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CONVERGENCE OF INFORMATION AND COMMUNICATION TECHNOLOGIES WITH A REGULATORY POINT OF VIEW: TURKISH CASE

Submitted by: Aysel Deniz CAYCI

Project Supervisor: Prof. David MELLOR OBE

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ABBREVIATIONS

3G	Third Generation
ACMA	Australian Communication and Media Authority
ADSL	Asymmetric Digital Subscriber Line
BSC	Broadcasting Standards Commission
EU	European Union
DSL	Digital Subscriber Line
GSM	Global System for Mobile Communications
ICT	Information Communication Technologies
ICTA	Information and Communications Technology Authority
IP	Internet Protocol
IPTV	Internet Protocol Television
IT	Information Technologies
ITC	Independent Television Commission
ITU	International Telecommunications Union
LLU	Local Loop Unbundling
OECD	Organization for Economic Cooperation and Development
OFCOM	Office of Communications
PC	Personal Computer
PDA	Personal Digital Assistant
PIAP	Public Internet Access Point
RTSC	Radio and Television Supreme Council
RUO	Reference Unbundling Offer
QoS	Quality of service
SMAG	Spectrum Management Advisory Group
SPO	State Planning Organisation
STB	Set Top Box
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TCA	Turkish Competition Authority
TGNA	Turkish Grand National Assembly
TRT	Turkish Radio Television Corporation
TUBISAD	Turkish Informatics Industry Association
TURKSTAT	Turkish Statistical Institute
TV	Television
UMTS	Universal Mobile Telecommunications System
UN	United Nations
VoIP	Voice over Internet Protocol
WiMAX	Worldwide Interoperability for Microwave Access

1. Introduction

One of the most important driving forces of economic and social development, information and communication technologies (ICTs) have affected every part of human life in the last two decades. Particularly, with the continuous developments of technology and increasing demands of customers urged telecommunications, media and broadcasting markets to converge. In terms of telecommunications, media and broadcasting markets, convergence means the blurring boundaries between these markets. As argued by Hacklin et al. (2009, p.3) [1], convergence between technologies can be regarded as an increasingly emerging trend, and has received particular attention in the coming-together of previously distinct products and solutions within the information and communication technologies (ICT) industry.

Although the convergence makes easy to provide new and innovative services and products to the customers, it also makes it harder to regulate the markets for regulators. Since, telecommunications, media and broadcasting sectors used to have different traditional regulatory models, the concept of convergence within these sectors urged to emerge a new concept of regulation covering all of the sectors. Bijl and Peitz (2008, p.2)[2] argue that the emergence of voice telephony based on the Internet Protocol (VoIP) affected the telecommunications markets. Particularly, based on the developments of IP applications, the authors also argue that "the new concept of convergence may ultimately lead to a decoupling of services and platforms: any service can be offered over any network. This is a drastic change for the telecommunications sector: incumbents have to adapt to the new reality, and they are

[1] Hacklin, F., et al., (2009), Coevolutionary cycles of convergence: An extrapolation from the ICT industry, Technological Forecasting & Social Change, 76(6), [Online].
[2] Bijl, P., Peitz, M., (2008), Innovation, convergence and the role of regulation in the Netherlands and beyond, Telecommunications Policy, 32(11), [Online].

challenged by newcomers from unexpected directions, sometimes with very innovative business models."

Convergence has a direct effect on the service characteristics and stimulating the offer of new services. Since it became harder for regulators to make a classification of the new services to determine the regulation areas, traditional regulation models are no more suitable for the converged markets. Since, convergence has an exclusive importance on social and economic development, some countries have reviewed their regulatory policies in line with the developments in the markets and some countries are currently studying on it. To utilize the huge potential of telecommunications, media and broadcasting service on social and economic developments, new regulatory models should have to be put forward by countries to promote developments within the concept of convergence.

Recent trends in convergence of ICTs have come up with some regulatory challenges. For this reason, restructuring of current sector specific regulators has been debated throughout the world including Turkey. In this study, it is aimed to analyze the need for restructuring of sector specific regulator with a comparison of different countries and propose a plan for restructuring the regulators in Turkey.

In this context, Chapter 2 tries to detail the concept of convergence by reviewing the related literature. The reasons for convergence in telecommunications and broadcasting sectors, the importance of convergence and the main challenges will be analyzed.

Chapter 3 analyses the convergence with a regulatory point of view. In this context, the importance of regulation and regulatory bodies in telecommunications, and broadcasting sectors will be assessed. It will also try to go further detailing of convergence in terms of regulation, new regulatory approaches and regulatory points.

Chapter 4 details the approaches of international organizations in accordance with convergence. In this chapter, International Telecommunications Union (ITU), Organization for Economic Co-operation and Development (OECD) and European Union's (EU) approaches on convergence will be analyzed.

Chapter 5 attempts to analyze good country examples that have successfully restructured their regulatory authorities in line with the developments in the area of convergence. Chapter analyses the United Kingdom with Office of Communications (Ofcom) and Australia with Australian Communications and Media Authority (ACMA).

Chapter 6 analyses the current market structures and regulatory regimes in Turkey. It details the current situation of the telecommunications and broadcasting markets in Turkey. It also examines the new and innovative products emerged from the development of convergence in the country.

Chapter 7 analyses the regulatory bodies in Turkey dealing with regulating Information and communication technologies markets. Chapter also details the recommendations and makes proposals for restructuring the regulatory bodies in

Turkey by assessing the current relations between regulators. And finally, Chapter 8 ends with conclusions.

2. Convergence

2.1. The Concept of Convergence

The concept of convergence is not a recent phenomenon. It goes back to the times of the first computers developed, then the telecommunications and information technologies sectors have begun to merge which increased the speed of convergence (Bennet and Adamson: 1995)[3]. On the other hand, in the 21st century, convergence has started to be a hot topic in the communications industry. As it is argued by Saxtoft (2008: p. 101), "convergence is expected to foster a multimedia environment where voice, audio, video, and data can be seamlessly exchanged between users".[4]

In literature, convergence does not have a clear and globally accepted definition (Lind, 2004; InfoDev, 2000; Shin, 2005). It has been argued by authors and international organisations with different dimensions such as technologic convergence, service convergence, network convergence, market convergence and the convergence of regulatory authorities (Nyström and Hacklin, 2005)[5].

European Commission's Green Paper on the Convergence of the Telecommunications, Media and Information Technology Sectors, and the

[3] Bennet, P., Adamson, M., (1995), Convergence in Europe - The new information infrastructure, Financial Times Management Reports, Pearson Professionals.

[4] Saxtoft, C., (2008), Convergence User Expectations, Communications Enablers and Business Opportunities, p.101, John Wiley&Sons Ltd., England.

[5] Nyström, A., G., Hacklin, F., 2005, Operator Value-Creation Through Technological Convergence: The Case Of VoIP, 16th European Regional International Telecommunications Society (ITS) Conference, Porto, Portugal.

Implications for Regulation constitutes one of the early definitions of convergence. According to the European Commission the definition of convergence is as below:

- the ability of different network platforms to carry essentially similar kinds of services, or
- the coming together of consumer devices such as the telephone, television and personal computer.[6]

On the other hand Hanrahan[7] (2007) makes the definition of convergence as below in terms of technology:

"Convergence identifies a general pattern in the evolutionary process, namely the tendency to bring entities together, for example the coming together of classical telecommunications, the Internet, information technology and broadcasting, the ability to offer multiple services on a single network or the ability to offer the same service via more than one medium".

Since it is too difficult to make a single definition for convergence, Saxtoft[8] (2008) categorize it as below:

- Network Convergence
- Services Delivery Convergence
- Services Convergence
- Terminal Convergence
- Contents Convergence

[6] Green Paper On The Convergence Of The Telecommunications, Media And Information Technology Sectors, And The Implications For Regulation

[7] Hanrahan, H., (2007), Network Convergence - Services, Applications, Transport, and Operations Support, John Wiley&Sons, Ltd.

[8] Saxtoft, C., (2008), Convergence User Expectations, Communications Enablers and Business Opportunities, p.18, John Wiley&Sons Ltd., England.

- User Culture Convergence
- Business Convergence
- Digital Convergence.

Similarly, Tarjanne (2000, p.40)[9] states that "convergence has been argued to take place on different levels: on the **technology, industry and service levels**: *on the technology level*, thanks to digitalization, different networks and devices can perform similar functions. Technology convergence enables traditionally separate sectors to enter into each other's domains. Digitalization allows satellite, wireless, microwave, cable TV networks and telephone lines to be interconnected into one overall system. This will make combined services possible".

Furthermore, as it is stated before According to the Marsden and Verhulst (1999, p.22)[10], with the emergence of convergence, the distinct lines between telecommunications, information technologies and broadcasting sectors started to blur and disappear. Authors also propose that "Digitalisation is claimed to be at the heart of developments that are not merely technological, but also economic and social. Hence, the assumption that convergence is the crux of the information society".

On the other hand, one of the successful implementers of converged regulators, Office of Communications (Ofcom) in the UK, comments on the definition of convergence. According to the Ofcom, convergence is defined as a facilitation of analogue

[9] Tarjanne, P. 2000 Convergence and the Implications for Users, Market Players and Regulators, in Bohlin, E., Brodin, K., Lundgren, A. and Thorngren B., Convergence in Communications and Beyond, Amsterdam, Elsevier.
[10] Marsden, C., Verhulst, S., (1999), Convergence in European Digital TV Regulation, Blackstone Press Limited.

technologies with digital technologies. Accordingly Ofcom also classifies three key areas affected by convergence including:

• **Content** – offering an opportunity for content producers to create use mixed-media formats (e.g. TV/interactive/web) and new ways to distribute existing content;

• **Networks** – upgrades that widen the capabilities and capacity of historically separate and single-purpose distribution infrastructure; and

• **Devices** – the creation of equipment that offers functionality typically delivered on stand-alone devices[11].

On the other hand World Bank (2009, p.18) [12] evaluates convergence as a process that results from service providers adopting new technologies and business models allowed by technology and driven by demand. The factors pushing service providers toward converged business models are increasingly common worldwide, including in developing countries.

2.2. The Reasons for Convergence

Although there are many reasons in the literature for the reasons of convergence, it is generally accepted that the main driving force of convergence is the digitalisation. Similarly, Ayish (2003, p.78) [13] states that "digitalisation is the major driver, but far from being the only factor, which can make convergence happen". On the other hand

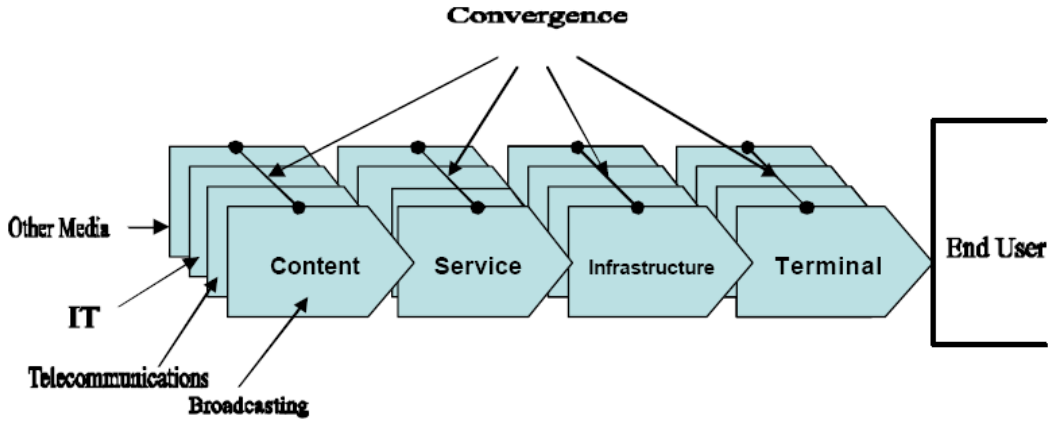
[11] http://www.ofcom.org.uk/research/cm/cmr07/cm07_print/cm07_1.pdf
[12] World Bank, 2009, Information and Communication for Development, p.18
[13] Ayish M. 2003, 'Media Convergence in the United Arab Emirates: A Survey of Evolving Patterns' Convergence: The International Journal of Research into New Media Technologies 9(3): 77-87.

Delgado (2000, p.22)[14] states that increasing competition compromises one of the driving forces of the convergence among the different service supplier chains in the field. Henten et al (2003)[15] proposes both digitalisation and computerisation as main technological changes that facilitate convergence.

According to Bennet and Adamson (1995, p.38) [16], developments in the information technologies industry caused substantial overlaps between media, information technologies and telecommunication companies both in their products and services. Accordingly the authors comment that "the falling cost and increasing power of computer equipment has made the use of IT dramatically more cost effective in recent years across a host of industries". Authors also state that advances in technology, supply push and demand pull constitute three main reasons why the IT, telecommunications, cable and media industries are converging. Figure 2-1 illustrates the convergence in the value chain. It reflects the different types of convergence in IT, telecommunications, broadcasting and media sectors that create new opportunities for end users.

[14] Delgado, J., 2000, Telecommunications and IT convergence: towards service evolution : 7th International Conference on Intelligence in Services and Networks, Springer.
[15] Henten, A., Samarajiva, R., Melody, W., January 2003, Designing Next Generation Telecom Regulation: ICT Convergence or Multisector Utility?, WDR Final Report 0206, Washington DC: *info*Dev, World Bank, and Lyngby, Denmark. LIRNE.NET
[16] Bennet, P., Adamson, M., (1995), Convergence in Europe - The new information infrastructure, Financial Times Management Reports, Pearson Professionals.

Figure 2-1 Convergence in the Value Chain



Source: Henten et al., 2003[17]

On the other hand, the main reason for the introduction and development of convergent services by telecommunications and broadcasting operators is that it is seen as a means to profit maximization. It is seen as a way of widening their economy of scope by diversifying into related business fields made possible by recent technological developments such as content digitization and high-speed networks. Thus telecommunications operators are focusing on delivering convergent services in order to provide higher value multimedia content, while broadcasting carriers are aiming to provide interactive services by keeping up with the customer needs and requirements, and then reflecting them in their programs[18]

[17] Henten, A., Samarajiva, R., Melody, W., (2003), Designing Next Generation Telecom Regulation: ICT Convergence or Multisector Utility?, WDR Final Report 0206, Washington DC: *info*Dev, World Bank, and Lyngby, Denmark. LIRNE.NET

[18] Shin, D. (2005), Technology convergence and regulatory challenge: a case from Korean digital media broadcasting, VOL. 7 NO. 3 2005, pp. 47-58, *Q* Emerald Group Publishing Limited, ISSN 1463-6697

2.3. Importance of Convergence

For the last ten years, convergence is accepted as a megatrend in information and communication technologies industry. Since the world goes through an information society, convergence is playing an ever greater role for the new networks, voice and data applications. The growing social and economic impacts of information and communications technologies increase the importance of convergence. According to Wild (2006) [19] "convergence has the potential to impact on all segments of society – it can shape the delivery of government services (education and health included), redefine the way businesses operate and provide individuals with as yet unimagined information and communication services".

Furthermore, convergence promotes new technologies and services better than ever. With these developments end users would have significant benefit from these new and innovative services. Ofcom's Strategy and Market Developments Department expert Foster expresses his opinion regarding the potential advantages of convergence as below:

"*Young people are already fully at ease with multi-channel digital TV, they use mobile phones for communications and for content, they are keen games players, they download music and other content to their PCs and hand held devices, and they are active participants in online communities of interest*."[20]

[19] Wild., K., 2006, The Importance of Convergence in the ICT Policy Environment, APC (Association for Progressive Communications) "Issue Papers" Series 2006

[20] Foster R., 2005, **Competition and the public interest: a more transparent approach, OECD Roundtable on Communications Convergence London June 2005.**

Accordingly, Lloyd and Mellor (2003)[21] argue that convergence makes it possible for a single communication network to provide a range of what had previously been disparate services, hence, allowing a single cable to provide a household with fixed and mobile telephone, television and Internet services. Furthermore, for the operator convergence has reduced the cost of managing networks due to the ability to integrate different networks' order entry, billing and fault reporting systems on the single IP-based network while providing greater choice, flexibility and coverage, in addition to reducing cost and complexities for the benefits of consumers.

EU (1997)[22] also mentions about the opportunities emerged from the convergence in means of new services for operators. EU gives examples of new business models as below:

- Broadcasters who are branching into new areas, such as data broadcast, Internet webcasting and telecommunications transport and services;
- Telecommunications operators who are providing audiovisual services, such as video-on-demand and cable television.
- Internet service providers who are starting to distribute audiovisual material, and Internet access providers supplying voice telephony capability.

On the other hand ITU (2003)[23] also summarizes the importance of convergence as below:

[21] Lioyd, I., Mellor, D., (2003), Telecommunications Law, LexsNexis, UK.
[22] European Commission, 1997, COM(97) 623, Green Paper on the Convergence of the Telecommunications, Media and Information Technology Sectors, and the Implications For Regulation, Towards an Information Society Approach, p. 11.
[23] ITU, 2003, Convergence Overview, Mongolia. http://www.itu.int/ITU-D/treg/Events/Seminars/2003/Mongolia/39-Convergence%201%20Overview.pdf

- Enrich one's lives, not just the economic dimension – job creations and growth, but the social and cultural ones
- Expand the overall information markets and be the catalyst for the next stage in the integration of the world economy
- Create new markets (e.g., Internet for access, content, and backbone infrastructure)
- Market SMEs globally
- Increase consumer choice and cultural diversity
- Increase competition.

To summarize, as it is explained above convergence has a number of important effects on information and communication technologies sectors that create new and innovative opportunities for both network operators and end users. At the same time with a broader approach it also has substantial effects for countries in means of social and economic development.

2.4. Challenges

With the emergence of convergence in information and communication technologies sectors, a series of significant challenges came into the picture that hampers the development of convergence. Although convergence has a number of advantages, it also brings new challenges, too. According to the ITU (2002)[24] one of the most important challenges is the low level of computer literacy and internet access in some parts of the world which constitute a significant barrier on potential socio-economic

[24] ITU, 2002, Final Report, Question 10/1 Regulatory impact of the phenomenon of convergence within the telecommunications, broadcasting, information technology and content sectors, p.2,Switzerland.

effects of convergence. ITU also examines technical barriers of convergence in terms of the present shortage of capacity in the delivery of telecommunication and broadcast services. The report stresses the importance of technical challenges as below:

"It is worthwhile to consider that with the launch of digital television and radio, with the increased use of interactive technologies, and with the development of the new transmission technologies, the above mentioned limits will be completely removed. The potential for competitive delivery of services will therefore increase and consequently a strict ex-ante regulation should be avoided."

Similarly, Saxtoft (2008)[25] proposes another significant challenge related to convergence as the requirement of multidisciplinary insight to take full advantage of the new opportunities convergence brings. According to the Author, fundamentally new business models, fundamentally new user reaction patterns and fundamentally new economics landscape will make all incumbent businesses discomfort.

On the other hand Just and Latzer (2000) [26] mention about the problems that could emerge from the convergence of telecommunications, information technology and broadcasting sectors which have historically been regulated in a sector specific manner.

[25] Saxtoft, C., (2008), Convergence User Expectations, Communications Enablers and Business Opportunities, p.29, John Wiley&Sons Ltd., England

[26] Just, N., Latzer, M., (2000), EU competition policy and market power control in the mediamatics era, Telecommunications Policy, 24(5), [Online], Available at http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6VCC-40GJDCJ-4&_user=2563821&_coverDate=06%2F30%2F2000&_rdoc=1&_fmt=full&_orig=search&_cdi=5951&_sort=d&_docanchor=&view=c&_acct=C000057807&_version=1&_urlVersion=0&_userid=2563821&md5=9d474613f0d8a47a80533bcfb21e96ea#sec1 [Accessed 11 June 2009].

To maximize the benefits of convergence, it should be critically considered in mind the challenges in front of the development of convergence. The main challenges raised from the emergence of convergence are listed as below by ITU (2003)[27]:

- Increased competition;
- Convergence of not merely technologies but also policy & regulation, legislation & institutions;
- Balance between regulated open access (telecom) and free market access (IT);
- Lack of, especially local, content with own language & indigenous culture;
- Borderless & global nature requiring for interoperability & seamless services;
- Growing misuse (spam mails, harmful contents etc.) and cyber-crimes (fraud, hacking, privacy etc.); and
- Increasing uncertainty esp. in markets.

[27] ITU, 2003, Convergence Overview, Mongolia. http://www.itu.int/ITU-D/treg/Events/Seminars/2003/Mongolia/39-Convergence%201%20Overview.pdf

3. Convergence as a Regulatory Point of View

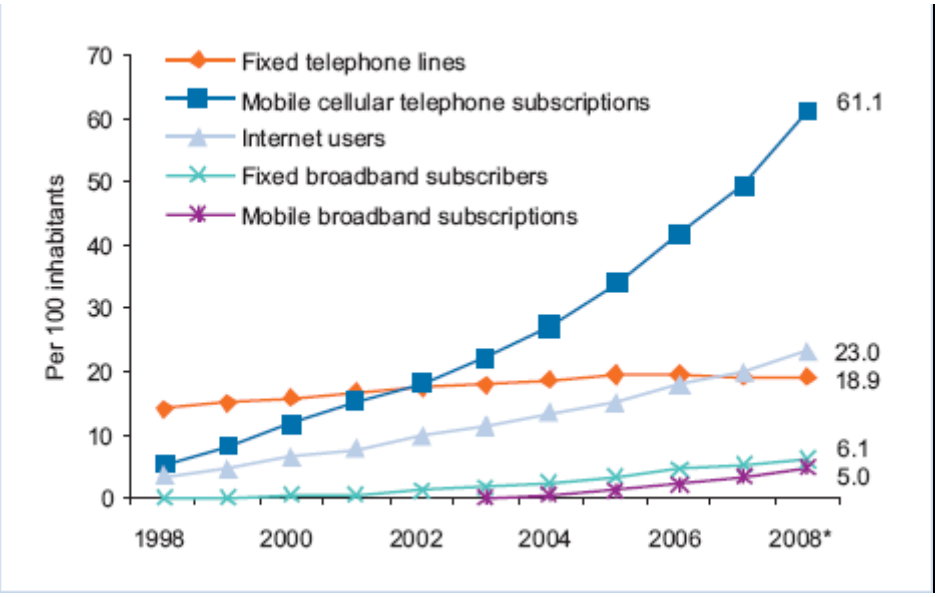
Creating new and innovative opportunities for social and economic development, ICTs have a greater role in the world. World Bank's 2009 Information and Communication for Development Report underline the importance of ICTs as below:

"*Countries that adopt policies enabling convergence among telecommunications, media, and computing services will enhance the impact of information and communication technology (ICT) on economic development. Technological innovation and market demand are driving the ICT sector toward convergence. This trend matters because convergence can lower entry barriers, allow service providers to try new business models, promote competition, reduce costs for service providers and users, and broaden the range of services and technologies available to users. At the same time, convergence can also lead to market consolidation, reduced competition, and new barriers to entry. This trend and its implications apply to countries at all development stages, from mature to low-income economies*"[28]

According to the latest ITU data, by the end of 2008, there are nearly 4 billion mobile subscribers in the world with a penetration rate of 61.1%. At the same time, according to the estimates, the number of fixed line subscriber reached 1.3 billion and the number of internet users reached 6.7 billion worldwide. Figure illustrates the global ICT developments. Figure 3-1 illustrates the global ICT developments between 1998 and 2008.

[28] World Bank, 2009, Information and Communication for Development, p.18

Figure 3-1 Global ICT Developments, 1998-2008



Source: ITU, 2009[29]

To examine the effects of convergence on information and communication technologies sectors, it is inevitable to look over the structure of the markets. According to the Saxtoft (2008)[30], basically communications industry breaks down into three parts:

- telecommunications industry part (illustrated by telephony-based services),
- an information industry part (illustrated by internet based services) and
- an entertainment part (illustrated by broadcast-based services).

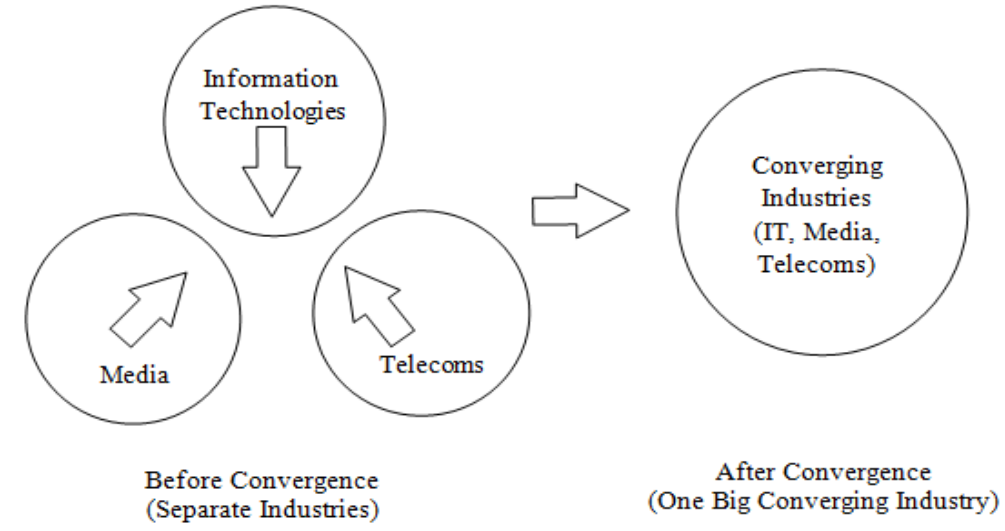
Saxtoft also proposes that communications industry mainly includes two main physical access technologies: wireless networks (GSM, WiMAX, FM radio, satellite etc) and wire line networks (Plain Old Telephone Services, DSL, various cable technologies).

[29] ITU, 2009, Measuring the Information Society, The ICT Development Index
[30] Saxtoft, C., (2008), Convergence User Expectations, Communications Enablers and Business Opportunities, p.101, John Wiley&Sons Ltd., England

Besides, telecommunications and broadcasting sectors, it is also necessary to take into account the other big industry segment which is mostly access agnostic to include the media companies and Internet Service Providers (ISPs) (Saxtoft, 2008)[31]. So, there are a huge number of market players including fixed network operators, mobile network operators, internet service providers, broadcasters and media companies etc. With the increasing effects of convergence all these market players are looking actively to increase their revenues by widening and differentiating their services and products in this competitive environment. For instance, mobile operators are providing mobile TV and entertainment services, broadcasters are broadcasting online TV or radio programmes, and fixed network operators are providing value added services. All these developments bring a number of benefits to the end users. Currently, end users have a huge series of alternatives for the services with affordable prices than before. Figure 3-2 illustrates the convergence of telecommunications, media and IT industries. While information technologies, telecommunications and media industries were separate industries before convergence, they transform a big converging industry after convergence.

[31] Saxtoft, C., (2008), Convergence User Expectations, Communications Enablers and Business Opportunities, p.35, John Wiley&Sons Ltd., England

Figure 3-2 Illustration of convergence of telecommunications, media and IT industries



Source: Lind (2004)

All this trend of convergence brings profound changes in the market place. According to the European Commission (2003)[32], "Because networks become universal transport networks, network operators who previously supported services in a single market gain the scope to play in markets that were originally served by quite separate network operators and organisational arrangements. This leads to market convergence where separate markets of the service providers, telcos and broadcasters are all merging. However this market convergence is bringing the different historical commercial models of the telco and the Internet increasingly into direct competition as each becomes capable of supporting the same services".

[32] Electronic Communications Committee (ECC), within the European Conference of Postal and Telecommunications Administrations (CEPT), October 2003, Implications for Numbering, Naming and Addressing of the Convergence of the Internet and The Telco Networks, ECC REPORT 36, Denmark

Similarly, Bennet (1995)[33] argues that the information industry is changing rapidly and regulations need to follow. It is becoming harder to logically justify different regulators covering telecoms and media industries.

Wu (2004)[34] also expresses his ideas in his article regarding to the impact of convergence on regulatory regimes. According to the author, countries should adapt their regulatory regimes with the significant effects emerging from the merging of telecommunications, Internet, and broadcasting services.

Singh and Raja (2008) [35] summarises the policy responses of governments relating to the convergence in the Table 3-1 below. Authors determine three types of policy responses. According to the table, governments that enable the appropriate policy changes in line with the developments emerged from convergence have the potential benefits of market development, accelerated growth and innovation and, increasing user benefits.

[33] Bennet, P., Adamson, M., (1995), Convergence in Europe - The new information infrastructure, Financial Times Management Reports, Pearson Professionals.
[34] Wu, I., (2004), Canada, South Korea, Netherlands and Sweden: regulatory implications of the convergence of telecommunications, broadcasting and Internet services, Telecommunications Policy 28(1), [Online]
[35] Singh, R., Raja, S., 2008, Nothing endures but change: Thinking strategically about ICT convergence, p.9, Washington, USA.

Table 3-1 Government responses to convergence around the world

Policy responses			
	Resist	Wait and watch	Enable
Perceptions	Government believes that convergence may undermine social, political, cultural, or economic objectives.	Government believes that existing policy accommodates convergence, or decides not to act.	Government believes that convergence can benefit the ICT sector and economy at large.
Actions	Government takes steps to prevent new services and providers from entering the market.	No policy changes. Issues are dealt with on a case-by-case basis.	Government updates policy, promotes industry responses, or directly invests.
Outcomes	-New services cannot develop legally, but may still defeat restrictions. -Users lose potential benefits from innovation and cost reduction. -Government faces increasing pressure to remove restrictions.	-Case-by-case decisions allow progress, but expose policy inconsistencies. -Growing uncertainty discourages investors and operators. -Government faces increasing pressure to revise policy.	-The market evolves with new services and business models. -Growth and innovation accelerate. -Users benefit from increased access and choice, and reduced prices

Source: Singh and Raja, 2008

3.1. Regulation and Regulatory Bodies

For almost two decades, regulation has been used as a key enabling factor for the development and growth of the Information and Communication Technologies in the world. Although the reasons and outcomes of the regulations in traditional telecommunications and broadcasting industries have a number of similarities, with the emergence of convergence it became harder for regulators to define burdens of the sectors and apply appropriate regulations. Hence, regulators and regulations should update themselves in line with the developments emerged from the concept of

convergence, otherwise promoting market development and competition which is one of the main reasons of the regulation can not be reached.

According to Bennet and Adamson (1995) [36], the two most important regulatory issues for digital networks providing convergence products are the separation of network services from infrastructure provision and the setting up of new regulatory frameworks to address the issue of convergence of telecommunications and broadcasting. Bennet and Adamson (1995) also stresses the importance of converged regulators as follows: "Information industries begin to converge, regulation needs to converge as well so that is fully relevant to the new industry".

On the other hand, in Trends in Telecommunications Reform Report (ITU, 2002) [37], ITU also mentions on the difficulty of determining the scopes of the telecommunications and broadcasting sectors that can result with the problems of deciding the exact legislation to allocate on these different sectors. Accordingly ITU argues that, this situation makes countries to establish a "converged" regulatory authority to deal with "converged" sectors.

3.1.1. Telecommunications Regulation

Telecommunications industry witnessed a great change for almost three decades. After the most significant reform in the telecommunications industry, governments gave up the responsibility for provision of communications services and new regulatory bodies emerged to regulate the markets to ensure a competitive

[36] Bennet, P., Adamson, M., (1995), Convergence in Europe - The new information infrastructure, Financial Times Management Reports, Pearson Professionals.p 75
[37] ITU, 2002, Trends in Telecommunication Reform 2002, Effective Regulation, Geneva.

environment for market players. Then, by establishing a suitable regulatory framework, regulators have started to resolve disputes, address anticompetitive abuses, protect consumers, and attain national goals such as universal access, industrial competitiveness or economic productivity and growth (ITU, 2002)[38]. Accordingly Mellor (2008)[39] also enumerates the objectives of regulation as below:

- Universal access to basic services
- Creation of open competitive market
- Prevention of abuse of Market Power
- Favourable climate for investment
- Transparent regulatory and licensing process
- Protection of consumer rights
- Efficient interconnection and Spectrum usage

After the big telecommunications reform, with the effect of liberalisation and competition, countries have introduced new telecommunications legislations and sector specific regulators to deal with the regulation in the market. According to the Mellor (2008) there were nearly a hundred and fifty regulators in the world as of 2007.

3.1.2. Broadcasting Regulation

While liberalisation and competition constitute the main reasons of regulation in telecommunications industry, in broadcasting sector mostly social and cultural effects and shortage of spectrum accelerated the need for regulation. 1980s and 1990s,

[38] ITU, 2002, Trends in Telecommunications Reform: Effective Regulation.
[39] Mellor, D., (2008), Legal and Regulatory Requirements for ICTs, MCM, Coventry University,UK.

broadcasting sector witnessed a significant change in terms of structure and operations by the development of cable and satellite delivery networks.

In the report named "Regulation and Competition Issues in Broadcasting in the Light of Convergence", OECD (1999a)[40] comments on the regulatory developments in the broadcasting sector with the emergence of convergence. According to the OECD broadcasting sector lies at the intersection of media and telecommunications sectors. Therefore it shares regulatory and competition issues with these sectors. Similarly, broadcasting sector also shares with other media high fixed/low marginal costs of production and issues related to the protection of intellectual property. On the other hand, important developments in the technology of broadcasting are fundamentally changing the nature of the broadcasting industry - away from analogue, one-way transmission towards digital, broad-band, interactive transmission.

Another important resource in the field of broadcasting published by OECD (1999b)[41] also analyses the main characteristics of broadcasting regulation in the OECD region as below:

- The level of regulation varies according to the delivery platform. Free to air or terrestrial broadcasters are more tightly regulated, reflecting their use of a public resource, as well as their more pervasive influence in shaping community views.
- Licenses are often required for both spectrum use and the provision of a broadcasting service.
- Licenses are used to control entry and a wide range of technical and content conditions are attached to licenses.

[40] OECD, 1999a, Regulation and Competition Issues in Broadcasting in the Light of Convergence, DAFFE/CLP(99)1, Paris , France.
[41] OECD, 1999b, Convergence and Licensing in Broadcasting, DSTI/ICCP/TISP(99)12, Paris, France.

- Public service broadcasters are funded as a contribution to plurality, programme diversity and national identity.
- While most countries have policies directed at achieving cultural objectives, including supporting domestic programming, some countries have a wider range of content obligations. These relate to diversity and quality of programming, the protection of children, upholding community standards in taste and decency and restrictions on advertising to meet national health and consumer protection objectives.
- The wide range of objectives and fragmented policies can result in regulations which are not always consistent (e.g. restrictions on the number of broadcasters reduce plurality).

3.2. The impact of Convergence on Regulation

As it stated before, convergence blurs traditional regulatory approaches of telecommunication and broadcasting sectors. Since it is difficult to determine the burdens of these sectors, sector specific regulations and policies became less efficient with these developments. Besides the social, economic, and technological developments convergence also gave rise to the emergence of a new type of regulation called converged regulators.

As it is stated by OECD (1999; 2007), convergence, by changing service boundaries, service characteristics and stimulating the offer of new services necessitate a convergence of laws, and may also necessitate the convergence of institutions or, at a minimum, mandate coordination [42]. With the effect of convergence, instead of separate "vertical" regulators for telecommunications and broadcasting sectors, there is a trend towards to different cross-sectoral institutions on a "horizontal" or

[42] OECD, 2007, Convergence and Next Generation Networks, Ministerial Background Report, DSTI/ICCP/CISP(2007)2/FINAL, p. 7

"functional" basis. In this context, several countries have adopted combined regulators with responsibilities for both telecommunications and broadcasting. There is also a trend towards an approach to regulation which regulates facilities separately from the services provided over those facilities (OECD, 1999b)[43].

Raja and Williams (2007)[44] also stresses the importance of converged regulators that help service providers and other stakeholders in efficiently approaching one agency that manages the entire sector as opposed to dealing with multiple agencies (Korea has five different ICT-related agencies, India has three) and fully converged regulators (USA, UK, Malaysia, and South Africa) or converged carriage regulators with separate content regulators (Singapore, Brazil, and Estonia). According to the authors, a converged regulator is better suited to respond to new technologies and the interdependency of different communications services.

In the report named "Information and Communication for Development" World Bank (2009) [45] also makes recommendations for governments as below:

"*Governments seeking to maximize the benefits and minimize the risks of convergence will have to think strategically about their policy responses to convergence. If policies restrict convergence from playing out in the market, do not promote competition, or fail to address the risk of monopolization, they will lead to suboptimal outcomes that reduce the development impact of ICT*".

[43] OECD, 1999a, Regulation and Competition Issues in Broadcasting in the Light of Convergence, DAFFE/CLP(99)1, Paris , France
[44] Raja W., Williams, M. (2007), Converging media/Diverging experiences, TPRC,
[45] World Bank, 2009, Information and Communication for Development, p.26

Similarly, Wild (2006)[46], addresses the importance of convergence in the ICT policy environment. According to the author, with the emergence of convergence the regulatory approach involves adapting existing regulations or developing new ones. It must be carefully managed to minimise inconsistencies among different regulatory instruments. It may be difficult to achieve because different ministries and regulators may need to be involved. The regulatory approach is facilitated when common convergence policy is articulated by the highest level of government.

Furthermore, Henten et al. (2003)[47] argues that convergence between telecom, IT and broadcasting takes place technologically. According to the Authors, promoting convergence tendencies should be the main political aim and, regulations of hitherto separate communication areas must also converge – or regulations must at least adapt to or accommodate a new convergence environment. Within this context, the authors summarize the potential advantages of a converged regulator as below:

- Since markets are converging, it is better to apply the same provisions across communication and media areas.
- In regulatory interventions, it is important to be able to build on a greater knowledge of corporations with activities in different communication and media areas and to understand the inter-relationships between areas.
- To take advantage of the economies of scope and scale, especially the economies of scope in the sense that some of the regulatory issues are the same across industry platforms, for example in the case of price cap

[46] Wild, K., (2006), The Importance Of Convergence In The Ict Policy Environment, APC "Issue Papers" Series 2006.
[47] Henten, A., Samarajiva, R., Melody, W., 2003, Designing Next Generation Telecom Regulation: ICT Convergence or Multisector Utility?, WDR Final Report 0206, Washington DC: *info*Dev, World Bank, and Lyngby, Denmark.

regulation. This is important in any country trying to economise on the costs of regulation, but can be essential for countries with insufficient suitably trained staff for the different regulatory assignments.

On the other hand, Henten et al. (2003) also argues the possible disadvantages of the converged regulators. According to the Authors, unclear regulatory principles of traditionally separately regulated sectors can be an important problem. Furthermore, more bureaucratic problems can emerge from the enlargement of regulatory authorities.

On the other side, European Union has developed a framework in which national regulatory authorities implement European-wide directives in close cooperation with Directorate General of the Commission in charge of the specific regulation and EC competition law applies in parallel. That implies close cooperation between regulators and competition authorities in the liberalised sectors (telecommunications, television, radio). [48]

As it stated above, regulatory models and national policies should also change to keep up with the technological and scientific developments in a converged environment. ITU (2003)[49] enumerates the functions of an appropriate regulation model in line with convergence as below:

- Regulation should be limited, where necessary, to achieve clearly identified objectives: i.e., not regulation for the sake of regulation

[48] SeaBright, P., Hagen, J., (2007), The Economic Regulation of Broadcasting Markets: Evolving Technology and Challenges for Policy, p.285, Cambridge University Press.
[49] ITU, 2003, Convergence Overview, Mongolia. http://www.itu.int/ITU-D/treg/Events/Seminars/2003/Mongolia/39-Convergence%201%20Overview.pdf

- The needs of users should be reflected
- Regulatory decisions should be guided by clear, transparent, and predictable frameworks
- Everyone should participate in a converged environment: e.g., scope of universal service
- Independent and effective regulators will be central to a converging environment.

4. International Approaches

In this Chapter, ITU, OECD and, EU's views regarding convergence in terms of regulation will be analysed.

4.1. ITU

Established nearly 145 years ago, International Telecommunications Agency, ITU is the leading United Nations agency for information and communication technology issues, and the global focal point for governments and the private sector in developing networks and services. ITU organises a number of meetings and published reports on convergence for two decades.

According to the ITU (2009)[50], convergence is the most powerful driving force shaping today's information and communication technology (ICT) environment. This year, in the World Telecommunications Policy Forum, ITU highlighted the importance of convergence as one of the four focal points of 2009's. ITU expresses that convergence and converged services are not just transforming the way people share information, they're also rewriting the rules in a host of policy-related areas.

The emergence of convergence and converged services have increased the overlap of telecommunication regulation with content or broadcasting regulation. Hence, the need to reconsider the regulation under the new term of convergence became one of the most important issues for international agencies to set rules for countries. ITU states that since the new technologies and services are moving faster than the bodies that regulate them, it is highly critical for countries to determine the role of regulators

[50] ITU, 2009, WTPF 2009 Background Paper

in a converged sector. As we live in the Information Age, regulators have to develop consistent and relevant regulations which do not inhibit the growth of the sector, but rather encourage technological innovation (ITU, 1999)[51].

ITU (2002)[52] draws attention that, definition of a new regulatory framework needs to take into account the possible socioeconomic effects on the different regions since there are large discrepancies within different regions of the world. Also 'the new regulation should be as flexible as possible and quickly move towards a situation where specific ex-ante regulation are applied only in case of lack of market self-regulation or complete market failure'. ITU suggests that, since there is no more spectrum scarcity, broadcast regulation can be upgraded accordingly and the sector can be ruled only by the principles of competition law –excluding data privacy and intellectual property rights protection- and the content might be reviewed on the model of free press. In addition to this, ITU states that alliances and joint ventures (horizontal integration) should be evaluated having regard to the fact that strong cooperation between different subjects is needed for the development of convergence. And also expresses that vertical integration can be considered as an opportunity to stimulate the growth of the emerging markets. ITU's view on competition rules and ex ante regulation is as follows:

"Competition rules should be adapted to the reality of this new market characterised by a heavy impact by technology and innovation. It should be particularly stressed that only the abuse of dominant position has to be avoided, and consequently the application of an asymmetrical "ex ante" regulation is in principle not justified

[51] ITU, 1999, Trends in Telecommunications Reform, Convergence and Regulation, Summary, p.6

[52] ITU, 2002, Final Report, Question 10/1 Regulatory impact of the phenomenon of convergence within the telecommunications, broadcasting, information technology and content sectors, Cenevre, İsviçre

anymore. The situations should be evaluated on a "case by case" basis, taking also into account that a dominant position in an adjacent market does not automatically imply an extension of this position in the market under evaluation by the competition authority".

4.2. OECD

To support sustainable economic growth, boost employment, maintain financial stability and, contribute to growth in world trade, OECD brings together the governments of countries committed to democracy and the market economy from around the world.

OECD has started to deal with the concept of convergence and its applications in the member states at the beginning of 1990s. According to the OECD, since there is an increasing debate about the implications of convergence for the number and roles of regulatory authorities in the communications sector, it should be critically analysed in countries before implementing new regulatory regimes in line with the developments emerged from convergence. OECD (2004)[53] published a report named "The implications of convergence for regulation of electronic Communications" in 2004. In this report, OECD proposed some critical measure for countries to take into account while establishing an appropriate converged regulator as below:

- The roles which regulators will be expected to perform.
- The need for clarity (from the point of view of both industry and regulators) as to which regulator has authority on a particular issue.

[53] OECD, 2004, The implications of convergence for regulation of electronic Communications, DSTI/ICCP/TISP(2003)5/FINAL, Paris, France.

- The value in minimising the number of regulators that an enterprise needs to deal with.
- Efficient public administration.
- Public and industry confidence in the independence and competence of the regulators.

In that report, OECD also proposes that while regulating in a converged environment, regulators should take into account the importance of competition policy and access regimes, allocation of spectrum, Universal Service Access, consumer protection, content regulation and allocation of broadcasting licences, and audio-visual services over internet.

In most of OECD countries there has traditionally been a distinction between broadcast regulators and telecommunication regulators. Although there may be a single regulatory body, there are distinct legal frameworks for broadcasting, cable television and telecommunications. In 2007, OECD published another report on convergence and next generation networks. In this report, OECD mentions the significant regulatory changes that have affected the telecommunication sector and broadcasting sector. Accordingly OECD (2007)[54] argues that "The implications of convergence on regulatory institutions has focused on whether separate bodies should merge into one, and whether there should be two regulators, one for content and one for carriage. There are a number of issues that need to be taken into account to determine the appropriate regulatory structures. It is important for industry to have coherence which is easier to achieve through a single regulator. Content and carriage are not independent and with convergence it is necessary to take into account a much

[54] OECD, 2007, Convergence and Next Generation Networks, Ministerial Background Report, DSTI/ICCP/CISP(2007)2/FINAL, p.49

broader view of the market, market entry possibilities and how these developments impact on plurality in the content market. Minimising the number of regulators that an enterprise needs to deal with is also important in order to minimise regulatory costs, and reduce the potential for uncertainty and inconsistency".

The question of whether in a converged environment there needs to be better co-ordination between spectrum allocation bodies, broadcast regulators and telecommunication regulators was addressed in the OECD study on "Telecommunication Regulatory Institutional Structures and Responsibilities". The paper concluded that in some cases co-ordination, consistency and technological neutral policies may be more easily accomplished with a single regulatory body organised to examine issues in a horizontal way. Regulatory parity among network technologies which compete against each other is also a more present challenge as networks transition to IP and markets converge.

OECD (2007)[55] has proposed a model for reform in order to meet the challenges created by convergence. The main lines of this model are summarised below:

- A horizontal approach in which carriage and content have separate regulatory arrangements should be structured. However it is important to keep in mind that decisions on some carriage matters can have an effect on cultural and social objectives and vice versa. So it may not be possible to speak of an absolute separation in regulation of content and carriage.

[55] OECD, 2007, Convergence and Next Generation Networks, Ministerial Background Report, DSTI/ICCP/CISP(2007)2/FINAL, p.49

- Access of consumers to basic services - universal service obligations- should be provided.
- Cultural diversity should be provided by production of domestic programmes and audiovisual services.
- Plurality of voice objective should be achieved by using the capacity provided by digital technologies.
- Objectives of plurality and diversity should be achieved by financially supporting public broadcasting.
- More efficient use of spectrum should be encouraged in order to achieve socially desirable outcomes.
- New regulatory framework should be structured taking into account the importance of protection of consumers.

4.3. EU

As a unique economic and political partnership between 27 democratic European countries, European Union determine policies and make recommendations for member states in the area of electronic communications.

To keep up with the emerging policy and regulatory changes, In 1997, EU published a Green Paper[56] on the Convergence of the Telecommunications, Media and Information Technology Sectors, and the Implications for Regulation (Convergence Green Paper) that constitutes the basis of EU's studies regarding convergence. As an important part of European Union's information society strategy, the issue of convergence became one of the critical points in the EU's studies for further development of the European economy. In this Green Paper, European Commission offers member states to re-examine the role and weight of regulation in a converging marketplace. Green Paper mentions about three alternatives for the structure of new kind of regulation in the converged era:

- Extend today's structures forward on an incremental basis to cover new services,
- Create a category for new services and regulate them separately from audiovisual and telecommunications services, for which the current regimes remain in force and

[56] European Commission, 1997, COM(97) 623, Green Paper on the Convergence of the Telecommunications, Media and Information Technology Sectors, and the Implications For Regulation, Towards an Information Society Approach, p. 11.

- Progressively introduce a new regulatory model to cover all services (Clements, 1998)[57]

Just and Latzer (2000)[58] summarizes the developments in the EU as follows: "As a result of the telecommunications liberalization in the EU, most member states have implemented special telecommunications laws, and installed more or less independent telecommunications regulators. Some of these laws include detailed rules for defining market dominance; others rely on their general antitrust law to determine this issue. A consequence of sector-specific regulators being responsible for the application of sector-specific competition provisions is the further fragmentation of political/regulatory responsibilities, intensifying the struggle between the regulators for control in their respective areas and undermining a coherent policy in this field".

According to the Humphreys and Simpson (2005)[59] EU assumes convergence in electronic communications sector as a strategic dimension that have a central importance for Europe's economy of having a competitive telecommunications infrastructure and markets in the emerging global information society.

[57] Clements, B., 1998, The Impact of Convergence on Regulatory Policy in Europe, Telecommunications Policy, Vol. 22, No.3, pp.197-205, Elsevier Science, UK
[58] Just, N., Latzer, M., (2000), EU competition policy and market power control in the mediamatics era, Telecommunications Policy, 24(5).
[59] Humprey, P., Simpson, S., 2005, Globalisation, convergence and European telecommunciations regulation, Edward Elgar Publishing

5. Country Examples

As it is mentioned before, a number of countries have changed their policy and regulatory frameworks in line with the developments emerged from convergence. Some countries such as Kenya and Singapore have moved toward technology-neutral licensing regimes that allow service providers the flexibility to deploy the most efficient networks. On the other hand, the Republic of Korea, Malaysia, and the United Kingdom, restructured their legal and regulatory frameworks to align with convergence and allow multiple play without restriction (World Bank, 2009) [60].

In this chapter, it is analyzed the implications of convergence in means of restructuring regulatory authorities and policies in successfully managed countries.

5.1. UK – Ofcom

United Kingdom (UK) has one of the most developed communications industries in the EU and the world. UK's communications market revenue reached £876bn in 2007 – the UK accounted for 4.4% (£39bn) as the fourth largest market behind the US, Japan & Germany. By 2007, there were 33.7 million fixed-line, 73.5 mobile subscriptions 15.6 million broadband connections in the UK (Ofcom, 2008)[61]. According to the EU's Digital Competitiveness Report (EC 2009)[62], "The United Kingdom is one of the best performing countries in Europe, with most of the benchmarking indicators above EU average. There is high connectivity, which leads on the one hand to a widespread take-up of internet services by households".

[60] World Bank, 2009, Information and Communication for Development, p.29
[61] Ofcom, 2008, Communications Market Reports, Overview
[62] European Commission, 2009, EU's Digital Competitiveness Report, Volume 2, COM 2009 (390), p. 60, Brussels

It is possible to say that convergence history in the UK has started with a White Paper published in 2000, A New Future For Communications then Communications Act of 2003, that has defined the converged regulator Office of Communications (OFCOM) with a range of duties on telecommunications, TV, Radio and spectrum issues including to ensure the optimal use of electro-magnetic spectrum and maintenance of a sufficient plurality of providers of different television and radio services (Communication Act 2003)[63]. The increasing mismatch between broadcasting and telecommunications industries urged UK government to think a converged regulator as a necessary consequence. Government thought that a clear single vision with a converged body could bring away the disputes between regulators that harm development of technologies. The other contributory factor for the reason of converged regulator was the European Commission's new set of directives (Ofcom, 2005)[64].

The example of the UK and Ofcom illustrates one of the most successful implementations of a converged regulator. Set out in the Communications Act 2003, Ofcom's main legal duties are listed as below to ensure:

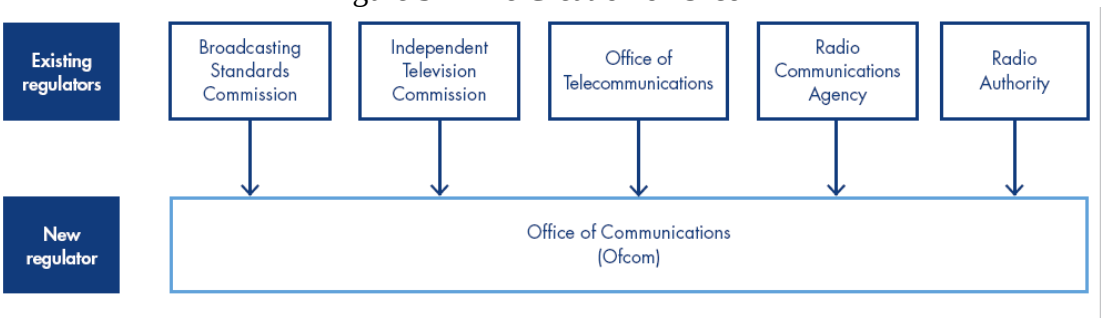
1. Ensuring the optimal use of the electro-magnetic spectrum
2. Ensuring that a wide range of electronic communications services - including high speed data services - is available throughout the UK
3. Ensuring a wide range of TV and radio services of high quality and wide appeal
4. Maintaining plurality in the provision of broadcasting

[63] http://www.opsi.gov.uk/acts/acts2003/ukpga_20030021_en_1
[64] OFCOM, 2005, A case study on public sector mergers and regulatory structures, London www.ofcom.org.uk/about/accoun/case_study/case_study.pdf

5. Applying adequate protection for audiences against offensive or harmful material
6. Applying adequate protection for audiences against unfairness or the infringement of privacy

Responsible for regulating broadcasting, telecommunications, Ofcom replaced five entities such as the Broadcasting Standards Commission (BSC), Independent Television Commission (ITC), Office of Telecommunications (Oftel), Spectrum Management Advisory Group (SMAG). Figure 5-1 illustrates the creation of Ofcom.

Figure 5-1 The Creation of Ofcom



Source: National Audit Office, 2006[65]

In broadcasting sector, Ofcom is responsible for licensing all UK commercial television and radio services including digital TV services, internet TV services, Public Teletext and community radio. Prepared by Ofcom, UK Broadcasting Code, set out rules which TV and radio broadcasters must follow. Ofcom's aim is to maintain and strengthen the UK's high quality public service broadcasting.

[65] National Audit Office, 2006, The creation of Ofcom: Wider lessons for public sector mergers of regulatory agencies, p.1, London.

In the area of telecommunications, Ofcom charges for land line, mobile-phone services and broadband are becoming more and more competitive, with new products and lower prices for businesses and customers. Ofcom aims to make sure that companies are able to compete fairly and that businesses and customers benefit from the choice of a broad range of services. Ofcom also, investigate unfair practices and take action to protect customers, in some cases taking enforcement action against companies involved in mis-selling. Furthermore, Ofcom make sure that everyone in the UK has access to a basic phone service, including people on low incomes and people who live in rural parts of the country.

In the area of radio spectrum, Ofcom are responsible for managing civilian use of the radio spectrum including releasing spectrum for new uses, allowing organisations to develop new wireless services for the benefit of citizens and consumers and, developing policies to ensure that the spectrum is used efficiently.

Furthermore, Ofcom investigate complaints about behaviour that goes against the rules of competition and make decisions on disputes between companies such as enforcing rules on telecoms providers that have a large share of the market; and setting general rules that all telecoms providers must keep to. Ofcom also work with the Office of Fair Trading to enforce competition law.

One of the best practices of converged regulator, Ofcom's structure also has important features. Since it is established by replacing five entities, the process of establishing a single body dealing with a range of duties need a critical assessment. A project team including the representatives from the five entities and consultancy work is used to

determine the main structure of Ofcom. But, then in 2005 Ofcom introduced a new structure. Table 5-1 illustrates the structure of Ofcom.

Table 5-1 Ofcom Organisation Chart

Chief Executive							
Legal, International Nations &Regions Secretariat	Content and Standards	Strategy and Market Development	Competition Policy Group	Spectrum Policy Group	Chief Operating Officer	Chief Technology Officer	Director Of Communications
• Engagement with stakeholders in Northern Ireland, Scotland, Wales and English Regions • Representing UK communications interests in Europe and internationally • Governance and compliance, including Freedom of Information and Data Protection • Provision of legal advice to Ofcom	• Compliance with Ofcom's Broadcasting codes • Monitoring broadcasters' production and PSB obligations • Promoting media literacy • Television and radio broadcast licensing	• Lead strategic thinking on the communications sector • Development of consumer policy • Market Research and Intelligence • Economic input on key strategic projects and cases	• Promoting competition and developing market policy • Economic regulation • Compliance and enforcement Investigations	• UK spectrum assignment and frequency allocations • Management and pricing policy for the radio spectrum market • Representing the UK Government on matters of international spectrum policy	• Consumer support and advice • Finance and Procurement • Human Resources • Information Systems • Organisational Development • Facilities and premises management • Field Operations – investigating unauthorised or illegal use of radio and interference cases • Non-broadcast radio licensing	• Strategic leadership on technology issues	• Engagement with the media • Corporate relations • Publications and online communications • Internal Communications

Since Ofcom is one of the early implementers of a converged regulatory authority, transferable lessons from Ofcom have a key importance for other countries. In this context Ofcom (2006)[66] has publishes a case study including transferable lesson after merging related institutions with matters of more general applicability as follows:

1. The new structure will make a signal statement about the broad approach of the organisation.

2. The structure needs to be designed without any sense of obligation to the structures of the previous bodies.

3. The final design of the organisation needs to be led by the person who will run the organisation.

4. Any work on structural design that pre-dates the arrival of the Chief Executive needs to be objective and independent; it needs to pay attention to what the new organisation will actually do, and it should not be just an aggregation of ideas from those already embedded within the legacy bodies.

5. The new structure should be informed – but not dictated – by the functions and processes within the legacy bodies.

6. Recruitment clearly should be informed by organisational structure but – where the Chief Executive has yet to be appointed – it should proceed in a generic manner

7. A start-up organisation will benefit from the creation of a strong strategic unit that does not owe its existence to the Legacy Regulators,

8. It is likely that whatever structure is chosen will need to be modified after the early period of operation. It is unlikely that a structure designed in theory, before there is any executive capacity, will stand the test of implementation,

[66] Ofcom, 2006, A case study on public sector mergers and regulatory structures, London, UK.

9. The chosen structure needs to minimise the potential for turf wars between groupings, to nullify any that might be inherited from legacy bodies, and to assist the development of an organisation-specific culture.

10. Turf wars and creative tension can be off-set by the existence of a small, representative executive committee

11. Creating a new body offers a unique opportunity to undertake a root and branch review of strategic approaches across the board.

12. The Nations and Regions strategy needs to be planned and implemented fully. National offices must not be seen as branch offices.

13. Ofcom's experience suggests that there will be a debate over how far a regulator must be (or indeed should be) involved in making policy.

14. An open annual planning process is a useful mechanism both for external scrutiny and input and as an internal management discipline.

5.2. Australia – ACMA

Australia is another good example for implementing a converged regulator in communications and media services. The Australian Communications and Media Authority (ACMA) is established 2005 by the merger of the Australian Broadcasting Authority and the Australian Communications Authority. The ACMA is responsible for the regulation of broadcasting, the internet, radio communications and, telecommunications (ACMA, 2009)[67].

With regards to the developments in the area of convergence, ACMA states that they are observing the increasing impact of convergence on ACMA's regulatory activities for communication and media services. To gain more detailed understanding of

[67] http://www.acma.gov.au/WEB/STANDARD/pc=ACMA_ORG_OVIEW

convergence, ACMA works on continuing research and analysis, particularly as it relates to technological advances, changing market structures and business models and consumer issues.

ACMA's responsibilities include:

- Regulating telecommunications and broadcasting services, internet content and datacasting services,
- Managing access to radiofrequency spectrum bands, through radiocommunications licence arrangements, and resolving competing demands for that spectrum through price based allocation methods,
- Planning availability of spectrum bands used by broadcasting services and managing access to that spectrum through broadcasting licence arrangements,
- Regulating licence conditions, codes of practice, standards, service guarantees and other safeguards,
- Promoting and facilitating industry self regulatory and co regulation solutions to emerging issues,
- Exercising powers to create legislative and other instruments, often in the form of standards or service provider rules,
- Facilitating the provision of community information to promote informed decisions about communications products and services,
- Reporting on matters relating to communications industry, including its performance,
- Representing Australia's communications interests internationally, and

- Advising the government on specific matters from time to time. (ACMA, 2008)[68]

The Authority comprises the Chair, the Deputy Chair, one full-time member and five part-time members.

Table 5-2 ACMA Organisation Chart

Chairman and Chief Executive Officer				
Inputs to Industry	**Industry Outputs**	**Strategy, Analysis and Coordination**	**Corporate service**	**Legal Services**
National Licensing and Allocations	Converging Services	Sector Analysis and Reporting	People and Information Management	Legal Practice
Spectrum Planning	Codes, Content and Education	Strategy and Coordination	Finance and Facilities	
Pricing and Policy	Industry Performance	Digital Television Taskforce		
Regulation and Compliance	Content and Code Compliance			

[68] ACMA, 2008, Annual Report, http://www.acma.gov.au/WEB/STANDARD/pc=PC_100770

6. Convergence in Turkey

Similar to the trend in the world, Turkish electronic communications sector witnesses a great change for almost two decades. With a population of more than 70 million, Turkey has a great potential for the innovation and growth of electronic communication services. Along with the developments in the fixed line, the first signals of competition in communications sector of Turkey is started with the GSM licences granted to Turkcell and Telsim in 1994. In accordance with Article 5 of Law No. 4502 amended by Wireless Law No. 2813, foundation of Telecommunications Authority of Turkey in 2000 constitutes one of the most important milestones of the development in Turkey. Within the framework of this law Turk Telekom's monopoly on carrying out telephone services including national and international voice telephony which are provided through telecommunications networks is ended as of 1 January 2004. After the liberalisation process, competition in the market gained momentum and the number of authorisations increased 192. Currently, there are 294 operators providing communications services in Turkey. On the other hand, mobile sector has grown dramatically in the last decade in Turkey. Mobile cellular subscribers per 100 inhabitants have reached 82.8 in 2007 and in 2008 90% penetration ratio has been achieved.

Although Turkey has made a significant progress in the area of communications that constitutes an important part of the convergence, there are still some deficiencies with effective implementation of competitive safeguards in particular market segments due to the significant market power of former monopoly.

In this chapter, it will be critically assessed the concept of convergence in Turkey in different aspects.

6.1. Market Data

As it is stated before, enabling convergence by appropriate policies enhance the impact of information and communications technologies on economic and social development. To analyse the development of convergence it is necessary to look over the general market data reflecting the developments in the sector.

ICT market has started to play an important role in Turkish economy in the recent years. At the end of 2008, Turkish ICT market has reached $28.2 billion[69] and the share of electronic communications as a percentage of GDP was 2.90%. Communications market constituted 73% of the overall market (Table 6-1).

Table 6-1 ICT Market in Turkey, 2007-2008

	2007	2008
ICT Market (billion USD)	20,3	28,2
Communications	15,5	20,5
Information Technologies	4,8	7,7
The percentage of ICT market in GDP (%)	4,16	4,08
Communications	3,18	2,90
Information Technologies	0,98	1,08
Hardware	0,74	0,77
Software	0,10	0,13
Services	0,14	0,18

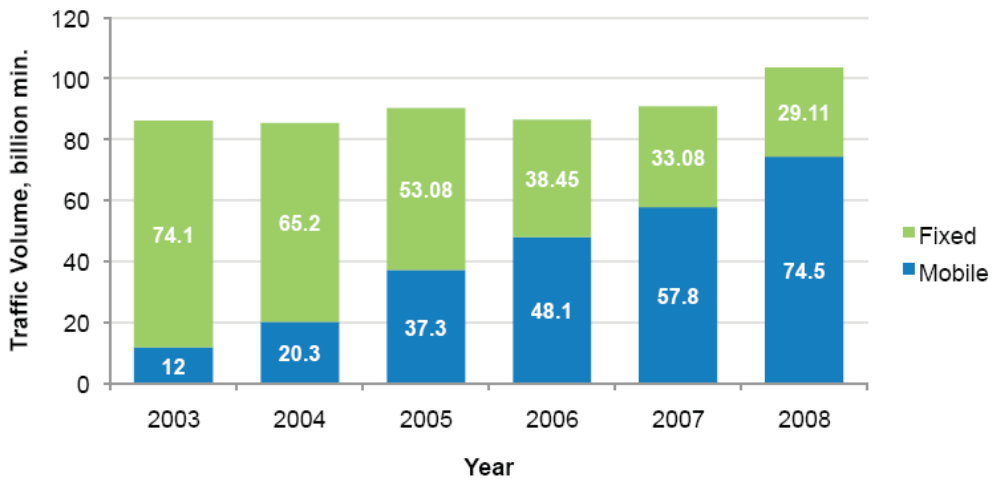
[69] Turkish Informatics Industry Association (TUBISAD).

The growth rate of ICT market		
Hardware	16,8	19,0
Software	11,3	20,0
Services	11,9	13,0

Source: Turkish Informatics Industry Association (TUBISAD).

Increasing call traffic volumes also reflect the potential of Turkish electronic communications sector. Figure 6-1 illustrates total call traffic volumes between 2003 and 2008 highlighting the exponential increase in the mobile traffic. In 2008, total call volume exceeded 103 billion minutes which is 14% more than the previous year and mobile call volume constitutes the 72% of this total traffic.

Figure 6-1 Total Call Traffic Volume

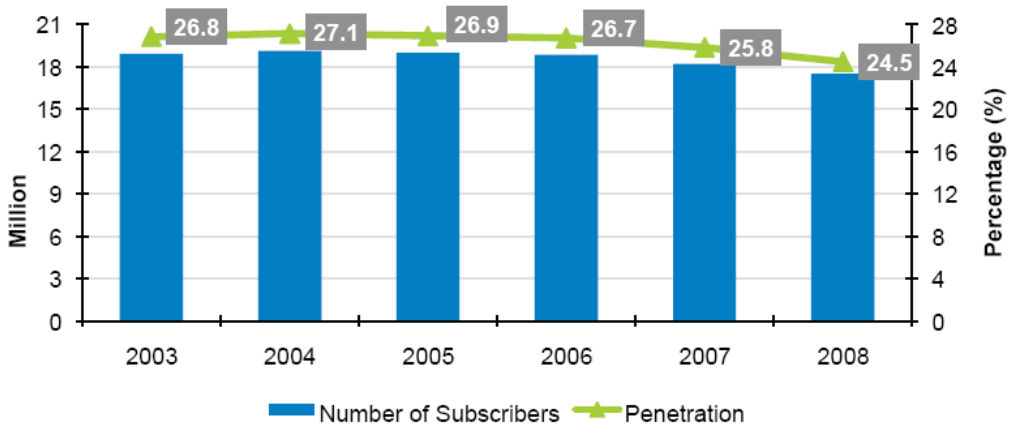


Source: ICTA, 2008[70]

[70] ICTA, 2008, Annual Report, Ankara, Turkey.

Figure 6-2 illustrates the number of fixed line subscriber and penetration rates in Turkey in the same time period. The number of fixed subscribers decreased to 17.5 million in 2008 corresponding to a penetration rate of 24.5%.

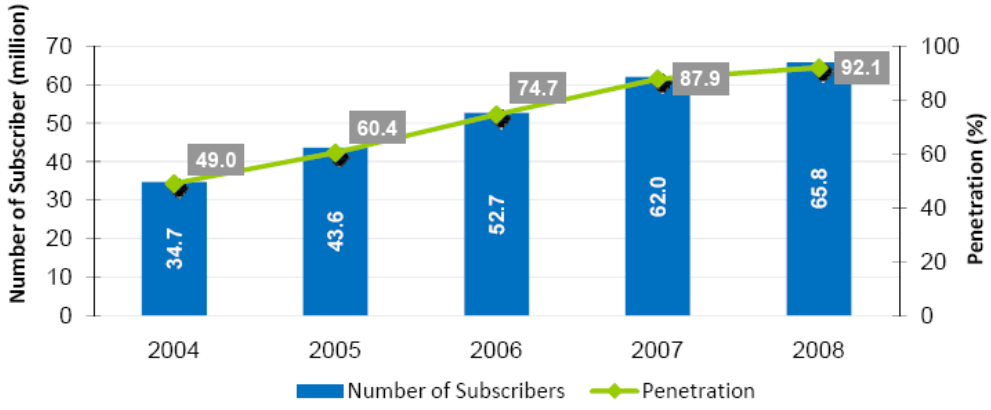
Figure 6-2 Fixed Line Subscriber and Penetration Rates in Turkey



Source: ICTA

Furthermore, Figure 6-3 highlights the substantial increase of the number of mobile subscriber in Turkey in five years period. At the end of 2008, there were 65,8 million mobile subscriber with a penetration rate of 92.1%.

Figure 6-3 Number of Mobile Subscribers and Penetration Rates



Source: ICTA

6.1.1. Internet access

Since the world goes through an Information Society, it is widely accepted that there is a strong relationship with the development of convergence and the widespread use of Internet in country. Figure illustrates the number of internet users in Turkey that can reflect the situation of convergence in Turkey.

Table 6-2 The Number of Internet Users In Turkey

Years	Number of Internet Users	Penetration (%)
2004	9 000 000	13,3
2005	9 570 000	13,9
2006	12 500 000	18
2007	18 800 000	26,7
2008	23 000 000	32,2

Source: *estimated*[71]

As it can be seen from the Table 6-2 the number of internet users increased substantially in several years. On the other hand, Turkey still lags behind the European average[72] by means of internet penetration.

To take advantage of the convergence, it is critical to take necessary actions to promote the widely usage of internet. In this context, internet access is included in the definition of universal service with the new Electronic Communications Law. The new law also mentions "…the dissemination of information technologies with a view

[71] The number of internet users are calculated by the author according to the results of TURKSTAT's Household ICT usage surveys and population figures.
http://www.tuik.gov.tr/PreTablo.do?tb_id=60&ust_id=2
[72] According to the Eurostat statistics, EU 27 average for 2008 is 64%.

to contribute to the development of information society including computer literacy" as a requirement for being an Incumbent Universal Service Provider.

Furthermore, within the context of e- Transformation Turkey Project that formulates policies and strategies for technical infrastructure and information security, education, human resources, e-government, e-health and e-commerce, there are a number of projects to support the process of transformation into an information society of Turkey. Within this framework, Ministry of National Education and incumbent operator Turk Telekom signed a protocol to provide ADSL Internet access and services in schools (SPO and UN)[73]. By the end of 2006, 28.500 schools have broadband connections and it is estimated that currently 11 million students (85% of primary school students and 97% of secondary school students) have internet access. Moreover, it is planned that the rest of the schools, which are remotely located throughout Turkey, will be equipped with broadband connections utilizing different technologies, until the end of 2008 by funding from the Universal Service Fund controlled by the Ministry of Transport and Communications.

Furthermore, within the context of e- Transformation Turkey Project, it is aimed to establish 4,500 Public Internet Access Points (PIAPs) throughout Turkey under the responsibility of Ministry of National Education. 1520 PIAPs were opened in 2008[74].

Identified as a top priority policy area by ITU, cybersecurity gains importance in all over the world. ITU launched the Global Cybersecurity agenda in May 2007 to

[73] T.R. Prime Ministry Undersecretariat Of State Planning Organization, 2005, **Millennium Development Goals Report Turkey, p. 64**
[74] SPO, 2009, Information Society Statistisc, Information Society Strategy (2006-2010), p.63

develop strategic recommendations including legal measures, technical and procedural measures, organizational structure and capacity building (ITU, 2008)75.

In Turkey, Law No. 5651 on the Regulation of Publications on the Internet and Suppression of Crimes Committed by means of Such Publications that aims to combat certain online crimes and regulates procedures regarding such crimes committed on the Internet through content, hosting, and access providers came into force on May 23, 2007. Act No. 5651 is the first special law which has brought about regulations related to Internet. Within the scope of this law an Internet Hotline is also established for reporting illegal activities (ICTA, 2009)[76]. On the other hand, a website named "guvenliweb.org.tr" has also established to increase the awareness of public on internet security. According to the Enlargement Countries Monitoring Report published in June 2009[77], "Turkey is only one of few European countries, where operators are obliged to implement information security management based on a standard. Another example is Iceland. Turkey also has a bylaw on personal information processing which includes the typical unspecific obligation and has not been repealed by the new bylaw. In particular, the existing bylaw applies to those providers of telecommunications services for profit, which are not equity companies and therefore not within the scope of the new bylaw".

6.1.2. Computer

Computer literacy is another enabling factor of development of ICT convergence in a country. As it can be seen from the Figure, the percentage of households with

[75] ITU News No.6, July/August 2008.
[76] ICTA, 2009, Annual Report, p. 65, Ankara, Turkey.
[77] Cullen International, 2009, Supply of services in monitoring regulatory and market developments for electronic communications and information society services in Enlargement Countries, p.70,

computers still continues in low levels. This situation constitutes an important barrier for the development of convergence in Turkey.

Table 6-3 The number of households with computers in Turkey

	2004 (%)	**2005 (%)**	**2007 (%)**	**2008 (%)**
Households with computers	10,95	12,89	28,5	36,2
Personal Computer	9,98	11,62	23,02	27,2
Laptop	0,85	1,13	5,14	8,5
Palm	0,13	0,14	034	0,5

On the other hand, there are also attempts to develop the computer literacy in the country by Turkish government. As it is stated before, within the framework of e-Transformation Turkey Project, both ICT guidance and training services are offering to the citizens in PIAPs to facilitate the social transformation through effective usage of ICT. It is aimed to reduce the digital divide in means of ICT access and usage not only in the international area but also between various social segments of the country.

6.1.3. Broadband

As it is stated before Information and Communication Technologies (ICTs), including fast broadband connections, can assist as major drivers of economic growth and reform. Hence, broadband take up plays a key role for the ongoing transformation of the ICT sector through the convergence of telecommunications, media, and computing. Figure illustrates the development of number of ADSL users in Turkey between 2002 and 2008.

Table 6-4 The number of ADSL Users in Turkey

Years	Number of ADSL users
2002	2 999
2003	56 624
2004	452 398
2005	1 539 477
2006	2 723 547
2007	4 545 795
2008	5 894 822

As it can be seen from the Table, with the investments of Turkish incumbent, Turk Telekom, number of DSL lines increased substantially in the recent years. Currently, ADSL is the predominant broadband access technology[78] and Turk Telekom's Internet subsidiary TTNet holds a dominant position in broadband access services in Turkey. Alternative operator's xDSL offerings are based upon the resale of incumbent's services and bit stream access. Furthermore, although LLU was legally established in 2006 by the approval of first RUO by TA, a small number of agreements were signed.

One of the driving forces of the development of broadband is Cable TV. Cable infrastructure has a huge potential for providing high speed broadband connections. ICT Regulation Toolkit assess the importance of cable TV as below:

"Cable TV infrastructure is optimally positioned in the future broadband market due to its capabilities in offering triple/multi-play services. This is because the network is

[78] TURKSTAT, 2008, Household ICT Usage Survey, 82,1%

optimized for TV distribution and capable of delivering broadband. Many other broadband infrastructures face a huge challenge in delivering broadcast TV."[79]

As of the firs quarter of 2009, there were 1 140 654 cable TV and 80 211 cable internet subscribers in Turkey. Owned by Turkish government TURKSAT holds the dominant position in the market. Türksat offers high-speed broadband internet (10 Mbps and more) service provided under the trademark "Uydunet". Türksat offers great advantages in internet and interactive services with its technical superiority in fiber optical cable platform, band width and two-way communication. "Uydunet" provides its subscribers with real broadband internet access through its cable infrastructure and overseas internet exit via satellite[80]

Designed for providing high speed multimedia data, third generation technology 3G is also constitutes an opportunity for Turkey for the development of broadband services in Turkey. Turkish regulator (ICTA) completed the auction procedure for four 3G UMTS licenses on November 28, 2008. In this context, Turkcell won the spectrum assignment for 40 MHz, Vodafone for 35 MHz and Avea for 30 MHz and 3G licences were officially awarded on April 30, 2009. And the services became operational by the end of July, 2009. Taking into account the widely usage of mobile phones, high mobile penetration rates[81] and mobile number portability[82], 3G promises a huge opportunity for the development of broadband services in the near future.

[79] http://www.ictregulationtoolkit.org/en/Section.1927.html
[80] http://www.turksat.com.tr/english/v2/new-products-cable-services
[81] There were 64,4 million mobile subscribers in Turkey with a penetration rate of 90% as the end of fist quarter of 2009.
[82] Turkey implemented mobile number portability in November 2008. It appears to have been a particular success with almost 1.2 million mobile numbers ported within the first four months, equivalent to 2% of total mobile numbers.

6.2. Services

With the increasing effect of convergence in telecommunications and broadcasting services, the demand for converged services or bundled offers are increasing substantially. Raja and Williams (2007)[83] stresses the importance of converged services for the human life as "This is the era of converged media. Over 6.2 million people visit Internet video repository YouTube daily, and since 2003, 220 million have registered to use free VoIP software Skype. With the expansion of 3G and introduction of wireless broadband networks, which together serve more than 200 million users internationally, converged media is free to become mobile. It is also becoming respectable to talk of the multimedia experience; late last year, the revered Economist magazine felt compelled to title their feature on convergence 'Your television is ringing.'"

According to the TURKSTAT's Household ICT Usage survey results, multiplay services are started to attract end users in Turkey. The survey concludes that the reasons for accessing internet at home as below:

- video calls over the internet 45,5 %
- listening to web radios and web TV 31,9%
- telephone calls over internet (VoIP) 21,3 %.

On the other hand, TURKSAT offers Infrastructure services supporting IP-based voice communication (**VoIP**) between enterprises. Turk Telekom has also started to offer a service that enables customers to send SMS from their home or work phones or from the internet to either mobile phones or home and work phone numbers.

[83] Raja W., Williams, M. (2007), Converging media/Diverging experiences, TPRC,

Furthermore, Turk Telekom offers multimedia payphone services that enable making calls, sending SMS, accessing internet and videophone system.

Another promising development that is important for the take up of convergence is the electronic signature regulations in Turkey. There are four certification-service providers that issue qualified certificates and they have issued about 111,000 qualified certificates at the end of 2008 (Cullen International, 2009)[84]. At the same time, Turkcell's mobile signature program allows users to perform secure online transactions through their handset, anytime, anywhere since 2007.

One of the most widely used converged services is the Internet Protocol Television (IPTV). ITU defines the IPTV as "the new convergence service (or technology) of the telecommunication and broadcasting through QoS controlled Broadband Convergence IP Network including wire and wireless for the managed, controlled and secured delivery of a considerable number of multimedia contents such as Video, Audio, data and applications processed by platform to a customer via Television, PDA, Cellular, and Mobile TV terminal with STB module or similar device" (ITU, 2005)[85]. Turk Telekom studies for the establishment of the infrastructure of IPTV, which have opened a new era in the communications technology around the globe since 2007. According to the Turk Telekom: "*The IPTV structure to be established will be formed in a way providing the services of internet, interactive services such as games, chat, instant messaging, SMS, e-mail, online voting, video-communication (Video Conference, Video Phone), content hosting, advertisement adding, personalized ads*

[84] Cullen International, 2009, Supply of services in monitoring regulatory and market developments for electronic communications and information society services in Enlargement Countries, p.74.
[85] ITU, 2005, Overall definition and description of IPTV in the business role model, **FG IPTV-ID-0025, Geneva.**

and parent control, besides the services of TV Broadcasting, video on demand, personal video recorder, stopping live broadcasting, catch-up TV, and pay and watch. The infrastructure, which will be established with a capacity of 1 million customers in the first stage, will be able to expand on demand". (Turk Telekom, 2008)[86]

Voice over Internet Protocol is another widely used converged service through the world. In Turkey, long distance service providers can provide VoIP services. There is no different licence type for VoIP services. Market share of VoIP operators in Turkey is 8% by retail revenue and 3,65 by minutes of traffic.

Digital switchover is one of the most important steps to transform a fully converged era. In Turkey, the activities on Authorization of Terrestrial Digital Platform Service Operating were initiated in 2004. Terrestrial digital television broadcast tests have been launched in 2006 in first three largest provinces of the country, respectively İstanbul, Ankara and İzmir, in order to catch up with the developments of new technologies in the world, to overcome the issue of limited frequency capacity of analogue broadband, and to provide higher quality broadcasting services. In addition to the provinces mentioned above, studies are currently being carried out for the start of DTV tests in Adana, Bursa, Kocaeli, Gaziantep, Kayseri, Konya, Diyarbakır, Erzurum and Samsun by taking into consideration their population and socio-economic situation in 2007 (Directorate of Press and Information, 2009).

[86] http://www.turktelekom.com.tr/tt/portal/News/Archive/Turk-Telekoms-IPTV-tender-has-been-resulted

6.3. Legal Assessment of the new Electronic Communications Law in the Light of Convergence

In Turkey, aimed to provide the basis for alignment with the EU framework the new Electronic Communications Law (no. 5809) came into force on May, 10 2009. Prior to the enactment of the Electronic Communications Law No. 5809, the main legal framework governing the electronic communications sector was the Telephone and Telegraph Law No. 406, enacted in 1924 and for the broadcasting sector Law n. 3984 of 20 April 1994 on the Establishment of Radio and Television Enterprises and Their Broadcasts and Law no. 2954 11 November 1983 Turkish Radio and Television Law.

First of all, with the new law instead of the term of telecommunications, the definition of electronic communications is used and defined as "*the transmission, exchange and receiving of all kinds of signals, symbols, sounds, images and data which could be converted into electrical signals, by means of cable, radio, optic, electric, magnetic, electromagnetic, electrochemical, electromechanical and other types of transmission systems*". This approach gives the signals of convergence in the country.

Furthermore, the new Electronic Communications law has changed the authorisation regime in the country. According to the Law, "*Companies who are willing to provide electronic communications services and/or to construct and operate electronic communications networks or infrastructures shall notify the Authority of their intention prior to the commencement of their activities, within the frame of the Authority regulations*". Previously, the authorisation regime was too complicated and consists of a number of types including general authorisation, concession agreements, telecommunication licenses etc. This new and simpler authorisation regime seems to eliminate the barriers for the progress of convergence in Turkey.

Although the new law contributed Turkey's position to be more in line with EU acquis with an updated electronic communications definition and simpler authorisation regime, there are still deficiencies and some overlaps on relative competencies and powers of regulatory bodies in Turkey.

7. Restructuring the Regulatory Authorities in Turkey

As it stated before, convergence blurs the definition of traditional sectors and the importance and necessity of a converged regulator issued by international and regional instructions such as ITU, OECD and EU. Indeed, the example of United Kingdom with a converged regulator with a clear single vision with could bring away the disputes between regulators that harm development of technologies. In this chapter, it will be critically analyzed the current situation of the regulatory bodies and made recommendations for restructuring in line with the developments in convergence.

7.1. Current Situation

Currently, in Turkey there are a number of bodies dealing with regulating and making rules for information and communications sector in Turkey. To assess the current situation, Information and Communication Technologies Authority (ICTA), Radio and Television Supreme Council (RTSC) and, Turkish Competition Authority (TCA) will be analysed in means of their foundation, organisation charts and duties.

7.1.1. ICT Authority

The new Electronic Communications Law changed the name of national regulatory authority (formerly Telecommunications Authority) to Information and Communication Technologies Authority (ICTA). ICTA is an administratively and financially independent national regulatory authority, responsible for carrying out tasks defined under the Electronic Communications Law. According to the new Law ICTA is responsible for:

- Creation and maintaining the competition in the sector.
- Protecting the rights of subscribers, users, consumers and end users.

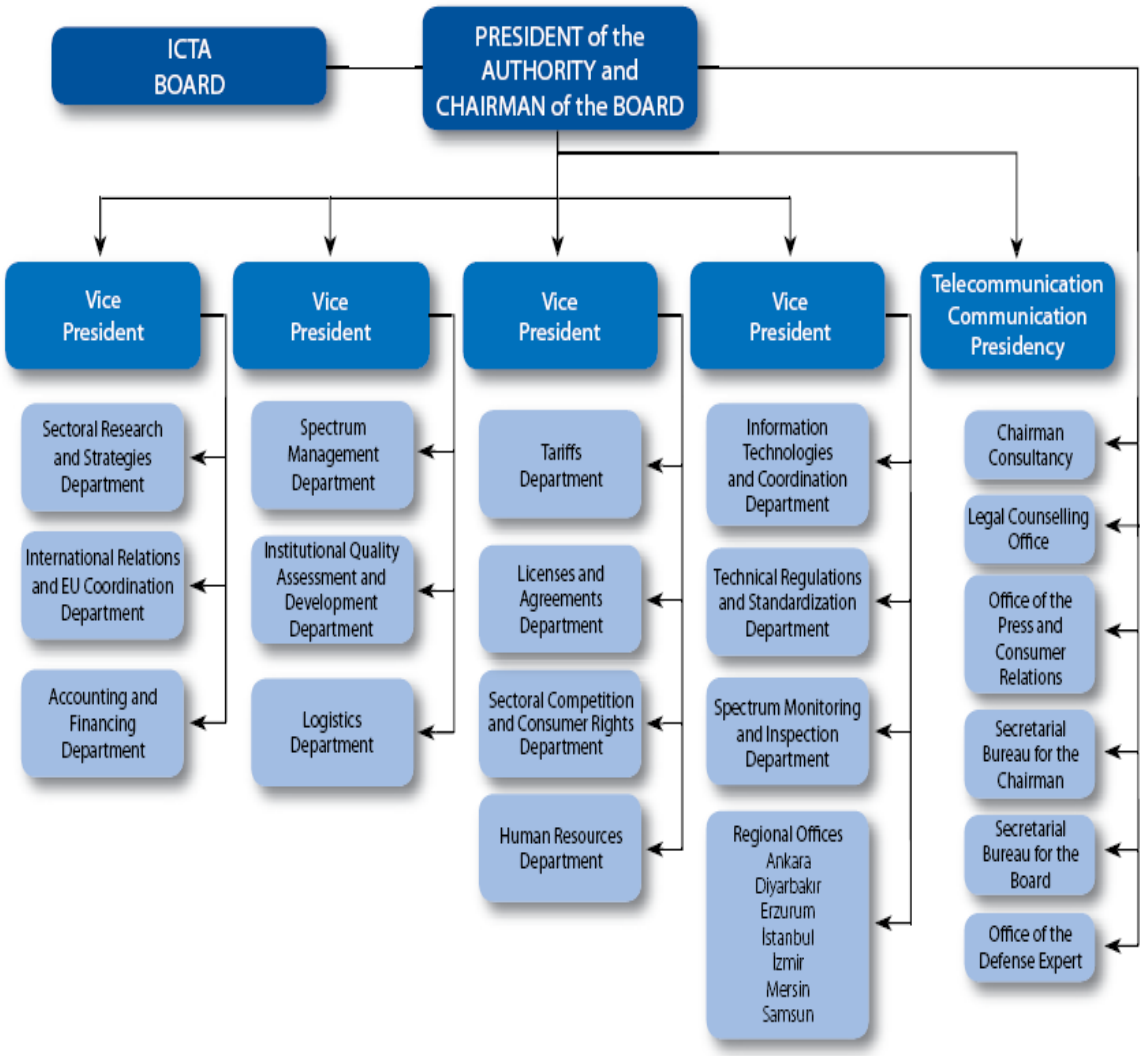
- Carrying out dispute resolution procedures between operators.
- Tracking the developments and stimulating the development of the electronic communications sector.
- Planning and allocation of the frequencies, satellite position and numbering.
- By taking into consideration the strategies and the policies of the Ministry of Transportation, performing necessary regulations and supervisions.
- Detection and elimination of electromagnetic interference.
- Transferring a specific financial resource to the Ministry of Transportation for research, development and training activities pertaining to electronic communications sector.
- Approval and supervision of the tariffs.
- Approve the reference access offers submitted by the operators.
- Ensuring publication and implementation of the harmonized national standards for all kinds of systems and equipments.
- Conducting frequency planning, allocation and registration procedures pertaining to radio and television broadcasting.
- Coordinating with the authorized organizations that will perform the construction, measurement, maintenance and repair activities in electronic communications sector.
- Conducting market analyses regarding electronic communications sector, determination of the relevant markets and the operator/s with significant market power in relevant markets.
- Participation in the works of international electronic communications associations and organizations, pursuing the implementation of decisions.

- Taking necessary measures specified by the legislation in force with a view to ensure that the national security, public order or public services are duly.
- Setting, auditing and/or having audited QoS standards of all types of services including universal service and determination of principles and procedures regarding setting and auditing of quality of services standards of services.

The decision-making body of ICTA is the Board, consisting of seven members, including a Chairman and a Vice Chairman. The Chairman is also responsible for the general management and representation of ICTA. Board members are appointed for a period of five years by the Council of Ministers, subject to the approval by the President of the Republic. Two of the members are nominated by operators having at least 10% market share, one member by the Ministry of Industry and Trade; one by the Union of Chambers of Commerce and Industry; and three member are nominated by the Ministry of Transport.

The Authority has independent sources of finance, including frequency fees, pre-determined contributions from operators, any fines it levies on operators and revenues obtained through consultancy and training. Any surplus that may occur at the end of the year is transferred into the State Treasury. The accounts of the Authority are audited by the Supreme Audit Council of the Prime Ministry, the Ministry of Finance, and the Council of Inspectors of the Prime Minister. Appeals against ICTA regulations and Board decisions can be brought before the Council of State, the highest administrative court in Turkey. The organisation chart of ICTA is as below:

Figure 7-1 ICTA Organisation Chart



Source: ICTA.

Telecommunications Communication Presidency ("TIB") was established within the Telecommunications Authority in August 2005 and become fully functional in July 2006. The main purpose of its formation was to centralize from a single unit the surveillance of communications and execution of interception of communications warrants (Akdeniz and Altiparmak, 2008)[87].

[87] Akdeniz, Y., Altiparmak, K., 2008, Restricted Access: A Critical Assessment of Internet Content Regulation and Censorship in Turkey, p. 20, Turkey.

Furthermore, On 4 May 2007, the Turkish Parliament adopted the Turkish Code 5651, which regulates Internet contents and stipulates crimes committed via the Internet. Under this law, the Presidency was chosen as the organisation responsible for monitoring Internet content and executing blocking orders issued by judges, courts, and public prosecutors. According to the Code, access to a website shall be banned, if there is sufficient suspicion that certain crimes are being committed via that Internet website. Those crimes are:

(i) the encouraging of people to commit suicide,

(ii) the sexual abuse of children,

(iii) the facilitation of the abuse of drugs,

(iv) the provision of dangerous substances for health care,

(v) obscenity,

(vi) prostitution,

(vii) gambling as well as

(viii) crimes that are regulated in the Turkish Code 5816 which stipulates crimes against Mustafa Kemal Ataturk.

The new law also makes it compulsory for all commercial ISPs to take measures to prevent access to "illegal content" and use government-approved filters to block users from visiting undesirable websites. In addition, all commercial ISPs are now obliged to record details of all the websites visited by their subscribers and store the data for a period of at least one year[88].

[88] http://www.jamestown.org/single/?no_cache=1&tx_ttnews%5Btt_news%5D=33175

7.1.2. Radio and Television Supreme Council

Turkey has a long tradition of Public Broadcasting. In 1925, the first radio broadcasts began with the enactment of the "Wireless Installation Law". With the several adoptions of Constitutional changes, renewal and developments were witnessed in this field until 1971. On March 1971, television broadcast began under the scrutiny of (TRT) Turkish Radio Television Corporation which became an impartial, autonomous public corporate body. The monopoly of the Turkish Radio and Television Corporation (TRT) on broadcasts continued until 1990 with private radio and television channels began broadcasting before the legal framework was prepared. By the amendment of Article 133 of the Constitution, public monopoly in broadcasting has been broken in Turkey.

The Radio and Television Supreme Council (RTÜK) was founded in 1994 under the Law on the Establishment of Radio and Television Enterprises and their Broadcasts (Broadcasting Law No : 3984), as a competent regulatory authority, autonomous and impartial public legal person which determines the regulations to which both public and private radio and TV stations and channels are required to abide by.

Main duties and powers can be listed as follows:

- granting license to the radio and television enterprises,
- allocation of channel and frequency bands,
- issuing licenses for the construction and operation of telecommunication facilities and monitoring the compliance of radio and television broadcasts with regard to the national and international legislation,

- deciding on the relevant sanctions in cases of violation of the provisions of the Law, conducting or commissioning public opinion surveys in order to determine the reactions of the public,
- representing the State at the organizations that have legal personality under international law, and are concerned with radio and television broadcasts (Directorate General of Press and Information, 2009)[89].

Radio and Television Supreme Council is composed of nine members who are elected by the Turkish Grand National Assembly from among the candidates nominated by political parties represented in the TGNA. Relations between the government and the RTSC are carried out through the Prime minister's office. RTSC has its own revenues (such as frequency allocation fees and 5 percent of gross advertisement revenues of broadcasting companies) but it can also make requests for allocations from the state budget. Its accounts are audited by the Supreme Audit Council of the Prime Ministry. RTSC decisions can be appealed to the Council of State (Cullen International, 2007).

Turkey today has 23 national, 16 regional and 212 local television channels, and 35 national, 98 regional and 948 local radio stations (RTSC, 2007)[90]. Due to the frequency allocation deadlock currently, all terrestrial radio and television broadcasts are carried out without any licence or official allocation of frequencies[91].

[89] Directorate General of Press and Information 2009, Radio & TV in Turkey, p.8, Ankara, Turkey.
[90] RTSC, 2007, Annual Report, Ankara, Turkey.
[91] Centre for European Policy Studies, 2009, EU-Turkey Accession Negotiations Impact Assessment Of Chapter 10 On Information Society And Media, Brussels.

7.1.3. Competition Authority

Turkish Competition Authority (TCA) was established as per Article 20 of the Act No. 4054, in order to ensure the formation and development of markets for goods and services in a free and sound competitive environment, to observe the implementation of this Act, and to fulfil the duties assigned to it by the Act in 1997. Within that framework, the main duty of the Competition Authority is to prevent any threats to the competitive process in the markets for goods and services through the use of the powers granted by law. Ensuring the fair allocation of resources and increasing social welfare by the protection of the competitive process constitutes the basic foundation of the mission of the Competition Authority (Turkish Competition Authority, 2009)[92].

The Board of the Turkish Competition Authority (TCA) has eleven members. Board members are appointed by the Cabinet of Ministers from candidates nominated by the Ministry of Industry and Trade, the Union of Chambers of Commerce and Industry, Council of State, Inter-University Committee and the Supreme Court. The Competition Authority operates under the Ministry of Industry and Trade. The TCA's revenues consist of appropriations from the Ministry of Trade and Industry's budget and 0.0004 percent of the capital of new companies or of capital augmentations. Its accounts are audited by the High Court of Accounts (Cullen International, 2007)

The goal of the Competition Authority, which is charged with enforcing the aforementioned Act, is to facilitate and protect competition in markets. In order to achieve this goal, the Competition Authority

[92] Turkish Competition Authority, 2009, About Us, http://www.rekabet.gov.tr/index.php?Sayfa=sayfahtml&Id=437

- penalizes undertakings which distort or prevent competition in the market, through examination and investigation processes subject to detailed regulation,
- grants exemption to and prepares secondary regulations for agreements which are in conflict with competition rules but are beneficial for the economy and the consumers,
- prevents monopolization within the market by examining mergers, acquisitions and joint-ventures over a certain threshold,
- in the privatization stage, examines the transfer of public undertakings to the private sector, and through privatization, reduces the effects of the state on the economy while preventing monopolization in the areas the public sector exits,
- ensures the dominance of competitive conditions within the markets by sending opinions on various acts and regulations which would negatively affect or restrict competition in the markets to government institutions and organizations concerned.

7.1.4. Assessment of Relations between ICTA and RTSC and Proposal for Restructuring the Regulatory Authorities

As it stated before traditional boundaries between telecommunications and broadcasting sectors have started to blur or disappear with the increasing effect of convergence in the ICTs sectors. Similar to the situations in the other countries, the overlaps between competencies and powers of regulatory bodies in those sectors are increasing in Turkey. Currently, ICTA is allocating frequency blocks for broadcasting to RTSC and RTSC is assigning spectrum to individual broadcasters.

Considering the need for a strong collaboration between ICTA and RTSC a Cooperation Protocol has been signed between the former Telecommunications

Authority and RTSC on 24 March 2006 to determine the areas of competencies, responsibilities and co-operation. Published on 31 December 2008 in the Official Gazette, the 2008 national programme (NPAA) includes some structural changes in mid term policy in the area of audiovisual policy. According to the NPAA, it is anticipated to be taken some measures on the broadcasting principles, legal framework for digital broadcasting and its licensing, the transmission/re-transmission rights and the frequency allotment – i.e. licensing, authorization and bidding – procedures. Also, to be in line with the EU acquis, the NPAA includes the Authorization of Terrestrial Digital Platform Service Operators where responsible agencies are ICTA and RTSC[93].

However, the increasing presence of new media technologies poses a significant problem since the markets are gradually converging. On the other hand, the regulatory framework for broadcasting in Turkey has substantial deficiencies since it has been drawn up for analogue terrestrial transmission and there is not an appropriate frequency allocations and licensing regime in line with the EU acquis, yet.

On the other hand, since the European Commission proposed to phase out traditional analogue terrestrial broadcasting until 2012, Turkey also undertakes a number of initiatives to bridge the gap with EU acquis in the context of accession negotiations.
Turkey has also ratified the Protocol to the Council of Europe Convention on Transfrontier Television to which it is already a party in 2000. Within these developments, ICTA has already prepared a national frequency plan for Terrestrial Digital Video Broadcasting in line with the results of ITU's Regional

[93] Centre for European Policy Studies, 2009, EU-Turkey Accession Negotiations Impact Assessment Of Chapter 10 On Information Society And Media, Brussels.

Radiocommunication Conference (RRV-06). Transition to the digital broadcasting in Turkey is set out by Communication Supreme Council in three 3 phases including:

- The first phase is the period of 2004-2006 for initial implementation in 3 main cities; Ankara, Istanbul and Izmir.
- Second phase is the period of 2007-2014 for using analogue and digital Technologies at the same time.
- The third phase is beginning of 2014 that analogue broadcasting will be terminated and digital broadcasting will be put into service.

In this context it is planned to have digital broadcasts in 95% of Turkey by the year 2014. Switching from analogue to digital TV broadcasting will make free a significant amount of spectrum available that can be used for promoting innovative converged services in Turkey by creating an appropriate regulatory regime.

Within the context of EU Monitoring and Advocacy Program, Open Society Institute comments on the situation as follows: "The RTSC considers its regulatory position as more of an administration of broadcasters instead of policy-making to encourage the sector's healthy growth. The distribution of regulation between the RTSC and the TK poses another problem, as new media technologies increase their presence, whereas the regulatory framework was drawn up only for analogue terrestrial transmission. A new communications law and a single regulator would benefit both the telecommunications and broadcasting sectors, as the two businesses increasingly converge" (Open Society Institute, 2005) [94].

[94] Open Society Institute, EU Monitoring and Advocacy Program, network Media Program, 2005, Television across Europe: regulation, policy and independence, p.330, Budapest, Hungary.

With a similar vein, OECD (2007) [95] also stresses the importance of a single regulator that is placed to assess the cost and benefits of different allocation proposals across the industry rather than separate regulatory bodies who often are more concerned in 'protecting' their part of the industry than they are with the wider question of increasing overall spectrum efficiency in telecommunication and broadcasting sectors. According to the OECD a single regulatory body also increases the efficiency of market mechanism and competition.

Considering the facts stated above, merging the ICTA and RTSC under a single roof will make it easier for Turkey to cope with convergence. It will also create a more efficient and responsive electronic communications industry capable of successful commercial operations. The competition will increase and market players will have to deal with a unified regulator and legislation. This situation will also encourage the development of new technologies that have a vital importance for the overall development of the market and country's economy.

7.1.5. Assessment of Relations between ICTA and TCA and Proposal for Restructuring the Regulatory Authorities

With the effect of telecommunications reform, sector specific competition rules became applicable in telecommunications sector in stead of a general competition policy. Since there had been a substantial change from monopoly to competition telecommunication regulators had the power for applying competition rules to provide a competitive environment which is the most important factor for the development of

[95] OECD, 2007, Convergence and Next Generation Networks, Ministerial Background Report, DSTI/ICCP/CISP(2007)2/FINAL, p.49

market itself. On the other hand, the need for a close coordination by formal or informal mechanisms between telecommunications and competition authorities came into existence. OECD (2006)[96] gives the examples of such agreements to clarify the competencies of telecommunications and competition authorities as follows: "In Canada, the Competition Bureau and the CRTC entered an 'Interface Agreement' in 1999 specifying those areas where each body has jurisdiction and areas where jurisdiction is shared. In Iceland, the PTA and the Competition and Fair Trade Authority jointly adopted guidelines on procedures concerning resolution of cases covered by the Acts on Postal and Electronic Communications Affairs and the Competition Act. These guidelines were made public. In the Netherlands, an agreement was reached between the Competition Authority and OPTA in a Co-operation Protocol".

With a similar vein, EU also recommends to national regulators to collaborate with national competition authorities while ensuring market analysis[97].

In Turkey, while Turkish Competition Authority (TCA) is in order to ensure the formation and development of markets for goods and services in a free and sound competitive environment, ICTA has the obligation to sustain and protect the competition in the electronic communication sector. According to the new Electronic Communications Law Article 6(1)b ICTA is competent to "*inspect the breaches of competition in electronic communications sector which are against this Law and against regulations based on of this Law, to impose sanctions and to take the opinion*

[96] OECD, 2006, Telecommunication Regulatory Institutional Structures And Responsibilities, DSTI/ICCP/TISP(2005)6/FINAL, p.16.

[97] Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive): Article 16-1.

of Competition Authority on the issues regarding the breach of competition in electronic communications sector, if specified by the legislation". Besides, the law also states that the Board of the Competition Authority while performing examinations and studies and making any decisions on electronic communications sector, including decisions about mergers and takeovers, must take into consideration the ICTA's view and the regulatory procedures of the ICTA. That situation also constitutes an overlap between competencies of ICTA and TCA. In 2002, a coordination protocol was signed to ensure cooperation in respect of implementing regulations of each Authority, i.e. investigations, mergers/acquisitions, exemptions/negative clearances and secondary regulations in order to arrange for coordination in this respect. Atiyas and Dogan (2007)[98] comments on the results of protocol as follows: "However, the Protocol has not brought out the expected results in terms of coordinative steps and devising of competition policies for relevant markets because each party took a cautious and sceptical attitude in the process, and refrained from active collaboration. On the other hand, a better mutual understanding is taking place between the parties in recent years. The evolving tendency now is that the TCA does not investigate allegations of competition law violations when actions in question are in areas regulated by the ICTA."

In light of the above, to ensure the legal certainty, more clarity on the relative competencies of ICTA and TCA constitutes an important necessity. On the other hand, it does not seem possible now for Turkey to hand over all competencies to TCA in the area of economic regulation. A better places coordination protocol with mutual understanding seems to be an appropriate solution for promoting competition and

[98] Atiyas, I., Dogan, P., 2007, When good intentions are not enough: Sequential entry and competition in the Turkish mobile industry, Telecommunications Policy, 31 (2007), p. 504.

innovation in Turkish electronic communications sectors. Moreover, after ensuring a fully competitive environment, competencies of ICTA on competition should be gradually phased out in favour of general competition law.

7.2. Proposed Regulatory Structure for Turkish Electronic Communications Sectors

To discover the potential benefits of convergence, it is strongly advised by international organisations to provide an updated regulatory response to new and emerging digital technologies under a single roof namely converged regulators. Also the country examples, United Kingdom with Ofcom and Australia with ACMA represents the effectiveness of converged regulators.

To keep up with the fast changing market conditions, regulatory adjustments became an unavoidable factor to support and promote the development of competition which is one of the key principles of the regulation. In this context, a single regulatory authority for whole of the electronic communications sector in Turkey would benefit country's social and economic development.

As it is stated before, Turkey enacted the new Electronic Communications Law in 2008 by amending previous legislation. To establish a single regulatory authority dealing with regulating electronic communications sector, developing and enacting a brand new law will best fit the converging market trends. Establishing a planning team including representatives from each regulator, external consultants and ministry as Ofcom did within the merging period shall benefit to overcome the challenges for determining the new regulatory regime.

On the other hand, since the decision making bodies of ICTA and RTSC have structural differences, a critical balanced judgement should be taken as a basis for the merger. Furthermore, currently ICTA is related with Ministry of Transportation that defines the state strategies and policies for the electronic communications sector aimed at promoting free competitive market, efficient use of scarce resources and development of electronic communications infrastructure and services in accordance with the objectives of public interest and national security. And, the relations between the government and the RTSC are carried out through the Prime minister's office. Since the Ministry of Transportation has a wide range of activities including maritime, aviation, railway, road and communications, though, after merging two authorities, it will be eligible to form a new ministry dealing with only electronic communications (e.g. Ministry of Information Society).

On the other hand, currently internet regulations are carried by Internet Department under the Telecommunications Communications Presidency. Considering the growing importance of internet regulations as a supportive infrastructure for the development of convergence, it should be positioned as a horizontal unit in the new body.

Considering the political constraints, to merge the existing regulators and create a single regulatory authority for regulating whole electronic communications sector including telecommunications and broadcasting should be applied with a step by step approach. Adopted from the good practice of a five phases of a merger from Ofcom, Table 7-1 illustrates the five stages of restructuring regulatory bodies in Turkey. In the first step, decision to merge will be taken in 2010. Strategic objectives of the merger should be critically determined and a set of targets should be established to monitor

the effectiveness of the project. As mentioned before, a planning team should be created in this step. On the other hand, the leader of the merged body should be chosen from alternatives which will have critical importance for the success of overall merger. In this situation covering most of the electronic communications sectors, the Chairman of the ICTA seems to be appropriate to be the new Chairman of the merged body.

Second step includes the early planning phase of the merger. To accelerate the process it will be appropriate to link the two steps in 2010. In this phase, the draft structure of the converged authority should be determined and the new board members should be appointed. Furthermore, the areas requiring external consultancy should be determined.

Third step constitutes higher importance since all detailed planning will take place. In this phase, planning team, newly appointed chairman and board members and external consultants should critically plan the overall merging project. A sound time table should be prepared and communications with staff should be ensured regarding with the structure of new body, job matching, and remuneration issues. The structure of the new body should be unique and free from the previous bodies.

2012 seems to be the best time for Turkey to implement the new converged regulator dealing with whole communications sectors. In this step, the new regulator should maintain its business to reduce the regulatory uncertainty which will hamper the market development.

And finally, step 5 is the time for benefit optimisation. In this phase, final changes should be implemented and the progress and effectiveness of the new regulator should be monitored carefully. If there occurs a problem regarding to the structure and functionality of the new merged body, it will be appropriate to take measures to modify the structure in the early phases of implementation.

Table 7-1 Five Stages of Restructuring the Regulatory Bodies in Turkey

Step	Timing
Step 1 – Decision to merge	2010
Step 2 – Early Planning	2010
Step 3 – Detailed Planning	2011
Step 4 – Implementation	2012
Step 5 – Benefits Optimisation	2013

Since it is planned to start digital broadcasting by 2014 in Turkey, the timing for establishing the merged body will best fit with the market demands.

Table 7-2 illustrates the SWOT[99] analysis of restructuring the regulatory bodies in Turkey. It evaluates the major strengths, weaknesses, opportunities and threats of restructuring the ICTA and RTSC in Turkey. As it stated several times before, creating a converged regulator in Turkey will increase the effectiveness of regulations and simplify the regulatory environment by reducing the overlap between competencies of former regulators. Increasing the flexibility by technology and market neutral regulation, a single regulator will deliver benefits for operators and

[99] SWOT analysis is used to evaluate Strengths, Weaknesses, Opportunities, and Threats in a project or an organization.

customers. This restructuring will also benefit country's EU accession negotiations by an appropriate regulatory regime in line with the EU acquis.

On the other hand, considering the political constraints and instability, developing and enacting a new law covering the whole communications industry including broadcasting and media is considered as a major weakness. Furthermore, the resistance of ICTA and RTSC can be another weakness.

However, by enhancing regulatory stability and promoting new and innovative converged services, creating a single roof for communications services constitutes an important opportunity for Turkey. It will not only maximize the benefits gained from digital broadcasting but also make an important step for Turkey towards being an information society. Finally, lack of a consistent and long term convergence policy in Turkey and the cost of merging compromise potential threat for Turkey.

Table 7-2 SWOT Analysis of Restructuring the Regulatory Bodies in Turkey

Strengths	**Weaknesses**
• Increase the effectiveness of regulations under a single roof • Simplifies the regulatory environment • Increase the efficiency of regulations by avoiding the overlaps between competencies of regulators. • Reduce potential for conflicts. • Increase flexibility • Deliver increasing benefit for markets by dealing with unified regulator and unified legislation. • Deliver increasing benefit for customers such as price, choice, innovation and satisfaction. • Be more in line with EU acquis	• Political constraints regarding developing and enacting a new law covering both communications and broadcasting • Resistance of existing regulators to merge
Opportunities	**Threats**
• Enhance regulatory stability and certainty • Promote new and innovative converged services • Maximize the benefits gained from digital broadcasting • Make a long step towards information society • EU accession negotiations	• Lack of a consistent and long term convergence policy • Increasing uncertainty in the transition period • Cost of merging • Organisational change and culture and human resources issues

8. Conclusions

For almost two decades information and communications technologies started to affect every part of human life. Fast changing markets, technology and increasing demands of customers urged telecommunications, media and broadcasting markets to converge. Accepted as a megatrend in information and communication technologies industry, convergence is playing an ever greater role for the new networks, voice and data applications. Furthermore, the growing social and economic impacts of information and communications technologies increase the importance of convergence. Convergence also promotes new technologies and services better than ever. With these developments end users and market players have significant benefit from new and innovative converged services.

Convergence brings a number of advantages for the countries not only in the area of economics but also social and cultural dimensions. Compromising a key enabling factor for the information society, convergence also creates new markets and services.

Blurring boundaries between telecommunications, media and broadcasting markets, convergence created a new converged industry which needs an updated regulatory environment to survive. Communications and broadcasting sectors were subject to separate regulatory regimes with sector specific regulators. However, emerging convergence trends gave rise to the overlaps on competencies between regulators. To be in line with the fast paced developments countries started to review and restructure their regulatory environment to enhance the potential benefits that will be gained from convergence, throughout the world. In this regard, bringing all forms of electronic

communications networks, including broadcasting networks, under a common regulatory framework became a valuable solution to cope with the convergence.

In the past few years, Turkish electronic communications market witnesses a substantial change with the liberalisation, privatisation of incumbent operator and the take over of mobile telephony. After opening the market to competition, (formerly Telecommunications Authority) ICTA completed most of the secondary legislation in line with the EU 1998 regulatory package. On the other hand, with the enactment of new Electronic Communications law Turkey had some progress, however currently Turkey still has deficiencies in means of compatibility with EU 2002 regulatory regime.

On the other hand, broadcasting sector in Turkey has also a promising potential with more than 14 million households with televisions. In 1994, The Radio and Television Supreme Council (RTÜK) was founded as a competent regulatory authority, autonomous and impartial public legal person which determines the regulations to which both public and private radio and TV stations and channels are required to abide by. Following the trend in the world, Turkey has also started to take decisions on transformation to digital broadcasting. It is expected to start digital broadcasting in 2014 by covering 95% of population.

With a similar trend in the world, in Turkey, the overlaps between the competencies of sector specific regulators has increased gradually in the recent years with the emergence of convergence. To keep up with the fast changing market conditions, regulatory adjustments became an unavoidable factor to support and promote the

development of competition which is one of the key principles of the regulation. In this context, a single regulatory authority for whole of the electronic communications sector in Turkey is seen as rationale solution that would benefit country's social and economic development.

In this regard, by following a five step approach to be implemented in four years, the new regulatory authority of Turkey for the whole electronic communications sectors will best fit the needs of the country. It will increase the effectiveness of regulations and simplify the regulatory environment by reducing the overlap between competencies of former regulators. Increasing the flexibility by technology and market neutral regulation, a single regulator will deliver benefits for operators and customers. This restructuring will also benefit country's EU accession negotiations by an appropriate regulatory regime in line with the EU acquis.

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