

홈네트워킹 서비스 현황 및 발전 방향: 국내 사이버 타운 사례분석

Recent Home Networking Services Development and Future Directions: Case analysis of Korean Smart Apartment Complexes

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요약

지역 정보화의 중요성은 정보기술을 이용한 경쟁력 향상 차원에서 정부의 주요 IT 정책 중의 하나이다. 그러나 지역 정보화의 경제성 문제는 정보화 마스터 플랜 실행의 가장 큰 장애 요인이었다. 한편 지역 정보화와 관련된 최근 동향은 KT의 광대역 인프라 보급과 건설회사의 차별화된 경쟁우위 확보 필요성이 결합 되어 진행되는 사이버 아파트의 활발한 보급과 이와 연계된 인터넷 콘텐츠 서비스의 결합 모델이다. 본 연구의 동기는 이러한 새로운 산업 컨버전스 비즈니스 모델의 하나인 홈네트워킹 서비스의 수익성 향상을 위한 가치 탐색의 필요성에 기인하였다. 이를 위하여 본 논문에서는 국내의 사이버 타운 서베이와 각종 분석 자료를 이용하여 비즈니스 모델 관점에서 이를 분석하였다. 분석방향은 비즈니스 모델을 구성하는 정보통신, 건설, 인터넷 비즈니스 콘텐츠 등의 개별 요소를 각각 정리하고 이들의 결합된 아케텍처와 수익성 창출을 위한 가치 요소를 제시하였으며 이를 바탕으로 향후 발전 방향을 예상하였다. 본 연구의 특징은 이제까지 문헌에서 중점적으로 다루어 지지 않은 산업 컨버전스 비즈니스 모델의 하나인 홈네트워킹 서비스에 대하여 비즈니스 이론을 바탕으로 정부 및 비즈니스 참여 조직의 가치 요소, 역할 및 수익성에 대한 시사점을 체계적으로 제시한데 있다.

키워드 : 홈네트워킹, 스마트아파트, 산업 컨버전스, 비즈니스 모델

I. Introduction

As we enter the era of Information Technology, the value of information cannot be heavily more emphasized as every part of today's society relies on and rapidly changes according to the knowledge based society. The leap in the progress of information technology has created

a new environment, whereby previously restricted information technology infrastructures cannot afford. The application of Internet over time has been evolved through four major phases: presence, e-commerce, collaboration, and integration (Turban, et al., 2004). With the commercialization of the Internet in the early 1990s, various web sites were built for people's

review as an information dissemination channel. Web based homepages and banners are enhanced to enable B2C transactions, and the firm's business usage of the Internet has been shifted from just an information providing to sales channels and marketing. Further, B2B transactions and e-procurement enables business interactions and collaborations to upgrade the supply chain performance. The recent trends of integration and services targeting digital environments and value chain reconstructions are rapidly emerging in the areas of converging media and communications, e-healthcare, e-learning, telematics, and home networking (Hegel and Singer, 1999; Tapscott, et al., 2000).

In this new digital environment, homes are emerging to become the central location for information technology usage whilst continuing to function as a home. In the case of Korea there has been a rise in the number of residential apartments as a percentage of total households from 7% in 1980, to 47.7% in 2000. This establishes apartments as the predominant dwelling type in Korea as the percentage of houses has decreased throughout the same period to 37.1% in 2000 (Korea Real Estate Research Institute, www.kreri.re.kr, 2002). These statistics highlight a growing trend in apartment living as the general lifestyle and the focal area of information technology usage.

Implementing various infrastructures into residential apartments like that in office buildings, to support the usage of high speed broadband and information technology, would help enabling more widespread usage of Internet applications. With this in mind, construction companies and IT companies have been creating the basis for developing and commercializing

the world's first Internet-accessible e-community, "Smart Apartment." This is possible due to the rapid growth in the use of Internet by the general population as well as the government's plans to increase the usage of high speed broadband technology. Apart from the growth in Internet usage, the use of advanced electronic goods that incorporate the ideas of IT use and digital technology has been increasing rapidly. In addition, new trends and ideas of 'home networking', and 'home automation' are emerging due to the convergence of communication, broadcasting technology, and terminals.

In this paper, we analyze the concept, the structure, and the core value propositions of the smart apartment with reference to the data captured from the recent developments efforts by Korean companies involved in the smart apartment. The data on the technical issues and policies are referenced from both the ETRI (Electronics and Telecommunications Research Institute, www.etri.re.kr), and MIC (Ministry of Information and Communication, www.mic.go.kr). As for the households demand characteristics data for the smart apartments are captured from the various resources including KT (www.kt.co.kr), Hanaro Telecom (www.hanaro.com), IT services companies, construction companies, and the general mass media. Since the home networking services in the context of smart apartment is in the inception stage, we used most data from the secondary source, and proposed the analysis results that could be elaborated to further researches of empirical testing.

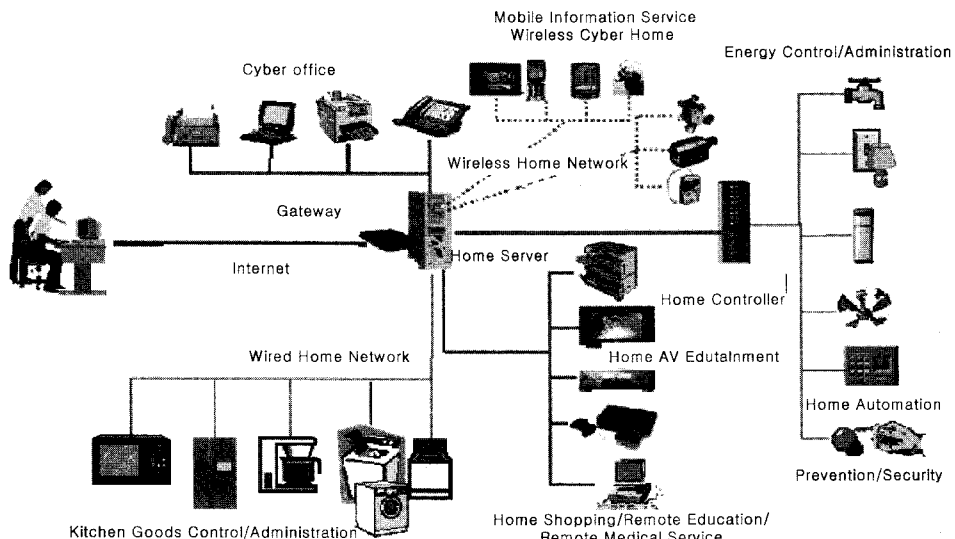
The objective of this research is to provide an overview regarding of living trends in the era of information technology and develop mar-

keting strategies based on the customers' perspectives in Korea. In the next section II, conceptual model of home networking, smart apartment in particular, is illustrated. As an extended e-community concepts, the structure and functionality of smart apartment component is detailed. In section III, the recent developments of Korean smart apartment surveys are reported. The analysis are made following the three core dimensions of industry converging business model aspects, those are government regulations, business participants networks, and customer value offerings (Wirtz, 2001). In section IV, value analysis of smart apartment is illustrated. Business model architectures are organized, and core value propositions including revenue generation mechanisms are suggested. Finally, in section V, general discussions are made on the domestic factors to boost smart apartment constructions, and its effect to overall economic growth of the economy as a whole.

II. Conceptual Model of Home Networking

2.1 Home networking concept

With the rapid technological innovation of computer and communications, creative new commercial applications exploiting digital convergence are prevalent. Telematics applications are based on the integration of computers and wireless communications in order to improve information flow. The storage and forwarding digital images from one location to another and videoconferencing is used for real time consultation for wireless telemedicine applications. Smart homes and smart appliances are another focusing areas using these converging technologies. The concept of smart or intelligent home implies the home computer, television, lighting and many other appliances can talk to each other via the Internet or a home intranet. The concept of the smart apartment is an apart



<Figure 1> Home networking architecture

ment that is built with broadband infrastructure to facilitate the use of various IT related products and services, which in turn will eventually lead to the development of 'on line-communities'. This in turn will create a new breed of culture - a 'home networking'. The formation for this idea began with the idea of the development of affordable and accessible broadband access that was heavily promoted by the MIC. In this paper, we will use the term smart apartment as the identical concept of home networking, and it represents the same concept for all the various terms continually being used ambiguously in the industry such as Internet apartment, wired apartment, cyber apartment (especially in Korea), intelligent apartment, etc.

2.2 Smart apartment and e-community

Recently, the idea is further developed for broadband to provide various improved content and services which allow for convenient, comfortable and safe access to information and entertainment. Smart apartments embody this idea as it can act as a medium for supporting 'communication' among the residents, hence creating a 'on line-community' (Kodama, 1999). In addition, a market for commercial activities may be formed from both tangible or intangible information provided to the residents. As such, the concept of smart apartment and its business model is extended to connect among the groups of apartments in different areas via broadband, thereby becoming possible to create a virtual community, instead of limited application of the smart apartment business model just sets of apartments in one area.

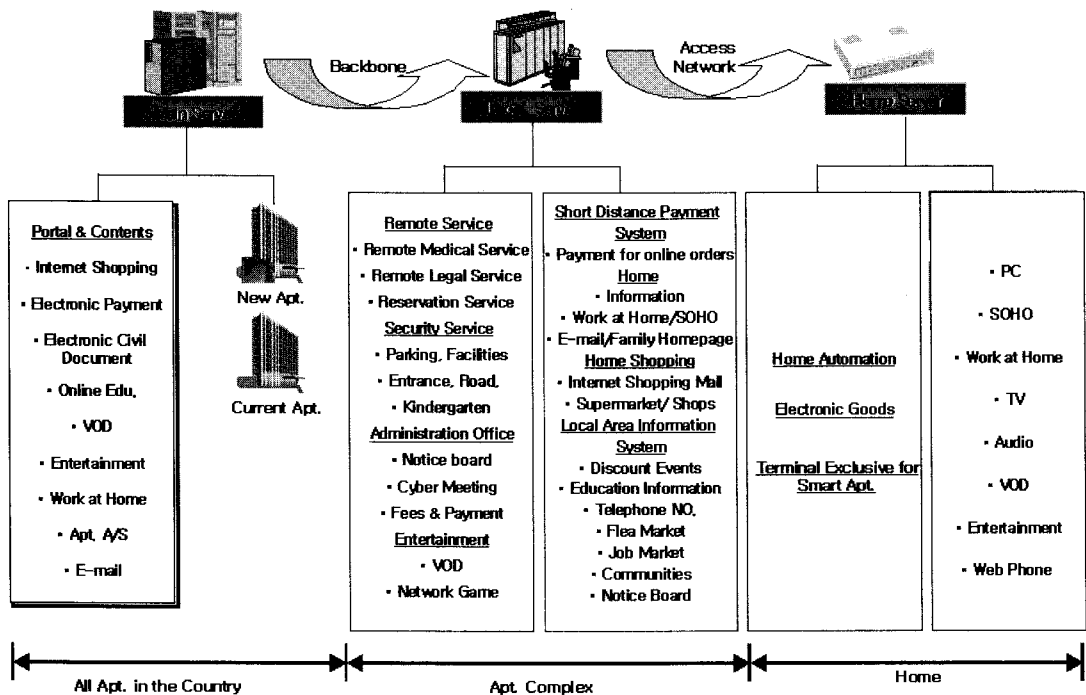
These days, apartments are transforming

from serving as an ordinary residency, to becoming a central location for IT usage. Various services provided by the smart apartment will increase both the quality of life for the residents, and the national competitiveness in general as a result of the population's widespread use of IT. The creation of a new market from the propagation of smart apartment will necessarily contribute to the active evolvement of new internet business models. The structure and functionality of the smart apartment is continuously evolving but the basic services offered on line will always remain the same, or change little at all. The minimum hardware requirements for the smart apartment include a high speed broadband backbone and access network and the middle-ware software system, application software, and an authentication and encryption system in order to protect user information. Within each apartment, the network will be used to inter-connect a home automation system and various electronic goods. The network system is also needed for the communication system within each apartment, as well as the inter-connection between groups of apartments. Once the basic infrastructure has been built, the next phase involves the cooperation of various groups of specialized content providers in order to provide the required portal content.

<Figure 2> is a graphical representation of the structure and functionality of the smart apartment concept according to the different classes and locations (e.g. home, groups of apartments, new/ current apartments in the country). This diagram shows that the overall system is integrated and managed collectively. The structure of the network is different among

new apartments and current apartments, but it can be grouped either as a backbone network or an access network. The most common method of network access is through use of dial-up modem, Cable modem or xDSL, the latter two of which can support large data transfers and hence, support converged online broadcasting and communication services. Following these trends, the deployment of broadband networks is being encouraged, particularly by the MIC which is active in trying to standardize through

its 'Certification System for High Speed Broadband'. The MIC has also established the 'Industry for Internet enabled electronic goods association' in the hope of standardizing home networks. The functions of the smart apartment include, high speed Internet access and portal services provided by the broadband network. Other functions also include 'Home Automation System' which interconnects various networked electronic goods within a home via the home network.



〈Figure 2〉 Extended smart apartment model

III. Current Developments of the Smart Apartment

3.1 Government participation

Recently, interest in the high-tech smart

apartment has been increasing, and as such the MIC has been classifying apartments into different levels of standard the introduction of this system will play an important role in apartment differentiation (i.e. product differentiation). That is, by implementing various levels of IT en-

abling services, it will bring about differentiation between the quality of lifestyle of residents- and hence become be a valuable element in product differentiation. Since 1995 the government through their policies has been preparing society to better use information technology. In April 1999, the government introduced a certification system, and certifying for the apartments to indicate those that have reached specified standards in implemented IT facilities and network in their buildings.

This was to help increase the general public's understanding, interest and usage of IT. By March 2002, 1,415 (official certification: 647, in reserve: 728) apartment complexes had been certified. In addition, most newly built apartments have been certified above grade 2(grade 1: 377, grade 2: 733, grade 3: 35, semi-grade 3: 270). The certification system is applied to apartments, houses or office buildings(6 stories and above or with a total area exceeding 3,300 m²) by investigating the architecture of the building and examining it with various tools to conduct various measurements in regards (1) the organization of network, cable type, whether terminals have been built, spare cables, number of inputs and outputs per port; (2) the structure, type, size and number of reserved pipes; (3) the size and condition of internal communication units, (4) the basic infrastructures of networks and its capabilities. Each are certified with grade 1, 2, or 3. For current apartment complexes which have had their optical access network upgraded to be eligible for grade 3 standard, will be certified semi-grade 3. Hence, the apartments that have been certified with appropriate grades, indicate that they are capable of providing a comfortable environment for Internet and

IT usage. The certification system is to help Korea to become the world's number one nation for Internet usage.

3.2 Business participants of smart apartment

Today, many construction companies are busy in trying to lead the new market for the smart apartment, as well as strategically cooperating with each other. These activities are projected to increase in the future. Previously, the emphasis was on the network hardware within the smart apartment. However, although the speed of the network is important, the quality of the content will play a deciding role in differentiating between the quality of apartments. Previously consortiums for the smart apartment were formed around the construction companies. These days however, they are lead by IT companies or IT companies in conjunction with construction companies in various forms. Smart apartment led by construction companies include: Cynet, Icitiro, Ezville, Technovillage, Joynlife, and Cybertown is serviced by the backbone network company such as KT and Hanaro Telecom regarding various broadband services. <Table 1> is a summary of activities currently being undertaken by construction, IT and other related companies that are in process of expanding their interest in the development of the smart apartment. Other venture companies like 'My Apt Net' (www.myapt.net), e-commerce companies and specialized internet portal companies are also actively seeking a share of the smart apartment community and market through the development of new business models.

While most smart apartments provide access to the Internet via the home PC, a number of smart apartments have been fitted with a new type of terminal that is playing an important role in influencing users in realizing the difference between normal and smart apartments. The innovative terminals allow flexibility in accessing the Internet from anywhere in the apartment through an array of devices such as touch screens on wireless

webpads and other user-friendly interfaces. Set-top boxes implemented on a normal TV allow for Internet access, VOD(Video On Demand) and networked games, making the use of 2-way Internet TV possible. In a prospect for the future, various Internet enabled electronic goods such as PDA, PCS, IMT-2000, and DMB technologies will be used as terminals, which will be used to control the "Home Automation System."

(Table 1) Activities of participants to the smart apartment

Sections	Icitiro	Cvnet	Ezville	Technovillage	Joynlife	Cybertown
Organization	8 Construction companies, 11 Collaborating businesses	1 Construction companies, 12 Collaborating businesses	8 Construction companies, 19 Collaborating businesses	20 Construction companies, 8 Collaborating businesses	7 Construction companies, 10 Collaborating businesses	Hanaro Telecom, Number of local Businesses(45)
Establish	1999. 12.	2000. 4.	2000. 4	2000. 5.	2000. 12.	2001. 3.
Number of complexes	114	19	10	2	7	Development of 3000 websites of nationwide apartment complexes
Number of applicants	approx.. 110,000	approx. 9100 (Residents 18,000)	approx. 4000	approx. 560	approx. 5000	
Type of network	Leased line -LAN	T-LAN, ADSL, Fast Ethernet	Leased line -LAN SDSL, VDSL	ADSL,	Leased line-LAN	
URL	www.icitiro.com	www.cvnet.co.kr	www.ezville.net	www.technovillage.com	www.joynlife.net	www.ctown.net

Note) The data on the table are on the basis of the year of 2002.

3.3 Customer services of smart apartment

An interesting trend is the idea of integrating information technology into people's lives. As an example, one of the critical issues is how to establish and maintain a community that targets the residents of apartments in a short period of

time. Early smart apartments concentrated on a structure for faster speed of broadband networks, but with introduction of the government's certification system for buildings implemented with broadband, there has been an increase in the range of services provided on the local area network(LAN) that connects apartments within an apartment complex. Such

various on line community services include: homepages, local area news, e-commerce and information on the maintenance of apartments.

With an increase in the number of services on the network, the competition for the types of services and the pricing is continuously increasing. In order to differentiate their products and services, they currently provide news relevant/tailored to people within the apartment

complex, local area news, residents' communities, e-commerce, home banking, cyber stock market, as well as remote education, remote medical services, electronic approvals on applications, electronic civil documents, and entertainment services (VOD/Networked games). In addition to the main services summarized in <Table 2>, there is also a new type of administration services that has been implemented

<Table 2> Main services provided by the companies of the smart apartment

Types		Icitiro	Cvnet	Ezville	Technovillage	Joynlife	Cybertown
Community services	Notice board of the apartment complex	○	○	○	○	○	○
	clubs/societies	○	○	○	○	○	○
Personal services	e-mail /homepage	○	○	○	○	○	○
Resident services	Details of the maintenance costs	○	○	○		○	
	Remote inspection	○					
	Reports for facility repair/application	○	○	○		○	○
	Online meetings				○		
e-commerce services	Shopping mall	○	○	○	○	○	○
	Department stores /Discount shops	○	○	○	○	○	○
	Local shops		○			○	○
Everyday services	News/weather	○	○	○		○	○
	Health	○	○	○	○	○	○
	Education	○		○		○	○
	Stock market	○	○	○	○	○	○
	Real estate	○		○		○	○
	Insurance	○		○			
	Bank	○		○	○	○	○
	Cards	○		○		○	○
	Cooking/magazines	○	○	○			○
	Legal	○	○	○			○
	Freight		○	○			○
	Transport Information	○	○	○	○	○	○
	Travel	○	○	○			○
Extra services	Entertainment	Internet VOD	Internet VOD	Fee paying movie		Internet VOD	

Note) The data on the table are on the basis of the year of 2003.

and in operation. These new services will allow the operators of the smart apartment to access administration services of the apartments. Other services possible only to the smart apartments' residents include: remote education by Internet, electronic civil documents, freights, e-commerce, warehouses, and laundry services.

IV. Business model of the smart apartment

The rapid growth of the IT industry has transformed the humble residential apartment into a central location supporting personal activities using IT. Due to this transformation, residents have access to: e-commerce, financial services, remote services, electronic civil document services, online education, security services, reservation services, work at home, apartment maintenance/administration and e-mail services (Kodama, 1999). In addition, a variety of local information can be obtained by connecting apartments within a local areas via LAN. The providers of portal content for the smart apartment earn profit from commissions on membership by bushiness and advertisement fees. As a result of this revenue model, Internet access can be provided at little or no cost to all residents. In addition, free education classes on education classes on Internet usage can be provided that are aimed to increase resident's overall awareness of IT and hence, stimulate demand for online services.

In this section, we analyze the business model aspects of the smart apartment following the definition of Timmers (1998), in which business model is defined as an architecture for the product, services and information flows, includ-

ing a description of the various actors and their roles; and a description of the potential benefits for the various business actors; and a description of the sources of revenues.

4.1 Business model architecture

The finer details of the business model of the smart apartment can be summarized as follows; infrastructure of devices and network; contents and structure of services; governance and management of smart apartments (Amit and Zott, 2001). <Figure 4> illustrates the summary architecture of the smart apartment business model components. One of the distinctive characteristic of the smart apartment's business model is that it involves various business actors so that effective integration of them could be vital to achieve profitability. The connectivity of the various business actors constitutes significant success factors especially in this kind of industry converging business models (PWC, 2000; Stabel and Fjeldstad, 1998). Network operators and device suppliers provides fundamental network infrastructures, and construction companies can add value to their apartment product value from the collaboration with network providers. As such e-commerce and contents providers of the portal services can provide direct value to the customer who adopts the smart apartment as a bundling services. The advantages of integrating values from various business actors in the sense of complementing their resource capabilities has been emphasized as crucial to success (Wernerfelt, 1984; Peteraf, 1993).

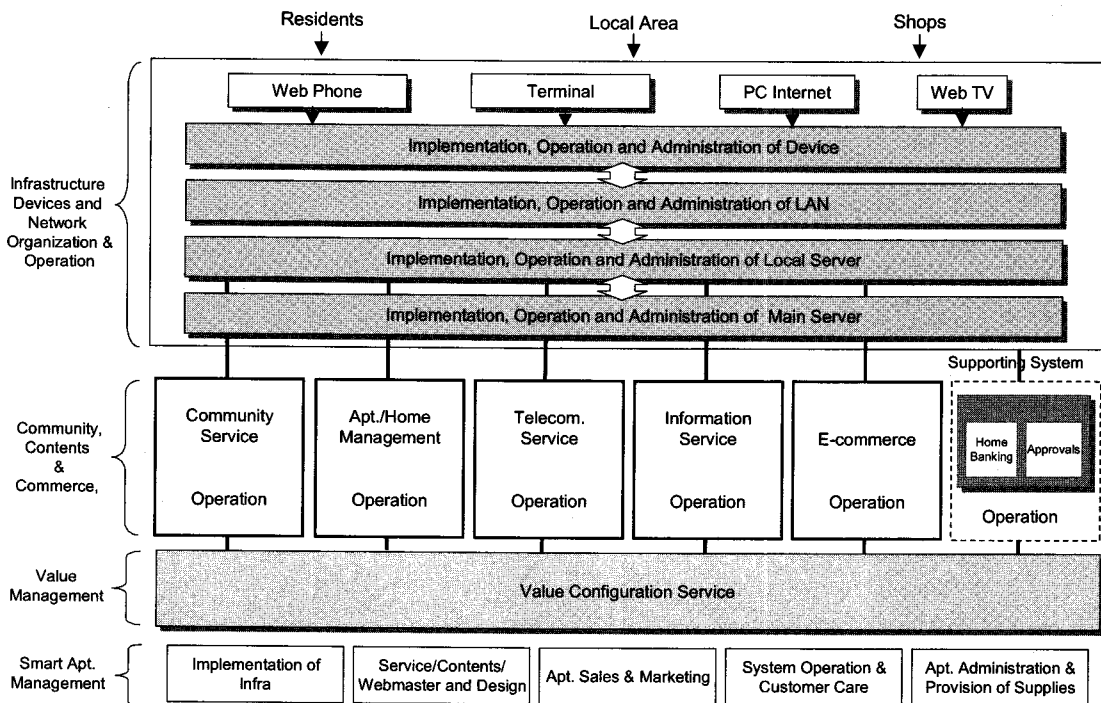
Analyzing the infrastructures of the smart apartment yields: the installed and administered

home server, the LAN and LAN server, the WAN and WAN server. Hence, the implementation of the infrastructures is operated with a variety of businesses, which will include the builders, telecommunication companies including ISPs, and also the providers of, networked electronic goods, LAN devices, servers and related devices, home automation machines, wired/wireless solution and control solutions, as well as those for the security devices.

The community, content and the commerce shall be developed in an effective way so that the smart apartment services can fulfill customer's expectations and hence, bring about customer satisfaction. For example, the operation of the network, system and devices must be focused on the customer - the resident's satisfaction. Issues that influence the provision of such

services will include; type of services, the quality of services, and how to accommodate for the services. Only seeking the fastest network and the highest quality servers and devices with no regards to costs or end user's needs in mind is not an advisable decision. Also, because this area of business involves solutions relating to the development of content, portals and shopping malls, it is expected that competition will be between both online businesses and off line businesses including local shops and service providers. Hence it is important that businesses must act in respect to customers, in trying to understand the customers' needs.

The effective control functions to govern the contents and management of the system are also the major component of the smart apartment business model. Value configuration functions



〈Figure 4〉 Business model of the smart apartment

of the contents, commerce, and community shall necessarily involve the analysis of smart apartment customers - the residents. With this information, the value configuration strategies and service delivery becomes more effective and efficient in their development and operation. In analyzing the general characteristics of the residents, one finds that they usually belong to clearly identifiable communities and also share similar lifestyles. The customer relationship centers for the smart apartment are pursuing their roles as a 'Total Living Support System' for the individual residents. Not only the operation of the services are important, but the need for the provision of valuable information in databases, for both construction companies, content providers, and e-commerce businesses is also important. As for the commerce functions, the internet gateway shall be operated as a local supply center for online marketplaces and shopping malls, incorporated with contents providers, solution developers or suppliers.

The administration function of the smart apartment contributes to resolving governance issues such as responsibility problems, efficient operation issues, and possible incongruence of the residence interests. The smart apartment model is made with customers; it's a model that reflects customer's needs and wants. In that sense, feedback from customers completes the smart apartment model. Therefore, the effective and continuous monitoring of the smart apartment services are made by a webmaster, customer care center, and end user interviews. Within the business itself, there is an equally important need for flexibility and active communication that can quickly respond to customer's needs. Such service is only possible through

continuous communication. Hence, those businesses wishing to expand into the smart apartment services must be active in communicating with customers via real-time communication networks available for their products and services. For example, consider an apartment to be a product which has been or will be purchased by a customer; then the person-in-charge of the sale, may hear customer's opinion in person, and reply accordingly. Other examples would include finding out and continuing to research any flaws found in the apartments and improving the capabilities of after-sales services by storing all feedback information in an easily accessible database.

4.2 Customer benefits and revenue

The critical asset value enhancement of the smart apartment services is proposed as the graph illustrated in <Figure 5>. With the assumption that the price of land is static and excluding other external market influences, the value of the apartment building itself would be inversely proportional to time (i.e. as time increases, the value of building decreases). On the other hand, the quality and quantity of services provided by smart apartments would increase proportional to time (i.e. as time increases, quality and quantity of services also increase). Hence as time progresses, the loss realized from the smart apartment itself will be compensated through an increase in customer value gained from both the quality and quantity of services, which would contribute to the overall increase in the asset value of the apartment. For example, a hotel's value is not only dependent on the building and facilities,

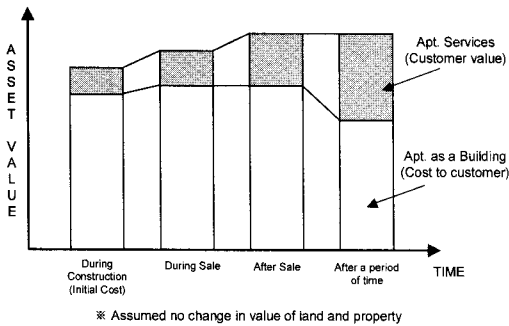
but on the quality of services. Overall, the idea of the smart apartment services can influence the quality of product differentiation, and the higher initial costs paid by builders and business involved will be recuperated through the revenue generating services. Value creating factors necessary to sustaining smart apartment business model are organized as follows.

- The most significant value creation from smart apartment is the customer value through the development of communities centered around the residents. The community users of the smart apartment, are often the residents within the same apartment complex, who are interested in sharing and solving everyday problems online. For example, they may try to solve problems of: unjust representation of the residents or compare products and services of local shops. That is, an interactive and close-knit community within an apartment complex that has been created through the infusion of technology. The value of Internet community formation and expanding to profit generations through incorporating electronic transactions has been addressed in Hagel and Armstrong (1997). It also gives us a practical insight that smart apartment complexes should pursue brand strategies to differentiate the benefits that can be attributable to prospective tenants. In the same way that luxury apartments brand themselves through generous sized living spaces and imported fittings, smart apartments could brand themselves through the seamless connectivity between residents that they have on offer.
- Total cost reduction to customer while sat-

isfying customer value is another vital component of smart apartment value creation. The cost incurred to customers at the smart apartments will range from Internet connection charges and the use of online services, to administration and the cost of developing appropriate infrastructures, as well as other living expenses. Compared with general apartments, smart apartments include higher customer costs with regards to the installation of broadband, and other infrastructures in the earlier stages of development. The cost advantages from effective bundling services are one of the focal points in the internet business and in general (Williamson, 1989; Gulati, 1998). Hence, the builders and businesses involved can partly recover these costs through the profits earned from more efficient and effective administration, and through on line businesses resulting from the smart apartments operation.

- The convenience of the smart apartment, ranging from being able to interact online to influencing various aspects of everyday living, is effective to smart apartment adoption. The value and the power of online communities effects to the number of members involved and the importance of the ease of use for its members stems from. Improving the ease of use would include the removal of any barriers for members in using the technology (Devaraj, et al., 2002). Such examples include: installation of hubs for access to the network from anywhere in the smart apartment, always on and affordable access to the Internet, user friendly screen displays, variety of user friendly data devices such as web pads, and free education

on technology and terminal usage.



〈Figure 5〉 The asset value of the smart apartment

V. Discussions and Implications

Smart apartment leads the way to combining information technology with the housing, by interconnecting with various media, that was once separated, to improve and bring comfort to the lifestyle of people. As was reported by the recent research US survey on the influence of Internet on the general society, conducted through 'Pew Internet & American Life Project' (www.pewinternet.org), the relationship between a person's social life with the Internet significantly correlates with each other. In this paper, we have reported various issues of smart apartment, one of the rapidly commercialized area of home networking. Using various secondary data available from diverse sources and the eight smart apartment complexes surveys, we illustrated current development status of this newly emerging areas, and analysis of the business model from the digital convergence perspective.

There are variety of services available to residents on line. The concept of the network emerges to become a mandatory living environ-

ment, by connecting the apartment with broadband network which allows for the creation of virtual communities and provision of a variety of services. The everyday lives of people are influenced as a result of the extensive use of online content and services such as e-commerce, online education, medical services, and government related matters. We think that those enabling factors attribute to Korean's high level of interest and education of the population, and the fact that apartment complexes are geographically concentrated thereby creating an opportunity to experiment and expand technologies, particularly those necessary for the smart apartment.

The nation is now developing from an industrialized society to a knowledge based society, where the main changes now centers around homes and the use of technology within homes. Hence, it is important to create a strong foundation in order to take advantage of this trend. Construction companies are in the process of building certified apartments fitted high speed broadband, and the IT businesses are actively developing various network devices, electronic goods and software content, that will be applicable to the broadband network. Therefore, the smart apartment can creates an opportunity for construction companies, IT related companies and even the venture capital industry to establish new business models. Further, the role of smart apartment can be significant at the national level in that it contributes to the overall growth of the knowledge based nation which in turn, translates into an increase in the national wealth. Since future dwellings will be designed to be connected to the network to enhance for human comfort in regards to everyday activities

and to promote efficiency and effectiveness through time and space, we expect that the demand for the smart apartment is projected to increase as time progresses.

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Recent Home Networking Services Development and Future Directions: Case analysis of Korean Smart Apartment Complexes

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Abstract

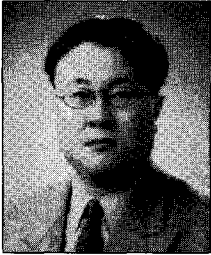
Induced from government policy to boost regional economic competitiveness, regional informatization forming e-community has been the subject included in the various regional informatization master plans in Korea. However, few cases are reported for its successful implementation mainly due to the lack of profitable business model to encourage investment. On the other hand, most efforts to build smart apartments, part of the home networking in a broad sense, has been pursued from the different directions. Telecommunication giant such as Korea Telecom tries to find new source of revenue exploiting enhanced broad band technology. Also, construction companies started constructing housing complexes equipped with built-in high speed network infrastructure as a means to differentiation to other competitors. The contents providing community portal has become mandatory in the sense of bearing the cost from customer side who are willing to adopt those services for new smart house. Our research motivation stems from exploring critical value aspects of realizing the profitability of this emerging new business model, that is, industry convergence model. In this paper, mainly from the survey results of the Korean smart apartment complexes, we reported recent home networking services development in Korea, and value propositions from the business model perspective. Merged business model components of telecommunications, construction, and internet contents are analyzed to provide the insights for future directions.

Keywords: *Home networking, Smart apartment, industry convergence, business model*

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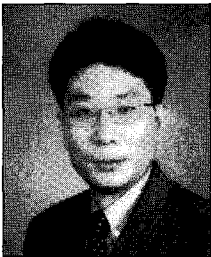
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현재 한국전자통신연구원 유비쿼터스IT전략연구팀 선임연구원으로 재직 중이다. 미국 Whitworth 대학교 경영학과에서 수학하고, 동대학원에서 국제경영학 전공으로 석사학위를 취득하였으며, 한양대학교에서 정보기술경영 전공으로 박사과정을 수료하였다. 주요 연구분야는 정보통신 경영 및 전략, 정보통신 산업 정책, e-비즈니스 모델 등이다.



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서울대학교 산업공학과 학사, 한국과학기술원 경영과학 석사, University of Massachusetts at Amherst에서 경영학 박사를 취득하였다. 현재 한양대학교 정보통신대학 정보기술경영전공 교수로 재직 중이며 POSDATA(주)에서 컨설팅 사업부장을 역임하였다. 주요 관심 분야는 기업의 e-Transformation, e-비즈니스 모델, 공급사슬 IT 응용 등이다.

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