DESIGN

Why design thinking matters

ANNE-LAURE FAYARD
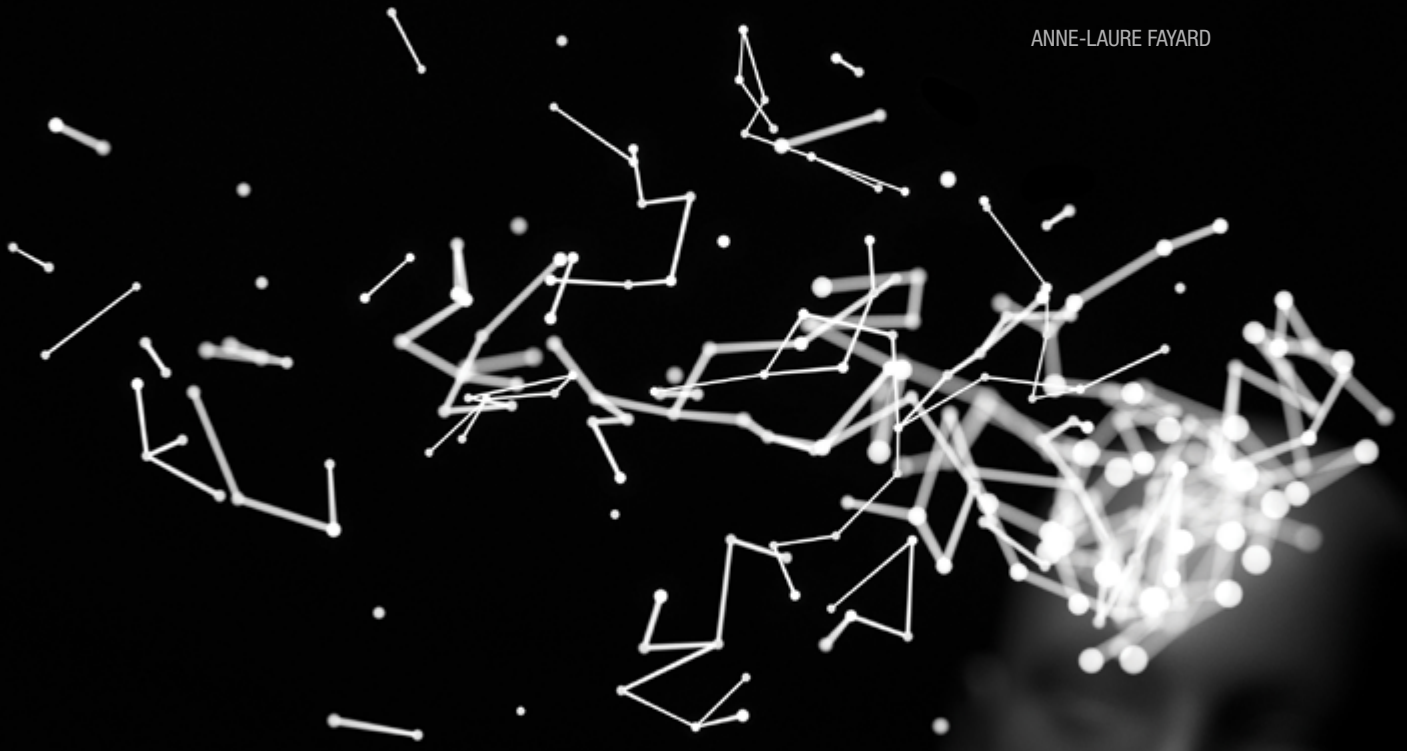
DESIGN THINKING

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DEAR READER,

Design thinking, a collaborative, human-focused approach to problem-solving, is no longer just for the creative industries. It has become an important management trend across many industries and has been embraced by many organizations. Its results are hard to ignore. Indeed, design-driven companies regularly outperform the S&P 500 by over 200 percent.[1]

To date, the financial services industry has not led in adopting this approach. However, leaders are recognizing that important challenges, such as engaging with millennial customers, can be best addressed by using design thinking, through the methodology's exploratory approach, human focus, and bias towards action. This edition of the Journal examines the value of design thinking in financial services.

Design thinking introduces a fundamental cultural shift that places people at the heart of problem-solving, which is critical in a technology-driven environment. If the customer's real problems are not fully understood, technological solutions may fail to deliver the desired impact. In this context, design thinking offers a faster and more effective approach to innovation and strategic transformation.

The case studies and success stores in this edition showcase the true value of design thinking in the real world, and how this approach is an essential competitive tool for firms looking to outperform their peers in an increasingly innovation-driven and customer-centric future. At Mastercard, design thinking has become a part of almost all organizational initiatives, from product development, research and employee engagement to solving challenges with customers and partners. Meanwhile, at DBS Bank in Singapore, a data-informed design model has been firmly embedded into the bank's culture, enabling them to successfully move from being ranked last among peers for customer service in 2009, to being named the Best Bank in the World by Global Finance in 2018.

I hope that you enjoy the quality of the expertise and points of view on offer in this edition, and I wish you every success for the remainder of the year.

Lance Levy, **Capco CEO**

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[1] http://fortune.com/2017/08/31/the-design-value-index-shows-what-design-thinking-is-worth/

WHY DESIGN THINKING MATTERS

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ABSTRACT

Design thinking has been an important management trend over the last decade and is still very much in fashion. Yet what design thinking really is and what it entails in practice for organizations often remains nebulous. In this article, I argue that design thinking is not a new concept and explain why it has aroused such a keen interest in recent years. I highlight the value of design thinking as an innovation process and stress the implications it has, as a mindset, for organizational culture. Lastly, I stress the need to use design holistically – with a system perspective – to develop meaningful and socially responsible innovations.

1. INTRODUCTION

In September 2015, Harvard Business Review released a special issue entitled "Design thinking comes of age." It covered the use of design thinking in multiple industries, reflecting a growing interest in the topic at the time, which has only multiplied as evidenced by the number of publications, case studies, and use of the phrase, as reflected by Google Trends. If the term is not new (early references to it can be traced back to the 1950s and 1960s), it has lately become part of the popular discourse and gained momentum in the business world as many businesses send their employees to training courses on design thinking and seek to incorporate it in their operations with the hope of nurturing a more innovative culture, boosting product and service innovation, as well as improving customer experience.

At the same time, some companies, such as IBM and SAP, have developed their branded version of the design thinking process, creating some confusion as to what design thinking is beyond the branded variations. In this paper, I review some of the origins of design thinking, discuss its main principles and methods, and illustrate it with examples. I briefly discuss why it has become such a favored approach (a question I am often asked) and argue that, to successfully implement it, organizational and cultural conditions – beyond Post-It notes and whiteboards – are required. Lastly, I emphasize the importance for design thinking to be holistic, systemic, and socially responsible.

2. DESIGN THINKING: WHAT IS IT REALLY?

2.1 A brief history[1]

The history of design thinking goes back to the mid-1950s when Buckminster Fuller, a technologist, designer, and inventor, began teaching a course on design science at MIT. Fuller liked calling himself a comprehensive

[1] For more details on the origins and history of design thinking, please read: Dam, R., and T. Siang, 2018, "Design thinking: get a quick overview of the history," Interaction Design Foundation, https://bit.ly/2q02kYE; and Szczepanska, J., 2017, "Design thinking origin story plus some of the people who made it all happen," Medium, January 4, https://bit.ly/2taChUM

Figure 1: Design thinking: a human-centered approach to innovation
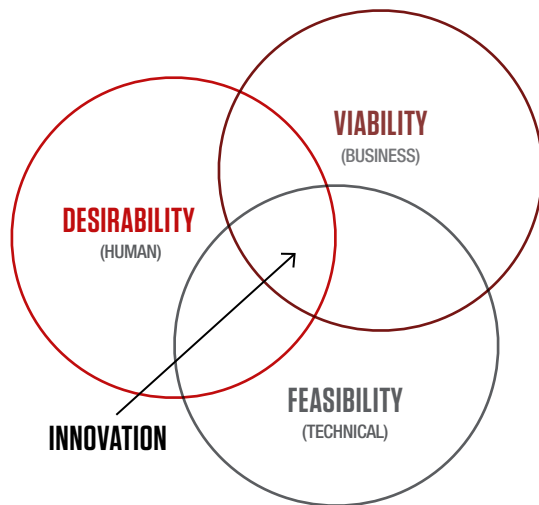
> "Design thinking is a human-centered approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success." — TIM BROWN[8]

anticipatory design scientist – "an emerging synthesis of artist, inventor, mechanic, objective economist and evolutionary strategist."[2] Herbert Simon, with his seminal text, The sciences of the artificial (1969),[3] also attempted to develop a science of design and consequently left out concepts like intuition, experience, and social interaction from his definition of design.

Around the same time, participatory design, an approach that also deeply influenced design thinking as we know it today, emerged in Scandinavia. More specifically, participatory design, which focused on social interactions and organizational contexts, influenced many of the advancements in human-computer interaction and service design, as well as the focus on user-centered

approaches and co-creation. At the core of the Scandinavian participatory approach was a desire to improve our understanding of people's work to create better information systems, a willingness to involve users in an effort to reduce resistance to change, while increasing workplace democracy.[4]

This approach has been slowly adapted and embraced (though its influence has often been forgotten) by designers in North America and other European countries. Researchers like Lucy Suchman, an anthropologist who joined Xerox's Palo Alto Research Center (PARC) in the late seventies, brought back the ideas of codesign and user-centered design to North America. In the 1980s, Nigel Cross[5] and Donald Schön[6] studied designers and their practices and highlighted specific dimensions of designers' ways of solving a given process, such as the rapid generation of multiple solutions, a bias towards action rather than prolonged analysis, and the iterative nature of the process. In these studies, design emerged as a practice closer to arts and crafts than to science.

While design thinking is rooted in the work practices and tools used by professional designers, it is a way of thinking not limited to professional designers or architects. On the contrary, it proposes an expansive definition in which everyone is a designer, and anyone can design. "Design thinking" refers to a view of design as an approach to problem solving that is deeply exploratory and where the problem is not considered a given, but one that must be defined and redefined through exploration. That approach is what Boland and Collopy (2004)[7] call a design attitude, which they contrast with a decision attitude. A decision attitude, taught in most schools – particularly business and engineering schools – presupposes that the problem provided is well defined and that a number of alternative solutions exist for it. The remit for people trying to tackle problems is then to figure out the best solution among a set of alternatives often represented by complex modeling systems. Yet such a decision attitude seems to have reached its limits in light of the complexity of problems faced by firms and society. In turn, companies seem to find value in designers' approach to problems.

Hence, recent years have energized managers, among other professionals, to engage in design thinking, described as a more human-centered approach whereby designers "match people's needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity" (Tim Brown[9]).

2   Buckminster Fuller Institute, https://bit.ly/2xWJ7NO
3   Simon, H., 1969, The sciences of the artificial, MIT Press
5   Cross, N., 1982, "Designerly ways of knowing," Design Studies 3:4, 221–227
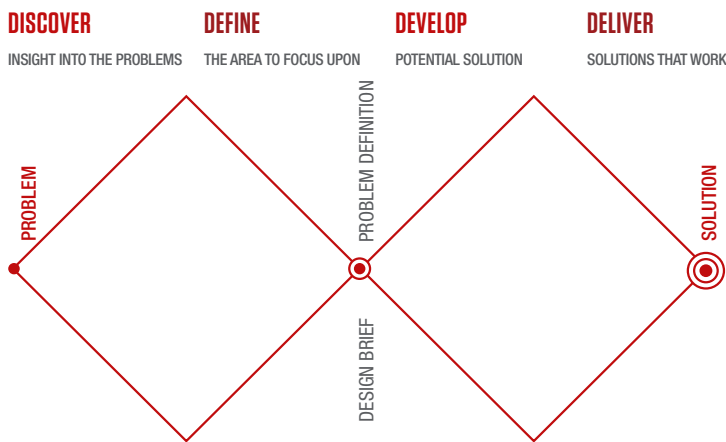6   Schön, D. A., 1983, The reflective practitioner: how professionals think in action, Basic Books
7   Boland, R. J., and F. Collopy, 2004, "Design matters for management," in Boland, R. J., and F. Collopy (eds.), Managing as designing, Stanford Business Books
8   Brown, T., "Design Thinking), IDEO, https://bit.ly/2Ogn5zB
9   Brown, T., 2008, "Design thinking," Harvard Business Review, 86:6, 84-92

Figure 2: The design double diamond

DISCOVER
INSIGHT INTO THE PROBLEMS

DEFINE
THE AREA TO FOCUS UPON

DEVELOP
POTENTIAL SOLUTION

DELIVER
SOLUTIONS THAT WORK

PROBLEM

PROBLEM DEFINITION

DESIGN BRIEF

SOLUTION

Source: UK Design Council, https://bit.ly/2zJzFwS

2.2 The design thinking process

The process comes in many different forms — three, five, or seven steps depending on the school of thought and company. I personally find the "Double Diamond" developed by the U.K. Design Council a useful way to visualize the process.

Although it suggests phases, the double diamond does not clearly delineate the steps practiced, suggesting a more fluid and dynamic way to engage with the process. It also highlights the divergent and convergent modes involved in the process: during the divergent mode, you take an exploratory stance, research, and brainstorm widely; and during the convergent mode, you make sense of results (research insights, ideas, prototypes, etc.) from the divergent phase, narrow your options to a few, and then choose one that you can implement.

Underlying these phases are a few key principles and assumptions regarding where new ideas come from and how to evaluate them:

1. Reality is complex and socially constructed. Consequently, it is important to **gain deep empathy for users' or customers'** needs and aspirations for the future. This means not only understanding their current needs (especially because they might not always be able to articulate them) but also **the broader context that shapes their daily lives.**

Design thinking (also known as human- or user-centered design) is usually associated with creative organizations like design firms. Originally, design thinking was indeed the domain of design and innovation consultancies, such as IDEO and Frog Design, that companies would hire to help them develop innovative products and services. Interestingly, in the last decade or so, companies in multiple domains have been bringing design thinking in-house and developing internal capabilities. For example, healthcare has welcomed multiple projects that aim to create better experiences for patients. Mayo Clinic started a pilot project in 2002 where patients, physicians, and designers collaborated to generate ideas on how to improve the doctor-patient interaction. In 2007, this pilot was integrated into the clinic's new Center for Innovation.[10] In the field of technology, multiple companies – Samsung, Intel, SAP, and IBM, to name a few – have included design-thinking methods in their innovative processes. In the banking sector, BBVA and Deutsche Bank are sending their employees to design thinking training and developing internal capabilities with innovation labs, and Capital One acquired design consultancy Adaptive Path in 2014 and is trying to develop design thinking skills internally. Additionally, in the last five years, management consultancies have begun acquiring design consultancies; for example, in 2013, Deloitte acquired Doblin, Accenture acquired Fjord, and in 2015 McKinsey acquired Lunar. More recently, these management consultancies began building their internal capabilities and staffing their own design team.

When designers at consultancy IDEO started research for a project that sought to inspire people to open new bank accounts with Bank of America, they began by gaining empathy for different types of users. They noticed that many individuals often rounded up their financial transactions. It made the math easier and created a "buffer" (of extra money) on their bank account. The IDEO team also noticed that many of the users they observed and interviewed had difficulty saving what money they had, whether due to a lack of resources or willpower. This led them to come up with Keep the Change, a new service that rounds purchases made with a Bank of America debit card up to the nearest dollar, with the difference transferred from checking to saving accounts. It launched in 2005, and in less than a year, it attracted 2.5 million customers, leading to the opening of more than 700,000 new checking accounts and 1 million new savings accounts for Bank of America.[11]

2. Ideas can only be assessed **in practice**. Therefore, a **bias towards action** and **prototyping** are central

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[10] Kersten, P., "Inspiring innovation throughout the healthcare industry" Center for Innovation, https://mayocl.in/2NQa5BC
[11] Case study: Bank of America, Bloomberg Businessweek, June 19, https://bloom.bg/2zDnu79

to design thinking, a misleading term because design thinking is as much making as it is thinking. You need to test your assumptions by generating multiple prototypes and getting feedback from users. Prototyping creates opportunities for learning, which means being ready to let go of your "great idea."

This is what happened to the Air New Zealand team that worked with IDEO to redesign its long-haul flight experience. Reeves, Air New Zealand's program director, explains how the team had come up with a new seating idea: "We thought it was a perfect idea and were extremely excited about it. We built a cabin of seats and tested them and all the passengers hated it... It was such a powerful outcome for us and something we wouldn't have learnt, had we not prototyped."[12] And prototyping helped the Air New Zealand team avoid spending large amounts of money on the redesign of new seats.

You can prototype anything, including a service, experience, or program, allowing you to learn as much as with physical prototypes. For example, you can rent a space and furniture and invite users to experience your new service. In my research on service designers, I compiled multiple examples of service prototypes in banks, airports, and hospitals. Prototyping is also very powerful for social innovation as described in the example below.

With a group of students,[13] we worked on a social innovation project, the Bindi Project,[14] a community-centered program that aimed to empower women from underserved urban areas. To test our original idea, we collaborated with a Nepalese NGO and piloted our program with 36 women in a slum of Kathmandu.[15] During the pilot, we prototyped multiple components of the program. For example, to test our assumptions that women would be willing to give back with their time to train other women and share what they learned during the program, we ran a workshop in a slum, where we trained women on sexual health and then asked them to volunteer to run a similar workshop in their community. We ended up with several participants signing up to *lead future workshops, suggesting that our assumption about the willingness of participants to give back to the program was (at least partly) substantiated.*

3. Ideas never arrive fully formed. To develop a service or product that truly fulfills the needs of your users or customers, you need to **iterate**, and prototypes allow you to refine your ideas and flesh them out.

Intesa Sanpaolo, a major Italian bank, worked with Frog Design to design a new branch for their customers with the goal of transforming the relationship between the bank and its clients beyond being purely transactional. "To achieve this, over 600 clients and 300 employees engaged in test interactions in a full-scale branch prototype, as the design was refined in real time to better serve their needs."[16]

R & D Lab Sproutel similarly iterated on prototypes to create Jerry the Bear,[17] a teddy bear with type 1 diabetes. Jerry helps children with the same diagnosis learn more about their condition and feel less alone. It took the Sproutel team 29 iterations and multiple workshops with children to develop the bear, which began retailing in 2017.

4. Acknowledge that **innovation is collaborative** and requires different skills and expertise, which is why **multidisciplinary teams** are crucial. In diverse teams, problems are seen from multiple angles, and new solutions arise from the merging of these different perspectives. It is about letting go of the myth of the lone inventor. Creative collaboration also means **co-creating with your customers and other stakeholders**. They are experts in their practices and must be involved in the process – at the very least in the prototyping and testing phase. Engaging them earlier in the process can also be generative.

In participatory design projects, such as one I conducted with air traffic controllers,[18] users have a deep expertise, and you cannot develop tools without learning from them and engaging in the process. However, children suffering from diabetes are also experts in their needs and experience, and, because the Sproutel team acknowledged their expertise and engaged them in the design process by inviting them to multiple prototyping workshops, Sproutel was able to successfully develope Jerry the Bear.

5. Recognize that some innovative solutions may not be flashy or super complex. In fact, good design is often

[12] Lakhani, K. R., A.-L. Fayard, N. Levina, and S. H. Pokrywa, 2012, OpenIDEO, Harvard Business School Case Study 9-612-066, p. 5
[13] This was a project with Design for America of NYU, a student organization that used human-centered design to tackle social issues, for which I am a faculty advisor.
[14] The Bindi Guide, https://bit.ly/2OUL1FP
[15] The Bindi project, https://bit.ly/2R5Ij1G
[16] https://bit.ly/2N7ApS9
[17] https://bit.ly/2xVz0bW
[18] Mackay, W. E., Fayard, A-L, Frobert, L. and Médini, L. 1998. Reinventing the Familiar: Exploring an Augmented Reality Design Space for Air Traffic Control. CHI 1998: 558-565

simple and "invisible" to users, allowing them to do their work or continue their daily activities in a seamless, improved manner.

If you think of Air New Zealand, their passengers wanted comfortable seats that did not require spending ten minutes reading an instruction manual or even watching a three-minute video. In 2007, Engine Service Design, a London-based service design and innovation consultancy, worked with Virgin Atlantic to help redesign its passenger experience at Heathrow Airport.[19] During the project, Engine designers noticed that, for many people, the first ten meters into the airport are the worst. To reduce passengers' stress, Virgin Atlantic positioned staff members near the terminal's entrance to greet people and provide them information when needed. This is an example of a simple innovation sparked by observing users and one that improved passengers' experience, as well as reduced confusion within the terminal.

3. THIS IS GREAT! HOW CAN WE EMBRACE DESIGN THINKING IN MY COMPANY?

The potential of design thinking to generate innovations that can bring value to users and organizations has been demonstrated by many case studies similar to the stories I shared above. Yet, being convinced of the potential of design thinking is not enough to implement it effectively, and people often ask me how they can apply design thinking in their work and/or implement it in their organizations: What tools do they need? What kind of training is recommended?

Figure 2: Damien Newman's design process squiggle

UNCERTAINTY/PATTERNS/INSIGHTS   CLARITY/FOCUS

RESEARCH   CONCEPT   DESIGN

Source: That squiggle of the design process, ReVision Lab, https://bit.ly/2KMyRMM

[19] Fayard, A-L., I. Stigliani, and E. Williams, 2010, "Designing services at engine," case study, Imperial College Business School

[20] Fayard, A-L., I. Stigliani, and B. Bechky, 2017, "How nascent occupations construct a mandate: the case of service designers' ethos," Administrative Science Quarterly 62:2, 270-303

They often worry that they or their organization is not creative enough. Indeed, design thinking is often associated with cool and creative spaces with whiteboards and tons of sticky notes where teams (multidisciplinary if possible) brainstorm new ideas. However, if sticky notes, Sharpies, and whiteboards are useful, they are not the sine qua non condition of design thinking. Furthermore, design thinking can be accomplished without sticky notes and whiteboards. Similarly, if you think that using one of the phased processes of design thinking is the silver bullet for new ideas and innovative solutions, you will again be disappointed.

Design thinking is not a science nor a magic recipe. It is an art and craft that requires a certain mindset or ethos.[20] This mindset is deeply connected to the principles of design thinking listed in the previous section: it is about being empathetic, holistic, collaborative, and willing to experiment and iterate. Intrinsic to a design thinking mindset is also the ability to embrace ambiguity and to accept that the process may be messy, and the double diamond might look more like a squiggle (see figure 2) than a nicely delineated double diamond or phased process.

Mechanically following the steps provided by various design thinking frameworks or putting Post-It notes on walls and developing journey maps (or any other tools used in design thinking) will not guarantee lightning bolts of innovation or interesting new ideas. Indeed, for the design thinking mindset to be fully embraced by organizational members, it is crucial to have a culture that supports it. More specifically, you need an organization where collaboration, experimentation, risk taking, and a user-centric approach are not just values posted on the walls or website. Moreover, you need to ensure that your innovation teams can get their ideas implemented. Generating ideas is not always the main problem; implementing them is far more difficult. The obstacles to implementation often include the organization's inability to execute in an agile, iterative way; anemic leadership support for funding "concepts;" and the inability to convince various stakeholders. This is what Samsung's leadership realized: to take advantage of design's full value, they needed to make sure that the design team would not come up with new products that would be contested or, at best, ignored by engineers and marketers. This is why the company embarked on a radical transformation of its culture. Samsung understood that if it did not, none of the new products would be produced.[21]

Because design thinking is an approach for generating new ideas, it is important to make sure that your organizational innovation culture (e.g., where do new ideas come from and how to evaluate them) is aligned with the design thinking mindset.[22] For example, do you believe that empathy toward your customers or users will inspire the development of new products and services? Or do you think that using complex modeling and large datasets is more effective? While conducting ethnographic research at Nokia in 2009, Tricia Chang discovered an insight that challenged Nokia's business model of developing expensive smartphones for elite users and cheap smartphones for low-income users. She found that low-income consumers were ready to pay for more expensive phones, a finding that suggested revisiting Nokia's business model. However, Nokia management did not know what to do with her insights, which seemed weak to them because Chang had "only" 100 interviews in comparison with their sample size of several million data points. Chang argued that it was not surprising they could not see any of her insights "show up in their quantitative datasets because their notion of demand was a fixed quantitative model that didn't map to how demand worked as a cultural model in China."[23] Nokia ended up ignoring her findings. This is a cautionary tale for businesses on how relying too much on numbers, and ignoring data that was not easily measurable, may have contributed to Nokia's decline.

While Post-Its, Sharpies, and whiteboards are useful tools, they do not ensure the successful implementation of design thinking in an organization. Understanding an organization's culture and being ready to change it to support a design thinking approach is crucial.

4. DESIGN THINKING WITH A GRAIN OF SALT: IT NEEDS TO BE HOLISTIC, SYSTEMIC, AND SOCIALLY RESPONSIBLE

As innovation has become a strategic imperative for companies, taking a design thinking approach seems like a perfect model for developing new products and services that will increase customers' satisfaction and loyalty. Yet these innovations tend to be quite self-centered and local. They ignore the not-always-positive impact the innovations may have on other humans, other systems, and common resources like water, food, and our climate.[24]

While design thinking provides the tools for creating innovative, meaningful solutions with social impact, it is important to remember the unintended consequences that can result from the products, technologies, and services we design. These can emerge even when a design thinking approach has been fully embraced. Indeed, as you focus on end users or specific customers and create products and services that will provide great solutions for them, you may create problems for other groups of users locally and/or globally, other groups whose voices have not been taken into account. New products and services also have physical consequences on our environment (locally and globally) that we may not realize until after the fact. Consequently, asking about an innovation's impact from a system perspective is imperative. For example, car-sharing apps like Uber or Lyft, which are meant to simplify our lives (and often do in many ways), are disrupting urban infrastructures by increasing traffic congestion and reducing the use of public transportation. They are also disrupting employment, not just creating new and flexible job opportunities. Realizing the negative effects of their addictive design, former designers at Google, Twitter, and Facebook have disconnected themselves from the Internet.[25] I would argue that, in this case, user-centered design focused only on increasing usage rather than understanding contexts and meaningful interactions. Moreover, these designers did not adopt a system view that would facilitate their understanding of the social impact of the technologies they created and the practices those technologies generated.

While predicting all the unintended consequences of design is impossible because systems are deeply interconnected at a global level, it does not prevent designers, as well as companies that are increasingly using design thinking, to be mindful of these consequences and to be ready to challenge a new product or a service if it has negative effects in another part of the system. Hence, embracing design thinking should incorporate a system view and be socially responsible. This is not just an individual responsibility, but also one for companies, governments, and national and international institutions.

[21] Yoo, Y., and K. Kim, 2015, "How Samsung became a design powerhouse," Harvard Business Review, September
[22] Fayard, A-L., E. Gkeredakis, and N. Levina, Information System Research
[23] Wang, T., 2016, "Why big data needs thick data," Medium, January 20, https://bit.ly/23E9qlv
[24] Frick, P., and C. Luebkeman, 2017, "Planet-centred design: a mindset shift for engaging complexity," Huffington Post, January 19, https://bit.ly/20WQsnA
[25] Lewis, P., 2017, "'Our minds can be hijacked': the tech insiders who fear a smartphone dystopia" The Guardian, October 6, https://bit.ly/2yMqOcH

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