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## **How Design Plays Strategic Roles in Internet Service Innovation: Lessons from Korean Companies**

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### **Abstract**

In order to survive in the highly competitive internet business, companies have to provide differentiated services that can satisfy the rapidly changing users' tastes and needs. Designers have been increasingly committed to achieving user satisfaction by generating and visualizing innovative solutions in new internet service development. The roles of internet service design have expanded from a narrow focus on aesthetics into a more strategic aspect. This paper investigates the methods of managing design in order to enhance companies' competitiveness in internet business. The main research processes are to: (1) explore the current state of internet service design in Korea through in-depth interviews with professional designers and survey questionnaires to 30 digital design agencies and 60 clients; (2) compare how design is managed between in-house design groups and digital design agencies through the case studies of five Korean companies; and (3) develop a taxonomy characterizing four roles of designers in conjunction with the levels of their strategic contributions to internet service innovation: visualist, solution provider, concept generator, and service initiator. In addition, we demonstrate the growing contributions of the strategic use of design for innovating internet services, building robust brand equity, and increasing business performance.

### **Keywords**

Design Management; Internet Business; Internet Service Design; Digital Design; Digital Design Agency; In-House Design Group, Case Study

Design has been increasingly recognized as a strategic tool for coping with the ever-intensifying competition in business environment. Nussbaum (2006) demonstrated that design, a differentiator, has contributed to innovating a company's product, manufacturing process, and business model through Boston Consulting Group's global survey of more than 1,000 senior executives. Leading manufacturing companies around the world have been garnering huge profits through design (Design Council, 2004; Platt et al., 2001). Consequently, an increasing number of companies have incorporated design-oriented thinking and activities into the entire corporate organization (Lockwood, 2004; Ravasi and Lojacono, 2005; Truman and Jobber, 1998).

Designers have participated more intimately in new product development process, as well as contributed to a wide range of corporate management activities since 1990s.(Olsen et al, 1998; Mozota, 2003). These expanded and

strategic contributions also provide business-savvy designers with a greater opportunity to be promoted to executive positions and to participate in the decision-making processes at the highest corporate levels. In these circumstances, the role of design management has expanded “from managing product development into leveraging strategic and competitive advantages, managing identity and brand as strategic assets, and maintaining a cutting edge in the global and digital markets” (Kim and Chung, 2007, p. 47).

In recent years, proliferation of internet businesses and internet services<sup>1</sup> has spawned a boom in interactive digital design fields such as web design, interaction design, information design, and so on. These fields help visualize diverse internet services both aesthetically and functionally. In the early stages of internet business, competences in technology and price were important to achieving competitive advantage (Helm, 2007). As the business environment matured with ever more demanding needs of online users, new service ideas and attractive designs have become much more critical factors for distinctive and compelling internet services. In this sense, it is widely accepted that the strategic use of design enhances the competitiveness of internet businesses by meeting user’s sophisticated expectation to emotional and functional experiences. Internet-based companies have focused on how to create innovative services and enhance their brand value through design.

The ways of managing design in digital environments have been explored since the mid-1990s. Reynolds offered hands-on design advice on typography, icons, graphics, frills, and testing from his web experiences (Walton, 1995). According to Seidler and Muller (1999, p. 52), the design of a successful internet service requires “an extended set of design principles, aiming for total synergy between business requirements, brand requirements, and usability principles.” In fact, researchers have explored the ways of effective digital design in order to facilitate interactive brand communication (Hanna, 1997; Laar and Berg-Weitzel, 2001; Rudd, 1999) and to create satisfactory user experiences (Long, 2004; Schmitt, 2000; Swack, 1997).

There has been growing interests in the actual contributions of industrial designers towards new product development since the 1980s. Moody(1980) examined the role of industrial design in product innovation and demonstrated with both normative and empirical evidence that industrial design was still neglected in British manufacturing industry. On the other hand, Chung (1989) carried out nine case studies on British products to identify the role of industrial design to new product strategy, and generalized into three role types, viz. Initiative, participative, and subordinate in terms of the timing of involvement in the strategy formulation process as well as the degree of contributions. Through a six-month interview of U. K. manufacturing companies, Perks, Cooper, and Jones (2005) characterized three roles for design and designers in the new product development process: design as a functional specialism, design as part of a multifunctional team, and designer as a process leader.

<sup>1</sup> In this paper, the term *internet business* refers to a diverse spectrum of business activities using digital telecommunication technologies, and *internet services* encompass internet-related services that are delivered through internet businesses.

However, a body of knowledge on the strategic roles of design in internet business has not yet been well-established and has little attention for practitioners and researchers compared to in the manufacturing business. The purpose of this research is to identify the strategic roles and effects of design in the real internet business environments. Actually, the body of knowledge on the strategic roles of design in internet business has not yet been well-established and has little attention for practitioners and researchers compared to in the manufacturing business. In this paper, we particularly focus on managing internet service design<sup>2</sup> in Korea, where numerous companies do business on the internet and diverse internet services are provided owing to the fast-growing Information and Communication Technology (ICT) infrastructures and online user groups (Kelly, Gray, and Minges, 2003).

## Methodology

This research examined multiple sources of evidence collected using qualitative and quantitative methods in order to reflect the complexity and dynamics of the real internet business world: (1) Literature reviews on the growth of internet business and internet service design; (2) In-depth interviews with practicing designers about the history of internet service design in Korea; (3) Two survey questionnaires on the current state of internet service design to 30 digital design agencies and 60 clients; and (4) Comparative case studies between two in-house design groups and three digital design agencies.

## Questionnaires

The two survey questionnaires were conducted to digital design agencies and client companies in order to raise the validity of the survey by cross-checking the two perspectives. Among active members of the Korean Digital-Agency Industrial Association (KDAIA)<sup>3</sup>, 30 digital design agencies participated in the questionnaires. The size of the agency sample is quite small; however, 22 respondents (73 percent) are CEOs who represent their agencies with the whole picture of managing design, and the rest of the respondents are also high-ranking officials. On the basis of literature review on portfolios of well-known digital design agencies, we surveyed 60 people in their major client companies, i.e., Samsung Electronics Corp. (34 participants), LG Electronics Corp. (10), SK Telecom Corp. (6), Pantech & Curitel Corp. (6) and KTF (4). In recent years, these companies have increased their competitiveness through managing in-house design groups as well as maintaining partnerships with out-of-house design teams. All client participants have diverse experiences in working with digital design agencies.

<sup>2</sup> In this paper, the term *internet service design* embraces a wide range of digital design fields that are involved in envisioning internet services on websites and mobile devices, and *digital design agency* refers to a design consultancy that has specialized internet service design skills and experience in internet business.

<sup>3</sup> The Korea Digital-Agency Industrial Association (KDAIA), a non-profit private organization, was built in February 2007 in order to cultivate the competitiveness of digital design agencies and internet service quality. The core objective of KDAIA is to create rules and policies related to web-based business activities, to create synergy between digital agencies by competition and corporation, and then to enhance users' satisfaction with service quality.

A group-administrated questionnaire methodology was chosen to increase the response rates and to communicate with respondents who did not understand the meaning of questions, instead of a mail survey. The meaningful insights on the current state of using design in internet business were drawn based on the results of the following aspects: (1) design project management, (2) comparison between in-house design groups and digital design agencies, (3) relationships between digital design agencies and clients; (4) effects of design in internet-based companies, and (5) competitiveness of digital design agencies.

### **Case studies**

Investigating the strategic roles of design in internet service development is a fairly complicated matter since it is directly related to the complexity of the real world; therefore, we carried out case studies. Five cases were selected as examples of well-managed design organizations in internet business according to predetermined criteria: (1) in-house design groups: reputation, systematic design center, competitiveness of internet services and (2) digital design agencies: reputation, retention of major clients, professionalism, and size of the total workforce. The selected two in-house design groups—NHN Corp. and SK Communications Corp.—and three digital design agencies—VINYL Inc., Design Fever Inc., and Sugarcube Inc.—are explained in Table 1 and 2.

The results of the case studies were drawn from in-depth interviews with managers and designers, as well as published and unpublished information. Each case has more than two mini-cases which represent how the case firm successfully and strategically manages design in a real business context, as shown in Table 3. Although the limited number of cases was investigated, this research employed the within-case analysis plus various cross-case comparison tactics in order to increase credibility of the results. Together with the results of the questionnaires, we identified the methods of managing design based on a comparative analysis between in-house design groups and digital design agencies. The strategic roles of designers in internet service development were categorized from analyzing patterns of design activities across different mini-cases.

Table 1. Selected in-house design groups

Name of firm	NHN Corp.	SK Communications Corp.
Establishment	1999	1999
Headquarters	Seongnam-si, Gyeonggi-do, Korea	Seoul, Korea
Overview of firm	<ul style="list-style-type: none"> <li>- Korea's premier internet firm</li> <li>- About 2000 employees / Annual sales in 2007 (\$920 million)</li> <li>- "Asia's 200 Best under a Billion" by Forbes Asia in 2006</li> <li>- Four divisions under the CEO: Naver business, Hangame business, Development, and CMD</li> <li>- Global organizations in China, Japan, and USA</li> </ul>	<ul style="list-style-type: none"> <li>- Subsidiary of SK Telecom, No 1 mobile telecommunication service provider</li> <li>- Annual sales in 2007 ( \$200 million)</li> <li>- Received the Business Innovation Award form US Wharton School in 2006 and the 2005 Frost &amp; Sullivan Award</li> <li>- Ranked 18<sup>th</sup> among the internet business companies in the Deloitte Technology Fast 500 Asia Pacific 2005 program,</li> <li>- Established Global organizations in China, Japan, and USA</li> </ul>

Major businesses	<ul style="list-style-type: none"> <li>- Internet search portal (No.1 in Korea)</li> <li>- Internet game portal (No.1 in Korea)</li> </ul>	<ul style="list-style-type: none"> <li>- Internet community portal (No.1 in Korea)</li> <li>- Instant messaging service (No.1 in Korea)</li> </ul>
Major services	<ul style="list-style-type: none"> <li>- Search portal Naver (www.naver.com)</li> <li>- Game portal Hangame (www.hangame.com)</li> <li>- Portal for kids, Junior Naver (jr.naver.com)</li> <li>- Contribution portal happybean (happybean.naver.com)</li> </ul>	<ul style="list-style-type: none"> <li>- Community portal Cyworld (www.cyworld.com)</li> <li>- Search portal Nate.com (www.nate.com)</li> <li>- Instant messaging service NateOn (nateonweb.nate.com)</li> <li>- Education content provider ETOOS (www.etoos.com)</li> <li>- Professional content provider Egloos (www.egloos.com)</li> </ul>
Competitiveness of firm	<ul style="list-style-type: none"> <li>- Proprietary technologies and solutions in core and strategic business areas</li> <li>- Permeated design value throughout the organizations and established design-driven process</li> <li>- Received Web Award Korea prizes during 2004-2006</li> </ul>	<ul style="list-style-type: none"> <li>- Strategic M&amp;A for securing a variety of internet technologies and business knowhow</li> <li>- Successful entries in the global markets: "Connecting everyone in one global network"</li> <li>- Received Web Award Korea prizes during 2004-2006</li> </ul>
Design Organization	<ul style="list-style-type: none"> <li>- Centralized design organization: Creative Marketing and Design (CMD) Division (250 designers)</li> <li>- Making synergy through facilitating collaboration among specialized designers in four functions in CMD                             <ol style="list-style-type: none"> <li>(1) Designer function (Naver Design Office, Game Design Office, Global Contents Design, Strategy Design Office)</li> <li>(2) Researcher function (UX lab)</li> <li>(3) Scripter function (User Interface Technology lab)</li> <li>(4) Marketing function (Marketing office)</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>- Centralized design organization: UI Design Center (100 designers)</li> <li>- Eight teams in the UI Design Center: the UX team, the Branding Team, the Cyworld Personal Platform UI Team, the Cyworld Web Service UI Team, and the Cyworld Global UI Team</li> <li>- Reorganizing the UI Design Center by appointing a professional designer as its Vice President</li> <li>- Facilitating collaboration and communication through internet online community and scrum meeting with other functions</li> <li>- Giving new and challenging roles to designers for meeting online user's various needs</li> </ul>

Table 2. Selected digital design agencies

Name of firm	VINYL Inc.	Design Fever Inc.	Sugarcube Inc.
Establishment	2000	2000	2001
Headquarters	Seoul, Korea	Seoul, Korea	Seoul, Korea
Major business	<ul style="list-style-type: none"> <li>- Website development &amp; consulting</li> <li>- Online promotion</li> <li>- UI&amp;GUI consulting</li> </ul>	<ul style="list-style-type: none"> <li>- Web consulting</li> <li>- Web planning/design</li> <li>- Mobile GUI</li> <li>- Application GUI</li> </ul>	<ul style="list-style-type: none"> <li>- Website development</li> <li>- Digital storytelling</li> <li>- Digital image</li> <li>- Interactive content</li> </ul>
Organization	<p>Large-sized agency (about 140 employees)</p> <p>: Web Division, UI Division, Promotion Team, Publishing Team, Smart Media Team, etc.</p>	<p>Middle-sized agency (about 50 employees)</p> <p>: Creative Design and Planning Division, User Interface Division, Interactive Motion Division, Brand Identity, Planning Team, etc.)</p>	<p>Small-sized agency (about 10 employees)</p>
Major clients	<p>Kia Motor, Doosan Dong-A, REAMIAN, Lotte Card, Motorola, Samsung Electronics, LG Electronics, Hyundai Motor, CGV, GS Home shopping</p>	<p>Samsung Electronics, SK Telecom, SK C&amp;C, Amore-Pacific, LG Electronics, LG Fashion, YBM Sisa, NHN, Daum, Yahoo Korea</p>	<p>Samsung Electronics, Che-il Communication, Nong-Sim, KT, KTF, Amore-Pacific, Maple.com</p>
Competitiveness of firm	<ul style="list-style-type: none"> <li>- VINYL style: showing new design approaches and suggesting new design trends by enhancing design skills</li> <li>- Proposing new design standards for a variety of media among digital design agencies</li> </ul>	<ul style="list-style-type: none"> <li>- Discovering fun aspects with a creative perspective in all projects</li> <li>- Widening service areas from purely web business to diverse new media businesses</li> <li>- Providing various welfare programs to designers: "refresh" vacations, internal education programs, annual oversea workshop, etc</li> </ul>	<ul style="list-style-type: none"> <li>- An innovator in integrating video images into websites based on interactive digital storytelling</li> <li>- Visualizing digital stories by interpreting our daily lives in humorous and comical ways</li> <li>- Encouraging designers to create challenging works for cultivating designer's specialties</li> </ul>

Table 3. Fourteen mini-cases of the five case study companies

Site	Description	Design project features	Production
 NAVER 지식인	"Knowledge Search" service of "Naver," search portal site (kin.naver.com)	- Providing search results based on the internet user's own experiences and knowledge	NHN Corp.
 NAVER 블로그	"Blog" service of "Naver," search portal site (kin.naver.com)	- Launched Naver blog season 2 with the concepts of "I'm a blog designer." and "Smart editor"	
 HANGAME	Online game portal site (www.hangame.com)	- Repositioned Hangame's brand image - Developed innovative UI for all age groups	
 CYWORLD	Community portal site (www.cyworld.com)	- Providing template-based homepage services and easy-to-use tools for building, connecting personal and public media	SK Communications Corp.
 NATE ON	Instant messenger service (nateonweb.nate.com)	- Offering innovative communication functions for web and mobile platforms - Built unique visual and functional identities	
 CGV	Online movie ticket booking service site of CGV at CJ Corp. (www.cgv.co.kr)	- Enhanced CGV's brand image - Created an innovative online ticketing service using one stop RIA booking system	VINYL Inc.
 GSeshop.co.kr	Online shopping mall site of GS Home shopping Corp. (www.gseshop.co.kr)	- Improved the usability of the shopping service - Providing new shopping experiences using flex- and flash-based technologies	
 KIA Rio	Online promotion site for "Rio" car brand of KIA Motors Corp. (www.kia.co.kr)	- Presented Rio's brand image - Attracted consumers by providing diverse fun stories about Rio	
 래미안	Online promotion site for "RAEMINA," Samsung's premium apartment brand (www.raemian.co.kr)	- Enhanced the brand image of RAEMIAN - Organized the apartment complex's information using a keyword search function - Visualized dynamic content about emotional lifestyle of RAEMIAN apartments	Design Fever Inc.
 UNITED COLORS OF BENETTON.	Online promotion site for "Benetton Korea" Corp. (www.benettonkorea.co.kr)	- Expressed Benetton Korea's localized features within the global brand identity of Benetton - Improved the usability of the search function by dividing the global and local content	
 NEXON	Online promotion site for "Nexon" Corp, Korea's leading publishers of online game contents. (company.nexon.com)	- Suggested 88 design prototypes for four months - Expressed NEXON's brand values by dynamic and emotional visual stories - Enhanced NEXON's brand image	
 YEPP	Community site for "Yepp," Samsung's MP3 brand (univ.yepp.co.kr)	- Expressed the idea of university life by using illustrations designed by line drawing techniques and funny pictures - Providing useful information about how to use MP3 players in an interesting way	

	Pre-launching site for online promotion of "Maple.com" (people.mple.com)	<ul style="list-style-type: none"> <li>- Visualized interesting shopping stories using interactive digital storytelling techniques</li> <li>- Provided user participatory content and event</li> <li>- Enhanced Mple.com's brand awareness</li> </ul>	Sugarcube Inc.
	UCC Internet movie ad for "Ozinga Zzambong" noodle of Nongshim Corp. (www.nongshim.com)	<ul style="list-style-type: none"> <li>- Created interesting five episodes about the noodle</li> <li>- Encouraged user's participation in the UCC content</li> <li>- Enhanced the noodle's brand awareness</li> </ul>	

## The current state of internet service design in Korea

Although the history of internet business and internet service design is relatively short in Korea, there has been remarkable growth in the last decade. Since 1995, the rapid development of internet businesses and internet services in Korea has resulted in the emergence of numerous designers who specialize in internet service design (Kim, 2006). Many useful design tools and methodologies have helped designers visualize websites aesthetically and functionally by considering interactivity with users. Based on the major findings of the literature review and in-depth interviews with designers, the history of internet service design is categorized into distinctive four periods in conjunction with the changes in design activities, design organizations, and internet market situations (see Table 4): Advent (before 1999), 1st Growth Phase (1999-2002), Recession (2003-2005), and 2nd Growth Phase (since 2006) periods.

As shown in Table 4, internet service design areas have been diversified, i.e., promotion, e-commerce, portal, and community. The roles and contributions of design in internet service development have also expanded from a mere simple activities for decorating web content to a diverse activities including a building design style guide, improving user interface and interaction, providing new user experiences, and others.

Table 4. Major trends in internet service design over the past decade

Period	Internet Market	Design Activities	Design Organizations
Advent (Before 1999)	<ul style="list-style-type: none"> <li>• Using cable modems</li> <li>• Advent of online shopping malls, but small revenue</li> <li>• Gradual arousal of needs for creation of company websites</li> </ul>	<ul style="list-style-type: none"> <li>• "Design = HTML"</li> <li>• In 1998, systematic process of web development with three distinctive phases: planning, design, and development</li> <li>• Designing interactive and dynamic web content using flash animation</li> </ul>	<ul style="list-style-type: none"> <li>• Expanding internet service design areas</li> <li>• Highlighting design's roles in creating innovative services that provide new experiences</li> </ul>
1 <sup>st</sup> Growth Phase (1999-2002)	<ul style="list-style-type: none"> <li>• High speed connection</li> <li>• High quality of multimedia content</li> <li>• Increasing companies' needs for web design</li> </ul>	<ul style="list-style-type: none"> <li>• Improving design skills and increasing web design's financial value</li> <li>• Around 2000: creating a web design style guide to maintain the developed websites consistently with UI and</li> </ul>	<ul style="list-style-type: none"> <li>• Establishing and growing numerous digital design agencies</li> <li>• Since 2002, enlarging the size of digital agencies (more than 100) for being listed on KOSDAQ, thus having difficulty in</li> </ul>

		UX guides	decreasing profits and increasing labor costs
Recession (2003-2005)	<ul style="list-style-type: none"> <li>• Shrinking IT boom</li> <li>• Rapid development of portal services</li> </ul>	<ul style="list-style-type: none"> <li>• Expanding designer's roles from decorating websites to creating more useful user interface and interaction</li> <li>• Enhancing the competitiveness of portal services through using design</li> </ul>	<ul style="list-style-type: none"> <li>• Shrinking digital agency market</li> <li>• In 2003, ruining and downsizing major design agencies such as FID and Hongik Internet, etc.</li> <li>• Small size of agencies that strengthened their capabilities and created their own design styles were growing</li> <li>• Evaluating the competitiveness of design agencies not by the size of employees and revenue, but their professionalism</li> <li>• Building in-house design groups along with the rapid development of portal sites</li> <li>• Advent of UI design agencies such as DNA, Mococo, Innoiz Inc.</li> </ul>
2 <sup>nd</sup> Growth Phase (Since 2006)	<ul style="list-style-type: none"> <li>• Introducing new internet technologies (e.g., XML and RIA) and new trends, (e.g., Web 2.0 and UCC)</li> <li>• Vitalizing e-commerce market</li> <li>• Increasing clients' need for online promotion of corporation, brand, and product</li> </ul>	<ul style="list-style-type: none"> <li>• Expanding internet service design areas</li> <li>• Highlighting design's roles in creating innovative services that provide new experiences</li> </ul>	<ul style="list-style-type: none"> <li>• Severe competition between design agencies</li> <li>• Increasing design level of portal sites service</li> <li>• Design agencies focusing on trendy and creative design styles</li> </ul>

Together with the diversified roles of designers in developing services, a number of digital design agencies have been established since 1999 and have supplemented in-house design groups by speeding up the development process and offering the latest design skills. Compelling agencies are better at catching new trends and coming up with creative ideas because they experience various projects with multiple clients while in-house design groups mainly work on their own firm's services. A lot of small agencies have been rapidly established since the Korean government changed regulations for lowering barrier to enter the digital design agency market. Thus, the current agencies focus more on specializing their design skills and capabilities in order to cope with severe competition with numerous digital design agencies.

By comparing the service areas of the three case agencies, it was found that the areas of the design service differ depending on the size of the agencies. The larger agencies provide a wide range of design services from e-commerce to promotion sites with aiming at an e-business consulting firm. The service area of VINYL, which has about 140 employees, is more extensive than Design Fever (about 50 employees) and Sugarcube (about 10 employees). On the other hand, small agencies tend to segment their specialized design areas more specifically or attempt to materialize the challenging designs in

order to compete with large agencies. Design Fever has specialized in creative visualization (see Appendix 1) and Sugarcube has pioneered new design areas such as interactive storytelling by integrating web and video editing technologies (see Appendix 2).

At the beginning of internet business, designers in many of internet-based companies played a limited role in maintaining the internet services that were developed by digital design agencies. That is, most companies relied entirely on the well-known digital design agencies for their internet service designs. However, along with the proliferation of internet portal services, internet-based companies, particularly leading internet portal companies such as NHN Corp., DAUM Corp.<sup>4</sup>, YAHOO Corp., and so on, have begun to establish their own in-house design groups in the format of centralized or decentralized design organizations. These design organizations have made efforts to integrate design into their corporate culture by improving their design capabilities.

In recent years, in-house design groups have driven to improve the usability of their services by supporting user's online activities for expressing and communicating diverse digital content. Therefore, they conduct various user researches for offering unique and meaningful experience. In order to concentrate on user research, NHN Corp. built the UX lab at their design center in 2004. In the UX lab, there are about 20 researchers such as information architects, experience modeler group, user researchers, usability engineers, and other experts. They play active roles in mediating service planners and designers by providing new ideas and insights through diverse user research and usability testing. Other design functions in CMD division often collaborate with the UX lab for establishing comparative strategies and making the right decisions in developing internet services that meet user's demanding and unspoken needs (see Appendix 3). Moreover, designers in the in-house design groups are committed to building a robust brand image, which bridge between their internet services and users. The UI Design Center in SK Communications drives to build distinguishable corporate brand images, which link a wide spectrum of their services with users.

The aforementioned different ways of managing design between in-house design groups and digital design agencies were also demonstrated by the results of questionnaires on the comparing their competitive roles. As shown in Table 5, two groups gave a higher score to the competitiveness of their organization; therefore, competitive aspects of two organizations were analyzed individually with the three-top-ranked factors. In the case of the agency's competitiveness, design specialty was ranked in the highest position, followed by suggestion of new trends, creative ideas, and low cost. Seventy percent of clients also selected design specialty as a major reason for outsourcing their design projects.

Table 5. Comparison of competitive factors between in-house design groups and digital design agencies (Note: The three top-ranked factors are highlighted in dark gray)

<sup>4</sup> DAUM Corp. is a Korean internet company, which has the second competitive search portal service in terms of user visits, following NHN's Naver.

Digital design agency's competitiveness		Factor	In-house design group's competitiveness	
Agency	Client		Agency	Client
5.8	4.0	Suggestion of New Trend	3.5	4.8
6.1	4.8	Design Specialty	3.3	5.3
5.8	4.3	Creative Idea	3.3	4.8
5.6	4.6	Ease of Management	3.5	4.6
5.1	4.5	Low Cost	3.6	4.2
5.7	4.3	Responsibility	5.0	5.7
5.5	3.4	User Research	4.1	4.8
5.4	3.2	Brand Identity Research	4.8	5.2

On the other hand, responsibility, brand identity research, and user research were selected as the competitive aspects of in-house design groups. The in-house design groups focus on working in a more strategic management level by conducting research on their brand identities and users in a deeper way in conjunction with long-term and mid-term corporate objectives. Conversely, digital design agencies cannot spend enough time in the above research fields because they fragmentarily participate in the design activities of client companies. In fact, all of the agencies, who participated in the questionnaires, answered they accomplish more than 10 projects per year and their average project period is 2-5 months. Besides, the agencies addressed the difficulty in hiring brand and user research specialists due to lack of finances and experience.

As in-house design groups undertake more strategic level of design activities, many agencies still work with clients as operators rather than partners. This hierarchical relation was quantitatively discovered from the question of the relationship between clients and agencies (below the average 4 points on a 7-point Likert scale—1 meaning "Hierarchical" and 7 meaning "Horizontal"). If the agencies cultivate their specialty in the more strategic level of design activities, they will maintain a long-term partnership with their clients. Resulting from the above discussion, Table 6 summarizes how the two types of design organization manage internet service design.

Table 6. Comparison of design management between in-house design groups and digital design agencies

	In-house Design Group	Digital Design Agency
Human Resource	<ul style="list-style-type: none"> <li>Retaining a large number of designers with diverse design skills and specialties</li> </ul>	<ul style="list-style-type: none"> <li>Retaining a small number of professional designers who mainly specialize in visual communication design</li> </ul>
Internet Service Design	<ul style="list-style-type: none"> <li>Developing internet services in which users more actively participate</li> <li>Envisioning new technology-driven services along with developing new technologies or merging firms with competitive internet technologies</li> </ul>	<ul style="list-style-type: none"> <li>Participating in developing a variety of internet services</li> <li>Envisioning creative design concepts which lead trends in internet service design</li> </ul>

Design Project Management	<ul style="list-style-type: none"><li>• Focusing on long-term planning and development of services</li><li>• Conducting user research to discover users' needs, increasing usability, and encouraging user participation</li><li>• Building a robust brand identity which all services follow</li><li>• The roles of designers are segmented into their specialty</li></ul>	<ul style="list-style-type: none"><li>• Carrying out numerous design projects in a short time</li><li>• Specializing design service areas differently according to the size of firms</li><li>• Each designer takes charge of diverse design fields</li></ul>
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## Strategic roles of designers in internet service innovation

The roles of designers in internet business have varied with the diversity of internet service design areas, as described above. As design has been committed to differentiate internet services and create new user experiences, designers have often played an initiative role in new internet service development process. This increasing power of designers was supported by the following findings of the questionnaires: (1) Twenty-six agencies (86.7 percent) reported that their design teams primarily lead projects along with planning team; (2) In terms of the project scope, most respondents are deeply involved in the new service planning and strategy step of their website development process; and (3) In the question on the degree of designer's participation, designers received 5.0 points on a 7-point Likert scale ranging 1 meaning "Subordinate," 4 meaning "Participative," and 7 meaning "Initiative."

The increasing strategic roles of designers were also illustrated by several internet service projects of the case firms, i.e. Naver Blog, Hangame, Cyworld, Maple Mable, etc. In addition, the changes in the title of NHN's design center—from UX (User Experience) Design Center, to BXD (Brand Experience Design) Center, and to Creative Marketing & Design (CMD) division—showed the expansion of designer's roles from visual design to UX design, brand, and marketing. The design philosophy of the CMD division, "Designing experiences for the brand," unravels that designers participate in more strategic level of business activities.

In the meanwhile, developing innovative services to meet business objectives requires "the ability to blend business, design, and technical expertise with a deep understanding of user experience" (Swack, 1997, p. 72). Through investigating the cases, it was identified that innovative services usually consider both technological and user experiential aspects. These two aspects make it possible for companies to launch internet services that offer new value to customers. The internet-based companies NHN and SK Communications emphasize the development of core technologies and the merging small and medium-sized firms with competitive technologies for their service innovation. Similarly, VINYL, a large digital design agency, has proposed new design standards for creative rich media by adopting the latest technologies that enable more interactive design concepts to embody. Together with the distinctive technologies, the successful projects of the cases provide services never experienced before.

In this context, this research mapped out the 14 internet service projects along with two axes: newness in technology and newness in user experience (see Table 3). Figure 1 depicts the positions of the 14 internet services categorized

into nine sections. In the course of this categorization, it was discovered that the more unfamiliar firms are with technology or user experience, the higher their risk of failure is since they will have a difficult time in building the technological capability and creating new user experiences. However, the degree of their service innovation is higher.

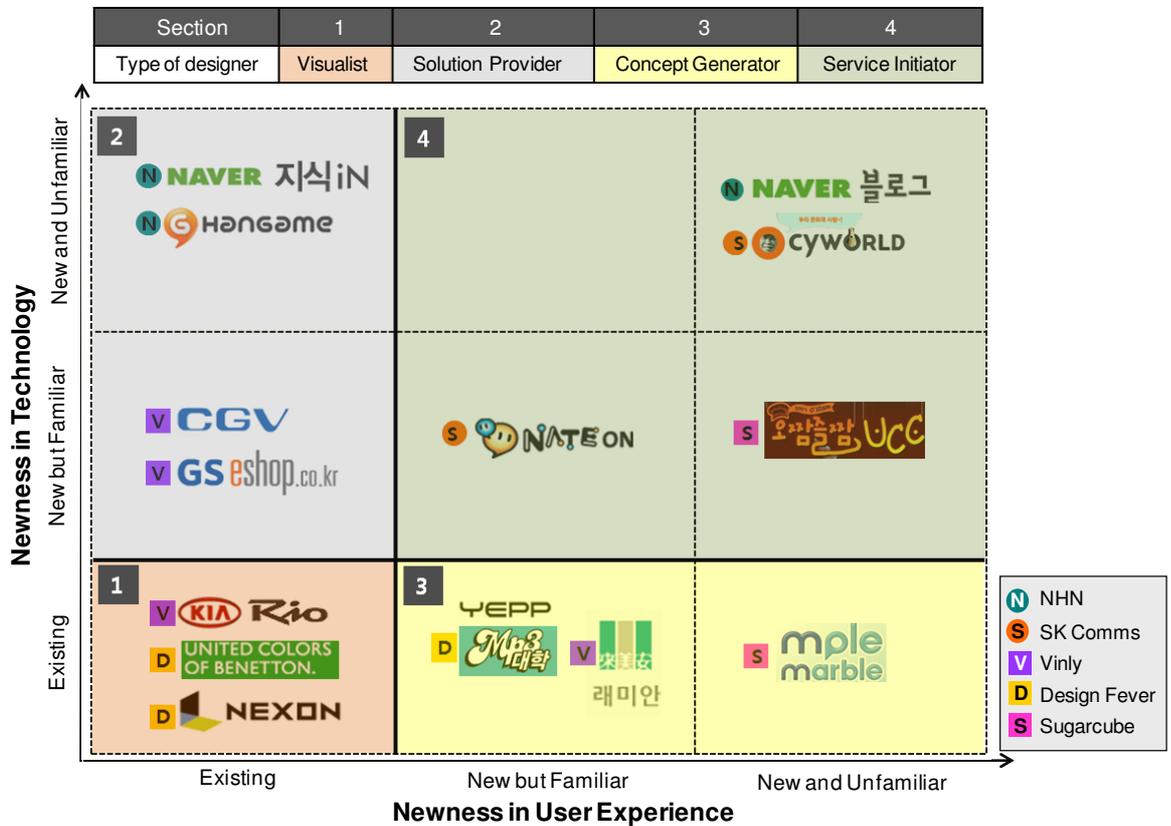


Fig 1. Positioning of Internet services and types of designers

Through analyzing the designers' activities and roles in developing internet services in each section, the nine sections can be categorized into four distinct types. Figure 1 also illustrates the four types of designers' strategic roles, i.e., visualist, solution provider, concept generator, and service initiator. From the figure, it can be seen that the higher the degree of service innovation is, the more prominent the strategic designers' roles become. In addition, it can be argued that designers working for in-house design groups participate more strategically in internet service innovation compared with designers working for digital design agencies, as discussed in the above. Table 7 explains how each type of designer plays a part in achieving the strategic goals which have been drawn from the specific examples of the aforementioned 14 projects.

Table 7. Designer's contributions to the strategic goals of companies

Challenge	Types of designers	Strategic roles of designers	Example
Differentiation in the highly competitive market	Visualist	Visualizing web content more aesthetically and dynamically with creative design concepts	<ul style="list-style-type: none"> <li>· Kia, Rio Promotion</li> <li>· Benetton IR</li> <li>· Nexon IR</li> </ul>
Offering diverse services in the matured online market	Solution Provider	Offering new functions and improving service usability using the latest technologies	<ul style="list-style-type: none"> <li>· Naver iN</li> <li>· Hangame</li> <li>· CGV</li> <li>· GS eshop.com</li> </ul>
Building long-term relationships with users	Concept Generator	Enhancing brand image and providing emotional brand experiences	<ul style="list-style-type: none"> <li>· Yepp Community (MP3 University)</li> <li>· RAEMINA</li> <li>· Maple marble</li> </ul>
Meeting the user's diverse and demanding needs in a newly competitive market	Service Initiator	Creating new user experiences by initiating the internet service development process	<ul style="list-style-type: none"> <li>· Naver Blog</li> <li>· Cyworld</li> <li>· Ozzam Attack</li> <li>· Nate-On</li> </ul>

The strategic level of the designer's contributions is gradually increasing from visualist, to solution provider, to concept generator, to service initiator. Simultaneously, designer's roles are expanding from embodying web content emotionally as a visualist to achieving corporate business goals as a service initiator. In other words, designers can lead internet service development process with coordinating people in other functions such as planners and developers. The strategic roles of each type of designers are depicted along with some examples of internet service development as follows:

Firstly, visualists decorate web content more aesthetically and dynamically with creative design concepts. They create the "look and feel" of the site and stir up user's emotion. For example, designers at Design Fever embodied "NEXONness" effectively through illustrating creative visual stories using interactive flash animations on NEXON's website (see Appendix 1).

Secondly, solution providers materialize interactive web content using visual scripts by connecting designer's dynamic design concepts and developer's web programming; therefore, they contribute to offering new functions and improving service usability using the latest technologies. Through 2006 Hangame renewal project, NHN created Hangame's creative game UI styles (e.g., cube-shaped game menu UI and gauge bar-typed channel list UI) using the latest web technologies (see Appendix 3). These UI styles have been a standard for improving usability and convenience in the industry. In addition, VINYL developed a one-stop RIA (rich internet application) ticket reservation system using the state-of-art UI programming technologies and then improved the stability and usability of the online ticket reservation system.

Thirdly, concept generators offer new service ideas which enhance brand images using unique digital storytelling techniques, as well as creative design concepts. For five months from October 2006, VINYL participated in the renewal project for RAEMIAN's website. VINYL enhanced RAEMIAN's emotional brand value by making users feel catharsis from rational and

emotional experiences about RAEMIAN. It materialized more differentiated visual communication designs with interactive and luxurious design concepts based on surrealism, which reflects RAEMIAN's future-oriented brand philosophy by expressing fantasy, dream, and illusion.

Fourthly, service initiators lead the new services development, coordinate the whole development process, and create innovative user experiences. NHN's Naver Blog Season 2 project well represents the design-driven development process (see Appendix 4). This project was initiated by designers because its innovation factor was the design issue, "Make users design their blogs in their styles." Designers understood the user's desire and then suggested convenient design tools and modules in order to create the right experiences of their users.

Reflecting the expansion of the designer's strategic roles and the relationships with other functions, the four types of designers are positioned in a Venn diagram in Figure 2. The evolution of internet service design is clearly displayed from a narrow focus on aesthetics into a richer discipline that embraces planning, development, and management. As the boundaries of the overlapping parts in Figure 2 are blurred, planners and developers who have a creative design mind can also play strategic roles in developing innovative services as concept generators and solution providers, respectively. Sometimes, both of them can lead the service development process as service initiators.

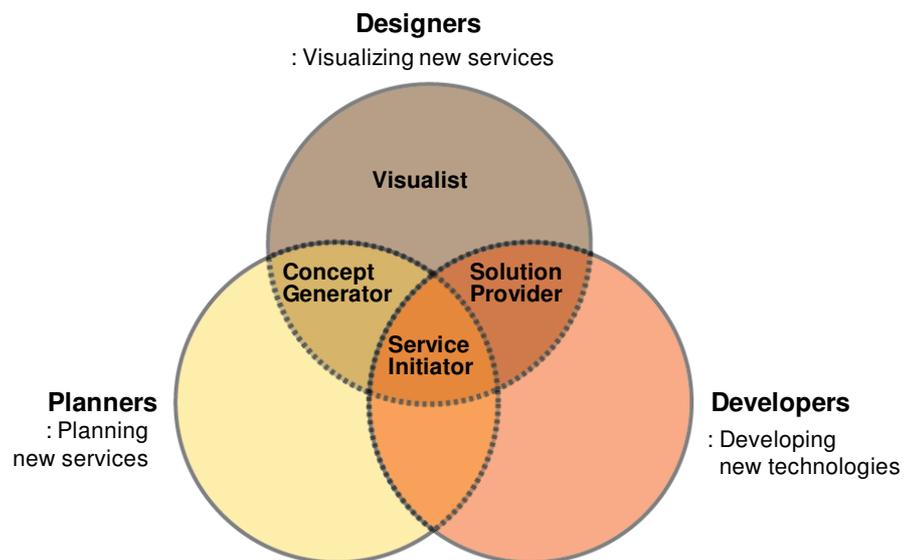


Fig 2. Positioning the four types of designers by considering the relationships with planners and developers

## Effects of the strategic use of design in internet-based companies

Along with the growing importance of design's value in internet business, this study demonstrates effects of the strategic use of design in internet-based companies both quantitatively and qualitatively. According to the questionnaires, the respondents measured positively the contribution of digital design agencies to internet service innovation, brand equity, and profitability. Even though clients assessed the agencies' contributions to their innovation,

brand, and profits (4.3, 4.1, and 4.1 respectively on a 7-point Likert scale) a little lower than the agencies did (5.5, 6.1, and 5.7), they also admitted the value of the design projects performed by the agencies (see Figure 3). Clients gave high scores (4.8, 5.5, and 5.2) to design's contribution to their companies' business success. Even though it is difficult to calculate the percentage of design's contribution to corporate success, more people, including clients, users, strategies, developers, and so on, have come to recognize the effects of the strategic use of design.

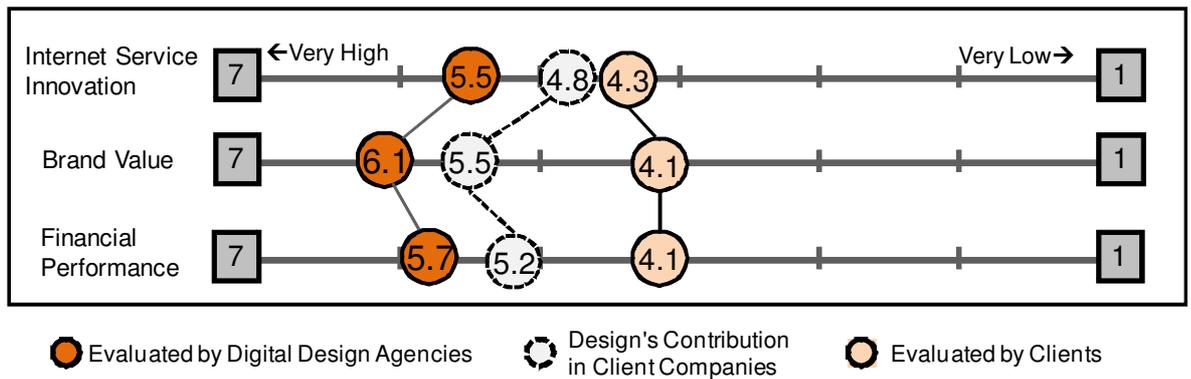


Fig 3. The results of analyzing degrees of design's contributions

In addition, a variety of evidence was also gathered from the literature reviews, in-depth interviews, and case studies, which prove the effects of the strategic use of design in terms of innovating internet services, building robust brand equity, and increasing business performance.

Firstly, the strategic use of design contributes to internet service innovation by creating new user experiences. Since designers have come to deeply understand users, they have participated in the beginning of projects and initiated the development process. Naver's top page renewal project showed that designers caused changes in Naver's business method by redesigning the content layouts. In SK Communications, Cyworld's designers played a significant role in creating a new type of community services, which enable users to build, decorate, and manage their cyber community spaces and digital avatars in a more enjoyable and unique ways.

Secondly, the strategic use of design contributes to enhancing brand equity by building robust brand identities on the internet. Products, brands, and companies can be promoted in more memorable ways on the internet because their stories are visualized through interactive digital storytelling. Therefore, creative promotion sites encourage brands to communicate with users emotionally. In the case of Maple.com's pre-launching online promotion website, Sugarcube visualized an imagery scenario about interesting shopping stories using an unusual and humorous interactive storytelling technique (see Appendix 2). As a result, Sugarcube contributed to promoting Mple.com and enhancing its user's awareness of its brand concept, "An interesting shopping friend." The promotion sites of RAEMINA and Rio, which were developed by VINYL and awarded by the FWA<sup>5</sup>, enhanced their brand values through offering users opportunities for emotional communication with

<sup>5</sup> The Favorite Website Awards (FWA) is an endorsed website evaluation association all over the world (<http://www.thefwa.com>).

their brands. Actually, offline consumer satisfaction index of Hana Bank, one of Korean leading banks, was ranked 4<sup>th</sup>, but its online index was ranked 12<sup>th</sup> according to the National Customer Satisfaction Index (NCSI) in 2006; therefore, Hana Bank revamped its website with "d'strict," the Korean digital design agency (Choi, 2007). After the astonishing renewal of the site in terms of visual images and online banking services, Hana Bank increased its NCSI ranking to 2<sup>nd</sup>. In particular, NHN has focused on expanding the brand values of Naver and Hangame by applying Naver's "Green Window" and Hangame's "Orange Comma Sign" concepts to diverse offline media such as TV ads, physical products, offline events, and so on.

Thirdly, the strategic use of design contributes to increasing PVs (page views) and UVs (unique visitors) by improving the usability and providing comparative service functions using the latest technologies; therefore, it can be claimed that design is committed to driving profitability because PVs and UVs directly influence revenues. A variety of projects in the cases showed design's effects on financial performance by providing the state-of-the-art service functions. VINYL committed to increasing CGV's online reservation rate by 40 percent over a year ago by developing an innovative online ticketing service using a one-stop RIA (rich internet application) booking systems. In two representative shopping mall site projects, GSeshop and Wizwid, VINYL suggested new service functions, e.g. "Wise shopping cart" and "One-stop shopping." Resulting from these innovative approaches to web design and technology, GSeshop and Wizwid increased their UVs and gained market shares against their competitors. In NHN, Hangame's innovative game UI also illustrated how the improved usability of the site enhanced user participation and business performance (see Appendix 3).

## Conclusions

Based on results of this research, a number of findings about managing internet service design in Korea can be summarized as followings:

Firstly, the areas of internet service design have been diversified into communities, portals, e-commerce, and promotions during the past decade. The role of internet service design has also enlarged from simple website design level to the rather complex strategic project management level in conjunction with such diversification. This research identified various design activities and roles, and then classified four types of designers' strategic roles, visualist, solution provider, concept generator, and service initiator. Together with concept generators, service initiators contribute to more strategic level of internet service innovation by suggesting new service strategies and concepts. Solution providers and visualists embody internet services in functional and emotional ways in the later stage of the process. Figure 4 illustrates that the earlier involvement in the new service development process tends to be associated with the higher degree of strategic contribution to business success.

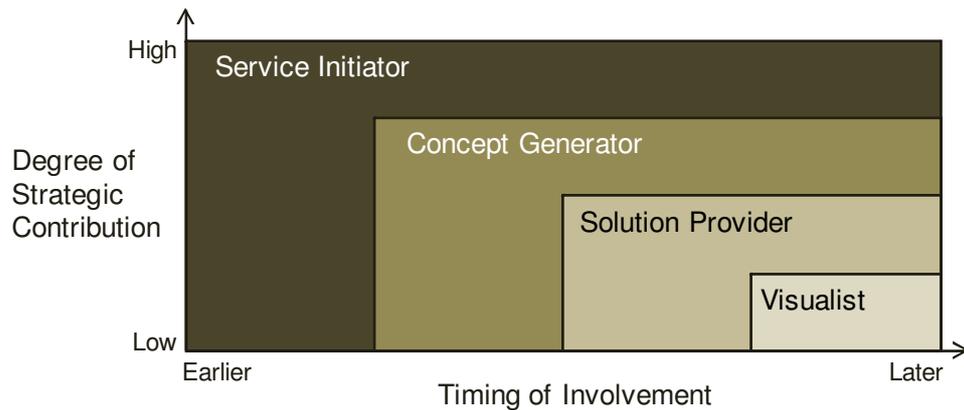


Fig 4. Designers' strategic roles in internet service innovation

Secondly, there are important distinctions in the management of internet service design between digital design agencies and in-house design groups in terms of their emphasis on the designer's roles and major service areas. Digital design agencies focus differentiating their design service areas by specializing their design skills and capabilities. In addition, they have recently strived to enlarge their design service areas with an emphasis on the strategic use of design although they were competitive primarily in visualizing websites of promotions and e-commerce. In order to enhance the competitiveness of their services mainly in portal and community areas, in-house design groups focus on more strategic levels of design activities with long-term perspectives, e.g. brand identity research and user experience research. Likewise, designers in the in-house design groups more initiatively participate in or coordinate their service development process as concept generators or service initiators. These methods of managing design have continuously evolved along with the proliferation of internet business.

Thirdly, this research indicates that the current competitive internet business environments render the strategic roles and effects of design more important for internet service innovation than ever before. In line with the widely-accepted notion that precise and quantitative measurement of the effect of design on business success is rather difficult, this research discovered that the strategic use of design in internet business positively affects innovating services, enhancing brand equity, and improving profitability.

The findings of this research would be useful for making practical contributions towards adapting design as a strategic tool and putting design at a list of the top agenda for successful innovation in online business environments. From the results of case studies, internet-based companies can learn how to enhance their competitiveness through making design the centerpiece of their corporate management. Newly emerging agencies can find out know-how for differentiating their design skills and maintaining strategic partnerships with clients. In addition, international collaborative studies on this subject can be committed to building the body of knowledge of design management in internet business by suggesting the specific roles and effects of designers in achieving the strategic goals of companies across the world in the near future.

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### Appendix 1: Creative visualization of corporate brand values at NEXON

Design fever renewed NEXON's corporate websites by expressing its brand values—creativity, customer-focus, challenge, and cooperation—through dynamic and emotional visual stories about the four symbols, as shown in Figure 4: (1) Apple: NEXON was the first company in the online gaming industry and is likened to the first apple on Earth; (2) Sailing boat: NEXON's challenging attitude is like a sailing boat determinedly advancing towards the sea; (3) Tree: NEXON continues to develop its imagination like a growing tree of knowledge; and (4) Clock: NEXON makes innovative games that can transcend the limits of time and space.



Fig 4. Animated images of NEXON's four symbols

In order to represent "NEXONness" effectively, Design Fever suggested 88 design prototypes and only one was selected. Resulting from this renewal project, NEXON's corporate images are delivered through visual stories and diverse corporate information is provided in simple and effective ways. This site was further highlighted by receiving the Grand Prize for Medium Enterprises at the 2006 Web Award Korea.

### Appendix 2: Interactive digital storytelling design for promoting Mple.com

Sugarcube developed "Mple Mrable," a pre-launching website of Mple.com, an online open market. Firstly, they created Mple music videos for viral marketing and Mple sitcom for internet ads. Then, Sugarcube wrote an

imaginary scenario about Mple.com's brand concept, "interesting shopping stories" as follows: *While spinning a roulette and shifting a human marker as through the user is playing "Blue Marble" in the site, users meet nine popular shopping friends in characteristic mini rooms, see their hot selling items, attractive sitcoms, and shopping know-how, and then become fascinated with the items.*

Sugarcube visualized this scenario using an unusual and humorous interactive storytelling technique together with creating user participatory content and events. For example, users apply for the event that gives gifts by flattering a seller's hot items.

In order to minimize the user's movement line, Sugarcube made it possible for users to jump between different sellers' mini rooms by clicking the roulette and to quickly explore the entire site without playing games using the quick menus positioned on the right of the screen (see Figure 5). A variety of moving images were used such as movie clips of walking people on the game board made by chroma-key filming and unfolding card motion clips to display the mini rooms.

In sum, Mple Marble was developed based on creative ideas and interactive storytelling techniques that differentiated it from typical shopping mall sites, abstract teaser promotion sites, and incoherent and poor storytelling sites. As a result, Sugarcube was committed to promoting Mple.com and enhancing its users' awareness of its brand concept. Likewise, Mple Marble's design excellence was endorsed by receiving the Excellent Prize for Event Promotion in the 2006 Web Award Korea and the Grand Prize in the first quarter of 2006 Good Design Web.



Fig 5. Screen shots of the sites

### Appendix 3: Hangame renewal project that was initiated by the Game Design Group and the UX Lab at NHN

In March, 2006, the Game Design Group and the UX Lab in CMD established Hangame renewal strategies for providing user with fun and new experience. Until June, they conducted diverse research projects for improving usability as well as enhancing Hangame's brand value. During six months, the two design groups initiated the renewal of Hangame services in terms of the following two aspects:

First, Hangame changed its main page according to its renewal strategies, and built unique brand identities for all games by applying differentiated color schemes and design styles while maintaining consistency in terms of a basic

page layout. Thirty-six game logos and forty-three game characters were also revamped for visualizing differentiated brand images of each game with the support of the illustrators in the Global Contents Design (GDC) Office.

Second, Hangame focused on developing innovative UI through close cooperation with the UX lab and creating content that is both easy and fun to use for all age groups. In fact, Hangame's registered members total about twenty million, half of Korea's population, and their age groups are diverse, from teens to senior citizens. Therefore, the UX lab conducted various usability tests with people in all age groups. The research revealed that more than 80 percent of all clicks were generated from the game lists on the main page as well as game channel lists on the game main page, Hangame created a cube-shaped game list UI, called "Active UI." Active UI was developed using Flash software through collaboration with the Game Design Office, the UX Lab, and the UIT Lab (see Figure 6). It helps users access games in a more intuitive and interest way by showing game images when users mouse over game lists. Hangame also changed each game's channel list UI from text-based to gauge-bar type in order to present the user's grade in a more active and intuitive way (see Figure 6).

According to the survey results on the revamped Hangame service to more than 3,000 users, 80 percent of them presented positive responses with opinions such as "Ideas are fresh," "Using game boards is easier and funnier," "Finding games is more convenient," and so on. Moreover, the development process of the Hangame renewal project clearly describes how the Game Design Office supports and collaborates with other offices in the CMD division for Hangame service success through its brand image repositioning and UI innovation.



Fig 6. Cube-shaped game list and Gauge bar-typed channel list

#### Appendix 4: Creating new experiences through design-driven internet service development process at NHN

With the popularization of using blogs, users have become more sophisticated and demand more diverse ways for expressing and sharing online content. For eight months, from April to December, 2006, 35 people participated in the Naver Blog Season 2 project. Among them, four designers led the main service design with the support of 16 designers including motion designers, UI designers, Illustrators, HTML/CSS designers, etc.

Each installment of new features in the Naver Blog Season 2 was called "Episodes." The theme of the first episode was "I'm a blog designer," which enabled users to design their blogs according to their identities and tastes. Users could design their blogs in line with their imagination through three design steps: (1) Skin Selection, where users design their own blog skins using

various blog skin templates; (2) Layout Selection, where users select various layout templates and customize them by selecting and relocating layout components in a drag-and-drop way; and (3) Remote Management, where users easily create and express their preferences by just one-click without having special knowledge of HTML or CSS using built-in "Remote-con," a webpage management tool.



Fig 7. Three design steps, "Remote-con" function, and Blog screen shot

Recently, Episode 1 has received rave reviews from the experts and blog users due to Naver's efforts to employ new technologies such as Ajax and Flash and an innovative design-driven development process. In fact, the first episode project was initiated by a designer in charge of the blog's UI design in the CMD division. The designer suggested his ideas about new blog services to planners and developers, and then planners cemented his idea and developers realized it on the webpage. During the whole development process, Naver focused on developing intuitive and convenient UI by conducting diverse research in usability and user experience.

Along with the success of the Episode 1, Naver announced the second major update, "Episode 2: Smart Editor" and in July, 2007. Among the new features introduced, the "Layout" feature allows users to write a well-designed blog post that looks like a magazine article. Episode 2's astonishing editing features have also received positive responses from numerous blog users. Naver is continuously prepared to launch the next episode for enhancing the competitiveness of its blog services and increasing its active users.

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