Adopting Design Thinking for Website Innovation:
Case Studies of Korean Award Winners

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Abstract

This research investigates how digital design agencies and client companies incorporate design thinking—a human-centered approach to solving difficult problems—into their website development processes. Based on a literature review on the design-thinking-driven web development process, multiple case studies of award-winning website projects were performed by in-depth interviews with key practitioners. Through analyses of these cases, their user-centered approaches for website innovation were identified according to the following four phases: web planning (discovery and defining phases) and web design and development (development and delivery phases). Moreover, distinct approaches of design thinking practices were identified according to two website types: a brand promotion website with a killer brand storytelling approach; and a service channel website with a strategic UI/UX-driven approach. Next, the key success drivers of these website projects were suggested in light of the typical themes of design thinking (i.e., human centeredness, research based, context awareness, and collaboration). Some practical limitations were also found in adopting the design-thinking-driven web development process, such as limited research methods and tools, and insufficient prototyping and experimentation. Along with these limitations, it was also discovered that current digital design agencies still face the following challenges in adopting the design-thinking-driven web development process: building a long-term, playful partnership with clients; leveraging decision-makers' design thinking awareness; and coping with limited resources (design thinking practitioners, budgets, and schedules).

Key words: Design Thinking, Digital Marketing, Digital Design Agencies, Website Innovation

1. Introduction

The proliferation of digital technologies has brought about the rapid growth of the digital advertising market. According to eMarketer's latest forecast, digital ad spending will account for roughly half of the global ad market (eMarketer, 2019). Moreover, digital marketing platforms have been diversified from web to mobile to social mediasocial media (Kim, 2017). Among these various platforms, the website, as a representative owned media[1], is still an important starting point and the centerpiece for digital marketing because its content and operation can be fully controlled by a company, unlike social media sites (Garett et al., 2016). In particular, a well-designed website with high usability and visual appeal positively influences visitor retention as well as purchasing intention and behavior (Chen & Wu, 2016; Ganguly et al., 2010; Kim et al., 2017; Lin, Yeh, & Wei, 2013; Pallud & Straub, 2014). Therefore,

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[1] Owned media is anything under companies' direct control such as websites, newsletters, catalogs, and blogs (Bonchek, 2014).

companies have paid more attention to how to build innovative websites that implement compelling branding or marketing strategies, while orchestrating other marketing channels.

Along with the companies' increasing interests in developing competitive websites, leading digital (design) agencies have broadened their expertise and service areas from building websites to identifying new digital marketing strategies and user experiences by adapting design thinking practices, once used primarily in product design (Dolin, 2012; Groysberg & Slind, 2011; Heller & Womack, 2008; Kim, Lockwood, & Chung, 2012; Griffin, 2017). Conspicuously, Korean digital agencies have recently made great efforts to actively incorporate design thinking practices (especially, user research and usability testing) into their website development process (Lee, 2017; Son, 2017). For example, a domestic firm leading brand experience marketing and design, Plus X has created compelling brand touchpoints across diverse digital media through its human-centered and research-based development process[2]. However, many of digital marketing agencies are still struggling with the application of these practices; therefore, the present study aims to investigate the strategic deployment of design thinking to the web development process. To reach this aim, based on the theoretical framework of a design-thinking-driven web development process, case studies of four award- winning website projects were performed.

2. Design-thinking-driven Web Development Process

Over the past decade, the volume of articles on the topic of "design thinking" has dramatically increased. In popular management/business books and magazines, design thinking has been described as "a novel problem-solving methodology well suited to the often-cited challenges business organizations face in encouraging innovation and growth (Liedtka, 2015, p. 925)." As a popularized management version of translating designerly thinking, design thinking is heralded as a way to make managers think more creatively and use designers' specific methods (Johansson-Sköldberg, Woodilla, & Cetinkaya, 2013). In this designerly thinking perspective, Shapira, Ketchie, and Nehe (2017) characterized the term "design thinking" by the following themes based on a literature review: human-centered, research-based, aware of the surrounding context, collaborative, optimistic, non-linear, and experimental. In order to drive innovation outcomes, a design thinking process prioritizes deep empathy for end-user desires, needs, and challenges in order to define the right problem, as well as iterative prototyping and testing phases to find appropriate solutions.

In the meanwhile, the design thinking, once used primarily in product design, has been recently infused in corporate culture while companies put design much closer to the center of the enterprise (Kolko, 2015). In the design consulting business, Tim Brown (2008, p. 85), who is the president of IDEO, stated that "thinking like a designer can transform the way you develop products, services, processes, and even strategy." In fact, IDEO uses design thinking for bringing together what is desirable from a human point of view with what is technologically feasible and economically viable by balancing three innovative spaces including people, technology, and business (Brown, 2009; IDEO, n.d.).

Moreover, this design thinking process has been illustrated in various ways, such as the following popular frameworks: (1) IDEO's Human-Centered Design (HCD) process: inspiration, ideation, and implementation (IDEO.org, 2015); (2) Stanford d.school Design Thinking process: empathize, define, ideate, prototype, and test (Plattner, 2010); and (3) the British Design

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2) https://plus-ex.com/

Council's Double Diamond: discover, define, develop, and deliver (Design Council, 2015).

According to Ball (n.d.), the Double Diamond model, which is based on four distinct phases, has been universally accepted as a clear, comprehensive, and visual representation of the design and innovation process. Its two diamond shapes represent how divergent and convergent thinking fit within each stage, and clearly depicts the iterative cycle between confirming the problem and creating solutions. In addition, the Double Diamond outlines four core principles for problem solvers: put people first, communicate visually and inclusively, collaborate and co-create, and iterate (Design Council, n.d.).
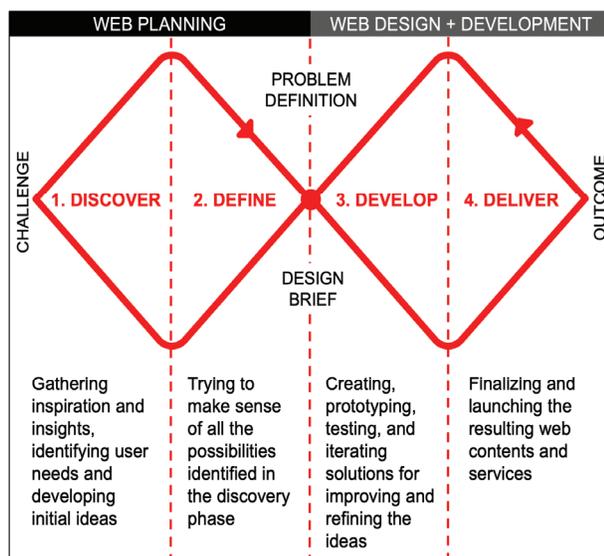

Fig. 1. Design-thinking-driven web development process

Given the growing roles of problem-solvers (i.e., design thinkers) for web planners or designers and the emphasis on the iterative web development process for innovative web marketing, this research adopts the Double Diamond model into the general web development process, which goes through an iterative cycle of web planning and web design/development steps (Kim, 2017). Fig. 1 shows this design-thinking-driven web development process along with key activities of the four phases.

3. Research Methodology

Given the complexity and dynamics of the real website development process, multiple case studies were carried out while increasing the credibility of the results. Four award-winning website projects were selected for investigating how domestic digital agencies and client companies adopt design thinking for their website innovation. These projects received the following awards from the 2016 Web Award Korea[3], which has become the most prominent domestic web competition: Amorepacific global website (the Grand Prize), Chungjungone brand website (the Brand Innovation Prize), SK Telecom T-world service website (the UI/UX Innovation Prize), and KT Olleh shop website (the Marketing Innovation Prize). These award-winning websites received the highest scores on six evaluation criteria, including visual design, UI design, technology, content, service, and marketing. Moreover, their innovation prize types represent distinctive achievements (the highest scores) in the related criteria.

The results of the case studies were drawn from published and unpublished information, as well as in-depth interviews with key practitioners such as agency-side planners or designers and client-side project managers. They were asked about the purpose of their website projects, the website development processes, the results of the projects, and other issues.

4. Results

4.1. Case 1: Amorepacific Global Website

Amorepacific Corp. is the largest beauty company of South Korea, operating over 30 beauty and healthcare

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3) Since its establishment in 2003 as the first domestic web award competition, the Web Award Korea has annually announced the best websites through online and offline evaluation processes undertaken by over 3,000 professionals in the marketing, design, and development fields.

brands. It also has been more popular worldwide and became one of the World's Most Innovative Companies announced by Forbes since 2015 (Chung, 2015). Recently, Amorepacific has made further efforts toward global expansion into the Chinese, Southeast Asian, and even U.S. markets. Consequently, its sales in the global markets increased dramatically; however, its global awareness still remained low. Therefore, the company requested the renewal of its global website by a Korean digital design agency called Iropke, which has undertaken a variety of internal digital marketing projects while maintaining long-term partnerships for several years.

Despite the company's typical website renewal request, the agency continued to question how the company communicates with global users. Eventually, the agency defined its project aim as follows: "Our aim is not just about creating a website. It's about establishing a global communication strategy and translating it into the global website." In order to establish the global communication content strategy, the agency conducted user interviews with American customers by collaborating with local staff in the client's New York office for
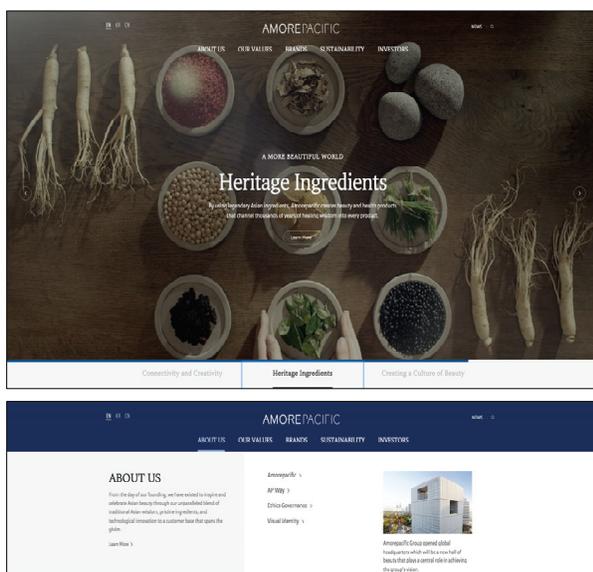

Fig. 2. (Top) The landing page of the Amorepacific global website, using a high-quality background movie that tells its brand stories, and (Bottom) The drop-down menus displaying thumbnail images and short descriptions related to each menu

a better understanding of local users. Based on the meaningful insights from the user research, the project team created compelling user-centered brand communication contents (i.e., texts, graphics, photos, and videos), solely for the global website, and then modified and refined them iteratively. In particular, to avoid American consumers leaving their landing page, Amorepacific designed full-screen background movies and short messages that represent its core values such as R&D innovation and heritage ingredients (see the top image of Fig. 2). They also used trendy UI patterns suited to the global users' website surfing behaviors (e.g., drop-down menus showing their sub-menus at a glance, as shown in the bottom image of Fig. 2).

Remarkably, unlike other global websites created by translating their Korean websites, Amorepacific's global website was firstly built in English to target global users, while investing a huge budget in developing competitive user-centered global web content (KIPFA, 2017). Iropke's CEO, Eun-Joo Lee stressed, "The translated global versions of typical Korean company websites have limitations to deliver the right messages in the global context because Korean brand-presence websites usually contain lots of long-length texts (e.g., CEO's message and company history contents), which aim to inform domestic users."

In the development phase, the agency found the traffic of the previous website had decreased although mobile search usage had been booming along with the rapid growth of mobile users; therefore, they focused on mobile-first planning and design and then designed a responsive website. Moreover, for fast access worldwide to the relevant brand contents via diverse devices and browsers, the agency considered cutting-edge technical solutions for web performance optimization and system upgrades including a Content Delivery Network (CDN) server and a Search Engine Optimization (SEO) process.

After the successful launching of its global website, whose Unique Visitors (UVs), Page Views (PVs), and mobile access rates increased noticeably, the company

worked on building other language websites including the Korean and Chinese versions under their own distinct brand communication strategies. After launching this global website, Eu-Kyung Kim, deputy director of Amorepacific, mentioned that this project contributed to establishing a strategic guideline for the future web/mobile related tasks (KIPFA, 2017).

4.2. Case 2: Chungjungone Brand Website

Since 1996, Daesang Corp. has produced its diverse foods under its flagship food brand Chungjungone, which means "clean and taking good care of nature." Chungjungone has promoted its brand through various offline events for invigorating active housewife communities as well as online marketing activities from Cyworld mini homepages, Naver cafés, and blogs to its own community website. After its brand logo renewal for emphasizing their professional food services in 2014, Chungjungone ramped up its brand experience platforms including online marketing activities (social media and foodcasts), offline events (cooking classes), and development of new cooking tools. As its brand experience contents have been more diverse and widespread, Chungjungone decided to build a new brand website as its own digital hub for integrating and managing offline and online brand experiences systematically and continuously (Lee, 2017). Moreover, with the rise of single-person households, a new food culture has emerged. That is, more people (not just housewives) have been interested and participated in cooking, and they also have put more value on their cooking experiences as well as on better quality of foods.

In this vein, Chungjungone firstly undertook user research for encompassing different target groups beyond housewives in addition to discovering relevant brand experience contents. Moreover, they also found that the mobile usage of its diverse target user groups has rapidly increased with the advent of various mobile devices. Consequently, as shown in Fig. 3, responsive card-based UI grids, which enable the company to ef-

fectively display bite-sized brand contents, were materialized with friendly illustrated images and cheerful background color schemes of the card modules. Particularly, the card UI modules were well suited to the increasingly important mobile environment because they are easy to scan and consume at a glance as they offer a great possibility for user manipulation.

In addition, with the aim of providing diverse food solutions and cooking experiences beyond food information, high-quality brand contents (e.g., foodcast videos and food knowhow tips) have been created and updated seamlessly. In line with reinforcing the role of the website, the company also emphasized interconnection with its other social media contents such as Facebook, Instagram, Naver blog, and Kakao through the "Chungjungone SNS" menu on the website (see Fig. 3). Due to these efforts, its UVs and PVs have increased along with expansion of its loyal customer base (KIPFA, 2017).
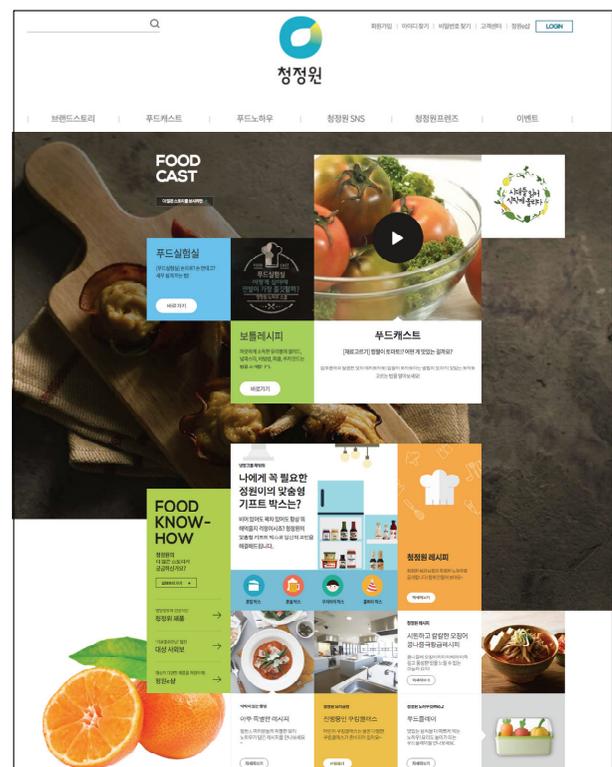

Fig. 3. The trendy card-based layout design for displaying a variety of bite-sized brand contents by categorizing into four menus (i.e., Food Cast, Food Knowhow, Chungjungone Friends, and Chungjungone SNS)

4.3. Case 3: SK Telecom T-world Service Website

As the largest, domestic wireless telecommunications operator, SK Telecom had managed diverse service websites individually, including T-world, T-membership, T-direct, and T-roaming. Therefore, the company faced challenges in managing numerous customers flowing into its various service channels. In 2016, therefore, SK Telecom built a consortium with several firms specialized in research, design, and development to integrate its core customer service touch-points (channels) into the T-world website, and then to deliver the relevant and personalized services to customers.

Due to over 100 menus and 1000 products of SK Telecom, this project took more than two years (one year for establishing UI/UX strategies and one year for developing the website). Through the discovery stage, its project team conducted a variety of research, including user research, channel requirement analysis, competitive analysis, and royalty loop analysis. From the research insights, they found crucial issues to be solved, such as inconsistent information structure, lack of compelling brand/product contents, and inconvenient purchasing processes on each website and across websites. In fact, its customers had serious problems with the inconsistent service experiences across the diverse service websites. Based on these results of user research and usability testing, they defined systematic UI/UX strategies and guidelines for a meaningful user journey throughout all of the webpages. The company focused on providing differentiated services (T-able), making its services easier (T-easer), and creating synergy between services (T-win).

Next, the project team translated these strategies into systematic web style guides, focusing on the following aspects: a design language for better information visualization, interactive chatbots, and more personalized contents and services (see Fig. 4).

Moreover, for merging mobile and desktop experiences, the website was designed by following the

Fig. 4. (Top) The landing page of the T-world website highlighting binding and personalized services, and (Bottom) Mobile webpages focusing on effective information visualization

mobile-first strategy. After launching the website, the project team deployed UI/UX strategies and guidelines across the company. This T-world website enables the company to systematically monitor and analyze the needs and preferences of users entering the single channel, and then to provide more meaningful and consistent service experiences across diverse user touch-points. In other words, through the website renewal, the company was able to build up infrastructure for user data analysis and omnichannel marketing with the increase of UVs on the website.

4.4. Case 4: KT Olleh Shop Website

After merging with KTF, a mobile telecommunication company, in 2009, KT Corp. built its unified brand "Olleh" for both fixed-line and cellular broadband services. Along with its official website, KT runs the Olleh shop, an online shopping mall specialized in telecommunication products and services. However, KT had still been struggling with establishing a compelling brand identity of the Olleh shop, as well as providing consistent and convenient shopping experiences to users. Therefore, in order to build its distinctive online brand identity and to increase its sales volumes, the company initiated the website renewal project of the Olleh shop with external UI/UX consulting firms in late 2015.

In the discovery stage, the project team discovered users' pain points through a wide range of UI/UX studies including heuristic evaluations, stakeholder interviews, usability testing, and user gang surveys. Based on these findings, they could improve user experiences, focusing on user-centered navigation structures, user-friendly ordering processes, and customized marketing contents or services (see the top image of Fig. 5). These desktop services were linked to mobile web services by considering users' purchase behaviors across digital devices (for example, users search for products from the desktop website and order them with their mobile devices.). In addition, strategic marketing and sales techniques were suggested by external UX consulting firms.

Compared to KT's practical and stable brand images, its new brand identity (i.e., new, active, and fun) was also established for providing more pleasant shopping experiences, and this new brand image was translated into the relevant and emotional visuals on the website in accordance with a simplistic and dynamic look and feel, as shown in the bottom image of Fig. 5.

After launching the website, the company has continuously tested it and improved its usability in
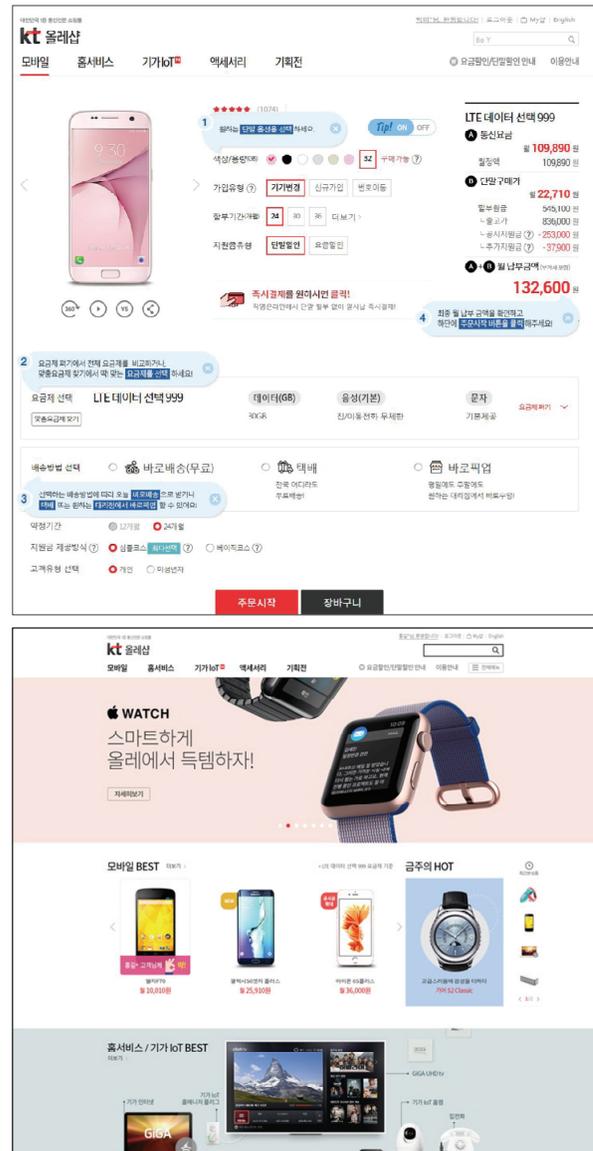

Fig. 5. (Top) The user-friendly product ordering webpage of the KT Olleh shop, using call-out symbols that show additional explanations about each selection stage, and (Bottom) The landing page representing its brand images

collaboration with external usability consulting firms. Since its renewal, its online purchase conversion rates have gradually increased.

5. Discussion

Through the aforementioned case studies, the present study investigated how digital design agencies and client companies incorporated design thinking into their website development process, which adopted the Double-

Diamond's four-phase framework, illustrated in Fig. 1. Across the four phases of these processes, Table 1 describes several important challenges (or problems) and practices (or solutions) for the four project cases. These four projects drove their website innovation in the following four phases, focusing on identifying the right problems and the right solutions.

(1) In the discovery phase, the agencies and clients explored key challenges by conducting research to understand online users' needs and behaviors,

as well as their surrounding contexts (especially, digital and mobile environments). These challenges clarified the right direction of the projects. For example, the first case (Amorepacific) defined its project goal as creating effective global communication tools, not just developing the English version of the domestic website.

(2) In the define phase, the project teams narrowed down the scope of their projects and defined the key practices to focus on by analyzing user research or usability testing and finding mean-

Table 1. Design-thinking-driven web development processes of the four cases

	WEB PLANNING		WEB DESIGN + DEVELOPMENT	
	1. DISCOVERY Insight into the problem	2. DEFINE The area to focus on	3. DEVELOP Potential solutions	4. DELIVER Solutions that work
CASE 1: Amore-pacific	The necessity of communication with global users along with increased sales in overseas markets	Planning user-centered brand contents for better communication with global users	Visualizing new brand communication contents (i.e., texts, graphics, photos, and videos), solely for the global website, iteratively	Generating new user-driven contents continuously
	Decreasing in the website traffic despite increased mobile users and search usage	Focusing on mobile-first website planning	Designing a responsive website with adopting UI patterns suited to the global users' website surfing behaviors	Web performance optimization and system upgrade (e.g., CDN server, SEO process)
CASE 2: Chung-jungone	The advent of a new food culture along with increased single- person households	Planning online community for providing cooking solutions and experiences beyond food products	Visualizing high-quality bite-sized brand contents presented by using card-based UI grids	Developing new contents for expanding users' food experiences continuously
	Limitation to manage lots of brand contents across diverse SNS channels	Focusing on building a digital hub for gathering a variety of online/offline branding contents	Interconnecting with other social media contents and displaying them on the website	Reinforcing the role of the website in line with the growing influence of SNS channels
CASE 3: T-World	Difficulties in managing customers flowing into various service channels	Binding various service channels for delivering the relevant services to customers	Creating an integrated service website by combining key user journeys	Monitoring users' needs and preferences for delivering consistent and better experiences
	Inconsistency in brand experiences across diverse service websites	Establishing UI/UX guidelines and strategies for a consistent user journey	Translating the UI/UX strategies into systemic web style guides	Deployment of UI/UX strategies across the company
CASE 4: Olleh Shop	Low user satisfaction with online shopping experiences	Enhancing the quality of users' shopping experiences while increasing sales volume	Designing user-centered product/content search systems and user-friendly ordering processes	Improving the usability of the website while keeping up with digital trends
	Lack of brand identity	Building a distinctive brand identity	Visualizing attractive brand images aligned with the new brand identity	Focusing on providing pleasant brand experiences

ingful insights to face the challenges. The fourth case (Olleshop) identified users' pain points from user interviews and task analyses in collaboration with outside UX consulting experts, and then established its pleasant online shopping UI/UX strategies.

(3) The development phase focused on generating creative ideas and solutions that create meaningful values for both users and businesses based on the defined web planning insights and strategies. The project teams translated their project strategies into the relevant visual and UI/UX design elements. For example, the second case (Chungjungone) visualized its online community for providing cooking solutions and experiences by displaying its bite-sized brand contents in responsive card-grid UI layouts.

(4) In the delivery phase, the project teams refined and enhanced the potential solutions created in the previous phase. After developing the website, the third case (T-world) kept monitoring users' responses and experiences for improving its services and user journeys.

Moreover, two distinct approaches of adopting design thinking practices were identified according to the following website types: a brand promotion website (e.g., Amorepacific and Chungjungone) with a killer brand storytelling-driven approach, and a service channel website (e.g., T-world and Olleh shop) with a strategic UI/UX-driven approach. First of all, after the first half of the project period (about 6 months) focusing on web planning, Amorepacific identified its global brand communication strategies that shape and share its true values and purposes to global users, and then implemented them through the powerful visual storytelling about its brands and products. Noticeably, with online brand community strategies, the Chungjungone project allotted more time for the design/development

stage due to its growing brand contents, compared with the fixed brand promotion contents of the Amorepacific global website. Furthermore, to bind diverse online user touch-points into the T-world website, SKT made more effort to consistently deploy its binding service UI/UX strategies and guidelines across different service websites and numerous webpages.

On the other hand, by incorporating a wide range of usability testing methods into the planning stage, the KT Olleh project team came up with divergent ideas about users' pain-points and convergent insights for delivering pleasant online shopping experiences to its customers.

Furthermore, the following key drivers for building the innovative websites of the cases were identified in light of typical themes of design thinking (Shapira et al., 2017):

(1) Human-centered: Instead of brand contents and services, users' needs, preferences, and behaviors were placed at the center of the web development process. The cases focused on real people by exploring their experiences and problems with empathy, and then creating new solutions rooted in their actual needs.

(2) Research-based: Up-front user research and usability testing suggested unexpected insights for innovative solutions that more precisely reflect what users want.

(3) Context-aware: Rather than just concentrating on specific project details, it is important to get an overview of the environments, contexts, and roots of the design problem. This kind of big-picture thinking helped the case companies to shape the right problems and solutions.

(4) Collaborative: Design thinking is a collaborative and multidisciplinary approach. The cases fostered new and diverse insights and ideas by involving more internal and external project team

members and stakeholders throughout the whole website development process.

However, some practical limitations were also found in adopting the design-thinking-driven web development process. For the most part, the four companies adopted limited research methods and tools, such as user interviews and task analyses. For example, they paid less attention to developing personas (typical target users) that provide insights into the real behaviors of real users. In addition, the design thinking process is iterative and nonlinear; however, the cases did not sufficiently repeat the phases and jump back and forth between solving problems and refining solutions. In fact, a sprint-like development process is more suitable to build early prototypes, garner evidence and feedback from the marketplace, and respond quickly (IDEO, 2017).

Along with these limitations, it was also discovered that the current digital design agencies still face the following challenges in adopting the design-thinking-driven web development process: (1) playing initiative or participative roles in the strategic web development process while building long-term, playful partnerships with their clients, (2) leveraging design thinking awareness of client-side executives who make influential decisions on financial or managerial support for their web projects; and (3) coping with limited resources (e.g., hiring prominent design thinkers, securing sufficient research budgets or facilities, and setting effective project schedules).

6. Conclusion

Design thinking is a way to solve wicked problems through repeating divergent (creating choices) and convergent (making choices) thinking stages (Brown, 2009; Kumar, 2017). Many of the problems that com-

panies face in the current disruptive digital environment are dynamic, multifaceted, and inherently human (IDEO, n.d.). In this vein, design thinking can be an effective tool for corporate digital marketing innovation. To boost user engagement on websites, a design thinking approach focusing on up-front user research or usability testing is not an option, but a prerequisite. That is, without knowing users empathetically, just aesthetic visualization or technological advancement is not sufficient to create compelling digital marketing websites.

Finally, this study identified how digital design agencies and client companies incorporated design thinking into their website development processes by investigating the leading Korean web projects. Some extended research could improve the practical application of the research results by including more domestic or even international web projects. It is hoped that this research will provide digital agencies and clients with hands-on and practical knowledge in integrating design thinking practices into the process of developing compelling websites.

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