9. Seoul's Digital Media City

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Background

Development of a New Town for a New Millennium

The last century in South Korea was characterized by rapid urbanization, taking after the fossil fuel-driven industrialization and modern cities of the Western world. Quantitative growth, heavily dependent on economic and physical development, has brought wealth and prosperity to to both individuals and the state and is deemed a success in from an economic perspective. However, the economy-driven, compressed growth has somehow given birth to the notion that sacrifice by the socially vulnerable and of the environment is inevitable for a nation to grow. In fact, the growth has been built on the sacrifice of priceless values – social continuity and environmental sustainability – and has resulted in a myriad of issues and adverse effects.

Entering the 21st century, Seoul' s major industry – manufacturing – was quickly replaced by information technology. Public awareness of various issues also experienced significant growth. More people began to consider the outcomes of compressed growth and the importance of the environment. The pursuit of a good quality of life became increasingly valued. After the Asian financial crisis, the South Korean government and people realized that quantitative growth was no longer the best development model. It was against this transitional background period that the Sangam New Millennium Town project was born, with the nation turning its attention to attracting industries that would be the next engines for growth while pursuing a peaceful balance between environmental preservation and urban development.

Figure 1 - Location of DMC

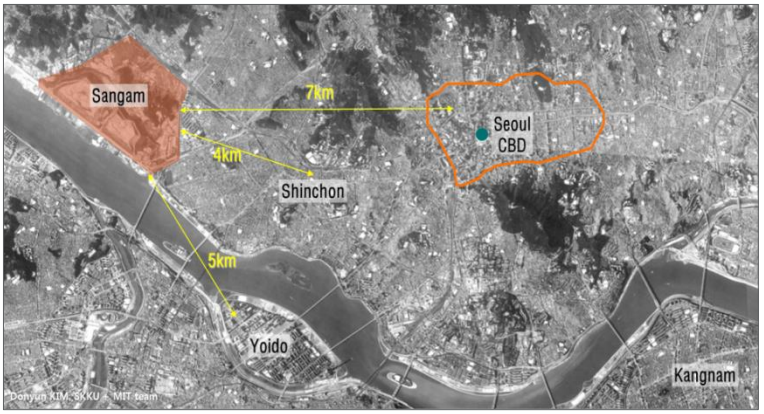

Figure 2 - Transformation of Nanjido & Sangam

In the early 1960s, Nanjido, a beautiful and peaceful island of orchids and mushrooms, was nowhere to be seen. In its place, coal briquette ashes and waste generated by 10 million people and construction were piled up as high as 100 meters and as wide as 2 kilometers: a massive hill of trash (190 million tons). Consequently, the Susaek Station area, which had been the most vibrant hub of transportation before the two Koreas were separated, became an abandoned, contaminated place with no activity. Once again, the area would be revived and become the site of a new town for a new millennium. The change was sparked when the decision was made to build a stadium in the Susaek and Nanjido area for the 2002 Korea-Japan World Cup. The fact that certain projects had to be completed to make this global mega-event a success acted as catalysts to the chain of transformation in the region.

For this, the Sangam New Millennium Town Master Plan (New Seoul Town Development Guidelines, 1998) was established. The key objective was to build a new, sustainable town for the future through environmental renewal and novel technologies. Abandoned land would be developed into a valuable resource for the future, a business center for Northeast Asia built on high-tech industry clusters that would ultimately take Seoul' s competitiveness to the next level, and an innovative, sustainable model of a city where people live, work, and play all at the same time. As a gateway to Seoul, its geographical advantage and ultra high-speed communications network and infrastructure would be used to foster upcoming digital media industries in a district designed for new creative industries and futuristic residential complexes with extra attention paid to the environment and a technology infrastructure. The nearby Millennium Park was designed in reflection of the past inattention to the environment and placed more focus on the peaceful cohabitation of people and nature and on the efficient use of land and saving energy and resources.

Efforts to develop the Sangam area were considered demands for both the present and the future. As a result, the massive heap of garbage was turned into an eco-park that would be attractive to the 10 million citizens of Seoul, and able to successfully host World Cup games as part of the first global event of the 21st century in South Korea, taking the world by surprise.

Figure 3 - Sangam New Millennium Town Master Plan

DMC

DMC (Digital Media City) is the key to the Sangam New Millennium Town Development Plan (2000) that will open the door to Seoul' s new future. With a vision of becoming the center of the global information media industry as a high-tech information city that will lead economic, cultural, and environmental development, DMC set 3 main goals: be the world-leading producer of digital media content, be a world-leading academia-industry-research center for digital media technology, and the overall most sought-after business center in Northeast Asia.

For these grand goals, DMC acts as a laboratory where synergy is maximized via collaboration between disciplines, industries, industrial-disciplinary, the public and private sectors, and between the generations, where new technologies and cultures are tested to experience the tomorrow 'now'. It will be a place where new resources are continually produced and accumulated, where creative minds exchange information, acting as a portal bridging Seoul with Northeast Asia, and connecting South Korea to the world. Ultimately, it would become a digital media city in a true sense, the nerve center for the economies of South Korea and Northeast Asia, and further develop into the heart and business hub of the Northeast Asian network where the brightest minds gather together to study and develop life-changing technologies and contents. The design is such that when people think of DMC, they will associate it with novelty, innovation, creativity, cultural diversity, and advanced IT, to help them project a positive image of Seoul and South Korea. It is also designed as a pioneering industrial ecosystem based on creativity, innovation and flexibility, acting as the heart of a national network that shares its best with other technological centers. DMC will help push South Korean IT and content industry to the top of the world, driving digitalization of other industries and subsequently enhancing productivity.

Basic Direction & Principles

Setting Direction & Principles

DMC is a futuristic community of urban production and an industrial ecosystem where traditional urban activities and cutting-edge technologies come together. It is designed as a novel, high-tech industrial cluster, a lively, pedestrian-oriented city that supports diversity of use, where creativity lives, works and plays. To realize this ideal, the following principles have been developed:

First, it is essential to provide information customized to the preferences and needs of visitors via a cutting-edge infrastructure, both wired and wireless, making DMC a "smart" town. For this purpose, digital computing technology and new "smart" urban infrastructure should be supported and pioneered by the City of Seoul.

The second principle is the concept of a permeable border between building and street, between the inside and outside – the private and the public domains respectively – designed to boost interaction between the two. This involves arranging the space on the ground level of a building to be both private and public in nature,

offering programs by which technological innovation and information produced inside are shared with the outside, especially at street level.

The third principle is mixed use of a single space, presently impossible under the existing system where districts are designated for certain uses. The DMC management body can offer incentives to land- or building owners for an ideal mix of uses, also providing at the same time a space that allows for multiple uses, primarily located on the ground level, adjacent to the street.

The fourth principle is a 'programmable urban landscape' for cutting-edge ICT and relevant programs to support various urban activities and respond to the demands of pedestrians. This would offer experiences that cannot be replicated in ordinary street environments, with urban public spaces like streets taking on special purposes. Street facilities can be installed according to changing needs and to give uniqueness to DMC.

Summary of the Plan

Competitive Urban Functions & Industries

DMC classifies information media industries into IT hardware/software, IT services, and M&E content, and has selected those most likely to be seen as attractive and relevant. Key industry relevance was determined by location, competitiveness, and uniqueness, with M&E and software found to be most appropriate.

One of the greatest factors behind the success or failure of a new industrial complex is whether it is different from other similar types, or even unique. This is the reason focus was placed on M&E and software, the primary and secondary core industries, with an aim of developing the place into a specialty complex.

Table 1 - Competitive Functions & Industries

	software	Hardware	IT Service	Media& Entertain-ment	Biotech-nology (Others)
Cyberport Hong Kong	●	●	○	●	○
Cyberjaya, Malaysia	●	●	●	●	○
Singapore Science Park	●	○	●	○	○
Taicang Science & Technology Park, China	●	●	○	○	○
Hi-Tech Park Shanghai, China	●	●	○	○	●
Science Park, Hong Kong	●	●	○	○	●
Hsinchu Science-based Industrial Park, Taiwan	○	●	○	○	●
Nankang, Taiwan	●	○	○	○	○
Digital Media City, Korea	●	●	●	●	○

● Primary Core Industry ● Secondary Core Industry ● Third Core Industry

A Different Approach to Land Supply & Gradual Program Planning

To transform DMC into a global leader in digital media, facilities are divided into: key facilities (broadcasting, games, animated films, music, digital, etc.), recommended facilities (media and entertainment, software/IT-related services, manufacturing), and general facilities (CBD business or commercial facilities).

Instead of relying on conventional block sales, DMC became the first region in the nation to adopt a phased-in sale of lots to successfully attract key facilities and industries. Suitable companies are provided with a location for business to create a prosperous ecosystem of high-tech industries, linking the business and its performance with the supply of land.

To offer an environment that developers trust and are willing to invest in, the City of Seoul and the central government prioritized the development of public facilities and functions necessary to boost the relevant industries. Because the conditions of DMC were inferior to other similar projects in Seoul, it was critical for the

public sector to drive the project forward to win the trust of the market. An action plan was developed to build the key facilities for media and entertainment and the infrastructure proposed by small and medium-sized enterprises (SMEs) (high-tech industrial center; accommodations for foreign visitors; Korea Creative Content Agency, the research facility of the Ministry of Culture, Sports & Tourism; and Nuri Dream Square, the business start-up center of the Ministry of Information & Communication).

Table 2 - Strategy for Supply of Business Space

	Key Facilities	Recommended Facilities	General Facilities
Supplied To	Designated facilities (public institutions) Multilingual education facilities Public-assisted facilities (Korea Creative Content Agency) Non-designated facilities Broadcasting facilities (terrestrial broadcasting station) Research & education facilities (media-related research centers) Academia-industry-research facilities (related to basic IT research)	Developer Companies (users)	Designated facilities Hotels, residential-commercial buildings, commercial-leisure buildings, religious facilities, public offices (public and government) Non-designated facilities Individual companies per corresponding lot, etc.
Supplied At	Development cost (for designated facilities) Appraisal rate (for non-designated facilities)	Appraisal Rate	Bid Rate Development cost or appraisal rate (urban factory) Development cost (public facilities)

Evolving Urban Design to Adapt to Changing Demands

The spatial structure of DMC is split into two categories: "Media & Culture" and "Digital & IT". Additionally, a feasibility plan was developed so as to promote accelerated use and long-term success of the area, while ensuring its linkage to the adjacent environmentally-friendly residential complex, improved residential environment district, and the planned Susaek district in the functional, spatial and policy sense.

To usher in this plan, priority facilities (broadcasting facilities, Korea Creative Content Agency, media-related research centers, Seoul Business Center and research & education facilities) were arranged at the center; other facilities (high-tech business facilities, general business facilities, commercial facilities, commercial-leisure facilities, residential-commercial facilities, hotel & convention centers, urban factories, etc.) considered the traffic/environment/building height restrictions but were planned to maximize location potential. To create a "center" feel for the intersection of major arterial roads, high-rise buildings were arranged systematically, carefully considering their height and shape. It was also suggested to locate a landmark for all of Sangam at

the south entrance to the district.

Digital Media Street (DMS) is a central street planned for major activities designed to create the image of a high-tech city. DMS was planned as a crescent shape towards an attractive street environment and to respond to varied demands. It was also designed to inherit the sense of scale from Myeongdong and Insadong. By each public space located at major points, the concept of "augmented place making" was applied, embracing both the latest media technologies and traditional elements of a city. Adjacent commercial facilities were also encouraged to adopt this concept for applicable spaces and to provide for multiple uses of particular spaces.

Upgradable Infrastructure for Sustainability

To help DMC become a global hub for digital media and for original, creative culture, infrastructure was made agile to enable effective response to new demands and changes. Namely, IP Intellights and media façades – interactive installations with sensor and monitoring functions – were installed across the district to support the digital media businesses in the area. Other smart infrastructure installations include two-way wireless LAN stations and NOC (Network Operation Center).

Other types of integrated infrastructure provided at the district include: "industrial infrastructure" supporting media, video, game facilities, programs, industries and business; "cultural infrastructure" supporting artistic and cultural activities; and "green infrastructure" utilizing renewable energy.

Figure 4 - IP Intellights

Digital Media Street (DMS) as a Landmark Location

DMS is the main street for DMC and brings together IT and media content to create a digital environment where physical activities and space interact with cyberspace. DMS is a leading project designed to make

DMC the incubator for cutting-edge digital media technologies and content.

DMS will be a living laboratory for new technologies and culture. This high-tech urban environment will be the center of future city activities and life, shaped by creativity, innovation, and flexibility. It will be where people can experience tomorrow "now".

It is also a place where new technologies interact with the future, designed to help resident companies showcase their digital media technologies and applications. DMS will be a place where new technologies and ideas are applied even during development, and many of its ideas have been applied in real life.

Figure 5 - DMS

Figure 6 - Making of the High-Tech Cultural Space on DMS>

Source: Making of the High-Tech Cultural Space on DMS, 2010

Process & Management Organization

Process

① Planning

From 1997 to 2002, major plans, business principles, and policy and institutional frameworks were drafted and planned. The designation of Sangam for inclusion in the land development program in March 1997 sparked the development of adjacent areas in preparation for the Korea-Japan World Cup. Starting with the New Seoul Town Development Master Plan (1998), plans required for DMC, such as the Digital Media City Master Plan (2001) were developed by experts from home and abroad under the leadership of the City of Seoul. Based on these plans, the Seoul Ordinance on DMC Assistance (2002) was drafted, followed by various promotional and marketing activities.

② Development

From 2002 to 2014 was a period of development when the conventional and smart infrastructures were set up, including most of the buildings and facilities required for industry and culture. The physical environment, such as DMS, is not yet complete, but the headquarters of major media companies – MBC, YTN, and Donga Daily – and the City of Seoul' s IT Complex building were completed in October 2014. The smart infrastructure is mostly in place, such as the aforementioned IP Intellights, and companies have moved into the buildings. Companies that are to move in have been chosen for all sites except a few (such as the landmark site), and are ready to complete this ecosystem for the digital media industry.

③ Management

The period of management overlaps with the development period, and began when DMC CoNet, the resident company council at DMC, was founded in 2008 to start the private sector-led management of the district. While the DMC program was acclaimed at home, this was especially the case abroad. As a result, Russia Science Seoul (RSS) and ASEM' s TEIN (Trans-Eurasia Information Network) research center moved in. Exchange programs were also initiated with international industrial complexes such as University of Maryland BioPark (USA) and Sophia Antipolis (France). Moreover, Seoul Digital Culture Open (SeDCO) has been held every year since 2008 to maintain a competitive edge as the center for the digital media and cultural industries. Still undergoing development and improvement, DMC has recently discovered more demand through a business assessment and needs to be proactive if it wishes to maintain its competitiveness and evolve into a source of creative culture.

Management Organization

The management organization for DMC was established on July 28, 2000 when the "DMC Task Force" was founded by the city of Seoul government. At the time, SH Corporation was commissioned with the site devel-

opment for DMC and also launched and operated an Information City Task Force.[1] In 2002, Seoul placed the DMC Task Force at the Bureau of Industry & Economics to oversee the DMC program, attract IT companies to the district, and invite foreign investors. Since then, the name of this organization has changed multiple times to DMC Team, Bureau of Industry (January 15, 2003); DMC Department, Bureau of Industry (January 2, 2007); Investment Team, Competitiveness Promotion Headquarters (May 31, 2007); Investment Department, Competitiveness Promotion Headquarters (July 30, 2007); Investment Team, Competitiveness Headquarters (January 1, 2008); Investment Department, Economic Promotion Headquarters (September 27, 2010); and Investment Department, Division of Economic Promotion (January 1, 2012); with roles and responsibilities changing accordingly.

DMC is managed by the City of Seoul, SBA, and SH Corporation in accordance with the assigned duties. The City of Seoul has been responsible for DMC-related ordinances, guidelines, plans, operation of working-level committees, and other general policy-making and planning processes. It also eased regulations on land supply and relevant plans while working on the guidelines and their management. Other duties include developing operation plans for supporting facilities, assistance plans for resident companies, websites for financial assistance and district promotion programs, "culture open" plans, tourism promotion plans, and CoNet operation plans. SBA is in charge of i) managing the supporting facilities (monitoring resident company compliance with designated use protocols, selecting resident companies, and collecting resident contributions, etc.); ii) offering assistance programs for resident companies; iii) developing "culture open" plans and operating CoNet; and iv) promoting tourism and conducting marketing activities. For its part, SH Corporation supports infrastructure development and appraisal, notification, presentation, and other land supply-related responsibilities.

To ensure the consistency in planning, experts who drafted the early plans are encouraged to stay involved in the urban planning, construction, and management process via the DMC Planning Committee, the DMC Working-level Committee, the DMC Management Committee, the District Unit Planning Committee, and the Landmark MA Committee, etc.

Table 3 - DMC Responsibilities

Duty	City of Seoul	SBA	SH Corporation
Policy Making & Planning	Manage DMC-related ordinances and guidelines; Operate the DMC Planning and Working-level Committees; Establish DMC policies and development strategies	-	-

1. Seoul Metropolitan Government and SH Corporation, Comprehensive DMC Development Plan 3 (DMC Promotion Plan), 2010.

Land Supply	Develop land supply plans; provide the sites (project orientations, applications, selection, contracts, collection of fees)	-	Support infrastructure development and construction, land supply-related responsibilities (appraisals, notifications, orientations, applications, contracts, collection of fees, etc.)
Management of Designated Use Protocols & Development Schedule	Ease regulations and manage guidelines; manage progress (e.g., land use approval, agreement to begin construction, KGIT Center, landmark buildings); manage designation of use and development schedule	Assist resident companies with their status and progress (monitor compliance with designated use protocols)	-
Management of Supporting Facilities (DMC Academia-Industry Research Center, DMC High-tech Industrial Center, DMC Promotion Center, DMS, etc.)	Develop supporting and public facilities; develop operational plans for supporting facilities; develop financial and other assistance plans for resident companies	Manage supporting facilities; review resident selection; collect resident contributions; implement assistance programs for resident companies	-
Promotion of the District	Run the DMC website; develop plans for "culture open" and CoNet operation and to promote tourism for the area	Implement DMC "culture open" plans, promote tourism; operate the resident company council and CoNet	-

Source: Internal data, Seoul Metropolitan Government

Major Achievements

<MBC>

<KBS Media>

<Electronics Center>

<CJ E&M>

<YTN>

<Cultural Content Center>

<Nuri Dream Square>

<LG CNS, LG Telecom>

< TRUMP Korea >

<Pantech>

<Pan Entertainment>

<Sangam IT Consortium>

<SBS Prism Tower>

<High-tech Industrial Center>

<DMC R&D Center>

<DMC Ville>

South Korea's Largest Media Hub & a Living Laboratory through Consistent Planning

South Korea's top 3 broadcasting headquarters, key branches, and major media companies and their branches have moved into DMC. With these reputable media, film, game and animation companies, DMC has become the largest media hub in South Korea and a global leader in the media industry. As of today, some 882 companies operate from DMC, including 442 high-tech companies (241 M&E content companies, 179 IT/software companies, 22 NT•BT companies) and 440 supporting and offshoot companies, employing some 40,000 people. Completion of the district is expected to create a total of 68,000 high-quality jobs, with resident company revenues expected to reach KRW 35 trillion. Considering most resident companies are in M&E and IT, the economic repercussions will be far greater in the future than now.

New Ecosystem of Full Range, from Digital Media R&D to Education & Production

The Academia-Industry Research Center was built to reinforce DMC's R&D functions, while the High-tech Industrial Center was established to foster SMEs. Having invited top global research centers to join, DMC is more than a hub for content production: it is now the birthplace of core technology. The integration of media content production by broadcasting companies, information production and distribution by media companies, and production of entertainment content from a single district will not only generate profit for individual companies but also produce synergy aided by the media network, proving the advantage of creating a media ecosystem.

An e-Sports stadium and 4D studio were also built to diversify the range of content production at DMC. A 'Cartoon Artist Zone' (which can be linked with the 'PD Zone' and the 'Director Zone') was also installed to boost the competitiveness of the content industry in comics and animated film. This will act as an incubator for training experts, producing creative content, and experimenting with new ideas.

DMS: the First Beautiful, Smart Street in South Korea

Construction of DMS is underway, and is one of the key DMC projects. Measuring 815 m east to west and 325 m north to south, it is in fact the world' s first "concept" street with smart functions. Located at the heart of DMC, DMS is a test bed for digital experience aided by the latest IT and media content technology. This frequently visited high-tech tourist attraction provides unique experiences to visitors 24 hours a day. The plaza in front of MBC, Korea Creative Content Agency, and Nuri Dream Square have been acclaimed as new concepts in urban space, shaped by the latest technologies, broadcasting content, and urban activities.

DMS is an experimental urban infrastructure perfected by the creativity of individual buildings. It proposes to be an exemplary model of a street environment that can evolve and stay "smart".

Thanks to the creative urban design and detailed guidelines, DMC has turned its streets, buildings, and urban facilities into valuable resources unique to the district. It is a good example of open and reasonable planning and development. In particular, guidelines allowing permeability in building ground floors and opening the space to pedestrians have significantly contributed to making the city environment more integrated, and breathing vitality into it. It has also helped resident companies and users experience the economic benefits of such a practice and change their awareness about the regulatory nature of urban design. Today, resident companies and residents alike share the necessity to work together to make DMC a better environment. Presently, a suitable platform for this is being developed.

Systematic Development of an Industrial Ecosystem Through Selection of Suitable Companies & Provision of Land

Instead of relying on bidding and block sales, a new approach was chosen to find companies seeking to meet the project objectives. This way, projects are pursued in a more consistent manner as the new approach integrates project models with physical plans. Public projects with certain objectives are linked with companies with relevant demands, to whom the project is proposed and a site provided. This is one of the main reasons that DMC has become an industry cluster and high-tech industry ecosystem. The decision to switch from conventional real estate development to a new direction and provide space to suitable companies has made a significant difference in the development of the high-tech industry cluster in Korea.

Cultural Origin of Digital Media

Digital media projects were launched at a time when the concept was new. To boost the program, the City of Seoul hosted artistic and cultural events such as the Media City Biennale and Seoul Digital Culture Open. While these early programs continue, newer events – short film and documentary festivals – are being added and held throughout the year, with the influence of MBC and CJ auditioning programs being felt far and wide, engaging the district in cultural pioneering. DMC has obtained its competitive edge as a new industry cluster, and is now recognized by the world as a cultural source in this era of digital media.

New Model for Urban Restoration & Knowledge Industry Package

Environmentally, the area has become a test bed for "green" technology and urban restoration in South Korea. From projects such as "Plant 10 Million Trees" to renewable energy technologies involving hydrogen fuel cells and zero-carbon houses, the latest environmental technologies and industries have been brought together to restore a sustainable ecosystem to this previous landfill site. DMC involves not only the regeneration of Hongje and Bulgwang Streams but also the restoration of Cheonggye Stream. It is now an invaluable reference to many cities in and outside of Korea.

Socially, DMC has helped develop the urban production community (which continues to evolve), where the entire process from production to use takes place. All the functions required for the media industry and production of knowledge are located here, with the environment allowing everyone, from business start-ups and entrepreneurs to SMEs and large corporations, to work together to turn original ideas into valuable creations. Residents have joined with companies (including CoNet, a gathering of companies) to be actively involved in management, and improvement, of the region.

Economically, the area creates value. Some 40,000 employees working at 882 companies are the engine driving the local economy. Tax revenues that go into national and city coffers are more than just numbers. Furthermore, the existing approach of block sales was rather ambiguous, caught between investment and speculation, but the new approach of providing land that companies need presented a new possibility and a new model for more advanced urban development and restoration that allows everyone involved to share the fruits of success.

DMC is an ongoing program, but it has been praised as exemplary by MIT's New Century City Forum. It is the amalgamation of future knowledge industries and has contributed to the planning and implementation of the Digital Mille project in Zaragoza, Spain, and of the Media City UK project in Manchester. Thanks to its success in injecting core production functions into the city and enhancing the city's competitive edge, DMC has been benchmarked by Baikal Smart City (Irkutsk, Russia) and Đà Nẵng High-Tech Park (DHTP, Vietnam) in terms of its development of a high-tech industry cluster and strategic urban development/restoration.

Figure 7 - Renewable Energy Infrastructure in DMC

Implications

DMC is still ongoing but is gaining increasing attention from the world. With this project, Seoul has systematically achieved its goals of enhancing the city's competitiveness and creating a model for a sustainable city, highly-sought after by many cities in advanced nations but without much success.[2]

Seoul has struggled to escape the past pattern of quantitative growth and become a city where people and nature co-exist peacefully, where tradition and history are treasured. The above-mentioned goals were tested at DMC and the potential for success discovered. Such attempts at novel planning and experimentation were what made it possible for the city to change its urban development policies, providing a groundwork for today's Seoul Plan.

As a "smart" "green" city integrating environmental, social and economic sustainability, DMC is a model urban production community and is considered more highly outside of this nation's borders than within. It is more than a simple urban development project: a new creative ecosystem of knowledge and a cluster of media and IT industries have been created, proposing a system and a precedent for creating a new understanding of value. DMC shares this understanding of value with other countries and encourages them to start a change, based on the leadership it has shown in the creation of new urban industries.

In the past, South Korea has been rather keen on following in other countries' footsteps. However, DMC has showcased an integration of media and urban development, a place where industry and culture join together. DMC now does more than sharpen the national competitive edge: it demonstrates that creating value can change the future of mankind and the world.

2. MIT,2005, MIT Tech Talk, vol.49, no.16, p.6

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