

Convergence of telecommunications, media and information technology, and implications for regulation

Dong-Hee Shin

Dong-Hee Shin is Assistant Professor, School of Information Sciences and Technology, Pennsylvania State University, Reading, Pennsylvania, USA.

Abstract

Purpose – *The purpose of this study is to review current policy debates on convergence in Korea and the UK. This study compares the two countries' cases of how they prepare for convergence, what are the regulatory frameworks, and what are the conflicting issues in the convergence.*

Design/methodology/approach – *This study conducts a comparative case study between Korean and the UK. Data are collected through literature review, regulatory document and market research.*

Findings – *The regulation in the UK has been focused on how to change the notion of public interest in the convergence era, whereas the agenda in Korea seems to be how to apply a legacy of public interest to convergence services. The laws of public interest in Korea have been drawn from a legacy regime, which makes applying in a convergence era increasingly difficult. There is a compelling need for conceptual clarification in understanding the meaning of public interest in the convergence environment.*

Research limitations/implications – *Future research may further investigate the effective regulatory framework in the emerging convergence era.*

Practical implications – *Regulation needs to be transparent, clear and proportional and distinguish between transport and content. This implies a more horizontal approach to regulation with a homogenous treatment of all transport network infrastructure and associated services, irrespective of the nature of the services carried.*

Originality/value – *This research identifies issues regarding convergences and suggests a way in which the two different principles of broadcasting and telecommunications can be integrated; how public interest laws can be reconciled with considerations of competition and economic efficiency is explained.*

Keywords *Communication technologies, Competitive strategy, South Korea, United Kingdom*

Paper type *Research paper*

Introduction

Convergence between broadcasting and telecommunications, which is rapidly transforming the current regulatory and market environment, is now on the way. Technology-wise, convergence of the two has been taking place. What seems to be a real significant barrier to facilitating such convergence rests on regulatory conflict between the two sectors. For instance, digital multimedia broadcasting, a culmination of telecommunications and broadcasting convergence, had been delayed introducing its service in the market in Korea due to regulatory setback and political conflict. In the UK, a new consistent and flexible regulatory framework has been established to facilitate convergence. This study compares the two countries' cases of how they prepare for convergence, what are the regulatory frameworks, and what conflicting issues there are in the convergence. From the comparison, this study discusses the effective regulatory framework in the emerging convergence era.

Korea and the UK are worthwhile comparing since both have a public broadcasting system at their core and both recently dealt with convergence differently. The most striking aspect is how the two countries see public interest differently. By and large, the agenda in the UK has

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been focused on how to change the notion of public interest in convergence era, whereas the agenda in Korea seems how to apply a legacy public interest to convergence services. The laws of public interest in Korea have been drawn from a legacy regime, which makes application in a convergence era increasingly difficult. Public interest has been evolving to become a practical concept in the UK, whereas public interest in Korea tends to exist as if there are empty echoes without action plans capable of being implemented. There is a compelling need for conceptual clarification in understanding the meaning of public interest in the convergence environment.

Many questions arise concerning the traditionally cherished broadcasting concepts such as: "Has the audience's dependency on broadcasters' discretion to access information and entertainment services disappeared?" (Kim, 2002); and "Does it make sense to continue to view the television as particularly influential and pervasive?" (Arino, 2004). Policy makers along with industries in both telecommunications and broadcasting are concerned with these questions, which relate to dichotomy questions between "competitions vs public interest". As broadcasting contents transmit over telecommunications networks, the issue is how to combine two different regulatory principles from the two different sectors. In these two different areas, the government role has been equally limited to ensuring a competitive environment with varying extents. Such traditions necessarily affect the way policy is enforced and framed concerning convergent service like digital multimedia broadcasting. An essential dilemma for a regulatory agency is how to approach convergence services and technologies. From a linear perspective, Korea seems to regard DMB as a linear extension or an advanced form of traditional broadcasting. On the other hand, instead defining new technologies under legacy framework, the UK approaches it as a convergent service as it is (convergence service is just convergence service). The UK's approach (and European Union (EU) in general) is based on a technology-neutral approach under horizontal regulatory structure. Public interest obligation is thereby embedded in the horizontal structure. In other words, the UK's public interest has been replaced as one of concepts applying differently to various convergent services. On the other hand, Korea's public interest has remained the most influential principle in vertical regulatory structure regulating vertically integrated broadcasting markets. The public interest in UK now is being understood in a plurality of service providers in market so that increasing consumers' choice. While the public interest in Korea tends to intervene to ensure diversity in content.

From the two cases, this study concludes that regulation on convergence needs to be transparent, clear and proportional and distinguish between transport and content. This implies a more horizontal approach to regulation with an homogenous treatment of all transport network infrastructure and associated services, irrespective of the nature of the services carried. An horizontal approach in communications is not only to safeguard a competitive market process, but also to ensure a democratic communications order.

This research first reviews the DMB and current issues in Korea surrounding it. It then reviews the UK case and how the UK deals with convergence in terms of regulation and policy to compare to the Korean case. Finally, this research identifies a way that the two different principles of broadcasting and telecommunications can be integrated; either competition law can be integrated to the broadcasting arena or vice versa. Also, a way in which public interest laws can be reconciled with considerations of competition and economic efficiency is explained.

Is DMB broadcasting or telecommunications?

The emerging satellite DMB service is different from those services that are provided nowadays in some foreign countries. The satellite DMB service supplies not only the voice and data, but also moving pictures on mobile handsets. It can play a role as mobile information media so that it enables the combination of mobile telephone with handsets. The satellite DMB service has the synergy effect of interactive service with various data transmission including images and data. It can also bring about industrial demand to related markets such as mobile handsets, contents, and relevant equipments and services. The

satellite DMB service will cause the optimization of the frequency usage and improvement of the quality of service.

Meanwhile the introduction of the satellite DMB service will give many benefits to the customers. It can improve quality of life so that it enables the customer to listen and watch the programs with better quality, and to be conveniently granted with miscellaneous information services. It also gives customers information in the vehicles as it gives them the same information at home with PC and television. The customers would have wider choices among the similar services such as terrestrial DMB, ITS, 3G mobile telecommunication, and a satellite DMB service. The government can build up its status as a powerful information technology country by providing a convergence service such as a satellite DMB service. Maintaining the satellite orbit can secure a rare resource for Korea so that it can make a firm basis for the domestic satellite industry.

Despite its technological feasibility and market readiness, the DMB service has been delayed for two years. Without the clear concept of convergence, and relevant policy and regulation, the DMB service would face overlapping regulation and/or non-regulation. The most troubling question is whether DMB is broadcasting or telecommunication. Or should DMB carry on public interest justification or might DMB be under competition law, on the grounds that it is?

Convergence trends in Korea

Although Korea is at the forefront of digital convergence trends, there are some important challenges that must have been addressed. Issues like determining technology standard, frequency allocation, and licensing can be relatively simple ones. The more troubling issue may be the conflict between Ministry of Information and Communication and Broadcasting sector (broadcasters and regulatory board). The tension between the two agencies becomes heightening as more new convergence services emerge and as they take an initiative and control over convergence. The issues arising from DMB can be summarized in three barriers of convergence in Korea.

The vertically integrated media market is the first factor adversely affecting convergence in Korea. Many of the large media company owners are entertainment companies and have vertical integration (i.e. own operations and businesses) across various industries and verticals, such as distribution networks, content production, programming, etc. That means while this is good for their operation, the diversity of opinions and issues would be less well covered. The Korea broadcasting (and telecommunications market to some extent) structures are aligned with a vertical array with limited horizontal market integration. Four terrestrial television networks dominate and control the production, distribution, and consumption of a specific mass medium business. As a result of vertical integration, television companies control the process of the production and distribution of the industry. About 75 percent of the programs come from the network in-house productions and about 10 percent come from network owned production companies. The imported programs occupy about 10 percent of the total programs while the independent production companies produce only about 5 percent (Lee *et al.*, 2000). These figures can be compared to those of UK. The high portion of UK programming is delivered by independent and external production (70 percent). In-house production provides 30 percent of programs (independent and external production) (Prosser, 2003).

This vertically-integrated media tends to exercise considerable influence at the service and content level and creates incentives for abusive access decisions as regards competitors' access to media markets (Korea Press Foundation, 2004). National broadcasters integrate media industries vertically which renders broadcasters monopoly power over one level of the chain of production to harm competition in another level that otherwise would have been competitive. That is, the vertically integrated broadcasting markets lessen the necessity of the distribution industry and thus prevent the growth of the distribution industry. The vertically integrated market that was formed under the public interest regime reversely created negative effects on the public interest by allowing broadcasting companies to be

able to gain control of both industries (Choi, 2000). That is, the Korean vertically integrated structure implicitly and explicitly has allowed the incumbent broadcasters to enhance their monopolistic positions.

As many media researchers indicate (Bang, 2004; Kim, 2003), such media within the vertical integrated market use public interest as the justification for the walled garden. Within the walled garden, the media's responsibility to stand for public interest is so highly valued that even the conservative media refuse to be labeled as mere business enterprises (Kim, 2003). This self-delusion of public interest obviates the cooperation with telecommunication industries.

The second barrier to convergence is the absence of consolidated regulatory authority. Currently there are four different regulatory entities in communications – the Telecommunication Commission, the Ministry of Information and Communication, the Broadcasting Commission, and the Ministry of Culture and Tourism – are competing with each other to take the initiative in convergence. While these regulatory authorities are arguing over DMB, its service on the market had been delayed over two years. The potential uncertain new convergence services straddle more than one regulatory regime. Not only are there multiple regulatory bodies, but also conflicting regulations and licensing authorities. The provision of service is being held back where market players are subject to a number of regulatory regimes or must deal with multiple regulatory bodies, for example, where a network is required to be licensed both as telecommunications infrastructure and as a broadcasting network.

The third factor is a confusing regulatory framework. Related to the multiple regulatory bodies, the absence of a consistent framework on new media adds complexity to the Korean media market. Because of the absence of a clear concept of convergence in relevant policy and regulation, the convergence service in Korea has faced overlapping regulation in one case and non-regulation in another case. The Korean Broadcasting Commission (KBC) plays an important role in the regulation of the DMB such as in licensing, spectrum, content and other behavioral regulations. Contrary to the trend toward the convergence of the telecommunications and broadcasting, the KBC maintains the legacy regulation such as cross-ownership rules for the sake of public interest. As a result, telecommunications service providers, as well as large business conglomerates, are prohibited from the entrance to the traditionally regarded broadcasting sector.

According to the Korean Broadcasting Law, basic content programming is under the control of the Broadcasting Board, and broadcasting facilities and technologies should conform to the regulations of the Ministry of Information and Communication (article 27 of the Broadcasting Law). The Ministry of Information and Communication has authority over frequency allocation (article 9 and 10 of the Frequency Law), and broadcasting standards (article 37 of the Frequency Law). Moreover, the licensing of the broadcasting operator takes a dualistic way in that he/she should be recommended by the director of the Broadcasting Board, and the licensing should be permitted by the minister of Ministry of Information and Communication. Under this current scheme, the S-DMB service will likely require both the amendments of current laws and the establishment of new laws to appropriate laws, because it has difficulties regarding the number of channels that can fit on the whole telecommunications spectrum due to frequency limitations. The current Broadcasting Law has provisioned maximum share limitations in S-DMB and has limited participation in terrestrial DMB service in order to keep the telecommunication operators from the broadcasting industry.

Along with such regulatory provisions, the KBC's overall supervision of DMB seems to limit the wide possibility of convergences. As KBC attempts to regulate DMB with legacy broadcasting framework, the convergence market is likely to face strict entrance barriers and content regulation. Until recently, the government role represented by the KBC has been limited to preserving the public interest through universal service, preserving the diversity of communicators, and regulating public news reporting (Kim, 2004). However, DMB presents

itself an ontological dilemma: "Does it belong to the telecommunication industry or is it a functional extension of broadcasting?". While semantic distinction about new technology is ongoing, the initial plan of the KBC was to define DMB as an extension of traditional broadcasting, based on the emerging medium's functionality. As fierce opposition from the telecommunications sector arises, KBC presents a modified definition, DMB as a "special broadcasting" or "new media broadcasting," which includes DMB and IP-TV. Even with this modified view, it places new technologies within the framework of traditional broadcasting. According to this framework, the KBC requires DMB carriers to observe key broadcasting principles and public interests such as universal service. It may be necessary to consider "diversity issues" in broadcasting services, which inherently observe principles of free speech.

The current view of the regulators stems from a traditional view of broadcasting; broadcasting facilities is public resources and essential facilities (bottleneck) and its content has a great impact on the public. Under this assumption, incumbent broadcasters have enjoyed too much control over bottleneck facility or essential input (i.e. direct access to the end-user) into the services. This bottleneck nature will be more serious in the convergence market and if the bottleneck nature of convergence services is not recognized, the establishment of a competitive market may be jeopardized and, more significantly, undermine the development convergence services. As long as the incumbent broadcast carriers retain this bottleneck nature, special intervention should be taken to ensure that they do not exert undue privileges based on their control of the broadcasting facilities and their special relationship with the content providers. This is important not only in protecting other service providers, but also in protecting the rights of consumers who want access to other providers' services.

In addition, policy and regulation that are aligned with such a vertically-integrated market help to reinforce such vertical structure. The KBC's vertically-integrated control over technical and service levels creates not only the possibilities, but also the incentives for abusive access decisions with regard to competitors' access to markets. Vertically-integrated control inadvertently renders information monopolies and dominant media power, which would disturb plurality, diversity and other public interest. It is a paradox that such a vertically-integrated market comes from the KBC's vertical regulatory structure regulating from spectrum management and ownership regulation to public interest obligations. KBC tends to focus on such expansive nature of such regulation, not much attention has been made on horizontal category between broadcasters and other media (telecommunications). Therefore, the broadcasting regulatory model has limited impact on the overall communication model, except when horizontal interaction occurs between broadcasting and telecommunications and, as a result, has a potential adverse impact on the vertical regulation of either industry. For example, the KBC imposes "universal service" and "plurality" obligations on telecommunications providers, primarily to ensure the continuing viability of public interest. Such public interest requirements help sustain and extend KBC assumptions about broadcasting, including its public interest value in other media. The KBC's assumptions on public interest within vertical model become valid regardless of changed marketplace and technological development. Korean regulators resist or neglect to consider its regulatory framework of both broadcasting and telecommunications, for example, the KBC's intention to protect broadcasting content from commercialized medium (telecommunications), despite the fact that more broadcasting content are being retransmitted via other new media such as internet broadcasting.

With the vertical framework, it will be increasingly difficult to handle emerging issues from convergence networks, content and economics to technology. Such issues would involve not only program content issues, but also other issues are interwoven with, for example, economic agenda of rates, technical issues of network interconnections, and regulatory concerns of effective competition and universal service. Reluctance to change regulatory models brings about ineffective legacy regulations and forces unproductive semantic

distinction or a static definition-based approach towards emerging technologies. Thereby, multiple regulatory models apply to functionally equivalent services.

The assumptions the Korean regulators first made about broadcasting when it erected a specific vertical model become self-sustaining despite a changed marketplace and technological circumstances. Given the inertia of vertical structure in terms of regulation and markets, future convergence service such as IP-TV will have the same trajectory of DMB: exhausted discussion of service category between broadcasting and internet. The biggest challenge is how to secure a supply of quality contents for the convergence channel under the vertically integrated structure where content is monopolized by the incumbent broadcasters.

The UK's flexible approach to convergent services shows a contrast with Korea. In the next section, the UK's approach to convergence is described.

The UK's approach to convergence

Recent regulation in the UK, mainly through Office of Communications, shows a contrast to the Korean case. The UK has had a stronger focus on "core competition objectives" and "a related increase in the use of economic-based tools in competition law assessment" (*Official Journal of the European Communities*, 2002). The primary goal of European Competition law is to increase economic welfare (European Commission, 2003). Attention has been paid to other objectives such as market integration or the protection of the environment. In the UK and EU in general, as Lowe (2004), Director General for the European Commission, states:

[...] the emphasis of regulation has shifted away from protection of some broadly defined public interest and from public utility management towards opening up markets, ensuring free and fair competition between producers and promoting the interests of consumers.

The UK's reform

A series of reform has been accelerated by the 2003 Communications Act that introduced a new regulatory framework for British television and radio, and a new Office of Communications, Ofcom, to replace the five bodies which then regulated broadcasting and telecommunications. Ofcom replaced entities such as the Broadcasting Standards Commission (BSC), Independent Television Commission (ITC), Office of Telecommunications (OfTel), Spectrum Management Advisory Group (SMAG). Ofcom now acts as the regulator of various broadcast and media industries in the UK, including television, radio, and both wired and wireless telecommunication services. The new Act also opens the ownership of British media companies to foreign buyers. The UK's leading television companies, Carlton and Granada, have just been given permission to merge. With the Act, new services proliferate and the delivery of radio, television and other content via the internet and mobile phones are increasing.

As Ofcom was created in response to the rapid convergence between telecommunications and broadcasting, Ofcom defines public interest in the context of convergence. Ofcom "investigates matters of public interest when the merger of newspapers or broadcast media companies" (The Communications Act 2003, Sections 375). The Communications Act 2003 (see Prosser, 2003) contains a "plurality test" under which the minister may refer certain media mergers to the Ofcom for advice on public interest considerations of whether or not to refer the merger to the competition authorities on the grounds that it may be against the public interest, to negotiate undertakings in place of a reference, or to clear the merger. Under the Act, Ofcom seeks public interest only in the broadcasting and newspaper sectors; the public interest test assesses the need for a sufficient plurality of persons controlling the media enterprises in the UK or locally; the need for the availability of broadcasting of high quality calculated to appeal to a wide variety of tastes and interests; and the need for broadcasters to have a genuine commitment to the standard set out in the Communication Act, including due impartiality of news and taste and decency. In

newspaper mergers, the relevant issues are accurate presentation of news, the need for free expression of opinion and the need for a sufficient plurality of views.

The focus of the Communications Act has been placed on interoperability and access-related aspects in the regulation of gateways in convergent service[1]. For example, in considering the public interest with the introduction of the BSkyB (British Sky Broadcasting), Ofcom (2004a) looked primarily at its effect on competition among broadcasters. In considering the merger between BSkyB and Manchester United, Ofcom also based their public interest conclusion mainly on the effects of the merger on competition among broadcasters.

These trends are consistent with Ofcom's principle, "the role of Ofcom is to safeguard the long- and short-term public interest through effective competition and in this context it must take due account of the interests of all stakeholders including consumers." (Association of Communication Services Providers, 2003). Public interest has been sought within market; not detached from market or from obscure amalgam of society. For example, while preparing convergence, Ofcom cooperated with the OFT. Ofcom and OFT worked closely together to ensure consistency in their use of Competition Act powers and, more generally, in their approach to competition issues within the industry and in the broader economy.

The UK's approach can be seen as a move towards a more horizontal approach for the convergence services. A moving from the sectoral regulation means a response to the challenges posed by the convergence phenomenon. The Communication Act enables Ofcom to deal neutrally with "all types of networks and services", that is, in a manner of technology neutrality or technology agnostic. Ofcom is based on the assumption of technology neutrality aiming for neutral networks; infrastructure networks should accommodate services and application in an indiscriminate manner. With this determined principle of technology neutrality, Ofcom attempts to lower barriers to communication markets so as the service and application providers to enter into a market with less burdening provisioning of infrastructures such as high access charge. Such an infrastructure had been a bottleneck which had been previously protected from competition, or regulated inappropriately favoring infrastructure owners. With the horizontal approach, Ofcom took an initiative to approach the bottleneck problem at the infrastructure level (this is consistent with the European Commission Directives). The goal of the initiative is: "... interconnection of, electronic communications networks and associated facilities." (Article 1 (1) of the Access Directive). The term "access" is understood in the widest possible sense as "the making available of facilities and/or services, to another enterprise, under defined conditions, on either an exclusive or a non-exclusive basis, for the purpose of providing electronic communications services".⁷ In other words, the Access Directive seeks to establish a uniform, harmonized approach towards the treatment of technical bottleneck issues at the infrastructure level.

Synthetic discussion: public interest in the convergence era

As McTaggart (2002, p. 21) puts it:

[...] one of the most difficult questions of telecommunications and information technology law in the future is whether competition law is capable of protecting the public interest in the convergence environment.

The UK took a major step towards combining competition law and a regulatory framework guided by the horizontal layers principle. Horizontal layers principle gives the UK a more particular and concrete meaning to the ambiguous statutory command of competition and public interest. The layer principle also allows the UK to fill statutory gaps between competition and public interest by narrowing legal text and by broadening market definition.

For example, the Access Directive (2002) clearly defines access to infrastructure i.e. access to electronic communications network and services, and interconnection between networks. The Ofcom's Broadcasting Code regulate content layer. On the other hand, the Korea media

regulation regulates content and conduit together which is vertical regulation, i.e. KBC regulates content and access to infrastructure.

Another differing aspect between the UK and Korea is in approaches to achieve social and economic justice. The UK is trying to achieve effective competition in the market having assumption that plurality of service providers would remedy technical bottleneck problems. Korea, on the other hand, is attempting to maintain diversity of opinion through limited number of providers. That is, the UK's approach can be said to achieve social justice thorough broad economic justice, whereas Korea separate social and economic justice.

By and large, the UK's Communication Act of 2003 is in line with a horizontal structure. Frieden (2004) examines the EU's regulatory framework looking into a shift from a vertical regulatory structure to a harmonized and horizontal one (Frieden, 2004). Frieden (2004) sees the EU's "side-by-side" approach has a goal to establish regulatory parity among similarly situated operators. It attempts to use a harmonized regulatory approach that makes a functional assessment of what an operator currently provides, whether it possesses market power, and whether it can carry out public interest obligation rather than who provides a service and what the provider's old regulatory status is. In this light, the EU's perspective tends to be a forward looking, while Korea's perspective has a backward perspective. In other words, the EU attempts to see what will come in the future, whereas Korea attempts to come up with a way of applying legacy principles to what is coming. The EU establishes a regulatory regime based on how technologies function, while Korea is making an effort to make semantic distinctions between such converging concepts as telecommunications and broadcasting. Frieden's (2004, p. 209) observation has an implication to Korea: "communication law and policy has been based on fixed service definitions, and relatively static assumptions about industrial organization".

As to market, the UK market structure is evolving horizontal structure, integrating the media market and breaking into horizontal components (content, transport, packaging of services, software, and terminal equipment). The Korean market structure encourages consolidation and vertical integration (Mueller, 1999). As the Korean broadcasters own a vertically-integrated process of production, distribution, and broadcast, they would not open their walled garden to telecommunications and internet industries, bitter rivals. The provision of public interest has been politically and artificially used to protect vertically integrated market by the broadcasters and their regulators.

In the midst of this turmoil, a public interest concept in Korea seems to be still lingering. Indeed, the discussion of public interest in Korea remains at the high abstract policy level, leaving the concept obscure and making it hard to apply at the operational level (Choi, 2000). Is the public interest argument still valid in an emerging convergence age? In this light, Kim (2004) argues that public interest in broadcasting has to be clarified, based on the difference between economic and non-economic policy objectives. Broadcasting regulators traditionally have attempted to preserve universal service through compulsory obligation onto carriers. In the convergence era, however, public interests are being satisfied by a competitive market with ubiquitous technologies, and advanced digital technologies that are prevalent everywhere satisfy the requirement for universal service as well as universal access (McKnight, 2004). This implies that public interest should be viewed within the integrated concept of economic marketplace and social context. The boundary between market and public, which had been traditionally dichotomous, became blurry. For example, broadcast regulators have tried to maintain diversity in public opinion and mandate news carriers' diversity of programming. This shows Korea's notion of public interest, that is, message diversity as opposed to that of UK, media pluralism. What the difference of UK's plurality from that of Korea is that plurality in competitors and plurality in opinion (wide variety of tastes and interests). Ofcom attempts to ensure a sufficient plurality in market through diverse providers, whereas the Korean regulators try to maintain plurality through limited providers sanctioned by regulations. As such, Ofcom's public interest is interpreted from effective competition, where Korea's public interest has been focused on the matters of

accuracy, impartiality, harm, offence, and fairness and privacy in broadcasting. Ofcom's (2004b) approach is to "encourage consumer choice," "promote investment" and "secure wide-spread access to services".

Applying the public interest requirements to DMB carriers can be analogous to requiring public interest obligation to the private economic sector, which pursues commercial interests. In the telecommunications areas, competition is seen as an end in itself (Meyer *et al.*, 1982). The broadcasting regulators' provision that limits market entry to DMB directly contrasts with the telecommunications industry sector, which tries to achieve public interest through effective competition. Consumers are better served in a competitive market; private industries can contribute to the public interest by making their businesses flourish. In the convergence era, "Let markets and technologies develop" is a widely accepted maxim. The regulators' role should remain as facilitators for markets, to help them naturally meet public interest.

In an effort to redefine public interests, Kim (2004) further suggests that regulators clarify the difference between audience and citizens as in the broadcasting sector and consumers as economic actors. Kim's argument adds more confusion to the ongoing discussion. Dividing citizens and consumers can be even more a difficult task than establishing new regulation. Who can be citizens and who cannot be economic consumers? In addition, the broadcasting regulators' policy has been based on an audience model, including the Indecency Act, V-chip legislation, the Fairness Doctrine, and so on. This audience model is based on the assumption of a paternalism, which is exposed to content that may or may not be in their best interest, so that media could cultivate vulgar tastes for programming. This model has been criticized as an élitist perspective framing the audience as passive users.

Contrary to the paternal perspective, Owen and Wildman (1992) suggest that audience members are guaranteed that they will see preferred choices, as long as the number of viewers preferring the given type is large enough to cover the cost of making the program in the environment of unlimited channels created by broadband and digital technologies. It predicts that the free and fair competition of program providers in the broadband environment will produce the best result in terms of audience benefits, as measured by the number of people getting their preferred program types. In competitive markets, carriers are able to access to DMB market and such open access is not only necessary due to the bottleneck nature of the facilities, but also it is critical for the development of competition in the provision of convergent service. The statement, "the public's interest . . . defines the public interest" (Fowler and Brenner, 1982), is in line with the open access marketplace model. It means that, if there were no demand, there would be no public interest. The public interest in DMB will arise when the public demands DMB service and when industries compete to gain critical mass (Krasnow and Goodman, 1998). Then, regulators step in to consider the public interest of DMB. It is less desirable to entrap DMB with traditional public interest in the form of *Ex Ante* regulation (see Napoli, 2001). The *Ex Ante* regulation has been traditionally applied in broadcasting fields and broadcasting regulators seem to try to apply the audience model into the industry consumer market rendering itself as "public interest for public interest's sake." It is worthwhile to note that Ofcom's new approach of public interest in media merger is also based on the *Ex Post* in that Ofcom sets out the public interest test only when a request for investigation comes from the Secretary of State for Trade and Industry (Ofcom, 2004b, Section 375).

As many experts predict (Noam, 2003), the success factor of DMB would depend more on its content rather than on the technology itself. Because DMB is less reliant on infrastructure, the upper layers such as application, services would be a critical factor in diffusion of DMB. Under such layered open access environment, each layer is a platform where competitions occur. In the content layer, let the audience choose whatever content they like among the wide spectrum of content. Broadcasting regulators seem to try to apply the audience model to the consumer market rendering itself as "public interest for public interest's sake".

In sum, one way to redefine the traditional public interests of broadcasting is to see it in a more flexible way, across the boundaries of industry. This may generate another sets of complex questions, but as Bauer (2004) suggests, public interest can be seen within the domain of co-evolving environment of technology, regulation and industry instead of seeing public interests detached from any of the entities of evolving technology, industry, and consumers. We can flexibly see audience as consumers, or public interest can be indirectly achieved from competitive markets. This can create opportunities for the broadcasting and telecommunications industries to reconcile to work together for an advanced convergence service like DMB and IP-TV. Under open markets, public interest will be ensured, along with commercial interests, and the citizens or the audience (whichever they choose to call them) will be better served (see Table I).

Convergence and a suitable method of regulation

The vertical regulatory framework was built around the assumption that different services were provided by different providers. Public interest was placed as an underlying principle in vertical framework. Simply speaking, a regulatory model based on who provides the services is no longer an appropriate model in the convergent era.

Instead of grouping services, regulators can group and differentiate issues like physical layers (spectrum policy) which are different from those of the logical layer (open access) which are different from those in the content layer (public interest, libel, intellectual property). Thus, by conceptualizing the communication policy as layer by layer, regulators can identify markets, clarify public interest issues, create boundary regulations that are effective, and, in so doing, target solutions where issues reside without interfering with other industries and opportunities (Cannon, 2003). This is what other researchers call a layered policy model (Sicker, 2002). By layering horizontally, regulators are able to see service independently from the network (Frieden, 2004). With a layered model, competition will be increasing as service and application providers step in the market with less hassling provision of infrastructure. In addition, regulation can be minimized by specifically stating the regulations for each layer. According to Sicker (2002), “policy makers start at the lowest layer examining whether or not there are competitive or social reasons to apply a regulation to that layer”. Other policy makers investigate other layers of access, transport, applications and content. By regulating layer by layer, it avoids policy makers confusing the physical network with the applications and services of the physical network. Providers at different layers are regulated differently from one another. Providers are not regulated separately by different types of networks or different types of services, but they are treated by the market perspective. As content and infrastructure fit into separate regulatory framework, content providers regardless of medium typically fit within conduct and economic regulation that can be calibrated as a function of the particular carrier’s market share and the level of competition in the various conduit submarkets. Regardless of whether telecommunications provides transport for broadcasting content, the carriers’ function should be regulated to the extent any operator has market power or bottleneck control, and any situation still requires government intervention to promote sustainable competition and public interest like consumer protection. While there is no guarantee that a competitive open landscape will emerge

Table I Comparison of UK and Korea

	<i>UK</i>	<i>Korea</i>
Law	Communication Act 2003	Broadcasting Act 2000
Regulatory agency	Office of Communications	Korea Broadcasting Commission
Service category	Convergence	Extension of broadcasting
Regulatory objective	Solving technical bottle-neck (plurality of providers)	Content issues (diversity of opinion)
Market structure	Evolving horizontal	Vertical

with layered model, it will likely have a better chance than existing vertical orientation. Eventually, under open access landscape, multi-modal communications systems emerge.

The layered policy model, of course, is not a perfect model. Odlyzko (2004) argues that layer approach would be exceedingly complex and is unlikely to command any significant private sector consensus. Criticisms include over simplify layers (Odlyzko, 2004), discouraging industry investment (because providers can so easily use infrastructure, nobody want to really invest infrastructure (New Millennium Research Council, 2004)), and underestimating economies of scope and network efficiency. Most importantly, it has been criticized as being engineering architecture.

Yet, if such weaknesses are cautiously managed by regulatory intervention, the layered approach will provide an effective link that smoothly and seamlessly connects regulation and technology. The well-designed layered approach will achieve effective competitions; foster competitions at the telecommunications infrastructure layer and enhance innovation at the service and application layer by lowering barriers for newcomers in the market.

In fact, the broadcasting industry has already started to follow the trajectory of the layered model. Broadcasting used to be a natural monopoly by the scarcity rationale and thus a long-cherished public interest provision (Motta and Polo, 1997). A vertically-integrated market has monopolized infrastructure, application, services, and content. The evolution of current broadcasting follows a layered model: infrastructure providers, application/service providers, middleware providers for data broadcasting, and content providers. Under such an environment, it is less valuable to debate a dichotomous distinction between telecommunications and broadcasting; between competition and public interest. It is equally valueless to debate how various convergent services can fit to static regulatory framework. However, it may be more valuable to discuss what regulatory structure may be fit into convergence era in order to harmonize conflicting principles, if any. The UK's consolidation process of regulatory authorities clearly shows the latter tendency. Before it was merged to Ofcom, the Independent Television Commission of the UK was the statutory body responsible for licensing and regulating commercially-funded television services provided in and from the UK (ITC is equivalent to Korea's KBC). ITC's view (before merger to Ofcom) toward convergence, such as BSkyB satellite, was to promote competition and interactions among satellite operators, cable operators, and broadcasters. In coordinating such interaction, Ofcom takes the position of the least regulation as possible. ITC (2003) states:

[...] regulators should resist drawing up rules to boost local content by placing requirements upon broadcasters to re-invest a proportion of their income in local content production. This may be counter-productive, creating a barrier to entry and denying market forces the opportunity in the longer term to develop a healthy national production sector and one which reflects viewer preferences.

The ITC's perspective on convergence is not based on high level conceptual notion of public; instead ITC specified the regulatory object as market and industry.

It seems that Korea attempts to achieve the twin goals of sustaining service classifications and the vertical regulatory regimes while also creating novel ways to ignore the telecommunication services aspect of a convergent, blended, and hybrid service that clearly has a horizontal layer of telecommunications delivered to people. Continuing the effort to segment telecommunications services, terrestrial and satellite broadcasting increases the problem of discrimination among providers in competition with each other and, consequently, could have the effect of deterring competition. Rather than apply regulation based on specific service definitions, the Ofcom's framework establishes a process for determining whether to apply regulation and when to remove it. This is an implication that public interest is not a static entity, but can be approached during the process when it is being sought.

In this light, a technology-neutral and provider-neutral perspective can relieve a tension between and among industries and regulators. Technology (provider) neutral approach

treats any technology and provider equally. It facilitates development of new services and content over horizontal structure. Regulators' axis is shifted from content to technical bottleneck control. Based on the technology-neutral perspective, Ofcom is more concerned with interoperability between different networks and services than regulatory content itself such as public interest. Public interest provision only remains in Public Service Broadcasting. Of course, the UK's case cannot be directly applied to the Korea case. At least, however, the UK's case can provide Korea with suggestions to Korean regulators calling for their action to resolve the structural problems over convergence.

Conclusion

The dichotomy between competition and public interest tests is a central theme of the convergence era. Up to now, the Korea broadcasting sector shows a tendency towards a vertically-integrated marketplace creating a *de facto* monopoly market. As the convergence trend continues to grow, a problem surges to the surface: a need to remove the monopoly control of the bottleneck that had been protected by the name of public interest. It is a worldwide trend that the broadcasting marketplace is evolving into an open-access market. DMB is not an exception to this trend; DMB will most likely be in the middle of an open market where various carriers can provide a DMB service. Service has to be dealt with as service, in the same manner, content is to be regulated as content; infrastructure (facilities, networks) is to be controlled in infrastructure. Public interest provision lies in content layer as necessary. In addition, one consolidated regulatory authority should regulate in a consistent framework, specifically sector specific and horizontal regulation. Such a framework enables regulators to be a facilitator promoting smooth interaction among those providers. In addition, regulation is to protect market and public from vertical integration. Ofcom has remedied the vertical integration problem from technical bottleneck control. In the case of Korea, the regulator holds firm control over content provision which would enhance a vertically-integrated broadcasting monopoly. The real problem is that such content regulation also controls technical bottleneck.

Social activists, like public interest advocates, criticize the Communications Act 2003 for being content-blind; remedied only technical flaws of the traditional system for regulating bottlenecks and gateways (Varney, 2004). It is true the public interest concerns, such as lack of efficient protection for citizens/consumers in regulating the infrastructure in digital television are still present in the UK. However, the public interest concern itself should be a decisive barrier to convergence service.

It is a somewhat wasteful discussion to argue which values (public interest/competition) should be treated with higher priority, but it is more productive to discuss how to promote public interest within fair competition or vice versa. These two concepts do not go in parallel, but are converging. It may be unpractical to divide the two concepts separately just as much as public domain and economic market exist together in the real world. Finding alternative methods is not an easy task. However, it is a common trend to promote convergence, increase competition, and redefine public interest provision. There is a technology neutral approach in the EU (Wu, 2003), disintegrating vertical structure, and recently proposed layered approach (Federal Communications Commission, 2004; Whitt, 2004a) all reflect such trends. This model encompasses both the broadcasting and telecommunication, and further internet protocol-based service (i.e. internet protocol-TV) in the near future. Despite ongoing criticisms, a layered policy model (Werback, 2001; Whitt, 2004b) for regulation of convergence has many benefits. Many telecommunications and broadcasting industries (i.e. MCI, ABC) have learned the benefits of horizontal layering. A variety of heterogeneous networks are unified at one layer (for example IP layer) so that even though a variety of technologies will continue to be employed, they will not be visible to users who will see a uniform interface. Broadcasters will benefit from the use of cellular mobile systems to adapt the content of their multi-media services more rapidly in response to the feedback from customers. Mobile operators will benefit from offering their customers a range of new broadband multi-media services in vehicular environments. Users will benefit from faster

access to a range of broadband multi-media services with reasonable QoS and lower cost. If regulation is to be applied in the future, it should work along the lines of natural technological, economic and social trends, and not at cross purposes to them. Such regulatory rationales have reference not only to content but also to structural and behavioral regulation. For example, the Communications Act attaches pluralism and diversity implications in relation to content (programming) as well as in relation to bottlenecks/gateway control by making open access environment (Marsden, 2000).

In the Communications Act of 2003, there is not a fine dichotomous distinction between social regulation and economic regulation. What is really clear in the Act is that Ofcom is not trying to shape a communication market based on a preexisting assumption on market, industry or public. The best approach may be, as Bauer (2004) suggests, to approach technology, market, and public policy as a co-evolving ensemble. The Act generally favors a departure from active regulatory intervention, towards the application of competition law. The Act generally refers to the public by using terms such as consumers, customers or end-users. It is notable that the term of citizen disappeared from the Act, which implies Ofcom's assumption: the concept of public interest should be approached as a process, not as an entity or destination that is subject to definition. It is not a cookie-cutter way of saying what the public interest is, what it is not or what market interest should be. However, we might be able to strive to make the process of decision making in a more open and engaging way for the general public. In other words, public interest is embedded into general regulatory framework. It is an embedded concept of public interest. This does not mean the disappearance of public interest, but, more significantly, it is being underlying principle to convergent service.

In closing, regulation needs to be transparent, clear and proportional and distinguish between transport (transmission of signals) and content. This implies a more horizontal approach to regulation with a homogenous treatment of all transport network infrastructure and associated services, irrespective of the nature of the services carried. A horizontal approach in communications is not only to safeguard a competitive market process, but also to ensure a democratic communications order. The broadcasting industry, telecommunications, regulators, and civil society representatives need shared essentials of plural-lateral governance to safeguard both competition and public interest in emerging convergent services and applications.

Note

1. The term "access" is stated as "the making available of facilities and/or services, to another enterprise, under defined conditions, on either an exclusive or a non-exclusive basis, for the purpose of providing electronic communications services" (Article 1 (1) of the Access Directive).

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Corresponding author

Dong-Hee Shin can be contacted at: dshin@psu.edu

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