CONVERGENCE

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Introduction

'Nobody can predict the future, but you can understand the forces that will shape the future — and it is always better to play with the forces than against them.'

Lester Thurow

Imagine this. You are walking out of a business meeting and want to check the score at a sports event. Your cell phone, always connected to the Internet, opens the web page with an update. Your favourite team is leading and you decide to see for yourself how they are playing. You speak a command into your cell phone and up pops a high definition television transmission on the screen. A beep from the phone distracts you as a message scrolls across the bottom of the screen. Your refrigerator at home is contacting you. You answer the call and are informed that you are running low on groceries and provided with a list of items needed. You copy and paste the list into an e-mail and send the order off to a local grocery store. As you arrive at the store, the groceries are ready and neatly packed. You pay and as you walk out you notice another shop advertising a new bundle of services. For a set monthly fee you can get an unlimited broadband connection on any compatible device; including television, cell phone, laptop, and satellite phone, with free television content; as well as free online services from various vendors. In addition, you get one thousand minutes free IP-telephony calls using your cell phone's voice-over-IP function. You decide it is an offer too good to be true. You pay for it and upload the package via the wireless system onto your cell phone, and then forward it to your home server. Seconds later the new service is activated.

Is this a scene from the future? Perhaps, but a number of these scenarios are actually possible today and more will undoubtedly unfold in the future. The development of this new communications technology and the innovative services made possible over it has become known as 'convergence'.

It is this development and the concomitant legal implications that will be discussed in this chapter, wherein the authors will attempt to define an understanding of convergence; identify the possible trends and consequences of convergence worldwide; discuss the approach that other countries have adopted; and identify and audit current South African policy and legislation which may affect convergence.

1. WHAT IS CONVERGENCE?

1.1 Definitions

The predominant feeling is that the term 'convergence' has no single definition. Some even hold that the term resists definition. Included herein are a few of the many definitions here, not necessarily because they are more correct than those provided elsewhere, but to stimulate debate on this issue and understand why it is important to define it at all.

'Convergence' is defined in Newton's Telecom Directory as 'the word to describe a trend, now that most media can be represented digitally, for the traditional distinctions between industries to blur and for companies from consumer electronics, computer and telecommunications industries to form alliances, partnerships and other relationships, as well as to raid each others' markets'[2].

The International Telecommunications Union ('ITU') has provided an almost all encompassing definition that describes convergence as 'the technological, market, legal or regulatory capability to integrate across previously separated technologies, markets or politically defined industry structures. Convergence also involves an important international component, as many services and information sources that were traditionally controlled on a domestic level are being provided on a global basis'[3].

In yet a third interpretation, the Australian Convergence Review (2000) defines the concept as 'the restructuring of the services sector enabled by digitization. It is the transition between two structural models for service delivery. The traditional is dominated by analog or physical technologies favouring mass production, domestic market focus, and vertically and horizontally integrated corporate structures. Conversely, the new service delivery model uses digital programmable networks that favour mass customization, an international market focus, and vertical separation between the services users see and the underlying platform. The process of convergence results in a services sector that is more fragmented, competitive and international in its outlook'[4].

In summary, the word encompasses the convergence of services, such as telecommunications, computing, publishing and broadcasting; the convergence of technologies, such as wireless and wire line communications conduits, computers, newspapers and other traditional print media; the convergence of entities that supply such services and technologies such as Time Warner and AOL; as well as the various pieces of legislation and potentially the regulatory authorities operating in these sectors.

1.2 The Drivers of Convergence

The three levels of convergence outlined in the previous paragraph are obviously interlinked and any of them can become an internal driver of the other. There also external drivers of convergence and the most important ones are what Allison Gillwald refers to as 'the technological drive towards digitization and the economic drive towards liberalization'[5].

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[2] Newton, H (2002) Newton's Telecom Dictionary (18th Edition) at pg300.
[3] International Telecommunications Union, (1999). Trends in Telecommunication Reform: Convergence and Regulation (1999) at pg2.
[4] Australian Convergence Review (2000). Available: http://www.noie.gov.au.
[5] Gillwald, A. National Convergence Policy in a Globalised World: Preparing South Africa for Next Generation Networks, Services and Regulation. Available: http://link.wits.ac.za.

Digital technology enables the conversion of any type of information, be it text, sound or images, into a sequence of binary digits ('bits'), represented by the numbers 0 and 1. Digitisation also consists in compression techniques that make it possible to reduce the number of bits required to represent information in data transmission or storage. In this way, less bandwidth is necessary to transmit complex content or to enable the storage of it on magnetic devices such as compact disks. New 'multimedia' services allow for the transmission of different types of information like voice, data, text and images by converting them all into bit streams.

The liberalization of markets has also accelerated these technological trends as far as competition and innovation in the services sector is concerned. As governments move to privatise their incumbent telecommunications operators, introduce competition in various sectors and promote access to fundamental infrastructure, so technical developments become more creative and inevitably lead to the creation of new markets. This trend has been observed time and again as existing markets are liberalised; for instance in the United States, broadband connections have enabled the downloading of films from the Internet, thus creating a parallel market alongside the existing television broadcasting and DVD rental markets.

Together the two drivers — digitisation and liberalization — are globally and locally shaping and forging a new world of communications, and eroding the traditional notion of the separation of the industries of information technology, telecommunications and broadcasting.

1.3 The South African Context

Even though South Africa is still a developing country, it has well-developed information technology, telecommunications and broadcasting industries. These industries keep us abreast of world trends and in some respects are even world leaders. South Africa is a quick adopter of convergence and applies it as basic infrastructure and technology allow. However, there is a severe backlog in the level of penetration of technology and take-up of new service offerings is low as most of the South African population still has very limited access or no access to it at all. This is not an ideal environment for convergence to prosper in.

Moving forward, South Africa's take up of convergence will, like that of other developing countries, depend on and differ according to the needs of the market; level of investment locally and internationally; governance models and social policy. The convergence of technologies and services, as well as that of entities that provide such services will create various challenges to current legislation and policy framework. Current legislation is simply unable to address market needs.

2. POLICY AND REGULATORY ISSUES

For numerous reasons the communications industry, which includes media, is regarded as strategic. It has social, political, economic and even militaristic implications; it facilitates domestic communications and electronic business as well as international communications and services. It is clear that the way in which this important sector

is regulated will be critical not only to stakeholders within South Africa but internationally. One of the first areas which anyone looking into the telecommunications market in South Africa will research is the sector policy — what are the government's goals and objectives, what are the key industry issues and how will the government facilitate progress?

2.1 What is policy?

Policy is generally a tool that enables the drafting of legislation in a particular environment. The success of a policy can be measured by its ability to sum up the status quo, describe challenges facing the industry that it seeks to regulate, and set forth the government's approach to the sector over a period into the future. While policy tends to refer to political, social and economic goals, legislation is intended to give effect to policy objectives and goals through the creation of a framework of rules and regulations and licence conditions set out in detail the practical method of implementation and enforcement of legislation by all stakeholders.

Policy in emerging telecommunications markets typically begins with the access principle, namely that each member of society has a right to access to communications at affordable prices. Policy in the context of convergence has been a difficult thing to grasp, not only in South Africa but elsewhere, as the international community struggle to find a solution for the so-called 'digital divide'. This divide signifies the gap between people without access to communications networks sometimes even for basic purposes; and those who transact as a matter of course across integrated broadband networks and access through them, a multitude of sophisticated services and business practices.

William H. Melody believes that telecommunications policy objectives have not changed significantly in recent years but that changing circumstances have shown that old models to implement these objectives were not functioning well and need updating. He also reflects that the direction and priorities of particular regulatory models might differ according to circumstances in different countries, particularly between developing and developed countries[6].

South Africa has few models to follow in the development of communications worldwide. This chapter will deal elsewhere with progress made in other countries, but it is important to realize that a policy solution is unique to circumstances which exist at the point when policy is being formulated and applied, and there is no one 'right' approach. An important factor influencing policy will be the stage of development reached.

In South Africa, technological developments are significant but hampered presently by the cost of both research and of manufacturing; slower than expected market take-up; and restricted access to communications networks, particularly in rural areas. The benefits of convergence are likely to have a positive effect on cost in the longer term, as users are able to take up services across a broader range of platforms and make use increasingly of cheaper internet-based technologies. The challenge therefore for government, is how to formulate a policy that enables the establishment of affordable communications networks and multiple services for the whole of the population. Legislation and policy typically lag behind the

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[6] Melody, W.H.. Chapter 2, Policy Objectives and Models of Regulation, in Telecoms Reform: Principles, Policies and Regulatory Practises. Available: http://www.LIRNE.net.

advances of technology and South Africa is no different in this regard.

Furthermore, policy must try to balance the need to keep up with international trends and development to ensure South Africa remains competitive on the global market and invites participation in local industry, whilst addressing the domestic deficiencies of a less developed country. Our domestic goals may require increased funding, human and technological resource, and flexible regulation to ensure steady growth. These priorities may be at odds with the WTO requirements of 'most favoured nation' treatment for example[7].

2.2 The South African policy landscape

The broadcasting and telecommunications industries have undergone significant changes in the past ten years in South Africa. This is evident in the various pieces of legislation that have been enacted. These changes, both legal and in the marketplace, have been in line with South Africa's own political and social transformation as well as its attempt to keep up to speed with the developments in the global communications market. Some of the changes have resulted in anomalies, notably in that the protection that is afforded to the independence of the broadcasting sector in the Constitution is not afforded in the same way to telecommunications as we know it.

Amongst the factors that precipitated change in the last ten years, was the recognition that access to telecommunication services was limited for most South Africans, specifically historically disadvantaged individuals and groups. Prior to and during the early 1990s, South Africa had only 9.8 lines for every 100 persons as well as highly skewed telecommunications penetration rates[8]. One of the Telecommunications Act's primary objectives was to address the shortfall by increasing affordable access to communications.[9]

The sector has dramatically transformed over the last decade. Telkom had control over the provision of telecommunications services in South Africa as a state-owned monopoly and determined policy and licensing procedure in South Africa. In 1994, South Africa ushered in a new political dispensation that resulted in a new approach to this sector as the post-apartheid government began to focus on competition and access. An independent regulator was created which now represents the converged market-place; two mobile cellular operators have been licensed; Telkom has now been partially privatised and an initial public offering in Telkom in early 2002 implemented; Cell C (Pty) Limited, the third cellular operator, shows good signs of growth; the value added network services market is competitive; Sentech has been licensed to operate as a carrier of carriers and a multimedia services provider; and a competitor to Telkom, the SNO, has been formed, although it is not yet licensed. Icasa is also proceeding with the licensing of up to 10 'under serviced area' operators. It is completely understandable that policy would have a hard time keeping up!

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[7] WTO General Agreement on Trade in Services. The Annex on Telecommunications requires countries to treat one another on a non-discriminatory basis ie on 'terms and conditions no less favourable than those accorded to any other user of like public telecommunications transport networks or services under like circumstances'. This 'most favoured nation' or MFN treatment may be difficult in certain cases while South Africa creates parity within the country.
[8] The Green Paper on Telecommunications Policy, Notice 594 of 1995, GG No. 16526.
[9] The Telecommunications Act No 103 of 1996 as amended.

2.3 Possible policy objectives

If one were to imagine some relevant sector objectives in present circumstances, they could include:

- Ensuring that South Africa becomes and remains competitive on the international market;
- Ensuring greater choice of service and enhanced service quality for consumers;
- Enabling affordable access to ensure greater penetration.

Major objectives of the current broadcasting policy and legislation are likely to be[10]:

- The promotion of diversity in services and content by regulating equivalent services in an equivalent way, without requiring use of a particular technology;
- The promotion of diverse forms of ownership, particularly by historically disadvantaged individuals;
- The provision, development and protection of a national and regional identity, culture and character, particularly through local content development and independent production; and
- If necessary, restricting cross-media ownership and control, and foreign ownership in order to promote these objectives.

Against this background, three important areas can be identified for review in future policy:

- Access to the market and to elements of it by users and industry participants control of entry into the market or licensing in order to conserve the theory of scarce resources such as land access rights, spectrum and numbers will be necessary, but not control by virtue of the technology used. Control of pricing might be necessary to ensure that the terms access by consumers and competitors alike are affordable and reasonable;

- Upholding public interest concerns in relation to content — it will be important, particularly where children are concerned, that content is not offensive or obscene but equally cultural, or national, or local or regional perspectives must be protected; and

- Addressing ownership or control of the tools of information within South Africa — to ensure that our culture and heritage are promoted and protected, and that historically disadvantaged communities also share in this important sector it will become important to regulate who may become an owner or stakeholder.

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[10] Gillwald, A. National Convergence Policy in a Globalised World: Preparing South Africa for Next Generation Networks, Services and Regulation.

In general, the access to and form of content will become more important in the converged environment.

These objectives must be translated through the implementation of that policy, by creating concrete measurements and enforcing them through regulation. Policy goals cannot therefore be too impossible or too impractical to implement and to monitor. Because the converged marketplace is new but contains so many elements of what is known and what has been subject to particular models of regulation for many years, it is an easy mistake to apply old rules even where policy goals may differ.

Policy makers must be advised by professional industry analysts. It is internationally accepted that drafting policy should be a separate function of the Ministry on behalf of government, and should be independent of monitoring and enforcement functions and independent of operations.

2.4 Policy and legislation to date

Herein is a brief description of the current legislative tools in operation.[11] The government has recently (in 2002) introduced related legislation to try to keep pace with the changes within this market. These measures include the Electronic Communications and Transactions Act[12] ('ECT Act') to facilitate e-commerce and to create the necessary legal environment to enable online transacting; and the Interception Act of Communications and Provision of Communication-Related Information Act[13] ('the Interception Act'), which aims to curtail the use of communications networks in criminal activities.

In the late 1990's, the government's policy was to introduce managed liberalization — a process of introducing gradual competition and encouraging foreign direct investment. The Telecommunications Act began this process but it is not complete. As a minimum, any new legislation should ensure that the sector is stable, and that the regulatory framework is certain, to reassure investors that the liberalization process continues, albeit in a changed landscape.

Most recently, the Department of Communications published a draft Convergence Bill ('the Bill') on the 3rd December 2003. Far from clarifying the government's attitude to convergence, however, the Bill was not able even to consolidate eleven existing pieces of legislation into a co-ordinated whole. To match the achievements of industry in converging technologies and services, the aim of any drafting exercise should be to simplify and consolidate the position and enable the market to develop in a flexible manner.

Policy also has to take care not to create distortions in the market by emphasizing certain objectives over others to achieve short-term goals. Treatment of key issues like access and penetration, pricing, accounting separation, licensing and regulation of scarce resources needs to take account of international trends as well and these trends anticipate planning for the longer term.

The current policy framework in South Africa does not provide a flexible approach for the longer term, for example it has not recognized that the distinction between voice and data, which is maintained in legislation, is artificial and restricts

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[11] See Chapter 1 herein for a more detailed overview of policy and legislative instruments.
[12] The Electronic Communications and Transactions Act No 25 of 2002.
[13] Regulation of the Interception of Communications and Provision of Communication-Related Information Act, 70 of 2002.

growth in the sector by limiting the use of technology for no clear reason other than to segment markets for purposes of separating regulatory responsibility. In other geographic markets, the trend is to acknowledge that the blurring of technology means that legal frameworks should be reworked to enable growth. Without clear policy direction on this important issue the regulator cannot take steps to remove an obstacle to market innovation.

The other area in which policy must take a firm hand is the separation of functions and powers between the Minister and the regulator. It is frequently the case that policy is 're-made' as policy goals change to suit circumstances. Political interference operates to frustrate certainty and growth. In an environment where policy goals are unclear or not translated into practical rules which are capable of enforcement and which are effectively administered, policy can have no real role to play.

The Ministry is the place of safekeeping for policy whereas the regulator, Icasa should be responsible for implementing policy and ensuring that operators are accountable to the objectives enshrined in it. Currently our legislation creates an overlap between the roles of these two bodies in critical areas, resulting in conflict within the organizational structures and a tendency for industry players to approach the functionary whom they believe will best support their cause. The Minister is still a stakeholder as representative shareholder in Telkom for the government and further conflicts must therefore arise when the Minister has responsibility for policy formulation and implementation as well.

It will be advantageous to the sector to ensure that policy is clear before finalizing the Bill. With clear policy objectives, it is hoped that the Bill will be thoroughly debated and carefully articulated so that when it is finalized, South Africa has a Convergence Act that is technology-neutral; clear and understandable; easily implementable by Icasa; allows for fair competition and effective control of monopoly players; and most importantly, ensures maximum exploitation of the benefits of convergence so that there is maximum universal access.

3. CURRENT LEGISLATIVE FRAMEWORK AFFECTED BY CONVERGENCE

The Information, Communications and Technology ('ICT') industries in South Africa have in the last ten years been governed by numerous and disparate pieces of legislation. This legislation is industry-specific and ignores the strong trend of combining the three. The need to create a single consolidated piece of legislation was identified as far back as a decade ago, during the negotiations that led to the interim Constitution. Some delay was experienced while the Constitution[14] was negotiated, drafted and tabled before Parliament.

Further attempts to address convergence were reflected in the White Paper policy processes for both telecommunications and broadcasting in the mid 1990s. The closest that we have come to catering for convergence is the Independent Communications Authority of South Africa Act[15] ('the Icasa Act'), which provides for the merger of the former regulator of telecommunications, the South African Telecommunications Regulatory Authority of South Africa ('Satra'), and the Independent Broadcasting Authority (IBA), which was tasked with regulating all

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[14] Constitution of the Republic of South Africa Act No 108 of 1996.
[15] The Independent Communications Authority of South Africa Act No 13 of 2000.

broadcasting matters, in 2000. The merger created the Independent Communications Authority of South Africa ('Icasa'), which has authority to regulate both telecommunications and broadcasting. Such a far-seeing step has of itself, created some problems for an industry looking for strong guidance as it re-shapes itself. Icasa has even been criticized by industry players as being more of a divergent regulatory authority than a converged one.

Icasa is now entrusted with the regulation of the ICT industries. All these industries are however still governed by separate pieces of legislation. Telecommunications and broadcasting in particular, are subject to a high degree of regulation that is specific to each. The existing legislation does not take cognisance of convergence as telecommunications and broadcasting are clearly defined in accordance with the type of signal that they deliver — telecommunications is defined in terms of sound or voice while broadcasting refers mainly to pictures.

3.1 Telecommunications

There are several pieces of legislation that regulate communications in South Africa. In addition to the Telecommunications Act[16], the Constitution, the Icasa Act mentioned above, the ECT Act, the Interception Act and the Competition Act[17] all apply in various ways to the telecommunications sector. In this part is a summary of these sources of rules applicable to the sector.[18]

3.1.1 The Constitution

Section 2 of the Constitution provides for its supremacy within the democratic Republic of South Africa, and the entire information, communications and technology industry, is therefore subject to the Constitution. Section 14(d) and Section 16(1) provide for personal privacy, including our right not to have our communications infringed, as well as the protection of our right of freedom of expression and the freedom to receive and impart ideas. The latter can be interpreted to include the means of communications.

3.1.2 The Icasa Act

The Icasa Act provides for the formation of Icasa, which is entrusted, with regulating the telecommunications and broadcasting industries. Icasa is funded through a budget approved by the Department of Communications.

3.1.3 The ECT Act

The object of the ECT Act is to enable and facilitate electronic communications and transactions in the public interest. It also allows for the admissibility of electronic messages in legal proceedings and provides for consumer protection in electronic transactions.

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[16] The Telecommunications Act No 103 of 1996 as amended.
[17] The Competition Act No 89 of 1998.
[18] Other legislation that affects the market includes the Sentech Act No 63 of 1996, Eskom Conversion Act No 13 of 2001, Post Office Act No 44 of 1958, State Information Technology Agency Act No 88 of 1998 and Legal Succession to the South African Transport Services Act No 9 of 1989.

3.1.4 The Interception Act

The Interception Act is intended to regulate the interception of communications, the monitoring of signals and radio frequency spectrum and the provision of communication-related information. When it comes into force, the Interception Act will repeal the Interception and Monitoring Prohibition Act No 127 of 1992.

3.1.5 The Competition Act

The Competition Act establishes the Competition Commission, whose responsibility it is to investigate anti-competitive practices, any abuse of a dominant position, and mergers. The Competition Tribunal is responsible for adjudicating in these matters. The Competition Commission has signed a memorandum of understanding with Icasa in which the two parties agree how they will interact with one another in respect of the regulation of the telecommunications and broadcasting industries.

3.1.6 The Telecommunications Act

This Act sets out the rules for the telecommunications industry and makes provision for Icasa to make further rules that are consistent with the Act. The Minister of Communications is also empowered in terms of the Telecommunications Act to give policy directions to Icasa, which directions must also be consistent with the Telecommunications Act.

Section 40 of the Act currently restricts value added network services ('Vans') licensees from allowing voice to be carried by their customers, thereby creating an artificial regulatory barrier to the convergence of voice and data.

3.2 Broadcasting

Broadcasting is also regulated by numerous pieces of legislation, notably the Independent Broadcasting Authority Act[19] ('the IBA Act') and the Broadcasting Act[20].

3.2.1 The IBA Act

The IBA Act establishes the regulatory framework for broadcasting activities in South Africa, and it sets out rules limiting ownership and control of broadcasting licensees and control over more than one licence; restrictions on cross-media control of broadcasting licensees and newspapers; rules regarding local television content; independent television production and South African music.

Icasa has taken over the functions of the IBA including making regulations, exercising control over the use of frequency spectrum, licensing parties to provide broadcasting services and adjudicating complaints regarding broadcasting and broadcasts.

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[19] The Broadcasting Authority Act No 153 of 1993.
[20] The Broadcasting Act, 4 of 1999.

3.2.2 The Broadcasting Act

This Act amends the IBA Act in respect of the licensing regime for broadcasters and deals with content.

These pieces of legislation address their various sectors as distinct silos of activity. In other words, the current legal structure has emphasized vertically integrated network operations that are regulated along distinct technological lines. In maintaining these distinctions, current legislation and policies will not be able to address or fulfil convergence needs. This situation is, however, not unusual. In Britain, although Ofcom (the Office of Communications) has recently begun to regulate in the combined environment of telecommunications and broadcasting, separate legislation exists for each industry. This is changing however, to reflect the requirements of the European Community, which is encouraging a move toward less regulation generally, and similar modes of regulation for industries regardless of technology used.

4. POSSIBLE OUTCOMES AND/OR CONSEQUENCES OF CONVERGENCE

Network convergence, which is a result of technological convergence, has enabled the use of networks that were previously dedicated to the transmission of specific types of data to now transport any type of information. Telecommunications networks can now transport broadcast services and broadcasting networks can provide telecommunications services, including voice telephony. Electricity companies are even able to install fibre-optic lines within their cables that can then be used to provide long distance, high-speed data and video services.

The convergence of technologies and networks has already led to the convergence of services and the introduction of 'hybrid' services such as pay-per-view and video-on-demand services. Home banking and home shopping are also possible over the Internet or even over the airwaves through a television. Sophisticated consumer devices such as VoIP modems, set-top boxes and navigation software are available to the general public to enable them to modify their services to suit their lifestyles. The scenarios outlined above are becoming reality.

Convergence is therefore also bringing about a change in the traditional way of doing things. It is eroding the traditional economies of scale and scope, demanding a restructuring of the various industries as well as their business strategies. Business activities have been categorized at three main levels within the ICT industries, namely:

- content and services;
- transport and software; and
- infrastructure and hardware.

There are now many opportunities for integration at a horizontal level between these different industries in addition to the more traditional vertical integration between the different levels.

Vertical integration refers to integration across two or all of the horizontal layers and can occur within all industries. Horizontal integration refers to integration across two or more of various industries. 'Integration' means a change in the market structures.[21]

We have seen how telecommunications operators and equipment vendors are rushing to add IP network products and services to their portfolios, whilst data communications vendors are busily acquiring voice technologies and expertise. This diversification of activities is also made possible by the liberalization of markets. Companies are merging or forming various types of associations, leading to a restructuring of these markets. Content and infrastructure providers are coming together to offer the skills or resources to provide innovative services. The ill-fated merger between Time Warner and AOL was one such example of integration. Less aggressive models might include alliances between cellular network operators and broadcasters to permit sporting highlights to be shown over mobile phones.

The landscape of communications can be expected to develop and change further in the following ways:

- A consumer or user can choose services that they may want to receive instead of taking up standardized services aimed at mass markets;
- Customer databases are likely to gain commercial value as they can be used for more purposed marketing to meet demand;
- The customisation of products and services may in turn lead to further integration as service providers and network operators enter into alliances and associations and its possible that this consolidation will squeeze competitor products on price; and
- Digital technology enables cross-border transactions, so the implications of convergence are greater than national borders.

These trends have implications for security and privacy of communications in South Africa and internationally. They may also require attention under the Competition Act, and the relevance and efficacy of other pieces of legislation that have been mentioned in part 4 above must also be considered.

Convergence may be limited by a number of other factors, some of which have been identified as follows:

- Incumbent service providers are likely to have an economic advantage over smaller service providers and new entrants which may lead to abuse of their positions in the market;
- Demand may vary depending on demographics and the stage of development of a particular market, and markets with a high demand may therefore develop more quickly than others to meet that demand;
- The availability of and ability to access infrastructure to complement the delivery of services may initially be under the control of dominant providers in each sector.

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[21] Henten, A., Falch, M and Tadayoni, R (2002) Some implications of ICT and Media Convergence, LIRNE.net, Centre for Tele-information (CTI), Technical University of Denmark, World Dialogue on Regulation. Available: http://www.regulateonline.net.

The role that policy and legislation must play in this new environment should not be under-estimated.

5. INTERNATIONAL MODELS

In developing an appropriate policy and regulatory framework, South Africa as a developing country may be able to learn from experience in other countries - the key lesson being that no one model is necessarily the 'right' model — each country will have its own particular concerns. Malaysia, South Korea and Australia have already developed a whole new legal regime to govern converged networks and services.

Malaysia is said to offer perhaps the best example of converged legal regulation. It has effectively changed its regulatory and licensing regime from a 'vertical' system to that of a 'horizontal' system that is service and technology-neutral. In a vertical regime, a licence is needed for every type of recognized service provided, for instance separate licences are issued for providing each of broadcasting, telecommunications, and value-added network (or internet connection) services. The horizontal model adopted by Malaysia provides for four different licence categories that correspond with four identified markets, namely network, connectivity, applications and content. All licensing arrangements are governed by one regulatory body. It is, however, important to note that only services with significant economic and social importance are licensed and so delivering content over the Internet is not a licensed activity. This removes a regulatory burden and also ensures that market players with an economic advantage or who may be dominant in the converged marketplace, are subject to proportionate controls.

South Africa can also learn a great deal from the South Korean and Australian experiences where the authorities have also departed from the traditional licensing system, however not in as radical a manner as Malaysia. While these countries serve as good models for convergence governance, South Africa will have to design its own unique model to satisfy its internal requirements whilst ensuring at the same time that it is aligned with international trends and expectations.

Conclusion

Historically therefore, legislation was enacted to be technology-specific. Convergence, however, allows for the provision of multiple services over different networks. There is a need for policy-makers to respond to the demands of convergence and to also ensure that regulations and policies enhance the development of cross-sector applications, services and businesses; protect the integrity and security of communications; and are able to monitor content.

South Africa's regulatory and policy framework has been characterized by a move in the last ten years from a monopoly, which was in effect self-regulated, to independent regulation in a largely liberalized environment. There is, however, a need for a policy review to ensure that legislation keeps pace with technological advances and consumer interests.

As a global player, South Africa's success in the telecommunications arena will be measured by its ability to develop knowledge and to disseminate new applications and services in a secure, consistent and transparent way. To achieve these goals, South Africa requires policies that position it not only as an innovative player and an active participant in the global economy but also as a country whose national priorities are balanced against public interest concerns, technological developments and international norms. There is a need for more integrated, enabling and innovative approaches to policy and regulation if this vision can be realized.