A critical review of South African mobile operators vertically integrating into the evolving mobile industry value chain

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Abstract

The introduction of new technologies such as 3G with HSPA, very often referred to as mobile broadband, in the mobile telecoms industry is creating a shift in the mobile industry value chain, introducing new stakeholders to the value chain. Mobile operators will need to consider their role in the value chain and strategically position themselves in this evolving value chain.

This research report has used the mixed method research methodology to investigate the pros and cons of mobile operators vertically integrating into the evolving mobile chain. The results reveal that there are benefits to vertically integrating into the value chain however literature and other research reports provide arguments against mobile operators integrating into the evolving value chain.

Mobile operators should continue to remain a bit-pipe operator while forming strategic partnerships with content providers and aggregators.

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List of abbreviations

2G	Second generation of mobile phone standard and technology
3G	Third generation of mobile phone standard and technology
4G	Fourth generation of mobile phone standard and technology
ARPU	Average Revenue Per User
DVB-T	Digital Video Broadcasting - Terrestrial
DVB-H	Digital Video Broadcasting - Handheld
GSM	Global System for Mobile Communication
MBMS	Multimedia and Broadcasting Service
MVNO	Mobile Virtual Network Operator
SMS	Short Message Service
SNO	Second National Operator
TV	Television
WAP	Wireless Application Protocol

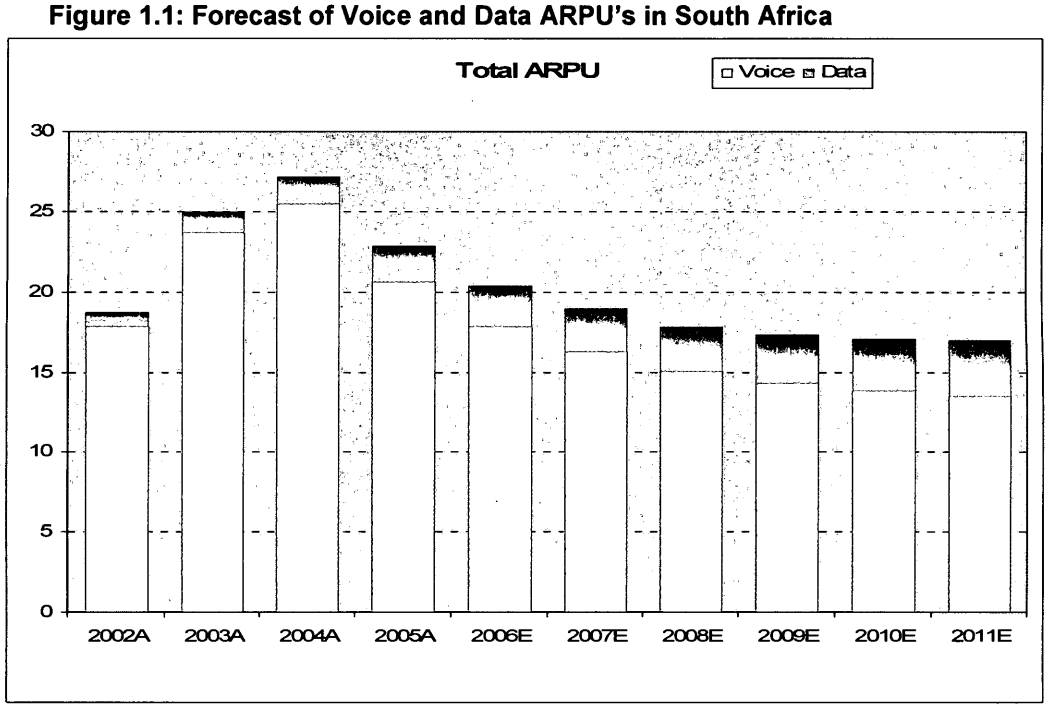
1 CHAPTER 1 Orientation

1.1 Introduction

Since the introduction of the first cellular mobile network in South Africa in 1994 the telecommunications industry has experienced tremendous growth. However a post-1999 South African mobile market reflects a negative trend in terms of declining Average Revenue per User (ARPU). This trend in the subscriber market has shifted the focus of South African mobile operators (namely Vodacom, MTN and Cell C) from merely attracting new subscribers (both prepaid and contract) to the introduction of services, which adds value to the networks. Thus the airtime usage of the subscriber has become more important than the number of subscribers that a company claims as its customer base (BMI-T, 2006).

Figure 1.1 provides a forecast of the voice and data revenues expected in South Africa until 2011.

Figure 1.1: Forecast of Voice and Data ARPU's in South Africa



Source: Ericsson Market Intelligence (2006)

It is evident that voice revenues are declining steadily while data revenues are increasing, also steadily. Figure 1.1 clearly indicates that the focus of mobile operators will shift from the traditional voice products and services to the revenue generating data products and services.

Mobile operators across the globe have attempted to increase their ARPU's by launching newer technologies and encouraging its subscribers to adopt various data services to improve their ARPU's. Although these technologies are being adopted at different rates across the mobile community, operators are investigating newer models to increase their ARPU. In South Africa the hype around broadband has been at fever pitch over the last year with fixed and mobile operators competing with each other purely on price with rates being reduced by more than 50% over the last few months. Mobile operators have been benefiting the most due to the long lead-times that the fixed national operator, Telkom, is committing to their customers.

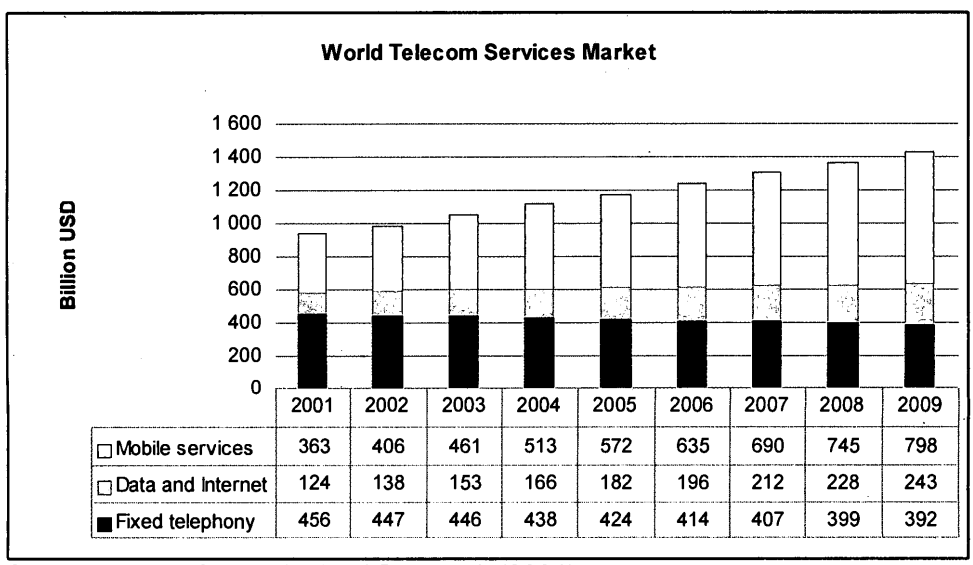
The current price wars in the South African telecommunication industry will certainly begin to have an impact on the ARPU's and operators will begin to look at newer models to improve the ARPU. The introduction of broadband has allowed content to be more interactive and much richer than was previously the case and this is the precursor of a much more interactive multimedia entertainment business in the future (Analysys Research Limited, 2004). This report provides a critical review of the vertical integration into the evolving mobile value chain by South African mobile operators.

1.2 *Purpose or objectives of this research*

A Move to a Data World?

In line with the dramatic increase in the number of GSM subscribers, a similar exponential growth in mobile broadband subscribers is currently being experienced. Today, 15% to 20% of GSM subscribers worldwide use data services.

Figure 1.2: GSM subscriber development worldwide



	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mobile services	363	406	461	513	572	635	690	745	798
Data and Internet	124	138	153	166	182	196	212	228	243
Fixed telephony	456	447	446	438	424	414	407	399	392

Source: IDATE Consulting and Research (2001)

Figure 1.2 highlights worldwide trends and forecasts in the telecommunications industry. By 2009, mobile services will constitute more than 50% of the 1,4 billion US dollars that will be spent in the telecoms industry. Fixed telephony will remain fairly stagnant with no growth predicted and a slight decrease year-on-year from 2004. Conversely, data and internet services will see moderate increases on an annual basis and will constitute approximately 14% of the total spend in 2009.

The rapid evolution from a fixed to mobile telecommunications network has seen operators in the industry reaping the benefits of a voice based offering with limited data capabilities like SMS. If the uptake of SMS is an indication of the

revenue generating potential of data services then operators cannot ignore the potential of a full data network.

Historically South African mobile operators have been technology driven, that is, new technologies were adopted and launched with little or no customer interaction. Today, mobile operators cannot forego the opportunity to explore the content value chain with the introduction of modern and complex handsets being able to support much richer content. Content service providers such as Exactmobile and Clickatell have been marketing their services successfully and enjoying substantial revenues over the past few years, however they are dependant on the infrastructure that is supplied by the mobile operators. The mobile operators can leverage their network infrastructure and deliver a much richer experience and a complete service to their subscribers hence improving their customer satisfaction, retaining their existing subscribers and increasing their revenues. It is inevitable that the mobile operators explore the evolving mobile value chain in order to enrich their customers' experience and hence improve their bottom-line.

1.3 Problem statement and sub-problems

The introduction of mobile broadband has improved the end-user experience to mobile content and services such as Mobile-TV, multimedia messaging and true tones, to list a few. These services are primarily supplied by content providers and aggregators while the mobile operator supplies the mechanism/infrastructure to transport the information to the subscriber.

With this is mind mobile operators have to choose between two possible approaches:

- Stick to the communications business offering broadband, voice and some additional easy-to-deliver entertainment such as music clubs and gambling games, as well as perhaps simple video over broadband.

- Commit fully to a big investment in a high-capacity network and a premium-content offer aiming to capture every conceivable network-based revenue stream, including rich-TV offerings with video on demand (VOD), time-shift TV and pay per view (PPV).

The problem statement is that the competitive landscape for mobile operators is evolving influencing mobile operators to either vertically integrate into this new value chain and compete with other elements entering this new value chain or to remain as an infrastructure provider for this new value chain. In order to address this problem this research study will aim to answer the following research questions:

1) How is the competitive mobile landscape evolving?
2) What are the impacts on the mobile operators' value chain by vertically integrating into this new value chain?
3) What is causing the competitive landscape to change?
4) How can mobile operators vertically integrate into this new value chain?
5) Are there benefits of vertically integrating into this new value chain?

1.4 Delimitations of the study

The report shall investigate the mobile industry value chain and will not include the mobile operator's value chain. The report shall be limited to the South African mobile industry.

1.5 Importance of the study

The report shall investigate the current status of the mobile industry value chain and the role the mobile operator and content service provider's play in this value chain. The report shall investigate the evolving mobile industry value chain, the new role players and stakeholders in this value chain and will aim to highlight the importance of the mobile operator in this evolving value chain.

1.6 Outline of the research report

Chapter 2 provides a detailed analysis of the mobile industry currently in South Africa. The literature review describes mobile broadband, highlights concepts relating to the value chain including the mobile industry value chain and provides pros and cons of vertically integrating into the value chain. The literature review concludes by describing the impact of technology and services on the value chain.

Chapter 3 describes the research methodology used to collect the relevant information and data for the research study. This section describes in detail the methodology used and the reasons for using this particular methodology of research. The sample size and discussions relating to the sample size are also described in this section.

Chapter 4 provides the research results received from the qualitative and quantitative questionnaires. This section is subdivided into two with the qualitative results discussed in the first sub-section and the quantitative results in the second sub-section. The results are described and discussed for all responses received to the questions using frequency distribution tables and graphs tabulated from the research results. The results are descriptive and non parametric hence no detailed statistics were required to be calculated.

Chapter 5 provides detailed recommendations for mobile operators based on the research results and the literature review. The recommendations consist of considering the mobile operator as it is currently i.e. a bit-pipe operator, partnering with 3rd party content providers and aggregators, outsourcing their non-core business, ensuring customer expectations are managed and the customer experience is of the highest standard possible. Understanding their role in the value chain is also a recommendation that is discussed in this chapter. This chapter concludes by providing a brief conclusion of the research study.

2 Chapter 2 Literature Review

2.1 South African telecommunications industry

South Africa boasts the largest and most developed telecommunications network in Africa, including the latest in fixed-line, wireless, satellite and cellular technology (International Marketing Council of South Africa, 2002). The South African mobile industry comprises four mobile operators namely, Vodacom, MTN, Cell C and Virgin Mobile. Vodacom and MTN have been at the forefront of the industry since 1994 with Cell C following in late 2001 and most recently, since 2006, Virgin Mobile was introduced as a Mobile Virtual Network Operator (MVNO).

According to the mobile operator's latest financial reports, MTN South Africa recorded a subscriber numbers of 12.5 million and has a market share of 36% (MTN, 2007). Vodacom reported having a subscriber base of 23.3 million and a market share of 54% (Vodacom, 2007). Reports from online news website, ITWeb, have quoted Cell C as having 3.4 million subscribers as of September 2007. This represents a market share of approximately 9% with the balance of the market share i.e. 1%, being serviced by Virgin Mobile (Senne, 2007).

The South African fixed line industry comprises of two operators, Telkom and Neotel. Telkom being the dominant fixed-line operator was state-owned until 2002 and thereafter it was listed on the Johannesburg Securities Exchange (JSE) following a privatisation initiative by the South African Government. Neotel, the second national operator (SNO) was granted an operating license in 2006. Neotel's introduction is a bid by the South African government to introduce competition in the South African fixed-line telecoms industry and hopefully this will reduce the costs of telecoms in South Africa (International Telecoms Intelligence, 2006).

The South African government published a new Convergence Bill, in February 2005, to provide a licensing and regulatory framework for a converged telecommunications, broadcasting and information technology industry. However, it was not until mid-April 2006 that the Electronic Communications Act (ECA) was actually signed into law and a Presidential Proclamation must still be published indicating the effective date for the Act. Furthermore, key secondary legislation, such as that governing mobile number portability, has been activated (International Telecoms Intelligence, 2006).

The Act defines new categories of licences, sets out rules and guidelines for licence applications, lists licensee obligations and set the requirements for the construction of communications networks. It further provides for interconnection between licensees and facilities leasing by communications network services licensees; provides for a radio frequency plan, a numbering plan to enable number portability, and carrier pre-selection. Specifications are provided for different types of approval and technical standards for communications equipment. Lastly, it provides for the Universal Service Agency and Universal Service Fund to continue to bring services to historically disadvantaged people and remote locations. The Act has effectively repealed the Telecommunications Act of November 1996 (International Telecoms Intelligence, 2006).

This Act allows any company with a valid license to provide telecommunications services to the public. This was another step by the South African government to introduce competition in the South African telecoms market place. This has seen the introduction of Sentech and iBurst offering telecoms services. Sentech, have launched My Wireless and iBurst have launched their mobile broadband service (International Telecoms Intelligence, 2006).

There have been many reports in the media placing pressure on the South African government to reduce telecoms prices, some reports have stated that South Africa's telecoms prices are more than 2000% higher than other countries; even neighbouring African countries like Mozambique and Botswana have

cheaper telecoms rates. Of recent, there has been increased pressure on the cost of broadband in South Africa. With MTN, Vodacom, Telkom, Sentech and iBurst leading the race for broadband services the cost of broadband is being reduced from their previous over exorbitant prices. Vodacom have reduced their broadband rates by up to 61%, MTN are offering more usage for the same price and Telkom have reduced their ADSL prices close to wholesale prices. Vodacom have recently purchased a 10% stake in iBurst. This was done to boost. Vodacom's broadband offering to the public (MyADSL, 2006).

2.2 Mobile broadband

Heavy Reading (2006) defines mobile broadband as a service supporting the following minimum set of service characteristics:

- Extensive national wide-area coverage – the ability to use a communications device without any need for a wired connection anytime, anywhere. This has traditionally come first in consumer surveys of what they look for in a mobile service.
- Mobility – The ability to maintain a connection while on the move via handoff between base stations at vehicular speeds.
- Broadband throughput – a typical minimum average throughput data rate at the handset of at least 400kbits/s.

Mobile broadband allows the mobile operators the opportunity to evolve their application and service portfolios in a number of ways:

- Execute their services as they would today except do it faster;
- Evolve their application and service portfolios to support triple and quadruple play – mobile and fixed voice, video and data services;
- Evolve their distribution models to engage flexibly with the consumer electronics industry, in order to simulate rapid

introduction of always-on, always connected, mobile broadband products and services (Heavy Reading, 2006).

Broadband penetration in South Africa is low. In a country that is home to 47 million people and the largest economy in Africa, there are just 350,000 broadband connections. According to the Organisation for Economic Co-Operation and Development (OECD), South Africa's broadband penetration rate is 0.7% of the population compared to the average for OECD countries at 15.5%. The gap is closing thanks to mobile broadband. While ADSL has been available since 2003, it is now proving to be the fastest growing technology to connect to the Internet. Since MTN launched its 3G mobile services in 2005, it has seen a 4500% growth in the volume of data traffic it now carries. Mobile Internet connections, from MTN and rival Vodacom, now account for over 200,000 of South Africa's broadband connections (Gilligan, 2006).

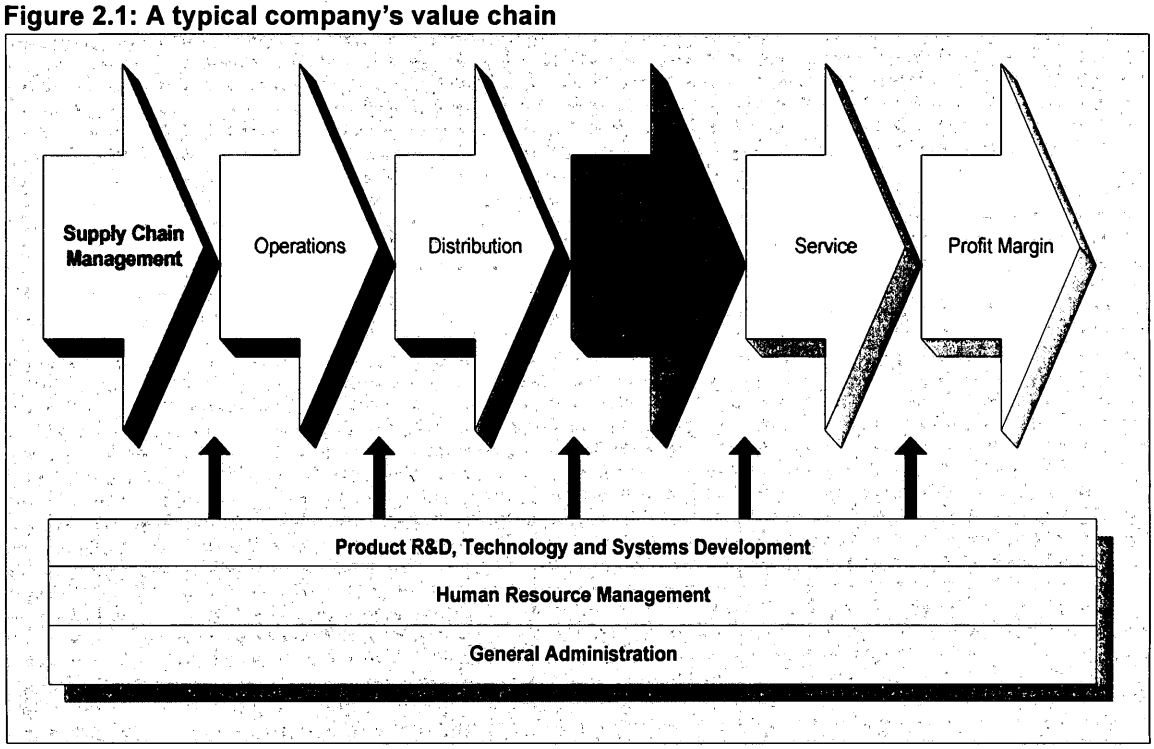
2.3 Value chain

Value chain analysis gained popularity through the writings of Porter and since the time has evolved to include a wide variety of models (Maitland, Bauer and Westerveld, 2002). Every company's business entails a series of activities that delivers a final product or service that will satisfy their customer's needs. These series of activities consists of a design phase, production phase, marketing phase, supply and delivery and once the product is sold an after sales and support phase. These activities are collectively referred to as a value chain. (Thompson, Strickland & Gamble, 2005).

The value-adding activities performed by the company comprise the company's value chain. As illustrated in Figure 2.1, the value chain consists of primary activities that are involved with creating value for customers and supporting activities that assist and improve the performance of the primary, value-adding activities. Each and every activity performed by the company comes at a certain cost which has to be taken into account and the total cost is used to determine

the profit margin and the cost that should be borne by the buyer (Thompson, Strickland & Gamble, 2005).

Figure 2.1: A typical company's value chain



Source: Thompson, Strickland and Gamble (2005)

The primary activities of a company's value chain, as per Figure 2.1, are as follows:

- **Supply chain management (SCM)** – According to Wikipedia, SCM is defined as the process of planning, implementing, and controlling the operations of the supply chain as efficiently as possible. Supply Chain Management spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point-of-origin to point-of-consumption.

- **Operations** – This activity entails converting the inputs e.g. raw materials into the final product or service that will be promoted and sold by the sales and marketing department (Thompson, Strickland & Gamble, 2005).

- **Distribution** – Entails delivering of the final product from the manufacturer to the various distribution channels such as retail outlets and wholesalers.

- **Sales and marketing** – An activity that promotes the final product by informing customers about the features, benefits and price of the product.

- **Service** – All the activities associated with maintaining product performance after the product has been sold.

- **Profit Margin** – The organisation realises a profit margin when it can manage all the linkages between their primary and supporting activities in the value chain. The organisation needs to deliver a product at a price that the customer is willing to pay.

The secondary activities as per Figure 2.1 are defined as follows:

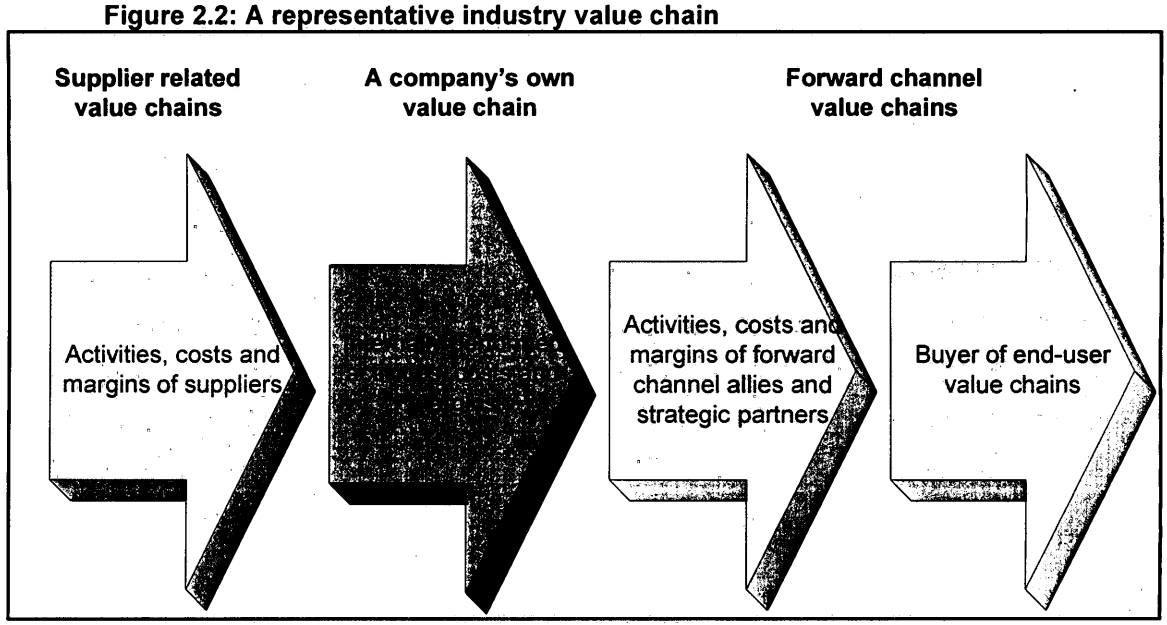
1) **Product R&D, Technology and Systems Development** – This activity entails research and development of potential products and services, information processing and the development of knowledge in the business (Thompson, Strickland & Gamble, 2005).
2) **Human Resource Management** – Those activities concerned with recruitment, hiring, training, motivating and rewarding the workforce of a business (Thompson, Strickland & Gamble, 2005).
3) **General Administration** – Those activities relating to general management, accounting and finance, procurement, legal and regulatory affairs, safety and security, forming strategic alliances

and collaborating with partners (Thompson, Strickland & Gamble, 2005).

The value chain concept for companies has since been broadened and is now used extensively to describe and analyse an entire industries value chain. A company's value chain is part of an industry value chain that consists of the company's suppliers and its distribution and logistics partners that are all engaged in successfully delivering a completed product or service to their end users (Thompson, Strickland & Gamble, 2005).

It should be noted that actual value chains vary by industry and by company. Figure 2.2 below is an illustration of a value chain for an entire industry.

Figure 2.2: A representative industry value chain



Source: Thompson, Strickland, and Gamble (2005)

The value chains of the company's suppliers and their distribution partners are very important to a company since the activities performed within their value chains add costs to the final product or service being delivered to the end user. It is thus very important and a powerful reason for companies to understand the value chains of their partners and to work closely with their partners to manage their value-adding activities to reduce the costs and at the same time improve the

quality of the product or service being delivered to the end user (Thompson, Strickland & Gamble, 2005).

2.3.1 Vertical integration

Vertical integration entails expanding the organisation's activities either backwards into the supply chain or forward to the end users or even both i.e. backward and forward integration. This allows an organisation to become more competitive by controlling the input costs and the quality of the product/service being delivered to the end user (Thompson, Strickland & Gamble, 2005).

The decision to integrate either forward or backward into the industry value chain is referred to as partial integration. Alternatively, full integration is defined when the organisation decides to participate in every activity of the industry value chain. Organisations approach vertical integration in one of two ways; they develop their own competencies and begin its own operations or it acquires companies that have the necessary competencies to perform the activity (Thompson, Strickland & Gamble, 2005).

2.3.1.1 Strategic advantages and disadvantages of vertical integration

Advantages – Strengthening the organisation's competitive position is seen as the primary reason for investing in vertical integration (Thompson, Strickland & Gamble, 2005). The cost savings will only be realised if the volume needed is large enough to capture the efficiencies of suppliers. Costs can be reduced if the item supplied is a major cost competent in the product or service being delivered to the end user. Vertically integrating backwards can improve the quality of the product/service and this can produce a differentiation–based competitive advantage. Organisations can also reduce their risk of depending on suppliers of crucial raw materials (Pineda, no date). Vertical integration can ultimately create barriers to entry for potential competitors, especially if the company controls access to some or all of a scare resource involved in production. This is why in

some cases a company may control so much of the market or supply of raw materials that vertical integration can raise antitrust concerns (Thompson, Strickland & Gamble, 2005).

Disadvantages – Some of the disadvantages of vertical integration are that it requires huge capital investment to begin an operation from the ground level or even if a merger and acquisition is being pursued. This capital could be used for more profitable and worthwhile opportunities. Vertical integration poses all sorts of capacity-matching problems i.e. two different parts of the product will require two different scales of operations to achieve the required economic volumes. Another drawback is that the skill set required to operate the new business can be radically different to the organisation's current core business (Thompson, Strickland & Gamble, 2005).

2.3.1.2 Integrating backward to achieve greater competitiveness

The objective of an organisation to integrate backwards into their industry value chain is to realise superior leadership and competition in its industry. This is achieved by organisations developing competencies in exactly the same products and businesses as their suppliers. It should be noted, however, that the cost savings will only be realised if the volume needed is large enough to capture the scale of economies that their suppliers have. There should be no inferiority in the quality of the product (Thompson, Strickland & Gamble, 2005).

An organisation can produce a differentiation-based competitive advantage when it performs activities in-house that produce products that have a superior quality than previously, when it was outsourced. The competitive advantage can be maintained if the performance of the product is enhanced compared to when it was outsourced. Vertically integrating backwards also reduces the dependency on suppliers hence reducing the risk to powerful suppliers that raise prices at every opportunity (Thompson, Strickland & Gamble, 2005).

The mobile operator has been at the centre of the mobile telecommunications value chain and has been in control of the industry value chain. With the introduction of new technologies the industry value chain is evolving compelling mobile operators to understand their role in this evolving value chain and the impact this change will have on their company value chains.

2.3.1.3 The Mobile Operator – Value Chain

The mobile operator has been at the centre of the value chain since the launch of GSM. In this scenario, the mobile operator was only adding value by transporting the information to the customers, known as being a "bit-pipe" in the telecoms industry (Harton, 2006).

In the early days of GSM when only voice was the primary service there was little need for mobile operators to develop partnerships with content providers. But, the introduction of mobile broadband has made the mobile industry attractive to other industries e.g. music, media and television broadcasting agencies (Analysys Research Limited, 2006).

Today, it is vital for mobile operators and content providers to understand the specific drivers and barriers to the development of various mobile content and entertainment services. These companies also need to understand the value of the market for mobile content and entertainment services, and how revenue from those services is likely to be distributed across the value chain. This value chain is evolving with the increased demand for mobile content (Analysys Research Limited, 2006).

The evolving mobile value chain comprises of several players viz; the mobile operator, the content aggregator, content/application provider and the content and application developers. Certain content type such as music shall attract other contributors to the value chain e.g. for music there will be publishers, producers and distributors.

The mobile or wireless value chain is an environment that is continually competitive, rapidly evolving and highly innovative. Understanding the fundamental principles of the mobile value chain will assist to understand the complex relationships that exist within this value chain as well as assessing the value drivers in this complex value chain (Analysys Research Limited, 2004).

The value chain analysis introduced by Michael Porter was a tool used by businesses to strategically position themselves amongst the other stakeholders of the value chain i.e. suppliers, buyers and competitors. This analysis was used to examine production and support processes and their contribution to the companies' competitive advantage. Porter believed that the competitive advantage of a company does not originate from the company as a whole but from the various activities the company performed such as designing, producing, marketing, delivering and after-sales support of its products and services (Gower &Constance, 2001).

Many companies throughout the globe have used Porter's framework to help them:

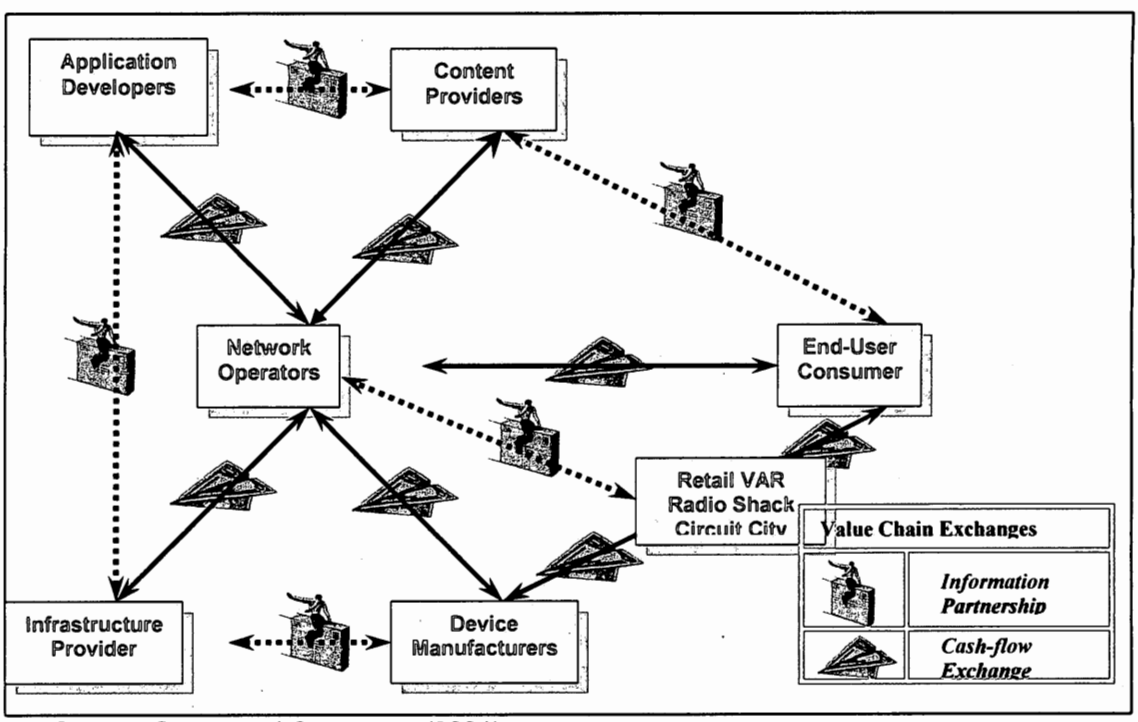
- Identify the actual activities performed by business units
- Analyze the value created by these individual activities
- Examine how linkages and flows to external buyers and suppliers build value as successive processes occur
- Map the exchanges of flows into and out of the organization
- Identify activities that are key to success of strategy
- Understand resource allocations with a view to allocating resources in accordance with the contributions of the task to strategic direction (Gower &Constance, 2001).

The analysis if performed correctly can assist companies identify and strengthen those activities that contribute significantly to the overall strategy while minimising the resources utilised for activities that are less critical and do not contribute significantly to the overall strategy of the company (Gower &Constance, 2001).

According to Gower and Constance (2001), *Porter's value chain analysis works well to assess static relationships between participants but falls short of understanding the dynamics associated with high clockspeed industries that continuously redefine their value chain relationships.*

Understanding these dynamics, Gower and Constance (2001) set out to analyse the mobile value chain and created a framework that assists in understanding the dynamics that drive changes within the mobile value chain. This is highlighted in the Figure 2.3 below.

Figure 2.3: Mobile Value Chain



Source: Gower and Constance (2001)

The value chain shown in Figure 2.3 is a map of the largest players within the mobile industry. The various stakeholders engage in legally binding business contracts that allow them to perform business legally and competitively. A dotted line indicates the purpose of the relationship is knowledge or learning, while a solid line indicates both an information exchange and a monetary exchange. A description of each value chain segment is discussed in Table 2.1 along with the services they provide and the individual value they add to the chain (Gower &Constance, 2001).

Table 2.1: Description of Value Chain Segments

Segment	*Role of Player in the Value Chain*
End-User	***Definition:*** These are either consumers, enterprises, or other individuals who adopt to wireless products and services who want to conduct voice or data transactions ***Value:*** End-users although acting independently through their own actions are influenced by each others actions and create increasing returns by creating a critical mass that accelerates adoption of service
Network Operators	***Definition:*** Design, build, and operate voice and data mobile networks Ex. AT&T, Sprint, Cingular, British Telecom, NTT Do Co Mo,... ***Services Today:*** • Voice calls local, regional, national, and international • Voice services like voice mail, caller ID, call waiting, call forwarding... • Data services like SMS messages, Text Alerts, Web browsing, text e-mailing, low-level bandwidth for wireless LANs ***Value:*** Network Operators compete for customer adoption, retention and loyalty. They form a contract with the adopter to provide a certain quantity of services at a perceived quality. There is also a tacit understanding the N.O. will meet the continual needs of the consumer as she/he comes up the adoption curve of the technology
Equipment Manufacturers	***Definition:*** Although not shown above equipment manufactures used to provide both mobile devices and infrastructure today there are forces splitting these two roles apart ***Value:*** Equipment manufacturers provided the necessary R&D, design, and manufacturing capabilities to drive the early adoption of wireless services
Device Manufacturers	***Definition:*** They build mobile devices that can conduct voice or data transactions between proprietary networks. Devices include palms, cell phones, SID pads, watch-phones, ... Ex. Nokia, Motorola, Siemens, Ericsson, Sanyo, Samsung ***Products & Services:*** • Produce devices dual, and tri-mode cell phones, wireless PDAs, SIM pads, Smart Phones, and watches • Communities of developers for WAP, c-HTML and other AP • Updateable operating system downloads • Formatting of phones and devices for particular network operators ***Value:*** Device manufactures add value to consumers by meeting their changing needs for size, quality, appearance, functionality, and synchronicity. They also drive the network operator to increase the functionality of the network and can reduce the infrastructure cost with smart devices
Infrastructure Providers	***Definition:*** Design, manufacture and assemble switches, gateways, and interfaces to conduct mobile communications among subscribers and the PSTN Ex. Nokia, Motorola, Siemens, Ericsson, NEC, Panasonic ***Products & Services:*** • Products include base stations, base stations controllers, mobile switching centers, packet control unit, GPRS Support Node, Mobile Operator's Packet Switched Data network, Gateways, Wap Servers, PSTN interface and other circuit switch and packet components ***Value:*** Infrastructure providers provide the network necessary for consumers to perform voice and now data services. They continue to add increase functionality of the network while lowering costs and increasing performance. They also provide the knowledge of interfacing with the legacy networks
Application Developers	***Definition:*** As the operating system on devices are converging toward standards these developers provide the interface between the device and the network hardware Ex. Aether Systems, Microsoft, Apple, SUN, Oracle, NomadIQ ***Products & Services:*** • Open and closed source operating systems for devices and the network • Development and release of wireless applications to support services like WAP, c-HTML,... ***Value:*** Application Developers are beginning to write efficient programs that help consumer conduct transactions from anywhere and at anytime with there mobile devices. Personalization and

	synchronicity and becoming the two most important characteristics of applications consumer demand
Content Developers and Enablers	***Definition:*** Compile content into mobile ready formats so applications can immediately extract desired information and package it according to the users request Ex. Apple airport, Jatayu, Apogee Networks, Yahoo, AOL, Air Media ***Products & Services:*** • Content in formats viewable through cell phones • Voice and click services from mobile devices ***Value:*** Ability to have personalized information anytime and anywhere to conduct transactions

Source: Gower and Constance (2001)

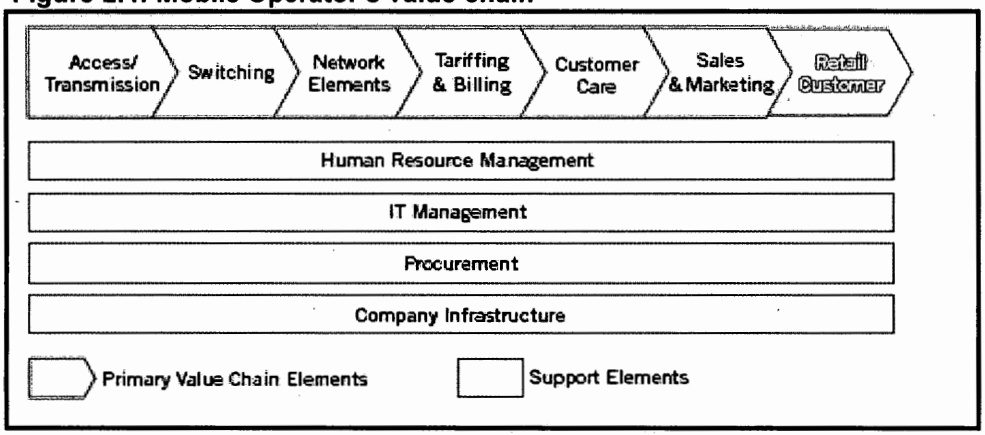
The value chain structure can be summarized as follows: Consumers purchased products and services from mobile operators that were responsible for operating and maintaining the network. Handset manufacturers sold handset devices to mobile operators that were bundled with other products and services and sold to the consumer. The mobile operators also purchased network equipment from equipment suppliers that assisted them maintain and operate their networks. The chain stops here as voice was the only service available at the time (Gower &Constance, 2001).

As the value chain evolves new links are forming, both voice and data services are being offered and new players are entering the value chain to support these services. Application and content providers have partnered with Network Operators to design and develop solutions for consumers and enterprises. Stakeholders in the value chain are forming various partnerships that allow them to exchange information that will allow them to create applications suitable to the handset. Further, as data becomes more feasible for mobile operators and standards become accepted for new applications content providers will likely accelerate the development of personalized and customizable content. (Gower &Constance, 2001).

Until recently mobile operators concentrated on network quality and network coverage which is critical sources of competitive advantage. Network coverage and capacity management were focused on voice-based services, which accounted for almost 100 per cent of customer demand. The mobile operator's

value chain that supported this competitive advantage is as displayed in Figure 2.4 (Gower &Constance, 2001).

Figure 2.4: Mobile Operator's value chain



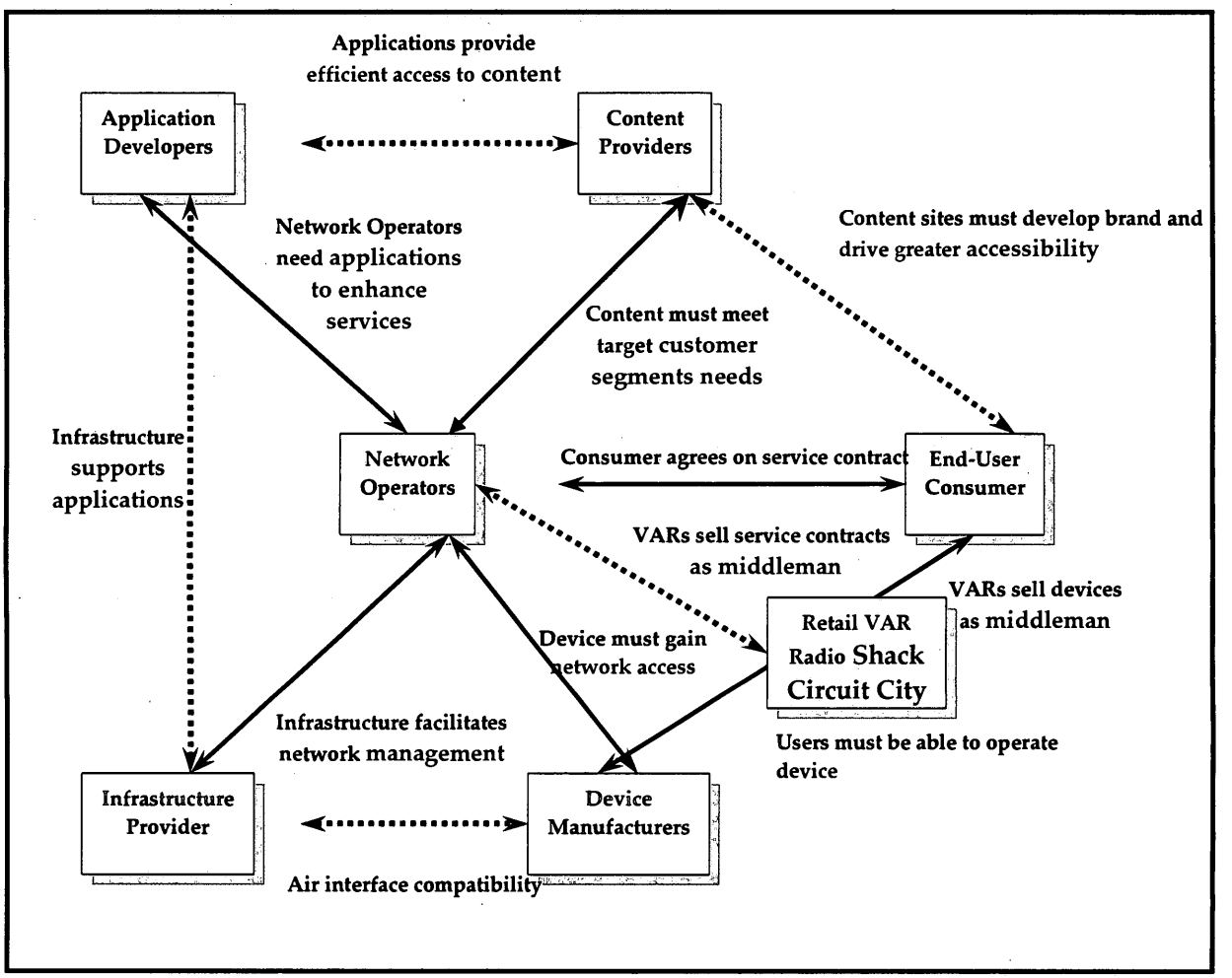
Source: Anderson and William (2004:52)

More recently, a new set of forces has contributed towards driving the industry structure towards horizontal/modular market. During 2000-2001 over 150 billion dollars has been spent on spectral licenses for next generation 3G services (Gower &Constance, 2001). The introduction of 3G to the marketplace has allowed mobile operators to introduce advanced services and applications to its subscriber base but it has also introduced new players to the mobile value chain. This introduction of new players has also prompted partnerships by various value chain drivers to become the first to market and leverage their existing subscriber base with new products and services. An example would be application providers and content providers have partnered with mobile network operators to design and develop solutions for consumers and enterprises (Heat *et al*, 2006).

Each stakeholder within the value chain can influence the value chain and disrupt the traditional ways of functioning of the value chain. A buyer-seller relationship is formed when stakeholders in the value chain exchange money. This relationship is formed either based on the company strategy, learning or information. Figure 2.5 captures the key reason that each mobile value chain

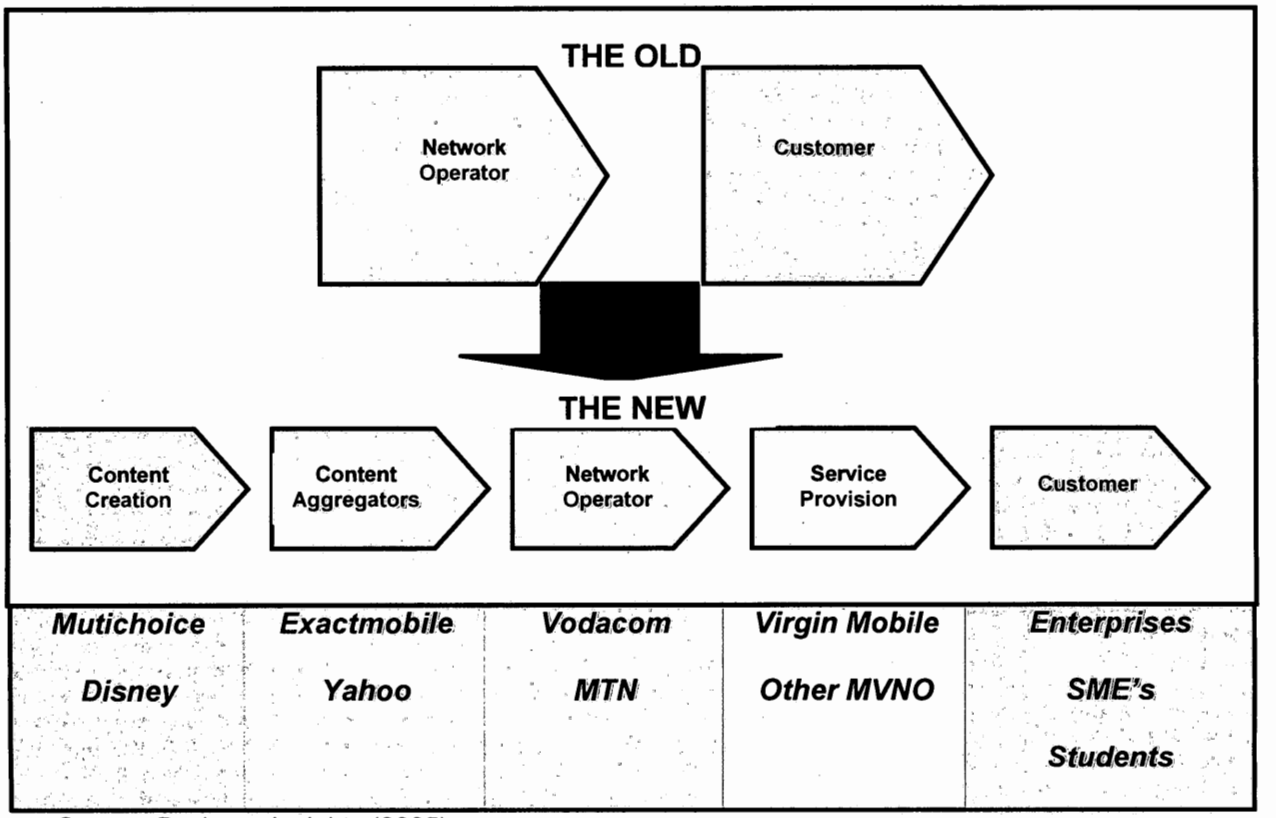
participants are linked to the other in today's market environment (Gower &Constance, 2001).

Figure 2.5: Wireless Value Chain Relationship Value



The mobile value chain has certainly evolved since the introduction of GSM and in South Africa there is no exception. The mobile value chain is evolving rapidly and is closely related to that which currently appears in Europe. Figure 2.6 assists with a better understanding of the problem and complexities faced by the value drivers in the mobile value chain.

Figure 2.6: The Evolving Mobile Value Chain



Source: Business Insights (2005)

The new and evolved value chain as highlighted in Figure 2.6 consists of the following elements in the value chain – Content creation, content aggregators, network operator, service provision and customer. These elements are described in detail below:

Content Creation

As mobile devices become ubiquitous, content in the mobile telecoms world is being enriched and enhanced from the basic short message services to mobile ringtones and most recently mobile television (Sabat, 2002).

The content is created by specialist producers of news, music and information services. These producers vary from country to country and locally in South Africa a few of these producers that have emerged are News24, Independent

Online (IOL), Multichoice and internationally companies such as Disney are producing content that is available world-wide (MorganDoyle Limited, 2001).

Companies such as Multichoice have begun delivering content via the mobile operator's infrastructure and directly to their customers' mobile phone (Reuters, 2006). MTN have teamed up with Naspers to deliver mobile content to its customers allowing its customers a choice of 11 different channels that can be viewed directly on their mobile phones (Reuters, 2006).

Content originators will have to maintain a superior quality of their offerings if they want to remain competitive and to gain repeat customer business. This can be achieved by content originators by getting closer to their consumers. Achieving this can be difficult as content originators will rely on the infrastructure of the mobile operators. Content originators will have to have strict service level agreements (SLA's) with the various mobile operators to ensure the highest quality products and services being delivered to their consumers (MorganDoyle Limited, 2001).

Content Aggregators

Content is created in different formats and are suitable for different types of mobile devices and utilize different technologies to reach the consumer. Once the content has been created the content aggregators personalize the content and aggregate the content to mobile portals allowing easy access to the large database of content (MorganDoyle Limited, 2001).

Content aggregators provide a range of services that includes mobile portal design, content hosting, processing of subscriber information and content management. Mobile operators are relying heavily on content aggregators to develop and manage their mobile portals as this is seen as a marketing tool and brand building tool (MorganDoyle Limited, 2001). In South Africa, Exactmobile,

Glocell and iTouch are a few companies that provide content aggregation services.

Network Operator

The network operator segment of the value chain enables the transmission of content securely and reliably and allows the user to download their content using his/her mobile device.

The mobile network operator offers a secure, reliable, seamless, interoperable infrastructure across an adequate geographical area providing an acceptable bandwidth for download of the content (Sabat, 2002). The mobile operator maintains their network and charges consumers and content aggregators a fee for the use of the network, depending on the purpose and usage. Mobile operators have been charging a certain rate for voice services that was based on the time of use i.e. either on a per minute basis or a per second basis. This model will not change in the near future, however, with the launch of data services mobile operators will need to think of innovative charging and pricing schemes to make mobile broadband attractive and accessible to all their consumers (MorganDoyle Limited, 2001).

The introduction of multi-media content will also complicate the method of charging since mobile operators will now have to consider whether to charge for either the bearer or the delivered content (MorganDoyle Limited, 2001). Another option will be to charge for both, the bearer and the delivered content, which is what most network operators have employed. The type of charging method will depend on the owner of the content and the mobile operator's role and involvement in the delivered content. An example in case would be if the mobile operator receives a revenue share from the content aggregator the mobile operator can consider waiving the fee for the bearer (Sabat, 2002).

The mobile network operator "owns" the subscriber location and can use this as a source of revenue by selling this information to content aggregators requiring this information for their services such as location based services, vehicle tracking to name a few (MorganDoyle Limited, 2001).

Service Provision

Service provisioning entails customer acquisition, customer care and billing functions within the value chain. In South Africa this function is operated by the mobile operators as well as retail partners such as Game, Makro, Edgars and Pick and Pay. Operators such as Vodacom, MTN, Cell C and Virgin Mobile have launched their own retail stores to get closer to their customers and build a stronger relationship with their customers. The advantage of this is to improve their relationship with their customers and owning this relationship is vital to controlling the value chain (MorganDoyle Limited, 2001).

The challenges with service provisioning is the consumer always views the operator as the supplier of the content and it will be the responsibility of the operator to ensure that a high standard of quality of service (QoS) is maintained. Failure to do so will provide consumers the ideal incentive to churn to competitors. Mobile operators can minimize the churn by implementing the following strategies (MorganDoyle Limited, 2001):

1. CRM systems that offer the best-in-quality customer service and at the same time the system should be user friendly.
2. Implementation and monitoring of strict service levels.
3. Data mining tools to assist with target and personalized marketing.
4. Innovative marketing such as bundled services.

Customer

The customer is the end-user and the consumer of all products and services marketed by the mobile operator and content aggregators. The customer was initially satisfied with being able to make calls and send short message whilst on the move. Mobile operators benefited from huge revenues from customer's need for communications and mobility. Up until recently technology and content was always pushed down to customers but with the introduction of advanced handsets, richer content and customer knowledge customers and becoming consumers. They want to consume more and demand richer content and choose content that reflects their personality. With the convergence of technologies the consumer is now playing the role of content creator with services such as You Tube and Face Book.

The advancement of technology and the various types of services that can be launched will have an impact on the mobile industry value chain. Mobile operators need to understand these impacts in order to remain competitive in this evolving and fast-paced industry.

2.3.2 The impact of technology on the value chain

Since the launch of GSM, mobile telecommunications technology has been evolving. At the launch of GSM your mobile device could only accommodate voice calls using the traditional SS7 technology which has been available for decades and widely used in the fixed line telecommunications world. Shortly thereafter short message services (SMS) followed which allowed the mobile subscriber to send text messages, limited to 160 characters, to another mobile subscriber. The mobile device was also evolving and accommodating the various technology advancements (Wikipedia).

The internet and access to the internet had reached "fever-pitch" during the evolution of mobile telecoms. This prompted the mobile telecoms industry to develop technology that allowed mobile consumers to "surf the web" using their mobile devices. The introduction of WAP technology was used to access a limited amount of information and limited to WAP sites only. This was not feasible as consumers were demanding access to the World Wide Web (WWW) and WAP was not feasible for this. This prompted the introduction of mobile broadband. It triggered the development and introduction of General Packet Radio Service (GPRS) which allowed mobile consumers to use the web browsers on their mobile devices to access the WWW and "surf the web" (Heath *et al*, 2005).

The demand for richer content required higher data speeds and in response to this the mobile telecoms industry introduced technologies such as 2G and 3G to cater for the supply of rich content and improve the customer experience. The data speeds of your mobile device could handle 9.6 kbps which in certain countries e.g. South Africa, was exactly the same data speeds as the fixed line operator. However, mobile data speeds have increased with the introduction of new GSM technologies such as 2G, 2.5G, 3G and most recently 4G. Mobile handsets have also been improved and have the ability to support these increased data speeds (Nicoletti *et al*, 2007).

In addition to the high data speeds that are required to support the download and transmission of the rich content there is the introduction of broadcasting technologies such as Digital Video Broadcasting – Handheld (DVB-H) and Multimedia and Broadcast Services (MBMS). These technologies allow mobile operators to broadcast media and content to multiple mobile subscribers. It also allows subscribers the opportunity to experience Video-on-Demand (VOD) as they would with their current Pay-TV subscription (Analysys Research Limited, 2005). DVB-H is a superset of the very successful DVB-T (Digital Video Broadcasting - Terrestrial) system for digital terrestrial television used to

broadcast your current TV and Pay-TV channels to your TV set at home (Wikipedia). It is now possible to watch your favourite television (TV) programmes on your mobile handset. This technology has introduced another dimension to the mobile industry value chain as content can now be sourced from another industry i.e. the media and broadcasting industry, which introduces a new competitor to the mobile industry value chain.

The choice of technology will strongly influence the nature of the services that can be offered. Furthermore, decisions on services and technology will affect the value chain and the role for content aggregators and broadcasters.

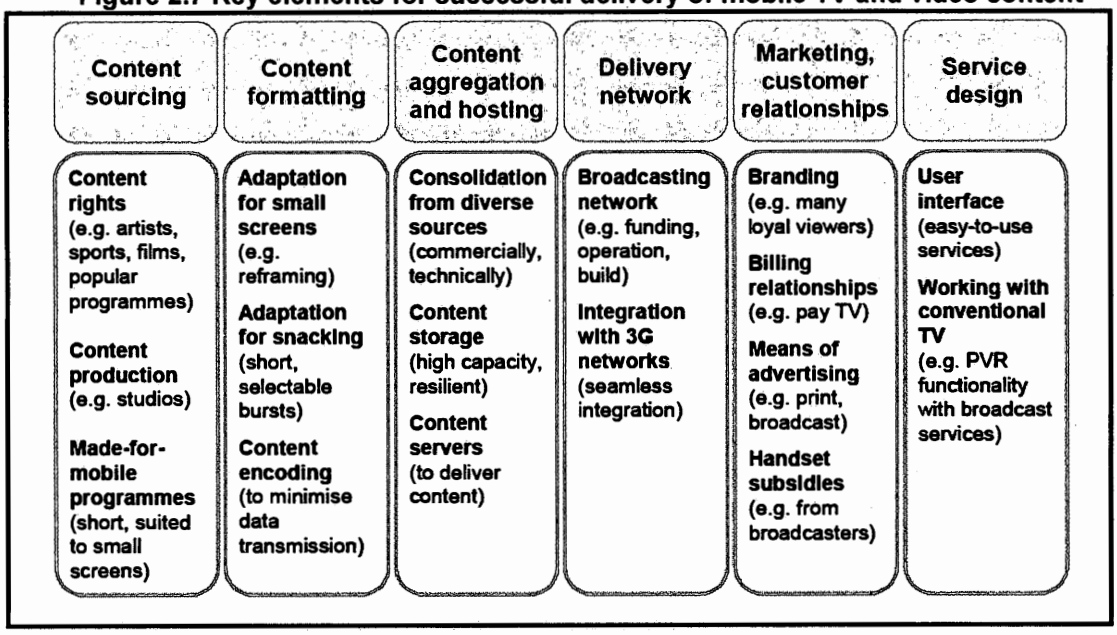
2.3.3 The impact of new services on the value chain

The introduction of new services such as Mobile TV and digital multimedia has introduced new competitors and complexities to the mobile industry value chain. The concerns are that these new services cut across the traditional broadcasting and mobile industry value chains (Nicoletti *et al*, 2007). Mobile operators need to understand the dynamics of this new terrain to remain competitive and understand their role in this evolving value chain.

Mobile operators will not be able to deliver all the elements required for the successful delivery of Mobile TV and video. The services will involve a wide range of activities which include but not limited, content production, reformatting fro mobile usage, broadcasting and marketing. This results in a complex value chain in which broadcasters and content aggregators have a key role in the value chain and can displace the mobile operators from the heart of the mobile TV and video services (Analysys Research Limited, 2005).

The successful delivery of mobile TV and video services will require a value chain with the key elements as depicted in Figure 2.7.

Figure 2.7 Key elements for successful delivery of mobile TV and video content



Source: Analysys Research Limited (2005)

Content Sourcing – Ensuring the correct content rights are secured before the content can be broadcast to the public.

Content Formatting – Ensure the content is feasible for the small screen size on the mobile phone, if not the content should be reformatted.

Content Aggregation and Hosting – Content storage and consolidation of multiple content form different content sources.

Delivery Network – Mobile operators using DVB-H or MBMS technologies as well as your traditional terrestrial TV broadcasters.

Marketing, CRM – This will a service that will be executed by both the mobile operators and your content aggregators and broadcasters. A difficult element of the value chain to understand for the customer as the customer might not know whom to remain loyal to and whom to contact in the event of problems.

Service Design – Ensuring the service is user-friendly and interfacing to the customer ensuring easy understanding of the service for the customer.

Broadcasters and content aggregators have a critical role to play in this evolving value chain since they have the expertise to produce rich multimedia content and can assist mobile operators develop short movies and made-for-mobile programmes designed specifically for the small screens available on mobile phones. However, broadcasters can also become direct competitors to mobile operators by using DVB-H to broadcast their services and content to their current terrestrial subscribers that have mobile phones (Analysys Research Limited, 2005). Mobile operators will have to work closely with broadcasters and content aggregators to ensure they form a critical part of this evolving mobile industry value chain.

3 Chapter 3 Research Methodology

The form of this dissertation was based on exploratory research of a descriptive nature. The exploratory nature of the research required an in-depth search of the literature; interviewing experts in the field and e-mailing questionnaires to decision makers within the industry that currently form the old value chain e.g. mobile operators and handset manufacturers and the similar level of decision makers that will form part of the new value chain e.g. content creators and content aggregators. The limited studies available for evolving industry value chains in the South African mobile industry resulted in the focus of this research being based on the mixed method form of data collection by combining qualitative and quantitative studies.

3.1 Qualitative Research

The focus of the qualitative part of the research was based on an analysis of primary documentary source material and by conducting interviews with industry experts from the various sectors of the mobile telecoms industry e.g. mobile operators, content providers, network equipment suppliers and handset manufacturers.

The sample was chosen using the judgemental sampling method, a subset of the non-probability sampling theory. The choice of this sampling method was based on the fact that the value chain concept is of strategic importance to an organisation and an industry hence this concept is understood and influenced by decision makers and industry experts within the organisation and industry. Based on this and the fact that the mobile telecoms industry is a high-tech environment that is evolving rapidly senior managers and industry experts were chosen to be interviewed.

The sample size for the qualitative part of the study consisted of eight people from four different sectors of the telecommunications industry. Being a high-tech industry and the expertise of interviewees required, the researcher believes this would be a representative sample of the mobile telecoms industry. These four sectors are; suppliers to mobile operators e.g. Ericsson, mobile operators e.g. MTN, mobile handset manufacturers e.g. Sony Ericsson and content providers and aggregators e.g. Exactmobile.

Two people from each of the four sectors were chosen and consisted of senior managers and industry experts from these four sectors. Access and availability of these senior managers was a known challenge to the researcher however access was managed by ensuring that the researcher was familiar with the respondent or knew somebody that was familiar with the respondent and requested their assistance to achieve access to the respondent. Once access was achieved the challenge of availability was managed by ensuring the researcher could accommodate the respondent at their convenience even if it was outside of working hours. The benefits of the study were used to convince the respondents that their time was invaluable to the outcome of the study. The questionnaire was kept short and consisted of five questions, yet capturing all the relevant questions and the interview was not to be longer than 30 minutes. These facts were communicated to the respondent to ensure their time was allocated appropriately for the interview.

Senior managers were contacted electronically by sending an e-mail with the qualitative questionnaire attached to the e-mail. Three days thereafter a telephonic call followed to setup the interview with the respondent. If a positive response was received the interview was scheduled at a time suitable and convenient to the respondent. If no response was received, the researcher left a message with the respondent's secretary and/or alternatively left a voice message on his/her voicemail. The researcher followed this up with an e-mail reminding the respondent of the first e-mail and the telephonic call. If still no

response was received within three days the researcher assumed "No Response" from the respondent.

The interview was one-on-one interviews in a question and answer format. It was assumed that the respondents would have seen and reviewed the questions before the interview as the questionnaire was mailed to them electronically. Please refer to Annexure 1 for the questionnaire used during the qualitative part of the study.

During the introduction to the interview, the respondent was made aware that both the organisations' name and that of the respondent would remain confidential. The confidentiality of "business specific" information relayed to the researcher was also confirmed and the assurance was given that it would be used in the research results without mentioning either the respondent or the organisation by name.

3.2 Quantitative Research

The responses from the qualitative part of the study were used to design the questionnaire for the quantitative part of the research. The quantitative questionnaire was designed using the 'rank order' scaling format where respondents were given *n* options and asked to rank them as 'Very Important', 'Important', 'Not Important' and 'Not Applicable'. These questionnaires were electronically mailed to subordinates of the senior managers interviewed in the qualitative part of the study as well as colleagues of the researcher that are employed in the mobile telecommunications industry. A list of the subordinates was obtained after the interview with the senior managers and industry experts.

The sample was thus based on the judgemental sampling method a subset of the non-probability sampling theory since the list of respondents were obtained from the respondents of the qualitative questionnaire. This list consisted of individuals that are employed in the mobile telecommunications industry and have an in-

depth understanding of the driving forces within industry and the evolution of the mobile telecoms industry. Being a high-tech industry and the requirement for senior managers and industry experts the sample size was limited to 50 respondents. This was calculated using the assumption that each senior manager has 5 subordinates reporting to him which equates to 40 respondents and the balance of the ten respondents would be colleagues of the researcher that are in the employ of the mobile telecommunications industry. Again due to time constraints the sample size had to be kept manageable.

The use of e-mail is convenient, cost-effective, near real-time and is used extensively in the telecommunications industry as a communications tool. Questionnaires will be e-mailed from the researcher's e-mail address jayesh.doolabh@ericsson.com, and a reminder will follow one week later. If no response was received the researcher contacted the respondent telephonically provided these details were available else another e-mail was sent to the respondent. If no response was received within three days the researcher assumed "No Response".

The response to the questionnaires was collected and analysed using statistical methods using the text "Taking the Fear Out of Data Analysis" by Diamantopoulos and Schlegelmilch and automated tools such as Microsoft Excel to draw meaningful conclusions.

Source material included industry white papers, industry publications, articles from industry related websites, Ericsson specific documentation and presentations from the Business Intelligence Centre at Ericsson.

4 Chapter 4 Research Results and Discussion

Research results were collected; analysed and were described using methods such as frequency distribution and Microsoft Excel's pie graphs. The descriptive nature of the results did not require statistical packages to be used to formulate the results.

4.1 Qualitative Research Results

The qualitative part of the study required to interview eight people from various parts of the mobile telecommunications industry. However, only five interviews were conducted due to the following reasons:

- Unavailability of the other 3 respondents due to either annual leave or business commitments which required them to travel abroad.
- Time constraints – the quantitative part of the study was dependant on the input of the qualitative interviews and responses.

The responses to the questions were captured in writing on the interview sheet. The following were the responses to the questions

4.1.1 Question 1.1

This question requested the respondents to provide additional driving forces to mobile industry value chain than the four that have been identified i.e. technology, legislation, competition and customer needs.

The results to this question together with the results from question 1.2 would be used to ascertain the most important driving forces to the mobile industry value chain. The criteria used to select the driving force that is significant in addition to

the four driving force was that 50% of the respondent should make mention of the driving force.

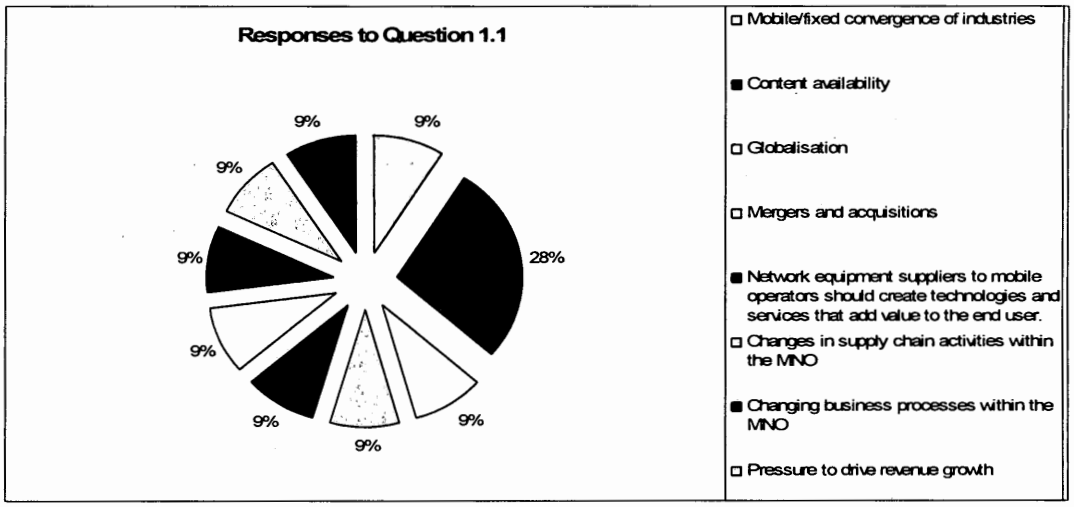
Table 4.1 provides a list of the responses that were received for question 1.1.

Table 4.1: Responses received for question 1.1

Responses	Respondents
Mobile/fixed convergence of industries	1
Content availability	3
Globalisation	1
Mergers and acquisitions	1
Network equipment suppliers to mobile operators should create technologies and services that add value to the end user.	1
Changes in supply chain activities within the MNO	1
Changing business processes within the MNO	1
Pressure to drive revenue growth	1
Growing device capability / sophistication	1

Figure 4.1 provides a graphical representation of the responses received for question 1.1.

Figure 4.1: Graphical representation of responses for Question 1.1



A wide range of responses were received for question 1.1 as can be seen in Table 2.1 and Figure 4.1 above. In addition to the four driving forces, technology, legislation, new competitors and customer needs; the fifth driving force was content availability. This was concluded from the number of responses that recommended content availability in their response to question 1.1. Three of the five (60%) respondents' response was content availability compared to just one response for each of the other recommendations.

4.1.2 Question 1.2

This question requested the respondents to rate the four driving forces i.e. technology, legislation, competition and customer needs. These driving forces have been identified as the forces driving the current mobile industry value chain and the question would like to ascertain if these forces still have a significant role in the evolving mobile industry value chain.

The results of this question together with the response from question 1.1 provided the basis of question 1 in the quantitative questionnaire. The criteria used to select if the driving forces are significant to the evolving mobile industry value chain was at minimum 50% of the respondents had to select the driving force as being "Important".

Table 4.2 lists the responses that were received for question 1.2

Table 4.2: Responses received for question 1.2

	Very Important	Important	Not important	Not applicable
TECHNOLOGY	4	1	0	0
LEGISLATION	3	2	0	0
COMPETITION	2	3	0	0
CUSTOMER NEEDS	3	1	1	0

Figure 4.2 provides a graphical representation of the importance of the four driving forces for the criteria 'Very Important'.

Figure 4.2: Graphical representation of the importance of the four driving forces – Very Important

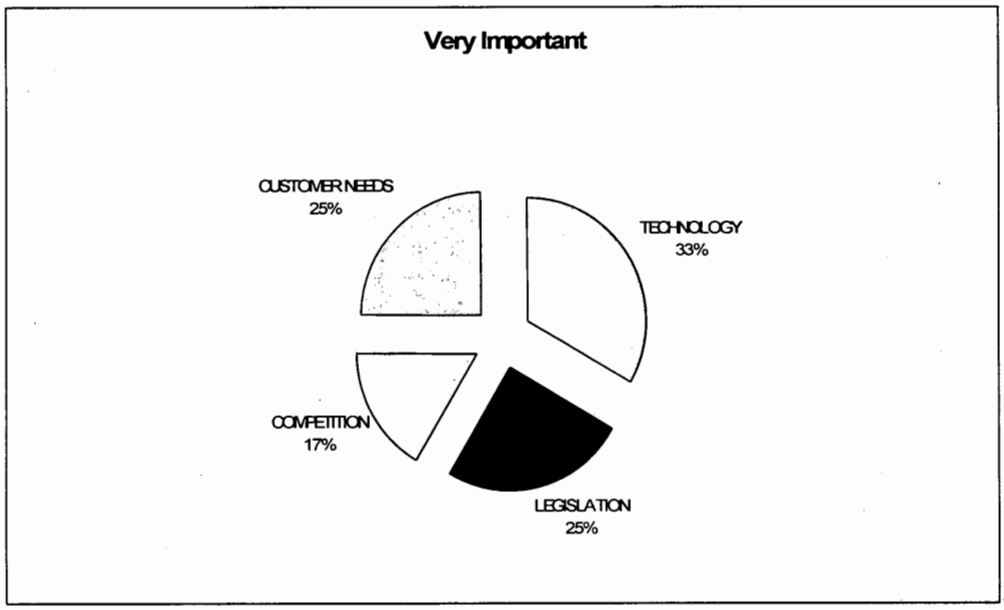
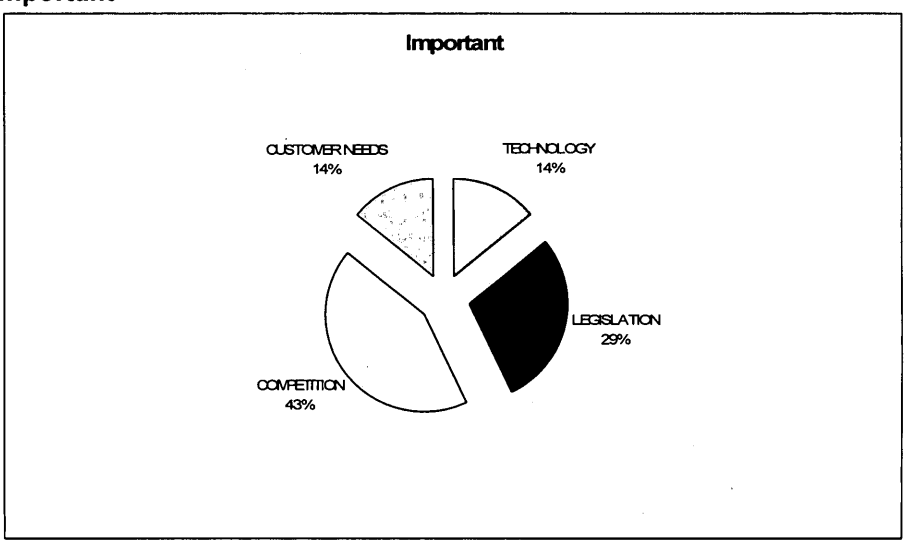


Table 4.2 and Figure 4.2 above provide a view of the importance of the four driving forces i.e. technology, legislation, competition and customer needs. It is evident from Figure 4.2 that technology is seen as the most important of the driving forces with 33% of the respondents selecting technology as "Very Important". Customer needs and legislation were equally important with 25% of the respondents selecting these as very important driving forces. The driving force that was least selected as "Very Important" was competition with only 17% of the respondents selecting this driving force as very important.

Figure 4.3 provides a graphical representation of the importance of the four driving forces for the criteria 'Important'.

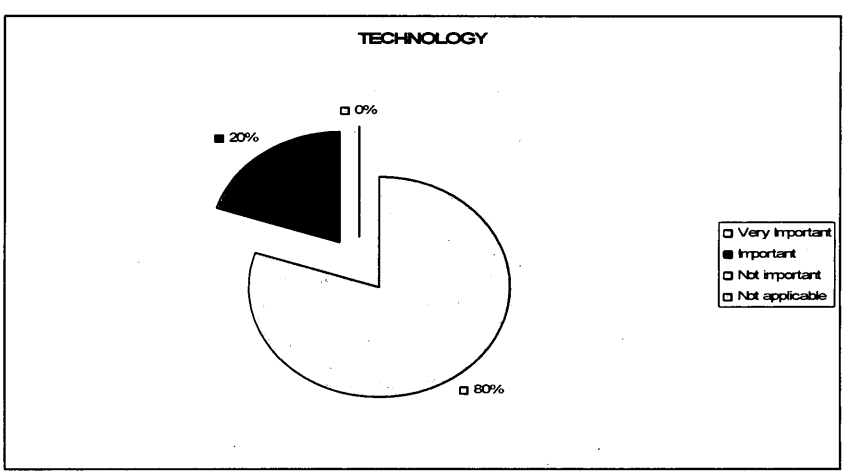
Figure 4.3: Graphical representation of the importance of the four driving forces – Very Important



It is evident from Figure 4.3 that 43% of the respondents chose competition, 29% chose legislation, 14% chose technology and the balance of the 14% chose customer needs.

Figure 4.4 provides a graphical representation of the importance of technology as a driving force.

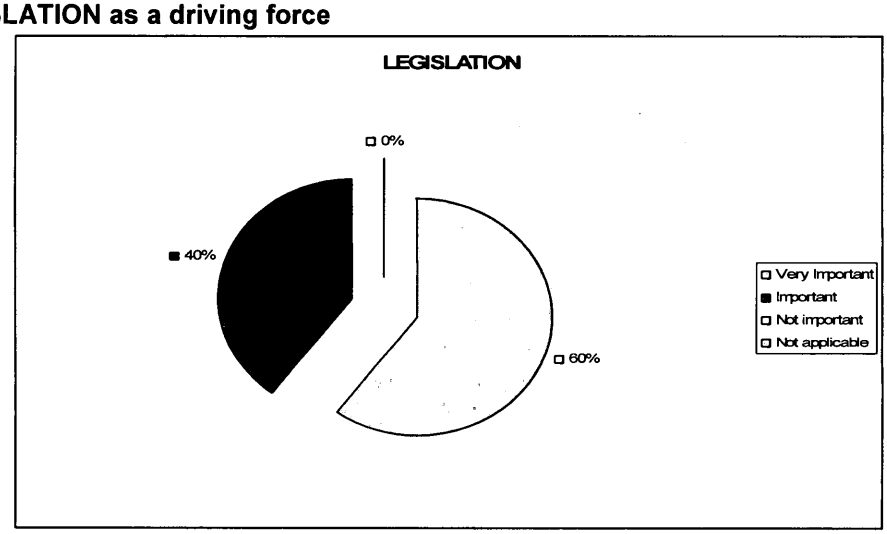
Figure 4.4: Graphical representation of responses for the importance of TECHNOLOGY as a driving force



It is evident that 80% of the respondents selected technology as a "Very Important" driving force whereas 20% of the respondents chose technology as an "important" driving force. None of the respondents chose the "Not Important" or "Not Applicable" options.

Figure 4.5 provides a graphical representation of the importance of technology as a driving force.

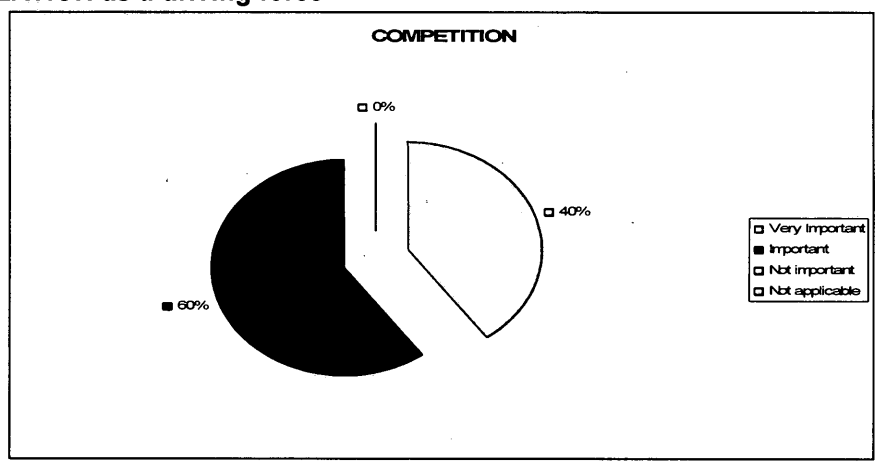
Figure 4.5: Graphical representation of responses for the importance of LEGISLATION as a driving force



60% of the respondents selected legislation as a "Very Important" driving force whereas 40% of the respondents chose legislation as an "important" driving force. None of the respondents chose the "Not Important" or "Not Applicable" options.

Figure 4.6 provides a graphical representation of the importance of competition as a driving force.

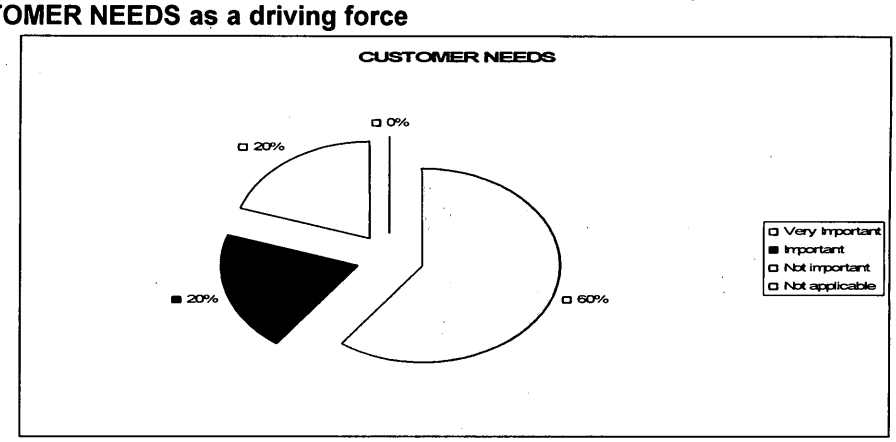
Figure 4.6: Graphical representation of responses for the importance of LEGISLATION as a driving force



40% of the respondents selected competition as a "Very Important" driving force whereas 60% of the respondents chose competition as an "important" driving force. None of the respondents chose the "Not Important" or "Not Applicable" options.

Figure 4.7 provides a graphical representation of the importance of customer needs as a driving force.

Figure 4.7: Graphical representation of responses for the importance of CUSTOMER NEEDS as a driving force



60% of the respondents selected customer needs as a "Very Important" driving force whereas 20% of the respondents chose customer needs as an "important"

driving force. 20% of the respondents chose customer needs to be "Not Important" as a driving force. None of the respondents chose the "Not Applicable" option.

It is evident from the results that the four driving forces i.e. technology, legislation, customer needs and competition are still significant driving forces. This together with the results from question 1.1 provides a list of five driving forces that was used as the basis of question 1 for the quantitative questionnaire. The five most important driving forces are technology, legislation, competition, customer needs and content availability.

4.1.3 Question 2

This question requested the respondents to recommend the most important issues that mobile operators need to perform to evolve to the new value chain.

The results of this question provided the basis of question 2 in the quantitative questionnaire. The criteria used to select the most important issues that mobile operators need to perform were at minimum 50% of the respondents recommended the same option.

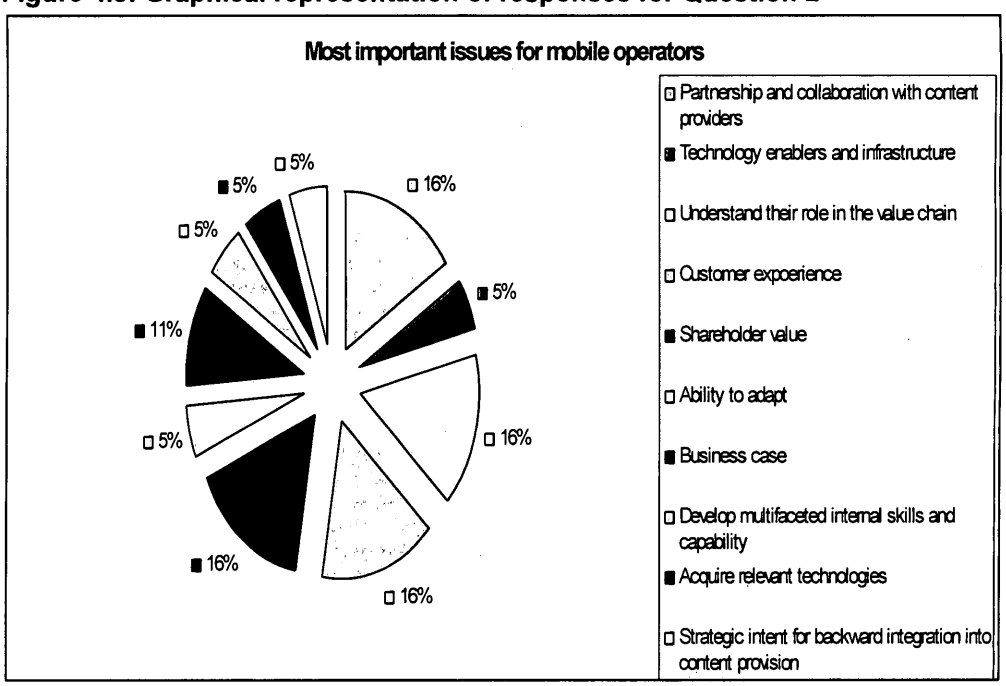
Table 4.3 provides a list of responses as well as the number of respondents that recommended each response.

Table 4.3: Responses received for question 2

Responses	Respondents
Partnership and collaboration with content providers	3
Technology enablers and infrastructure	1
Understand their role in the value chain	3
Customer experience	3
Shareholder value	3
Ability to adapt	1
Business case	2
Develop multifaceted internal skills and capability	1
Acquire relevant technologies	1
Strategic intent for backward integration into content provision	1

Figure 4.8 provides a graphical representation of the responses received for question 2.

Figure 4.8: Graphical representation of responses for Question 2



A wide range of responses were received for question 2 as can be seen in Table 4.3 and Figure 4.8. The most popular recommendations were:

1) Partnership and collaboration with content providers
2) Customer experience
3) Shareholder Value
4) Understand their role in the value chain

At least three of the five (60%) of the respondents recommended the above. These recommendations were used as input to question 2 of the quantitative questionnaire.

4.1.4 Question 3

This question requested the respondents to provide commentary on how the mobile value chain will evolve in the next five years. The response to this question was exploratory and the researcher included this question to ascertain industry experts' view on the evolving mobile industry value chain based on the sector within the mobile industry e.g. mobile operator or handset manufacturer etc. The response to this question was as expected with each sector in the industry having their own view and the views were as follows:

1) Mobile operators suggested forward and backward integration into the value chain as well as convergence with fixed line operators to leverage new services such as IPTV.
2) Network equipment suppliers suggested that the value chain will become "clouded" and the introduction of new competitors from the media and broadcasting industry will intensify the battle for control of the value chain. The customer or end user will be common and owned by both industries i.e. mobile industry and broadcasting industry.
3) Mobile handset manufacturers suggested that the value chain will certainly evolve and the mobile handset will become a valuable asset to all consumers, not just the "techno junkies".

4) Content providers and aggregators suggested that their role in the value chain will become significant and mobile operators will require their services and expertise more now than ever. They have suggested that the power of the mobile industry value chain will shift to the content providers and aggregators.

The results of this question were not used for the quantitative questionnaire and were exploratory to provide the researcher more insight into the thoughts of the various stakeholders in the evolving value chain.

4.1.5 Question 4

This question requested the respondents to recommend the five most important resources that mobile operators required to evolve to the new value chain.

The results of this question provided the basis of question 3 in the quantitative questionnaire. The criteria used to select the most important issues that mobile operators required were at minimum 50% of the respondents recommended the same option.

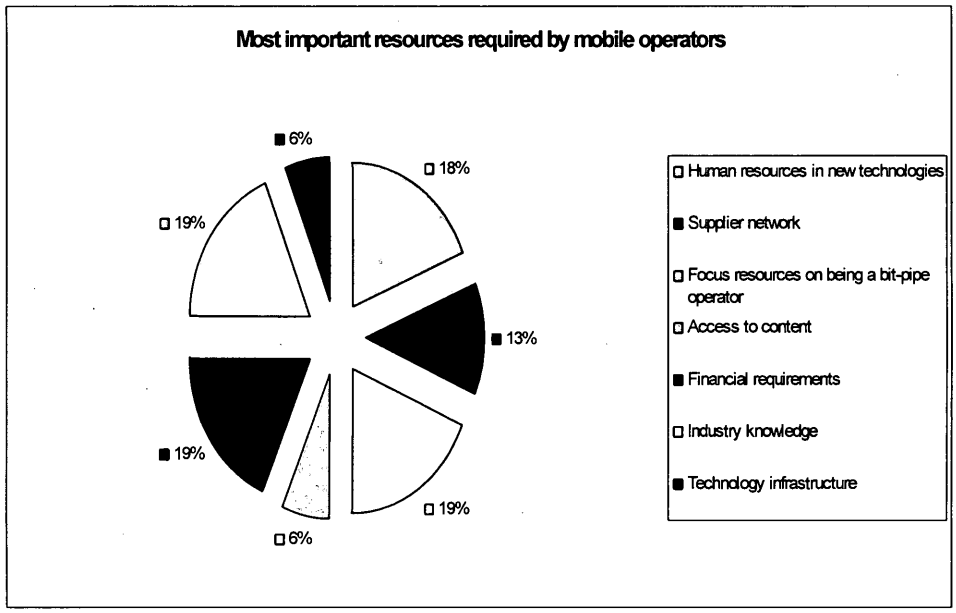
Table 4.4 provides a list of responses received for question 4.

Table 4.4: Responses received for question 4

Responses	Respondents
Human resources in new technologies	3
Supplier network	2
Focus resources on being a bit-pipe operator	3
Access to content	1
Financial requirements	3
Industry knowledge	3
Technology infrastructure	1

Figure 4.9 provides a graphical representation of all the responses received for question 4.

Figure 4.9: Graphical representation of responses for Question 4



A wide range of responses were received for question 4 as can be seen in Table 4.4 and Figure 4.9. The most popular recommendations were:

1) Human resources in new technologies,
2) Focus resources on being a bit-pipe operator,
3) Financial requirements,
4) Industry knowledge

At least three of the five (60%) of the respondents recommended the above. These recommendations were used as input to question 3 of the quantitative questionnaire. It should be noted that all respondents did not provide five recommendations as requested by the question as the respondents believed the recommendations made covered their thoughts about the resources required by mobile operators to evolve to the new value chain.

4.1.6 Question 5

This question required respondents to share their views on the benefits, if any, to mobile operators by vertically integrating into the mobile value chain. For both responses i.e. 'Yes' and 'No', respondents were requested to state the benefits or elaborate respectively.

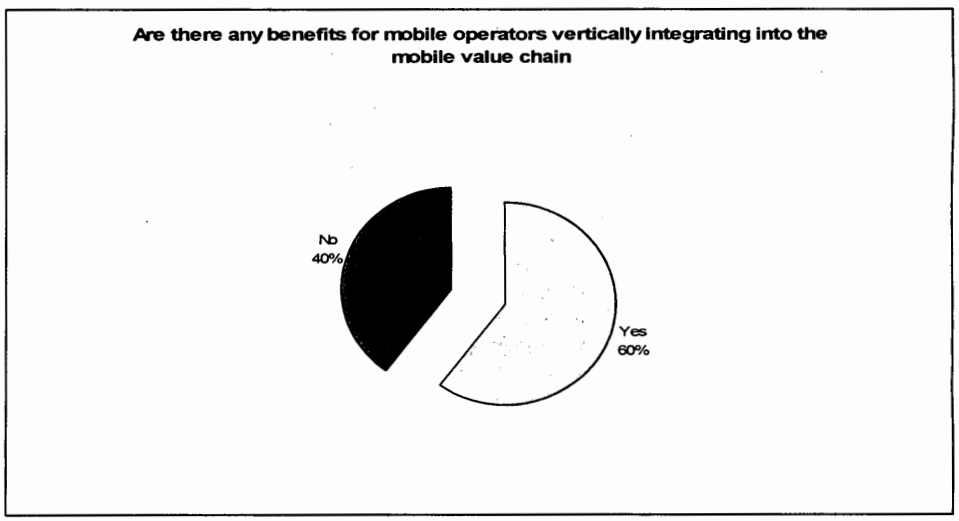
Table 4.5 provides a list of responses received for question 5.

Table 4.5: Responses received for question 5

Responses	Respondents
Yes	3
No	2

Figure 4.10 provides a graphical representation of the responses received for question 5.

Figure 4.10: Graphical representation of responses for Question 5



It is evident from Table 4.5 and Figure 4.10 that three of the five (60%) respondents selected 'Yes' suggesting that there are benefits for mobile operators vertically integrating into the value chain. The remaining two of the five (40%) respondents selected 'No" suggesting that there are no benefits for mobile operators vertically integrating into the mobile value chain.

Table 4.6 provides a list of benefits for mobile operators considering vertically integrating into the evolving mobile value chain.

Table 4.6: List of benefits for mobile operators vertically integrating into the mobile value chain

List of benefits
Revenue protection
Increased market share
Competitive advantage
Increased customer satisfaction

From the list of benefits given, competitive advantage, according to the literature review, is the only benefit that will be strategically advantage to the mobile operator.

Table 4.7 provides a list of reasons mobile operators should not vertically integrate into the evolving mobile value chain.

Table 4.7: List of reasons mobile operators should not vertically integrate into the mobile value chain

List of reasons
Very expensive
Concentrate on core business and outsource or partner for non core part of the business
Reduced customer interaction and satisfaction
Lack of skills to support evolved value chain

The reason to concentrate on their core business is a valid reason since being a bit-pipe operator is currently the mobile operator's core business. In order to vertically integrate backwards into the value chain will require mobile operators to develop competencies in content provision and aggregation. There are companies whose core business revolves around content provisioning and aggregation hence partnerships, leveraged buyouts (LBO) or mergers and acquisitions (M&A) would be the best option for mobile operators to bridge the gap in terms of skill sets.

The cost of leveraged buyouts and mergers and acquisitions can be substantial since media and broadcasting companies have high turnovers and financially they are as large as mobile operators. This can be an expensive exercise and there has to be a concrete business case before mobile operators attempt this massive exercise.

Customer satisfaction and expectations will need to be managed during this transition phase if there is a leveraged buyout or merger and acquisition. It is widely documented (not part of the scope of this research paper) that LBO's and M&A's are rarely successful and the loser at the end of the day is always the consumer.

The output from the qualitative questionnaire was used to develop and design the quantitative questionnaire. These results are discussed in the next section.

4.2 Quantitative Research Results

As stated in section 3.2 the target sample size was 50 respondents however due to only five of the eight respondents participating in the qualitative part of the research the number of subordinates was reduced to 35. Unfortunately not all the respondents from the qualitative research could provide names of subordinates hence the researcher utilised working colleagues within the mobile telecommunications industry that formed part of the sample of 35. Of the 35 selected only 30 respondents provided input to the quantitative questionnaire.

4.2.1 Question 1

This question required respondents to rank the five driving forces of the evolving value chain i.e. technology, legislation, competition, customer needs and content availability as "Very Important", "Important", "Not Important" and "Not Applicable".

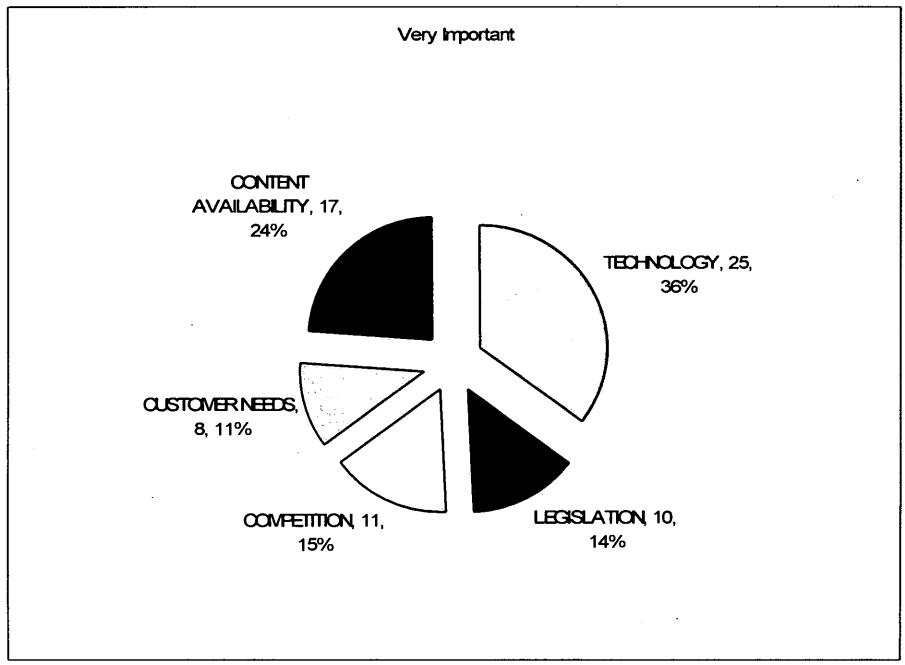
Table 4.8 provides the frequency distribution for the five driving forces and the importance of each driving force. These will be described in more detail in the next few sections.

Table 4.8: Frequency distribution for Question 1

			Absolute Frequency	Relative Frequency (%)
TECHNOLOGY	1 Very Important		25	83.3
	2 Important		5	16.7
	3 Not important		0	0.0
	4 Not applicable		0	0.0
			30	**100**
LEGISLATION	1 Very Important		10	33.3
	2 Important		15	50.0
	3 Not important		5	16.7
	4 Not applicable		0	0.0
			30	**100**
COMPETITION	1 Very Important		15	50
	2 Important		15	50
	3 Not important		0	0
	4 Not applicable		0	0
			30	**100**
CUSTOMER NEEDS	1 Very Important		8	26.7
	2 Important		22	73.3
	3 Not important		0	0.0
	4 Not applicable		0	0.0
			30	**100**
CONTENT AVAILABILITY	1 Very Important		17	56.7
	2 Important		13	43.3
	3 Not important		0	0.0
	4 Not applicable		0	0.0
			30	**100**

Figure 4.11 provides a graphical representation of the importance of the five driving forces.

Figure 4.11: Graphical representation of the importance of the five driving forces – Very Important



From the thirty respondents, twenty five of them ranked technology as the highest "very important" driving force; with seventeen of them ranking content availability second highest, eleven of the respondents ranking competition third, ten of the respondents ranking legislation fourth and eight of the respondents ranking customer needs fifth. Technology was ranked the highest in the qualitative part of the research with four of the five respondents selecting technology.

It was expected that technology would be ranked the highest because since inception the mobile telecoms industry has been driven by the introduction of new technology such as GPRS, 2G, 3G and now 4G hence going forward technology would remain a very important driving force to the value chain.

Content availability being ranked the second highest provides some insight into the thinking of the respondents that the need for content is important and that the

evolved value chain will certainly introduce new players to the value chain such as content providers and aggregators.

Competition was ranked third and the evolved value chain will certainly introduce new competitors to the value chain with content providers, content aggregators, media and broadcasting companies all trying to control the value chain which is currently controlled by the mobile operators.

Legislation was ranked fourth and the introduction of new technologies such as DVB-H will require new frequency spectrum and involvement from the government regulatory departments to be educated and informed of these new technologies and will play a significant role in evolving the mobile value chain.

Customer needs was ranked fifth yet very important and a driving force that will certainly play a major role in evolved value chain. This is highlighted in Figure 4.12 where customer needs was ranked first. The demand for content will originate from the customers and mobile operators should take cognisance of this and begin to build stronger customer relationships to leverage their customer base with new and appropriate content.

Figure 4.12: Graphical representation of the importance of the five driving forces – Important

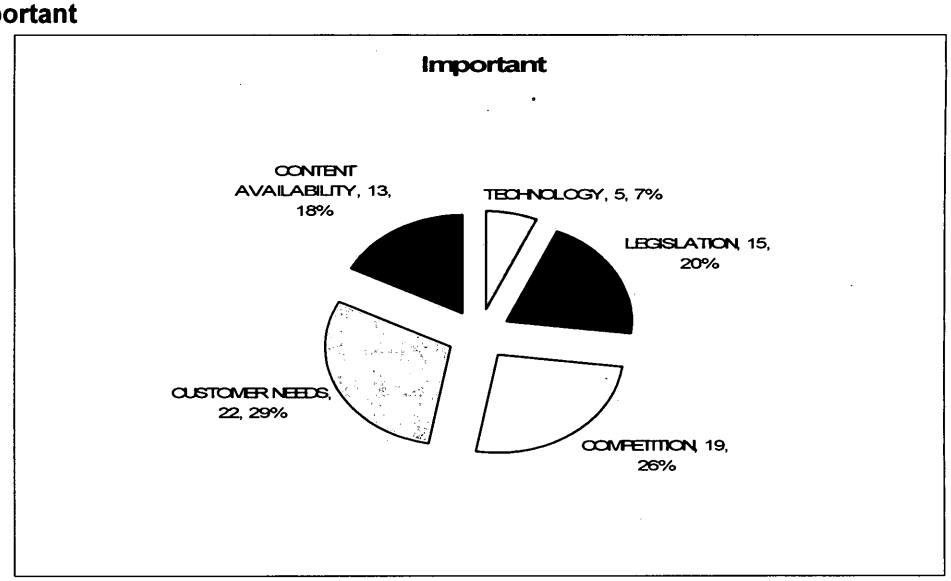


Figure 4.12 provides a graphical representation of the importance of the five driving forces using the "Important" criteria. As mentioned earlier, customer needs was ranked first with twenty two respondents selecting it as "Important". Competition was ranked second with nineteen respondents selecting it, fifteen respondents ranked legislation third, thirteen respondents ranking content availability fourth and five respondents ranking technology fifth.

The ranking of content availability and technology makes sense since these were ranked first and second respectively for the "Very Important" criteria. Competition and legislation have increased their ranking from the "Very Important" criteria by one place. This reveals that these driving forces are still seen as important and will be significant in the evolving value chain.

4.2.2 Question 2

This question required the respondents to rank the issues that mobile operators need to execute in order to evolve to the new value chain as "Very Important", "Important", "Not Important" and "Not Applicable".

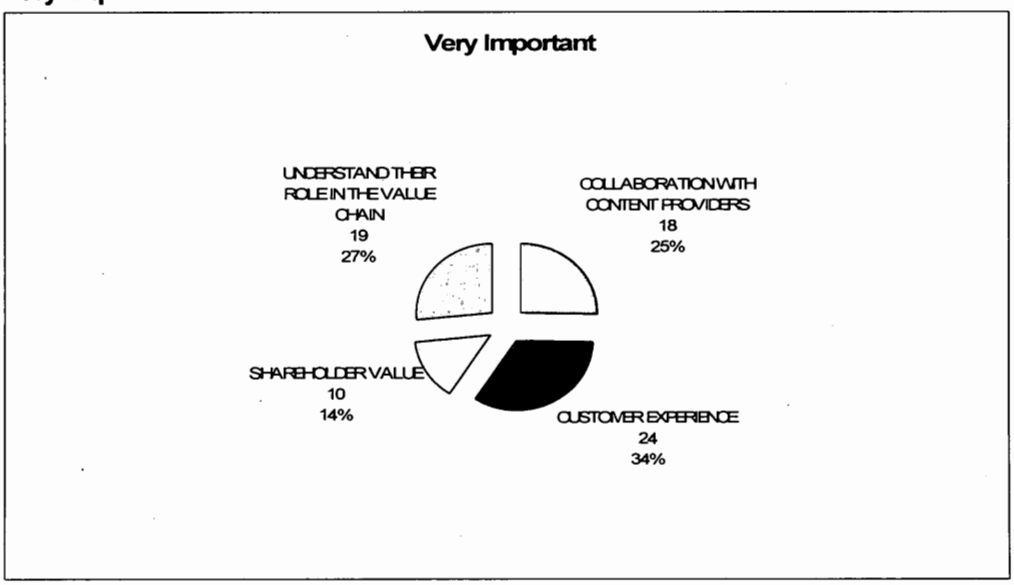
Table 4.9 provides a frequency distribution of each of the issues that mobile operators need to perform in order to evolve to the new value chain.

Table 4.9: Frequency distribution for Question 2

			Absolute Frequency	Relative Frequency (%)
COLLABORATION WITH CONTENT PROVIDERS	1 Very Important		18	60.0
	2 Important		12	40.0
	3 Not important		0	0.0
	4 Not applicable		0	0.0
			30	**100**
CUSTOMER EXPERIENCE	1 Very Important		24	80.0
	2 Important		6	20.0
	3 Not important		0	0.0
	4 Not applicable		0	0.0
			30	100.0
SHAREHOLDER VALUE	1 Very Important		10	33.3
	2 Important		20	66.7
	3 Not important		0	0.0
	4 Not applicable		0	0.0
			30	100.0
UNDERSTAND THEIR ROLE IN THE VALUE CHAIN	1 Very Important		19	63.3
	2 Important		11	36.7
	3 Not important		0	0.0
	4 Not applicable		0	0.0
			30	100.0

Figure 4.13 provides a graphical representation of the responses for question 2.

Figure 4.13: Graphical representation of the importance of mobile operator issues – Very Important



From the thirty respondents, twenty four ranked customer experience as first, nineteen ranked understanding their role in the value chain second, eighteen ranked collaboration with content providers third and ten respondents ranked shareholder value fourth.

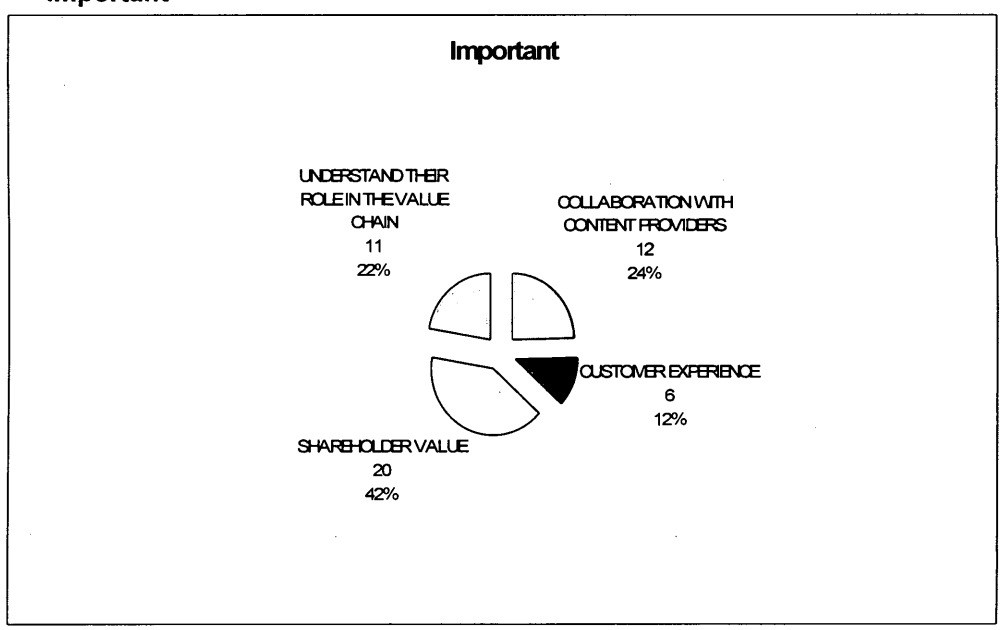
Ranking customer experience first suggests that the customer experience will become more important than ever in the new value chain since the customer will want to have the similar if not better experience than they currently experience, especially when it comes to mobile TV and digital media content.

In order to deliver the customer experience required mobile operators will need to understand their role in the value chain and various stakeholders that form the new value chain. Collaborating with content providers will also play a significant role to ensure a great customer experience as the customer needs will need to be worked on by all stakeholders to ensure the product or service that is delivered is of the highest quality and meets the customer needs.

The shareholders of the mobile operators will want to see a return on their investment and will always be a significant element in the value chain. All new investments will have to provide a positive return on investment and it is crucial that mobile operators ensure that their strategic intent and business cases for evolving to the new value chain deliver the results required by their shareholders.

Figure 4.14 provides a graphical representation of the ranking of the issues mobile operators need to perform in order to evolve to the new value chain when selecting the "Important" criteria.

Figure 4.14: Graphical representation of the importance of mobile operator issues – Important



Twenty respondents ranked shareholder value first, twelve respondents ranked collaboration with content partners second, eleven respondents ranked understand their value chain third and six respondents ranked customer experience as fourth.

The ranking of customer experience and understanding their role in the value chain makes sense since these were ranked first and second when selecting the

"Very Important" criteria. As mentioned earlier shareholder value will remain a significant element of the value chain since shareholders approve or disapprove the investment into new technologies, products and services.

4.2.3 Question 3

This question required the respondents to rank the resources that mobile operators required in order to evolve to the new value chain as "Very Important", "Important", "Not Important" and "Not Applicable".

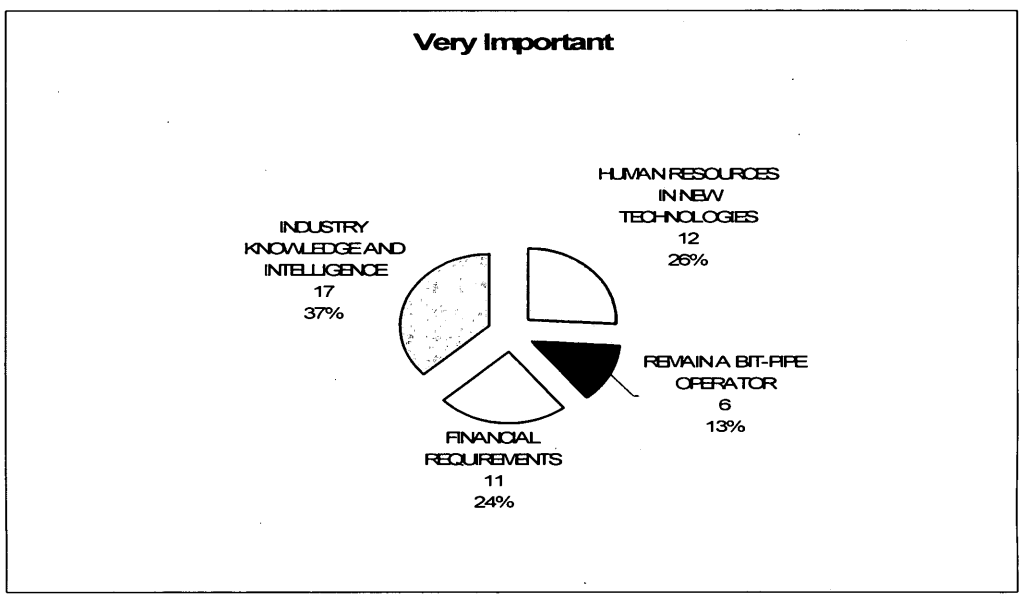
Table 4.10 provides a frequency distribution of each of the resources that mobile operators require in order to evolve to the new value chain.

Table 4.10: Frequency distribution for Question 3

		Absolute Frequency	Relative Frequency (%)
HUMAN RESOURCES IN NEW TECHNOLOGIES	1 Very Important	12	40.0
	2 Important	15	50.0
	3 Not important	3	10.0
	4 Not applicable	0	0.0
		30	**100**
REMAIN A BIT-PIPE OPERATOR	1 Very Important	6	20.0
	2 Important	14	46.7
	3 Not important	10	33.3
	4 Not applicable	0	0.0
		30	100.0
FINANCIAL REQUIREMENTS	1 Very Important	11	36.7
	2 Important	15	50.0
	3 Not important	4	13.3
	4 Not applicable	0	0.0
		30	100.0
INDUSTRY KNOWLEDGE AND INTELLIGENCE	1 Very Important	17	56.7
	2 Important	11	36.7
	3 Not important	2	6.7
	4 Not applicable	0	0.0
		30	100.0

Figure 4.15 provides a graphical representation of each of the resources that mobile operators require in order to evolve to the new value chain for the 'Very Important' criteria.

Figure 4.15: Graphical representation of the importance of resources to the mobile operator – Very Important



From the thirty respondents, seventeen ranked industry knowledge and intelligence as first, twelve ranked human resources in new technologies second, eleven ranked financial requirement third and six ranked remaining a bit-pipe operator fourth.

Mobile operators understand their industry but with the evolving value chain it would require them to gain knowledge of the content provision and aggregation industry. They need to understand the revenue sharing and digital rights mechanisms that occur in the content provision industry and how this has an impact on their value chain. The content aggregation industry will also need to be understood in order to ensure best practises are followed by these aggregators and content is licensed and all the correct legal requirements have been adhered to by the content aggregators.

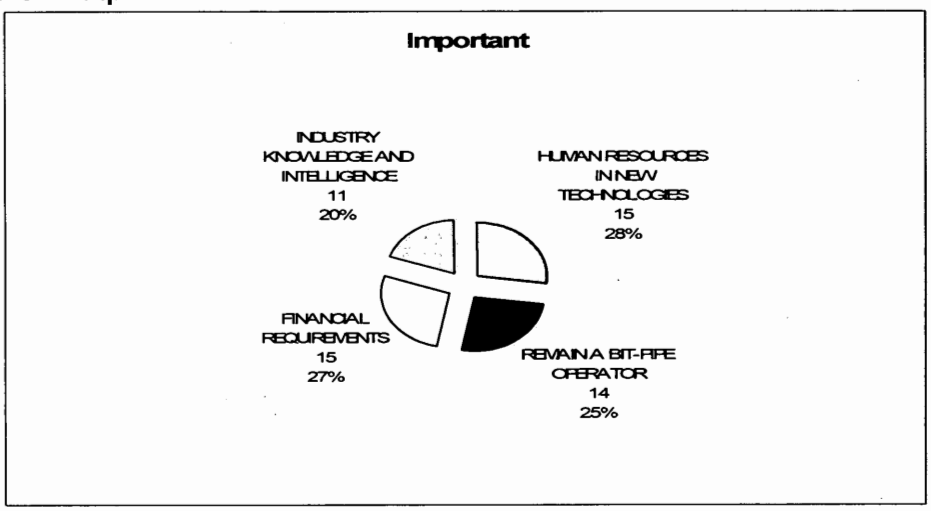
Mobile operators will have to ensure that they have the correct human resources in place to leverage off the opportunities available in the new value chain. Mobile operators that ensure they have the correct skill set will gain the competitive advantage and remain ahead of its competitors. The technology in the mobile telecoms industry is rapidly changing and mobile operators need to continuously educate their human resources to remain competitive but with the evolving mobile value chain new elements are being introduced to the value chain which requires in-depth industry knowledge, as mentioned in the previous paragraph.

In order to gain industry knowledge and educate your human resources, mobile operators will have to invest financially. These financial resources will have to be sourced from their current operations or their shareholders which also highlights the importance of shareholder value.

Mobile operators are currently bit-pipe operators and are successful at delivering a service that is acceptable by their customers. However with ARPU's on the decline, mobile operators are in search of new revenue generating opportunities.

Figure 4.16 provides a graphical representation of each of the resources that mobile operators require in order to evolve to the new value chain for the 'Very Important' criteria.

Figure 4.16: Graphical representation of the importance of resources to the mobile operator – Important



For the criteria "Important", fifteen of the thirty respondents ranked human resources in new technologies first with financial requirements also being ranked first. Fourteen of the respondents ranked remaining a bit-pipe operator third and eleven ranked industry knowledge and intelligence as fourth.

The ranking of industry knowledge and intelligence as fourth makes sense since this was ranked first for the "Very Important" criteria. Human resource and financial resources are ranked first and second respectively and this highlights the importance of these resource for mobile operators to evolve to the new value chain.

Remaining a bit-pipe operator is still ranked low i.e. third compared to fourth in the "Very Important" criteria and this result closely resembles the result received for question four in the next section (section 4.2.4) where twenty two of the respondents believe that there are benefits for the mobile operator in vertically integrating into the value chain meaning that the mobile operator should not remain as a bit-pipe operator.

4.2.4 Question 4

This question required respondents to select if there were benefits to vertically integrating into the mobile industry value chain.

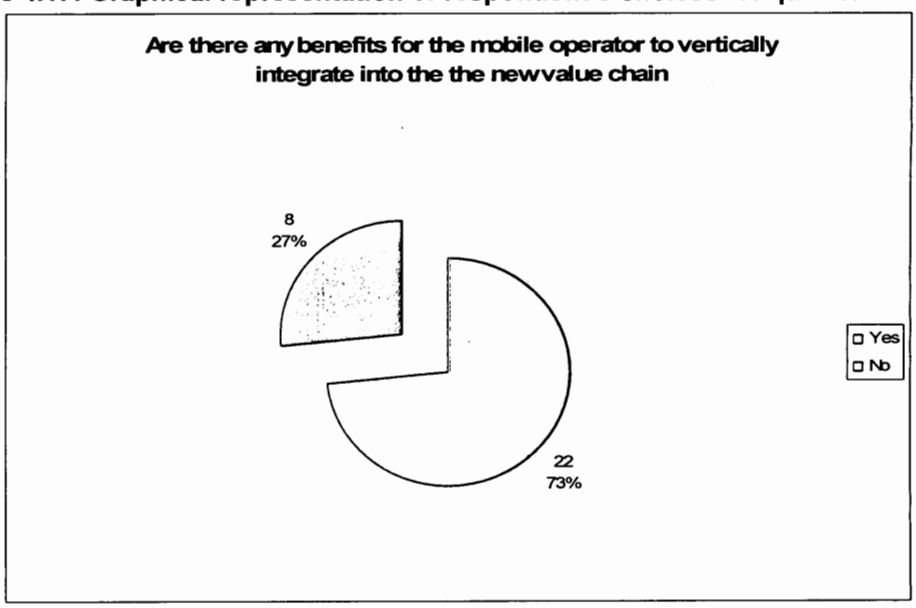
Table 4.11 provides a frequency distribution to determine if there are any benefits for the mobile operator to vertically integrate into the new value chain.

Table 4.11: Frequency distribution for Question 4

		Absolute Frequency	Relative Frequency (%)
Are there any benefits for the MNO to vertically integrate into the new value chain	Yes	22	73.3
	No	8	26.7
		30	100

Figure 4.17 provides a graphical representation of the selection by the thirty respondents in response to question four.

Figure 4.17: Graphical representation of respondent's choices for question 4



Twenty two of the thirty respondents selected "Yes" which means that there are benefits for mobile operators in vertically integrating into the new value chain. The remaining eight respondents chose "No" which means that there are no benefits for mobile operators vertically integrating into the mobile value chain.

4.2.5 Question 5

This question required only those respondents that selected "No" in question four as their response to the question to provide input by selecting the most important function that mobile operators can perform in the new value chain.

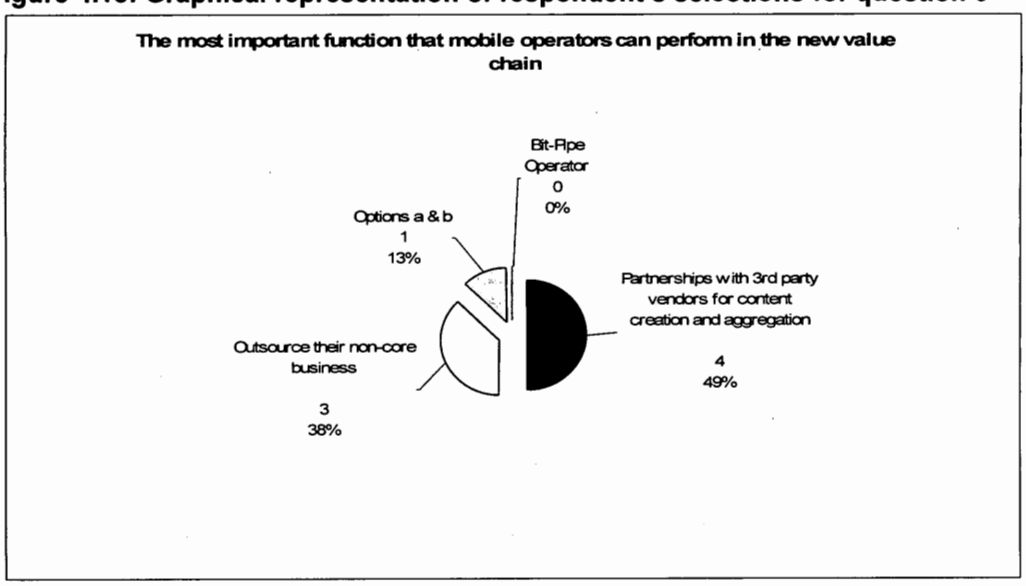
Table 4.12 provides a frequency distribution to determine if there are any benefits for the mobile operator to vertically integrate into the new value chain.

Table 4.12: Frequency distribution for Question 5

	Absolute Frequency	Relative Frequency (%)
Bit-Pipe Operator	0	0
Partnerships with 3rd party vendors for content creation and aggregation	4	50
Outsource their non-core business	3	37.5
Options a & b	1	12.5
	8	100

Figure 4.18 provides a graphical representation of the respondent's selection for question five.

Figure 4.18: Graphical representation of respondent's selections for question 5



It is evident that "partnerships with 3rd party vendors for content creation and aggregation" were selected by four of the eight respondents. Three of the respondents selected "outsourcing their non-core business" and one respondent selected "option a&b".

Mobile operators that form partnerships with 3rd party vendors for content creation and aggregation can provide a large selection of content and hence choices to their customer base while still focusing on their core business i.e. their bit-pipe operation, this option was selected by one respondent.

Another option available to mobile operators is to outsource their non-core business but the risks are higher with this option than having partnerships with various content providers and aggregators. It is more risky because mobile operators lose control of the quality of the service being delivered and maintaining a high standard of quality requires resources from the mobile operator to constantly quality test the products and services being delivered. The mobile operator also loses the option to choose as they would if they had partnerships with multiple content providers and aggregators.

5 Chapter 5 Recommendations and Conclusions

It is evident from the research results that technology, legislation, competition, customer needs and content availability will remain driving forces in the evolving mobile value chain. Technology will continue to be the dominant driving force of the mobile telecoms industry as it has been in the past. As per the literature review, technology from other industries such as DVB-T is being modified to cater for the mobile telecoms industry in the form of DVB-H. This introduces a whole new dimension to the value chain with new stakeholders and competitors being introduced to the value chain. Mobile operators should embrace these new stakeholders and understand these new industries to provide a much improved service to the consumer. This also reflects the importance of industry knowledge and intelligence which was ranked first for the 'Very Important' criteria - (Question three in the quantitative results).

The new stakeholders will consist of content providers and aggregators and mobile operators will require their expertise but at the same time the content providers and aggregators will want to leverage the mobile operator's customer base to launch their new services and products. The mobile operators have developed relationships with their clients using customer relationship management (CRM) system, the mobile operator has all the customer's personal details and it has the location of the consumer. This information is invaluable to all the stakeholders that form the value chain.

However, the introduction of new technologies such as DVB-H and MBMS would require mobile operators to provide services that leverage these new technologies and the content providers and aggregators are well positioned to provide these services. Mobile operators will have to collaborate with the content providers to source unique content such as specific TV channels that will differentiate them from their competitors. Mobile operators will also require

content providers to create personalised content such as games and music that is specific to the mobile operator. This will be another differentiating factor and a competitive advantage for the mobile operator. This reflects the importance of the mobile operator understanding their role in the value chain and the collaboration that it will require with content providers and aggregators.

It is evident from the research results that the mobile operator should not remain as a bit-pipe operator and their current role of supplying the network infrastructure to transport the services should evolve since there are benefits of vertically integrating into the evolving value chain. The researcher recommends that the mobile operator should continue to be a bit-pipe operator and continue its role of supplying the network infrastructure to support the new technologies and services however the researcher recommends that mobile operators form strategic partnerships with content providers and aggregators. The strategic partnerships should be with content providers and aggregators that can provide the mobile operator a competitive advantage. This will require industry knowledge and intelligence to identify the content providers and aggregators that have a strategic fit to the mobile operators' long term plans.

As per the literature review, vertical integration backwards should only be considered if the organisation would like to improve their competitive position and volumes are large enough to capture the efficiencies of its suppliers. The complexities with vertically integrating backwards into an industry such as media and broadcasting that is as large if not larger than the mobile telecoms industry, dealing with the complexities of this industry that is as complex as the high-tech mobile telecoms industry will certainly be challenging to mobile operators. The challenges will range across the company value chain i.e. finance, human resources, operations, sales and marketing as highlighted in the research results (question 3, quantitative questionnaire).

The volumes will only be achieved once the majority of the operator's subscriber base can leverage these rich multimedia services however the first to market will benefit from first mover advantage and will see an increase in subscribers from the churn of subscribers from competitive operators. In South Africa, the majority of the mobile subscribers are prepaid customers (approximately 37 million of the 43 million are prepaid subscriptions – Ericsson Market Intelligence) and according to reports (Ericsson Market Intelligence) the average revenue per prepaid subscription in 2006 was 15 USD compared to the postpaid subscriptions that have average revenues of 70 USD per subscription. It will take many years for mobile operators in South Africa to achieve the economies of scale required to benefit from vertically integrating into the mobile industry value chain.

The partnership with content providers will allow mobile operators to bundle content with their mobile products and services providing customers with more value for their money. This will allow mobile subscribers easy access to a variety of content for their mobiles as well as their homes. In South Africa, this is currently being promoted by Vodacom with their exclusive partnership with Multichoice. Vodacom have secured an exclusive agreement with Multichoice that allows Vodacom and non-Vodacom subscribers to have a choice between two DSTV Select bouquets.

The partnerships and agreements such as that between Vodacom and Multichoice, will allow content providers to increase their market share and at the same time reduce their operating costs by utilising the distribution channels provided by the mobile operators. Mobile operators can use this as a negotiating tool to leverage their network infrastructure and latest technologies to launch a variety of content to their mobile subscribers. This will be beneficial to all stakeholders in the mobile industry value chain.

South African mobile operators will have to form strategic partnerships with content providers that can provide 'must-have' content such as sports, international and local, be it the highlights of the match or just the goals in a football game. The mobile operators should develop a brand that portrays itself as a 'cool' brand to attract the techno-savvy 'SMS generation'. This should be complemented by their strategic content partners. The 'SMS generation' is the generation that has grown up with computers and mobile phones and should be the target for exciting new broadband and multimedia opportunities.

The advantages of creating partnerships between mobile operators and content providers will allow all stakeholders in the mobile industry value chain to focus on their core competencies and at the same time deliver an exceptional service to their customers. This will ensure satisfied customers and outstanding customer experience resulting in customers willing to pay for the products and services on offer.

These are challenging times for the mobile operators in South Africa yet very exciting times. The challenge is to find strategic content partners that will allow the mobile operators to differentiate themselves from their competitors and hence provide a competitive advantage in the industry. These are exciting times since consumers will be spoilt with a choice of exciting broadband and multimedia opportunities.

The researcher recommends that further studies be performed on a larger sample as well as consider studying the long term future of the mobile value chain i.e. the 5 to 10 year period as this will be useful to all stakeholders that want to strategically position themselves in the mobile value chain.

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Appendices

Appendix 1 – Qualitative Questionnaire

Research Questionnaire - Qualitative

This research questionnaire forms part of a dissertation study that is critically reviewing the evolving mobile industry value chain. All information will be kept strictly confidential and will only be used for the purposes of the study. Please provide answers to all questions listed below and where possible please provide detailed justification of your answers.

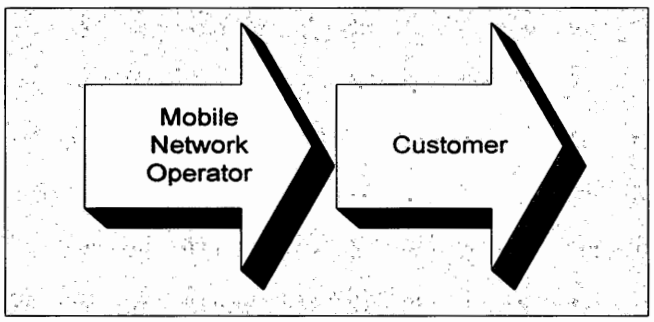
The competitive landscape for mobile GSM operators is evolving resulting in mobile operators to vertically integrate into this new value chain and compete with content partners and providers.

Background

South Africa boasts the largest and most developed telecommunications network in Africa, including the latest in fixed-line, wireless, satellite and cellular technology. The South African mobile industry comprises four mobile operators namely, Vodacom, MTN, Cell C and Virgin Mobile. Vodacom and MTN have been at the forefront of the industry since 1994 with Cell C following in late 2001 and most recently, since 2006 Virgin Mobile was introduced as a Mobile Virtual Network Operator (MVNO).

Every company's business consists of a collection of activities undertaken in the course of designing, producing, marketing, delivering and supporting its products or services. A company's value chain consists of the linked set of value-creating activities the company performs internally. A company's value chain is embedded in a larger system of activities that includes the value chain of its suppliers and its distribution channel allies engaged in getting its product or service to end users. The mobile industry value chain was as shown in Figure 1; this figure will be referred to as the "Old" industry value chain.

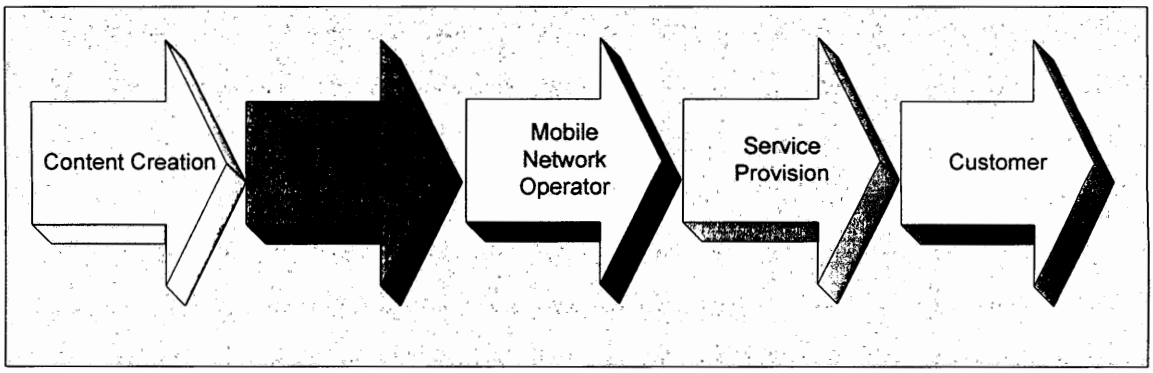
Figure 1: The OLD mobile industry value chain



Source: Business Insights

The introduction of new role players and stakeholders, the changes in legislation within South Africa and the advancement of technology has introduced new role players and stakeholders into the mobile industry. The value chain is now evolving to reflect that as shown in Figure 2:

Figure 2: The NEW mobile industry value chain



Source: Business Insights

Questions

1. Since the introduction of GSM in the early 90's in South Africa the industry has been evolving. The following four milestones have been identified as contributors or driving forces to the value chain evolving.

    - Technology - the introduction of data, content services and mobile broadband such as 3G and HSPA.
    - Legislation - the introduction of mobile number portability and the new South African Convergence Bill allowing any company with a valid license to provide ICT services.
    - New competitors - Cell C being launched as the 3rd mobile license, Virgin Mobile being a Mobile Virtual Network Operator (MVNO), Sentech launches MyWireless, iBurst launches their mobile broadband offering and Telkom reduces their ADSL tariffs.
    - Customer needs – Customers have a variety of choices in terms of products and services and are demanding more innovative products and services.

    1.1) In addition to the above four driving forces are there any other driving forces to the evolution of the mobile value chain?

    _____

    _____

    _____

    1.2) From the list provided below please rate the importance of each of the driving forces with a tick in the appropriate box.

CONTRIBUTING FACTOR	IMPORTANCE			
	Very important	Important	Not Important	Not applicable
Technology				
Legislation				
Competition				
Customer Needs				

2. Referring to the *Old* and *New* value chains, please list the most important issues or things that mobile operators need to do in order to evolve to the new value chain. Please list in order of importance with position 1 being the most important task.

    1._____

    2._____

    3._____

    4._____

    5._____

3. How will the *New* value chain evolve in the next five years?

_____

_____

_____

4. Please list, in order of importance, the five most important resources required for mobile operators to evolve to the *New* value chain:-

1._____
2._____
3._____
4._____
5._____

5. Are there benefits for the mobile network operator to vertically integrate into this *New* value chain?

- If yes, what are the benefits?

  _____

  _____

  _____

- If no, please elaborate?

  _____

  _____

  _____

Thank you for completing the questionnaire. Your valuable input is highly appreciated and will contribute to the critical review of the evolving mobile industry value chain.

Appendix 2 – Quantitative Questionnaire

Research Questionnaire - Quantitative

This research questionnaire forms part of a dissertation study that is critically reviewing the evolving mobile industry value chain. All information will be kept strictly confidential and will only be used for the purposes of the study. Please provide answers to all questions listed below and where possible please provide detailed justification of your answers.

The competitive landscape for mobile GSM operators is evolving resulting in mobile operators to vertically integrate into this new value chain and compete with content partners and providers.

Background

South Africa boasts the largest and most developed telecommunications network in Africa, including the latest in fixed-line, wireless, satellite and cellular technology. The South African mobile industry comprises four mobile operators namely, Vodacom, MTN, Cell C and Virgin Mobile. Vodacom and MTN have been at the forefront of the industry since 1994 with Cell C following in late 2001 and most recently, since 2006 Virgin Mobile was introduced as a Mobile Virtual Network Operator (MVNO).

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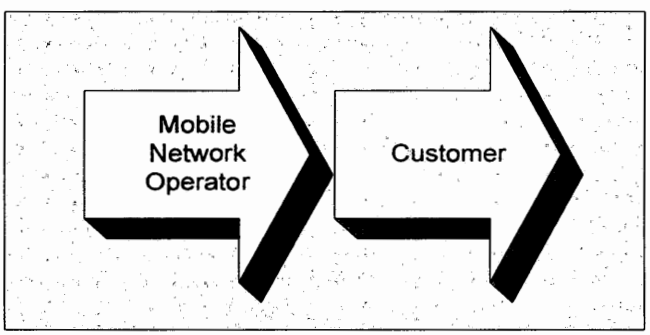
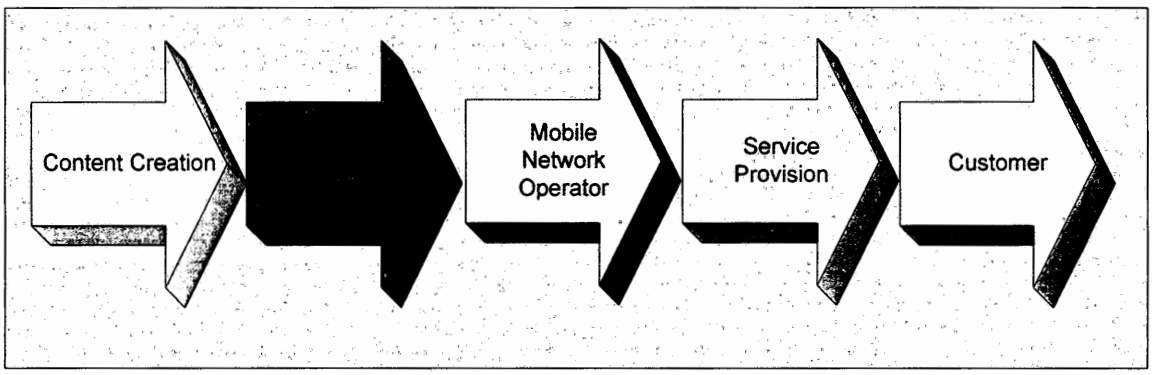


Source: Business Insights

The introduction of new role players and stakeholders, the changes in legislation within South Africa and the advancement of technology has introduced new role players and stakeholders into the mobile industry. The value chain is now evolving to reflect that as shown in Figure 2:

Figure 2: The NEW mobile industry value chain



Source: Business Insights

Questions

Since the introduction of GSM in the early 90's in South Africa the industry has been evolving. The following four milestones have been identified as contributors or driving forces to the value chain evolving.

- Technology - the introduction of data, content services and mobile broadband such as 3G and HSPA.
- Legislation - the introduction of mobile number portability and the new South African Convergence Bill allowing any company with a valid license to provide ICT services.
- New competitors - Cell C being launched as the 3rd mobile license, Virgin Mobile being a Mobile Virtual Network Operator (MVNO), Sentech launches MyWireless, iBurst launches their mobile broadband offering and Telkom reduces their ADSL tariffs.
- Customer needs – Customers have a variety of choices in terms of products and services and are demanding more innovative products and services.

1 From the list provided below please rate the importance of each of the driving forces with a tick in the appropriate box.

CONTRIBUTING FACTOR	IMPORTANCE			
	Very important	Important	Not Important	Not applicable
Technology				
Legislation				
Competition				
Customer Needs				
Content Availability				

2. Referring to the Old and New value chains, please rate the most important issues that mobile operators need to do in order to evolve to the new value chain.

CONTRIBUTING FACTOR	IMPORTANCE			
	Very important	Important	Not Important	Not applicable
Collaboration with content providers				
Customer experience				
Shareholder value				
Understand their role in the value chain				

3. Please rate the four most important resources required for mobile operators to evolve to the *New* value chain:-

CONTRIBUTING FACTOR	IMPORTANCE			
	Very important	Important	Not Important	Not applicable
Human Resources in new technologies e.g. IPTV, Media etc.				
Focus resources on remaining a bit-pipe operator				
Financial requirements				
Industry knowledge and intelligence				

4. Are there any benefits for the mobile network operator to vertically integrate into this *New* value chain? (Please select one option only)

- Yes □
- No □

5. If No, please select the most important function that mobile operators can perform in the *New* value chain. (Please select one option only)

a) Bit-pipe operator □
b) Partnerships with 3rd party vendors for content creation and aggregation □
c) Outsource their non-core business □
d) Option a & b □

Thank you for completing the questionnaire. Your valuable input is highly appreciated and will contribute to the critical review of the evolving mobile industry value chain.