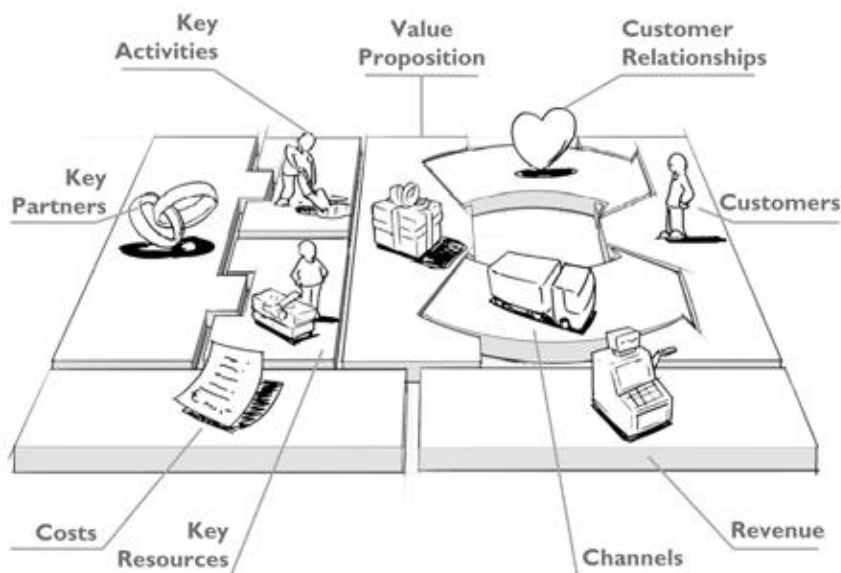


FIGURE 2.2 The Nine Building Blocks of a Business Model (Osterwalder & Pigneur, 2010 p. 16-45)

The framework addresses the interests of other authors in the business model arena and serves as a confluence point for all components of business models identified in the previous studies. The nine element decomposition of business

model otherwise termed the nine building blocks of business model generation are briefly described below (Osterwalder & Pigneur, 2010, p. 16-40):

1. **Customer Segment:** Business exists because of customers. An organisation serves customer segments, which can be individuals or corporate organisation. Conte (2008) sees the customer segment as a group of people addressed by the service offerings. The hallmark of all businesses is to determine who needs and values companies' products and services. In business model, customers also play crucial roles because the values created to satisfy their needs and without customers there is no reason to conduct any business.
2. **Value Proposition:** It seeks to solve customer problems and satisfy their needs with unique products and services. A value proposition is essentially a product or service that creates a value for a customer segment.
3. **Channels:** These are customers' touch points or linkage. A channel connects a company's product and services with their customers. Communication, distribution, and sales channels exist to help the operators deliver value propositions to customers. The channel being a customer touch point enables companies to reach the customers, raise awareness about the company's products and services, deliver value propositions, and provide customer supports.
4. **Customer Relationships:** Companies establish and maintain a relationship with each customer segment. One thing is to create a customer segment; another issue is sustaining the segment. Efficient and strong customer relationship improve customer retention and pave way for the multiplier effect of retained customers. Retained customers do recurring purchases, which improve companies' revenue streams.
5. **Revenue Streams:** Revenues originate from value propositions successfully offered by the companies to customers. Revenue streams may be transaction or recurring revenues. Transaction revenue is one time customer payment while recurring revenue is an ongoing payment to deliver a value proposition or post-purchase support. It is necessary for every organisation to ensure that there is a constant stream of income by consolidating on the sources of recurring revenues.
6. **Key Resources:** These are the assets required to offer and deliver the previous elements. Key resources such as human, infrastructures, and financial assets ensure the creation of customer segments, proposition of profitable value, delivery of value proposition, sustenance of customer relationship, and the increase in revenue streams.
7. **Key Activities:** Recognition of the main activities performed by an organisation ensures the success of its business model. Key activities differ by company as the products and services offered affect the companies' key activities. Focusing on the key activities or activity system; "the greater the total value created, and the greater the focal

firm's bargaining power, the greater the amount of value that the focal firm can appropriate" (Zott & Amit, 2007).

8. **Key Partnership:** These cover the activities the companies outsource or acquire outside the enterprise and involve external partners.
9. **Cost Structure:** The business model elements result in cost structure. This entails the activities of the organisation that involve money and influence the business model of that organisation.

In generating a perfect business model, an organisation should consider all the elements described above which detail nature of business model design and relationship between different activities such as actors, stakeholders, partners, suppliers and above all customers or end-users.

2.1 Business Model Research

Osterwalder et al. in 2005 highlight five phases in the evolution of business model literature vis-à-vis defining and classifying business models, listing business model components, describing business model elements, modelling business model elements and applying the business model concept. The Figure below (FIGURE 2.3) further illustrates the advancement in business model research:

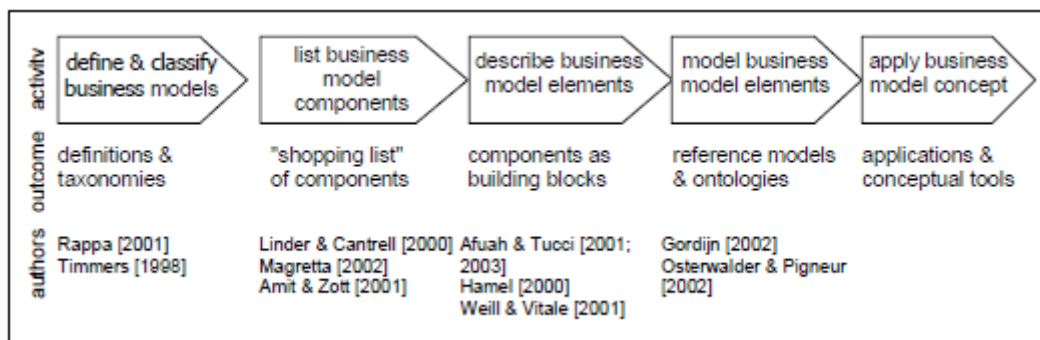


FIGURE 2.3 Evolution of the Business Model Concept (Osterwalder et al., 2005, p. 11)

In consideration of the five phases in the business model evolution illustrated above, Zott et al. (2010) indicate that business models address or describe three phenomena:

- e-business and the use of information technologies in organisations;
- Strategic issues, such as value creation, competitive advantage, and firm performance; and
- Innovation and technology management.

Many academic research on business models consider the situation of e-business that entail new ways of doing business enabled by information technology (Weill et al, 2005). Research into business models in the information systems field focus on e-business and e-commerce which has led to attempts to establish a suitable classification schema. More so, previous studies confirm the definitions, taxonomies, and classifications into IS-related business models for electronics markets and the internet commerce (Al-Debei et al., 2008a). The business models researchers within the IS field have varying viewpoints, which inform Al-Debei et al. (2008a) on the proposal of four fundamental concepts of business model. The four fundamental concepts are value-based. They are value proposition, value network, value architecture, and value finance; and their interactions reflect the status of BM within an organisation. They also assist in forming guidelines to harmonise different definitions and viewpoints from the business model researchers as stated in TABLE 2.1.

Attempts to understand the business model by identifying its components and boundaries is by no means complete (Osterwalder et al., 2005) because the perspectives of the researchers are quite different. There is a need to reach a consensus on the framework to consider when defining business model and agree on a unified definition for its real meaning. In order to reach a consensus, Al-Debei et al. (2008b) start a business model perspective through the analysis of the business model in the IS literature which considers individual authors' viewpoints. They consider different viewpoints and proposes ten models on which the definition of business models can be based. The perspective comprises value creation model, Revenue Model, Abstraction Model, Architecture Model, Business Logic Model, Collaborative Model, Alignment Model, Strategy Model, Conceptual Model, and Organisational Model. The perspectives, their descriptions alongside the cited researchers presented in the following table (TABLE 2.3):

TABLE 2.3 Business Model Perspectives (Al-Debei et al., 2008b, p. 4)

Perspective	Brief Description	Researchers
Value Creation Model	A way in which organisations, along with their stakeholders (business actors) create value either for their customers or to each party involved.	Magretta, 1998, 2002; Amit & Zott, 2001; Petrovic et al., 2001; Stähler, 2002; Osterwalder et al., 2005; Haaker et al. 2006.
Revenue Model	A way in which organisations generate revenue.	Timmers, 1998; Magretta, 1998, 2002; Rappa, 2000; Linder and Cantrell, 2000.
Abstraction Model	An abstraction of the existing business and the planned future business.	Stähler, 2002.

Architecture Model	As an architecture for the organisation, including its assets, products, services, and information flow.	Venkatraman & Henderson, 1998; Timmers, 1998.
Business Logic Model	As business logic relating to the ways in which businesses are being conducted.	Petrovic et al., 2001; Osterwalder et al., 2005.
Collaborative Model	As a way in which an organisation enables transactions through the coordination and collaboration among parties and multiple companies.	Amit and Zott, 2000; Bouwman et al., 2004; Haaker et al., 2006.
Alignment Model	As an interface or a theoretical layer between the business strategy and the business processes.	Camponovo and Pigneur, 2003; Osterwalder et al., 2005; Rajala and Westerlund, 2005; Tikkanen et al., 2005; Morris et al., 2005.
Strategy Model	As an organisation's strategy or set of strategies.	Leem et al., 2004, Kallio et al., 2006.
Conceptual Model	As a conceptual tool, a business abstraction, and a blueprint.	Stähler, 2002; Haaker et al., 2004; Osterwalder et al., 2005.
Organisational Model	As a way of understanding a single organisation or a network of organisations.	Bouwman et al., 2004; Haaker et al., 2006.

Irrespective of the varying perspectives or type adopted; business models must be flexible/easily adaptable, open, and dynamic for the operating organisations to meet up the current challenges and be favoured competitively. In order to ensure flexibility, facilitate knowledge sharing, promote information dissemination, and maintain operational strategies in a business model; the making of the business model must be open, dynamic, and unambiguous to facilitate the analysis and evaluation of the feasibility of the business model in action (Al-Debei & Avison, 2009). While focusing on business models and strategic management, Zott and Amit (2007b) term business model as a structural template that describes and relates the organisation's transactions with its external constituents to hold their market segments. They also reiterate on the impacts of rapid ICT headway in making decision, ensuring transaction efficiency, organising key activities, creating of business models, and interacting with external agents.

Business model research has received a considerable attention over the years in the academia as well as at the industry level. Individual researchers attempt to satisfy their domains, but irrespective of the viewpoints or domains of interests, business model research always leads to the same purpose. The purpose behind the business model research contains certain activities to maximise companies' profits or increase revenue streams. The business model researchers' viewpoints are directly or indirectly connected by certain key terms such as value, customers, products and services, revenue, activities, resources, partners, competitors, channels, legal issues, technology, and transaction. The key terms serve as bases for coherence in business model research.

However, there is a need to itemise notable research on business models. Conte (2008, p. 10-25) in their qualitative study of state-of-the-art definitions, harmonise the notable research literature in the information systems field that reflects on business model, business modelling, business model concept with differing viewpoints and dimensions to defining the business model with respect to the situation surrounding their scopes of studies. The qualitative analysis of state-of-the-art definitions highlights the major research on business models relating to the IS field from 1998 to 2005. In order to make the notable business model research more concise and precise for better understanding of the research areas and the domains addressed by the researchers, and for future applicability, the following table (TABLE 2.4) applies:

Table 2.4 Notable Business Models Research Areas

Researchers	Research Areas	Related Definitions
Timmers (1998/1999)	Relationship between BM concept and e-commerce.	Architecture and descriptions of product and services, information exchange, partners' roles and benefits, and sources of revenue.
Lindström (1999)	Process and purpose of business modelling.	It identifies an organisation's responsibility and business process models, and their interaction to achieve maximum customer satisfaction.
Nilsson et al. (1999)	Use of models and methods to understand and change organisations.	It identifies and bridges the communication gaps between business and system people.
Hamel (2000)	Four components of a business concept.	A business idea with various elements classified into components such as a core strategy, strategic resources, consumer interface, and value network.
Heinrich (2000) / Heinrich & Leist (2000)	BM framework of e-business for commercial banks.	An overview of a company's position with respect to value creation and market potential.
Klueber (2000)	BM design and implementation of e-services.	A company's value creation philosophy and perception of its customers, partners and rivals.
Mahadevan (2000)	BM fundamental aspects	BM is a placeholder for value streams, value proposition and logistical streams.
Zimmermann (2000)	BM Challenges in a digital economy.	Architecture for products and services addressing specific customer demands with consideration for the

		business ecosystem, benefits and sources of revenues.
Bartelt & Lamersdorf (2000) / Bartelt et al. (2001)	BM for e-business.	Architecture of products, services, information flows, and players meet customer needs.
Afuah & Tucci (2001)	BM as one of the three major determinants of business performance.	A system established upon components, relationships between components, and dynamics.
Alt & Zimmermann (2001)	Common denominator of all BM definitions.	A placeholder for six common elements such as mission, structure, value creation process, Revenues, Legal issues, and Technology.
Amit & Zott (2001)	A transaction-based definition of BM.	A concept with transaction elements like content, structure and governance without concern for customers, channel, and revenue model.
Buchholz & Bach (2001)/ Bach et al. (2003)	Evolution of Net sourcing BM.	A container for process model, transaction model, participant model, and revenue model that supports competitive strategies rather than being part of it.
Rappa (2001)	Business Models on the Web.	A method of doing business that guides an organisation about its service provision and revenue generation.
Gordijn & Akkermans (2001)	Ontology-based operators for e-business model de- and re-construction.	A relationship between a company, its value proposition and key activities in delivering value.
Müller-Stewens & Lechner (2001)	Strategic Management (translated from German)	BM extends the effect of value creation in business key activities and their logical relationship.
Weill & Vitale (2001)	Different abstraction levels of e-business model concepts.	A BM as an atomic model with four elements such as strategic objectives, sources of revenue, critical success factors, and core competencies.
Wirtz (2001)	Electronic Business	An illustrator for revenue streams, and inflow and outflow of information within and outside an organisation.
Yu (2001)	Integrated BM Framework for Guiding Electronic Commerce Applications	A BM as a structure that represents entities and relationships of model components and considers e-business success factors.
Bieger et al. (2002)	Identify eight trends of the modern net economy as elements of a business model.	A company's strategy of creating value with respect to partial models like "Value offers concept, Communication concept, Revenue concept, Growth concept, Configuration of competencies, Organisational form, Cooperation concept, and Coordination concept".
Chesbrough & Rosenbloom (2002)	The role of the business model in capturing value from innovation	Consider the BM as a mediating construct between technology and economic value containing six functions vis-à-vis value proposition, market segment, structure of a firm in the value chain, cost structure and profit potential, position of the firm within the value network, and competitive strategy.
Magretta (2002)	Why Business Models	BM explains a company's strategy in

	Matter	capturing potential customers and generating money from the business.
Osterwalder & Pigneur (2002)	e-business ontology	BM as the company's value offered to customer segments, the architecture and its contact of partners for creating, marketing and delivering this value in order to generate revenues.
Stähler (2002)	Business models in the digital economy (translated from German)	BM as a concept comprising the value proposition, the value creation configuration, and the revenue model.
Pateli & Giaglis (2003)	Business model component framework.	Provide a two-dimensional framework that relates a BM's primary component (Mission, Target Market, Value Proposition, Resources, Intra- and inter-organisational processes, Cost and revenue models, Value chain/partnerships) and underlying components (Market trends, Regulation, and Technology).
Scheer et al. (2003)	Distinguish between BMs and internet-based BMs.	BM describes in a simplified way the usual business activities of an organisation.
Osterwalder (2004)/ Osterwalder et al. (2005)	Concept of business models and business model ontology.	BM contains nine building blocks such as value proposition, target customer, value configuration, capability, partnership, cost structure, and revenue model.

Adapted from Conte (2008, p. 10-25)

2.2 Business Models of Mobile Telecom Industry

The business model is a broad concept that covers various scopes and industries. In aligning with the scope of this study, this subchapter reflects on existing business models that the mobile telecom industry uses. This Subchapter elaborates on the types of business models used by mobile operators, factors to consider in designing, analysing, and applying business models for the mobile industry; and explanations of the business model elements. The mobile telecom industry belongs to an area of Cellular Network and Telecommunication Operator (CNTO). In this sense, the business models of mobile operators and CNTOs have common scopes and elements. Mobile telecommunication and its adoption are rapidly increasing due to general interest and the values inherent. The business models of Mobile Network Operators (MNOs) attract more attention because of the future of telecommunication that is shifting from fixed to mobile methods. A business model design for a CNTO as a part of value system is a somehow complicated and requires multiple actors to manage the conflicting requirements as Haaker, Faber and Bouwman (2006) confirm. The need to overcome the challenges affiliated with the requirements of business model design in the telecom business; lots of changes in the areas of advanced technologies, globalization, and deregulation combined with liberalisation is of utmost importance.

According to Al-Debei and Avison (2009) these changes have enormous impacts on the coordination of mobile businesses.

The following sub-topics treat in detailed various business models applicable in the mobile telecom industry:

2.2.1 Mobile Network Operators (MNO) Business Models

MNO business model is the business models of mobile network operators which Camponovo and Pigneur present in 2003. In their article on business model analysis applied to the mobile business, they make a proposal on five core elements or actors which are value proposition, target customers, business partners, core activities, and the revenue stream as recognisable elements suitable for meeting up the needs of business models for mobile network operators. The following core elements examine the areas of suitability in the mobile telecom industry and the extent to which they affect the business process:

- Value proposition provides communication services to end-users, gives the end-users access to companies' network and other network operators' networks and the Internet; and also various network-related services like location information, user identification and third-party billing services.
- Target customers are end-users or customers, corporate organisations, application providers, virtual operators, and ISPs.
- Business partners are vendors from whom operators purchase infrastructures in order to build their networks. They set traffic agreements with other network operators and ISPs which allow customers access to other networks such as operators' networks and the Internet. A typical business partner subsidises and distributes handsets to build its customer base. Considering their primary role in the mobile business, they partner with a great number of other players such as content providers, application providers, service providers, virtual operators and portals.
- Core Activities: The value network configuration of a mobile network operator depends on certain core activities. The core activities are network promotion and contract management, service provisioning, and infrastructure operation. The network promotion and contract management consist of customer care, sales, problem handling, and invoicing. The service provisioning comprises service development, service operations, and quality management. While the infrastructure operation covers network planning, deployment, maintenance, and systems management.
- Revenue flows involve the inflow of capital through the application of the other elements i.e. value proposition, target customers, business partners, and core activities. Network operators earn revenues from a

combination of subscriptions, airtime fees and volume-based fees. Operators earn revenues from network services provided to other parties, transaction fees for billing services, and portal activities.

Telecom giants such as Swisscom, Vodafone, Orange, Tele2, and Globstar make use of MNO models.

2.2.2 Next Generation Networks (NGN) Business Models

The NGN Business Model is the Next Generation Networks Business Model for telecommunication industry discussed by Sub Lee in 2006 and focuses on key trends in telecommunication and some basic roles and players as illustrated in the figure below (FIGURE 2.4):

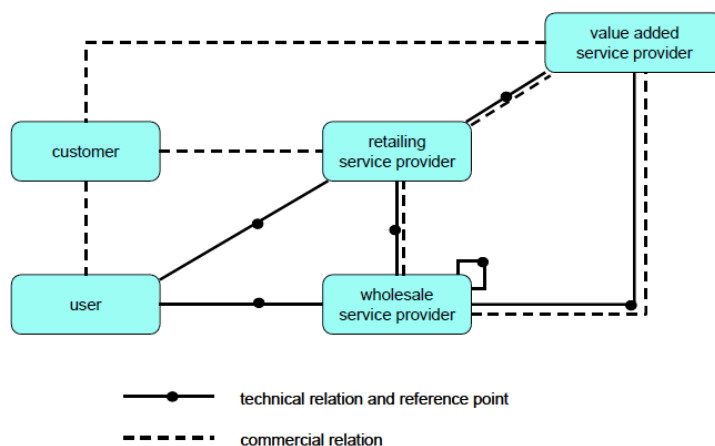


FIGURE 2.4 NGN Basic Roles and Players (Sub Lee, 2006)

Considering the key roles and players of next generation networks, there is the need to consider the key trends in telecommunication which reflect around converged user terminals. The identified users' terminals are phone, fax, PC, TV, PC Fax, 4G mobile-phone/PDA, multimedia PC (desktop/laptop), and data. The value propositions depend on offering services revolving around these users' terminals. The figure above (FIGURE 2.4) shows the relationships among customers, users, retailing service provider, wholesale service provider, and value added provider in the value networks of NGN business models. NGN business models consider two different types of relationships vis-à-vis technical relation and reference point; and commercial relation. Technical reference and the reference point are similar to support channels while commercial relation is equivalent to sales channels.

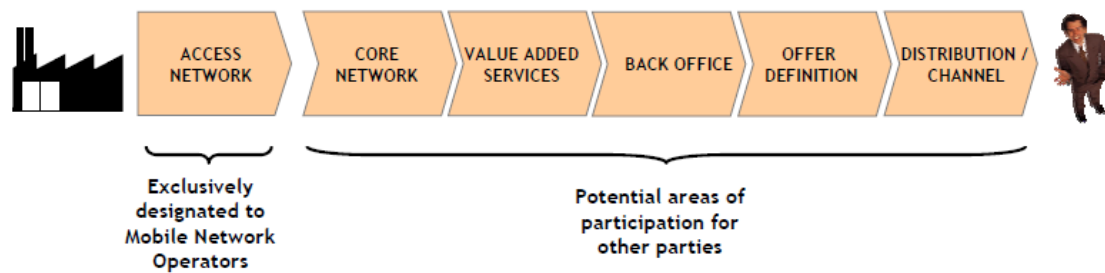
Sub Lee (2006) highlights the driving forces of the NGN business model, and they include the following:

- Support of a new value added services to consolidate saturation of both fixed and mobile telephone services; and provide the need for integration (combining Fixed and Wireless) and convergence (combining Telecom and Broadband).
- Support of new service excellence to extend the service requirements such as freedom of access and diversity of service; and high quality services beyond QoS over the Internet.
- Continued growing enthusiasm to construct the new revenue stream based on IT business; and development of new high-tech and market.

2.2.3 Mobile Value Chain and the emergence of MVNO Business Model

Camarán and De Miguel (2008) classify mobile value chain into two main areas which are Radio Access Network (RAN) and other elements required to provide mobile services. Regulators offer exclusive radio access network license to mobile network operators. While the other elements comprise core network operations, back office operations that support business process, management of value added services such as SMS and voicemail, back office operation, and the definition of mobile value offers and delivery to the target customers through the distribution channel (Camarán & De Miguel, 2008). The core operations cover switching, backbone, and transportation. Back office operations involve subscription management, handset logistics, SIM card management, billing engine, balance checking system, top-up network, and customer care. The second area recognises the need to innovate, operate, brand, and sell mobile services. Out of curiosity coupled with the oversaturation of traditional mobile value channel model, Camarán and De Migue (2008) declare it leads to the emergence of Mobile Virtual Network Operator (MVNO) business model. An MVNO business model presents opportunities for telecom operators and non-telecom companies alike. Interested non-telecom companies can participate in the mobile sector and extract the values to leverage their valuable assets.

According to Kuo and Yu (2006) mobile virtual network operators are resellers of mobile value services who do not own spectrum, networks and equipments, but rent the spectrum, networks or equipments from telecom operators. Examples of MVNO operators are UK Virgin Mobile, Lycamobile who presently operates in 15 countries, Tesco Mobile Ireland, eMobile, and postfone. MNOs have the exclusive right to participate in all segments of the value chain unlike MVNOs who do not have permission to deal in the access network area. The following figure (FIGURE 2.5) indicates the positions of MNO and MVNO in the mobile value chain:

WHERE CAN AN MVNO PARTICIPATE IN THE MOBILE VALUE CHAIN?


Source: Valoris Telecom practice

FIGURE 2.5 Where Can An MVNO Participate In The Mobile Value Chain? (Camarán & De Miguel, 2008, p. 2)

As indicated in the figure above (FIGURE 2.5) regulators designate radio access network licence to MNOs while MVNOs can participate in the core network areas, offer value-added services, control and administer back office operations, define offers, and direct distribution channels in reaching their end-users. A mobile network operator can serve as a value-added service provider, solution provider, an intermediary, a mobile portal provider, and a transaction support provider (Kuo & Yu 2006). Mobile network operators can handle all areas and services offered by MVNOs without limitation.

The MVNO has emerged in almost every continent. Europe and the U.S. are the markets that have seen develop more MVNOs ventures than the rest of the world. However, it is in Europe where most of the world's MVNOs are operational and having success. (Camarán & De Miguel, 2008, p. 6)

An MVNO business model has four different models which depend on the value chain structure. According to Camarán and De Miguel (2008) these four models are reseller or branded reseller, light-MVNO, full-MVNO, and Mobile Virtual Network Enablers (MVNE), which the following paragraphs briefly describes:

- Branded reseller is the lightest of the MVNO business model type which enables operators control the brand and sometime, the distribution channels. While the mobile network operator provides the rest of the business, from access networks to the definition of the mobile service offer.
- Full-MVNO is the complete MVNO business model where the mobile network operators provide the infrastructures for radio access network and part of the core network. While MVNOs provide the rest of the elements in the mobile value chain.
- Light-MVNO stands in between a branded reseller and a full-MVNO. The operators take control of marketing and sales areas.

- Mobile Virtual Network Enabler (MVNE) is a third party provider focused on the provision of infrastructure that enable the launch of MVNO operations. An MVNE provides services like value added services, back office processes, and product and service definitions.

The emergence of an MVNO business model is no doubt advantageous to both mobile network operators and mobile virtual network operators. An MNO, who considers MVNO in its operations utilises its network and IT resources effectively. The operator will attract more market segments, and significantly increases its revenue streams. An MVNO's exploitation favours MNO in its brand awareness, distribution capabilities, and customer base. In short, the advantages of MVNO business models span across the telecom companies, non-telecom companies, and investors alike. The following list highlights the benefits of MVNO business models to mobile network operators, non-telecom companies, and investors:

- Mobile network operators utilise the MVNOs to capture more market segments than before MVNO adoption. Even though, mobile network operators get hold of user information, possess related technologies, have bill integration capabilities and brand popularity (Kuo & Yu, 2006); they can use the MVNO opportunity to enter into new geographies through a wholesale business.
- Non-telecom companies or organisations with the popularity of famous brands enjoy the benefits of the MVNO business model because they can take advantage of their current assets such as brand, customer base, and channels to exploit a new mobile business. The adoption of MVNO can boost their value propositions and increase their customer loyalty.
- MVNO business models offer investors the opportunities to participate in the mainstream telecom businesses.

2.2.4 Open Heterogeneous Mobile Network Business Model

In 2008, Murata proposes Open Heterogeneous Mobile Network business model simply referred to as an OHMN business model in the Mobile Business Revitalization Plan by MIC. Murata identifies core requirements that support the prevalence of the Open Heterogeneous Mobile Network (OHMN). He proposes an OHMN business model that effects changes with the following core requirements:

- To review the sales model used in mobile terminals
- To promote the application of new mobile virtual network operators (MVNOs), and
- To prepare a business environment to protect consumers' interests in the areas of tariff comparison, and advice.(Murata, 2008).

The concept of OHMN business model entails that the charging business should be separated from other service providers businesses. This will open up all layers to new business models, and give each user ability to connect his or her mobile terminal to a multiple access network, regardless of the network provider and radio network. Although, this process depends on the user's current situation as the figure below (FIGURE 2.6) illustrates:

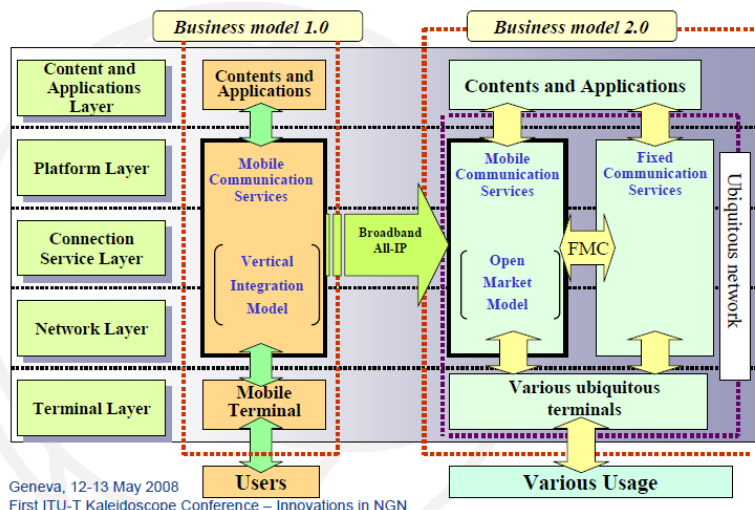


FIGURE 2.6 MIC Mobile Business Layer Model (Murata, 2008)

2.2.5 TINA and Parlay Business Models

TINA and Parlay are another form of telecommunication business models. According to Karunamurthy et al. (2007), the TINA business model is a set of specifications, developed between telecommunication and IT industries, for defining a common architecture, and also for provisioning telecom and information services. Parlay business model inspired by the TINA business model treats services as service capability features (SCFs). The figure below (FIGURE 2.7) illustrates the TINA and Parlay business models (Karunamurthy et al., 2007):

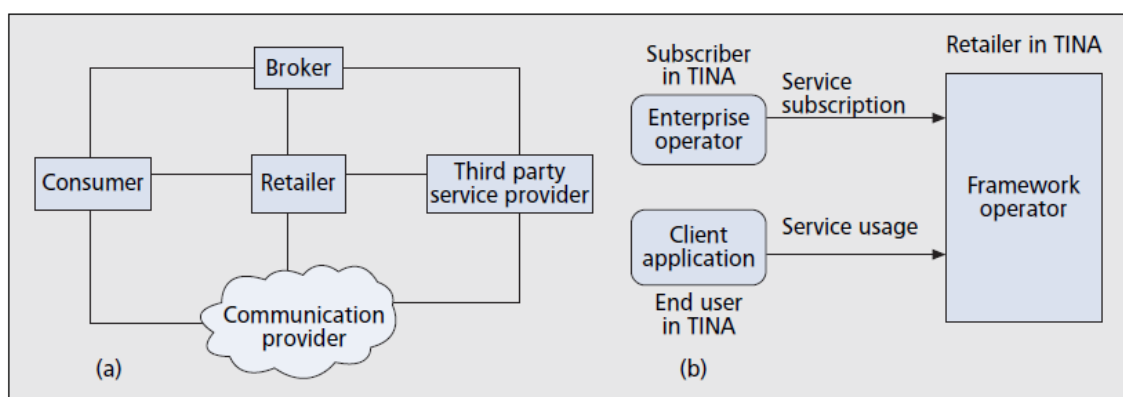


FIGURE 2.7 Telecommunication business models: a) TINA; b) Parlay (Karunamurthy et al., 2007, p. 37)

FIGURE 2.7(a) above defines five business roles in TINA business models vis-à-vis consumer, retailer, broker, third party service provider, and communications provider. The consumer is the service user (end user) or an entity that has a contract for service usage (subscriber). The end user is not necessarily the subscriber. Parlay's business model presented in the FIGURE 2.7(b) above describes three business roles vis-à-vis client application, enterprise operator, and framework operator. The reference points are interactions that take place between the roles, and consist of a set of interfaces that connects the business roles.

2.2.6 Open and Closed Business Models

Open model and closed models are other business models that are relevant to mobile service providers. Leif and Per (2007) note that open model had not been successful in providing mobile internet services in certain countries but, on the other hand, closed or vertically integrated business models had been successful when some countries introduced mobile internet services. They cite DoCoMo's in Japan and Vodafone as examples. DoCoMo's I-mode services in Japan and Vodafone's "Live!" services use semi-walled garden model. Chapter 4.1.2 further describes the concept of open and closed business models.

In summary, the business models in the mobile telecom industry are diverse and offer different guidelines to mobile business operations. The components or the elements of the models are different, although they all centre on the same objectives which revolve around value, service excellence, and revenue streams. In the business models, the consideration for vital elements are not detailed unlike Osterwalder and Pigneur's (2010, p. 16-40) proposition for complete business model composition. Their proposition addresses the need of a complete business model for a typical mobile network operator. In spite of the roles of the channel in the business model, the notable business models of mobile network operators do not differentiate the place of the channel but mix it up with other elements. The following Table (TABLE) enunciate on the extent of the complexity of the notable business models of mobile network operators compare with Osterwalder and Pigneur's nine building blocks of a business model:

TABLE 2.5 Cross-Reference of MNO Business Models

BM Blocks	MNO BM Insights	Business Models
Customer Segment	Target Customer Customer and User	MNO NGN, OHMN, TINA
Value Proposition	Value proposition Value Added Services	MNO NGN; MVNO; TINA; Parlay
Channels	Retailing and Wholesale Services Distribution / Channel	NGN; TINA; Parlay MVNO

	Sales Model	OHMN
Customer Relationships	-	-
Revenue Streams	Revenue Flow	MNO; NGN
Key Resources	Core Networks	MVNO
Key Activities	Core Activities Back Office, Offer Definition	MNO MVNO
Key Partnership	Business Partner MVNO Promotion	MNO OHMN
Cost Structure	-	

As the table above (TABLE 2.5) reflects the notable business models of the mobile network operators with insights into their constituted elements, it is evident that the business models are complex and require more simplification which the Osterwalder and Pigneur's proposition provides. Except for the MVNO business model, the concept of channels in other business models look vague and ambiguous not to mention internet channel which is emerging. Nonetheless, the roles of the channel are evident in the business models where they recognise it in retailing and wholesale services, distribution, sales model, and technological architecture.

2.3 Issues and Concerns of Mobile Operators' Business Models

This Subchapter examines the issues and concerns affecting the business models of mobile telecom operators already identified in the previous research. The fact that the world of mobile business is changing at a blistering pace, driven by innovation, competition and continued customer demands, (Rouffaert, Tucker, Lyons & Bultema, 2012) have warranted the call for issues and concerns. There are several issues and concerns bothering the operations and delivery of mobile networks, devices, and services. The ethos of Kijl et al. (2005) and de Reuver, Bouwman and MacInnes (2007); identify market, technological, and regulatory influences as the main external factors and the key drivers of the business model domain and dynamics, which Osterwalder et al. (2005) and Al-Debei and Avison (2009) further substantiate. All together, they support five different factors that call for consideration in the business models of the mobile telecommunication industry. These factors, which are external pressures, include market competitive factors, economic factors or customer demands, cellular and disruptive technology factors, regulatory factors or legal environment, and social and cultural factors whose relationships are reciprocal to the mobile operators' business models as the figure below (FIGURE 2.10) illustrates:

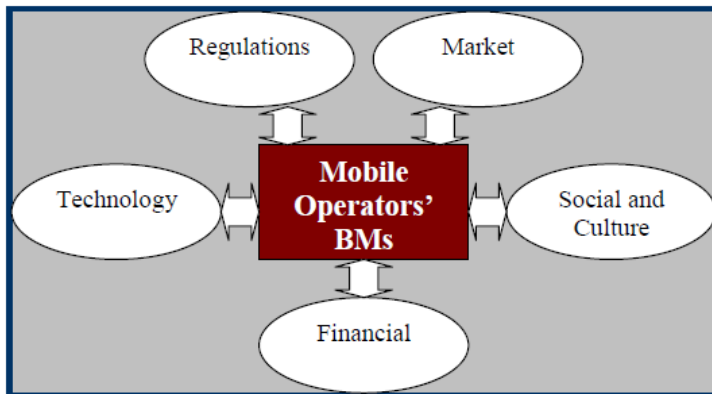


FIGURE 2.8 Environmental Concerns (Al-Debei & Avison, 2009, p.19)

The following list explains the environmental concerns of mobile operators' business models which figure above (FIGURE 2.8) illustrates:

- Market competitive factors are the challenges faced while battling with the competitors in delivering value propositions to the target customer segments. Excellent product without an outstanding channel to target customers is just a mere fashion. Smart operators outsmart competitors by engaging their customers in a timely and friendly manner with less stress and little or no overhead cost to the customers. Although, the competition space is becoming more difficult to explain because of uncertain market boundaries which lead to a profit margin decrease in the sides of MNOs (Al-Debei & Avison, 2009).
- Financial factors are key issues for the business model implementation. All aspects of actualising and evolving business model depend on finance and funding. Any operator, who has a shortfall of adequate finance will certainly lag behind the competitors. In addition, Al-Debei and Avison (2009) stress that maintaining the cellular network and establishing a MNO business require a massive investment.
- The reliability of cellular technologies cannot be compared with wired or physical conduit. This indeed is a factor to reckon with in dealing with mobile business models. The susceptibility of wireless communication to unpredictable conditions with receptions compared to wired communication pose a serious challenge to the operators (Al-Debei & Avison, 2009).
- Regulators are the watchdogs that keep the operators under control. In addition to offering licences and enforcing policies, they play extremely crucial roles in ensuring service quality and customer satisfaction. They ensure full compliance with the regulatory standards. They also regulate mobile operators' price and entry regulations. Al-Debei and Avison (2009) accept that price regulations related to interconnection charges and retail prices affect telecoms' profits; liberalization enables market growth

and rivalry; while strict entry regulations could lead to market dominance.

- Social and cultural factors are unpredictable due to increasing globalisation and ever dynamic technological changes. Social, cultural, and user friendly technologies (Al-Debei & Avison, 2009) are crucial to sustainability of mobile industries. Most especially, customers will likely reject any technology that violates their health, social norms and cultural values.

Although, de Reuver et al. (2007) agree that technology and market forces are the most influential drivers while regulation plays only a minor role; nonetheless, the factors and those highlighted by other researchers are extremely appropriate to the business model dynamics. Rouffaert et al. (2012) indicate that operators also compete within an industry value chain that is significantly different from it was just a few years ago. While digging further, they recognise that external factors such as socioeconomic trends, technological developments, and political and legal changes play a vital role in understanding the practical application of business models; and suggest that business models should consider external changes during all stages of development to use. The business model remains theoretically underdeveloped (Teece, 2010), which may according to Zott et al. (2010) raises doubts concerning its usefulness as a construct for research and theory building.

Osterwalder (2012b) broadly categorizes business model failures based on four main reasons such as solving a trivial customer job, flawed business model, external threats, and poor execution. However, Rouffaert et al. (2012) at Accenture, recommend that operators will need to respond to the challenges set by competitive forces and endless customer demands, and create competitive differentiation by adapting their business models to consider the following factors:

- Controlling the network and technology platform costs.
- Developing collaborative business models to share costs and drive new capabilities.
- Driving innovation and developing new and distinctive customer value propositions. (Rouffaert et al., 2012.)

2.4 General Notions On Business Model Importance

A better business model often will beat a better idea or technology. Consider Walmart in retailing, dell in PCs, or southwest airlines. But business models are not all the same. To innovate your business model, you must first understand what it is, and then examine what paths exist for you to improve upon it. (Chesbrough, 2007, p. 12) And a mediocre technology pursued within a great business model may be more

valuable that a great technology exploited via a mediocre business model. (Chesbrough, 2010, p. 354)

The role of business model is invaluable in organisations' business concepts. Chesbrough (2010) emphasises that business models help companies commercialize new ideas and technologies while Kijl et al. (2005) reveal that the concept of business model supports managers to communicate their company's ideas and visions to external parties. Different scholars have described the ample importance of business models to address different circumstances in the areas of e-business, value systems, and technological innovation (Zott et al., 2010). In 2009, Al-Debei and Avison confirm that companies adopting appropriate business models have seized the opportunities associated with the technological innovation and improve their market coverage. They also write that mobile network operators are no exception citing examples of key players like O2 and Vodafone who no longer dominate the UK's mobile market; and the success of NTT DoCoMo's i-mode in Japan credited to its innovative and well designed business model. The business model reflects the "company's way of competing, whether it concerns being unique or being the most cost-efficient company in the industry" (Nielsen & Per Bukh, 2008).

The business survival in this current era of globalisation, Internet revolution, and highly competitive environment; depend on an innovative business model that recognises business strategy and processes with continuous improvement. Innovative and adaptive business modelling is critically necessary for the future of technological innovation (Kijl et al., 2005). In support of the assertion, de Reuver et al. (2007) state that the survival of a company in the challenging and competitive e-business environment, greatly depends on the continuous business model reinvention which captures the company's internal and external activities. Since the business model innovation contributes to the success factor and stimulate the business model importance, Chesbrough (2007) identifies six functional parameters where BM innovation can create additional value in an industry. The mobile industry also enjoys the benefits of business model innovation. The following list enumerates the functional parameters of business models:

1. A business model helps in articulating the value proposition a company offers or will offer to its customers.
2. A business model helps in identifying a market segment through which a company renders its offerings.
3. A business model helps in defining the structure of the value chain a company requires to create and distribute its value proposition to the end-users. Channels facilitate the distribution of value propositions while the end-users include the company's suppliers and customers.
4. A business model helps a company in specifying the income generation mechanism, estimating the cost structure and profit potential, providing the value proposition, and maintaining the value chain structure chosen.

5. A business model helps in describing the status of a company within the value network (also referred to value ecosystem).
6. A business model helps in formulating the competitive strategy by which the innovating company gains and holds an advantage over competitors or rivals. (Chesbrough, 2007)

Business model objectives for companies among various allow them to exploit a business opportunity through value creation for fulfilling customers' needs, create consumer surplus while generating profits for selves and partners, and improve their competitive positions (Al-Debei et al., 2008a; Zott & Amit, 2010).

Business models can create value either by enhancing the customers' willingness to pay or by decreasing suppliers' and partners' opportunity costs—for example, through improved transaction efficiency. The total value created by a business model is also a function of the competitive alternatives, in other words, the market power of the focal firm's business model vis-à-vis rival business models. The total value created is the value created for all business model stakeholders (focal firm, customers, suppliers, and other exchange partners). (Zott & Amit, 2007a, p. 183)

Furthermore, the business model enhances business managers' control over their business and enables them to compete better due to the appropriate and necessary level of information that the business model provides. This level of information also extends business managers' knowledge of organisations' adaptability with their strategy, business model, and business processes to cope with the complex, uncertain, and challenging environment (Al-Debei et al., 2008a.) Innovation in business model enhances mobile business and lead to new revenue streams. Brown (2010) advises that mobile operators must transition from a business model based on selling a set of well-defined voice and SMS services to the mass market offering various portfolios of data services. He further states that services or value propositions such as enhanced connectivity and inter-operable rich-media services; app stores, value-added services, and hosted applications; and enabling third-party services through the network and service APIs can significantly enhance monetisation strategies. Business models are extremely important in the starting point for standardization in telecommunication web services (Karunamurthy, Khendek & Glitho, 2007).

Another area of importance a business model offers, is in the MVNO model. A mobile network operator, who adopts an MVNO business model, stands the chance to benefit immensely from the adoption and experience a new revenue stream, cost-effective entry strategy to the mobile market, profitable value proposition, and increased customer base. A business model facilitates the profitable delivery of a company's value proposition to the target customer segments with the adoption of appropriate technology. Although, technology does not work by itself, but the effective and efficient use of technology yields desire results as Chesbrough (2010) corroborates "technology by itself has no single objective value, but the economic value of a technology

remains latent until it is commercialized in some way via a business model" (Chesbrough, 2010).

The business model is crucial and has helped reshape the strategies of many fortune companies. It is a conceptual tool and also a strategic tool containing the objectives to demonstrate and describe a company's business tactics. Osterwalder (2012a) shares insights into a business model thinking as a strategy tool which the figure below (FIGURE 2.9) illustrates. The illustration is a visual representation of the importance of business models to businesses from inception to maturity stage.

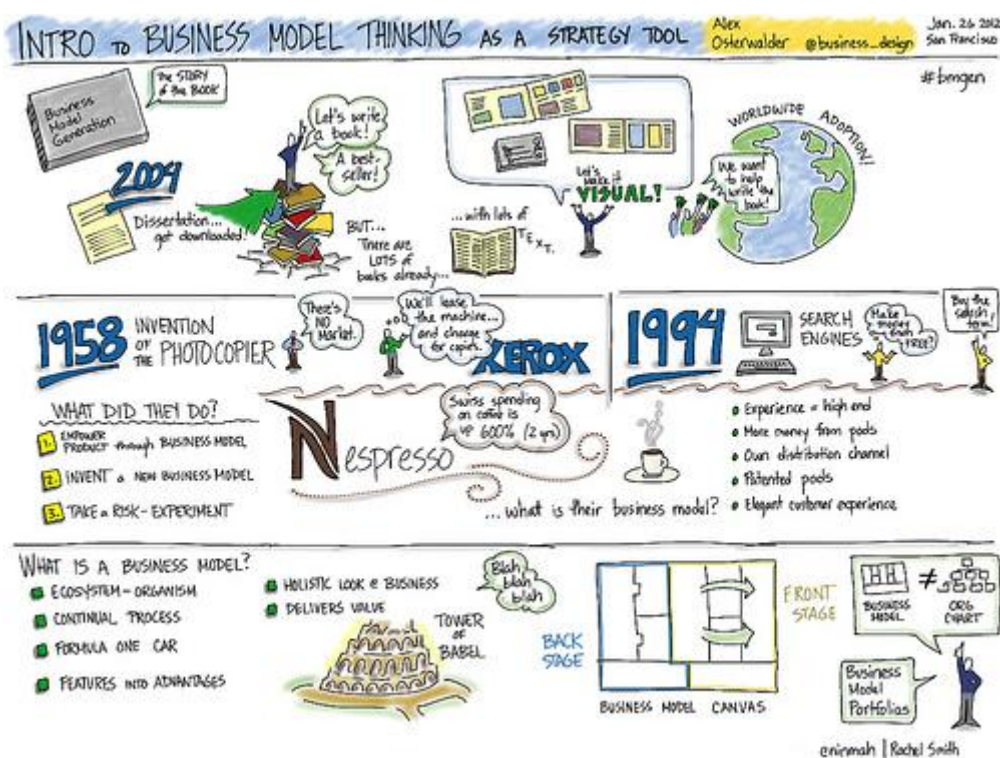


FIGURE 2.9 Business Model as a Strategic Tool (Osterwalder, 2012a)

The figure above (FIGURE 2.9) reflects on some of the notable inventions and innovation supported with business models. Countless numbers of companies have succeeded in overcoming the market competitive challenges through business model innovation. Zerox empowered its products through business model, invented a new business model, and took a risk combined with experimentation. In 1994, the importance of business model surfaces where the operators of search engines made money from FREEMIUM (a business model type based on free services but revenue streams through the advertisement).

A business model cannot be separated from value creation and capturing on which the companies' determine their business strategies. Bouwman et al. (2008) simply put it "by choosing the right business model, telecom operators can sustain the market competition and deliver customer value and economic benefits". The best business model must be dynamic and follows the current trends in satisfying customers' needs and outsmarting the competitors.

Innovative business models stand out among others and matter to managers, entrepreneurs and academic researchers. According to Amit and Zott (2012) business model innovation has two significant impacts vis-à-vis representing an often under-utilised source of future value and preventing imitation by rivals or competitors. They further conclude that innovation at the level of the business model can sometimes translate into a sustainable performance advantage.

To concretise the overall importance of business models most especially in the IS field and mobile telecom industry, the propositions of Osterwalder et al. in 2005 mention some key areas of consideration. They reach eight propositions about the importance of business models in information systems areas which also impact telecom industry. According to them and other researchers' point of views, the identified business model substance in the IS domain helps in achieving the following:

- BM supports alignment of business strategy and information systems.
- BM encourages mutual understanding of IT/IS and business.
- BM offers improvement in the integration of business and IT/IS resources which lead to mutual reinforcement.
- BM offers an improvement on the company's choices of IT/IS infrastructure and its application portfolio.
- BM facilitates the company's choices of IT/IS roles and structure.
- BM facilitates the interpretation of a company's goals and requirements engineering
- BM ensures the identification of indicators to follow in an executive management system.
- BM offers development of the company's knowledge about the value creation logic (Osterwalder et al., 2005.)

The general overview of business model provided in this chapter proffer clear understanding of the concept in the areas of business model evolution, definition, and topology while reviewing the perspectives of previous studies in the domain. It exposes the business model discourse and expresses the point of agreement in the business model research. The previous literature relays the importance of business models to organisations and that a business model usually comprises of several components or elements. The interwoven of the components in tandem with the core activities and consideration for business strategies and processes make an ideal business model. Channel, which forms part of the basis of this study has been recognised as one of the vital components in a business model but the extent to which it favours the business model considering the era of the Internet is often considered.

3 CHANNELS AND THE INTERNET

This chapter presents the pace of the channel in the business model evolution and its applicability in the Internet-enabled scenario. The perspectives of channels in the previous literature are elucidated while capturing their meanings. The channel overview reflects on the channel concept in business models and its distinct areas or group, functional classification, impact and importance, and the influential factors that trigger its usage by customers. The chapter also treats an overview of internet channels with respect to its definition, evolution, classification, issues and concerns, and requirements for its evaluation. The following paragraphs treat the channels and the internet in detail.

Channel in business models often categorised alongside value chain or value network as the case sits, is the linkage that connects companies to their revenue streams. Nonetheless, the scope of channels is visible either directly or indirectly. Koen et al. (2011) reflect on a channel while defining value network dimension as encompassing, embracing the unique relationships that an organisation builds with its supplier, distributor, and consumer channels. They reiterate the importance of channels as a critical source of competitive advantage in building customer relationships. Porter (1985) adds that value chain which contains channel is the linkage and integration of a series of activities to deliver value propositions to customers. The value propositions cannot be delivered effectively to the target customers without efficient and effective gateways called channels. However, the essence of business models is to ensure the efficient value creation and effective value distribution to satisfy customers' needs and increase company's revenues.

Pynnönen and Hallikas (2006) explain that the product or service considered valuable by customers brings value in the network. The central role of a company's business model is to capture this value and maintain competitive advantage. Channels in the system help bring value to customers and eventually return revenue to the companies. An efficient but a flexible business model which will facilitate developing new routes to customers, maintaining close customer relationships, influencing the ecosystems, offering convenient

and more flexible price structures, and above all encouraging rapid transformation.

3.1 An Overview of Channels

The channel is one of the building blocks of business models that serves the function of a middleman between a company and its customers. A channel facilitates value delivery to customers and improve a company's internal and external communication. Channel in the business model building block is not just an entity but the key factor that goes beyond interaction between value proposition and customer segment, but its importance spans across other building blocks in one way or the other. In the business model ontology, channels facilitate relationships among customer segments, value propositions, customer relationships, revenue streams, key resources, key activities, key partnerships, and cost structures. Channels offer many contributions in terms of functions and purposes. A company's interface with customers comprises communication, distribution, and sales channels (Osterwalder & Pigneur, 2010). The channel is critical to expanding the companies' scope and revenue growth. For instance, online app store as a distribution channel favours Apple in relating with its customers (Amit & Zott, 2012).

According to Osterwalder and Pigneur (2010) there are two types of channels and they are direct and indirect channels. Direct channels comprise an in-house sales force and web sales. Indirect channels include company's own stores, partner stores, and wholesalers. The level of indirect distribution varies between markets but may include using third party service providers, independent dealers, distributors and retailers (Vodafone, 2010). The types of channels identified above can also be categorised into two distinct areas or groups which are as follows:

- **Traditional Channel:** This referred to as offline channel, entails a face-to-face encounter.
- **Internet Channel:** This is an online channel, and a medium enabled by the Internet. King and Liou (2004) verify that internet channel can exist as informational channel, transaction channel, Intranet, B2C, B2B and more.

The grouping clearly explains the core concepts of channels in business models and justifies the context of this study which depends on the internet channels. The two groups above can also disintegrate into the following based on the classification by function or purpose:

- **Collaboration Channel:** Making business models work involves several actors. These actors include the company's staff and other parties outside

the company. Collaboration channel is the medium for collaborating with other parties. This ensures smooth implementation of a company's business model. Channels such as a web portal, collaboration tools, and boardroom meetings are typical examples of collaboration channels.

- **Communication Channel:** Companies communicate internally and externally to ensure that all key activities in their business models are effective. Channels such as email, fax, VoIP, letter, and phones fall under this class.
- **Distribution Channel:** This describes the possible channels to provide a value to customers e.g. platforms, on-demand or as a hardware device; and can be operated by a partner (Weiner & Weisbecker, 2011). More so, Zhu and Cai (2011) see the distribution channel as a mechanism that provides sufficient information to customers in making decisions about the value propositions offered. Distribution channels also allow customers to order and pay for the company's product or service desired.
- **Sales Channel:** This channel provides the means for customers to make sales decision and for companies to track their sales activities. The sales strategy and distribution of products to customers involve a company's relationship with its customers (Shorey, 1997) as inherent in a sales channel.
- **Service / Support Channel:** This channel creates opportunity for service offering and after sales support. Companies use this channel to attend to the existing customers who have already purchased or subscribed to the companies' services.

Selecting an appropriate channel is a key factor in the successful implementation of a business model (Shorey, 1997), and a well designed channel is a strategic asset and a way to successful competition (Zhu & Cai, 2011). Osterwalder and Pigneur (2010) identify and feature five main functions that channels do. These functions are awareness, evaluation, purchase, delivery, and after-sales support. In a broader view, they are raising awareness among customers about a company's product and service, helping customers evaluate a company's value proposition, allowing customers to products and services, delivering a value proposition to customers, and providing post-purchase customer support.

The importance of channels in business activities can never be over emphasised as the impacts are imminent as constituted in the companies' business models. The roles of channels must not be neglected, and the impacts should be recognised. Now, in the era of the Internet, the scope of channels in business models have widen the companies' prospects in dealing with and reaching their partners, customer segment or consumers. Any business model without regard to the Internet or internet channels during the initiation and implementation stages may find it difficult to meet up the current challenges and the competitive advantages. It is imperative that companies consider the internet channel as a component in their business models and inculcate it at the designing stage. Apart from consideration for the internet channels in business

model design, it is necessary that companies acknowledge the drivers of the internet channel performance for them to improve the effectiveness and efficiency of their online investments (Hulland et al., 2007).

Customers' channel usage is by influence. Certain drivers motivate the choice of end-users to use channels. According to Frambach et al. (2007), the drivers of the channel choice are the determinants of consumer intention to use the online over offline channel. These drivers are accessibility, ease of use, usefulness of the online channel, social presence, psychological feeling, and internet experience.

In the mobile industry, improved channel also offers mobile traffic growth as the figure below (FIGURE) illustrates:

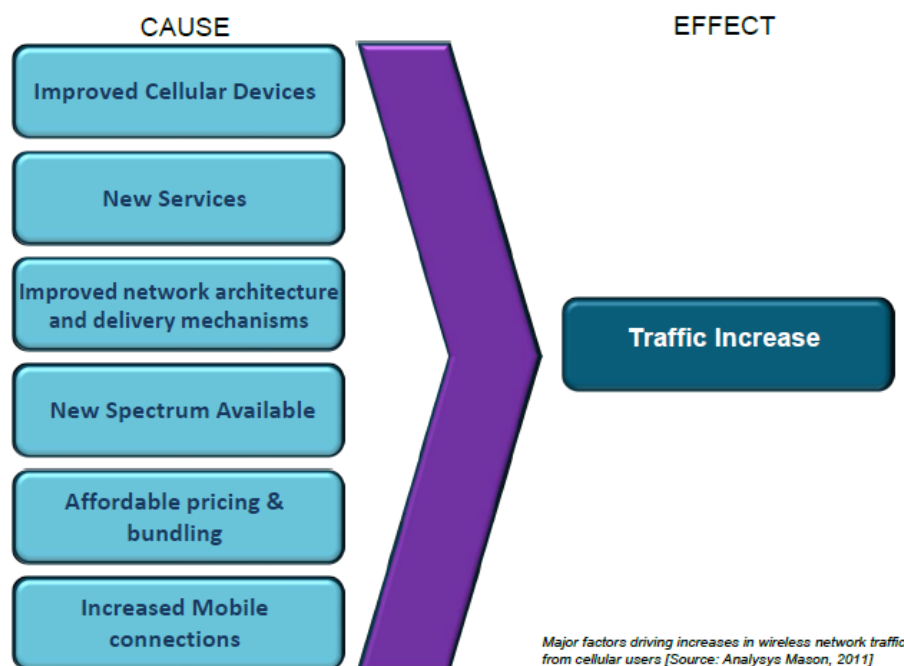


FIGURE 3.1 Mobile traffic is growing and here is the reasons why (Moynihan, 2011)

Major factors that stimulate increases in wireless network traffic from cellular users are new services (innovation), improved cellular devices, improved network architecture and delivery mechanisms, new spectrum available, affordable pricing and bundling, and increased mobile connections. The factors identified above recognise the role and impact of channels where the author mentioned improved network architecture and delivery mechanisms. Delivery mechanism directly relates to a channel in a business model.

In short, Improved Delivery Mechanisms (Channels) => Increased Traffic => Improved Revenue.

3.2 Internet Channels

Internet channel is synonymous to online channel. Hulland et al. (2007) refer to the term online channel as the use of the Internet as a medium to connect with the market. Zott et al. (2010) argue that the Internet is a prime driver of the surge in interest for business models while Barnes (2002) envisages the future relevance of the Internet as a component of the mobile value chain. Barnes discloses that the Internet is changing the ways we live, and clearly state that these technologies will affect peoples' lives in unimaginable ways. The Internet and related technologies offer one of the most significant changes which impacts the business conducts. Without any doubt, the pace of innovation, adoption of the Internet and related technologies are providing new opportunities for effective and efficient organisation's strategies, processes, RoI, and behaviours. The Internet enables companies to transform their partners, customers or consumers into a virtual neighbour because they can collaborate, communicate and share value with them in real-time. According to EUROPA (2012), the Internet which evolved from ICT, has changed people's social and business habits because people now perform several activities online. With the use of the Internet, people work and conduct businesses, create and share content, learn, play games, shop, network, and phone friends online.

The impact of the Internet and wireless telecommunications has taken a new turn. Until recently, these technologies have followed very separate paths. However, this decade will see the convergence of wireless communications and the Internet. (Barnes, 2002, p. 92)

Obviously, ICT is a crucial factor in connection with distribution channels to provide new opportunities. According to Conte (2008) ICT can an enabler and integral part of a business model at the same time. For any business, the distribution aspect of the business model is essential, and the Internet is a form of the distribution system (Leung, 2012). The iTunes model that transforms music from traditional media to the internet channels exemplifies innovative use of the internet channel. Music can be stored on hard drives and played back either through headphones, computers, or MP3 player peripherals. Virtual catalogue and broadband distribution make the logistics of iTunes more effective than any supply chain (Österle et al., 2010, p. 42). Koen et al. (2011) also mention Apple's case as a notable example of a successful innovation accessing a new value system in delivering services to consumers in a user-friendly format.

3.2.1 Advantages and Disadvantages of Internet Channel Adoption

The emergence of the Internet has forced a large number of companies to explore Internet-based distribution channels in delivering their value propositions (Tu & Hou, 2011) and reaching their customer segments. The

Internet capability enables new ways of executing key activities and helps organisations put their value chain elements in control. Companies in various sectors have taken a massive investment in online channels because of the promise of greater market exposure and increased revenue inflows. However, while some firms' entire business models revolve around the adoption of the Internet and emerging technologies, others have made only limited commitments on online channel ventures (Hulland et al., 2007) for the purpose well known to them.

According to Geyskens et al. (2002), the internet channel investments are positive net-present-value investments which offer various advantages and disadvantages at both demand-sides and supply-sides of the companies. The following highlights the advantages and disadvantages, resulted from internet channel investments:

Advantages:

- The Internet channels increase sales through market expansion, brand switching, and relationship deepening.
- The Internet channels offer supply-side advantages through reduced production (cost incurred on physical distribution facility) and transaction costs (costs spent on coordinating and controlling the physical distribution facility).
- The Internet channels reduce physical distribution costs of tangible and intangible products
- The Internet channels enhance ease transaction processing, reduce paperwork, human errors, and customer disputes
- The Internet channels reduce inventory costs since the companies bypass or reduce activities of intermediaries
- The Internet channels have re-innovated the way to perform some marketing functions, most especially in this social media era, where customers unconsciously serve as a marketer.

Disadvantages:

- The use of the Internet channels may at the initial stage lead to demand reduction due to channel shift and lower prices.
- One of the disadvantages on the supply-side is that the internet channel management requires higher physical distribution costs, advertising costs, and transaction costs. Higher physical distribution costs include fixed start-up costs such as purchase of computer hardware and software, internet hosting service costs, web design and maintenance cost. Transaction costs include reduced prices, which may put pressure on existing channels' profit margin.

Hulland et al. (2007) state that the more an organisation commits to online commerce, the better its online performance and also confirm that the following factors will enhance online commitment and performance:

- Investments in technological innovations to achieve competitive advantage.
- Effective utilisation of internal capabilities (IT skills, cost efficiency, and established distribution) and external capabilities (market sensing, brand management, and customer service) also count.

There is the need to understand the current trends in the domain for companies to find and create future competitive advantage through the internet channels. Shorey (1997) suggests that channel competitive benefits emanate from the analysis of customers' desire, alternative approaches with channel evaluation (by comparing the effects of the internet channel with that of the traditional channel), and emerging competitors or rivals. Lastly, adoption of internet channels enhance customer loyalty, increases customer purchase frequency, provides wider market coverage, and generate new customers (Hulland et al., 2007). In an attempt to present clear overview of the internet channel, this study identifies, classifies and explains different types of the internet channel that exist.

3.2.2 Classification of Internet Channels

The Internet, as a mainstream medium for information exchange and social interaction (Iriberry & Leroy, 2009), exists in different forms depending on the platform it operates, and the function it performs. In order to make it simpler and straightforward, it is necessary to recognise the different internet channels that exist and are connected to mobile telecom industry. In this view, this study identifies four classes of internet channels that are relevant to the mobile business sector and also applicable in other sectors. Therefore, the internet channels can be classified into four forms vis-à-vis web, mobile, social and embedded expatiated in the following paragraphs:

1. Web Channels

Web channel is a web-based internet mediated platform which through a website connects companies to the world and consumers to their desired values. Web channel may be a company's own website or partner-owned web site. According to Merrian Webster online dictionary, website itself is a group of World Wide Web (WWW) pages made available online and contain hyperlinks to each other. A website can be administered by an individual, company, educational institution, government, or organisation. In other word, it is a connection of internet-mediated computers which support a set of web pages on the WWW.

2. Mobile Channels

Mobile channels are the internet-mediated channels that involve the use of mobile gadgets such as tablets, smart phones, palm top, and other handheld devices for the sole purpose of collaboration, communication, sharing and value delivery. The supply chain consists of a traditional channel, a mobile channel and an electronic / internet channel (Wei, Shen & Ji, 2008) which confirms use of the mobile channel in value delivery systems. The wider adoption of smart phones and tablets with the Internet significantly improve mobile channels. According to AMAS (2012b), smart phones and tablets are changing consumers' behaviours, with implications for every business to consider mobility as a key component to organisations' strategies for business survival and competitive advantages.

The future prospect of the mobile channel is vast and will take over the value networks or value chains as AMAS (2012b) reflects on Gartner Report that mobile internet use will overtake desktops by 2014, and this mobile environment will increasingly determine the user experience. According to Vodafone (2010) the "mobile industry continues to evolve rapidly, driven by new sources of revenue, rising Smartphone proliferation and new technologies". Sophisticated internet-enabled devices like a Smartphone and the growing data usage increasingly encourage customers to use their mobile phones to enhance their lives in new and innovative ways as Vodafone (2010) submits. Mobile commerce is increasingly gaining ground and attracting significant interest because of the tremendous growth in handheld computing and communication capabilities (Wei, Shen & Ji, 2008).

3. Social Media Channels

Social media channel refers to the use of social networking websites and related devices as a medium of communication, collaboration, sharing and delivering value to target customers or consumers. A social networking site is an Internet-mediated and web-supported social interaction platform that accustom people's social interest in a predefined group called social network. Examples of social media channels are social networking sites like Facebook, Twitter, LinkedIn, discussion forums, YouTube, and blogs.

Nowadays, companies use social media to engage their customers with their offerings and offer some value-added services such as the case of Meteor Ireland offering mobile top-up through Facebook. The terrain of social networking has changed the way we feel social as individuals and corporate bodies. The era of social networking has created lots of open and closed opportunities to individuals and corporate bodies. Companies are actually utilising the channel not only to entertain their social responsibility but also to promote their businesses and improve their income inflows. Although, there may be some challenges with improper use of social media by companies. Such challenges include sustaining companies' reputation, coping with workload, and updating the social media channels. Vodafone (2010) acknowledges these risks and confirms that the operator is seeking to ensure that its offerings

address privacy risks and concerns, most importantly those associated with social media, as well as location-enabled applications and services.

4. Embedded Internet Channels

Embedded internet channels are integrated channels, which indirectly utilise the internet in service delivery. Typical examples of such channels include ATM and POS machines. Consumers use banks' ATM for topping-up mobile phones while retailers' networks utilise POS facilities provided by PayPoint, PostPoint, PayZone, and OmniVend for providing top-up services to customers. The Internet of Things can be categorised under embedded internet channels.

3.3 Channel/ Internet Channel Issues and Concerns

The world of business is witnessing profound changes under the effect of wireless technology backed by the internet capabilities. Utilising internet as a channel as its own issues and concerns which deserve consideration by the companies when designing or implementing their business models. The internet channel offers new ways of service provision within a network of partners which has influence on the IT vendors as they change more and more to service- instead of product-offerings. The companies typically encounter some challenges in adapting their customer interaction with their new distribution system.

According to Ernst & Young (2012, p. 19), customers and business partners regard a typical telecom operator as a security guarantor in dealing with various threats that affect their privacy and data integrity across a range of services. It continues that security challenges through the increase in customers' concerns as mobile phones become personal data hubs are threats can emerge from the wide of range of environments such as SMS, cloud, Web 2.0, and mobile apps.

Information and data security is one of the concerns in the internet channel terrain. There must be assurance of information security in the areas of confidentiality, availability, and integrity. Weiner and Weisbecker (2011) confirm that management of data with partners requires transparency at any time in order to convince the customers of secure processes. Therefore, the agreements between the various actors should be clearly formulated, including the service levels between customers and partners as well as the contract relations and the involvement of data-processing. Eventually, the challenges pose by the concerns on information security can be resolved with information technology. Österle et al. (2010, p. 37) submit "the answer to the market's challenges is to be found, not in IT but in the business model that uses the IT".

Information technologies play crucial roles in business model transformation, in the areas of channel security, reliability, efficiency, effectiveness and service delivery. Österle et al. (2010, p. 43) while appraising

IT roles in business model transformation, reflect on the case of Airbus' A380 superjumbo jet that delayed by incompatible CAD data and invisible Apple's IT organisation with outstanding success. For instance, Apple shares electronic design documents with its partners without any security concern; the iTunes music store run reliably without any failure; and billions of micropayments and multitude of transactions seamlessly handled online. A company can maintain its brand reputation, margins, and enterprise value because of the high-level security implemented on their commerce site which has prevented it from hackers and breach of data. In 2012, Österle et al. (p. 35) argue that business models require business concepts in their operations to capture all the necessary activities and follow up with measurable actions to effect efficient and effective service delivery. Channels in business models must address several concerns such as daily sales order handling, accessibility of the channels to customers over the Internet, ability to be centrally operated in production processes, coordination of global research and development activities, optimum satisfaction of customer needs irrespective of their location, and continued market leadership.

The emergence and the fast expansion of the Internet and the rapid decline in ICT costs have facilitated new internet-based business models. This development poses the challenges of making the business models profitable and adaptable to the organisational strategies. Meanwhile, in this digital era, appropriate levels of information and knowledge is essential to the growth of a business, and adapting to the technologies change is essential to the survival of the organisations (Al-Debei et al., 2008a). Another issue of concern in the business models based on the internet channels is the value chain migration and reconfiguration. Value migration in the mobile industry and the current economic climate need for reconfiguration of the telecom ecosystem while the changes in the market demand that mobile operators improve their capabilities to collaborate, reduce costs and innovate (Rouffaert et al., 2012). In the value chain redesigning, network ability and digitisation must be acknowledged and improved. According to Österle et al. (2010, p. 158-173) network's ability is the capability to forge new partnerships and effective forms of collaboration - which may be electronic or contractual - are a source of competitive advantage; while digitisation entails creating new services delivered through the Internet. They assess the impact of IT resources (such as ERP and the Internet) on the level of current information intensiveness and economic changes and predict the emerging channels (such as the "Internet of Things") and supplemental use of social software, content management system as the focus for future opportunities and concerns.

3.4 Evaluation of Internet Channels

Internet channel evaluation is critical to modern day business strategies and should be recognised in the companies' business models.

The Internet is becoming an increasingly important and pervasive channel to market for many organisations. Despite its importance, and the continued pressure to justify IT expenditure, few organisations undertake a comprehensive channel evaluation. Market leading evaluation firms provide technical and operational metrics for their clients such as the number of hits per page and site response times, but more sophisticated concepts such as user value and long-term business benefits remain unexplored in practice. In contrast, there is a growing academic literature on channel evaluation. Many frameworks and metrics have been proposed recently. (King and Liou, 2004, p. 473)

It is necessary to consider the internet channel evaluation from both the business and user perspectives in serving customers' requirements and business goals. According to King and Liou (2004), academic literature proposes few quantitative measures but many of them remain poorly defined, most especially at the business level. In this regard, they proclaim that internet channel evaluation from the business perspective should consider the following factors:

- Application of the Internet in creating and achieving strategic goals such as maintaining strategic position and supporting innovative business models.
- Application of the Internet in reacting to environmental changes, which measures a company's time to market and the pace of change.
- Application of the Internet in integrating internal and external business processes such as a business strategy, functions, resources and capabilities.
- Application of the Internet in complimenting other business channels.
- Application of the Internet in reducing costs, improving productivity, increasing RoI, increasing revenues, and reducing human effort.
- Application of the Internet in improving internal and external relations.

The evaluation of internet channel at the user-level can be performed on a company's platform or channel such as a website. Internet channel evaluation from the users' perspective should consider factors like availability, speed, content quality, navigability /ease of use, transaction efficiency and effectiveness, system responsiveness, adaptability, user-friendliness, user satisfaction, interactivity, emotion, customer loyalty, and security.

Evaluation of Internet channel performance should address both business and user concerns and consider the concerns at the design phase of the business models. There should be a consideration for internet dynamism and ever-increasing growth, and the upcoming internet applications which may pose a challenge to evaluating the performance of the internet channels. However, any organisation adopting the Internet as a channel to unleash strategic opportunities, should also be concerned about the operational opportunities.

In summary, this chapter provides a clear picture of the channels in the domain of business model research. While highlighting the meaning of the channel and its relationship with the Internet, it portrays the various forms of

the channel and the internet channel in existence with respect to its recognition as a component of a business model. The identification, classification, and explanation of different types of the internet channel provides a clear overview of the viewpoint and bring the operators closer to it. As reiterated in the previous chapter that a business model is all about value creating, capturing, and delivery; the delivery aspect of every business model relates to channel. Increase in the relevance of the Internet and its adoption by individuals and in business processes; originate the evolution of the internet channel. The internet channel has been the emerging driver of efficient and effective value systems, and a viable tool for communication, collaboration, distribution, and innovation. Therefore, consideration for the internet channels in business models is imminent.

4 IRISH MOBILE TELECOM INDUSTRY AND THE STAKE OF THE INTERNET

This chapter presents the overview of the mobile telecommunication industry in Ireland, and the influence of the Internet in the industry and the Irish business as a whole. It elucidates on the mobile ecosystem and the roles of Irish mobile network operators in the ecosystems while identifying the notable business models of the operators and related characteristics from the industry reports. It reflects on the Internet adoption and usage in Ireland.

The Commission for Communications Regulation (ComReg), which was established on 1st of December 2002, regulates the telecommunication industry in Ireland. ComReg as a statutory body and national regulatory authority is responsible for the regulation of telecommunications, radio communications and broadcasting transmission; and the postal sector. The commission regulates transmission networks such as traditional telephone wire; traditional television and radio; radio communications including fixed wireless, MMDS and deflector operators providing TV services; mobile operators providing voice and data services; licensing framework for satellite services in Ireland; and postal delivery network. It protects consumers' interests and informs them of their rights on telecom services; promotes competition and encourages innovation among the operators. The following sub-chapters further describe the situation of the mobile ecosystem in Ireland with respect to the mobile operators and the viewpoint of the internet channel.

4.1 Mobile Business Arena

The mobile business arena constitutes the environment and participating actors where the mobile business operates. The mobile business arena can be referred to as mobile ecosystem. Mobile communication as a service enables the information and communication exchange between people (Pynnönen & Hallikas, 2006). Meanwhile, Hopkins and Fynes (2006) argue that the telecom

industry value network is a unique and complex mechanism that requires attention and consideration. The mobile telecom industry boasts of various actors or players which determines the fate of the industry. Among these players are mobile operators alongside hardware and software manufacturers, suppliers, content providers, publishers, application providers, carriers, regulators, service providers and portal providers. The players stand between Original Equipment Manufacturers (OEMs) and the end-users.

Characteristics of Mobile Business Industry

The mobile business industry has some characteristics that distinct it from other industries. The characteristics present peculiar features, which Campanovo and Pigneur (2003) identify as mobility, network effects and proprietary assets. The characteristics explained below affect the business models of mobile operators and should be considered by business model designers:

- **Mobility**: The value proposition of mobile operators built on mobility brings several unique benefits. According to Müller-Veerse (2000) the mobility advantages relate numerous attributes such as freedom of movement, ubiquity, localisation, reachability, convenience, instant connectivity and personalization. Mobility gives mobile service access to users at anytime and anywhere to obtain desired information and enjoy the available services.
- **Network externality**: An externality occurs when a transaction between two actors effects, as a side-effect, a third party that is external to the transaction. A favourable network externality depends on the quality of services offered by an operator compared to other operators. Because, the effect of offering quality services attracts more customers and provides for competitive advantages.
- **Proprietary assets**: This is an exclusive control over key assets in the mobile industry. Mobile operators can have proprietary assets like patents, network control, SIM card provision, and access to customer data.

From the characteristics above, Campanovo and Pigneur (2003) note that seamless provisioning of mobile services solutions requires collaboration of market players. Mobile business arena boasts of market players like service players, users, communication players, technology players, and regulatory players. The figure below (FIGURE 4.1) illustrates the relationship among these players in the mobile business arena:

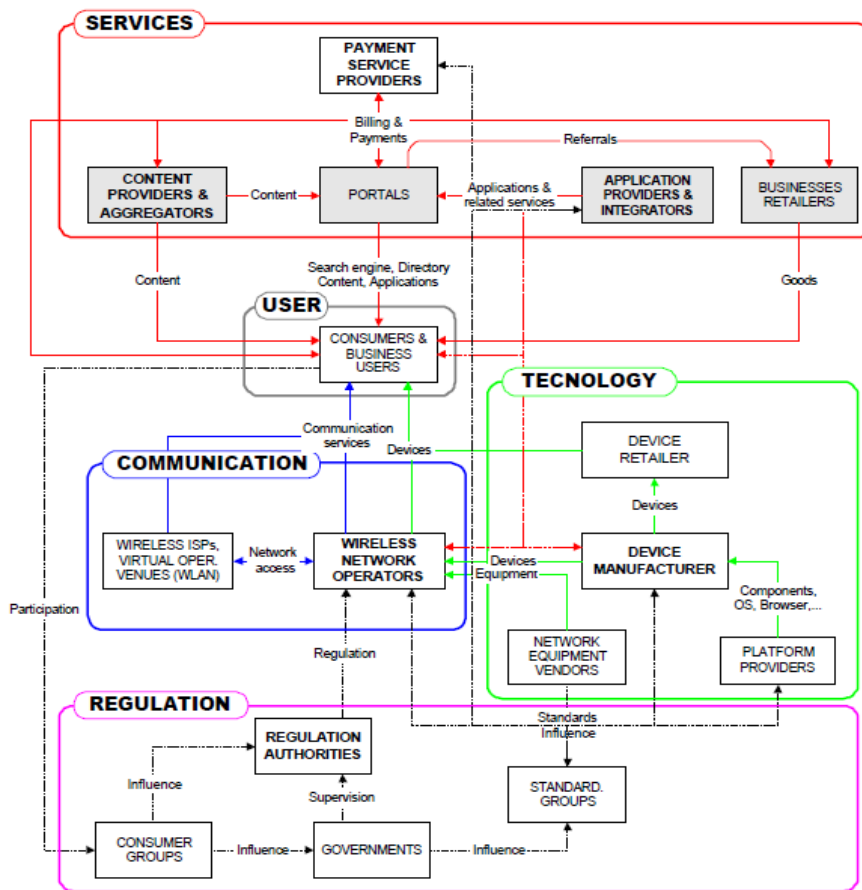


FIGURE 4.1 Wireless Actors' Map (Campanovo & Pigneur, 2003)

The following list briefly explains the functions and roles of the identified players in the mobile business arena:

- Technology players are the access device manufacturers, network equipment vendors, device retailers, component makers, and platform vendors. They provide the hardware and software infrastructure required to offer mobile services. Examples of technology players are Cisco, Ericsson, Siemens, Nokia, Lucent, Sony, and HP.
- Service providers are the content and application providers who offer mobile value-added services, contents, and applications which users can access on their mobile devices. Examples of service providers are Reuters, iTerra, and Visa.
- Communication players are mobile network operators or carriers, Internet Service Providers (ISP), virtual operators, and infrastructure management service providers. Examples of communication players are Vodafone, Tesco Mobile, and eircom.
- Regulatory players are government agencies, regulatory authority, and standardisation group. They do not participate directly in service provisioning but set the legal and societal framework to control and

checkmate the activities of the other players in the mobile service arena. An example of this player is ComReg.

- Users are key players in the industry because they contribute to the success factors or barriers of mobile business. In the industry, the essence of value proposition or creation is to meet up and satisfy customers' needs. Users in the mobile business arena can be individuals and corporate organisations.

In the mobile service arena, mobile network operators and mobile virtual network operators are communication players as highlighted above. They form the basis on which this study evaluates the internet channels considered by Irish mobile operators in their business models.

4.2 Notable Business Models of Irish Mobile Operators

A business model, being a critical document or strategy to a company's sustainability and market competitiveness, is usually kept confidential. The case of Irish mobile operators is not an exception as they do not have their business models available to the public. Nonetheless, the literature and the industry report reveal that some of the operators use or have used walled-garden content supply or closed business model, open access portal business model, and Telco-OTT business model as the following paragraphs expatiates.

Walled-Garden Content Supply and Open Access Portal Models

In the previous literature, Hopkins and Fynes (2006) identify two business models that are relevant to mobile operators in Ireland. They are walled-garden content supply model and open access portal model. The figure below (FIGURE 4.2) illustrates the two models:

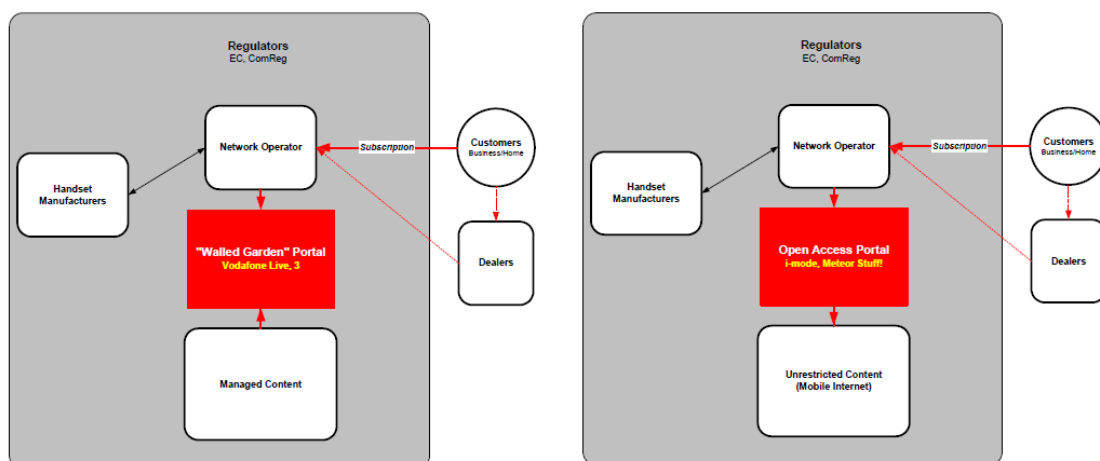


FIGURE 4.2 Walled Garden Content Supply Model and Open Access Portal Model Respectively (Hopkins & Fynes, 2006)

According to Hopkins and Fynes (2006), the walled garden and open portal models were the two distinctly different approaches to content supply in the Irish mobile markets; and the most attractive discovery in the domain. The following list briefly describes the two content supply models:

- **Walled Garden Content Supply Model**: This model enables operators to restrict the user experience for better service to customers and increased profits for the operators. Walled garden model confines users to a particular area or space.
- **Open Access Portal Model**: This model gives the freedom of choice and accessibility to customers in selecting from a variety of mobile services the operators offer.

Hopkins and Fynes (2006) mention that O2 and Meteor are advocates of the open access portal in Ireland, with their respective i-mode and Meteor Stuff! portals, whereas Vodafone and 3 offer a walled garden service of content delivery.

Telco-OTT Model

OTT otherwise known as over-the-top exists as an Internet-based OTT and Telco-OTT. Telco-OTT Model is an emerging business models in the mobile business arena where telecom operators are finding ways of maximise their profit, to seek non-traditional revenue streams or to upscale their monetisation model through innovative services such as access-independent Internet services for communications, content, cloud and connectivity.

As Moynihan (2011) indicates, some Irish mobile operators such as O2, 3, Vodafone, and Meteor use Telco-OTT business models in providing services like circuit voice, packet data through their supplied and branded devices in the old models. While the emerging Telco-OTT models applicable in services like circuit voice, packet V&M, packet data, voice / messaging over IP, and Voice over IP using the third party supplied devices and applications. The figure below (FIGURE 4.3) illustrates the Telco-OTT old and emerging business models:

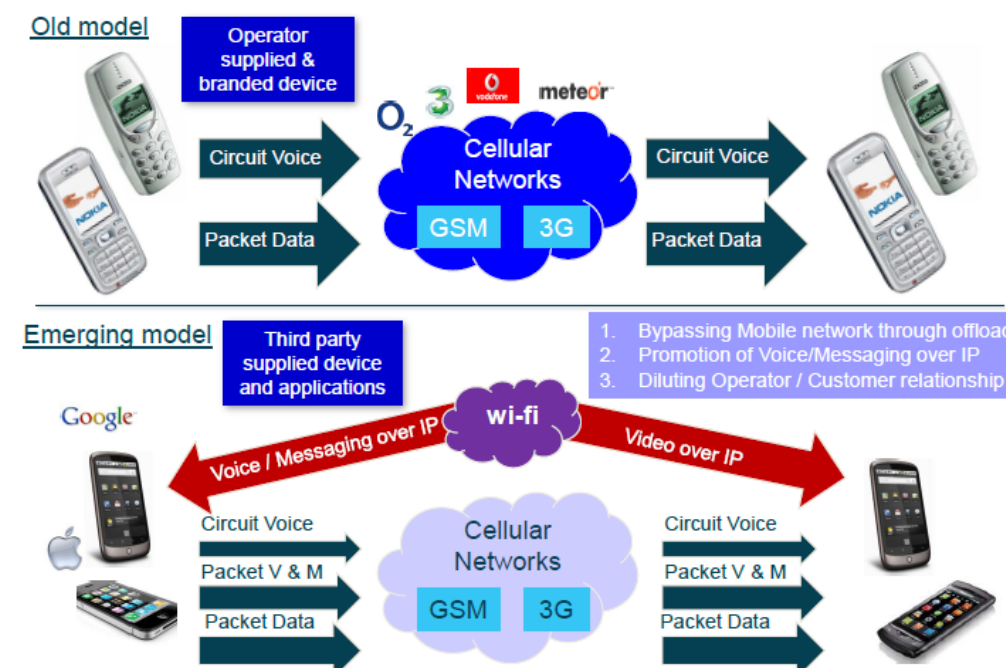


FIGURE 4.3 OTT Companies Business Models in Ireland (Moynihan, 2011)

Internet-OTT companies such as Skype and social networking companies like Facebook and YouTube are making a massive profit from high data traffic over the operators' networks. This puts the traditional telephony and SMS revenues under threat. The threat prompts the operators to explore alternative ways to maximise their profits. Operators use Telco-OTT model to generate income by charging customers for the use of extra services. Telco-OTT adoption is an attempt to extract more money from the upstream OTT players, and partnering with Internet-OTT companies. According to Disruptive Analysis (2012), Telco OTT business models enable operators to achieve the following:

- Expand their customer base and reach more market segments by offering new services in the same fashion as Internet-OTT companies.
- Use the Internet to improve the experience of current subscribers when they are "off-net" (such as access to TV from PCs, or handheld devices connected via other networks).
- Offer "outside-in" services (such as cloud application) to their customers with cost and simplicity advantages. (Disruptive Analysis 2012.)

Moynihan (2011) reports that the operators have various options available to them to improve their OTT business models by considering the following options:

- Defining a clear strategy on OTT players will increase and enhance value delivery to both operators and their customers.
- Partnering with OTT VoIP providers to target key market segments.

- Controlling the main pricing levers to mitigate the risk from OTT VoIP players by adjusting tariffs.
- Developing their own VoIP services, either in-house or in partnership with OTT providers.

4.3 Internet Adoption and Use in Ireland

This part of the study examines the industry reports for the Internet adoption and usage in Ireland. The level of the Internet growth may be a factor that motivates the businesses for its adoption and the consumers for its usage. The Internet as a channel allows a company to promote and sell its products and services directly to its end-users; and lets the company bypass some existing traditional channels like distributor, resellers, dealers, and retailers.

In Ireland, the internet was being heralded as the dawn of a new economic age. It was the height of the dotcom boom, as companies with no revenues and, worse, no business models, were valued in billions on the stock market. The internet adoption levels among consumers and businesses, in Ireland and across many other markets, were relatively low but the hype around the internet was enormous and propelled businesses and governments to invest in internet projects. (O'Toole, 2010)

The growing trends in mobile device usage and the widespread adoption of the Internet is certainly a bonus to the mobile industry. Moynihan (2011) reports the prediction that Smartphone penetration in Western Europe will grow to 72% by 2016 while tablet shipments will increase significantly. The combination of the Smartphone and Tablet shipment already surpassed PC's in Q4 2010. This is a clear indication that syndicates the importance and demand for the Internet as channels on the desktop and mobile devices, and to the mobile operators. Moynihan supports his statement above that 55% of Twitter users log in using a tablet or mobile, 44% of Facebook users log in over their mobiles, and 8.5% of BBC I-Player downloads to mobiles or tablets. Ireland is not left out of the scene as the social media adoption level is growing at the fastest rate among people above age 35 years; and Facebook is leading the way (O'Toole, 2010).

The impact of the internet channel for Irish mobile operators' businesses can be attributed to the rising growth of the Internet usage in the country. O'Toole (2010) confirms that the growing trend of PC, Internet and broadband house penetration in Ireland from 2000 - 2009 indicates that 70% of Irish households have PCs compared with 32% back in 2000. The trends indicate a preference for laptops rather than PCs and with about 15% of the population having both. Internet availability in Irish households grew from 20% in 2000 to 62% in 2008, broadband subscriptions stood at 1.5 million and doubled within three years; and the average Irish person spent 13 hours online in 2009, compared with 10 hours in 2008. All these factors are positive indicators for internet channel adoption and success factors for mobile operators and other

internet-enabled businesses in Ireland. According to AMAS (2012a), there has been steady growth of internet use across all the age groupings in Ireland. The following figure (FIGURE 4.4) indicates the growing trend of internet usage in Ireland from 2007 - 2011:

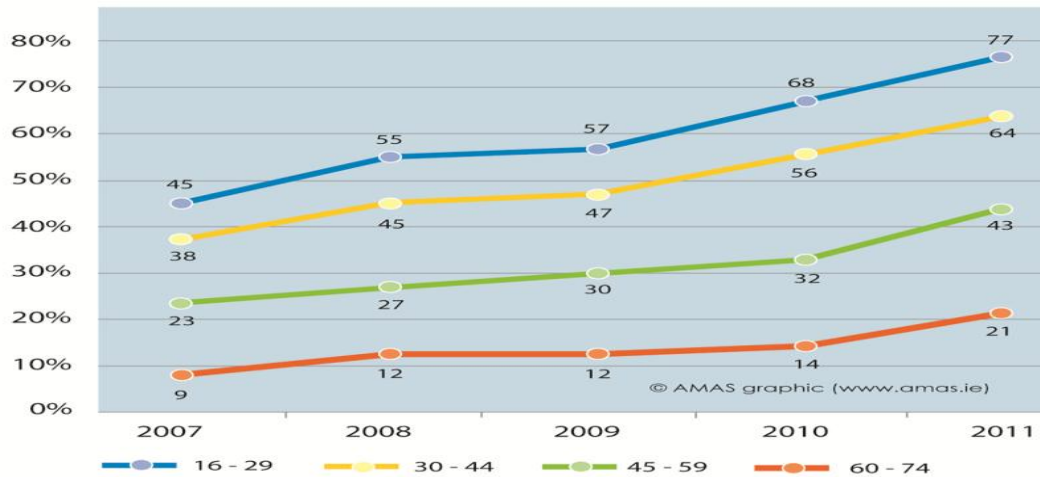


FIGURE 4.4 Internet Usage in Ireland (Source: Central Statistics Office, Information Society)

While the sales in the traditional Irish retail stores are declining, the virtual retail stores are experiencing a growing trend (AMAS, 2012a). The fact which may be related to the increase in the number of WiFi hotspots and access points in Ireland. According to ComReg (2012b) the number of WiFi hotspots and access points have increased by approximately 37.2% and 19.2% respectively, comparing Q2 2011 to Q2 2012. WiFi minutes increased by 155.2% over this period as illustrated in the figure below (FIGURE 4.5):

	Q2 2012	Q2'11-Q2'12 Growth	Q1'12-Q2'12 Growth
WiFi Hotspots	1,443	37.2%	10.9%
WiFi Access Points	3,511	19.2%	7.0%
WiFi Minutes of Use	99,668,357	155.2%	51.4%

FIGURE 4.5 WiFi Hot Spots and Access Points Growth (ComReg, 2012b)

The growth is a reflection of the increasing take up of smart phones and tablets among Irish consumers, as well as changes in WiFi operators' conditions of access. The scenario creates the opportunity for the customer to utilise internet increasingly, which influence the entire economy most especially companies' utilising internet channels in their operations.

The scenario of Irish mobile telecom industry otherwise called mobile ecosystem is presented in this chapter to understand the players and their corresponding roles. The ecosystem identifies Irish mobile operators as communication players alongside other key players in the industry. The players in the ecosystem are factors to consider in the business models of mobile

network operators because they contribute to the actualisation of a complete business model. While reflecting on the notable business models of the operators, this chapter treats the historical adoption of the Internet in Ireland. The adoption and use of the Internet in the country further explain its impacts on the mobile operators' businesses. The adoption of the Internet by the consumers and businesses contribute to the decision of the operators in harnessing the Internet as channels in their operations which eventually constitute their business models. The submissions from this chapter and the previous chapters bring about the importance of the business model concept, channels, and the internet channels in the mobile ecosystem. The chapters present in-depth reflections on the business models of mobile network operators, the elements of the operators' BM, and the impacts of the channels from the perspective of the literature research and industry reports.

The following chapters present the case method, case companies, and case report which reflects on other data sources such as observation and interview in tandem with the researcher's contribution.

5 CASE STUDY

This study focuses on the evaluation of internet channels and their impacts on Irish mobile operators' business models. Internet channel is the viewpoint of this study while the Irish mobile telecom industry serves as a case. In dealing with the topic and the viewpoint, this study examines previous studies about the business model concept to capture requisite knowledge and the relevance to the mobile industry. The study identifies and provides answers to the statement of research problems that revolves around the viewpoint. Hence, it attends to the following research questions:

1. *(a) What channels are used by the Irish mobile operators as constituents of their business models? (b) Which internet channels are used by these operators?*
2. *Which internet channels Irish mobile operators prefer and why are these channels preferred?*
3. *How do internet channels favour the business models of Irish mobile operators?*

Therefore, the study, while reviewing the previous viewpoints on the business model concept; concentrates on the channels used by the Irish mobile operators as constituents of their business models, the preferred internet channels and their reasons, and the impact of internet channels on the business models of Irish mobile operators. The motivation into the empirical enquiry revolves around the research gap in the viewpoint of the internet channel. Little research exists on the internet channel as a constituent of a business model. The previous research that considers the channel, mostly recognises it under value chain or value network. The researcher is interested and curious about the knowledge of mobile telecom industry and the impacts of the Internet in the industry's business models.

However, in order to capture the missing gaps and contribute to the business model research domain, the researcher applies an appropriate research method while utilising a frame of reference to guide the data gathering and analysis. The following paragraphs reflect on the research method used to study the topic and the viewpoint, frame of reference guiding the data

gathering and analysis, case selection, data sources, details of the interviews, and how the data are analysed.

5.1 Relevance of Case Study to the Thesis

This study utilises exploratory case study as a methodology. Case study is an appropriate method to study the topic and the viewpoint because it provides a better understanding of a complex situation and advances the scope of existing research knowledge. A case study analyses the context of a limited number of scenarios and their environment utilising a qualitative research method. It utilises a qualitative method to thoroughly investigate existing real-life problems or situations. Yin (2003) defines case study research as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident." Woodside (2010) corroborates Yin that a case study research focuses on describing, understanding, predicting, and/or controlling the individual (such as process, people, organisation). He further states that any study that combine any of description, understanding, prediction, and control justifies the objectives of a case study research. This study tends to understand the business model concept and the internet channel as a viewpoint, describe them, and identify the key factors that stimulate the impacts of internet channels on mobile business operations and their business models.

A case study as an exploratory tool offers a holistic and in-depth investigation into a situation, people or organisation; and also allows for deeper investigation of a topic in detail than its current form of existence. According to Yin, a case study is the preferred strategy when "how" and "why" questions are to be answered by a study. In this study, the researcher, having identified the channels and the internet channels used by the Irish mobile operators, investigates why the operators preferred internet channels and how the internet channels affect their business models. As an exploratory case study, this thesis seeks to understand the descriptive features of the case and the surrounding elements. The researcher performs initial study to identify questions and select appropriate methods prior to the main study. The type of case study, being exploratory in nature as the above paragraph presents, utilises a single case design and qualitative method. The single case design links the data collected and conclusion to the research questions.

A frame of reference is considered in order to derive meaningful insights into the impacts of the internet channels in business model of mobile operators, a frame of reference inspired by existing studies on business model concepts is adopted. The frame of reference guides the empirical investigation and allows it to relate the case results to the insights from the literature perspective. This study considers the King and Liou (2004) framework of internet channel evaluation as the theoretical framework. The framework consider the construct, measures and metrics for determining the internet channel performance and its

importance to an organisation. The framework provides room for business-level and user-level evaluations but only business-level evaluation is suitable for the context of this study. The frame of reference guides the literature research which informs the researcher in reviewing the business model and related concepts while exploring renowned academic databases and taking cognisance of the viewpoint and the context of this study. This study utilises peer-reviewed journals and scholarly articles sourced through the renowned academic databases like ACM Digital Library, Computer and Information Systems Abstracts, Electronics and Communications Abstracts (ProQuest), IEEE/IEE Electronic Library, ProQuest Computing (ProQuest), ProQuest Telecommunications, Science Direct (Elsevier), Springer Link, Web of Science (WoS), NelliPortal, and Google Scholar. The Methodology, while focusing on a contemporary phenomenon within its real-life scenario, considers scholarly researches about the business model concept and highly cited related research papers as the appropriate frame of reference that guides the data gathering and analysis in this study.

Case study research considers case selection as the process of choosing applicable and sufficient cases for the study. The cases were selected based on the company age, company prominence, market coverage, product offerings, applicable channels, and the identifiable business models. In the empirical consideration of this study, seven major mobile operators in Ireland were selected for analysis. Although, there exist two other mobile virtual network operators. These two operators were not considered because they are new entrants, they do not indicate their office addresses on their websites, contacting them via email proved abortive, and do not meet the criteria considered. The selected case companies were considered sufficient because they meet up the identified criteria for the case selection. In addition to the above, the researcher considers the relevance of the case companies to the elements of the thesis topic and its characteristics. The elements are topic, viewpoint, and context which are *Business Models*, *Internet Channels*, and *Irish Mobile Operators*. In ensuring the sufficiency of the selected cases, the (Nielsen, 2012) guidelines in his *Case Selection via Matching* were followed by:

- defining the relevant universe of cases,
- identifying key variables of interest that should be similar across the target cases,
- identifying variables that should vary meaningfully across the target cases, and
- selecting the desired number of cases that have the specified similarities and differences.

5.2 Data Sources

In treating a case study research, previous researchers recognise six main sources of evidence. These sources of evidence consist of documentation, archival records, interviews, direct observations, participant observations, and physical artefacts (Yin, 2003). In this study, the researcher considers documentation, interviews and direct observations which the following expatiates:

- **Documentation**: This involves the use of documents like agendas, announcements, articles in the mass media or in community newsletters, letters, memoranda newspaper clippings, and reports as relevant sources of evidence in a case study research. According to Yin, documents are stable, unobtrusive, exact, and have broad coverage. They can be retrieved repeatedly, are not created as a result of the study, contain exact details of a phenomenon, and exist for a long period of time. This study utilises the company documents / annual reports of Telefónica, TESCO, and Vodafone to capture all relevant data in the context of the study. The study also considers relevant industry reports and articles in the mass media.
- **Interviews**: Interview is one of the most important sources of case study research (Yin, 2003) and involves the conversation between an interviewer and interviewee for the sole motive of eliciting facts from the interviewee. Interviews may be open-ended, focussed or structured depending on the facts or statements to be elicited. The interviews focus on the case study topic and provide imagined causal inferences. This study while utilising qualitative method, uses open-ended questions for the interviews. A Channel Manager at Meteor and a Commercial Manager at postfone were interviewed to support the empirical aspect of this study. The interviews took an average of 40 minutes and were transcribed to extract the relevant information.
- **Direct Observation**: Observation is another source of evidence in a case study research and can range from formal to casual data collection activities (Yin, 2003). Observations cover the phenomenon in real time and the context of the phenomenon. In this study, the research directly observes the websites of the operators to understand and discover the extent at which the operators use the Internet as channels.

The use of the documentation, interviews, and direct observations as sources of evidence in tandem with the literature research strengthen this study and provides a clear understanding of the viewpoint and support the empirical findings.

The interviews being open-ended questions were targeted and insightful to capture the context of this study. In achieving this, the researcher prepared

an interview guide in the form of a questionnaire that moderates the flow of the event and follows the frame of reference adopted. The interview open-ended questions considered the statements of the research problems and the concept of the business model in the sight of the operators. The interview guide captured the operators' perspectives in the following areas and provided answers to the research questions:

- The current state of the operators' business models and the level of understanding achieved in conceptualising business models.
- The channels and the internet channels considered in their business models.
- The preference for the internet channels and the driving forces behind the preference.
- The impacts of the internet channels on the operators' business model elements.
- The future plans of the operators in the annals of the internet channel as a constituent of their business models.

The interview questions revolved around the business model concept and the internet channel as the viewpoint of this study and elucidated on the impacts of the preferred internet channels by the case companies. APPENDIX 1 presents the detailed questions that guided the interviews.

5.3 Data Analysis

Data analysis in a case study research is the process of identifying the appropriate data to resolve the statements of research problems. It consist of inspecting, categorising, tabulating, testing, or combining qualitative and quantitative evidence to answer the initial propositions of a study (Yin, 2003). Yin submits that analysis of case study evidence remains the most difficult aspects of case study research. Meanwhile, he recommends some general analytic strategies which depend on theoretical propositions and case description; and some analytic techniques based on pattern matching, explanation building, and time series analysis.

However, this study, being a qualitative-oriented case study research, considers the case description as the analysis strategy and explanation-building as the analytic technique. A case description presents a descriptive framework to organise the case study and analyse the organised data with respect to the viewpoint and the context of the study. While the explanation-building as a technique analyses the case study data, and helps explain the case and identify the causal links between the cases and the viewpoint. The analysis relies on the relevant evidence from the data sources and the literature review to address the most important concerns as reflected in the viewpoint and the research

questions. Having presented the case method above, the following sub-chapter treats the case companies and their characteristics.

5.4 Case Companies

This study considers Irish mobile telecom industry which recognises case companies, which are the main mobile telecom operators in Ireland. The following table below (TABLE 5.1) presents the companies and their brand names:

TABLE 5.1 Irish Mobile Operators and Brand Names

	Mobile Operators' Companies	Mobile Brand Name
1.	AnPost	Postfone <i>www.anpost.ie; www.postfone.ie</i>
2.	eircom Limited	eMobile <i>www.emobile.ie</i>
3.	Hutchison 3G Ireland Limited	3 or Three Ireland <i>www.three.ie</i>
4.	Meteor Mobile Communications Limited	Meteor Ireland <i>www.meteor.ie</i>
5.	Telefónica Ireland Limited	O ₂ Ireland <i>www.o2online.ie</i>
6.	Tesco Ireland Limited	Tesco Mobile Ireland <i>www.tescomobile.ie</i>
7.	Vodafone Ireland Limited	Vodafone Ireland <i>www.vodafone.ie</i>

According to ComReg (2012), the mobile communication industry is one of the fastest growing telecommunication sectors in Ireland. Irish mobile phone penetration rates are now exceeding 100%. ComReg offered licences to three 2G cellular operators and four 3G operators. The 2G/GSM licence allows operators to provide a GSM mobile telephony service while the 3G licence allows them to provide a Third Generation Mobile Telephony service. In Ireland, ComReg licensed Meteor Mobile Communications Limited, Telefónica O2 Communications (Ireland) Limited and Vodafone Ireland Limited to operate both 2G/GSM and 3G licences while Hutchison 3G Ireland Limited operates only 3G licence.

5.4.1 Irish Mobile Operators

The Irish mobile telecommunication industry currently divides between four main network operators and three virtual network operators. The Irish mobile operators fall into two categories based on the license types and extent of

operations. The two categories are mobile network operators and mobile virtual network operators.

The Irish Mobile Network Operators (MNOs) licensed by the Commission for Communications Regulation (ComReg) are Meteor, O2 Ireland, 3/Three Ireland, and Vodafone Ireland. While the Mobile Virtual Network Operators under the controls of MNOs are eMobile, postfone, and Tesco Mobile Ireland. As the first approach in getting the background information of the Irish mobile operators, the researcher examines the operators' websites to obtain vital information about the companies. The following list presents the background information of the case companies:

1). 3 or Three Ireland (Hutchison 3G Ireland Limited)

Hutchison 3G owns the 3 or Three brand. The company launched 3 Ireland in 2005; is Ireland's largest high speed network and the fastest-growing mobile operator in the country. Three has 99.5% population network coverage for voice and text, with 97% population coverage for mobile broadband/internet making her the largest high speed network in the country.

Hutchison Whampoa, the parent company of Hutchison 3G Ireland Limited, is a fortune 500 company. It is one of the largest businesses listed on the Hong Kong stock exchange. Its operations include port and retail businesses, telecommunications, property, energy and infrastructure. The company formerly owned and ran the Orange network worldwide before it moved into 3G services under the 3 brand. Three brand operates in nine countries, which include Australia, Austria, Denmark, Hong Kong, Ireland, Italy, Macau, Sweden, and the United Kingdom. Li Ka-Shing, one of the world's most successful businessmen, is the controller of Hutchison Whampoa.

2). eMobile (eircom Limited)

eircom Limited owns the eMobile brand. eMobile is the latest entrant to the mobile market in Ireland and part of the eircom Group, which is Ireland's largest telecommunications company. The Group has over 2.5 million fixed landline and mobile customers whom it support with its most advanced and extensive communications network in Ireland. eircom Limited is a private company limited by shares and registered in Dublin.

3). Meteor (Meteor Mobile Communications Limited)

Meteor established in 2001, licensed the Ireland's 3rd mobile operator, is a subsidiary of eircom Group. Meteor has over one million customers on its network and almost 20% market share due to its unprecedented growth in recent years (30 September 2009).

4). O2 Ireland (Telefónica Ireland Limited)

Telefónica owns O2 Ireland brand. O2 is Ireland's second largest mobile network. O2 Ireland offers solutions to over 1.7 million customers and has a retail network of over 80 stores. O2 Ireland began life as Esat Digifone in Ireland in 1996. In 2000 British Telecom acquired Esat Digifone and then demerged its wireless division, called mm O2, in 2001. In 2002, the company rebranded mmO2 and officially launched the O2 group of companies. In March 2006, Telefónica S.A acquired O2 group.

Telefonica O2 Ireland launched 2G service (voice and text) in 1997 as ESAT Digifone, 3G Network in 2006, HSPA and MVNO in 2007; and announced a network sharing agreement with Eircom Meteor in April 2011. As of November 2011, Telefonica O2 Ireland holds 32% Irish market share while Vodafone, Meteor, 3 and Tesco Mobile hold the remaining market share. Telefonica O2 Ireland has 1.7 million voice and data customers. (Moynihan, 2011.)

O2 Ireland is part of Telefónica Europe. Telefónica Europe's parent company, Telefónica S.A. has its headquarter in Spain. Telefónica is one of the largest telecommunications companies in the world, with the presence in 25 countries.

5). postfone (AnPost)

An Post launched postfone as a mobile virtual network operator in May 2010 providing mobile phone services over the Vodafone network. The operator uses spider as its Mobile Virtual Network Enabler (MVNE). An Post is Ireland's leading parcel provider and incorporated with limited liability. An Post has 606 retail offices which the operator uses as distribution hubs for its mobile products and services.

6). Tesco Mobile Ireland (Tesco Ireland Limited)

Tesco Ireland launched Tesco mobile on the 29th of October 2007. Tesco mobile Ireland is a joint venture between Tesco and O2 to provide mobile phone service on the Irish market. O2 provides the network coverage with 99.6% of the Irish population covered. Tesco Mobile combines the 99.6% population coverage and mobile expertise of O2 with the savvy pricing.

7). Vodafone Ireland (Vodafone Ireland Limited)

The origin of Vodafone dated back to 1984 when Ireland launched the first mobile phone service as part of the former state Telco Telecom Eireann. However, Vodafone emerged in May 2001 after the acquisition of Eircell. In the late 1990s, under the tutelage of Eircel brand, Vodafone enjoyed massive expansion and significant growth as mobile telephony evolved in Ireland.

Vodafone Ireland is the leading total communications provider in Ireland. It has a total customer base of 2.46 million in the year ended 31st March 2012. Vodafone Ireland retains its position in the mobile market with 2.22 million mobile customers (Vodafone, 2012).

Vodafone Ireland is a subsidiary of the Vodafone Group. The group is the world's leading international mobile communications group with approximately 347 million proportionate customers as at 30 June 2010. Vodafone currently has ownership interests in 31 countries across five continents and around 40 partner networks worldwide.

6 CASE RESULTS

This chapter represents the case report which reflects on the results for the study. The chapter examines the findings of this study with consideration for industry reports, observation, company documents, and interviews. It reflects on the Irish mobile operators' business models, the internet channels used by Irish mobile operators in their business operations, factors for evaluating internet channels, and the importance and impacts of internet channels in the operators' business models.

6.1 Insight into Business Models of Irish Mobile Operators

The business models used by Irish mobile operators almost look alike aside from the facts that they fall into two categories (MNO and MVNO) based on their functions; operation and license capabilities. Organisations usually restrict their business models to maintain their trade secrets and prevent them from falling short of competitive advantages. The case of Irish mobile operators and their parent companies are not different, but traces of the elements of their business models exist publicly as some of the operators indicate in their annual reports. Some of the operators use Mobile Network Operator Business Model and MVNO business models. The Meteor interview revealed the operator uses Mobile Phone Operator's Business Model with a focus on running own mobile phone networks and billing engines to serve prepaid, bill pay, and data customers. It also focuses on selling top-ups through own channels and 3rd party channels. On the other hand, the postfone interview confirmed the company operates an MVNO business model with a focus on brand building and serving prepaid and postpaid customers. They operate typical telecom business models which depend on getting customers in and growing customer values. Considering the Osterwalder and Pigneur's (2010) business model composition and perspectives of the interviewees, it leads to the following insights derived as constituents of the operators' business models:

- **Customer Segments:** According to one of the interviewees, there exist three customer structures. These are prepaid, bill pay and data customers. Data customers only utilise the broadband and applications offered by the operators. Prepaid and postpaid have different needs and different marginal applications. Youths are target customer segment because of their association with prepaid and bill pay plans. One of the mobile virtual network operators target customer segments comprising "Over 50's" and "Cost conscious Over 35's".
- **Value Propositions:** Great values for customers and considerations for personalities of typical Irish enrich the companies' value propositions. The companies make more attractive offers and pricing that is more attractive to customers. Prepaid is a challenging brand, and the operators make it grow by targeting the market segment in offering customer values to beat the competitors. The operators develop brands that capture the interests of their customers such as in case of prepaid and bill pay which associate with youths.
- **Channels:** The primary focus of the operators was on traditional retail networks by creating own retail stores and partner with independent stores. The mobile phone market grew through the traditional retail networks. Online retail was not so famous until recently when the internet channels enjoy wider adoption by the operators. The need for the internet channels arises on the ground of the 100% penetration in the market and the massive requirement to drive customers in the business. The reason why the cost of the traditional retail channels is large and the adoption of the Internet is imminent. According to the Meteor interviewee "Internet channel is becoming more prominent as a means of selling and requiring the customers to get services online. From the customer perspective, internet channel is becoming more influential than the traditional retail network. For instance, the internet channel leverages the calling cost to the call centre via phone which cost anything from 3EUR / call." Resolving issues online is cheaper and efficient than the traditional method. All these factors facilitate the adoption of internet channels in order to save cost and be more efficient, effective, and be ahead of the competitions. Postfone boasts of the POS within the post offices in Ireland as an advertising medium.
- **Customer Relationships:** This assists operators treat customers and work with customers in their best interests. Prepaid customers enjoy normal relationship, and the post-paid or bill pay customers enjoy more relationship. The customer relationship entrenched on base management, is a key factor to maintain customer base and increase customer values.
- **Revenue Streams:** The operators make money on the usage of own networks by other operators, and from mobile phone top-ups and bill pay customers.

- **Key Resources:** The operators key resources are own mobile phone networks, own billing engines, IT systems that support in delivering phone networks and billing engine, brand equities and strong brands. The brand is a vital resource because of brand competition and a lot of brand ecosystems. Launching of an MNVO to further capture segment is also a key resource. A mobile virtual network operator like postfone recognises 606 AnPost retail offices for distribution as its key strategic asset.
- **Key Activities:** The key activities of the operators among various are maintaining the mobile phone network and IT resources, creating and delivering value to customers, dealing with key partners, and maintaining a customer base. Advertising is a key activity in a business model of the operators as it informs the potential customers about the proposed value.
- **Key Partnerships:** These involve relationship with retailers' networks, phone manufacturers, telecom equipment vendors, marketing agencies etc. In a typical MVNO perspective, key partners are MNO (such as Vodafone) and MVNE (such as Aspider) for postfone.
- **Cost Structures:** The cost structures of typical Irish mobile operators comprise massive costs of the network, IT resources, own base stations across the country, and marketing. Several marketing costs required to meet up the competitive environment in Ireland. In addition, service cost structures also surface where the operators use different cost segments to offer flexible options to customers. The operators offer single price structures for all calls and texts; and monthly price structure for on-net or off-net calls and texts.

The Interview confirms that business modelling remains the responsibilities of the constituted management team and directors. While at large, people factors count. The people factors include companies' owners, parent company, staff, shareholders, consideration for customers, regulators, and government agencies. The CEO monitors the outcome of the business modelling. Monthly financial reports and concept development also contribute to the business model elements. The interview reflects on some of the advantages and disadvantages of the operators' business models. The following list pinpoints the advantages:

- Knowledge base from the expertise and concentration in different telecom segments such broadband network, fixed network, mobile billing, and mobile networks;
- MVNO initiative that captures underutilized market segments
- Market size that commands growth in the fastest and best rate
- Available equipments (Oracle, Ericsson, telephone equipment) that ensure efficient service delivery
- An alliance with marketing agencies in Ireland that result to a broader reach

The interview's opinion on the challenges encountered with the business model of the operator relays the following disadvantages:

- Conflict of operations among subsidiaries
- Stagnant work practices
- Conflict of strategy due to privatisation
- Difficulty in running multiple brands offering with similar value propositions at the same time
- Problem of brand encroachment resulted from managing two similar products.
- Problem with managing customer relationship with different brands
- Change of companies' ownership that resulted in a huge amount of debt
- Challenges with lots of debt that resulted from the former corporation and structure.

Elucidating on the impacts of the business models adopted by the operators, the following factors emerge:

- Regulator's constraint and debt structure which resulted in cutting costs
- Customers always want to reduce their spending due to recession
- The recent recession has put a significant challenge to Irish businesses
- Circumstances have warranted the reduction of rates / prices to keep customers happy
- Licence constraint that restricts some of the operators' base in the Republic of Ireland

Nonetheless, one of the interviewees confirmed the success of operating its business model which made the company experienced over 20% growth rate in the Irish mobile phone market within a short period. Despite the situation of market competitiveness, the business model has been extremely competitive in gaining customer share, building a successful brand, and giving/offering customer lofts. He adds that focus on the business model has changed because it is no longer about growth but consolidation in the current market situation. Change in business model at the moment is challenging, and other mobile operators are trying to change their business models as well.

Some of the reasons behind the success stories of operators' business models are challenging and innovative brands, real value for the money, value propositions appropriate and ideal for the targeted customer segments, effective and efficient channels, and growing customer base. Value propositions like free on-net SMS or calls with small monthly payments also contribute to the success stories. On the other hand, while reviewing the companies' reports, two operators mention their business models to some extent and highlight their core areas of concerns which make them competitive successfully with their rivals. For instance, Telefónica (2010) confirms its management model that enables it to

increase the value of measures taken at levels of the corporation. In 2009, the company exploited its scale and strategic alliances to promote synergies and continue developing a sustainable and successful business model. In its business model, Telefónica identifies and considers some key factors critical to the business sustenance, competitive advantage and future direction. These factors listed below to the success of the operator's business model:

- New consumer habits, social networking and the increasing importance of online shopping
- Communications which makes it possible for businesses and companies to increase productivity and competitiveness
- The constant emergence of new devices with greater capacity and ever more features which are driving demand
- New value propositions based on high-capacity broadband.
- Companies need ICTs in order to open up new ways of doing business and ensure ever-better experiences for their customers.
- Consideration for customers as the real drivers behind growth process (increasing revenue from digital applications and content), constantly defining and redefining a demand-led marketplace.
- Developing a transformed operating model to achieve greater efficiency towards being an online organisation advancing the transformation processes and internet migration (Telefónica, 2010.)

Telefónica (2012a) further confirms the strategy embedded in its business model which speeds up its pace of growth, adds new capabilities, utilise synergies and valuable assets (networks, customers, distribution channels, resourcefulness and innovative capacity). Telefónica (2012b) acknowledges the changing dynamics in the industry which stimulate the operator to try new services with a focus for technology, advanced user interfaces, mobile TV and other broadband services. The changes also encourage the operator to strengthen the business model, and make it more effective in order capture the synergies arising from the integrated business, process and technology approaches with more focus on the clients.

The literature reveals the adoption of Telco-OTT business model by some of the Irish mobile operators. Telefónica (2012c) confirms the use of Telco-OTT models in its business activity and anticipate its transitioning from “Telco” to “Digital Telco” model which offers significant growth opportunities for the Telecom industry.

Vodafone Group, the parent company to Vodafone Ireland Limited, also reflects on its business model in its annual reports. According to the Group's chairman, Gerard Kleisterlee, the operator is keen on building internet-based business models. It operates a straightforward business model which depends on the following assertions:

- The company buys licences that give it rights to spectrum bands and builds networks to provide calls, SMS and mobile internet services to customers.
- Customers pay for the services, and the company reinvest the cash flow in the business and provide a reasonable return to its shareholders.
- The company's reinvestment in the business allows it to make continuous improvements to its network, strengthen its brand, and develop stores and websites to reach new customers and retain existing ones. (Vodafone, 2012)

The Group further reiterates the importance of reinvestment in its stores, internet and social media presence, and spectrum licences that support future services and development; and above all to gain competitive advantage (Vodafone, 2012).

Mobile virtual network operators are also evident in the Irish mobile industry. The operators that use MVNO business models only provide mobile phone services but do not own licence of the spectrum or the infrastructure. They have their own brand and market segment. The MVNOs in Ireland operate Full-MVNO business models. As indicated in sub-chapter 2.2.3, Full-MVNO is the complete MVNO business model where the mobile network operators provide the infrastructures for radio access network and part of the core network while MVNOs provide the rest of the elements in the mobile value chain.

6.2 Internet Channels used by Irish Mobile Operators

This sub-chapter focuses on the internet channels used by Irish mobile operators in their business operations. It itemises the channels and the internet channels Irish mobile operators use in delivering value propositions to their customers. The channels listed below, emanate from observing the operators' websites and the interviews:

TABLE 6.1 Irish Mobile Operators and their Common Channels

	Mobile Brand Name	Common Channels
1.	3 or Three Ireland <i>www.three.ie</i>	<ul style="list-style-type: none"> • In-Store / Kiosks • Delivery by Courier • Retailers' Network / Indirect Internet Channels/POS via PayPoint, PostPoint, PayZone, PostOffice, and OmniVend • Top-up Terminals (Vodafone & OmniVend) • Traditional Adverts (Newspapers, TV/Radio) • Digital Adverts (e.g. Google Ad words, ATM)
2.	eMobile <i>www.emobile.ie</i>	
3.	Meteor <i>www.meteor.ie</i>	
4.	O ₂ Ireland <i>www.o2online.ie</i>	
5.	postfone	

	<i>www.postfone.ie</i>	<ul style="list-style-type: none"> • Phone Call, Text Message or SMS • Fax /Mail/Letter • Online/Web Portal • Email/Contact Form / Web Chat • Social networking sites and discussion forums • ATM Machine and Internet Banking Platform • Web Payments and eBilling via debit /credit cards e.g. Visa, MasterCard, and Laser card
6.	Tesco Mobile Ireland <i>www.tescomobile.ie</i>	
7.	Vodafone Ireland <i>www.vodafone.ie</i>	

Internet channels in most cases are infer to mean websites or web portal but not so. Any medium that depends on the Internet can be referred to as an internet channel. The internet channels used by Irish mobile operators can be grouped into two vis-à-vis direct and indirect internet channels. Direct internet channels are the web portals and their components controlled and administered by the mobile operators and serve as interfaces or the communication paths with their customers. The indirect internet channels are the third-party platforms enabled by the Internet through which the mobile operators deliver their value proposition to the target customers. Examples of indirect internet channels that are applicable to Irish mobile business are that of retailers' networks, digital advertisements, social media, ATM / vending machines, internet banking platform, and web payment and ebilling gateways.

From the interview perspective, two areas of the channels exist. These are sales channels and service channels (customer services). The two areas of channels include the four types of the internet or internet mediated channels (web, mobile, social and embedded) described in sub-chapter 3.2. The implementation of all the four types of the internet channels is visible in the Irish mobile operators' business operations. The following highlights the extent to which the operators utilise the internet channel types:

- **Mobile Channels:** Taking a cursory look at the operators' websites to check for compatibilities with mobile devices, the researcher finds that even though the websites perform well on mobile devices such as Smartphone; only one operator has a mobile version of its main website (*m.vodafone.ie*)
- **Social Media Channels:** The operators widely use social networking websites in their operations because they have their presence on Facebook, Twitter, and YouTube. Some of them utilise discussion forums as well. Meteor had previously used Facebook as a mobile top-up mechanism.
- **Embedded Channels:** Mobile operators in Ireland indirectly benefit from the embedded channels through the networks of partners, vendor, distributors. Mobile recharge or topping-up can be achieved with ATM, POS, and Vending Machines such as Omnivend's. Most of the stores in Ireland who sell mobile top-ups use the retailers' networks such as PayZone, OmniVend, PayPoint, and PostPay whose internet-enabled gateways support POS facilities.

- **Web Channels:** Websites receive more attention as a channel because all the operators have full-fledged and well-functioning websites. Apart from using their websites to display their products and indicate their services; they also use them for sales, and supports to the extent that they have customer-centric portals. The following paragraph treats various customers-centric portals implemented by the operators. Another instance, where web channels favour the operators is their alliance with banks in Ireland where the bank customers can top up their mobile phone online through the Internet banking platforms of the banks.

6.2.1 Irish Mobile Operators' Products/Services and their Channels

Irish mobile operators offer various products and services to individuals and corporate customers. The varieties of products and services offered are phones, tablets, subscription plans, SIM cards, broadband data, broadband devices, accessories, business packages, value-added services, customer supports, awareness and promotion, social media presence, mobile top-up and payment facilities. The table below (TABLE 6.2) expatiates the extent to which the operators provide the products and services, and deliver them to their target customers or end-users:

TABLE 6.2 Irish Mobile Operators' Products/Services, and Channels

Products & Services	Descriptions	Applicable Channels
Phones / Tablets	The operators offer various makes of conventional phones, smart phones, and handheld devices from different manufacturers with various makes such as Apple, Nokia, Samsung, HTC, Sony, BlackBerry, LG, Doro, ZTE, Sony Ericsson, and Alcatel.	Online or web portal, In-store, and courier delivery.
Plans	The operators offer different subscription plans such as Prepay / Pay As You Go, Bill pay, Tesco mobile Pay Monthly and Capped Monthly plans, and Tesco mobile and Vodafone SIM only plan.	Online or web portal and In-store.
SIM Card	All the companies offer free SIM card for prepay plan while some offer SIM card for bill pay customers from free to paid depending on the nature of the contract.	Online or web portal, In-store, and courier delivery.
Mobile Broadband Data & Devices	The operators offer mobile internet or broadband data bundles and devices with different plans structured by	Online or web portal, In-store, courier delivery for devices,

	bandwidth.	phone call, and text message or SMS.
Mobile Accessories	The operators offer mobile phone accessories like charger, case, and headset.	Online or web portal, In-store, and courier delivery.
Business Packages	Some of the companies offer business packages for corporate customers.	Online or web portal, In-store, and phone call-back request.
Value-added Services	This involves the additional services some of the operators offer. For instance, eMobile Perks for mobile phone insurance, O2 Money for prepaid Visa card, 3 Cover for mobile phone insurance, and Vodafone Mobile Services for Mobile apps and phone insurance.	Online or web portal, In-store, and phone call
Customer Supports	This entails pre- and post-sales support offered to prospective and existing customers.	Online or web portal, In-store, phone call, social media, mail / letter, and email.
Awareness & Promotion	This entails companies' advertisement, communication, campaign, and customer bridging modes. The operators also use their platform to run a third - party advertisement which are included in the SMS. Media professionals and companies equally subscribe to dedicated numbers for promoting their services.	Online or web portal, In-store, social media, traditional adverts (TV /Radio, Newspapers), digital adverts (ATM, Ad words), text message or SMS, and POS within the post offices in Ireland.
Social Media Presence	This involves the utilisation of social media by the companies to reach their prospective and existing customers. Apart from presence on social media, operator like Meteor had previously used Facebook for mobile top-up.	Discussion Forum (Boards.ie), Facebook, Twitter, YouTube
Mobile Top-up	The consumers of mobile services need mobile top-up to recharge their subscription plans for voice call, text messaging, MMS, and the Internet usage.	Online or web portal, In-store; top-up terminal; retailers' networks utilising indirect internet channels with POS from PayPoint, PostPoint, PayZone, PostOffice, and OmniVend; text-message or SMS; ATM machine; and Internet

		banking platforms.
Payment Facilities	This entails the payment facilities provided by the operators for the customers to pay for the products and services offered.	Web Payments and eBilling via debit /credit cards e.g. Visa, MasterCard, and Laser card; In-store; bank direct debit facilities; retailers' networks.

According to ComStat's (2012) digest of statistical data on the mobile market in Ireland, mobile operators generate their revenues from Mobile subscriptions, Mobile voice traffic, Mobile SMS traffic, and Mobile MMS traffic. As in the second quarter of 2012, Irish mobile market indicates 5,490,261 Mobile subscriptions; 387,750,502 Mobile revenues; 2,764,004,294 Mobile voice traffic; 3,144,150,338 Mobile SMS traffic; and 12,891,314 Mobile MMS traffic. The figure below (FIGURE 6.1) illustrates the Irish mobile subscriptions and revenues by market type, indicator, year, and a quarter of 2008 to 2012:

Mobile market by Market Type, Indicator, Year and Quarter										
	2008		2009		2010		2011		2012	
	Q2	Q4	Q2	Q4	Q2	Q4	Q2	Q4	Q2	Q4
Mobile market										
Mobile subscriptions	5 217 359	5 357 036	5 031 340	5 154 289	5 154 570	5 273 313	5 377 188	5 499 790	5 490 261	..
Mobile revenues	515 463 263	516 339 400	455 598 311	434 108 932	417 151 340	439 302 519	410 159 461	413 553 417	387 750 502	..

Footnote:
Legal disclaimer
The information and statistics contained within this document are derived from a variety of sources. While all reasonable care has been taken in preparing it, no responsibility whatsoever is accepted by the Commission for Communications Regulation, her lawful servants or agents for any loss or damage, howsoever caused, through any reliance whatsoever placed upon any statement or any calculation howsoever made in this document.

Market Type
Mobile market
Mobile subscriptions data has been revised for periods Q1 2009 to Q2 2010. Mobile minutes of use have been revised for periods Q2 2009 to Q2 2010.

Indicator
Mobile subscriptions
This data has been revised for the periods Q12008, Q42007 and Q32007. Data was revised in July 2008. Data from Q22007 includes mobile broadband (HSDPA) subscribers.

Indicator
Mobile revenues
This data was revised for the period Q12008. Data was revised in July 2008.

FIGURE 6.1 Irish Mobile Market Subscriptions and Revenues 2008-2012 (Source: ComStat)

The mobile operator revenues measured in monetary terms, originate from customers. Customers pay for the services used or products purchased from the operators. In order to preserve the customer base, the operators utilise different methods (such as offers, enhanced subscription logic) to attract and retain their customers. For instance, some mobile operators in Ireland usually offer their customers on-net calls and SMS with a fixed monthly payment; while some offer fixed number of minutes calls and number of SMS to any networks at a fixed monthly payment.

6.2.2 Irish Mobile Operators' Customer-centric Web Portals

From the observation conducted on the operators' websites, the researcher finds the extent to which these operators engage internet channel in satisfying customers' needs. The mobile operators in Ireland, in addition to their official websites, have customer-centric web portals for managing their services real-time online with their existing customers. The web platforms are only available to existing customers both individuals and corporate organisation for managing their subscriptions with the operators. The Irish mobile operators' customer web portals are highlighted and described below:

1. **My3:** This is an internet-enabled channel or platform which resides on (my3account.three.ie) and makes it easy for customers' self-account management. My3 service is free and allow customers to see balances, check remaining allowances, buy top-ups, get add-ons, view recent bills (Bill Pay), and update personal details. My3 is the service of Hutchison 3G Ireland Limited.
2. **My eMobile:** This is an internet-enabled channel or platform, which resides on (emobile.ie/login) and offer benefits such as sending up to 300 free web texts, updating account details, retrieving PIN / PUK code while Bill pay customers can assess their bill and see usage patterns. My eMobile service is the eircom mobile customers' platform. The operator also has dedicated portal (emobiletopup.ie) for scheduled and one-time top-up.
3. **MyMeteor:** This is an internet-enabled channel or platform which resides on (mymeteor.ie) and offers some benefits to customers. For instance, Meteor offered its customers 300 FREE Web texts every month, facility to see their account details and keep track of what they spend. More so, customers can claim call credits, enjoy the best offers and stay up-to-date with Meteor activities. Meteor Mobile Communications Limited powers MyMeteor.
4. **My O2:** This is an internet-enabled channel or platform which resides on (o2online.ie/o2/my-o2), and allows customers to view recent bills and pay bill online, analyse recent call, text and data usage, get PUK code to unlock their phones, change their add-ons, and switch to paperless billing. Telefónica Ireland Limited under the brand O2 Ireland provides the service.
5. **My postfone:** This is an internet-enabled channel or platform accessible through "postfone.ie/mypostfone". It offers benefits such as online top-up and customer detail management. My postfone also enables customers to block SIM online, check balances, report lost or stolen phones and check or update personal details. Postfone also uses the platform to offer customers tailored promotions to reward their loyalty. More so, the operator utilises anpost.ie and iloveshopping.ie as part of its internet channels.

6. **My Tesco Mobile:** This is an internet-enabled channel or platform accessible through "selfcare.tescomobile.liffeytelecom.com", which provides services like account update, free web text, service usage updates, and billing enquiries. My Tesco Mobile is a web service of Tesco Mobile Ireland.
7. **Vodafone Customer-Centric Portal:** Vodafone has five different customer-centric web portals to suit the need of its customer segments. The web services are **My Vodafone Online, My Vodafone at Home, Vodafone Office, Vodafone Business Online, and Vodafone eBilling.** The web services are accessible through the main website of Vodafone Ireland (vodafone.ie). My Vodafone Online provides a facility for billing query, plan upgrades, top-up and web text services. My Vodafone at Home serves the landline and fixed broadband related services customers. Vodafone Office allows the business customers to manage their landline and fixed broadband services. Vodafone Business Online is for corporate customers. While Vodafone eBilling is a tool used to keep the customers on top of their business's mobile expenses by analysing where their highest mobile costs are, and gives them new insight into the breakdown of their organisations mobile bill.

The website as a valuable customer touch point, also serve as a key sales channel for the mobile operators in Ireland. Web site quality, ease of use, and features are crucial factors to attract customers to the companies' websites. The features of a website determine the customers' current and future purchases and requests for supports.. A web site must provide adequate information about products and services offered, and usability that ensures that customers' purchases or enquiries are hassle free. Customers may search the website for product and service information but decide to order via traditional channels. Nonetheless, the internet's influence determines the revenue streams of the companies.

6.3 Importance and impact of Internet Channels

The emergence of the Internet has stimulated many companies to use it as distribution channels. With the internet channels, operators can complement and support the existing traditional channels and other traditional mediators such as dealers, distributors, resellers and retailers. Any companies that ignore the importance and impact of the Internet in their business models by utilising it in their business operations will lag behind its competitors. If an operator does not sell its products and services online, customers will go to rivals who utilise the Internet. Of course, adoption of the Internet by a company in its business operations will face a stiff reaction from the distributors and dealers who now see the operator as a competitor. Nonetheless, internet channel use is

an inevitable experience a company must undertake to cope with the current trends in capturing market segments.

The internet has revolutionised consumer behaviour and changed businesses, large and small. The internet is vital to how companies deliver their value propositions to, and communicate with their customers. It transforms business processes through web interfaces to support the main activities, internal and external relationships, sales processes, and obtain other benefits.

The growing trends in mobile device usage and the widespread adoption of the Internet is an emerging bonus in the mobile industry but the operators need to invest carefully and investigate to ascertain the actual benefits of mobility in the value system of their business models. Mobility offers customers opportunities to order products and services anytime anywhere using their internet-enabled mobile devices or terminals. The significant growth in the Smartphone and Tablet market, is a clear indication that syndicates the importance and demand for internet channels on mobile devices, and to the mobile operators.

In addition, the social media has been highly beneficial to the mobile providers who offer mobile internet as part of their service. Social media offers various benefits to the mobile industry in the areas of serving as platforms for awareness, advertisement, product and service updates, product and service promotion, and product and service offering. Other benefits are apparent in the areas of customer support, open collaboration, sales avenue (e.g. Meteor interviewee confirmed the operator has once sold recharge vouchers on Facebook), driving traffic to the company's website, sharing press release, and handling public complaints and opinions. Without any iota of doubt, emergence of social networking sites is an advantage to the mobile industry not only in Ireland but the world at large.

Telefónica (2010) confirms the importance and the impact of channels on mobile communication business as one of the factors that contribute to its business growth alongside new customer habits and social networking. It envisages the paradigm shift from the Internet of people to the Internet of Things (IoT) in mobile communication businesses which makes internet channel a touch point for the organisation growth. The operator confirms the great opportunity in the industry if it adapts to the customers' needs by offering perfect channels for accessing all its creative and innovative value propositions.

Telefónica (2011) foresees that the increase in customers will depend on a wide-range of devices connected to the Internet, and confirms the importance of channels in dealing with the shareholders' relationship through free phone line, online channel, and magazines. During 2011, the Shareholders & Investors website registered a total of 1,924,144 visits, compared to 1,439,537 in the year before (Telefónica, 2012a) which confirm the importance of internet channels as communication and collaboration tools. Vodafone (2010) also sees the impact of the channel by providing a number of shareholder services online.

TESCO (2012a) also confirms the impact of internet channels where it reports that the internet sales experience growth of 15.2% in telecom and other

sales. It confirms that online and social media make it hassle free to attend to vast numbers of end-users in real time via web chats, Facebook and Twitter (TESCO, 2012b). Vodafone (2010) also appraises the Internet as an increasingly powerful and cost-effective distribution channel and its impact on overall business operations as reflected in the quote below:

The internet is increasingly a key channel to promote and sell our products and services and to provide customers with an easy, user friendly and accessible way to manage their services and access support, whilst reducing costs for the Group. (Vodafone, 2010, p. 13)

To consolidate on the benefits offered by the internet channels, Vodafone (2011) confirms its moves on redesigning and improving its customer care, retail presence and online service in order to ensure that customers get the best data experience, and introducing data centric store formats which have 5,000 specialised data customer care representatives in Europe. While placing considerable importance on multichannel capabilities, Vodafone (2011) has developed its online self service (which has increased the website visits to approximately 133 million a month) and sales activity. It confirms sales and service mix have prompted for a significant upgrade in its online store and online service capabilities over the last three years. Operators will always enjoy the positive impacts of the internet channels if they put in an intense effort and unparalleled innovation.

6.3.1 Impacts of Internet Channels - Interview Perspectives

The purpose of channels in the perspective of the operators is to connect customer and undertake some processes to serve their customers' needs. According to the Meteor interviewee, internet channel is becoming more influential than the traditional retail network as a means of selling and requiring the customers to get services online. Internet channel leverage the cost incurred in traditional channels and help to resolve issues online. Resolving issues online is cheaper and more efficient than offline methods. The factors endear the operators to using the internet channels. The Meteor interviewee confirms that while the internet can serve as a service and sales channels, it also offers low cost compare with traditional retail channels, partners' stores being the most expensive. The following factors highlight the impacts of internet channels:

- The internet channel has the lowest cost.
- Partner stores are the most expensive.
- Operators use Internet channels to reach new customers.
- From the service perspective, the operators' channels have their own call centres but adopting online channels to reduce the cost of serving customers.

- Managing the internet channel platform involves less people
- Social media channels like Facebook and Twitter have been remarkably successful with operators in engaging their customers; offering outstanding values; rendering customer supports, and sharing companies' promotional information, new development, and bright ideas.
- Social media channel is essential for communication with customers, peer-reviews, opinions, trust building based on the opinion derived, welcome questions and provide answers.
- The main website provides for customer services, product displays and sales acquisitions.
- Customer-centric web portals, web chat with dedicated agents, and customer forum ensures excellent customer supports.
- Internet channels contribute to a tremendous growth in online sales.

Even though the adoption of the internet channel is on the low key from the perspective of the postfone interviewee, the operator still uses the Internet for sales and customer supports while utilising social media for promoting specific offers. In terms of percentage of revenue contribution, the interviewee confirmed mobile top-up enjoyed 10% internet sales against 90% in-store sales while the internet channel contributed only 1% of the mobile revenues.

6.3.2 Determining Factors for Preference of Internet Channels

The choice of the internet channels motivated by certain factors, which assist in shaping the operators' business models and impact their business strategies and operation, are numerous according to the Meteor interviewee. The following list showcases the factors that influence the choice of the internet channels based on the interviewee's perspective:

- Customer choice is the king.
- Customers are always online
- Customer base/customer segment is extremely young
- Base customers are internet-savvy, and they want to use the Internet all the time. It facilitated the company's early adoption of Facebook and Twitter.
- Customer-driven is one factor and cost-driven is another factor.
- Online channels require lower cost than the offline channels.
- Serving customers' needs by following their trends. The operators follow customers to where they are. Facebook as a case is where customers always wish to be. Customer mainly chooses as a priority social media and the companies follow their wishes.
- Customers have chosen to be on Facebook and Twitter making the channels more viable communication tools.
- Companies are adapting to customers' needs by adopting social media channels to communicate with the customers, listen to their plights,

attending to their concerns, and increasing brand recognition for the companies.

- More purchases online
- More sales online
- Internet channels ensure cost effectiveness and efficiency on sales and services
- Advertising media to drive more people online; and sell more products and services online.
- Internet channels serve in the Bill pay customer segment more from the sales perspective, and interaction with prepaid customers.
- Customers use the customer-centric web portal for activities like Web text (SMS), checking bills, asking questions etc.

In consolidating their preference for internet channels, the operators offer the following products and services through the internet channels:

- Phones, plans / subscriptions, SIM card, mobile broadband and Internet, Add-on services sold on the company's website
- Customer support provided through the company's customer-centric web portal, Facebook, Boards.ie (a popular discussion forum in Ireland),
- Awareness driving and advertisement achieved through a PPC campaign, display campaign, SEO, Affiliate marketing
- Social media presence (Meteor previously used Facebook to sell top-ups to customers - first of its kind in the world as at the period)
- Bill pay customer payments done online while prepaid customer top-ups done through the Internet Banking platform of the banks in Ireland.

6.3.3 Challenges of the Internet Channels - Interview Perspectives

The fact that there has never been an advantage without disadvantage, and no success without a barrier or a challenge inform this sub-chapter. It reflects on the challenges encountered by the operators while using the internet channels. The following reflects on the challenges of using internet channels the Meteor interviewee:

- Demand on securing resources such as people and money to put an internet network in place or do superb internet work. This implies that operating internet channels involve skilled people and funding.
- Initially, mobile phone business depends on shops and selling in shops i.e. the sales model relies on selling through shops. The cost of building traditional retail channels was immense. Therefore, it is hard to put the cost of traditional retail stores over online channels because the retail stores have enjoy long time investments.
- Migrating from traditional channels to online channels was also challenging due customers' perception and adaptability.

- Concerns over adoption of the internet channels and get across the board to the target customers.
- Lots of scepticism about what online does (i.e. The way online grow revenues and its impact).
- Challenges in promoting the online agenda internally because of a managerial bottleneck or bureaucratic tendency on letting the management invest more on the internet channels.
- Fewer resources, Less people, and Less funding pose serious challenges to online value propositions and the satisfaction of customers' needs.
- Developing online proposition is quite different from traditional channels and is extremely beneficial. A company must forgive the customers' reasons / risks to buy online and not buying in shops (traditional channels).
- Customers buy online if a company offers the same value at a cheaper price (e.g. Ryan Air offers cheap flights to customers who buy online). This influences Irish people to buy flight tickets online at the expense of desk purchase.
- Pressing and competitive values must be offered which ensure unique price and unique value.

Meanwhile, existing channels also pose a great challenge to some operators adopting internet channel in full scale. For instance, postfone interviewee confirmed that internet channel remains a secondary channel in terms of resource dedicated because the operator's key strategic asset lies in its access to a broad distribution network of over 600 outlets across Ireland. This implies that the focus of the operator is on its traditional retail channel and not much shift until the channel has been saturated.

Future Internet Channel Usage

While capitalising on the importance and impacts of the internet channels, the Meteor interviewee confirmed "the operators are more focused on the future usage of the internet channels by experimenting more the existing internet channels because customers use the Internet intensively nowadays. They will continue to experiment customers' trends that will favour the operators' brands. As a matter of priority, company's own internet channels such as the main website, customer-centric web portal will continue to enjoy more attention. That is, giving 90% of attention to own website, to make it the best it can be." Finally, in meeting the future challenges, the following factors matter:

- Big under spending on the internet channels must be eradicated
- More spending and steady investments on the internet channels should be prioritised.
- Online resources and people skilled should be increased. More people should be recruited to create online skills in the organisation.

7 DISCUSSIONS

The purpose of this study was to evaluate and find the impacts of the Internet channels on the business models of mobile operators in Ireland. King and Liou (2004) framework of internet channel evaluation served as the theoretical framework that guided this study. The framework provides room for business-level and user-level evaluations but this study considered the business-level evaluation. The interviewees provided their companies' background information and elaborated on their companies' business models with the guidance of the open-ended questions prepared for the interview to capture the desired information. Among the information provided by the interviewees are current state of the companies' business models, their business model elements in relation to Osterwalder and Pigneur (2010) who proposed nine building block (Customer Segments, Value Propositions, Channels, Customer Relationships, Revenue Streams, Key Resources, Key Activities, Key Partnerships, and Cost Structures) for a complete business model in the field of Information Systems. The interview also captured the advantages and disadvantages of the business models that the companies operate; channels including internet channels considered and their impacts on the companies' business models; and elaboration on the future internet channels. The data collected were reduced through analysis and aligned appropriately with consideration for the existing literature on business model concepts, the areas to address in this study, and the guiding business-level internet evaluation framework.

This chapter while further presenting researcher's contributions, also discusses the case results in tandem with the previous research as identified in the literature review. The discussions focus on the business model concepts and the research questions of this study. Business model concept that combines the ethos of business strategies, activities, performance, sustainability, and competitiveness has enjoyed interests of the researchers and business managers over the years. Several literature reveals the variance in the levels of understanding and the meaning attached to the concept as reflected from the individuals' viewpoints and applicability of business models. In spite of the interests and the scale of research already done, the universal definition of

business model has not been agreed upon. Different classes of thoughts with various definitions exist. The individuals' understandings of business models revolve around their perspectives of usage in their various organisations.

Nonetheless, the essence of business models is all justified by the view points as they tend to utilise business models in creating values, generating revenues, developing business architecture and logic, aligning business strategies and processes, enhancing organisational norms and activities, innovating new products and services, deriving new business ventures from the existing ones, and collaborating with internal and external partners for the sole motives of improving productivity, ensuring profitability and being ahead the competitors.

The following sub-chapters discuss the perceptions of the channels and internet channels; the importance of the internet channels; and derived channel strategy frameworks.

7.1 Perceptions of the Channels and Internet Channels

Channels in business models are seen as important element bridging the gaps between the companies and customers; and value propositions and consumers (Porter, 1985). Previous studies that consider channels mainly highlight them as business tools in the areas of communication, distribution, and sales (Dent, 2011; Koen et al., 2011; Osterwalder & Pigneur, 2010; and Zhu and Cai, 2011) while this study further identifies channels as tools for collaboration and driving services which cut across several areas of business activities both internally and externally. Channel consideration in business modelling should not be limited to value propositions and customers but be extended to other areas of business model elements such as customer segment, key partners, key activities, cost structures, revenue streams, customer relationships, and key resources as it tends to relate with these elements and helps in the areas of coordination.

Channel classification is another area of interest that deserves attention in business modelling as it ensures adequate selection and understanding that position it appropriately. From the literature, it is evident that channels are either classified as direct and indirect channels (Osterwalder and Pigneur, 2010) or traditional and internet channels based on typical entity and areas but this study further identifies and simplifies channel classification based on functions. The adopted functional channel classification in this study consist of collaboration (Telefónica, 2012a), communication, distribution, sales, and service or support channels. The functional classification of channels are at all time applicable to classification by typical entity and areas. This study streamlines channels by functions in order to make selecting appropriate channel easier and more comprehensible, as appropriate channels lead to successful business model implementation (Shorey, 1997; Zhu and Cai, 2011).

However, while channel is an identifiable element of a business model whether on its own, or as a part of value chain or value networks; its existence

as the internet channel is attracting more attention from the researchers and business managers alike. The intent of this study in selecting internet channel as view point is to corroborate existing findings, discover the missing gaps, and contribute to the knowledge community. The emphases on the internet channels from previous studies have centred on roles of the Internet in the business model origination and performance (Frambach et al, 2007; Geyskens et al., 2002; King and Liou, 2004; Zott et al., 2010), relevance of internet as a component of value chain (Barnes, 2002), and as forms of distribution systems (Leung, 2012). But, in order to add to the knowledge pool and further clarify the concept of internet channel, this study identifies various forms of internet existence which received less attention in the literature. The identified forms of internet channel existence are web channel, mobile channel, social media channel, and embedded internet channel. The harmonised classification of internet channels are mentioned separately in the previous studies but their usages are evident in the business activities of mobile network operators. The terms web (Telefónica, 2012a; TESCO, 2012b; Vodafone, 2010), mobile (AMAS, 2012b; Vodafone, 2010; Wei, Shen and Ji, 2008), and social media (Meteor; TESCO, 2012b; Vodafone, 2010) are well recognised in the literature as internet channels but this study identifies embedded internet channel (Telefónica, 2010) as part of internet channel classification as the operators currently use internet-enabled channels like ATM, POS, and Vending Machines. Internet of Things (IoT) is another proposition on the way by some of the operators and falls under embedded internet channels.

7.2 Why the need for the Internet Channels?

The Internet apart from being the enabler of the business model concept, also plays key roles either as an intermediary or a channel in the business model ecosystem. The need for the internet channels is well enshrined in its impact and importance to the mobile business operations and other ventures considering internet-enabled channels as part of their business model elements or decompositions. Several functions are identified in the literature where channels or internet channels are vital in the areas of awareness, evaluation, purchase, delivery, and after-sales support which the empirical findings evidently support. The perfection of this study on the impact and importance of internet channel revolves around the classification by functions earlier discussed which includes collaboration, communication, distribution, sales, and service or support in the global context.

Another aspect of interest are the drivers of the internet channel selection which enumerate the preferential conditions surrounding the choice of internet-mediated channels adopted by mobile operators. While Frambach et al. (2007) affiliates these drivers to accessibility, ease of use, usefulness of the online channel, social presence, psychological feeling, and internet experience; the empirical findings of this study corroborate the literature and further reveal

that customers' choices, trends and age segments; cost effectiveness; social media addiction, and competitive pressure top the list of the drivers for their channel preference.

This study, having seen the impact and importance of the internet channel coupled with the necessity for its evaluation, has taken a step in deriving strategic frameworks based on channel classifications to support the channel assessment and selection. The next sub-chapter treats in detail the derived frameworks which require further validation in the future research.

7.3 Channel Strategy Frameworks (CSFs)

The channel strategy frameworks constitute some forms of strategies and guidelines that may apply in determining the roles of the internet channels in business modelling. The outcome of this thesis prompts the derivation of the frameworks which consider the thought expressed herein. The channel strategy frameworks are in two forms; namely Mainstream Channel Strategy Framework (MCSF) and Internet Channel Impact Assessment Framework (ICIAF). The following paragraphs further expatiate the frameworks.

7.3.1 Mainstream Channel Strategy Framework (MCSF)

The MCSF is a form of the framework that considers the types and groups of the channels in tandem with the channel classification by function or purpose as the Chapter 3 identifies. It is a table that presents what the business model generator should consider when designing and developing a business model with channel in mind. This framework considers both the traditional channel and internet channel at the group level. Therefore, it can guide the mainstream channel model in business modelling with consideration for indicators like collaboration, communication, distribution, sales, and service / supports. The Table below (TABLE 7.1) present the MCSF for business model development.

TABLE 7.1 Mainstream Channel Strategy Framework (MCSF)

Type	Group	Indicators	Identification and Assessment of Channel Impact
Direct Channel	Traditional Channel	Collaboration	
		Communication	
		Distribution	
Indirect Channel	Internet Channel	Sales	
		Service / Support	

With the MCSF shown in the Table above, a business model generator will be able to identify its channel types, group, and classification by functions. The

classification by function or purpose serves as the indicators on which the impacts of channels are assessed for onward consideration in the business model.

7.3.2 Internet Channel Impact Assessment Framework (ICIAF)

The ICIAF considers the factors that only affect the internet channel in the Mainstream Channel Strategy Framework and further disintegrate to capture the identified internet channel types. It also considers the same indicators which are presented in the above Table (TABLE 6.3). The types of internet channels considered are web, mobile, social media, and embedded channels as they serve as the primary motivator for internet channel consideration in the business model generation with a focus on the internet channel model. The following Table (TABLE 7.2) presents the ICIAF:

TABLE 7.2 Internet Channel Impact Assessment Framework (ICIAF)

	Primary Motivator	Indicators	Identification and Assessment of Internet Channel Impact
Internet Channel	Web	Collaboration	
	Mobile	Communication	
	Social Media	Distribution	
	Embedded	Sales	
		Service / Support	

Since the scope of this study depends on the internet channel, it is essential to derive a framework which caters for the internet channel as the table above (TABLE 7.2) indicates.

The two frameworks are similar in scope but different in contents as MCSF considers both the traditional and internet channels while ICIAF considers only the internet channel. The unfilled spaces under the identification and assessment columns can be used to note the assessment of the channels with the indicators and elucidate their impacts. This approach will present a clear overview of the scenario to the organisation considering channel as a constituent of its business model. Irrespective of the framework adopted, the essence of the approach is to help business model generators identify channels and assess their impacts accordingly.

8 CONCLUSIONS

This chapter covers the conclusions; recommendations; and limitations and implications for future research. It also reflects on the contribution and importance of this study to the IS field.

8.1 Conclusions

This study finds the impacts of the Internet channels on mobile operators' businesses as recognised in their business models. It reflects on the business model concepts, business models of mobile telecom industry and specifically Irish mobile operators. It discusses in details the channels including Internet channels used by mobile operators in general and Irish mobile operators in particular. Since the internet channel is the viewpoint of this study, it receives more serious attention by identifying the different types that exist, what they do, and how the operators have been using them to their advantages.

Irish mobile operators use both traditional and internet channels for their business operations. The operators uses traditional channels like own stores and partner stores, couriers, retailers' network, traditional advert placement (Bill board, Newspaper, TV) while their internet channels comprise web (e.g. websites, web chat, email, contact form), mobile apps, top-up terminals (e.g. Omnivend, ATM, Internet Banking Platform, POS), digital adverts (e.g. Google Adwords, ATM, Display Boards), social media (e.g Facebook, Twitter, YouTube, discussion forums), and web payment gateways. The internet channels adopted by the operators are classified into four categories vis-a-vis web, mobile, social media and embedded channels. While the most preferred internet channel by the operators is the web; the level of usage and adoption of mobile, social media and embedded internet channels is equally high. Hence, they utilise all the four categories of internet channels based on the following:

- Customers' choices, segments, and age;

- cost effectiveness;
- social media addiction by the customers;
- sales effectiveness;
- emerging advertising media;
- possibility of capturing more customers;
- existing third-party infrastructures and networks;
- enhanced communication and collaboration possibility; and
- efficient product / service delivery and customer supports which all facilitate profitable incomes and ensure competitive advantages.

This study examines the impact of the internet channels in the business activities of a mobile operator, where channel is considered as an element of operator's business model. The internet channel is regarded as the enabler of emerging and innovative products and services, effective sales and service delivery, efficient customer support, and competitiveness. To the operators, the internet channels have been the unavoidable tools for enhanced communication, improved collaboration; and to align and harmonise business model decompositions or elements. Many of the operators are focusing on internet-based business models. While looking at the positive impact of the internet channels, there exist some shortcomings if the channel is not properly implemented by the organisation. The main shortcomings are security related issues, service failure, and social media reputation. Although, operators with proactive measures will conveniently tackle these challenges before their customers feel the effects. In support of the submission, Hulland et al. (2007, p. 110) confirm that the stakes of the internet channels are high. They warn "while the success of the online channel - defined as a firms' use of the Internet as a means of connecting with the market - may lead to greater sales, profits, and innovation, mistakes can lead to the complete breakdown of a firm's carefully crafted business strategy".

The study distinctly classifies various existence of internet channels and develops initial frameworks for channel strategy presented in the discussion chapter. The frameworks provide templates for easy assessments and can facilitate the evaluation of the impacts of the internet channels on business models based on channel classification strategy.

Mobile service providers can use the findings of this study in their business models and get more insight into the use of internet channels to improve the customer value. It is a valuable resource to service providers and researchers in Ireland and beyond. The findings are also applicable to other companies and industries who may benefit from mobile business services. This study provides a solid foundation for future research in the Information Systems field considering the viability of the Internet as a channel. Further examination of the Internet channels in the business models of mobile operators can help researchers understand and explain its benefits and barriers, which lead to future innovation. The outcome of this study helps practitioners in

making decisions relating to the application and adoption of the internet channel in mobile business and related services.

8.2 Recommendations

Obviously, internet channels are crucial for the operators' activities, which is a reflection of its consideration in their business models. However, the current state of internet channel usage needs to be re-innovated and improved to enhance the effectiveness and efficiency in their value systems. Innovation has indeed given edge to the companies that pursue innovative thinking and action. The scope of the Internet channels should go beyond web portals or mobile applications as showcased in the previous studies and perception of the operators. The next critical challenge is the "Internet of Things (IoT)" and its possibility to serve as a channel in the mobile telecom industry. According to Mazhelis, O., Luoma, E. & Warma, H. (2012) IoT brings the "Internet connectivity to things; and promises a number of benefits to its customers, varying from faster and more accurate sensing of our environment, to more cost-efficient tracking of industrial processes". They proclaim that wider adoption of IoT will bring significant income to the IoT application and service providers.

Although, some of the mobile operators in Ireland under the umbrella of their parent companies have identified and been researching on the Internet of Things, but the extent has been from value proposition perspectives. The operators' R&D activities in 2010 focus on future communications between individuals in a natural manner, leveraging the possibilities enabled by the Internet, Web 2.0 technologies, machine-to-machine (M2M) service management, networks of the future, smart charging, mobile location analysis etc. (Telefónica, 2011; Vodafone, 2011)

An operator without a mobile - enabled website should consider it as an option to reach more customers and make more sales. Additionally, Operators should consider the importance of channel reports which can serve as indications for channel performance. Channel report helps in assessing the impacts of channels both traditional and Internet. The assessment of Internet channels should not be restricted to only sales and services but extended to their usage in core business areas such as in informational usage, collaboration, communication, distribution, and in tandem with all elements of their business models.

8.3 Limitations and Implications for Future Research

This study, being a case study research that involves an inquiry into a complex phenomenon warrants the existence of some limitations. One of the main

limitations of case study is that the data collected can not be generalised. In dealing with this limitation, the researcher considers seven different companies to make the study more acceptable and valid to a wider population. Even though, the case companies are only in Ireland, some of the companies have global operations with unified business models.

According to George and Bennett (2004), other visible limitations of case study are uniqueness of data collected to the studied event, difficulty in establishing validity and reliability, bias in case selection, highly subjective and unpredictable conclusions. In ensuring that the impacts of case study limitations are minimised, the researcher improves his expertise and knowledge of business model concept and case study approach which facilitate what kind of questions to ask and how to ask them in tandem with what to observe and record. In this way, research continuously makes judgement about the significance of the data collected and tries to present adequate evidence from multiple sources to support the study.

Business models are key to the companies' sustainability. Therefore, the case companies are not willing to share some information that may impact their competitive advantages or trade secrets. Possibility to interview the management staffs of all the seven operators posed a challenge but alternative sources were exploited.

This study evaluates the internet channel from the business level perspective. Future research should consider the user level perspective in this domain. This study derives Channel Strategy Frameworks which requires empirical validation. Future research should consider mobile operators from other countries to figure out the external validity (generalisability) and the novelty of the findings, and conduct further empirical studies with consideration for the limitations above and to equally attend to the following research statements:

- What strategies can facilitate internet channel selection in a business that considers channel as an element of its business model?
- How can the successes of internet channel adoption be evaluated?
- What are the success factors of internet channel adoption in a business that considers channel as an element of its business model?

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APPENDIX 1 IRISH MOBILE OPERATORS' BUSINESS MODEL (BM) QUESTIONNAIRE

M.SC THESIS QUESTIONNAIRE

Irish Mobile Operators' Business Model (BM) Questionnaire

Background

The Irish Mobile Operators' Business Model (BM) Questionnaire is prepared to find requisite information and support my Master Thesis on "Evaluation of Internet Channels and their impacts on Irish Mobile Operators' Business Models". It is prepared for the management staff of Mobile Operators in Ireland.

I hope that sharing your experience will help my findings in the field to achieve better understanding of the Irish mobile operators' business models with interest in Internet Channels for the purpose of determining the impacts of Internet Channels impacts and recommendation for future benefits in the field.

This questionnaire has been structured to collect general background information about the company's Business Model and specific open questions about Internet Channels. You may raise additional questions that you consider important or to skip those specific questions that may not apply to you.

The questions and responses are confidential. They will only be used for my research work without any infringement on the company's trade secret or intellectual property.

Please return the completed questionnaire to adewale.a.ademowo@student.jyu.fi. The summary of my research would be made available to the company on or before 30 May 2013.

PART I. Company's Background information

Interviewee / Respondent (optional):

- Name:
- Title:
- Address:
- Phone:
- Email:

Company Details:

- Name of the company:
- When it was established:
- Areas of expertise:
- Product / service lines:
- R&D capabilities and major technologies:
- Major markets:
- The main competitors of the company:
- Business Model website:
- Other important issues:

PART II. Company's Business Model and Related Questions

1. (a) What is the current state of your company's BM (e.g. study, pilot phase, fully operational)? (b) Do you have a web for your company's BM? What type of BM do you use? (c) Please explain briefly the key business model building blocks of your company in the following terms:

- Customer Segments:
- Value Propositions:
- Channels:
- Customer Relationships:
- Revenue Streams:
- Key Resources:
- Key Activities:
- Key Partnerships:
- Cost Structures:
- Other element(s) that the company or you think are important:

2. (a) What is the organisational structure of your company's BM? Who operates it, who supervises it? etc. (b) What are the advantages and disadvantages of the BM that your company is currently using? (c) What services does it provide? (d) Who are the crucial partners to develop your company's BM? What roles do they play? (e.g. staff, customers, stakeholders etc...)

3. (a) What impact has the Business Model on company's operations? (b) How successful are the company's BM? (c) What are the reasons behind the success or failure? (d) How do you measure the success?

4. (a) What are the Channels considered in your company's BM? (b) What impacts have the Channels on your company's Business Model?

5. (a) Which Internet Channels are used by your company? (b) Why was the Internet Channel(s) preferred? (c) Who decides the choice of the preferred Internet Channels? (e.g. staff, customers, stakeholders, market demands etc...) (d) Which Internet Channels do you use for the following products / services?

- Phones:
- Plans:
- SIM Cards:
- Broadband / Mobile Internet:
- Add-on Services (e.g. Apps, Insurance):
- Customer Supports:
- Awareness (e.g. advert, campaign, promo):
- Social Media Presence:
- Top-up / Recharge cards:
- Payments:
- Others (please state them):

6. (a) What impacts have the Internet Channels on your company's Business Model and the building blocks (e.g. Customer Segments, Value Propositions, Customer Relationships, Revenue Streams, Key Resources, Key Activities, Key Partnerships, and Cost Structures)? (b) What are the challenges encountered for using Internet Channels? (advantages and disadvantages)

7. (a) What are your Customer Segments? (b) Which customer segments do the Internet Channels serve? (c) What are their core needs or interests? (d) What services (value propositions) are offered to the Customer Segments through the preferred Internet Channels?

8. (a) Do you consider social media (e.g. Facebook, Twitter, YouTube etc) as Internet Channels in your operation? (b) How do you use them? What impacts has social media on your business as a channel?

9. (a) Which Internet Channels are you planning to use in the future as a constituent of your company's BM and operational strategies? (b) What are the lessons learned in implementing the Business Model?

10. What other relevant information can you provide about your company's BM and Internet Channels?

PS. Please also provide me with some important Web links, company annual reports, other archival materials, etc. that will be useful for conducting this research.

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Note. The questionnaire and guidelines were prepared by Adewale A. Ademowo and supervised by Eetu Luoma, Copyright© 2012. Except for the interviewing of company people for this research work, further distribution of the questionnaire, guidelines and responses are NOT permitted.