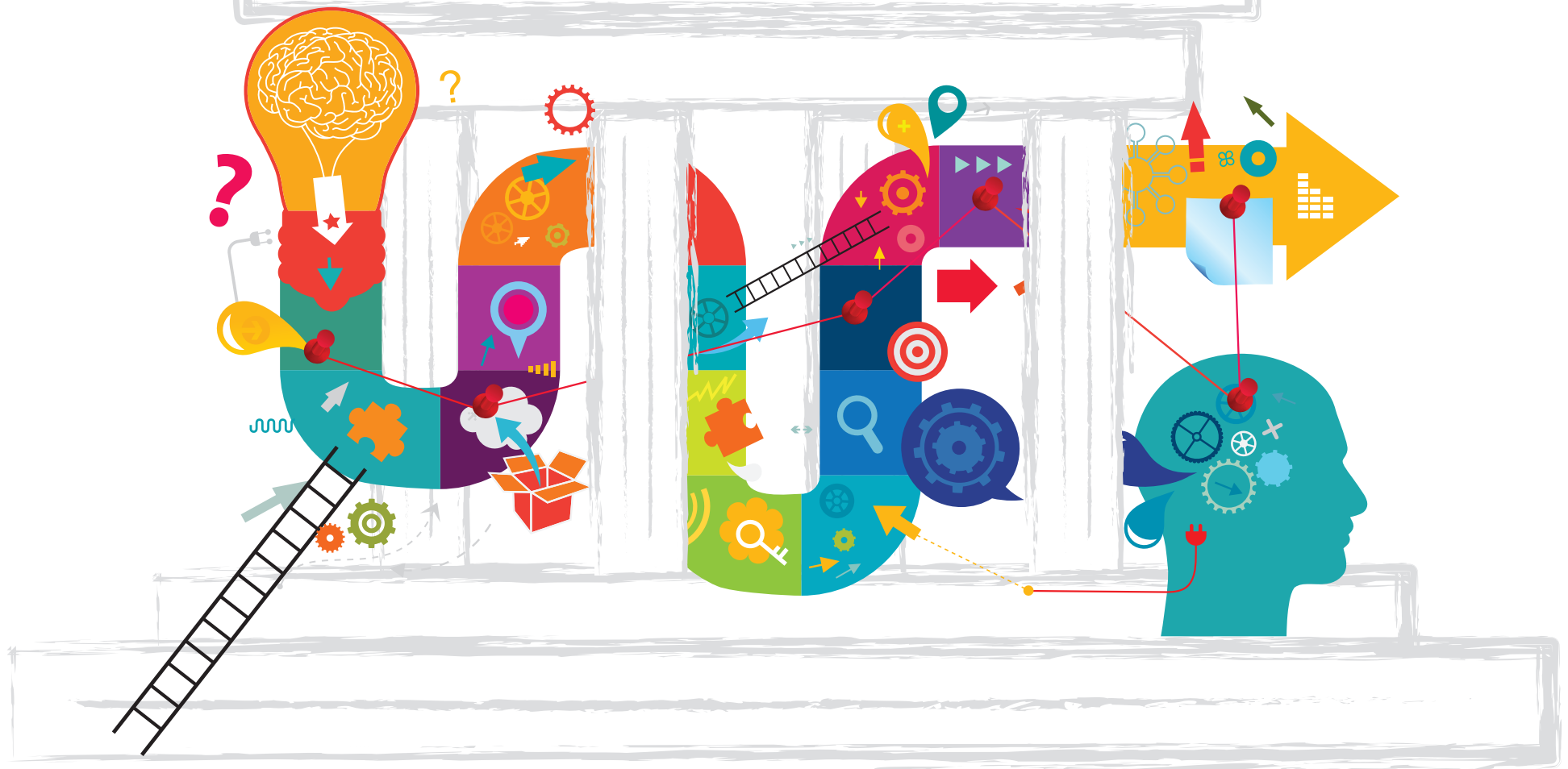


IBM Center for The Business of Government

Applying Design Thinking To Public Service Delivery



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20 years of research for government:
informing today, envisioning tomorrow

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FOREWORD

On behalf of the IBM Center for The Business of Government, we are pleased to present this report *Applying Design Thinking to Public Service Delivery*, by Jeanne Liedtka and Randy Salzman of the University of Virginia's Darden School of Business.

Every day, U.S. government entities interact with millions of citizens to execute their core missions. And while missions vary among organizations, all agencies serve the citizen—including the taxpayer, the traveler, the veteran, and the student. Serving the citizenry has always been a foundation of our government.

Today, rapidly advancing technological innovations are fundamentally changing user expectations. The last best experience that anyone has becomes the minimum expectation for the next experience. With these changing dynamics as a backdrop, organizations must begin to reimagine how they innovate, operate, and engage with clients, employees, and stakeholders.

The term “design thinking” often conjures up an image of fashion design, or a sleek new tech device. But design thinking, as underscored in this report, is changing how humans collectively contribute creative ideas to help organizations develop and advance innovation. Elements of design thinking include creating empathy with users, using a discipline of prototyping, and having a tolerance for failure.

Despite widespread skepticism about the ability of large and complex government organizations to innovate through design thinking, exciting work underway in across federal agencies is using design thinking to make a difference in citizens' lives. At the U.S. Department of Health and Human Services (HHS), one of the largest agencies of the U.S. government, the Ignite Accelerator—a program of HHS's Innovation, Design, Entrepreneurship, and Action (IDEA) Lab—is bringing design thinking and similar methodologies like “Lean Startup” to employees across the enterprise. Other models include the HHS Food and Drug Administration (FDA), which is engaging design thinking to help manufacturers and government regulators find

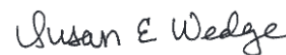
common ground on medical device standards; and the Transportation Security Administration at the U.S. Department of Homeland Security, which is applying design thinking at U.S. airport checkpoints to develop strategies that help calm traveler anxiety.

This report focuses on the expanding use of design thinking in government to transform how agencies engage citizens, enhance operations, and innovate across a broad spectrum of public management challenges. The authors identify five core characteristics essential to most design thinking approaches. Based on extensive research and first-hand interviews, they then present four case studies from the U.S. and around the world that illustrate the purpose, intent, and success of design thinking in action. Drawing on these studies, and from conducting hands-on training and workshops of design thinking principles and tools, the authors offer recommendations to government executives who can take advantage of design thinking to drive innovation in their organizations.

We hope that agencies will find the practical and actionable steps offered in this report useful in capitalizing on the potential for applying design thinking to improve government.



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EXECUTIVE SUMMARY

Design thinking is currently enjoying unprecedented attention from organizations in search of avenues for innovation, both in the public and private sector.

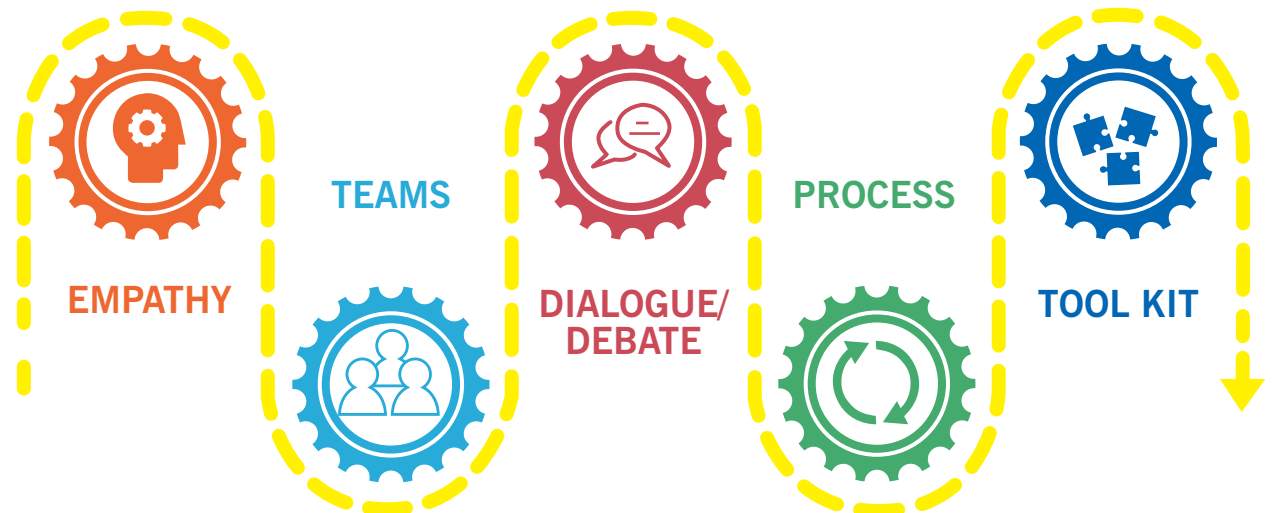
Described as a “human-centered approach to innovation that puts the observation and discovery of often highly-nuanced, even tacit, human needs right at the forefront of the innovation process,”¹ design thinking or “human-centered design” includes a series of iterative activities. The first stage consists of initial exploratory activities focused on gathering primarily qualitative data to identify user needs, design criteria, and problem definition, followed by the generation of ideas, which are then prototyped and tested before being piloted. Design thinking is often contrasted with alternative innovation strategies such as technology-driven innovation. It shares an emphasis on understanding root cause, co-creation with key stakeholders, and prototyping and experimentation with other popular initiatives like The Lean Startup, Agile Software Development, and behavioral insights, but also adds a tool kit for creative idea generation based on data-driven user criteria that these other approaches lack.

Five Core Elements of Design Thinking

Our research into design thinking across multiple organizations employing an array of models suggests five elements integral to design thinking in action:

Understanding User Needs and Context through Empathy

This emphasis on decision makers experiencing a profound and personal, almost sensory, immersion into the subjective realities of individual stakeholders may be the key differentiator between design thinking and other approaches like The Lean Startup.



Formation of Diverse Teams

Significant academic research demonstrates the positives associated with bringing varied perspectives into the conversation with *difference* providing the raw material for more creative solutions. Diverse teams produce impact by combining these with dialogue-based conversations to build alignment across varied stakeholders, so often a challenge in government innovation efforts. Second, diversity expands team repertoires, paving the way for higher-order solutions, rather than sub-optimal negotiated compromises. Third, a diverse, and active, team has greater access to networks and resources while enhancing members' incentives to co-create.

Dialogue versus Debate

Successful design-oriented conversations are most vividly illustrated perhaps by what they are not. They don't accept obvious and conventional problem definitions, allow extensive debates, or concentrate primarily on evaluating options visible from the start. Instead, they first explore the problem definition itself as a hypothesis, seek to understand rather than to argue with others' differing perspectives in an inquiry-focused conversation,

and look for solutions to emerge *during* the process. This approach supports innovation processes by encouraging a focus on surfacing tacit assumptions, fostering team alignment and learning, allowing for emergent solutions, and building engagement and trust.

Iterative and Experimental Process

Creating and testing multiple solutions through quick, field-based experiments is another hallmark of design thinking. This fosters learning in action and minimizing investment risk. Experimental approaches impact innovation outcomes by minimizing both the investment in and the visibility of failures, especially important in bureaucratic, risk-averse environments, and mitigate well-recognized decision biases that interfere with effective problem solving.

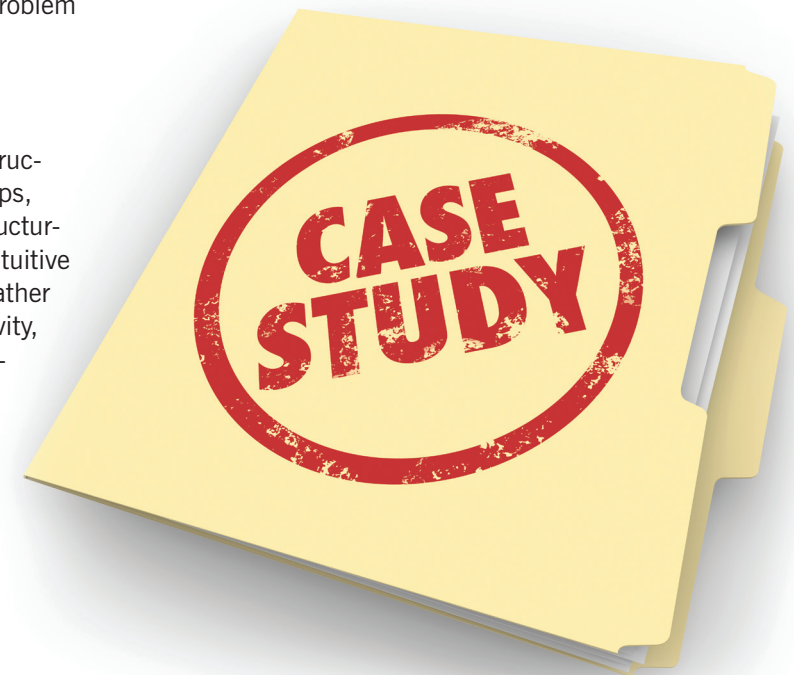
Structured Process and Tool Kit

Design thinking involves the presence of a structured, facilitated process with stages and steps, and a specific tool kit. The idea of tightly structuring creative processes might seem counter-intuitive to artists but, in our research, we find that rather than stifling organizational employees' creativity, the correct structure frees it. Successful innovation leaders use design's structured processes to engage employees and provide them a safe environment for testing new approaches. Activities like face-to-face ethnographic research with

customers, deep immersion in their perspectives, co-creation with stakeholders, and the design and execution of experiments are integral to design thinking.

Design Thinking in Action—Case Studies

This report details four case studies that illustrate design thinking in action, outlining different facets of design thinking as employed by social sector organizations. In these cases, we highlight the issues that design thinking addresses, offer specifics of the processes implemented, and outline observed benefits and lessons learned.



Engaging Frontline Employees at HHS

Imagine the innovation potential, both in terms of reduced costs and improved service, of engaging employees at every level to search for opportunities to create better value for citizens.

Improving Solution Quality at the Good Kitchen

Using the tools of design thinking to develop deep insights into both users and employees helps teams reframe possibilities to open up new areas of inquiry, as demonstrated by the local Danish government's work to improve nutrition for the elderly.

Aligning Diverse Stakeholder Groups at the FDA

Creating change in the public sector often involves engaging and aligning multiple stakeholders who have differing missions and perspectives. Finding innovative solutions in such an environment can be fraught with difficulty as various worldviews often paralyze progress and/or result in the selection of sub-optimal “lowest common denominator” solutions.

Fostering Experimentation and Change at MasAgro

Often in the public sector, working toward a greater good involves inducing people to alter

their behaviors—to adopt healthier lifestyles, prepare more carefully for air travel, or stay in high school instead of dropping out.

Recommendations

From our research, interviews, and case studies, we have gleaned some recommendations and insights for government executives in taking advantage of design thinking in order to drive innovation in an organization.

Provide a Structured Methodology and Tool Kit

Putting in place a structured methodology has multiple benefits. It provides clarity that translates an abstract concept—innovation—into a concrete set of new behaviors. It also provides a level of psychological safety for risk-averse employees. Additionally, it allows the standardization of processes across levels and geographies to ensure consistency, shared learning, and quality control.



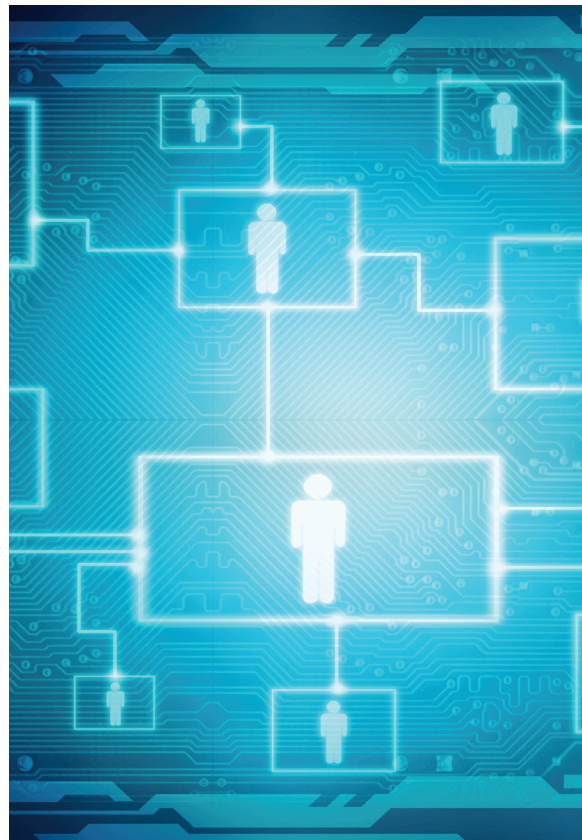
Offer the Opportunity to Learn It Well

Closely related to the desire for structure is the need for rigorous training. Given the unfamiliarity of design tools to bureaucrats—as well as the often-challenging level of ambiguity and discomfort involved in utilizing those tools and the seemingly countercultural value system underlying design—a significant unlearning of orthodoxies and relearning of new approaches is usually required. Classroom learning alone is insufficient, and hands-on work with real projects is essential to developing core competency.

Provide Necessary Infrastructure and Resources

Two categories of infrastructure support emerge from Darden's research: (1) a supportive practitioner community, and (2) job-related resources to accomplish the work. Expert coaching is one aspect of the first category, and the creation of a community of practice is another. Innovation labs can play key roles in fostering both types of community support. Some successful government innovation labs, like Singapore's, do not occupy a permanent physi-

cal space. Others do, like the U.S. Office of Personnel Management's Lab@OPM Innovation labs function as a hub for connecting learners with expert coaches and supportive colleagues.



Align Culture to Support

No matter how effective the structure, training, and coaching in place, accelerating the development of an organization-wide competency in design thinking requires creating a context in which doing things differently feels sensible and safe to employees. This involves fashioning an environment that helps employees choose action over inaction. Lack of creative confidence is a well-recognized challenge to achieving innovation; hence, creating psychological safety is critical for creating a willingness to learn in action. One way to create safety is to focus on small, low-visibility bets early in the innovation process. Patience is another important ingredient—and one often in short supply in organizations. Attention to these cultural supports—a tolerance for failure in service to learning, a willingness to invest in seemingly small projects to build confidence and experience to undertake larger ones, and a willingness to encourage broader engagement and experimentation—can significantly accelerate the uptake of design thinking approaches.

INTRODUCTION

Design itself has been core to government efforts to drive innovation and growth since the founding of the U.K. Design Council in 1944. Design thinking as a problem-solving approach is more recent, and has been implemented in government innovation initiatives in many countries including Australia, Denmark, Singapore, the U.K., and New Zealand.

It is being used in public sector organizations like UNICEF (the United Nations International Children's Emergency Fund), where leaders are coupling it with traditional policy analysis methods to create new approaches to advocacy planning. It is employed as a national policy to drive growth and innovation in Singapore, where Prime Minister Lee Hsien Loong recently called design thinking fundamental to the "reimagining of Singapore."² It is also a critical element in New Zealand's initiative to "make smart choices easier" for citizens and is being utilized to manage highly complex transportation infrastructure investments like high-speed rail in the United Kingdom. In the United States, design thinking is engaged at a significant number of agencies—for example, at the Food & Drug Administration (FDA) to help manufacturers and government regulators in Washington find common ground on medical device standards; at Health & Human Services (HHS) through their Ignite

Accelerator program; and at U.S. airport checkpoints, combined with Agile Software Development processes, to help the Transportation Security Administration (TSA) calm traveler anxiety.

Driving this interest in design thinking is both increasing complexity in the environments public

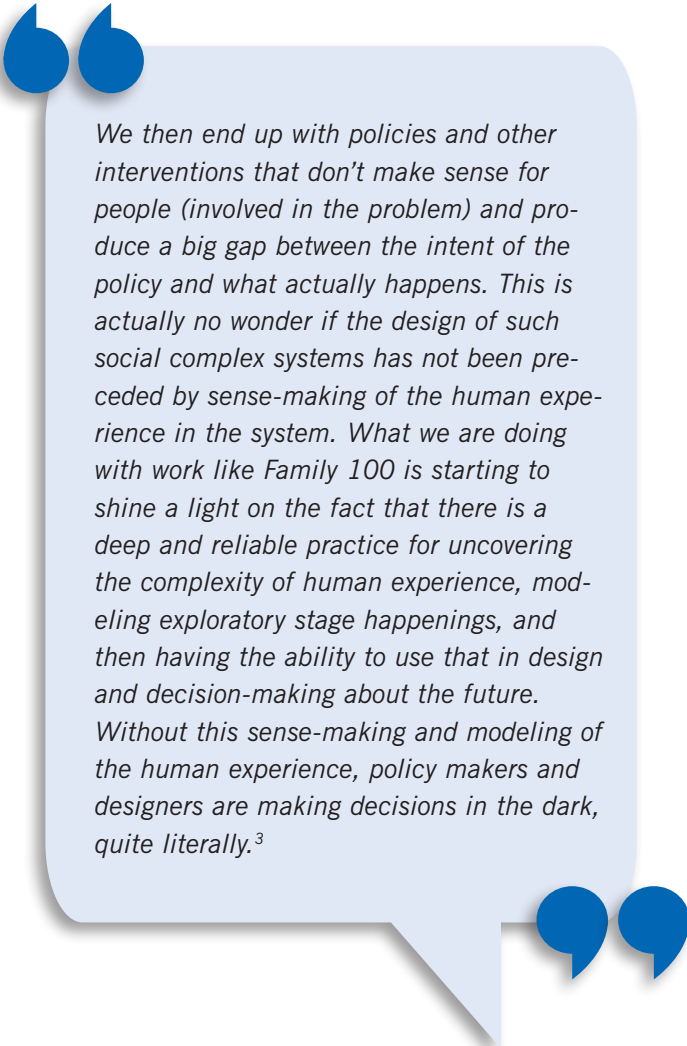
sector organizations face, as well as an underlying shift in how organizations (both public and private) view innovation itself. Similar to Total Quality Management's (TQM) critical role in the Quality Movement, design thinking is providing a systematic process and set of tools that enable organizations across sectors to operationalize new ways of thinking and behaving to produce



innovation in uncertain and volatile circumstances. As TQM made quality the job of everyone, design thinking offers similar promise for innovation by engaging a broader group of stakeholders, both internal and external, in problem-solving processes aimed at creating better value for those—whether they be customers, citizens, patients, or students—being served.

Design thinking's focus on paying deep attention to actual human experience appears particularly valuable when tackling complex social issues that government and public sector organizations face.

Leslie Tergas, a ThinkPlace consultant working to understand the realities of poor families via New Zealand's "Family 100" project, explains that complex systems are usually approached from a quantitative perspective, which often fails to provide meaning:



We then end up with policies and other interventions that don't make sense for people (involved in the problem) and produce a big gap between the intent of the policy and what actually happens. This is actually no wonder if the design of such social complex systems has not been preceded by sense-making of the human experience in the system. What we are doing with work like Family 100 is starting to shine a light on the fact that there is a deep and reliable practice for uncovering the complexity of human experience, modeling exploratory stage happenings, and then having the ability to use that in design and decision-making about the future. Without this sense-making and modeling of the human experience, policy makers and designers are making decisions in the dark, quite literally.³

Our research suggests that design thinking is universally useful, and can be successfully adapted, to address a broad range of problems, both large and small, occurring at nearly every level of an organization.⁴

Given the bewildering array of models for implementing design thinking, the choices that leaders face in adopting it can be daunting. Business consulting firms have tended to develop their own models, as have innovation and design consultancies and training organizations. Adding to the proliferation of terminologies, educational institutions like Stanford's Design School and the University of Virginia's Darden's School of Business have generated additional models. The good news for organizational leaders interested in implementing design thinking is that, despite differing terms and models, our research finds striking similarity in their underlying processes, with a small set of key practices and tools comprising the method's core.⁵

It also differs from traditional business thinking in multiple ways as outlined in Table 1.⁶

Table 1: Traditional Business Thinking versus Design Thinking

BUSINESS		DESIGN
Underlying Assumptions	Rationality, objectivity; Reality as fixed and quantifiable	Subjective experience; Reality as socially constructed
Method	Analysis aimed at proving one “best” answer	Experimentation aimed at iterating toward a “better” answer
Process	Planning	Doing
Decision Drivers	Logic; Numeric models	Emotional insight; Experiential models
Values	Pursuit of control and stability; Discomfort with uncertainty	Pursuit of novelty; Dislike of status quo
Levels of Focus	Abstract or particular	Iterative movement between abstract and particular

About the Research

Our exploration of design thinking at UVA Darden started almost a decade ago, as we began to explore the role operating managers played in innovation at large organizations. As we examined the behaviors and mindsets of successful growth managers in this initial study, the parallels between their intuitive approaches and the formal methodology represented by design thinking became clear to us. This suggested the potentially important role design thinking could play in facilitating organic growth and innovation in organizations. In 2010, in partnership with The Design Management Institute, we initiated the project, “The Influence of Design Thinking in Business” and interviewed senior thought leaders in phase 1 and then studied fifteen design thinking projects in-depth in phase 2. Realizing that the benefits of design-thinking methods appeared to be even more powerful in organizations in the social sector, in 2014 we initiated a new project, entitled “Designing for the Greater Good.” To-date, we have conducted in-depth interviews with innovation leaders in approximately thirty organizations in social sector fields like medicine, education and government spanning the globe. As with the growth study, our interviews focus on obtaining data on the specific processes, tools, and context in which design thinking is being applied, along with attention to issues of measurement and culture.

PART I

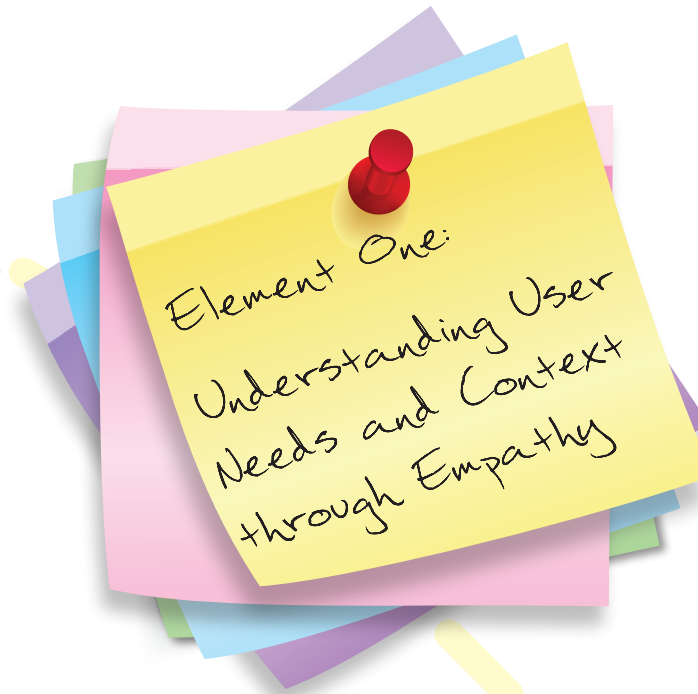
DESIGN THINKING 101



Design thinking is a problem-solving approach with a unique set of qualities: it is human centered, possibility driven, option focused, and iterative. Human centered is always where design starts—with real people, not demographic segments. Design thinking emphasizes the importance of deep exploration into the lives and problems of people whose lives we want to improve *before* the generation of solutions. It uses market research methodologies that are qualitative and empathetic. It is enthusiastic about the potential to reframe our definition of the problem and to engage stakeholders in co-creation. Design thinking is also possibility driven. It asks the question, “What if anything were possible?” as idea creation begins. It focuses on generating multiple options and avoids putting all eggs in one particular solution basket. Because innovators are guessing stakeholders’ needs and wants, despite their research, design thinking also expects their solutions to be unworkable sometimes. So it puts multiple irons in the fire and lets stakeholders decide which works for them, always managing a portfolio of new ideas. Finally, the process is iterative. It conducts cycles of real-world experiments to refine ideas, rather than running analyses using historical data. Design thinking doesn’t expect to get it right the first time—it expects to iterate its way to success.

Five Core Elements of Design Thinking and their Impacts

Our research into design thinking across multiple organizations employing an array of models suggests five elements integral to design thinking in action.



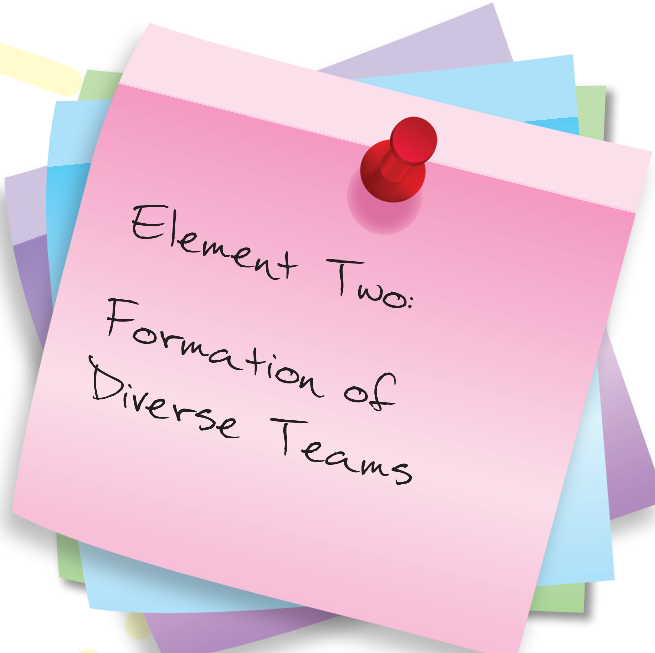
Fundamental to all design thinking approaches is the aim to develop a deepened understanding of stakeholders’ contexts, particularly those of the user or citizen for which any service is being designed. This emphasis on decision-makers experiencing a profound and personal, almost sensory, immersion into the subjective realities of individual stakeholders may be the key differentiator between design thinking and other approaches like The Lean Startup. By focusing on developing empathy for stakeholders through the use of ethnographic tools, design thinking teams reframe problem definitions

and generate possible solutions based on derived insights into customers’ actual behavior; not what they say they will do, what they *actually* do. Those tools include ethnographic observation and interviewing, journey mapping, analysis of user “jobs (both practical and psychological) to be done” and the creation of personas that illustrate different categories of users and their needs. (Note: a brief overview of selected design thinking tools is included in the appendix).

Rather than relying solely on quantitative data, such as surveys and market analyses, human-centered design involves being deeply interested in the details of human lives and, therefore, innovation team members seek first-hand and empathetic connections. Often, this involves using co-creation approaches that invite these stakeholders into the conversation itself. In other instances, stakeholder perspectives are introduced by members of innovation teams who rely on ethnographic research. Ideally, this pursuit of deeper insights into unmet, and often unarticulated, needs precedes the search for solutions. In fact, much of DESIGN THINKING’s unique value derives from holding solution-oriented

decision-makers in the problem space long enough to reframe their challenge definition in ways that generate the possibility of more creative solutions through more profound understandings of human, primarily user, behaviors.

The development of a deep empathic consideration of stakeholders impacts the innovation process in multiple ways: by providing user-driven criteria for ideation and encouraging reframing of the problem to improve solution quality; by helping align team members' perspectives; and by building emotional engagement throughout an organization which increases the likelihood of successful implementation. Finally, this empathic base also enhances teams' abilities to alter course and pivot with agility because of its focus on understanding user needs rather than designing particular products, allowing the design criteria created to be deployed across a variety of products as needs and technologies change.



Element Two: Formation of Diverse Teams

Another core design thinking practice is the widespread use of diverse teams. Significant academic research demonstrates the positives associated with bringing varied perspectives into the conversation with *difference* providing the raw material for more creative solutions.⁷ Whether from customers, internal colleagues, or external networks, *varied* perspectives introduce new ways of *looking* at a problem—new ways that help produce novel insights and encourage redefinition of an initial, often simplistic, challenge.

What constitutes “diversity” in team formation remains an open question though it is clearly context dependent. System theorists talk about “requisite” variety in biology—that the assortment of potential responses must be equal to the complexity in the problem itself for successful adaptation. In other words, any solution space should contain as much variety as the problem space. Similarly, Peter Senge advocated that design required putting the whole system into the room.⁸ Since the repertoire of an innovation team influences the boundaries of likely possibilities, team composition is a critical element in ensuring requisite variety. What is clear is that narrow notions of demographic diversity such as age, gender, and race, while possibly important, are likely insufficient. Some have argued for cognitive diversity as a critical ingredient, while cross-functional representation on innovation teams has been proven critical in areas like new product development. Specifying the perfect composition of any team, however, is difficult before the problem is fully understood and reframed. The use of DESIGN THINKING tools, like stakeholder mapping, facilitate this.

Design thinking, however, is not synonymous with participative design. Co-creation plays a critical role at different points in the process, but it is not the ultimate end. Too many stakeholders, especially those unwilling to do time-consuming discovery work, can contribute to a lack of coherence in the innovation conversation and an inordinate focus on negotiating compromise rather than identifying higher-order solutions. One key to the design thinking approach is inviting intermittent team involvement by key stakeholders while still keeping the core design team small and manageable, and focused on data driven by analysis of user needs.

Diverse teams produce impact by combining these with dialogue-based conversations to build alignment across varied stakeholders, so often a challenge in government innovation efforts. Second, diversity expands team repertoires, paving the way for higher-order solutions, rather than suboptimal negotiated compromises. Third, a diverse, and active, team has greater access to networks and resources while enhancing members' incentives to co-create.



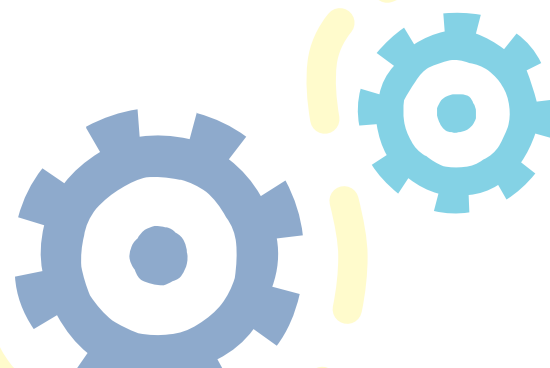
Element Three: Dialogue versus Debate

Conversation is the building block in which innovative teams operate. When decision-makers fail to invest time and resources in understanding the problem, conversations often quickly move to focusing on pre-identified solutions or become paralyzed by disagreements. Indeed, multiple projects in our research utilized design thinking after a history of previous problem-solving efforts becoming gridlocked in non-productive arguments.

Successful design-oriented conversations are most vividly illustrated perhaps by what they are not. They don't accept obvious and conventional problem definitions, allow extensive debates, or concentrate primarily on evaluating options visible from the start.

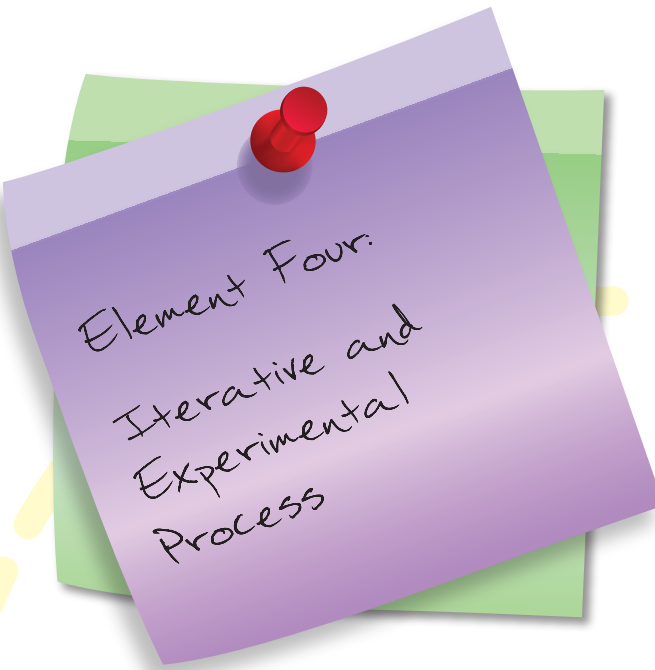
Instead, they first explore the problem definition itself as a hypothesis, seek to understand rather than to argue with others' differing perspectives in an inquiry-focused conversation, and look for solutions to emerge *during* the process. This approach supports innovation processes by encouraging a focus on surfacing tacit assumptions, fostering team alignment and learning, allowing for emergent solutions, and building engagement and trust.

Without a disciplined dialogue, the diversity of perspective critical to creative thinking can become a double-edged sword as diverse teams often experience greater conflict.⁹ Without a structured methodology guiding inquiry, discussions frequently devolve into debate, with advocates of competing ideas arguing their perspectives and doing little listening. Simple design thinking methods—like turn-taking and the use of Post-It notes to individually write down ideas before sharing—ensure that all voices are able to contribute. Design thinking's robust, but managed, dialogue is needed when the environment is uncertain, stakeholders are not aligned, and learning together becomes imperative. For collaborative creativity, knowledge is created through social interaction.



Dialogue impacts innovation processes by inviting team members to make tacit assumptions and beliefs visible, allowing the team to surface diverse perspectives in an environment focused on understanding, rather than defending them. This, in turn, allows diverse groups to explore the logics underlying their different views and fosters alignment and learning collaboratively, building engagement and trust.

Critically important, these discussions allow new solutions to arise *during* the conversation. Systems theorists who study complex adaptive social systems refer to the criticality of *emergence* in which the most interesting and creative ideas are rarely visible at the beginning of any innovation process but, rather, develop from conversations *during* it.¹⁰ A key strategic impact of design thinking, therefore, is facilitating emergence.



Element Four: Iterative and Experimental Process

Creating and testing multiple solutions through quick, field-based experiments is another hallmark of design thinking. This fosters learning in action and minimizing investment risk. Three aspects of this stand out:

- Emphasis on generating a portfolio of possible solutions, rather than a single “optimal” one
- Treating these potential solutions as hypotheses to be tested and adapted through iteration and feedback from actual users
- Creation of low-fidelity prototypes (less refined than The Lean Startup’s minimum viable product) to support this experimentation and then co-creating towards higher-fidelity prototypes with stakeholder feedback

In traditional decision-making approaches, managers are taught to believe in the ability to analyze and optimize—to select the one “best” solution. This approach works under conditions of stability when past data accurately predicts the future, rarely the case when the goal is innovation and a new future is sought. Contrast traditional decision-making steps with innovation:

- Identify the problem—yet it is often conventional framing and obvious problem definitions that reduce the ability to see more creative alternatives.
- Lay out and evaluate the options—yet in most cases where innovation is sought, the easily identified options are not attractive. Nor in an uncertain environment is good data available to evaluate them.
- Finally, choose the optimal one—but how can optimality be defined when key stakeholders lack shared criteria, have differing definitions of the issue and there is little data relating cause-to-effect?

Luigi Ferrara, dean of the Centre for Arts, Design and Information Technology at Toronto’s Institute without Boundaries, underlines the impact of design thinking’s focus on action and its emphasis on prototyping and experimentation. According to Ferrara, when you must produce something concrete, thinking becomes focused. Ferrara notes that staying safely in the debate space is comfortable and easy because one’s hypothesis never interacts with reality to get feedback whether or not it is true. “It’s what paralyzes bureaucracies,” he says.

“You can debate forever. This is where design gets interesting. A fundamental part of design is making things sharable in the world. That forces collaboration because you have to agree on an output. And that changes the thinking. You can say, ‘We want to be the world’s best city,’ but that is really empty until you confront the design challenge: ‘What is the best city?’ All of a sudden a bunch of qualities come out, and those qualities need to be shared.”¹¹

Like venture capitalists who invest in 10 start-ups expecting less than two to succeed, design thinkers distrust their ability to predict winning approaches and believe that multiple, but smaller, bets are essential. A design thinking goal, in uncertain contexts, is to *learn* through rapid experiments. Learning in action as quickly and cheaply as possible rather than a priori analysis allows multiple iterations of prototyping, feedback, and refining so that teams can detect failure before an organization has made an expensive bet on any given idea.

For decades, cognitive scientists have explored flaws in decision makers’ hypothesis-testing abilities, including over-optimism, inability to see disconfirming data, attachment to early solutions, and a preference for the easily imagined.¹² Training in the design and execution of experiments reduces these cognitive biases. Design offers structured tools for surfacing and testing assumptions that bring to the fore unexamined suppositions and identify the data needed to test them.

We find that analytically-oriented managers, generally taught to turn immediately to spreadsheets and already-existing data to test ideas, often struggle with hypothesis-driven thinking. In design, innovators identify what data or stories are needed to analyze the particular assumption in question, and then develop a strategy for obtaining it. This reversal, though easy to discuss in theory, is challenging in practice for managers schooled in traditional problem solving.

Experimental approaches impact innovation outcomes by minimizing both the investment in and the visibility of failures, especially important in bureaucratic, risk-averse environments, and mitigate well-recognized decision biases that interfere with effective problem solving. Especially important where employees fear failure and are stymied by slow decision processes, design thinking encourages a learning mindset and action orientation.

Though it seems counter-intuitive, human-centered decision processes—in spite of the upfront emphasis on exploration and dialogue—regularly take less time than traditional organizational rollouts because iterative experiments also are under-the-radar communications which pave the way for project acceptance by those who must implement them.



Finally, design thinking involves the presence of a structured, facilitated process with stages and steps, and a specific tool kit. The idea of tightly structuring creative processes might seem counter-intuitive to artists but, in our research, we find that rather than stifling employees’ creativity, the correct structure frees it.

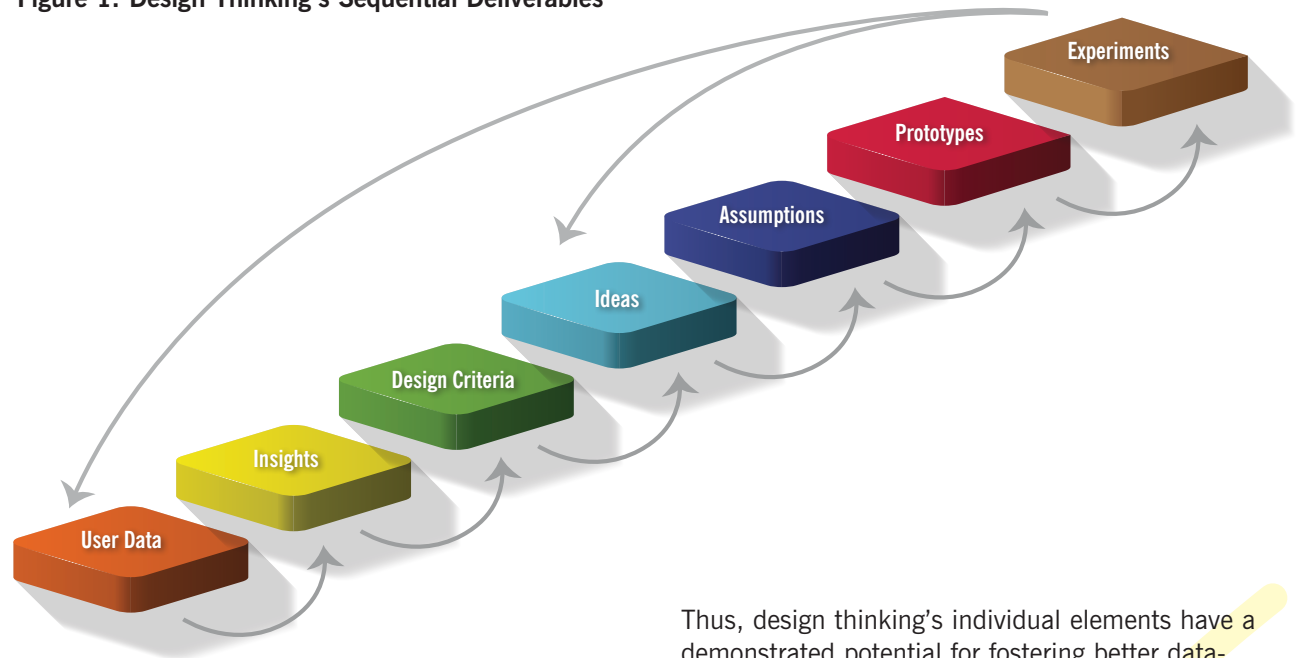
Activities like face-to-face ethnographic research with customers, deep immersion in their perspectives, co-creation with stakeholders, and the design and execution of experiments are not common for managers in any organization. Successful innovation leaders use design’s structured processes to engage these employees, provide them a safe environment for testing new behaviors, and offer them expert coaching to help achieve early, and confi-

dence-building, wins. Creating such an environment enhances employees' willingness to chance having, and implementing, quality outputs. While designers may find structured processes inhibiting and off-putting, people not formally trained in design appreciate guardrails.

Behind the scenes, design's seemingly simple activities and outputs make possible tricky changes in human behavior that nurture more productive collaboration. Design thinking's structure provides risk-averse managers with psychological safety, allowing them to check off a step and move to the next one, even if they wonder if they've done the step correctly. This structure creates a flow that not only helps managers perform individual activities, it also explicitly links the pieces as part of a larger end-to-end process, keeping novices on track. Equally important, it motivates persistence in the face of heightened ambiguity—always present in innovation.

Using physical props like the ubiquitous Post-It note, and highly structured tools like journey mapping, design thinking moves would-be innovators through orchestrated steps with tangible deliverables in the form of user data, insights, design criteria, ideas, assumptions, prototypes, and experiments as illustrated in Figure 1. This careful layering of the cognitive complexity of tasks helps non-designers tolerate inevitable uncertainties in creating something that doesn't yet exist. It saves them from becoming overwhelmed by the famous “messiness” and divergence at the fuzzy front end of innovation as well as by the demands of good hypothesis testing at the back end.

Figure 1: Design Thinking's Sequential Deliverables

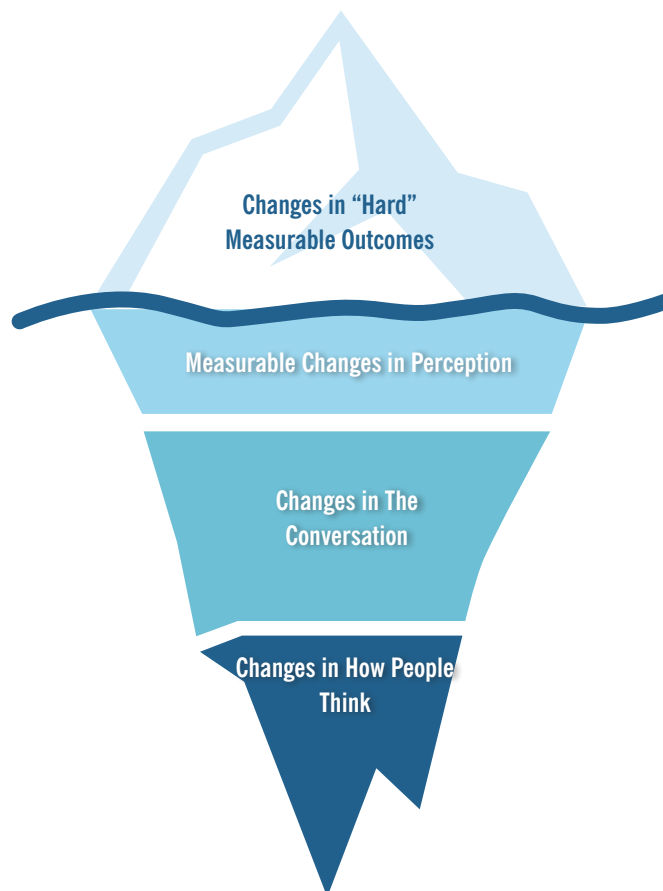


Finally, emphasis on structured processes produces multiple payoffs, improving both innovators' confidence and solution quality, which are critical to collaborative learning in risk-averse environments. For those operating in complex systems with diverse stakeholder groups, other benefits include helping innovators manage the cognitive complexity of large amounts of information and establishing cause/effect. Seeking the involvement of key stakeholders not on the core design team, especially during sense-making and brainstorming, also builds a sense of ownership that eases later implementation efforts.

Thus, design thinking's individual elements have a demonstrated potential for fostering better data-driven decision making in the uncertain, multi-stakeholder environments that usually characterize government work. Taken together, our research suggests these five elements deliver more than the sum of their parts. They also interact with each other to accelerate the upside impact of each individually and thus compensate for weaknesses, and they create a “social technology” that can increase the productivity of conversations for change. In doing this, the bundle of practices and tools under the label of “design thinking” offers the promise of providing new routes to address innovation challenges that stymie government organizations in today's complex world.¹³

Demonstrating with “hard” data the outcomes of design thinking’s full impact is complicated—like an iceberg, only the most obvious results are clearly visible as noted in Figure 2. These tend to be concrete project outcomes that can be easily *counted* in measures of organizational success like decreases in cost, improvements in user experiences, or increased speed of delivery. Calibrating the influence on *behaviors* as a result of design thinking is more challenging. Here, benefits occur *beneath* the visible water line. These changes can be subtle, and measures are likely to be perceptual and subjective and require dedicated effort to obtain. These include measures of customer satisfaction like Net Promoter Score, staff engagement, or even understanding of strategy.

Figure 2: Measuring Design Thinking’s Impact



Even deeper and more challenging to measure are changes in the *conversation* itself. Yet our research suggests these changes may have the most powerful impact on achieving long-term organizational adaptability. Buried well beneath the water line, but potentially most significant of all, are the changes not in what people say or do but in how they *think* and what they *believe*. These changes in mindsets can set in motion a series of behavioral changes—in the conversations people have, in how they see the world, and, ultimately, in the “countable” outcomes they produce.

A recent Forrester Consulting analysis¹⁴ of the economic impact of IBM’s design thinking practice corroborated many of these benefits, highlighting improvements in measurable product and customer experience outcomes, as well as improvements in team productivity, reductions in product defects, and the mitigation of the risks of bad investments. Moreover, while discovering a 301 percent return on investment, the study’s design allowed researchers to contemplate changes in the mindsets of team members as they experienced more energy and empowerment. It also noted a significant change in important team behaviors like increased speed in the design, testing, and execution stages.

Recent research into U.S. government employees who were novices to design thinking before training by the Office of Personnel Management¹⁵ documents similar benefits including deeper understanding of stakeholder needs, improvements in decision quality and speed, and employee engagement, an effect seen as particularly strong with younger employees. This study further noted the mitigating effects design thinking had on hierarchy, with one interviewee commenting: “Government can be hierarchical. Design thinking tools help move to a more meritocratic approach . . . That’s valuable. A lot of the best ideas get stymied because they come from people lower down in the bureaucracy.”

To summarize, despite the differing nomenclature and approaches operating under the rubric of “design thinking” or “human-centered design,” a small set of elements can be identified as core across all models: the use of ethnographic tools in an upfront discovery process to develop deeper insights into stakeholder needs, the formation of diverse teams, a preference for dialogue rather than debate, iteration and experimentation as critical to evaluation, and a structured process and toolkit.

Taken together, these elements have the potential to drive significant improvements in three aspects of innovation within the complex social systems that characterize public sector work.

- Improving solution quality
- Enhancing team performance
- Fostering both employee and stakeholder buy-in to new ideas that results in higher implementation likelihood

Design thinking impacts the quality of generated ideas by encouraging problem reframing, tapping user-driven criteria for idea generation, and stipulating the emergence of new concepts during the process. Team performance is enhanced by fostering alignment among members, particularly around a curated set of design criteria, and by mitigating risk through experimentation. Employee and stakeholder buy-in results from actively engaging in co-creation that leads to investment and emotional commitment. Combining the effect of all elements, our research suggests design thinking offers a “social technology” whose most significant—but challenging to measure—impact may be in changing individual employee mindsets and the nature of staff conversations with each other, as well as with key stakeholders.

We now turn to specific cases that detail different facets of design thinking as employed by social sector organizations. In these cases, we highlight the issues that design thinking addresses, offer specifics of the processes implemented, and outline observed benefits and lessons learned.

PART II

DESIGN THINKING IN ACTION



Case One: Engaging Frontline Employees at HHS

Imagine the innovation potential, both in terms of reduced costs and improved service, of engaging employees at every level to search for opportunities to create better value for citizens.

Issue

While the idea that everyone in an organization is invited to innovate may sound intimidating, both to leaders concerned with loss of control and strategic coherence, as well as to employees who fear failure, design thinking offers a solution that allows organizations to advance the upside of participation while controlling for potential downsides, as our first case, from HHS illustrates.

Process

The Ignite Accelerator program at HHS focuses on using design thinking's structured processes to empower frontline staff; offering HHS employees the opportunity to advance local innovation opportunities. To pursue opportunities more effectively recognized by those closest to the problem, Ignite offers training in design thinking and The Lean Startup tools, along with mentoring, financial support, and visibility to decision makers. The goal is to address problems, both large and small, with innovative approaches aimed at helping staff better carry out the agency's mission.

Besides requiring teams admitted to Ignite to commit up front to a three-month program, Ignite requires supervisors' agreement to provide teams with time to work the design thinking project for a full quarter of the year. Teams invited to enter are told to expect that 25 to 50 percent of their time after training will be spent brainstorming, honing, and reimagining their projects, with consistent mentoring from HHS IDEA Lab staff.

Read Holman, former program director of Ignite, describes the rationale behind the HHS Ignite approach:

Policies, rules, and cultural norms—once tools to standardize processes and drive efficiencies within the organization—eventually become forces that resist new ideas . . . It's not necessarily that anyone out there is proactively blocking progress. Rather, it's just that new ideas are disruptive to the social fabric and thus can be uncomfortable. Thus experimenting with new concepts doesn't become a priority. And the implementation of change gets back-burnered . . . We provide concentrated opportunity for experimentation. We provide a safe space where new ideas, cultivated by people, can grow. We take project ideas at all stages of development, from the nascent to the tested, and help them demonstrate value and get woven back into the organization to generate real impact.¹⁶

Whiteriver Indian Hospital

One example of Ignite in action centers on Fort Apache Indian Reservation and its Whiteriver Indian Hospital. Whiteriver Hospital faced a serious situation—almost 25 percent of emergency department visitors were leaving without being seen, a problem attributed to long wait times, often reaching six hours. Like patients in many sparsely populated areas, the community used Whiteriver's emergency room for most treatment needs, including prescription refills. On any given day, two-thirds of emergency visitors were not seeking crisis treatment and, therefore, nonemergency patients consistently got delayed as staff addressed true emergencies. Whiteriver's history was clear: when these potential patients left the emergency room, midlevel problems worsened and costs increased.

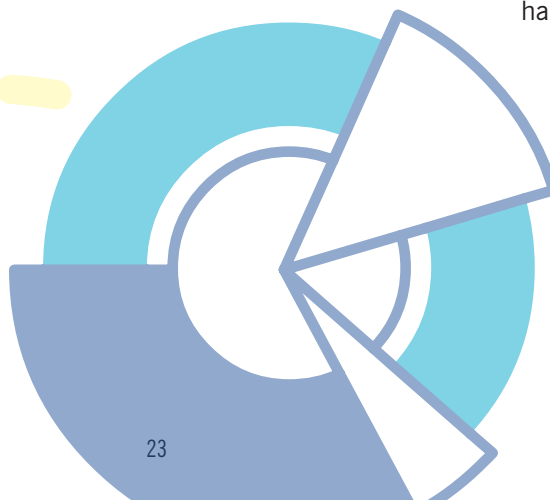
When Marliza Rivera, a quality control officer at Whiteriver Indian Hospital, received HHS's email inviting applicants to submit project needs to Ignite, she pulled together a team of employees and sought ideas for leveraging the Ignite opportunity. One idea, an electronic kiosk adapted from Baltimore's Johns Hopkins Medical Center where it reduced wait times, was selected as an Ignite finalist.

At HHS's design training, Rivera's team was asked to examine its assumptions about how Whiteriver patients would respond to the high-tech solution. Many tribal elders, Whiteriver's primary clients, the team realized, would not be comfortable with new technology. An electronic system, no matter how efficient in Baltimore, might create more, not fewer,

delays at Whiteriver. So the team made pivot #1 in their innovation journey—the kiosk concept was replaced with a simple paper form that aimed to discover the acuity of patients' medical issues immediately upon entering the emergency department.

Returning to Arizona, the team prepared to test the new paper-based concept, but then through Ignite network contacts, learned that a 1986 law made the use of pre-examination forms illegal. Abandoning the paper form, the team gathered more face-to-face data from patients and other hospitals and moved to their next iteration: a fast-track system that placed medically qualified personnel at the emergency room entrance to quickly—within 15 minutes—assess each patient's condition and direct appropriate visitors to non-emergency services. The team designed and ran a four-day experiment, arranging for an experienced clinician to greet each emergency room arrival.

The results were impressive. The percentage of arrivals abandoning Whiteriver's emergency room without treatment was reduced from almost 18 percent on control days to just over one percent during the experiment. In a rough calculation of the effects such a reduction would have on hospital finances, Rivera's team came up with \$6 million savings against a cost of \$150,000 to redesign emergency department facilities to separate patients dealing with basic medical concerns from those actually needing emergency services. Whiteriver Hospital leadership found the fast-track idea compelling and decided to build in a more extensive renovation. While still awaiting funding, Whiteriver innovators are iterating and adapting by, for example, using office cubicle dividers to approximate desired physical changes. The iterations are leading to further experimentation which demonstrate more significant benefits. "We saw amazing results in our tests," explains Performance Improvement Coordinator Renee Quintero. "Big time decreases between check-in and check-out, better flow, and the staff was happy, saying it was 'awesome.'"



Benefits

- **Test ideas.** Perhaps most obvious, the Ignite program gives potential innovators like Marliza Rivera the opportunity to surface, refine, and test their ideas with the results benefiting both the organization and its stakeholders. The success of their efforts is reflected in simultaneously reducing agency costs and improving HHS' quality of service to key stakeholders—and in ways that other employees find positive and motivating.
- **Centralized quality control.** Ignite's carefully structured processes and well-connected mentors provide centralized quality control, while maximizing the ability of employees operating at different levels and geographies, to identify and solve the problems that they believe need solving in ways that take advantage of local intelligence.
- **Confidence to act.** Ignite also inspires creative confidence among employees who see opportunities, but lack the support to act. As Rivera observed, "Not being in Washington, not part of a tech environment or an innovative environment, it was intimidating. We're babies. . . Were we going to be too far behind them? It was scary. But if that e-mail hadn't come, I would have never known that I had the ability to make this happen, that I could step outside our little agency."¹⁷

- **Camaraderie and networking.** Having a group of employees doing design work together in each Ignite cohort provides additional benefits in the form of camaraderie and networking. The connections formed at Ignite training tend to endure as teams from a dozen localities each year coach each other, both formally through the conference calls and informally through personal communications.

Lessons Learned

- **Set people up to succeed.** One distinct aspect in the Ignite story is the comprehensiveness of support HHS puts in place to help employees succeed at design-thinking innovation. For example, Ignite staff is ready to use its platform in the secretary of HHS office to facilitate innovation concepts coming from lower-level staffers. Furthermore, the structured and supported process inviting employees with innovative

ideas to come forward, training to add new tools to staff repertoires and the mentoring of innovators during rough times, allows organizational leaders to enjoy the best of both worlds: centralized quality control while tapping into local intelligence and energy.

- **Assumption testing is essential in the innovation process.** Any new concept's viability is based on assumptions, some of which prove true and others that do not. Surfacing often unarticulated assumptions behind why a new idea provides value to users—and is functionally feasible and ultimately scalable—is critical to managing risk in the face of uncertainty.
- **Help potential innovators tap the knowledge of the larger network.** Engaging the larger network facilitates both the identification and evaluation of more value in creating ideas. Lower level innovators are often stymied by their lack of knowledge outside of their own expertise—like the law that derailed Whiteriver's paper-based form for distinguishing who needed acute care from those needing prescriptions. Support from the broader Ignite network provides powerful advantages to innovators, including access to knowledge as well as political cover to launch and follow through on developed concepts.

- **Explicitly negotiating the support of supervisors upfront can be crucial.** The lack of time to step out of one's day-to-day job requirements to address innovation is a frequent, and powerful, obstacle to successful implementation of identified solutions. Consequently, getting the pre-project buy-in from supervisors to allow innovators time to research, discover, prototype, and experiment is often critical. The existence of a formal program and process, like Ignite, makes it easier for potential innovators to justify their time and efforts to local leadership.

One challenge for creating more innovative solutions lies with helping teams escape the blinders of narrow problem definitions and personal perspectives and experiences, in favor of those of actual users.

Issue

Using the tools of design thinking to develop deep insights into both users and employees helps teams reframe possibilities to open up new areas of inquiry, as this local Danish government's work on improving nutrition for the elderly demonstrates.

Process

As in countries worldwide, the aging of Denmark's population presents significant challenges. One is serving more than 125,000 senior citizens who rely on government-sponsored meals as Danish municipalities deliver food to those with reduced ability to function, due to illness, age, or other conditions.

Many seniors have nutritional challenges and a poor quality of life because they simply fail to eat enough. In fact, it is estimated that 60 percent of Denmark's seniors in assisted living facilities or residential care units have poor nutrition, and 20 percent are actually malnourished. The result: health problems, a lower quality of life, and even-

tually a greater economic burden on government. Responding to this growing problem, the Municipality of Holstebro obtained a Danish Enterprise and Construction Authority grant that provided funding to municipalities working with design consultancies to improve citizen services. Innovation director Lotte Lyngsted Jepsen of the design firm Hatch & Bloom led the effort to improve meal service for seniors.

At the outset, Holstebro officials and leaders at Hospitable Food Service—Holstebro's meal preparation and delivery organization—saw the project as straightforward: the current menu needed updating. In their view, first-rate food and service were already offered, so the focus should be on seeking meal preferences from elderly clients. As the project progressed, however, this view shifted. The result was the design of a new service that offered higher quality, more flexibility, and increased choice as seen from the perspectives of users and employees. This dramatic reframing emerged from human centered design.

Case Two: Improving
Solution Quality at
The Good Kitchen

Jepsen's team began by digging deeply into seniors' behaviors, needs, and wishes, using a comprehensive ethnographic-based research process that focused on identifying the elderly's situations and unarticulated needs. Instead of simply asking elderly clients what they would like, team members used journey mapping, riding with Hospitable's employees as they delivered the meals, accompanying them into the homes and watching as clients prepared and ate the meal. In addition to observing current customers, the team studied those who had discontinued the service as well as people close to retirement age who might soon qualify for the subsidized meals.

Team members also interviewed the supervisor of food preparation in her workplace. What they saw in the kitchen surprised them and they realized that staffing was a major factor even if Hospitable workers were not part of their "fix the menu" charge. The team helped Hostebro officials understand the necessity of empathizing with kitchen and delivery staff. From this dual focus—on the people preparing the meals and on the seniors receiving them—a set of interesting findings emerged.

As the research team observed kitchen employees and interviewed them about their jobs, they discovered that a major worker frustration was that staff was not empowered to innovate. They were preparing the same food from the same menu, month after month after month. From an operational point of view, using one menu for three months made sense but it was corrosive to the morale, motivation, and commitment of kitchen employees.

Seniors also suffered from disconnection and shame, the team learned. The social stigma of having to receive assistance weighed heavily. Help for cleaning is considered acceptable in Danish culture, but help for more personal needs, like food preparation, is less so. It also mattered who was providing the assistance. In Denmark, seniors hope to receive help from a relative or a friend. If that was not possible, someone could be hired - with the last resort being governmental assistance. Hence, a Hospitable Food Service truck out front had an emotional impact, illustrating the senior's lack of support and finance.

Also painful to Hospitable seniors was the loss of control over food choice. Deciding what to eat was the second most important thing for the elderly, after personal hygiene. Furthermore, they often disliked eating alone because it reminded them that families were unavailable. All these factors are linked to the underlying problem: the less seniors enjoyed their situations, the smaller their appetites.

On a positive note, the team discovered this generation of seniors was responsible, capable in the kitchen and maintained a keen sense of the seasons and positive associations with seasonal food, such as apples in the fall and strawberries in summer. Seniors also often sought to customize meals by adding spices or using their own potatoes or vegetables.

As the team began integrating what they learned from seniors and kitchen employees, the findings reinforced each other. Citing the use of a consistent menu, Jepsen explained: "It's incredibly boring to choose from the same menu three months in a row. That's a typical leader's decision because it makes logistics easier. . .but it's not a chef's decision, and it's not a user's decision, either."

Once team members completed their ethnographic research, they enlisted a broader group of stakeholders for a series of workshops aimed at understanding challenges and co-creating solutions. The first workshop brought together some 25 municipality officials, volunteers, experts in elderly issues, kitchen workers, and residential care employees to review ethnographic research and develop insights for creating innovative ideas. The purpose of the workshop was strategic: to build awareness of the issue and a shared vantage point, rather than discuss solutions. During a second workshop, facilitators and participants used a mind-mapping



approach, first grouping key research findings and observations into categories—for instance, delivery of food or composition of the menu. Then delving further, teams explored what insights flowed from each grouping or cluster to develop design criteria, or parameters of what an ideal solution might include. In beginning idea generation, facilitators used analogous trigger questions to shift participants' mental models of food service and generate new ideas. The third workshop was more hands-on, as participants prototyped their co-created solutions to begin testing them with other stakeholders at the workshop. For example, one group worked on three different versions of the physical menu to assess what elderly participants liked and disliked, iterating multiple times during the workshop.

After this final workshop, Hatch & Bloom iterated the results and moved prototypes into field-testing with Hospitable customers. In order to address the negative kitchen culture at Hospitable Food Service, the team brought in a gourmet chef who inspired kitchen employees to introduce more seasonal ingredients and offered ideas for improving presentation. Kitchen employees, indeed, received new uniforms that were more “chef-like” and the team developed comment cards for drivers to collect from customers. This immediate feedback enabled kitchen staff to gain insights into seniors' thoughts and suggestions and understand reactions to their

cooking choices. Read aloud at staff meetings and displayed in a central kitchen location, the feedback cards motivated employees and gave seniors the ability to influence meal preparation.

This process of ethnographic observation, journey mapping, co-creating with stakeholders, and iterative prototyping and experimentation yielded a host of dramatic changes: a new menu, new uniforms for staff, a new feedback mechanism, meals for two, resulting in an overall new experience for both customers and employees. The process also yielded a new name: Hospitable Food Service became The Good Kitchen.

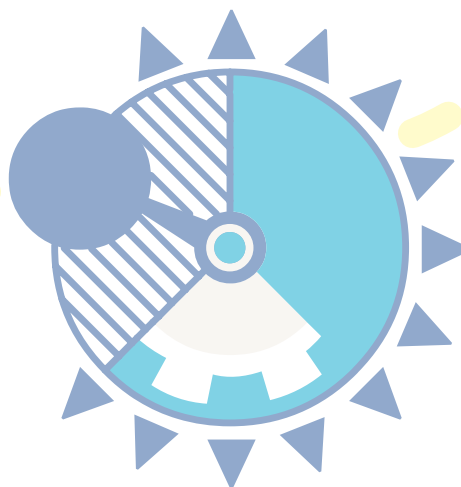
Today, Holstebro's seniors “know who is shaping the meatballs and preparing the gravy in the municipal kitchen,” as Jepsen described it. The relationship between the kitchen staff and the customers, which is both personal and professional, has increased the satisfaction of both.

Benefits

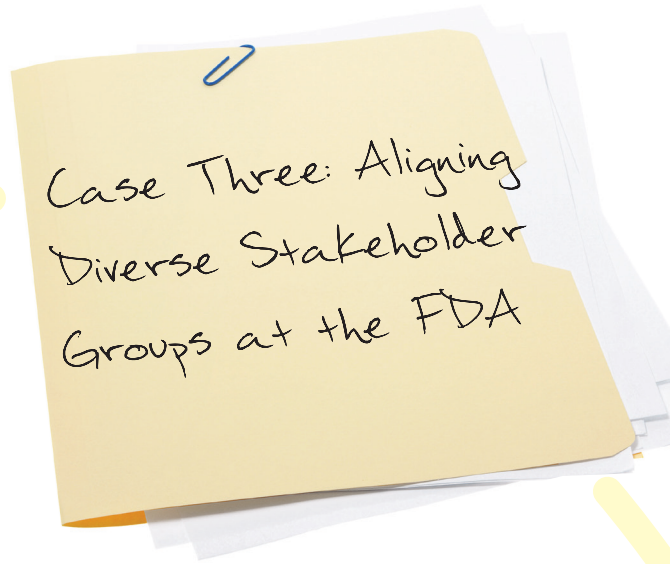
- **The re-design of the food service and delivery system.** This drove a substantial increase in healthy meal orders in the first week alone. Within three months, the number of customers had increased from 650 to 700, and satisfaction improved with it.
- **Employees' perception of themselves and their work shifted.** Kitchen workers were more satisfied and motivated, contributing to customers' satisfaction with their food. Within the first year, applications for Good Kitchen staff increased dramatically.

Lessons Learned

- **Developing a deep understanding of stakeholders, especially their emotional needs, can be key to meeting their needs more successfully.** Neither the Hatch & Bloom team, nor Holstebro officials were elderly. They did not easily empathize with what it means to lose, one by one, the freedoms the young and healthy take for granted: to choose food, to control personal hygiene, to have dinner with family. Without the deep insights produced by ethnography, teams often miss opportunities to improve the lives of people they seek to serve.



- **Engaging a broader group of stakeholders.** It facilitates the identification and implementation of value creating ideas. Inviting a more diverse group into the design conversation expands the universe of possible solutions, since this is bounded by the repertoire of team members. In the Good Kitchen story, the conversation developed from deep ethnographic exploration into the stakeholders Holstebro wanted to serve, that was shared with everyone in the workshop so that an aligned intent around how to make seniors' lives better could be created. It then invited in "beginners' minds" from various stakeholder groups to aid in co-creating and testing solutions.
- **Redefining the initial problem can unleash innovation opportunities.** The willingness to revisit problem definitions allows the discovery of new possibilities. Action-oriented managers love answers—and, hence, ask the obvious questions (like, "How do we fix the menu?") in their hurry. While allowing important stakeholders to live in the question with design teams may originally be intimidating, with perseverance and the right tool kit, the answers teams create together come with a level of engagement and innovative spirit that surpass any sense of "efficiency" that goes with expediting the conversation. Had Hatch & Bloom agreed to their clients' initial mandate to "fix the menu" many significant and value-added possibilities would not have become visible.



Creating change in the public sector often involves engaging and aligning multiple stakeholders who have differing missions and perspectives. Finding innovative solutions in such an environment can be fraught with difficulty as various worldviews often paralyze progress and/or result in the selection of sub-optimal "lowest common denominator" solutions.

Issue

Productive conversation on potentially divisive topics can be especially difficult to achieve in highly politicized climates. Avoiding divisive debates and encouraging dialogue across differences is a strength of the design thinking approach as illustrated by design's application at the U.S. Food and Drug Administration (FDA). Human-centered design

encourages stakeholders to engage in deeper, more interactive discussions that spawn possibilities for alignment and higher-order solutions.

Process

A typical public hearing or workshop agenda transpires with speakers preparing remarks in advance and presenting their views during allocated time slots or while part of a panel. When a speaker finishes, the next speaker may offer a different perspective. This point/counterpoint style can be polarizing: People arrive with their positions solidified, and any listening is filtered through personal and professional preferences. Though useful for soliciting views, such serial engagement rarely leads to alignment and consensus.

Policy analyst Ken Skodacek joined the FDA with a mandate to ensure the safety and effectiveness of medical devices. Hence, he was determined to find a better way to collaborate across the FDA's myriad stakeholders—medical device manufacturers, health care professionals, patient advocacy groups, and other federal agencies. One early opportunity to

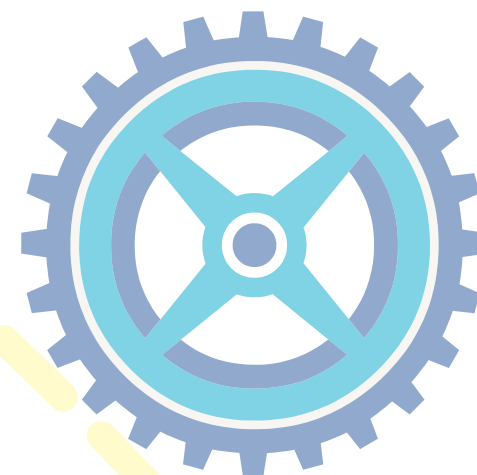
pursue effective clinical trials came with an internal FDA group focused on medical batteries. Device batteries need to work reliably under adverse conditions, including snowstorms and summer heat, and failure can be life threatening, leading to serious consequences. The situation was complex, however. Because the FDA's organizational structure regulates products by use, a focus on batteries was not easily achieved. Within the FDA, one group handles cardiovascular products, such as pacemakers; another works on ventilators; another oversees infusion pumps or external defibrillators.

Seeing value in initiating a discussion of best practices across all groups that handled battery-powered devices, the FDA team sought broader engagement with diverse stakeholder groups, and decided to organize a conference. Their intention—identifying challenges and proposing and refining initial solutions—was straightforward. Making it happen, with 240 in attendance at the conference and hundreds of others online, was not. They approached the conversation with trepidation because the FDA did not consider itself an expert in the battery space. Like many innovation leaders in the U.S. federal government, Skodacek became familiar with design thinking through the U.S. Office of Personnel Management's Innovation Lab (the Lab@OPM). With assistance from The Lab@OPM, Skodacek's team incorporated design thinking into their conference planning, using design techniques to orchestrate the two-day event.

With work-team composition critical, attendee information was collected that allowed planners to compose small integrated teams representing diverse sets of stakeholders such as battery manufacturers, medical device manufacturers, and health care providers.

Skodacek opened the conference explaining that FDA's goal was engaging stakeholders to think together about the issues they faced. On day 1, the 240 participants broke into pre-planned small diverse teams. These, in turn, formed groups of 30. Using a variety of design tools, the agenda focused on identifying challenges and possible solutions. Attendees, for example, were asked to use the "Rose, Thorn, Bud" tool, from the Luma Institute tool kit. Pink Post-It notes were used to identify what each participant believed was being done well, blue ones for areas needing improvement, and green ones to identify new areas with potential. Next, individual participants shared their Post-Its, and the group clustered the collective set, highlighting areas of similarity and difference but minimizing debate over whose views were "correct." Instead, the focus was on understanding and exploring how each member on the teams saw any situation.

Next, each participant was asked to create three statements, focused on actionable challenges that identified an area of opportunity the individual saw as important. After sharing these statements, each group decided upon a single one to continue workshopping and brainstormed potential solutions. Ideas the group found most compelling were prioritized and placed on a two-by-two grid that positioned each idea according to its relative importance to attendees (on one axis) versus their assessment of implementation ease (on the other axis). In the day's final activity, each small group presented its Importance/Difficulty chart to a larger number of participants and created a poster that captured key aspects of any selected idea.



Day 2 focused on refining and testing proposed solutions, using a different set of human-centered design tools. When attendees arrived, the charts and posters created the previous day were on display around the room. These acted as rough prototypes that summarized each group's thinking in a manner that other participants could quickly grasp. One group member stood by that group's chart to receive feedback; other group members toured the gallery to provide feedback on other concepts. Groups then revisited their solution plans and captured revised solutions on posters. After another set of short presentations to other teams in each breakout room, each group of 30 voted for one poster to be presented to all 240 participants.

The eight teams whose posters had been selected by their breakout groups gave five-minute presentations to the entire conference. The final idea set ran the gamut. One group, for instance, suggested a comprehensive guide for clinicians and users titled "The Hitchhiker's Guide to the Battery Universe." Another focused on creating a self-managing battery system. For an initial sense of the appeal of each solution, all participants were asked to electronically vote three questions.

- Which concept will have the most significant impact?
- Which concept can be implemented quickly and easily?
- Which concept would you be willing to support, based on your expertise?

Workshop feedback was overwhelmingly positive: 87 percent of attendees registered satisfaction. In contrast to the traditional panel of speakers with little opportunities for dialogue, the FDA's new approach created a powerful dynamic. Attendees were shocked that a government agency would be open to interaction without solutions already in mind.

Outcomes from the workshop took different forms. The most obvious was a typical FDA output—a guidance document—but this one captured a much broader set of views than was typical. As Skodacek explained, "In the absence of our meeting, we certainly wouldn't have had those views. For instance, we learned about a big issue with sterilizing battery-powered medical devices . . . something we had never considered before. It was identifying potential issues like this that were in our blind spot that was the most valuable for us."

Other initiatives outside the FDA's purview moved forward because of the conversation. Trade association AdvaMed took on the task of creating a best practices document. Bruce Adams, from battery testing and charger producer Cadex Electronics, Inc., came away excited about the chance to connect with—and continue to work with—their producers, regulators, and users, especially from the health care field.

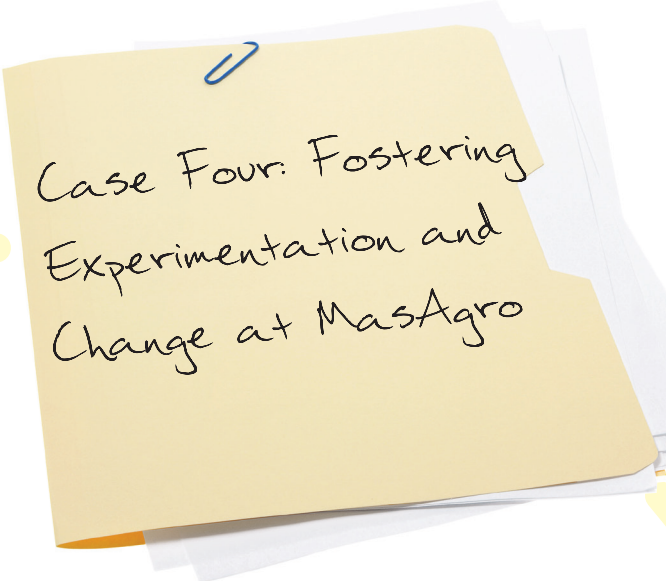
News of the battery workshops success spread within the FDA and other programs, like the Emergency Preparedness Operation for Medical Countermeasures Program, adopted a design approach in their work with stakeholders.

Benefits

- **The FDA learned important new information.** Diverse groups collectively pushed deeper in discussions of critical problems facing the use of batteries in medical devices. As Skodacek explained, "When we put a medical device manufacturer and a nursing health care provider and a hospital technology manager who maintained the device batteries together, they fed off each other's ideas and perspectives and engaged in a dialogue that moved the conversation forward."¹⁸
- **The stature of the FDA improved.** Participants experienced the FDA's new role as curator of conversations, rather than merely arbiters of regulation, as value added.
- **Participants forged new relationships** and continued to work together, outside of the FDA realm.

Lessons Learned

- **Less adversarial approaches to government decision-making can work.** Accelerating change and activism on the part of stakeholders requires the development of less adversarial approaches to government decision making. Rather than legislating by fiat, using design's conversational tools government can fulfill the role of the convener of conversations across diverse groups. The creative collaboration represented by the battery conversation is becoming essential for addressing complexity. Skodacek again: "In many cases, a government agency is at the crossroads of an issue—we don't have complete control over it. And that's when bringing people together and having a dialogue is really critical to making progress and addressing all of the important issues."
- **Bureaucracies can foster innovation.** Design thinking is a tool kit that acknowledges and then actively seeks to broaden parochial perspectives, while mitigating the impact of hierarchy, both critical problems in bureaucratic settings. It seeks to avoid the kind of early compromises that often produce "least worst solutions." Instead, it encourages and supports a diverse set of stakeholders to seek higher-order solutions that none saw originally.



Case Four: Fostering Experimentation and Change at MasAgro

Often in the public sector, working toward a greater good involves inducing people to alter their behaviors—to adopt healthier lifestyles, prepare more carefully for air travel, or stay in high school instead of dropping out.

Issue

Innovators, who are advocates for change, regularly underestimate human resistance to it and are surprised when their obviously "superior" solutions fail to be embraced by those who must implement them. Design thinking can facilitate successful implementation by constructing a clear and compelling case for an altered future as part of the process, not as an afterthought. It provides powerful tools like prototyping, co-creation, and experimentation that ready users for the changes underway, as the MasAgro story illustrates.

Process

MasAgro, a partnership between the Mexican government and agricultural groups, bridges the gap between farmers and research scientists to encourage adoption of sustainable, modern agricultural methods. Since many farmers' livelihoods rely on each year's crop, however, they often fear abandoning tried-and-true methods for new ones, even ones aimed at raising their incomes. MasAgro uses respected community leaders and local hubs to create compelling prototypes and experiments that demonstrate results. Offering testimony to design thinking's ability to reassure reluctant stakeholders, more than 40 percent of participating farmers have adopted at least one MasAgro innovation—an extraordinary success rate.

Mexican farming zones vary from temperate mountainous to flat coastal and from humid tropic to semiarid climates. These variations make it challenging to scale practices that ensure adaptation to local needs, made more challenging because MasAgro service areas are often remote. Mexican farmers can also be very different. Some, for example, have limited literacy skills or speak only local dialects. Others rely on laptop computers.

Elements of design thinking can be seen throughout MasAgro's science-and-human based activities. The user-centered methodology starts with research but then, having developed deep knowledge, MasAgro researchers design experiments based on interests and needs expressed by locals. Research workers collaborate with innovative farm leaders to assess what might work, and then, through experimentation and iterative prototyping, refine technologies to apply to resident conditions and local farmer needs.

MasAgro sets up a local network, called a *hub*, where new technologies are developed, tested, and displayed for farmers to see for themselves. Technical support staff, and advisors form the network hub. In the hubs, local farmers are offered an array of options and those of greatest interest are selected for testing. Designated technologies are then placed into experimental platforms to adjust and refine for weather, soil, and other conditions. The technologies are designed to sustain agriculture by maintaining and/or improving the land's fertility, conserving water, and ensuring the quality of the crops.



Collaborating with an advisory committee of local farmers, MasAgro's inputs include technical, economic, and environmental factors. The *modules* in the hub system are farmers' plots of land that allow for side-by-side comparison with control plots using traditional farming techniques while innovation plots use MasAgro technologies. With logbooks tracking the process and results, these experimental modules allow farmers and technicians to hypothesize and test potential concepts and develop a common knowledge base while engendering cooperation and promoting co-creation among farmers, trainees, and researchers.

When the two side-by-side crops are harvested, neighboring farmers are invited to see the difference. Offsetting the fear of losing a single crop—which, again, might mean devastation for the farmer and his family—the hub system allows each farmer to visualize the new technology under local conditions, rather than relying on abstract arguments about its scientific superiority. “It is often when they see with their own eyes the difference that a technology can make that their interest is then captured,” one MasAgro leader explained. With the stakes high, providing results that farmers can see for themselves, tailored to local conditions, is crucial.

Benefits

- **Higher implementation of new methods results local decision-maker involvement.** Because farmers are invited to select the technologies they experiment with, they are predisposed to view them as valuable. In addition, farmers' fears of failure are lessened by being able to see crop productivity differences with their own eyes.
- **Changes can result in transforming lives, with broad-ranging effects.** Often, an increase in family income leads to an increased investment in schooling for children, in particular for girls who may not otherwise attend school. In the words of one farmer, “For the first time, I’m producing enough to feed my family, to feed my animals, and a bit extra to put in the market.”

Lessons Learned

- **Design thinking can help to achieve the best of both worlds.** Design thinking seeks to break the compromise between local and global, as it seeks to make the best of both available to decision makers. MasAgro offers local farmers the wealth of its international scope and knowledge base—then lets them choose. Thus, design thinking is not a substitute for traditional analytic or scientific processes—it is a complement to them. It allows any organization to disseminate the best of its centralized knowledge and experience to be adapted by frontline personnel with awareness and respect for local conditions.

- **Visualization and prototyping.** These are powerful tools for enlisting the engagement and ownership of those whose behavior needs to change for successful implementation.

Diffusing Design Thinking

A classic characteristic of large bureaucracies, existing in all governments, is the development of “silo” mentalities in which managers struggle to fathom how their actions affect other agencies and the bigger, national picture. But today many, perhaps most, problems governments deal with cross agency boundaries. After hundreds of years of ever-narrowing expertise-based thinking and greater reliance upon quantitative information, how does a huge national bureaucracy return to the following observation? “The intuitive mind is a sacred gift,” Albert Einstein said, “and the rational mind is a faithful servant. We have created a society that honors the servant and has forgotten the gift.”

Encouraging employees to adopt broader views can reap benefits in producing more effective political, economic, and social outcomes. But after a half-millennia of specialized expertise becoming increasingly valued and necessary, modern governments today need to equip leaders with the capacity to acknowledge multiple perspectives and collaborate across them in order to address complex and “wicked” problems where solutions rarely reside within a single silo. A final set of observations from work underway in New Zealand offers useful lessons. By utilizing big picture, cross-agency thinking, New Zealand’s experiences demonstrate one path

towards “tilling the ground” for collaborative creativity, like design thinking, which honors Einstein’s intuitive mind-rational mind balance.

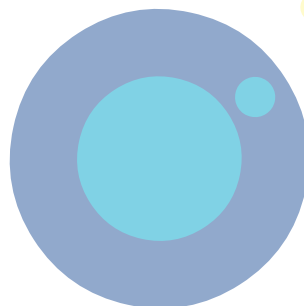
Using design thinking, New Zealand’s policy makers have moved to merge system-wide desires for innovative solutions with bottom-up understanding of local problem-solving, by introducing policies aimed at encouraging collaborative creativity across traditional government silos and by balancing quantitative statistics with human stories.

Efforts began in the New Zealand Inland Revenue office when staffers shifted their emphasis from enforcing tax compliance and punishing evaders to figuring out how to make “doing the right thing easier.”¹⁹ By focusing on understanding and empathizing with their taxpayers, tax staffers solved previously unforeseen practicalities around the process of paying taxes and generated more national income at less expense than prior punitive efforts. This spurred the New Zealand government’s work to build design thinking and other innovative operations into state agencies.

Two cabinet level projects specifically accelerated service innovation. The Better Public Service Results (“The Results”) project required that agencies work together to address ten major national issues. The other, The Policy Project, is a three-year-old program to improve the quality of policy advice across government by ensuring that decision makers take user needs and human realities into account. Both programs have proven quantitative and qualitative results, and continue to undergo significant iteration, especially with a recent change of governments.

The Better Public Service Results

In The Results program, for each of the 10 original issues addressed (examples include increasing participation in early childhood education, reducing the number of assaults on children, limiting the criminal reoffending rate, providing simple and workable digital connections for all citizen-governmental transactions, and increasing the number of young adults with advance trade qualifications, diplomas and degrees), New Zealand’s cabinet identified specific “cross-cutting” agencies that needed to work together to address that issue, and focused on achieving “collaborative responsibility for outcomes.”²⁰



“Collective responsibility helped counteract some of the vertical ties that usually impede agencies working together, but on their own they likely would not have been enough,” explained Dr. Rodney Scott of Australia’s University of New South Wales. “At least as important in motivating public servants was that The Results mattered to New Zealanders. The Results were seen as improving the lives of ordinary people and they took on a life of their own . . . not because their bosses will be held collectively responsible by ministers and the State Services Commission, but because they feel a duty to the public.”²¹

One significant effect of The Results program was to ensure that these cross-cut teams stayed in the problem space long enough to truly understand the issue from the perspective of the citizens rather than that of a single governmental agency. Rarely, ethnographic research indicated, were the young dropping out of school, taxes not being paid, or parents failing to immunize their children.

The Policy Project

The other system-change initiative takes social sector innovation to the policy-making process across the entire New Zealand government. Housed in the Department of Prime Minister and Cabinet, and co-designed with policy advisors from across government, this small project has begun redefining what good policy advice looks like, has codified the design-like skills modern policy advisors need, and encourages all agencies to include “stewardship” (or future capability) and customer centrism in their operations.²²

“Real and lasting change will require agencies to shift priorities to embrace the notion that the whole is greater than the sum of its parts and that ‘system trumps agency,’” Nehal Davison, a senior researcher at the U.K.’s Institute for Government, writes about the Project. “The Policy Project, as a reform program, has the potential to land in the ‘embedded’ arm of the Institute for Government’s model for assessing civil service reform rather than ‘limp on’ or ‘close down.’”²³

The Policy Project team developed an online Policy Methods Toolbox that emphasizes design thinking, behavioral insights, and includes a “Start Right” commissioning tool. Policy Project encourages advisors to employ those methods that ensure their advice to politicians reflects insights of the people it

is designed to help and creates people-centered policy.²⁴ “The New Zealand policy leaders collectively understood they needed new ways to collaborate and models for building the coalition of experts you need to develop good policy for the future,” says design consultant Jim Scully. “And the existing policy skill set needed to be adjusted to recognize these new requirements.”²⁵

By “making the right choice easier”—ensuring co-creation between agencies and demanding that policy advisors and other agency staff practice design-thinking skills—New Zealand’s top-level leaders are making significant steps towards “tipping” their government towards a nationwide core competency in innovation. With one report indicating that design-thinkers add 4.2 percent, or \$10.1 billion (NZ), to the nation’s economy and create about one in 20 jobs,²⁶ innovation has also taken root in quasi-governmental agencies like New Zealand Trade and Enterprise, which now energizes the nation’s export market through a “Better by Design” program teaching human-centered design to businesses and mentoring companies in innovation.²⁷

While the economic boost obviously resonates with government policy advisors, their desire to introduce design thinking and behavioral insights from Wellington to Christchurch reside in deeper motivations. “I see Policy Project as the broker, facilitator, and catalyst for helping the policy community better support decision makers to deliver better policies and services for the people of New Zealand,” says Sally Washington, formerly of the prime minister’s office. “That’s why most of us are in the public service in the first place.”²⁸

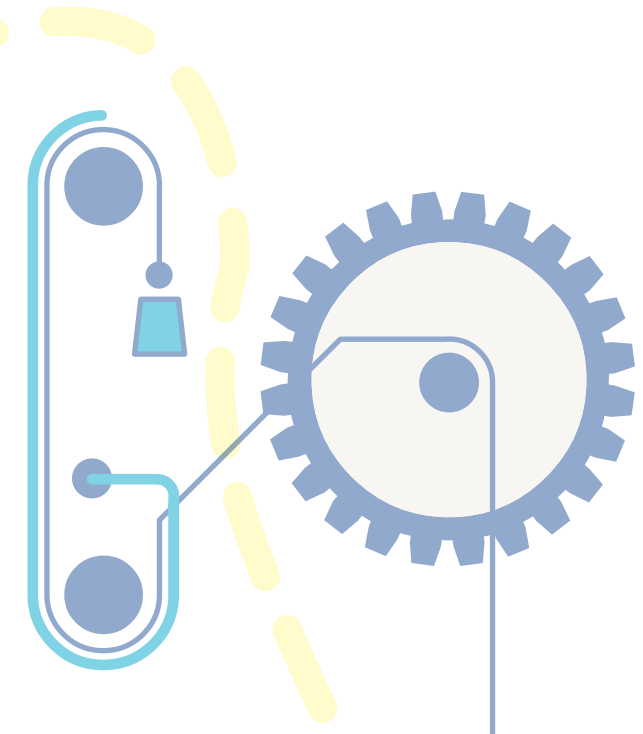
Together with the “make doing the right thing easier” approach, The Results and Policy Project programs have provided safe space for New Zealand’s small-group bureaucrats to tackle innovative approaches to complex problems. Cross-cutting assured that individual agency upper management could point to The Results program, but were

unable to micro-manage multi-disciplinary teams and policy-makers in the cabinet through their Policy Project advisors. Hence, both the ethnographic stories and dialogue at the heart of design thinking are bolstered by The Results and Policy Project programs since both are done behind the scenes, or under most bureaucratic radars, where quantitative rather than qualitative expertise has been traditionally prized. Successful design thinking managers across New Zealand’s government allow teams to empathize and experiment in non-quantitative ways and, therefore, protect local innovation, giving it time to jell and better solutions to emerge for eventual testing.

Indeed, New Zealand now produces design thinking projects solely to understand its clients and citizens. Several of these, like the Family 100 and an ongoing driver’s license awareness concept, do not set out with a specific design challenge to solve. Instead, policy staffers seek to immerse in and learn about their citizens in ways that make framing—not just re-framing—problem definitions human centered and ensure that all potential solutions to the as-yet unidentified problem emerge from that understanding and empathy.

At the national level, the cumulative effect of The Results and Policy Project programs was tilling the ground for design thinking where human-centered understanding and cross-pollenization of ideas are highly prized. The two projects provide high-level air cover for staffers seeking to engage in design thinking.

Having examined the specifics of design thinking in action in different contexts, we now turn to Part III and how you can bring its value to your organization.



PART III

ADVICE FOR EXECUTIVES



Is Design Thinking Teachable and Scalable?

As suggested earlier, research indicates that design thinking can do for innovation what Total Quality Management (TQM) did for quality a generation ago—that is, transform innovation from the exclusive province of experts into a core competency scaled and deployed across all organizational levels. But more than increasing *interest* in quality drove transformative change, it took putting concrete tools and processes in the hands of employees. In other words, it took Total Quality Management—systematic, teachable, and tool-based—to move quality from high-level rhetoric to organizational reality.

In considering the feasibility of teaching and scaling design thinking, remember the goal is *not* to turn managers into designers. Complex discipline-specific innovation like new product development, for example, will always require experts. Instead, human-centered design equips non-designers with a process and tool kit to harness the power of collaborative creativity as a *problem-solving methodology* and builds a fundamental level of design literacy that allows staff in all organizational corners to identify and pursue innovative opportunities. As educators with a decade of experience teaching design thinking to adult learners—to managers, MBA students, schoolteachers, administrators, physicians, and nurses—we know this is possible. But teaching design thinking is only one aspect of creating an organization-wide capability for innovation.

As with TQM, introducing design as an innovation approach requires developing a standardized process to bring comfort and clarity to an abstract concept, a rigorous teaching and coaching network to facilitate learning and application, and a deeper investment in aligning organizational culture and practices to sustain momentum and achieve significant innovative outcomes.

Using Design Thinking to Drive Innovation in Your Organization

Provide a Structured Methodology and Tool Kit

Putting in place a structured methodology has multiple benefits. It provides clarity that translates an abstract concept—innovation—into a concrete set of new behaviors. It also provides a level of psychological safety for risk-averse employees. Additionally, it allows the standardization of processes across levels and geographies to ensure consistency, shared learning, and quality control.

Risk-averse managers, fearful of failure to begin with and usually working in cultures that associate failure with underperformance, need *rules* and *tools*—rules for how to talk, and tools to find and experiment with new concepts. Having a structured, end-to-end methodology that encourages dialogue-based conversations makes significant difference in employees' abilities to actually incorporate design thinking's process into day-to-day decision making and produce innovation outcomes

under the uncertainty and complexity that governments face today. Our experience indicates this requires more structure than many currently popular design thinking methods offer.

Design experts, schooled in the human-centered approach and generally comfortable with ambiguity by nature, rarely rely on a structured process, conceiving instead a suite of tools and general categories of activities like exploration, ideation, and testing. In years of working with non-designers, however, our research indicates this is insufficient to equip most non-designers for actually integrating design thinking into day-to-day practice. We see too many employees return to work from design boot camps with enthusiasm, only to quickly return to business as usual.

One powerful antidote to this is a structured process similar to the ones that employees already know. An organizationally sanctioned set of rou-



tines, comparable to Six Sigma and The Lean Startup, appears “safer” to learn and use. By adopting structures that carefully layer the cognitive complexity involved in experiential learning, educators can avoid overwhelming risk-averse learners with design’s inevitable ambiguity and “messiness.”

Offer the Opportunity to Learn It Well

Closely related to the desire for structure is the need for rigorous training. Given the unfamiliarity of design tools to bureaucrats—which includes an often-challenging level of ambiguity and discomfort involved in utilizing those tools and the seemingly countercultural value system underlying design—training usually requires a significant unlearning of orthodoxies and relearning of new approaches. Classroom learning alone is insufficient, and hands-on work with real projects is essential to developing core competency. A one-day workshop or occasional hackathon provides a fun introduction to design thinking but neither builds the foundation needed for quality work on real problems affecting real stakeholders.

Our experience indicates a blended approach to learning the skill set is particularly effective. Online modules that follow a team through a real-world experience in their own workplace, with depth on each stage delivered just-in-time and supported by local mentors, offers a cost-efficient and effective

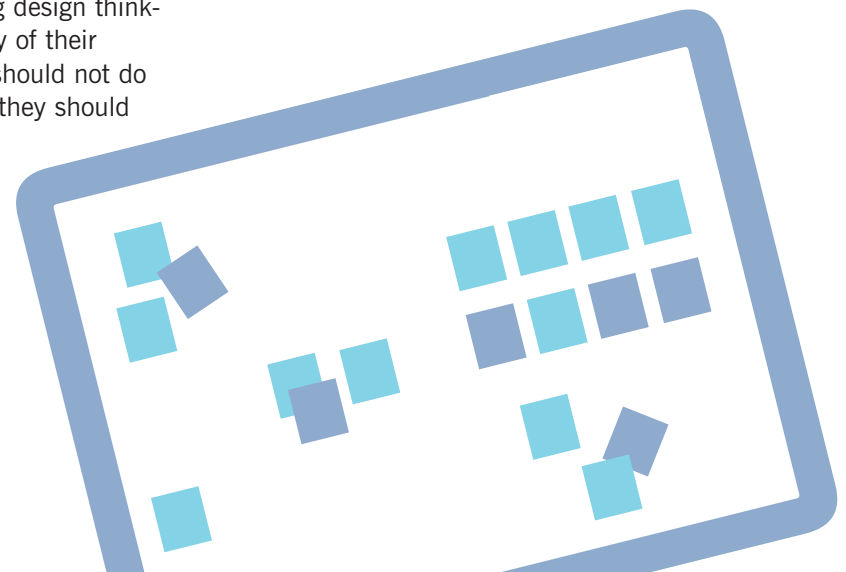
approach to internalizing these new skills and behaviors. For example, one physician at Monash University Medical Center attended Darden’s week-long design thinking class, and then enrolled a number of colleagues in the same course offered online. The hospital has now completed more than a dozen design thinking projects, ranging from encouraging handwashing to implementing telemedicine to piloting a compensation strategy for patient wellness, rather than sickness.

Provide Necessary Infrastructure and Resources

Two categories of infrastructure support emerge from Darden’s research: (1) a supportive practitioner community and (2) job-related resources to accomplish the work. Expert coaching is one aspect of the first category, and the creation of a community of practice is another. Often associated with training, the availability of coaching is a vital contributor to building confidence among design thinking novices and increasing the quality of their outputs. These assisting individuals should not do design *for* human-centered learners; they should work *with* them. Hence, finding the right coaches is as much about attitude as it is about design

thinking expertise. To successfully scale behavioral change, seek mentors and coaches who seek to share design competency, not hoard it. Another form of community-based reinforcement is fostering the creation of a network of practitioners. Research in the U.S. governmental space, where innovators frequently feel isolated within their agencies, suggests design practitioner support is especially powerful.²⁹

Innovation Labs can play key roles in fostering both types of community support. Some successful government innovation labs, like Singapore’s, do not occupy a permanent physical space. Others, like the U.S. Office of Personnel Management’s Lab@OPM, do. The presence of physical space can be a valuable resource, both literally and symbolically, since the physical layout of informal clusters of seating and whiteboards is often in stark contrast



to traditional bureaucratic conference rooms. Regardless of whether or not they offer such space, innovation labs function as a hub for connecting learners with expert coaches and supportive colleagues.

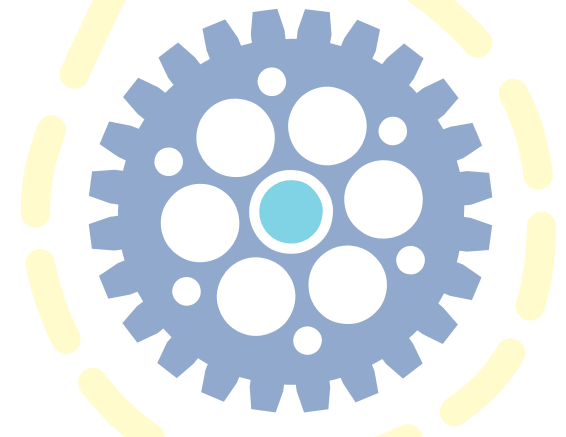
Finally, there are clear job-related resources necessary for design work. Interestingly, this support is frequently not investment dollars. Design initiatives, at their beginning, often do not need big budgets: scrappy design champions can bootstrap their way to significant impact with little funding. What bootstrappers do need is time for their projects, access to key stakeholders to do ethnographic research, and the freedom to place small bets in the real world to test ideas. Many aspiring government innovators lack all of these. Hence, a leadership challenge for impact via design thinking involves addressing the aspects discussed thus far: training, coaching, time, and decision autonomy to do discovery and experimentation.

Recent research examining the implementation of human-centered design within the U.S. federal workforce suggest that time is the single greatest barrier:

Conducting research, deriving insights, and developing novel solution concepts, even before the actual testing and implementation of the resulting ideas, requires investment in time and staff that nearly all the interviewees in the study reported was lacking. Moving ideas into testing and implementation was seen as particularly challenging, as interviewees pointed to the transition between the front-end of the design thinking process (data gathering and ideation) and the back-end (prototyping and testing) as being a key barrier in the government environment.³⁰

A leader at The Lab@OPM observed, “From every survey we’ve done about why people do or don’t use the techniques from the class, the number one reason they don’t is they don’t feel they have time.”

Time pressures often relate to outdated management expectations regarding efficiency. Rushing to implement solutions that later fail is a false form of speed. Design thinking’s investment in exploration before ideation might appear to lengthen the “to-results” time, but in fact it generally improves it. Cultures that value rushing to solutions and a single-minded focus on speed as efficiency are serious impediments to successful human-centered design.



Align Culture to Support

No matter how effective the structure, training, and coaching in place, accelerating the development of an organization-wide competency in design thinking requires creating a context in which doing things differently feels sensible and safe to employees. This involves fashioning an environment that helps employees choose action over inaction.

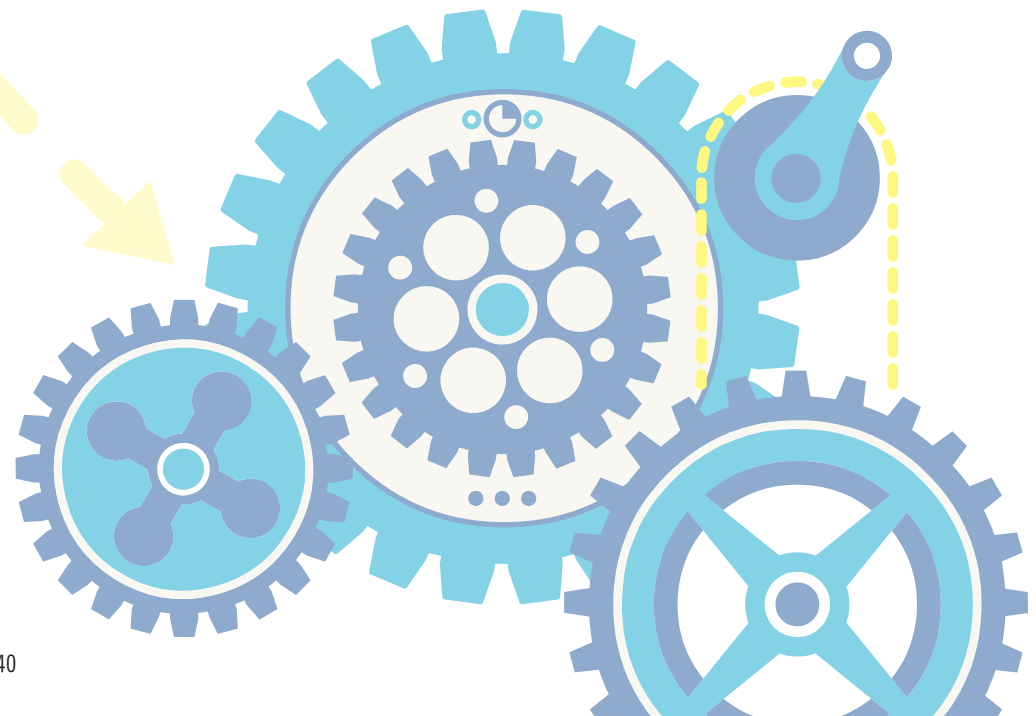
Lack of creative confidence is a well-recognized challenge to achieving innovation; hence creating psychological safety is critical for creating a willingness to learn in action. Most humans are fearful of making mistakes, resulting in mindsets that favor preventing error over seizing opportunity. Humans, therefore, regularly choose *inaction* rather than action when a choice risks failure.³¹ Supporting a learning mindset that tolerates failure in service to learning is a vital responsibility of leadership.

One way to create safety is to focus on small, low-visibility bets early in the innovation process. In a world where leaders are admonished to think big and seek disruption, it is easy to dismiss these efforts as too small to matter. However, the emphasis on small is an attractive feature of the design thinking methodology. Small, in the form of modest projects or research plans—even a single in-depth interview with a key stakeholder—builds confidence and leads to larger projects with the potential for

greater impact. Monash Medical Center's first design project was helping visitors navigate the hospital's corridors and today Monash is piloting a concept for changing the way health care is compensated across Australia. Under-the-radar projects, over time and after successes, provide tangible examples that nudge an organization toward overall design thinking utilization.

Patience is another important ingredient—and one often in short supply in organizations. Being willing to postpone the search for solutions and stay in the question, supporting novices when they feel overwhelmed by large volumes of qualitative data, being patient as they look for patterns, and under-

standing the complexity and uncertainty inevitable in the innovation space are difficult for action-oriented leaders. Yet, attention to these cultural supports—a tolerance for failure in service to learning, a willingness to invest in seemingly small projects to build confidence and experience to undertake larger ones, and a willingness to encourage broader engagement and experimentation—can significantly accelerate the uptake of design thinking approaches.

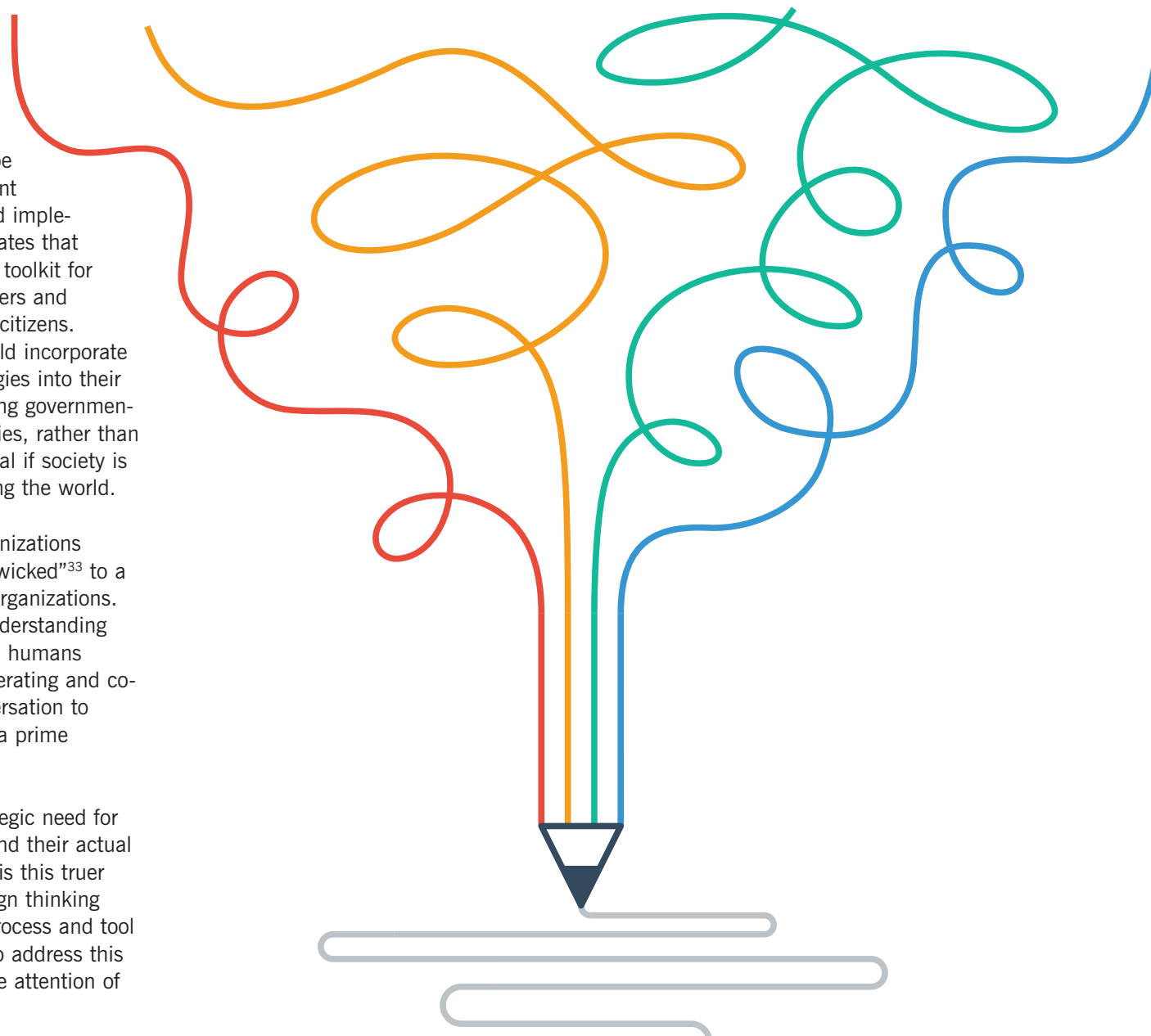


CONCLUSION

Diffusing and scaling design thinking throughout government will not be easy. Nor will design thinking supplant traditional approaches to crafting and implementing policy.³² Research demonstrates that design does, however, offer a unique toolkit for engaging diverse groups of stakeholders and improving the delivery of services to citizens. Therefore, governmental bodies should incorporate design thinking tools and methodologies into their problem-solving repertoires. Enhancing governmental abilities to imagine new possibilities, rather than succumbing to constraints, is essential if society is to deal with massive challenges facing the world.

The problems that public-sector organizations address are generally complex and “wicked”³³ to a greater extent than those in private organizations. Design thinking, with its focus on understanding any issue from the perspective of the humans involved and its emphasis on both iterating and co-creating, allows the innovation conversation to evolve with its stakeholders. That is a prime design-thinking strength.

The gap between organizations’ strategic need for ongoing innovation and adaptation and their actual performance is significant. Nowhere is this truer than in the government sphere. Design thinking provides a pathway—a systematic process and tool kit that is teachable and scalable—to address this longstanding gap and so deserves the attention of responsible leaders.



APPENDIX

Selected Tools For Design Thinking

1. **Ethnographic Interviewing and Observation** relies on, first, monitoring and then asking open-ended questions that seek to explore interviewees' experiences and thoughts.
2. **Visualization** is about using images. It is not about drawing; it is about visual thinking. It pushes beyond using words or language alone. It is a way of accessing a different part of the brain that allows us to think nonverbally.
3. **Journey Mapping** is an ethnographic research method that focuses on tracing the user's "journey" as he or she interacts with an organization while in the process of receiving a service, with special attention to emotional highs and lows. Experience mapping is used with the objective of identifying needs that users are often unable to articulate.
4. **Personas** are archetypes that capture the qualities of different categories of users.
5. **Mind Mapping** is used to represent how ideas or other items are linked to a central idea and to each other. Mind maps are used to generate, visualize, structure, and classify ideas to look for patterns and insights.
6. **Assumption Testing** focuses on identifying assumptions underlying the attractiveness of a new idea so that the likelihood that these assumptions will turn out to be true can be assessed around value creation, ability to execute, and scale.
7. **Prototyping** techniques make abstract new ideas tangible. Methods here include storyboarding, user scenarios, experience journeys, and concept illustrations—all of which encourage deep involvement by important stakeholders to provide feedback.
8. **Co-creation** incorporates techniques that allow innovators to engage key stakeholder in the process of generating and developing new ideas of mutual interest.
9. **Experiments** are designed to test the key underlying value-generating assumptions of a potential new idea in the real world. In contrast to a full rollout, an experiment is conducted quickly and inexpensively to gather real world data.
10. **Storytelling** involves weaving together a story rather than just making a series of points. It is a close relative of visualization—another way to make new ideas feel real and compelling. Stories are "the soul of data."

FOR FURTHER READING

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ABOUT THE AUTHORS

Jeanne M. Liedtka has been involved in the corporate strategy field for over 30 years, working in the area of design thinking for 10 years. The United Technologies Professor of Business at the Darden Graduate School of Business at the University of Virginia, she teaches both MBAs and executives on the topics of design thinking, strategy, innovation, and organic growth. Jeanne received her DBA in management policy from Boston University and her MBA from Harvard Business School. Jeanne has taught thousands of people, both students and practitioners, in her work at Darden and literally hundreds of thousands in her online coursework on the Coursera platform.

Beginning her career as a strategy consultant for the Boston Consulting Group, she has served as Associate Dean of the MBA Program at Darden, Executive Director of the Batten Institute for Entrepreneurship and Corporate Innovation, and Chief Learning Officer at United Technologies Corporation.

Jeanne has written six books on the subject of innovation and design thinking, in both the private and the service sector, including *The Catalyst, How You Can Lead Extraordinary Growth* (winner of the Business Week best innovation books of 2009), *Designing for Growth: A design thinking tool kit for managers* (winner of the 1800 CEO READ best management book of 2011), *The Physics of Business Growth, Solving Business Problems with Design Thinking: Ten Stories of What Works, The Designing for Growth Field Book: A Step-by-Step Project Guide, and Designing for the Greater Good: Innovation in the Social Sector.*

Her current research interests focus on exploring the impact of design thinking in organizations and how it can be taught and scaled. Learn more about Jeanne's work on her web page: www.jeanneliedtka.com or on Design@Darden.

Randy Salzman is a journalist and 20-year creativity and communications professor who teaches and consults on design thinking, while continuing to write about transportation issues and innovation. He co-authored *Design Thinking for the Greater Good*, published in 2017. Published in over 100 magazines, journals, and newspapers (from *The Wall Street Journal* and *The New York Times* to *Mother Jones*, *Bicycling* and *Style*), his transportation work appeared regularly in *Thinking Highways*, *InTransition* and *Pacific Standard*. His book, *Fatal Attraction: Curbing Our Love Affair with the Automobile Before it Kills Us* highlights novel transportation solutions.



JEANNE M. LIEDTKA



RANDY SALZMAN

ENDNOTES

1. Marc Gruber, Nick De Leon, Gerard George and Paul Thompson, “Managing by design.” *Academy of Management Journal* 58, no. 1 (2015): 1-7.
2. Joanna Seowa, “PM Lee Hsien Loong calls for ‘reimagining of Singapore,” *Singapore Straits Times*, April 6, 2018:1.
3. Personal interview, Leslie Tergas, 2015.
4. Jeanne Liedtka, Awais Sheikh, Cynthia Gilmer, Marilyn Kupetz and Lynette Wilcox, “The Use of Design Thinking in the US Government,” *Academy of Management Proceedings*. Vol. 2018. No. 1. Academy of Management, 2018.
5. Throughout this report, we base conclusions on research conducted over the past decade at the UVA Darden School of Business. The research stream began with our exploration of the role operating managers in large organizations played in innovation and involved interviewing 70+ successful growth leaders, focusing on identifying the specific practices leading to their success. Meanwhile, design thinking was gaining attention in management circles. As we examined the behaviors and mindsets we observed in growth leaders, the parallels between these and the formal design thinking methodology became obvious. We saw an opportunity to use the design thinking tool kit to help less intuitively growth-oriented managers see new opportunities, and began our research on the topic soon after, focusing on design thinking as practiced by managers not trained as designers. We went on, over the next seven years, to create the database of over 50 organizations, from the business, social sector, and government fields, and conducted in-depth studies of design thinking projects in action in 22 of these that we draw on for this report, relying on a variety of data sources. Most prominent were semi-structured interviews with innovation team members (some being formally trained designers, the majority were not) and other key project stakeholders. Each interview focused on the selection and exploration of one particular project that we chronicled closely. We asked each interviewee to detail their thoughts and trace their activities from inception of the project to completion. Where possible, concrete evidence of outcomes was obtained and updated as new data became available. For each of the projects, we spoke with a minimum of three people involved and totaled at least five interviews for each project. Over 150 interviews with more than 90 different individuals were conducted.
6. For more information of differences between business and design thinking, see Jeanne Liedtka, “Business Strategy and Design: Can this marriage be saved?” *Design Management Review*, 2010: 7-11.
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