Strategic Design Research Journal, 10(2): 164-171 May-August 2017
Unisinos – doi: 10.4013/sdrj.2017.102.09

Applying strategic design as a holistic approach to investigate and address real world challenges

Busayawan Lam
busayawan.lam@brunel.ac.uk
Brunel University, Kingston Lane, Uxbridge, Middlesex, UB8 3PH, United Kingdom

Abstract
This paper discusses how design can be used strategically to provide a holistic approach for investigating and providing viable solutions for different types of real world problems, which range from helping organizations fulfil their goals right through to addressing social and environmental issues. Moreover, it will be described how design has evolved to become more proactive and strategic. The paper is based around three case studies that explore how design was employed strategically to tackle wicked problems in different contexts. In all cases, the problematic situations will be explained, followed by the investigation processes and proposed solutions. The three case studies will be critically analyzed and compared to extract common practices. The results confirm that design can be used strategically to address wicked problems. From the start, design techniques can be used to visualize and map out relationships of all key issues, which help turn *"ill-defined"* problems into well-focused questions. Design research also provides a useful framework for investigating problems, gaining insights, analyzing findings and integrating all key issues. Besides, the design thinking and process could be used to create viable solutions that not only address the main problems, but also take other issues into consideration, which make the outcomes more holistic.

Keywords: strategic design, design thinking, problem solving process.

Introduction

It is unanimously agreed by numerous academics and practitioners in the field of design and design management that design can offer strategic value (see Best, 2006; Borja de Mozota, 2003; Cooper and Press, 1995). For example, the Department of Trade and Industry (DTI, 2005) noted that design has strong connections with the creativity, innovation and performance of a company. Moreover, design can be used to support organizations – both for-profit and not-for-profit – on a number of strategic tasks, such as identifying emerging demands and opportunities; critically examining and visualizing connections within complex situations; framing well-focused questions for *"wicked"* problems; generating viable solutions; providing frameworks/methods to collaborate with other disciplines to verify and develop the solutions further; and implementing ideas into reality (Holland and Lam, 2014).

In fact, the idea of using design strategically to tackle wicked problems is not new. Several decades ago, Papanek (1971) already discussed how design could be used to address complex challenges and social issues, such as design for people with disabilities. Besides, companies, such as Philips, have been using design to drive innovations since the 1990s' (see Marzano, 1999). However, it is only recently that the number of studies exploring how design could be used strategically was significantly increased. As a result, the strategic value of design has become evident to a wider audience, especially those outside of the design sector.

For example, in 2005-2006, the Design Council, UK, conducted and published the key findings of a nationwide survey carried out with more than 2,000 design businesses across the country. The study highlighted many strategic values of design – namely: *shares in design-led businesses outperform key stock market indices by 200%; two third of UK businesses believe that design in integral to future economic performance; every £100 a design alert business spends on design increase turnover by £225* (Design Council, 2007a, p. 8). Furthermore, the content analysis conducted by Kim and Chung (2007) on the articles published in the Design Management Institutes (DMI) periodicals revealed that "design as a strategic resource" was ranked five among the most research topics in the Design Management field. Nowadays a number of renowned business journals and magazines (such as Harvard Business Review and Fast Company) regularly feature articles related to strategic use of design. Design (especially design thinking and the design process) is now perceived as an important part of many innovation courses delivered by leading business schools – see the collaboration between the Royal College of Art and Business School of Imperial College London, d.school (Institute of Design at Stanford University), and Business Design Studio at Rotman School of Management, for example. In addition, more than twenty postgraduate courses offered by Design Schools across the UK cover strategic design.

It can be seen that strategic value of design has become widely recognized. This situation provides good op-

portunities for design disciplines to work on new areas that they have not previously contributed to and increase their impact. In the following section, the evolving role, contributions and practices of design disciplines will be discussed. This will form a basis for further exploration of how design could be used strategically in the wider context.

Background research

It was observed that, in the past few decades, the *role* of design has become increasingly strategic and proactive. The Cox Review commissioned by HM Treasury (2005) acknowledged design as vital to the long-term economic success of the UK, since it contributed strategically to key economic aspects, such as innovation, manufacturing and business development. The recent work from Turner (2013) also encouraged design disciplines to move away from the reactive role of design management, which focuses on making strategic approaches in response to changes, to a more proactive role of Design Leadership, which concentrates on envisioning the future. The author explained that "design leaders help define the future while design managers help go there".

The change in the role of design towards becoming more strategic and proactive does reflect in *contributions* that the design function makes to key business areas, such as innovation, branding and organizational cultures. While design disciplines are traditionally used to contribute to the "product development" stage in the innovation development process (Ulrich and Eppinger, 2003), a number of experts now recommended that design disciplines should lead the whole innovation process (Brown, 2009). For instance, Verganti (2008) suggested design disciplines should drive innovation by challenging the way people perceive existing products/services and re-assigning new meanings to company offerings.

Subsequently, the emphasis in *design practices* has shifted from delivering end results to providing a strategic and holistic approach to address an ill-defined problem in its entirety. For example, Sanders and Stappers (2008) observed that, in the past, design disciplines concentrated on the designing of "tangible outputs" (such as products, interior spaces and information). Nowadays, emerging design disciplines focus on designing for purposes (such as experience, emotion, sustainability and interaction). This shift opens up new opportunities for design disciplines to engage with areas that they were not previously connected with. The Design Council, UK, which champions the use of design in the UK, deliberately created many projects to demonstrate how design could be used strategically to tackle difficult social problems, such as patient dignity (Design Council, 2009), crimes (Design Council, 2015) and mental health (Design Council, 2011).

The change in the role, contributions and practices of design disciplines suggests that rather than being a *"problem solver"* of a pre-defined problem (such as creating a new product/service according the brief) and an *"implementer"* of pre-determined strategies, design disciplines now play a key role in identifying emerging issues, framing a problem/question, solving that problem and implementing the solution (Shams, 2015) – in other words, becoming a *"one-stop shop"* for tackling real world problems – ranging from brand and innovation developments right through to broader issues, such as sustainability, corporate social responsibility and community development.

This paper aims to discuss how design can be used strategically to provide a holistic approach for investigating and providing viable solutions for different types of real world problems. The discussions will be based around three case studies carried out by master students of MA Design Strategy and Innovation and MA Design and Branding Strategy, Brunel University, UK. All cases will include the descriptions of problems, how design (including design thinking, the design process, design research methods, as well as other design tools/techniques) was strategically applied to examine the key issues and create practical solutions. The three case studies will be critically analyzed and compared to extract key lessons learned. Finally, the practical recommendations on how to use design strategically to examine and provide solutions to address complex, ill-defined problems will be drawn.

Case study 1

Using strategic design to reduce food waste in Brazil (Salles, 2015)

According to the Waste and Resources Action Programme (WRAP, 2015), which was set up to promote sustainable waste management in the UK, one third of all food produced in the world ends up as waste. Moreover, their report pointed out that reducing food waste can make a significant contribution to tackling climate change, since 7% of all global greenhouse gas emissions (GHGs), 3.3 billion tons CO2 equivalent (CO2eq) per year, are due to food waste. In this case, the researcher decided to focus on vegetables because it is one type of food that is being wasted the most (WRAP, 2012). According to Achim Steiner, Executive Director UN Environment Program, 30%-40% of food is lost between the field and the consumers. Hence, this study aimed to tackle food waste during this part of the supply chain.

In Brazil, vegetables are mostly produced in small family farms (Ortiz, 2011). They are purchased and transported to large distribution centers called CEASA and then sold to supermarkets and restaurants in local communities. The researcher observed that the existing process created many unnecessary steps between the field and the customers. Moreover, this current process generates food wastes of up to 40% of all production due to transportation and handling (CEASA Pernambuco, 2014). Hence, it was hypothesized that if unnecessary steps could be minimized – in other words, vegetables could be delivered directly to consumers without going through distribution centers and supermarkets – the carbon footprint as well as food waste could be reduced. Besides, the direct distributions could enhance relationships between local producers and local consumers. As a result, the researcher intended to create a new service that could reduce food waste and connect small food producers with local consumers.

The researcher recognized that in order to come up with a new service that could minimize food waste caused by transportation and handling, a holistic examination of all the existing contact points is required. Furthermore, in

order to convince people to adopt the new service, clear benefits (financially and practically) are needed. As a result, the design approach was strategically applied to investigated and address the problems, as well as come up with a new solution. The user-centric, holistic and experimental nature of design principles was considered essential to solve this kind of wicked problem (Brown, 2008; Design Council UK, 2007b). Furthermore, this approach excels at creating innovative solutions that are affordable, relevant and meaningful to people (Pinheiro and Alt, 2011).

Subsequently, a number of design research tools were employed: desk research was carried out to review key subject areas (namely design thinking, service design and business model); case studies were conducted to capture good practices from sustainable and/or socially responsible food suppliers (e.g., Abel & Cole and Organomix); observations were carried out to better understand key players and their roles in the current supplier chain system; and interviews were conducted with experts in relevant fields, namely supply chain, service design and social innovation. Research results were organized, processed and analyzed with support from a number of service design tools (e.g., service design blueprint) in order to ensure that all points of interaction or touchpoints were properly examined. In this way, key areas where food waste could be reduced and interactions between producers and consumers could be enhanced can be identified.

The study identified many poor handling practices that caused unnecessary food waste during the transportation – for example, no packaging regulations; poor hygiene levels (some vegetables lay on the ground); lack of protection (unloading was made in an open space which was vulnerable to rain and sunlight); lack of accountability (workers were paid according to how many boxes of vegetables they delivered regardless of how much waste they generated). It was observed that these poor practices occurred at every stage of transportation. Unsold vegetables also contributed to the amount of food waste in the entire supply chain. Case studies and expert interviews suggested that *"personalization"* could be the key to address this issue. By developing a new service that allows consumers to order vegetables they want from local producers online and have them delivered directly to their places, the need for vegetables to be transported to different places (e.g., the distribution centers, supermarkets and consumers' homes) could eliminate unnecessary food waste and carbon footprint.

The new service starts with customers placing orders online. Next, the service provider processes the orders and sends the lists of required vegetables to local producers who are responsible for harvesting and packing their vegetables in standardized packages provided by the service provider. By paying people according to the actual amount of vegetables they deliver, rather the number of boxes they supply could reduce poor handling problems and make them more accountable. The service provider then collects vegetables from all local producers and delivers them to consumers. With a careful route planning, unnecessary journeys can be minimized to reduce carbon footprint.

Financial gains were also properly examined to demonstrate that the new service delivers good value for money. From customers' points of view, the new service can help eliminate the travelling costs between their homes and supermarkets. Moreover, the time spent on grocery shopping can be reduced significantly. In addition, the food waste in the households could be also minimized, since consumers can order exactly what they want when they want. They do not need buy and store vegetables in large volumes anymore – this helps decrease the chance of vegetables going bad before they are consumed. It can be seen that design (e.g., design research tools, service design frameworks and design thinking) can be used strategically to investigate and tackle very complex problems and provide a practical solution that could generate real impact economically, socially and environmentally.

Case study 2

SMEs and creative start-ups working in collaboration in Colombia (Correa, 2016)

Small and medium-sized enterprises (SMEs) are considered crucial to the global economy and play an important role in employment and development, since they are responsible for 90% of companies and more than 50% of jobs worldwide (International Finance Corporation – IFC, 2012). In Colombia, SMEs contribute significantly to the country's economy and progress, as they generate 67% of employment and represent 28% of GDP (Dinero, 2015a). However, in recent years, a large number of SMEs have gone out of business due to little investment in innovation and R&D, which hinders their ability to compete with new players and international competitors effectively. According to NESTA report carried out by Bakhshi *et al.* (2011), key factors that impeded innovation SMEs are excessive risk aversion, myopia and inertia.

In Colombia, startups are rapidly emerging all over the country. A study by Amway Global Entrepreneurship (2015) has placed Colombia as the 4th country in the world to have a high disposition towards entrepreneurship. Osterwalder, the lead author of Business Model Generation (2015), suggested that startups could be a source of innovation for larger companies. This is because they are willing to challenge the status quo and explore new ideas. Moreover, they have flat, flexible structures that allow them to be agile and embrace risks. In addition, they are better at detecting emerging trends and latent needs in the marketplace than established businesses (KPMG, 2015). Nevertheless, only 50% of startups in Colombia survive their first year and only 20% last until their third year. The main causes are shortage of financial resources, lack of infrastructure, difficulties at scaling up their products/services and the inability to perform managerial tasks (Dinero, 2015b).

It can be seen that collaborations between SMEs and startups in Colombia could lead to a win-win situation. Startups can assist SMEs in terms of innovation capability development, while receiving help from SMEs in terms of management and resources. In this case, the researcher focused on startups in the creative industries or Creative Startups (CSU), since they are increasingly creating economic opportunities and making significant contributions to the wider economy (Creative Startups, 2015).

The researcher also intended to explore how the principles and good practices of the Collaborative Economy, which mainly targets peer-to-peer (P2P) collaborations, could be applied to business-to business (B2B) collaborations.

In this case, the Collaborative Economy is defined as "a new way of thinking about business, exchange, value and community" (Stokes *et al.*, 2014, p. 7). The authors also pointed out that it "enable access instead of ownership, encourage decentralized networks over centralized institutions, and unlock wealth (with and without money). They make use of idle assets and create new marketplaces" (p. 7). This project aimed to create a strategic framework for SMEs in Colombia to build design and innovation capacities through collaboration with creative startups (CSU) based on principles of the Collaborative Economy. Since design is an integral part of innovation (Borja de Mozota, 2003; Brown, 2009; HM Treasury, 2005), raising innovation capacities means enhancing design capabilities and vice versa.

In order to understand the complexity of SMEs and CSU, as well as B2B collaborations, the design approach was applied strategically to deal with this wicked problem. Design tools and techniques were employed to visualize and map out interrelationships between all key issues so that the research plan could be developed accordingly. A number of qualitative tools commonly used in design research were employed in this case: secondary research was carried out to review key subject areas (namely Collaborative Economy and innovation capability development); a participatory observation was conducted to help the researcher get a better understanding of creative disciplines; a series of interviews was carried out with experts in relevant fields (e.g. innovation, entrepreneurship and Collaborative Economy in Colombia) as well as the top management from nine SMEs; and a questionnaire survey was conducted with 89 CSU in Colombia. Design and innovation models, such as the Double Diamond developed by Design Council UK (Design Council, 2005), provided a useful framework for identifying key activities that SMEs and CSU can collaborate and structuring the final deliverables.

The desk research showed that many successful businesses see the Collaborative Economy as a great opportunity – for example: Google invested in Lending Club, a P2P lending company; Avys acquired Zipcar, a car sharing company; General Motors invested in Relay Rides a P2P marketplace for car-sharing. The common practice was that large firms established programs or platforms (that were separated from the main companies) to collaborate with startups and entrepreneurs – see Unilever Foundry, for example. The interview results revealed that many SMEs perceived innovation as *"unreachable"* because it requires large investment. Although all directors of SMEs agreed that innovation was important, it was not considered the top priority. Day-to-day issues appeared to take up all of their time. Hence, they tended to approach innovation in a *"casual"* or ad hoc manner. The lack of a systematic approach for innovation development and short-term goals/visions might be the main factors that impede their innovation capabilities. SME directors were interested in collaboration with CSU, since it could bring in new knowledge and expertise that their companies did not have in-house.

The survey results demonstrated CSU had design and innovation expertise and skills that could benefit SMEs. Besides, the support that most CSU wanted was strategy and planning, which was the expertise and skills that SMEs had. Thus, the majority of CSU was interested in collaboration with SMEs. Although both parties showed interest in collaboration, there was a need to address a number of cultural and structural barriers. For example, short-time visions of most SMEs prevent them from exploring radical ideas. The common practices in the Collaborative Economy, e.g., open innovation/crowdsourcing platforms, would not be suitable, since they could not ensure sufficient commitment and balanced relationships from both parties. A proper *"match-making"* process is required to support this kind of collaboration. Thus, the researcher developed a framework which comprises of three steps:

(i) *Groundwork* – this step was designed to assist SMEs in appraising their current level of design and innovation, and identify their needs in terms of design and innovation

(ii) *Setting* – this step was designed to help SMEs identify suitable partners (CSU) with design and innovation skills that they need, and share common interests

(iii) *Collaborating* – the Double Diamond framework developed by the Design Council, UK, (which consists of four main steps: discover, define, develop and deliver) was adapted to provide a framework for SMEs and CSU to follow. Since most SMEs did not have a process for innovation development, this framework could offer a basic structure for them to start exploring when and how both parties should contribute.

It can be seen that design (e.g., design thinking, design tools and frameworks, as well as design research methods) can be strategically employed to identify new opportunities for businesses and provide new ways for them to collaborate more effectively.

Case study 3

Creating compelling cycling campaign for London (Ahn, 2013)

With growing concerns about healthy lifestyles and traffic pollution, cycling has become an increasingly popular mode of urban transportation. Many benefits in terms of health, economics and environment have encouraged a number of adults to take up cycling in many European countries (European Parliament, 2010). In London, the number of people adopting cycling has significantly risen (e.g., a 117% increase on major roads since 2000). Moreover, more than half a million cycle journeys are undertaken in London every day (Transport for London - TfL, 2010a). However, among the European countries, Great Britain accounts for the lowest percentage of bicycle modal share for all journeys (European Parliament, 2010). This might be because cycling in the UK, especially major cities like London, is regarded as unsafe. According to the British Social Attitude Survey commissioned by the Department of Transport (2013), 69% of non-cyclists and 45% of cy-

clists agreed/strongly agreed with the statement "it is too dangerous for me to cycle on the roads" (2,274 cyclists and 1,015 non-cyclists took part in this study).

While there are a number of campaigns promoting the benefits of cycling via various communication methods (e.g., London Cycling Campaign: LCC and the Cycling Embassy of Great Britain), the report from TfL (2010b) pointed out that these campaigns have neither overcome safety concerns nor successfully increased the number of cyclists in London. Evidently, an innovative thinking was required to change attitudes and behaviors of non-cyclists in London who could potentially take up cycling. According to Crawley (2009), simply providing information and increasing knowledge about a topic is not enough for eliciting attitude and behavior change. There is a clear need for strategic design in the area of public campaigns (Ditsch, 2012), especially experiential design, since it could help create meaningful, emotional and social connections (Battarbee and Mattelmaki, 2002). In this case, the researcher intended to explore how design could be used to address this wicked problem.

As a result, this project aimed to create a design strategy for London cycling campaigns to engage with non-cyclists. The researcher saw design thinking and the design process as a methodological approach to better understand existing barriers (e.g., attitudinal and physical aspects), explore how to overcome these barriers, and create practical suggestions on how to engage non-cyclists in a meaningful way. From the start, design tools were used to explore key issues (e.g., current perceptions towards cycling in London and key messages of existing campaigns) in order to frame key research questions. After that a number of design research tools were employed: desk research was carried out to review key subject areas (namely sensory design, experiential design, and public communication); case studies were conducted to capture good practices from a number of successful campaigns that led to desirable actions (e.g., the pink ribbon breast cancer campaign, Obama's "bottom-up" election campaign and the "Heart Truth" campaign); observations were carried out to better understand the experience of cycling in London; a questionnaire survey was conducted with 65 non-cyclists which were randomly selected across London; and 10 interviews were carried out with key stakeholders (e.g., cyclists and campaigners) and relevant experts. In additional, a creative workshop was conducted with six professional designers from various fields to brainstorm ideas for a new campaign. Visual techniques commonly used by designers, e.g. word cloud and mind map, were used to visualize interrelationships of all key findings. In this way, key issues from different perspectives could be properly integrated.

The study identified *"education"* as one of the main problems. For example, the observations revealed that many cyclists put themselves in harm's way unnecessarily (e.g., did not wear a helmet) and behaved irresponsibly toward other road users (e.g., did not obey traffic signs/signals). Evidently, there is a need to "*educate*" cyclists to ride more safely and responsibly. Subsequently, this could make cycling in London become safer. The survey showed that most participants had never heard of existing cycling campaigns. It could be seen that more effective ways to reach and influence people are needed. 75% of survey respondents commented that existing campaigns and their designs (e.g., types of events, choices of images and key messages) were unable to engage them and influence their decisions. Since Londoners value *"the quality of life"* and *"self-satisfaction"*, the campaign should go beyond conveying health and economic values and addressing lifestyle aspects, such as helping people *"enjoy new experience"* (e.g., discover different parts of London) and *"meet like-minded people"*. However, the campaign must not create unrealistic expectations that cannot be fulfilled with existing infrastructures. The experts suggested that the key to a successful campaign is to know when to inform (provide messages to provoke people's thoughts), involve (engage people in a meaningful way and build emotional connections with them) and influence (suggest what they should do).

As a result, the new design direction for the new campaign was developed around the *"experience of exploring London through cycling"*. The campaign should contain strong visuals and meaningful events. The visuals could represent desirable lifestyles from Londoners' perspectives. Good use of unique characteristics of London was considered appealing (see Beefeater's this is my London campaign, for example). The events should employ multi-sensorial design and experiential design to engage and build emotional connections with the target audience. Combining active activities with strong visual design could help create memorable experiences, as well as provoke people's positive thoughts about cycling (see Nestlé Contrexperience, which combined active tasks of cycling with interactive art installation, for example). This kind of event could help influence their decisions and behaviors in the long term. This case study showed that visual and experiential design can be used strategically to influence positive attitudes and behaviors. Good use of experience design could help engage people and enable campaigners to send positive messages to their target audiences in a more meaningful way.

Discussions

All three case studies discussed in this paper tackled different types of issues: creating innovative services that could help reduce food waste; developing a new framework that could help SMEs and creative startups collaborate more effectively; and proposing a design strategy for public campaign to change people's attitudes toward cycling and influence their behaviors. Although key stakeholders in all three case studies were unsatisfied with the situations, no change had been made to improve these circumstances.

In all cases, the researchers recognized the problematic situations and initiated the projects themselves. Since there was no clear requirement from the key stakeholders, the researchers began their projects by mapping out all the key issues and their interrelationships in order to identify the underlining problem(s) and frame the key research question(s) for their investigations. In all cases, the design tools, such as mind map, had proven to be useful in providing a framework to deal with wicked problems and complex situations. The empathic/user-centric and holistic/integrative nature of the design approach enabled the

researchers to examine the situations thoroughly from different points of view and uncover connections between different aspects so that ill-defined problems could be visualized, systematically mapped out, and, finally, converted into well-focused questions.

The way in which these researchers applied the design approach strategically to frame their questions, structured their lines of enquiry and identified new opportunities reinforced the concept of Design Leadership proposed by Turner (2013). It can be seen that they all proactively explored what could be improved rather than reacting to the market demands or user requirements. To sum up, design (including design thinking, the design process and design tools/techniques) could provide a useful approach for various organizations – big or small; for-profit or not-for-profit – to identify new opportunities and turn complex, ill-defined problems into well-focused questions for further investigation.

In all cases, design research tools and frameworks had also proven to be useful in obtaining in-depth information and insights from all key stakeholders. Creative, hands-on activities, such as a creative workshop, enabled the researcher to test their ideas and develop them further in a collaborative manner. Moreover, design models and frameworks were considered helpful when processing, analyzing and organizing research outcomes. Design tools, such as service blueprint and the Double Diamond framework, had helped the researcher integrate all insights together to form a coherent strategy and design directions for their chosen sectors and organizations. In can be seen that a number of tools and techniques under the umbrella of the design research could help organizations obtain, analyze and integrate insights.

The goal-oriented and experimentalism nature of design thinking and the design process was very useful in solving problems and providing viable solutions. The solutions in all three cases can be considered holistic, since they addressed multiple aspects of the projects beyond the main focus. For example, the new service proposed to reduce food waste could potentially benefit various stakeholders (e.g., local consumer and local producers). Although the main focus of the project was environmental issues, economic and social issues (e.g. overall costs and social interaction enhancement) were also taken into consideration and properly addressed. Furthermore, the framework developed to assist SMEs in collaborating with startups in order to enhance design and innovation capabilities did not simply focus on design and innovation activities, but also took overall business goals and operational practices into consideration. As a result, cultural and structural barriers were fully investigated and properly addressed. The researcher did not simply follow the good practices, such as crowdsourcing platform, but carefully developed the three-step framework to assist them in collaborating in the way that suits both parties. To summarize, design provides more than a problem-solving approach and a means to generate solutions. It enables the researchers/developers to tackle multiple aspects of a problem. It could help create economic, social and environmental value (or the triple-bottom-lines), since design can be used strategically to deal with multiple dimensions positively.

Conclusion

This paper discusses the evolution on design towards becoming more strategic and proactive. A number of case studies were given to demonstrate how design can be used strategically to provide a holistic approach for investigating and providing viable solutions for different types of real world problems – including the areas that design traditionally did not associate with. Firstly, design thinking, as well as design tools/techniques could be used strategically at the very front end to identify problems/opportunities and turn ill-defined situations into well-focused questions. Secondly, the design research approach and methods are also useful when it comes to investigation. A number of design research tools and frameworks have proven to be useful for obtaining, analyzing and integrating insights from various stakeholders. Moreover, the design thinking and the design process could help provide solutions, which go beyond the main focus of the project and address other important dimensions. In this way, the solution will become more rounded and holistic. As the contributions of strategic design grow larger, the role of design disciplines may move from the problem solvers to the drivers of positive changes, which encompass economic, social and environmental values.

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Submitted on December 2, 2016
Accepted on April 11, 2017