

Faster horses

How design-led consultancies can drive better problem-finding
outcomes to help clients escape the core innovation trap

By

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Author's declaration

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Abstract

This paper investigates the activity of problem-finding at a corporate innovation level to understand why companies are not achieving their innovation goals beyond the continual improvement of existing offerings and businesses. Through a literature review, the investigation identifies three key patterns happening in the world of design & innovation: the popularization of rapid innovation methods, the nature of increasingly complex problems, and the state of the design-led innovation consulting industry. The paper takes an autoethnographic research approach to collect, analyze, and synthesize data from the point of a view of a design consulting practitioner in order to surface insights about the dynamics at play between the consultant and the client organization. These dynamics are further explored through systems thinking, identifying significant balancing loops and potential leverage points for introducing new models and interventions that lead to better problem-finding outcomes in corporate innovation. The idea of shared value between consultant and client emerges as a primary leverage point, leading to the discovery of potential solution sets for driving new types of consultant-client relationships and business models that fully utilize the power of problem-finding at the outset of innovation projects.

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Introduction

*“If I asked people what they wanted,
they would have said faster horses.”*

*-Henry Ford**

1.1 How I got here

This project originally began as an investigation into the practices and behaviours surrounding prototyping amongst individuals, teams, and organizations.

Let me explain.

In Spring 2016, I received an exciting phone call. I was asked to lead a major innovation project to develop a new concept for a large, multinational company. My team was outstanding and the client was excited. “It’s the single most important project in the corporation,” I was told.

Then I heard the timeline. We had 7 weeks; exactly thirty-five working days to go through the design thinking process from start to finish. It seemed radical and exciting. A new opportunity to accelerate our work,

* While this quote is frequently attributed to Henry Ford, research efforts to validate this have come up short (Vlaskovits, 2011).

make a new client happy, and advance my career as a design-led innovation practitioner.

I began rethinking the design thinking process. I squished and squeezed and collapsed phases of our traditional project process. I voraciously familiarized myself with movements in the startup community praising the power of the Lean Startup (Blank, 2013), rapid prototyping, and the Design Sprint (Knapp, Zeratsky, & Kowitz, 2016). Heck, if the folks at Google Ventures could do this in 5 days, there's no reason our team couldn't design a new offering in 7 weeks. Everybody was doing it!

I reassured myself and our team that we could do it, too. In our conversations leading up to the official start of the project, it was made clear that this was a redesign. We'd be revamping an existing product to make it more user friendly, drive adoption, and, ultimately, generate more revenue. The offering would be used by the same customers our client served today. Given the circumstances, that was terrific news to us. If the client knew the customer already, we could accelerate the research phase.

When I showed up on day one of the project, however, it was clear that this was more than a redesign. One senior member of the team wanted this to be an ambitious play to adapt current offerings and boldly enter

new markets to serve new types of customers. Other members of the team insisted that this was a core innovation (Nagji & Tuff, 2012) and was critical to hitting the financial projections in the proposal the business unit had made to executives.

With a contract already in place, timelines and budget set, and resources shored up to staff the teams, we couldn't pursue the big, bold innovation. We committed to the core innovation that was already identified and began prototyping.

In week one, we had paper prototypes. In week two, we were out in the field doing evaluative research. By week three, we were preparing to build the new product. We prototyped and tested, prototyped and tested, prototyped and tested. And I became obsessed with rapid prototyping.

When it came time to pursuing this major research project, then, the choice of topic seemed easy. If prototyping at a rapid pace in an accelerated way was so successful, why weren't more organizations doing it?

As such, my original research questions were as follows:

How might innovation practitioners better build and embed prototyping competencies in their teams and organizations?

What factors determine how teams and organizations employ prototyping as an innovation competency?

What frameworks, processes, structures, resources, and incentives might assist in building and sustaining prototyping competencies?

What I discovered, however, through deep introspection and an autoethnographic study of my own reflections and feelings on projects of various speeds and levels of ambition, is that looking at prototyping alone isn't enough. As I studied various schools of thought related to rapid innovation processes, I became more and more concerned about the state of design thinking and corporate innovation.

Each time I was in a position where the pressures of time, budget, or the perception of productivity was a factor, there appeared to be a choice to be made around whether that individual, team, or organization would pursue the act of problem-finding or not.

While rapid prototyping had been the surface level observation that originally led me to pay particular attention to these moments, I realized myself that my true area of interest resided here: in the underlying forces, pressures, and levers that influence how companies pick the problems they decide to pursue and, therefore, determine how they grow.

I was further reminded of this when listening to an interview with Richard Tyson, professor of “Systems, Scales, and Consequences”, a course for Masters of Design Students at the School of Visual Arts in New York City.

Every product of design is itself a shadow. It's a shadow of systems that you cannot see. One way of thinking about design has been the perfect configuration and forming and molding and experience shaping of the ideal computer mouse, or the iPhone, or a cup, etcetera. It's as if we have the materials and we are potters and we shape it into its thingness. We think about the product as negative space, or a shadow. What is [a] cup a shadow of? It's a shadow of a coffee distribution system. It's a shadow of international agriculture. It's a shadow of a particular kind of pressed paper made of certain chemicals. It's a type of social contract. It's signally social behaviour. So how do we understand and deeply deconstruct all of the systems of which this cup is a shadow? How do we work back from the cup to the shadow of all those systems? (Tyson, 2013)

I find this to be the perfect analogy for how this research project came to be, and how it led me to stumble upon what I believe is the *right*

problem to be addressing and a new set of research questions that re-frame this challenge.

Using Tyson's analogy, the nature of how prototyping emerges within a project, a team, or an organization is simply the 'product'. It is a reflection of the complex system of patterns, behaviour, structure, and mental models underlying the surface-level events of rapid innovation processes, although they may be invisible (Meadows, 1972), as shown in Figure 1. This is the 'negative space' in which Tyson refers. This is where there are observations, patterns, insights, and interventions to be found.

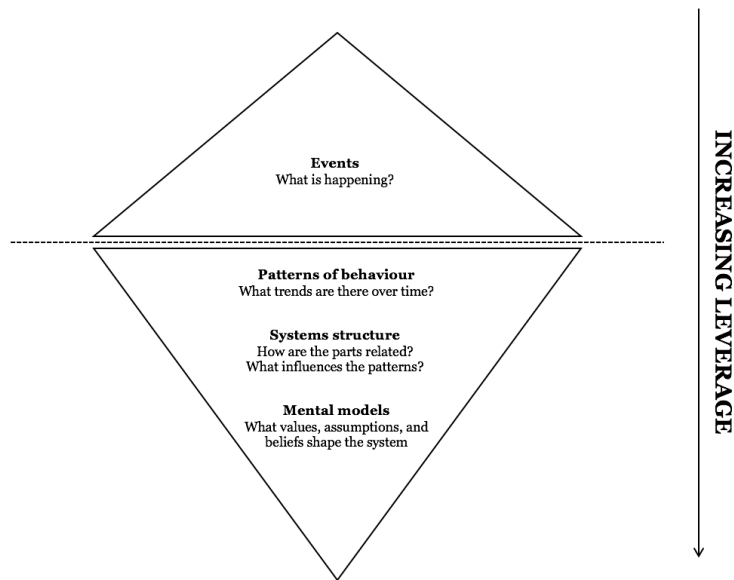


Figure 1: The Iceberg Model

The Iceberg Model illustrates how to contextualize an issue as part of a whole system by connecting events to underlying patterns, structures, and mental models (Meadows, 1972).

With that in mind, my new research questions - explored in this paper - are as follows:

How might innovation practitioners better build and embed problem-finding competencies in the clients with whom they work?

What factors determine how teams and organizations employ problem-finding as an innovation competency?

What interventions might assist consulting practitioners in building and sustaining problem-finding activities in their work with clients?

1.2 Defining 'problem-finding' and the 'design-led consultancy'

“To see a problem is a definite addition to knowledge. To recognize a problem which can be solved and is worthy of solving is in fact a discovery in its own right.” (Polanyi, 1958)

Because this project focuses on the interactions between client organization and *design-led* consulting firms, the term problem-finding is considered in the context of the design process. This project assumes that “at its most basic level, design can be described as an event that begins with an existing state and through some process produces a more desirable state” as depicted in Figure 2 (Doblin, 1987).

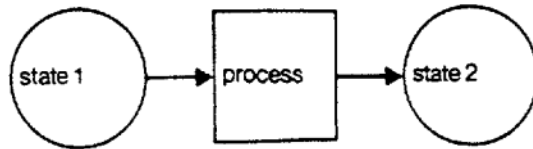


Figure 2: The SPS Model

The SPS Model illustrates how, at the most basic level, the design process begins with an existing state and through some process produces a more desirable state (Doblin, 1987).

Specifically, problem-finding refers to parts of the design process whereby the designer dedicates effort not to the solution of a problem, but to the discovery, formulation, and framing of what problem is to be solved (Getzels, 1979). These activities are commonly referred to as the *analysis* and *synthesis* stages of design. In analysis, research data is broken down into its “constituent parts” (Doblin, 1987), taking a detailed and structured approach to understanding what data is relevant for the designer. In synthesis, these parts are reassembled into patterns, themes, and implications which describe an opportunity - a problem is *found* (Kolko, 2011).

Analysis and synthesis, then, imply that design research has been conducted, which marks an important characteristic of **design-led consultancies** which this project holds true throughout this research

paper; that any effective design process with ambitions of creating meaningful change begins with asking *questions* to gather data and explore context *before* generating hypotheses or solutions. This use of design research, synthesis, and analysis is not apparent, however, when one looks at many of the rapid innovation processes popular in today's fast-paced problem-solving world.

To demonstrate this difference, Figure 3 and Figure 4 compare a version of innovation professor Vijay Kumar's view of the design research-led innovation process to the begin-by-building process of Google's Design Sprint model, representative of many rapid innovation frameworks. Kumar's process begins with design research, followed by analysis and synthesis, and only then moves into prototyping and building solutions. Google's Design Sprint process, however, *begins* by building prototypes, assuming solutions at the outset, and refining based on feedback - without consideration for generative, contextual research about the intervention, stakeholders, or surrounding system.

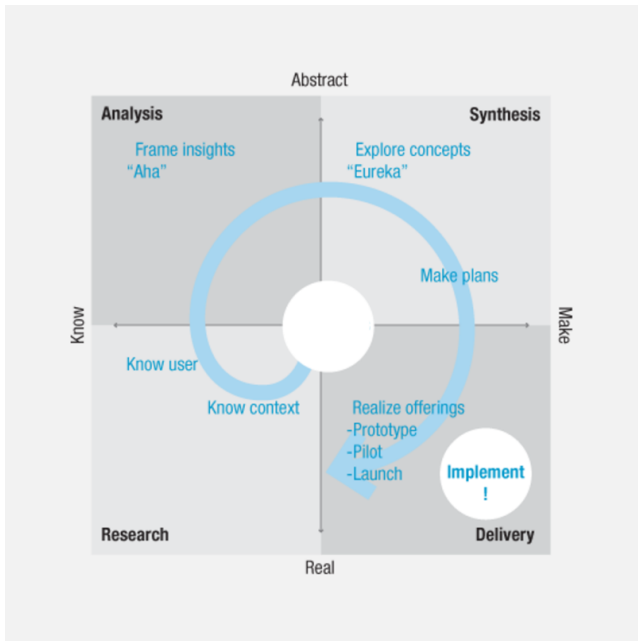


Figure 3: The Kumar Model

The Kumar Model illustrates the design-led innovation process moving from research, to framing insights through analysis, to exploring concepts and making plans in synthesis, and finally prototyping offerings in delivery (Kumar, 2003).

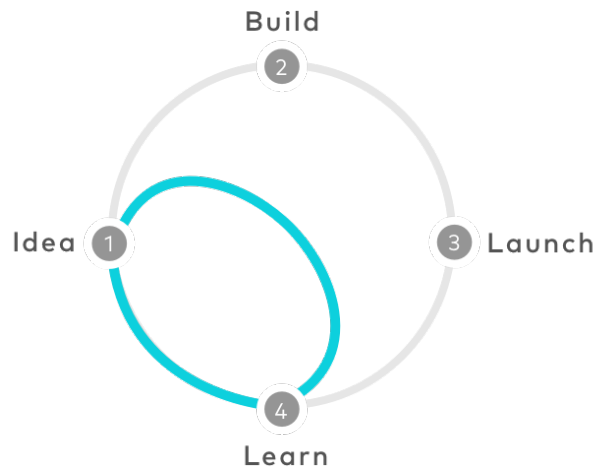


Figure 4: Google Ventures' Design Sprint

Google Ventures' Design Sprint process, often managed as a 5-day 'sprint', promising teams to "shortcut the endless-debate cycle and compress months of time into a single week" (Knapp, Zeratsky, & Kowitz, 2016).

The use of research, analysis, and synthesis within the design process is an important distinction to make and, for the purposes of this project, will be used to distinguish problem-finding (the focus of the research in this project) from problem-solving.

Throughout this paper, I will reference design-led innovation consultancies. This term implies that these firms use a version of a

design research-led process, similar to Kumar's, as their primary method of conducting work.

It is important to recognize that the 'design-led consultancy' takes many shapes, particularly as the nature of the industry has changed dramatically over the last decade (a topic explored in the Patterns section of this paper). The common types of design-led consultancy are described in Table 1 below.

Classification	Examples	Primary customers	Services offered
Independent, external	Jump Smart Design	Corporate clients seeking innovation services	Innovation strategy New product and concept development Design research and insights generation Design-led innovation capability building
Consultancy-owned (typically professional services, management consulting, and technology consulting)	Idea Couture, owned by Cognizant Frog Design, owned by Aricent Doblin, owned by Deloitte Veryday, owned by McKinsey	Parent company (through internal efforts to innovate) Corporate clients, sourced either independently or through the parent company's existing customer base	
Industry-owned	Adaptive Path, owned by Capital One Gravity Tank, owned by Salesforce IDEO, part-owned by Kyu	Parent company (through internal efforts to innovate) Corporate clients, sourced either independently or through the parent company's existing customer base	

Table 1: Classifications of Design-Led Consultancies

Each of the classifications of design-led consultancy above are configured in ways suitable to the context of their ownership structure

and relationship with given owners. While the services offered may be similar across each classification, they are pursued in ways that are representative of the ownership structure and the customer of focus. In the professional services world, for example, the acquisition of design-led consultancies has been seen to add value in multiple ways: (i) the new design-led capabilities contribute to existing clients of the parent firm, driving growth through additional offerings that the parent firm can then make available to their client base, (ii) the design-led capabilities are targeted at the parent firm's own business, enhancing existing professional services offerings by improving the client experience, identifying new growth options, and designing new professional service innovations, and (iii) the design-led firm continues to pursue their own clients independent of the parent firm and, in some cases, brings the capabilities of their parent firm to their clients.

These configurations are each an indication of the strategy and growth goals of each respective firm (both parent and design-led consultancy). They also may indicate the attitude and value of design within each sector or firm. This is an important observation to, first, call out that the notion of a design-led consultancy is rapidly evolving as design is accepted and integrated into a variety of industry and business functional areas, as demonstrated in the table and explored later in this paper. Additionally, as the notion of the design-led consultancy evolves, new implications will emerge for the state of problem-finding and

design research activities. In the professional services firm, for example, where a primary business model relies on core services such as traditional management or operations consulting, the design-led capabilities may be diffused in a way so as to amplify existing approaches and offerings of the parent firm, instead of introducing and fully leveraging the design research and problem-finding activities which the design-led team is equipped to pursue. The consequence and insight here is that, depending on the configuration of the design-led consultancy and their relationship to a parent firm, true problem-finding may or may not be diffused into the new places where design firms are showing up.

Take the example of a professional services firm conducting an engagement with an automobile manufacturing client. In the case of the traditional management consultancy, the process would typically start with rigorous analysis about the state of the business today: operations, lines of business, market trends, competitors. Using this analytical assessment, a set of strategic options or hypotheses may be developed, which are then subjected to further analysis in an effort to narrow in on a best option. If this management consultancy happened to own a design-led consultancy, this process may change. The degree to which it changes depends on the configuration of the relationship between both firms, and the value the parent firms sees in design-led approaches.

In this example, the design-led firm may be engaged to drive a true problem-finding approach which might generate a view of the problem as being one outside of where the traditional consultancy may typically look or bound the analysis. *What is the cultural significance of the automobile in society? What broader trends are driving change in the way that people and goods are moved through urban spaces? Who are the actors across the mobility ecosystem and what are their needs?* This search for inspiration and clarification of the broader problem through design research within the industry but also in peripheral spaces is what marks the distinction between traditional and design-led consultancies.

However, if the traditional consultancy was of the mindset that beginning with a hypothesis-led approach was in fact the most appropriate way to tackle the engagement, the role of the design-led consultancy changes. They may be brought in only to prototype and test ideas in a way that leverages a process more aligned to the Design Sprint model than Kumar's innovation model.

The point here is that the configuration and integration of the design-led consultancy's capabilities is highly dependent on the specific configuration of that firm and way the consultancy is situated within it.

Each of these possibilities is further influenced by funding mechanisms, reporting and measurement structures, and branding – and the tradeoffs that come with those decisions. When a well-known design-led consultancy changes their name to fold into the parent firm, for example, what impact does this have on the design-led talent that flows into the firm? And what does this mean for the competencies and capabilities that enable problem-finding activities? How are the values between those two firms aligned and negotiated? As the frequency of design firm acquisitions increases, the way in which the diffusion of design-led capabilities unfolds remains to be seen (KPCB, 2016).

Finally, when this project refers to the design-led consultancy and the act of problem-finding, it excludes the notion of traditional *Design practice* firms. As explained, this paper assumes design-led consultancies employ problem-finding and design research techniques as a primary way of approach engagements. *Design practice* firms, however, operate within traditional Design disciplines such as graphic design and industrial design. While these Design disciplines may contribute to greater outputs in design-led consulting approaches, they are not sufficient for the complex nature of problems that are typically tackled.

1.3 Researcher identity memo

This project is a culmination of nearly a decade of my own work in the field of innovation, strategy, and design-led approaches. From the outset of my career, I have been focused on deploying these methods to help companies identify and tackle problems that are worth solving. In doing so, I have experienced the challenge of problem-finding through a number of different lenses:

- within industry working in the innovation function of a large, multinational private corporation
- as startup entrepreneur with only a handful of employees, free of the constraints and advantages of established capabilities or assets
- within the world of professional services as an innovation consulting practitioner and manager with one of the world's largest consultancies serving complex corporate clients
- as a graduate student in the Master of Design in Strategic Foresight and Innovation program at OCAD University

Throughout each of these periods in my work, I have played both sides of the problem-finding dilemma, sometimes pressing for more speed, sometimes urging a team or client to slow down to find and frame the problem worth solving.

I also have a unique view into this problem as an employee of a design-led innovation firm that was recently purchased by a traditional professional services consultancy. As described later in this paper, this trend is a major shift identified through my literature review. As such, I have an inherent bias in the perspective I take: I believe the external design consulting firm will continue to play a role in the future of how corporations drive innovation and pursue new opportunities. I have a clear incentive in this future(s) unfolding.

I hold a view that it is increasingly difficult for organizations to slow down and be thoughtful and purposeful in how they go about finding problems to solve. In an era of rapid innovations and doing business at breakneck speed, this is understandably so. My work as a consultant educated at a graduate level in applying generative design research and strategy development methods means I believe in the power of problem-finding and advocate for it. I do so because I feel passionately that if companies were more purposeful in problem-finding, their returns on innovation spending would be significantly higher, the impact on their customers and markets significantly increased, and - at a macro level - the overall quality of life and society would be improved.

1.4 Rationale: Why this problem is important

The main outcome from this project is to fill a gap in existing research around how problem-finding competencies are built, embedded, and sustained in organizations - in addition to conducting research which equips innovation practitioners with specific findings and tools to inspire and implement those competencies successfully. This project is an opportunity for me to better understand problem-finding from both a systemic perspective as well as an in-depth individual and personal standpoint.

Over the last several years as a practicing innovation consultant, I have witnessed the power of problem-finding to dramatically change the way teams think about innovation and growth. More importantly, I have seen the power of problem-finding to change individuals; executives who go on to communicate and inspire an innovation ambition, non-designers who are empowered to make significant contributions to design-based teams through problem-finding, and newfound design thinkers who discover the power of problem-finding to uncover deep, human-centered insights that lead to meaningful innovations.

On the other hand, I have also witnessed the opposite. I have seen corporations forego the act of problem-finding to pursue solutions that are near and dear to the core business and that rely only on

assumptions about emerging drivers of change and customer needs. I have seen countless organizations inspire visions for *speed of innovation* delivery, without articulating clear intent or ambition. And I have seen teams get excited about the rapid results of prototypes and positive customer feedback, only to be caught off-guard when a new, breakthrough innovation enters their market from an unsuspecting player, reframing a problem for those customers, and further putting pressure on the incumbent's core business. This pattern and vicious cycle is one that persists and is difficult to escape.

In the day-to-day nature of innovation consulting, there is a love-hate relationship with problem-finding. Despite the dramatic impact problem-finding can have on change-makers' abilities to identify and drive important innovations forward, the uncertainty, ambiguity, and resource issues can make it a challenging activity to pursue in a world of billable hours, utilization, and fixed fee consulting. This project is a unique opportunity to deliberately and thoughtfully examine the act of problem-finding and the systemic reasons why it does or does not happen in an effort to aid design-led consultancies to better align the way they do business to support effective problem-finding activities.

1.5 The consequences of *not* problem-finding

What happens if organizations overlook the value of problem-finding and design research altogether? What are the consequences of continually pursuing rapid innovations - at the expense of longer-term investments in higher-ambition innovations - in response to the pressures on the core business? The potential scenarios illuminated by these questions raise speculations about the long-term health of organizations and their ability to navigate uncertain futures. When speed becomes the unit of analysis by which companies measure their innovation effectiveness, other efforts to tackle harder, more complex opportunities and challenges dwindle.

The increasingly excessive short-termism of organizations may be driven by the rapid pace of change and volatility in today's business environments. According to research by the Boston Consulting Group, businesses move through their lifecycles twice as quickly as they did 30 years ago. "Such a state of affairs naturally focuses attention on the very short term: on dynamism and unpredictability and how these necessitate agility and adaptation. Equally important, however, are the longer-term consequences for corporations" (Reeves & Pueschel, 2015).

It could be said, then, that when companies decide to not pursue problem-finding activities when conducting innovation projects, their

alternative is to continue working on problems that are already part of the core business. If the environment is changing as much as Boston Consulting Group suggests, those problems quickly become irrelevant. As organizations continue to invest in rapid innovation in core problems, then, they also continue to accrue a greater and greater deficiency between the problems they choose to work on and those that are relevant in their new business environment. When this growing deficiency puts further pressure on the business, the inclination to focus on the short-term pains of quarterly results and immediate sales opportunities further increases this deficiency, introducing a vicious cycle of short-termism that becomes difficult to escape because of two reinforcing pressures: the increasing pace of change in the external environment, and the increasing pressure to invest in core innovations. This cycle will be explored in more detail later in this project.

Then consider the risks of avoiding problem-finding in an increasingly complex and connected world. With the advent of big data, the Internet of Things, artificial intelligence, and machine learning, a greater number of innovations are no longer isolated products or services with a relatively small sphere of influence. Instead, new offerings are often part of a “system of systems” (Kalaher, 2015). The significance of this transition to a more interconnected world means that the organizations who launch these new offerings are now, in the words of global design firm Frog Design, in the business of “Big Design,” in which there is “a

shift of value to the system, away from the device” (Kalaher & Tyson, 2015) as depicted in Figure 5.

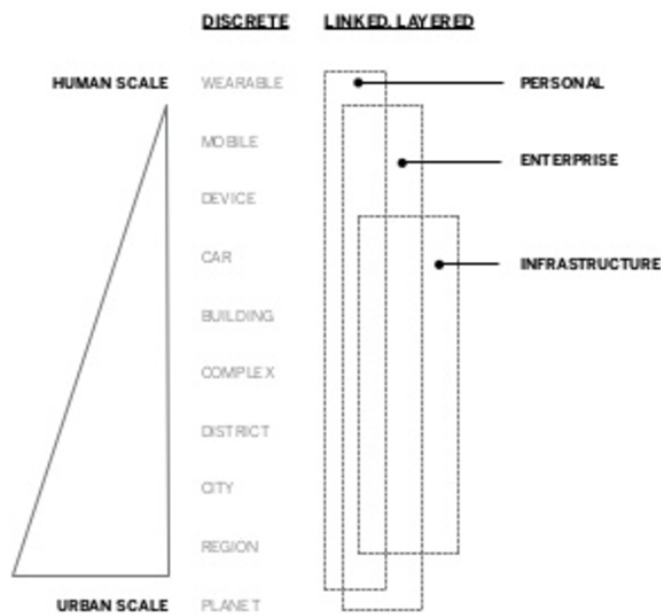


Figure 5: Scale and Complexity of Systems

Global design firm Frog Design illustrates the increasing scale and complexity of systems in an interconnected world (Kalaher & Tyson, 2015).

As such, the sphere of influence of new offerings - and even their prototypes - is much larger and interconnected, spanning a human, enterprise, urban, and even planetary scale. To forego the act of problem-finding, then, also implies foregoing a deep understanding of the consequences of a new intervention or innovation moving into

these interconnected systems. If this is true, it also suggests that the *unintended* consequences of any given innovation to be greater in number and severity.

For design-led consultancies, the impacts are felt in connected but different ways. At a time when design education - and even non-design education (Rhodes, 2016) - is introducing design-thinking, systems thinking, and strategic foresight methods (OCAD University, n.d.), the rise of rapid innovation processes like Design Sprints, Lean Startup, and Agile often mean that the problem-finding activities such as design research, analysis, and synthesis are no longer inherent parts of the design and innovation process. Thus, the skills, mindsets, and methods that are being taught to emerging cohorts of design-thinking practitioners are not being utilized in professional practice. The consequences here are that, if design-led consultancies continue to cater to the rapid nature of their client organizations' behaviours, it is likely that top design research talent is going to feel overlooked and underutilized. Figure 6 and Figure 7 illustrate the rise of these design-led innovation approaches in traditional design educational institutions and also non-design institutions such as business schools.

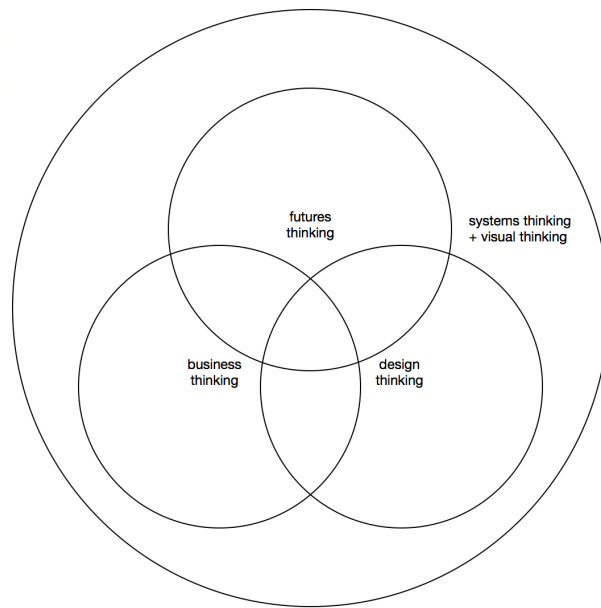


Figure 6: OCAD University's Master of Design in Strategic Foresight and Innovation

OCAD University's Master of Design in Strategic Foresight and Innovation program combines design thinking, business thinking, futures thinking, systems thinking, and visual thinking to teach "complex problem finding, framing and solving, to envision and develop sustainable futures" (OCAD University, n.d).

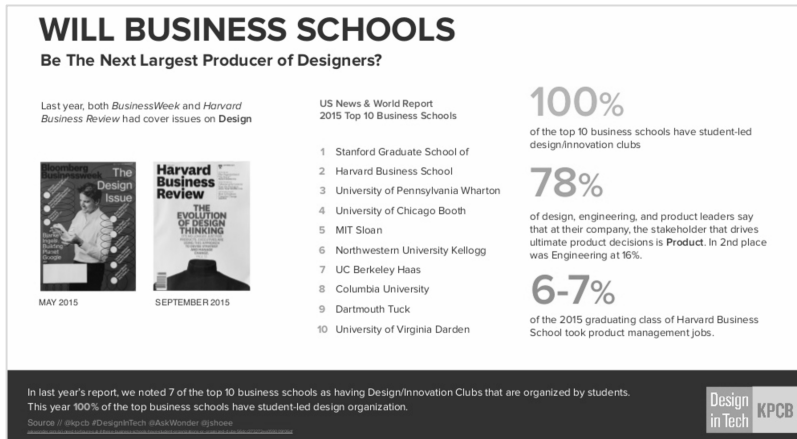


Figure 7: Design Education in Non-Design Institutions

Even within non-design educational institutions, such as business schools, the presence of design and innovation learning opportunities is increasing (Kleiner Perkins Caufield & Byers, 2016). Further research is required to understand the degree to which design research and problem-finding are part of how these institutions define design and innovation.

For these reasons, the exploration of this topic is critical. As the lifespan of organizations shortens, the pace of change accelerates, and the consequences of any given intervention become heightened, the need for problem-finding in the innovation process becomes increasingly important. Furthermore, as a new generation of innovators equipped with new, integrated skills spanning design research, analysis, synthesis, and foresight move into their careers, where will they find a home? How will design-led consultancies attract the talent that is necessary for leading significant, high-ambition change?

2.0 Research approach

In this section, I outline the research approach and rationale for the methods used including:

- a literature review and synthesis of patterns discovered
- an autoethnographic study to deeply understand my own thoughts and reflections across key moments and artifacts related to problem-finding
- a systems map to identify forces at play when it comes to the level of ambition related to innovation projects, and therefore the requirement for problem-finding activities within corporate innovation initiatives
- analysis and synthesis to determine a set of insights related to how companies make decisions about the level of problem-finding they utilize in innovation projects and how design-led innovation consulting practitioners work through these dynamics
- A 2x2 didactic used to generate new solution sets and interventions aimed at developing more favourable conditions for problem-finding exercises between consultant and client

As stated earlier, this major research project has largely been driven by my personal experience. As a consultant and practitioner, I have felt the pressures and tensions of corporate innovation and growth within the

bounds of existing resources, ambition, and time. I have also felt those pressures within the context of working in industry in an innovation function for a large, multinational manufacturer. Given this range of personal experience, I felt it was important to engage *myself* in gaining more thorough understanding of contextual landscape and deep feelings and emotions that lead to the choices around innovation methods, problem finding, ambition, and investment.

Although still an emerging practice within the field of design research, autoethnography helps to draw insights from three interconnected concepts: culture, self, and others (Chang, 2008). In this way, it allowed for a deep sense of empathy through my own purposeful reflection and through deliberate efforts to understand those reflections as they relate to the bigger system I was mapping throughout the project. Given the challenges of time and scope related to this project, in addition to the confidentiality issues surrounding consulting practitioners and their work, autoethnography was a fitting way to approach the research. Here, autoethnography would allow the project to get to deeper insights that would not be possible through participant interviews. As an initial literature review revealed that a tremendous amount of research had been conducted at an organizational level around innovation, strategy, and capability building, this would provide a level of insight from the perspective of the individual *practitioner*, which is relatively underrepresented in existing works.

This project, however, deals with a complex adaptive system (CAS) (Jones, n.d.) which is made up of more than just practitioners. It includes actors such as teams, organizations, clients, and entire industries and economies. It is made up of many different stakeholders, each with their own lens on the world and motivations for how they make decisions. In addition to the stakeholder complexity within this ecosystem, there is also significant change emerging based on the state of corporate innovation and the degree to which design and design thinking skills are diffused and democratized (Manzini, 2015). As a multidisciplinary designer with personal, lived experience from the perspective of multiple actors within the system of study, I believe I am uniquely positioned to approach the research through my own autoethnographic inquiry.

With this in mind, the approach and methods for this project, explained below, were selected with the goal of identifying and defining problems which might point to solution sets and future research efforts that could make a contribution and lead to significant impact in this system.

2.1 Literature review

Extensive secondary research was conducted to develop foundational knowledge in the areas of prototyping, problem complexity, design and innovation consultancies, innovation capability building in

organizations, and the rising popularity of rapid innovation methods. This literature review helped to form the basis for identifying stakeholders and important trends across the industry, ultimately leading to a synthesized summary outlining three key patterns identified as important for this project.

2.2 Systems mapping

Given the complexity of this topic area and the goals to ‘zoom out’ (Mella, 2012) and identify these problems and leverage points (Meadows, 2009) for change, a systems mapping approach was used. This systems approach was a way to apply the observations and insights gathered through autoethnography and attempt to understand them at a greater scale and in the context of other actors and lenses within the system in order to find more meaningful and impactful opportunities for change, while also understanding the limitations and challenges of any proposed interventions. System archetypes and frameworks were gathered from existing research, as identified in the literature review.

2.3 Autoethnographic experience audit

Autoethnography can be defined as “autobiographies that self-consciously explore the interplay of the introspective, personally engaged self with cultural descriptions mediated through language, history, and ethnographic explanation” (Ellis & Bochner, 2000).

Drawing from the social sciences and, more recently, literature and journalism, I chose to take a “reflexive ethnography” approach to understanding my own experience. This approach involves “authors using their own experiences in the culture reflexively to bend back on self and look more deeply at self-other interaction” (Ellis & Bochner, 2000). As a consultant and practitioner this gave me a starting point, through self-focus, to take an inventory identifying and analyzing moments of interest throughout consulting engagements. While this starting point was through the lens of self, researchers who use autoethnography understand that the data collected is an indication of much more, often highlighting dynamics in the broader system surrounding oneself and pointing to a “series of overlapping, concentric circles with others” (Nash, 2002). Self, then, is an avenue through which one can gain an understanding of others and societal culture (Duckart, 2005). This sociocultural context within my reflections allowed me to understand my own self narrative and - in those moments of interest - compare and contrast to other actors and forces present in that particular situation.

Finally, the selection of autoethnography as a method also represented the possibility of - over and above this research project itself - conducting a deeply meaningful, personal, and introspective inquiry into a subject area that is important to me. In the regular day-to-day work environment, this is a rare opportunity. My hope here is that I build a greater sense of awareness, skill, and maturity around my own behaviours, actions, and emotions in the very situations that have motivated me to pursue this project, program, and research project in the first place. Given my nearly 10 years' experience leveraging design methods to tackle innovation and growth problems, turning the research perspective on myself meant taking stock and leveraging a rich set of experiences in a disciplined process with dedicated research time.

2.4 Data collection, analysis, and synthesis

Themes from the literature review were created using an analysis and sorting technique informed by an affinity mapping approach (Kumar, 2013).

In order to study my own experiences and reflections within the innovation process, I took an approach that allowed me to chronicle my past using an autobiographical timeline. An autobiographical timeline “lists events or experiences from your life in chronological order. It can

cover the whole span of life or a limited time period or stage of life. It can include all major events or only those relevant to a specific theme during a predetermined time span” (Chang, 2007).

Rather than an ongoing journal, which can be subject to “a total sense of randomness in your data collection” (Chang, 2008), I elected to utilize a specific autoethnographic method call inventorying to code and analyze my observations. “First considering your research focus and make list of thematic categories relevant to your study. Then you rummage through the storehouse of your memory, pick up the relevant bits of information on themes, and give an order to the thematically collected bits” (Chang, 2008).

This inventorying took the form of listing out, through memory of my own experiences, an inventory of items within four thematic categories: proverbs, rituals, mentors & actors, and cultural artifacts (Chang, 2007). For each item, I identified personal notes and reflections about its significance and the implications from a cognitive, emotional, and social perspective. This is explained in Table 2 below.

Object of observation	Description(s)
Proverbs	“A condensed but memorable saying embodying some important fact of experience that is taken as true by many people” (Princeton University, 2006).
Rituals	<p>“A passage where genuine transformations of character and social relationships may occur” (Turner, 1967).</p> <p>“Include both formal and informal and happy and sad occasions” (Chang, 2008).</p>
Mentors and actors	<p>“Mentors are wise and trusted guides and advisors or teachers or trusted counselors” (Princeton University, 2006).</p> <p>“This can be used broadly to include anyone - whether older or younger than you - from whom you have learned new knowledge, skills, principles, wisdom, or perspectives that have made an impact on your life.” (Chang, 2007)</p> <p>“Although the mentor-mentee relationship alludes to a hierarchical relationship between a master and an apprentice, it need not preclude horizontal relationships because, as Mead observed, socialization can happen in all directions.” (Chang, 2007).</p>
Cultural artifacts	“Cultural artifacts are objects produced by members of the society that explicitly or implicitly manifest societal norms and values” (Chang, 2007).

Table 2: Framework for Autoethnographic Experience Audits (Chang, 2008)

2.5 Limitations of this study

Given that my research was particularly well suited for an autoethnographic study to reveal deep-seated, personal reflections and insights, it should be noted that the findings here are not representative of the broader population of consultants, practitioners, or designers. As a single individual, my identity, thoughts, and behaviours are of course shaped by my own preconceptions from prior experience, cultural upbringing, socio-economic status, sense of self, and social norms from environments where I have lived and worked. These were important considerations when selecting methods and the choice to pursue autoethnography factored in this trade-off between deep reflection and restricted sample size.

With respect to the project timeline, the scope of this project was limited to a feasible set of activities and methods. As a result, it is likely that there is a level of depth and breadth not represented in the research specifically related to how organizations configure for innovation, how leaders and teams make decisions, significant and broader changes affecting industries which purchase design and innovation consulting services, and a rigorous, exhaustive study of the societal, technological, economic, environmental, political, and values-based drivers of change.

As it applies to systems mapping, a boundary and level of scale was selected to give sufficient context to illustrate and animate the findings from the literature review and autoethnographic study. Given the complexity of the industry and drivers of change that exist, detailed systems mapping at a greater scale was not possible, but is a natural next step for future research following this project.

Finally, the nature of my work and our practice's clients have two importation implications for this project. First and foremost, it was a critical consideration of mine to keep any project information generic. Client names have been replaced with pseudonyms and no information beyond the nature of my own feelings and reflections were recorded or expressed in the research. Second, the projects in which my autoethnographic study were based have all taken place with large, complex, multinational for-profit firms. This context certainly influences the nature of the challenges at play in any given engagement and may not apply to organizations of all sizes or configurations.

3.0 Patterns from the literature

In order to better understand the underlying changes and trends occurring in the design and innovation consulting industry, a synthesis of the literature review was conducted. This synthesis identified five key patterns that point to areas of interest for exploration in the autoethnographic study. As these themes are the result of the contextual research uncovered in the literature review, they do not prioritize any particular user. Rather, they represent a broad study of relative subject areas and the implications for further research. This synthesis identified five key shifts that point to areas of interest for exploration in the autoethnographic study.

3.1 Pattern 1: Fast design

Increasingly, innovation processes emphasize the importance of rapid prototyping as a way to value experimentation and hypothesis testing (Blank, 2013).

Prototypes play an integral part of design thinking and innovation processes. They are used by teams as a method for representing ideas in ways that are faster, cheaper, and less risky than developing full-scale productions. Additionally, *prototyping*, the act of making prototypes,

has been seen to have positive impacts within organizations including higher productivity, greater collaboration, faster iteration cycles, and improved learning (Suri, 2007).

Despite this seemingly simple definition, there is a wide range in the ways which prototypes can be used, valued, and understood.

Depending on the individual, team, or organization, prototypes may be used to provoke thought amongst a group of stakeholders (Boer, Donovan, & Buur, 2013), to generate research insights (Sanders, 2014), to evaluate the usefulness and experience of a concept (Houde, 1997), or to test and “kill bad ideas” (Rossler, n.d.).

In addition to the range of ways in which prototypes can be used, there is an equally wide range when it comes to *what* is being prototyped.

While more commonly thought of as useful in the development of physical and digital products, significant research has been done documenting how prototypes can be used in the design of strategies, business models, services, experiences, channels, public policy, and more (Keeley, 2013).

Despite the documented benefits and broad range of applicability for prototypes in general - not to mention the increasing need for companies to pursue innovation to remain competitive - organizations

and the individuals within them often face significant challenges when introducing and embedding prototyping as a core innovation competency. In his 2006 piece, “*Cultures of Prototyping*”, Michael Schrage describes the three parameters which make up any given organization’s use of prototypes: the relationship between prototypes and specifications, the media which is used, and timing (both speed and phases) (Schrage, 2006). Although Schrage’s research draws on organizations which he describes as creating prototype-driven specifications, it is unclear how those organizations decided to pursue the concepts represented in those prototypes in the first place.

At an organizational level, Jane Fulton-Suri of IDEO identifies that prototypes *lead to change* by learning to build-to-think, failing earlier and faster, and giving permission to explore new behaviours (Suri, 2006).

While the benefits and challenges of prototyping are clear from an iteration, customer feedback, and even an organizational level, in many circles rapid prototyping is seen as core of the design and innovation process. Schools of thought originating in Silicon Valley and startup culture include Google Design Sprints, Lean Startups, and Customer Development. These philosophies encourage getting to a testable version of a new concept as early as possible in order to gather

evaluative feedback from customers and ‘pivot’ based on results. An example is shown in Figure 8. The focus on speed drives a process that often starts with a hypothesis and built out in any form of cheap, fast, low-fidelity prototype. This means that the build-test-learn-iterate process being adopted by startups and corporate innovators relies largely on evaluative research instead of generative research, focusing on either proving or disproving a hypothesis and converging on versions of the prototype that test well with users.

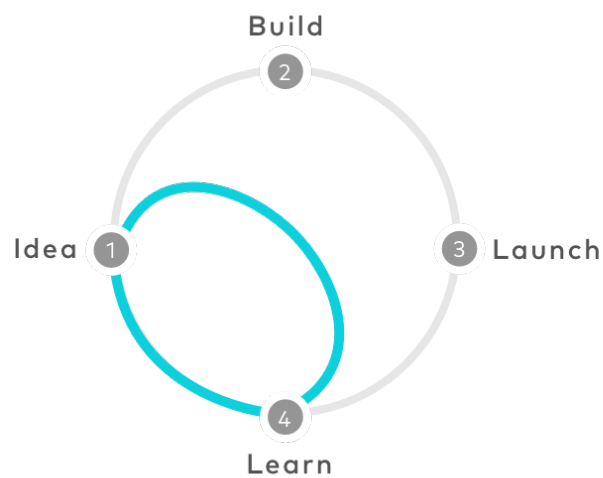


Figure 8: Google Ventures' Design Sprint

Google Ventures Design Sprint process (Knapp, Zeratsky, & Kowitz, 2016).

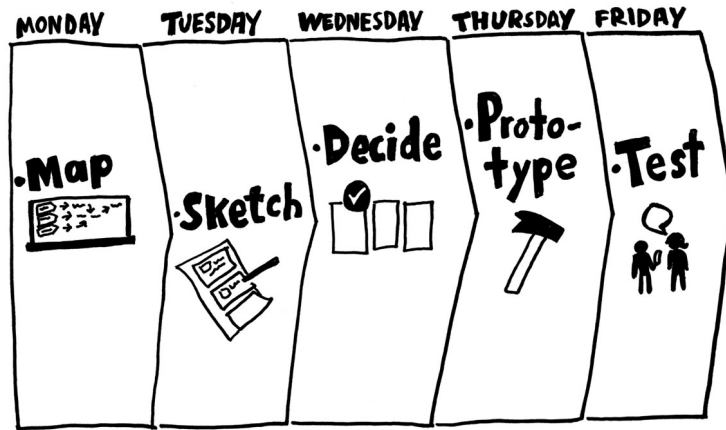


Figure 9: Google Ventures' 5-Day Sprint Process

Google Ventures Design Sprint process five-day workflow (Knapp, Zeratsky, & Kowitz, 2016).

The popularization of these rapid prototyping processes, focused on solution finding through hypothesis-led iteration, does not leave room for problem-finding. This may work well for continuous improvement or core innovation efforts. In cases where organizations are seeking higher-ambition growth opportunities, however, they may be inadequate, particularly in cases where the organization is expanding into new markets and segments with customers they have not served before. When assumptions are made about the user and what their needs are, critical parts of the design thinking process are overlooked: understanding the contextual landscape, identifying drivers of change, developing future-looking scenarios, the diversity of stakeholders and

their respective needs. As a result, these rapid innovations processes fail to deliver breakthrough innovations beyond features, functions, or components of an offering.

Furthermore, organizations frequently mistake hypotheses for opportunities. A 2016 article in Forbes tells the story of a heavy equipment manufacturer taking notice of the rise of digital technologies and the sharing economy. Instead of jumping to prototyping solutions in the build-test-learn-iterate cycles praised in startup circles, the organization recognized the bigger macro trends as an opportunity to pursue broader exploration in order to better understand the problems that might be worth solving.

[We used] research methods to understand the full ecosystem and unmet needs in this space, which was far more complex and surprising than anyone initially understood. The six weeks spent conducting that research paid off in spades in fueling the resulting business: an expansive online sharing platform for large equipment, accessories, labor and material that transforms the way tomorrow's builders work, connecting multiple stakeholders across the construction landscape and yielding multiple revenue streams for our client. If we'd pushed to a more concrete and testable hypothesis at the outset - an Uber-like model that connects idle equipment with end-users - we would have dismissed multiple elements of the resulting platform and captured less than 20% of the full opportunity. In general, the more ambiguous (and likely ambitious) the opportunity, the less likely we can start with a hypothesis and begin iterating. We need to do the real, hard work of understanding and exploring the space to develop first to have any hope of developing one that's worth testing (Quinn, 2016).

What's interesting about the story is the connection Quinn makes between methods and ambition. While rapid methods may be compelling, the implied trade-off when pursuing the design of a new offering was in the potential that significant value will be overlooked by dismissing the emergent opportunities that might surface during the process of doing more generative, problem-finding based research. (Knapp, Zeratsky, & Kowitz, 2016) (Blank, 2013) (Ries, n.d.).

In many ways, however, it is easy to see the allure of the rapid innovation process. For the organization, it produces tangible results and certainty quickly. This may be the result of avoiding certain levels of ambiguity altogether, but in the fast-paced environment of today's organizations, rapid iteration cycles check many of the boxes that are required of executives: agility, customer input, and speed.

One example here is General Electric's recent introduction of a product development process called FastWorks. In 2013, the CEO of GE Appliances introduced the Lean Startup methodology into the business with the challenge to design a refrigerator with doors that open from the middle, instead of the traditional side hinge. "You're going to change every part the customer sees. You won't have a lot of money. There will be a very small team. There will be a working product in 3

months. And you will have a production product in 11 or 12 months.”

(Power, 2014).

As an innovation consultant, these same pressures are ones I observe frequently. In my experience, executives will often point out the need to drive ambitious growth to meet future needs. The work that gets funded and executed, however, takes the shape of core innovation that utilizes less problem-finding methods and more prototyping to develop results sooner - an area of focus in the autoethnographic study of this project.

3.2 Pattern 2: Bigger problems

At the same time as the popularization of rapid innovation and prototyping methods infiltrates the world of corporate innovation, an interesting counter trend is emerging in the form of the design and innovation community calling for new models to better tackle and solve increasingly complex problems at a societal level. The volatile, uncertain, complex, and ambiguous - VUCA - nature found at the convergence of technological, economic, environmental, and political shifts requires organizations to be constantly innovating and a scale and scope that is unprecedented (Wolf, 2007). Multiple signals

uncovered within the literature review point to this pattern, which are described below.

First, a relatively recent model has been developed by Carnegie Mellon University, Transition Design, depicted in Figure 9. Transition Design is defined as a “new area of design research, practice, and study that proposes design-led societal transition toward more sustainable futures” (School of Design, Carnegie Mellon University, 2015).

Acknowledging the complexity of massive, radical societal transitions that are needed in order to deal with challenges like climate change, loss of biodiversity, and widening inequality, Transition Design calls for completely new ways of designing for these never-designed-for-before scale of wicked problems. Part of this call is a better integration across disciplines including psychology, design, sociology, anthropology, and the humanities.

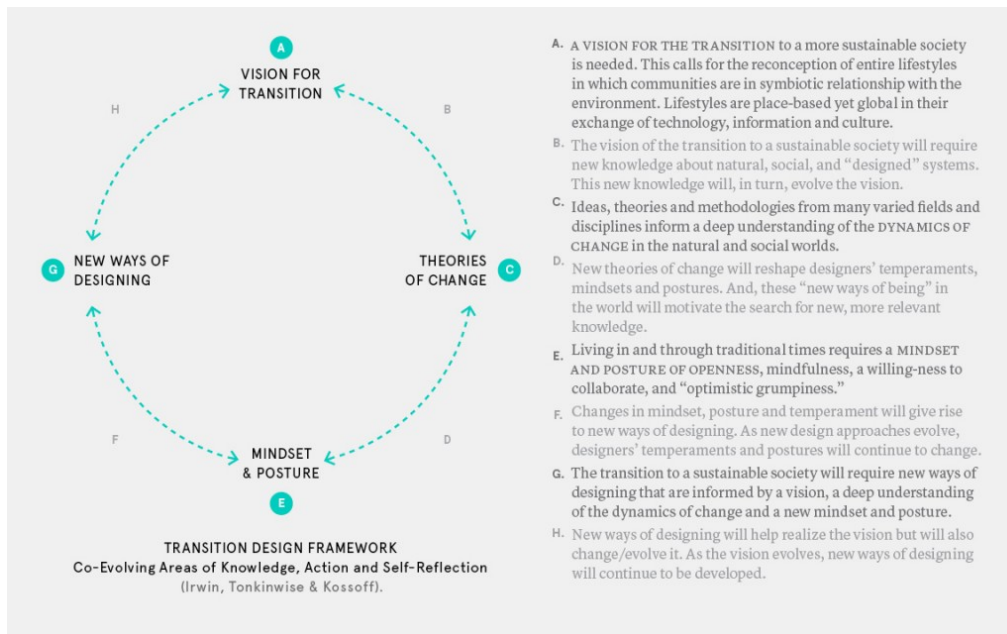


Figure 10: Transition Design

Transition Design (School of Design, Carnegie Mellon University, 2015).

In particular contrast to the ideas of rapid prototyping and innovation methods, the Transition Design model includes a future-oriented vision that is open-ended and speculative, calls for theories of change that are at a systems and societal level, introduces a mindset shift to reconsider a way of ‘being’ in the world, and presents a new way of designing in the present that views a single design as only one step towards a more ambitious future (School of Design, Carnegie Mellon University, 2015).

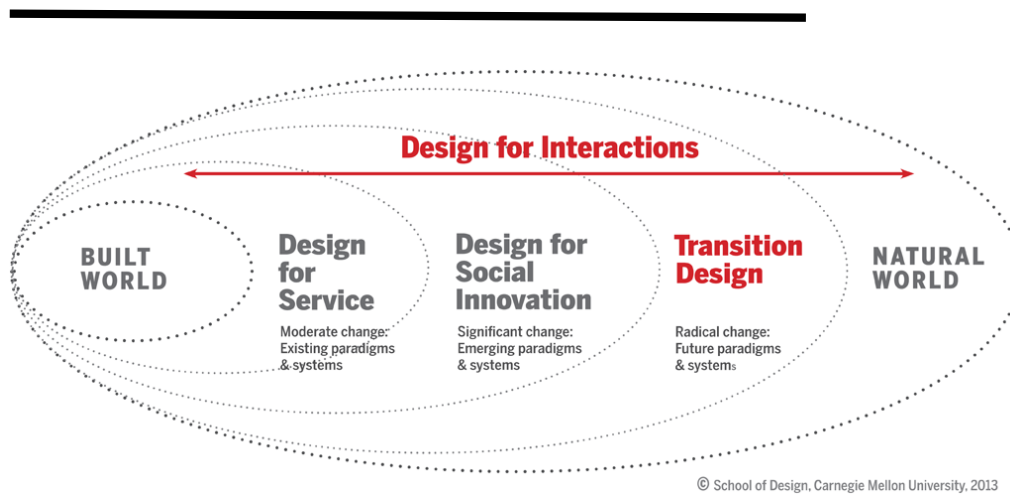


Figure 11: Transition Design (II)

Transition Design offers an escalating view of design ranging from classical design practice as in the “Built World” to “Transition Design” focused on radical changes that are closer in complexity to those found in the Natural World (School of Design, Carnegie Mellon University, 2015).

Similarly, design critic and academic Don Norman offers an evolving view of the nature of problems where design can play a role in his manifesto *DesignX*: “a new, evidence-based approach for addressing many of the complex and serious problems facing the world today. It adds to, and augments today’s design methods, reformulating the role that design can play.” (DesignX, n.d.). Norman argues that the role of the modern designer has moved beyond designing traditional products and now to approaching large, complex systems by engaging practitioners from multiple disciplines. “In the past, design has focused

upon products and services, but the design methods of continual, iterative cycles of exploration, reflection, implementation and validation can be applied to many societal problems.... Problems are more volatile than ever before, and information often changes faster than it can be validated. This is why we need a new research tradition.” (DesignX, n.d.).

Furthermore, this pattern of the expanding role of design parallels Richard Buchanan’s ‘Orders of Design’ framework, in which he conceptualizes a hierarchy and trajectory by which design thinking will evolve, depicted in Figure 12. Tonkinwise and Norman’s emerging models support Buchanan’s notion that design will continue to evolve towards the 4th order, Systems & Values.

	<i>Places of discovery</i>		<i>Objects of design</i>		<i>Examples of sub-disciplines</i>
1 st	Signs	————	Symbols & images	—————	Graphic Design
2 nd	Things	————	Material Artifacts	—————	Industrial Design
3 rd	Action	————	Processes & Services	—————	Service & UX Design
4 th	Thought	————	Systems & Values	—————	System & Policy Design

Figure 12: Orders of Design (*Buchanan, 2001*)

While both Norman and Tonkinwise cite the value of iterative innovation, or incrementalism, as a way to make progress while gaining

the buy-in of stakeholders, the clear differences lie in the way that iteration unfolds, and in what sequence, throughout the design process. In Transition Design, iteration and evaluative methods occur after a long-term, futures-oriented vision has been determined. Then, iterative sequencing of transitions is introduced as a new mindset and way of 'being' is discovered. In DesignX, Norman calls for *new* types and methods of prototyping and iteration that are more appropriate for the nature of the complex problems society faces.

Some research even suggests that, given the complexity of today's problems requiring designers and design thinkers, prototyping might not just be an inadequate method of finding or solving problems, but also introduce new risks and consequences. In response to the popularization of Lean and Agile methods of rapid product development, Tonkinwise questions their effectiveness going so far as to call them a "deliberate ignoring of imagining future consequential risks," and stating that "there is a similar antivisioning driving these hackathons, and in all the rapid building there is also no anticipation of consequential risk." (Tonkinwise, n.d.). With the rise of digital platforms and innovations, these "generalized prototyping" methods rely on live testing with real users, unlike the historical application of prototypes with beta users. This live release of rapidly built prototypes into increasingly complex sociotechnical systems presents new kinds of risks.

This review of contemporary literature is quite concerning when it comes to the limitations of rapid prototyping and design methods to solve the complex problems now faced by society. When compared to the popularization and rise of these rapid methods, this call from the likes of Norman and Tonkinwise signal a distinct contrast directly related to the research questions of why firms and groups of people do not pursue problem-finding in their innovation work. Exploring these two alternative, quite extreme perspectives highlights the need and importance to more deeply understand the specific systemic levers at play that drive designers, innovators, and problems solvers to utilize certain design processes and frameworks when finding and approaching problems.

3.3 Pattern 3: Disappearing design firms

As rapid prototyping and design methods have become popularized and democratized and, simultaneously, there is a significant and trending increase in the scale and complexity of problems which designers face, another interesting pattern emerges when investigating the world of design-led innovation.

This pattern emerges specifically when we look at the state of the industry that is made up of design and innovation consulting firms which sell their services to large organizations to help solve problems, identify new growth opportunities, and pursue building innovation capabilities (as detailed earlier in this project on page 15).

Over the last two decades, the once thriving design and innovation consulting industry has almost all but disappeared as large professional service consultancies and industry clients have acquired them. How is it that when design is needed most for finding and solving societal level complex problems, there is a contraction of the design and innovation consulting industry?

Firms like Frog Design (Aricent), IDEO (Kyu), Doblin (Monitor Group, Deloitte), Adaptive Path (Capital One), Gravity Tank (Salesforce), Veryday (McKinsey), Fahrenheit 212 (Capgemini), Fjord (Accenture), Idea Couture (Cognizant), and Lunar Design (McKinsey) have all been snatched up and acquired by mega consultancies, financial services firms, and technology companies (Kleiner Perkins Caufield & Byers, 2016). Corporations that aren't busy acquiring design firms are busy hiring designers in mass numbers. IBM, which increasingly positions itself as a design and innovation consultancy backed by scalable enterprise software and technology solutions, famously announced in 2015 that it was hiring 1000 designers in an effort to become the largest

source of in-house designers in the world and to “generate much better outcomes for [their] customers” (Paul, 2015).

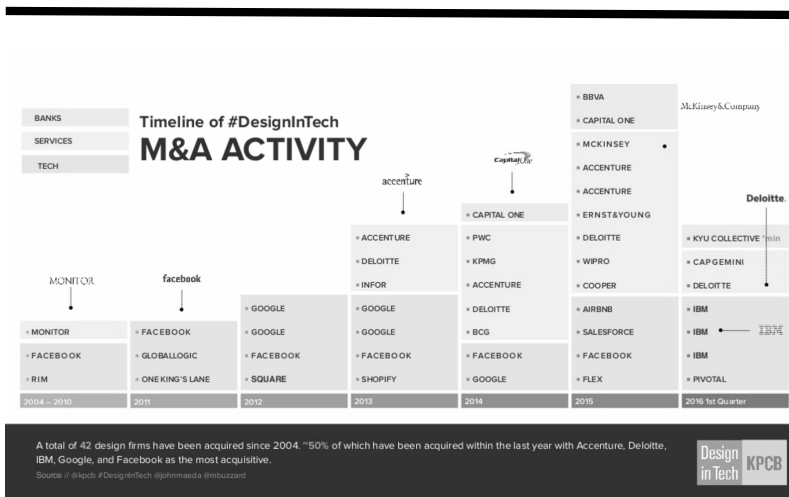


Figure 13: Mergers & Acquisitions of Design Firms

Timeline of mergers and acquisition activity of design firms categorized by year and nature of the acquiring company (Kleiner Perkins Caufield & Byers, 2016).

Timeline of #DesignInTech M&A Activity | Version2.0

2004 – 2012	2013	2014	2015	2016	
<ul style="list-style-type: none"> • FLEXTRONICS +acq. Frog Design 2004 • MONITOR +acq. DOBLIN 2007 • RIM +acq. TAT 2010 • FACEBOOK +acq. Sofa 2011 • GLOBALLOGIC +acq. Method 2011 • ONE KING'S LANE +acq. Helicopter 2011 • GOOGLE +acq. Mike & Maake 2012 • FACEBOOK +acq. Bolt Peters 2012 • SQUARE +acq. 80/20 2012 • GOOGLE +acq. Cuban Council 2012 	<ul style="list-style-type: none"> • FACEBOOK +acq. Hot Studio 2013 • ACCENTURE +acq. Fjord 2013 • SHOPIFY +acq. JetCooper 2013 • DELOITTE +acq. Banyan Branch 2013 • INFOR +acq. Hook & Loop 2013 • GOOGLE +acq. 17FEET 2013 • GOOGLE +acq. Hattery 2013 	<ul style="list-style-type: none"> • OCULUS / FACEBOOK +acq. Carbon Design 2014 • GOOGLE +acq. Gecko Design 2014 • CAPITAL ONE +acq. Adaptive Path 2014 • ACCENTURE +acq. Reactive 2014 • DELOITTE +acq. Flow Interactive 2014 • PWC +acq. Optimal Experience 2014 • KPMG +acq. Cynergy Systems 2014 • BCG +acq. S&C 2014 	<ul style="list-style-type: none"> • FACEBOOK +acq. Teehan+Lax 2015 • BBVA +acq. Spring Studio 2015 • MCKINSEY +acq. Lunar Design 2015 • CAPITAL ONE +acq. Monsoon 2015 • WIPRO +acq. DesignIt 2015 • ERNST & YOUNG +acq. Seren 2015 • DELOITTE +acq. Mobierio 2015 	<ul style="list-style-type: none"> • AIRBNB +acq. Iapka 2015 • COOPER *consolidation +acq. Catalyst 2015 • SALESFORCE +acq. Akta 2015 • ACCENTURE +acq. Chaotic Moon 2015 +acq. PacificLink 2015 • FLEX *medical design +acq. Farm Design 2015 	<ul style="list-style-type: none"> • PIVOTAL +acq. Slice of Lime 2016 • IBM +acq. Resourc@Ammirati 2016 +acq. ecklo 2016 +acq. Aperto 2016 • KYU COLLECTIVE *minority +min. IDEO 2016 • CAPGEMINI +acq. Fahrenheit 212 2016 • DELOITTE +acq. Heat 2016

A total of 42 design firms have been acquired since 2004. ~50% of which have been acquired within the last year with Accenture, Deloitte, IBM, Google, and Facebook as the most acquisitive.
 Source // @kpcb #DesignInTech @johanna @mbuzzard



Figure 14: Timeline of Mergers & Acquisitions of Design Firms

Timeline of mergers and acquisition activity of design firms categorized by year, acquiring company, and acquired company (Kleiner Perkins Caufield & Byers, 2016).

On the surface, there is much reason for optimism here. This pattern represents the possibility that the broader business community is developing an appreciation and understanding of the power of design-led approaches. This possibility is supported by the rise of design-related executive roles within companies. Whereas traditionally designers in industry have reported to technical and engineering managers, over ten percent of Fortune-listed companies now have executive-level design positions (Kleiner Perkins Caufield & Byers, 2016).

While this is encouraging, there is reason for concern. As design capabilities move in house, it becomes more difficult for external consultancies to sell their services as they find themselves competing for work with clients who now have their own, wholly controlled resources without the markup or expense of a consulting firm. All of this raises the question of how the internalization of design firms into bigger consulting, technology, or financial services organizations will affect their abilities to pursue problem-finding and the design process with the effectiveness they had as external vendors. If one of the primary reasons that external design-led innovation consultancies have been effective in moving clients to produce more successful innovations is that they are not fully and directly subject to pressures and forces of what happens inside an organization that tend to erode the ability to pursue projects with a generative, explorative design process that utilizes problem-finding. On the inside, it is easy to imagine that the design-led innovation group must now serve the business units in a way that legitimizes their funding and, therefore existence. The difference here from being an external firm is that the internal firm may not have a choice to pursue alternative clients. When these pressures are in place, the willingness to agree or conform to certain project demands from the business, despite their implications for the rigour or depth of design tools used. Furthermore, there are significant issues with regards to the design-led innovation firm's ability to attract the talent it once did; arguably its greatest resource.

Meanwhile, there are indications of new models and types of firms that are emerging. Larger firms with the available resources have moved into the world of “venture design” (Fabricant, 2014), a pattern which has spilled over from the consulting industry into the venture capital sector. IDEO and Frog Design have both launched venture arms where they invest their consulting services in a company in exchange for an equity stake and / or royalty in that company. Designer Yves Behar’s firm, Fuseproject, operated on a similar model, accepting applications for three to five startups each year to work with in exchange for equity and / or royalties. In 2014, Chinese marketing firm BlueFocus invested \$46.7M in Behar’s firm in exchange for a 75% equity stake (Fehrenbacher, 2014).

The combination of these patterns, identified at a macro level through the literature review, point to potential implications for organizations pursuing innovation and for design practitioners consulting to those organizations. These implications are explored at a practitioner and organizational level in the following sections.

4.0 Tensions: The Practitioner Lens

In this section, insights from the autoethnographic study are summarized according to a thematic analysis (McCurdy, Spradley, & Shandy, 2005). They are presented as design tensions, representative of the conflicting needs between stakeholders in the system and the expression of the gap between current and some desired state. Design tensions can be defined as the identification of “not a problem or a solution, but rather a limited resource or choice across one or more criteria. Design tensions help us search the situation for channel factors, the few crucial emergent configurations that may make or break a system” (Tatar, 2007).

4.1 Tension 1: Practitioner pressure

Tension: practitioners’ skill sets vs. scope of work in contract

Design and innovation practitioners within consultancies can often feel that their skill sets are at odds with the nature of the work that is scoped in innovation projects. Increasingly, design research and innovation practitioners - because of their extensive training and multidisciplinary backgrounds - possess a deep knowledge of, and ability to leverage, methods that aid in the problem-finding process, but that aren’t included in the suite of popularized rapid innovation and

prototyping methods. The tendency for companies to demand innovation consulting services that serve core innovation efforts fail to activate and put to use these skills, leaving practitioners longing for the desire to leverage the full extent of their innovation skillsets. Because the negotiation of scope and contracting is often done prior to the engagement of staffed team, this can leave the practitioner feeling as if they have little agency in applying their expertise in the most suitable, effective way for the project's needs.

4.2 Tension 2: Client dissonance in innovation needs

Tension: clients want tangible immediate results, but also breakthrough innovation

Client organizations aren't always conscious of the need for or value of problem-finding. Client organizations often come to consultancies with solutions in mind. Hypotheses of ways for solving a specific business problem are tangible, immediate, and scope-able, further driving the popularization of rapid innovation methods that solve relatively core innovation challenges instead of higher-ambition innovations. The distinction between these is illustrated in the Innovation Ambition Matrix in Figure 12 (Tuff & Nagji, 2012).

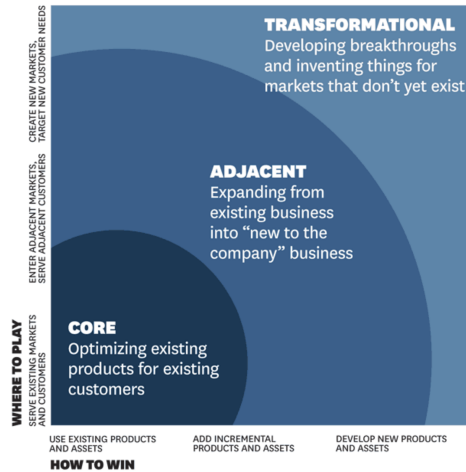


Figure 15: Innovation Ambition Matrix

The Innovation Ambition Matrix provides a way for categorizing innovation initiatives based on how far away an innovation is from an organization's current assets and markets (Tuff & Nagji, 2012).

Often times, even when a client is conscious of the need for and value of problem finding, the organization either doesn't possess the capabilities or knowledge to pursue it, or incentives and pressures within the organization lead clients to opt for core innovation projects with faster delivery, clearly defined deliverables, and known outcomes. The research revealed that this tension - between clients needing immediate solutions with near-term results and also desiring long-term breakthrough innovation - often resulted in significant practitioner stress as scoping, alignment, and problem frames are negotiated. This tension, then, was felt in multiple ways: between the client and

consultancy in the form of scope negotiations, between the practitioner and the consultancy in the form of alignment of values and methods selection, and between practitioner and the client when work commences and is misaligned based on the practitioner's skills and knowledge of the problem-finding activities they felt were required.

4.3 Tension 3: Pushing, to a limit

Tension: practitioners want to push clients to do more, but fear risking the business & relationship

Throughout the autoethnographic research, several cases were identified where practitioners expressed a desire to 'push' or persuade the client to re-frame their challenge as higher-ambition than when originally presented to the consultancy as a potential engagement. While these conversations do sometimes take place, they are often associated with feelings of concern and risk avoidance as practitioners fear losing the relationship or business altogether. This tension became more prevalent as sales and negotiations situations became more high-stakes. Throughout the research, this was observed in particular during the following types of events: engagements involving key clients, deals where multiple senior executives were involved, accounts with significant social visibility, and in particularly slow times of the business where increased pressure existed to drive utilization metrics.

4.4 – Tension 4: Predictability and stability

Tension: problem finding means letting insights and problem spaces emerge, but traditional consulting contracting requires clear work plans, outputs, and deliverables

Even in situations where both parties - client organization and consultancy - expressed a desire to pursue innovation projects that included problem-finding activities, there often appeared to be a stumbling point when it came time to agree on the terms and nature of the work. As conversations progressed, for example, clients frequently start to ask more poignant questions around deliverables, milestones, and outputs. That is, despite their deep desire to pursue longer-term innovation, their frame of reference was only that of how core innovation projects worked - often characterized and shaped by their prior experiences with rapid innovation and prototyping methods. This mental model appeared to be in direct conflict with their inherent knowledge of the need to pursue a different kind of work with different methods and tools. As a result, the consulting practitioner, who expresses a deep desire to leverage their tools and skillset around generative research and problem-finding, often struggles to find ways to instill confidence in the client that these are the right activities. Furthermore, the uncertainty associated with the emergent nature of true problem-finding activities also represented a certain degree of risk for the consultancy, with a lesser ability to forecast key business metrics

such as future billings, utilization, and resourcing needs. At an emotional level, this uncertainty about the work required also introduces a sense of anxiety, as the consultant, in a way, feels as if they may be signing up for a project that might ultimately fall outside of their direct skills or expertise area. This notion, of committing to solving a problem that is yet to be defined or even named, can be particularly stress-inducing for traditional management and technology consultancies which have become successful over many decades in part due to their hypotheses-led approaches.

5.0 Systems Dynamics: The client organization lens

To better understand the above-described practitioner tensions within the broader context of the client organization, a systems thinking approach was utilized in an effort to identify leverage points and dynamics within corporate innovation approaches and how they are decided upon by managers, executives, and their firms.

5.1 The Innovation Ambition Matrix

Before reviewing the systemic view of corporate innovation decisions within organizations, it is helpful to define and categorize the choices available to executives and managers when it comes to innovation decisions. One tool for doing so is The Innovation Ambition Matrix (Tuff & Nagji, 2012), (an adaptation of The Ansoff Matrix (Ansoff, 1958)), a framework developed by management consultancy Monitor Group to help companies classify levels of innovation ambition and allocate investments effectively across those levels. See Figure 13.

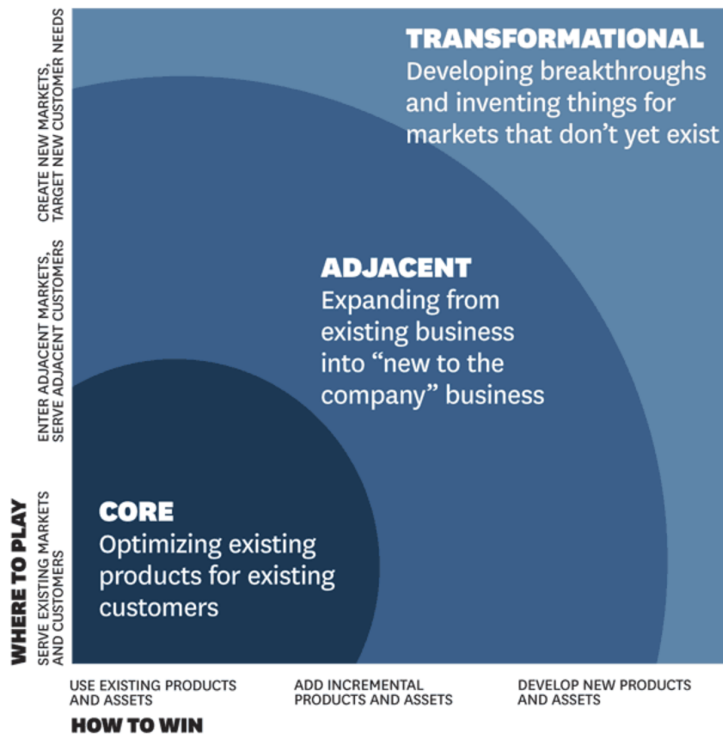


Figure 16: Innovation Ambition Matrix (II)

The Innovation Ambition Matrix provides a way for categorizing “the novelty of a company’s offerings (on the x axis) and the novelty of its customer markets (on the y axis).” These categories - core, adjacent, and transformational - are overlaid as “three levels of distance from the company’s current, bottom-left reality.” Adjacent and transformational innovations are also referred to as higher-ambition innovations in this paper (Tuff & Nagji, 2012).

The further along each axis, the greater the need for exploratory, generative design research. This is the case because each successive level of ambition implies increased uncertainty - as it is further away from the core business. The greater the gap between the markets the organization currently serves / the products the organization currently offers and the markets/products of the intended innovation effort, the more is to be learned, discovered, and designed.

In the case of a core product extension, [traditional market] insight is usually sufficient: Customers can say whether they would like a proposed product variant and, if so, how much they'd be willing to pay for it. However, if the innovation initiative involves an entirely new solution—one that customers may not even know they need—traditional processes are dangerous. It's impossible to predict fifth-year sales for something the world has never seen before. The process is very different for transformational innovation. Here the challenge is to take a small number of possibly game-changing ideas and ensure that they emerge from the pipeline stronger. A company must spend sufficient time up front exploring what's possible, constantly expanding the options available in pursuit of the right big idea. In other words, transformational efforts are not generally managed with a funnel approach; they require a nonlinear process in which potential alternatives remain undefined for a long period of time. This is another reason why a stage-gate process is so lethal to transformational innovation: It results in the rejection of promising options before they are properly explored (Nagji & Tuff, 2012).

Nagji & Tuff's research suggests that different innovation processes are more appropriate for different levels of innovation ambition - core and

higher-ambition. When considering the differences between Kumar's innovation process, which starts with contextual design research, and Google Ventures' Design Sprints model, which foregoes design research to instead begin by ideating and testing rapid prototypes, there is a connection to Tuff & Nagji's analysis. The analysis implies that rapid innovation processes may be effective in producing core innovations, but design research-led processes are more effective in pursuing higher-ambition innovations.

Furthermore, Tuff & Nagji provide a quantitative analysis of the financial benefits of investing in core, adjacent, and higher-ambition innovations: "Core innovation efforts typically contribute 10% of the long-term, cumulative return on innovation investment; adjacent initiatives contribute 20%; and transformational efforts contribute 70%" (Tuff & Nagji, 2012).

One interesting insight offered by the Innovation Ambition Matrix is that because higher-ambition innovations require moving away from what the business currently does today through serving *new* markets or customers (along the y-axis) and developing *new* offerings (along the x-axis), it is then implied that a greater investment is required in those innovation initiatives. Aside from the time needed to conduct design research at the forefront of higher-ambition projects, the very nature of the organizations doing something *new* means that to execute that

innovation project an investment in new capabilities is required. A capability can be defined as “the expression or the articulation of the capacity, materials, and expertise an organization needs in order to perform core functions” (Rouse, 2011).

The understanding of innovation choices provided by the Innovation Ambition Matrix begs the questions, then: if the financial returns of higher-ambition innovations are so much greater than core innovations, why are rapid innovation processes that begin with hypotheses and iterative testing becoming so popular? And why are companies opting for these processes given the notion that higher-ambition innovations with greater returns require not fast, solution-led sprints, but explorative design research-led processes that begin with questions and problem-finding? How might this be connected to the required investment in new capabilities?

With these questions in mind, and clearly defined concepts of core vs. higher-ambition innovation, the following section attempts to explain organizations’ innovation investment decisions through a systems design lens.

5.2 The Improvement Paradox

In 2002 MIT system dynamics and organization studies researchers Nelson Repenning and John Sterman conducted observations, interviews, examinations of project documentation, and quantitative metrics to study the choices that managers face when it comes to making decisions about investing in new capabilities, or simply improving existing ones. Repenning & Sterman's model of the "improvement paradox" can be used to draw analogous insights about how investments get made in core innovation or innovations that require problem-finding (Repenning & Sterman, 2002). Similar to the literature review conducted for this project - particularly in Pattern 1: Fast Design - their research identified that the number of tools and resources available to companies is growing rapidly. Despite this, they also identified that companies frequently make decisions to forego investments in new capabilities and instead deploy known methods to improve existing efforts. As with the insights identified in the autoethnographic study, what Repenning and Sterman's investigation determined is that the reasons these types of decisions get made has more to do with "how the introduction of a new program interacts with the physical, economic, social, and psychological structures" (Repenning & Sterman, 2002), which in part can be represented through a series of causal loop system diagrams, depicted in Figure 14.

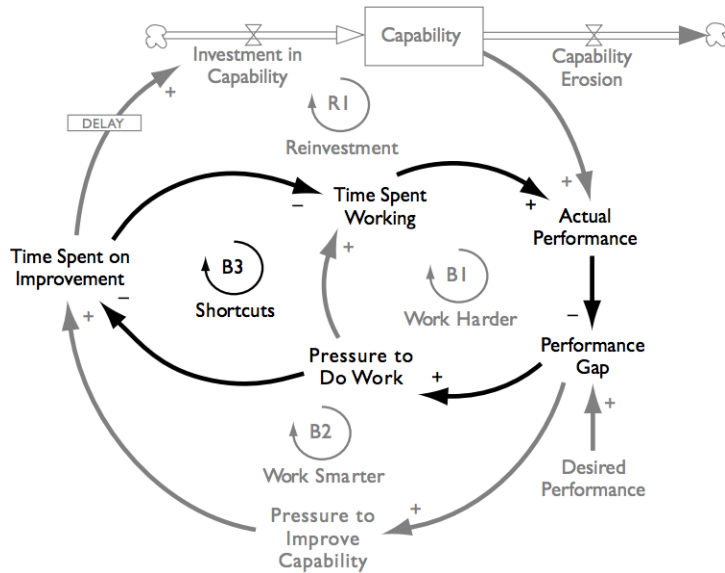


Figure 17: The Improvement Paradox

The Improvement Paradox (Repenning & Sterman, 2002).

At the heart of Repenning & Sterman’s model is the idea that to increase company performance in order to close a given Performance Gap, there are two options available: increase time spent working to do more of what is currently done (shown as Work Harder), or invest in capabilities by spending time on improvements (shown as Work Smarter). Work Smarter increases the flow into new capabilities, but with the finite resources available in any given company, these improvements require taking resources away from time spent Working Harder. This is indicated by the connection between the Performance Gap, which increases Pressure to Do Work, thereby decreasing Time

Spent on Improvements of capabilities and increasing Time Spent Working Harder.

5.3 The Core Innovation Trap

In this section, I will show how Tuff & Nagji's Innovation Ambition Matrix aligns to Repenning & Sterman's Improvement Paradox Model. Furthermore, this section will integrate these complementary perspectives, using the Improvement Paradox Model as an analogy for Innovation Ambition and introducing the Core Innovation Trap, in which the systems dynamics at play behind organizations' decisions on rapid innovation processes instead of design-led problem-finding processes can be better understood.

First, the connections between the Innovation Ambition Matrix and the Improvement Paradox Model must be drawn. Higher-ambition innovations require at least one of entering a new market *or* developing products and assets through new capabilities. This notion of capability investment being a criterion for consideration as higher-ambition means parallels can be drawn to the system dynamics outlined in the Improvement Paradox Model, which draws attention to the tradeoffs between Working Smarter (akin to investing in capabilities, or higher-ambition innovation) and Working Harder (akin to doing more within the constraints of current capabilities, or core innovation). As such, the

analysis in the remainder of this section will assume these definitions to be equal. These assumptions of equivalent concepts between Repenning & Sterman's Improvement Paradox Model and Tuff & Nagji's Innovation Ambition Matrix are mapped in Table 2.

Concept from the Improvement Paradox (Repenning & Sterman)	Concept from the Innovation Ambition (Tuff & Nagji)	Rationale for Equivalency
Work Harder	Core Innovation	<p>Repenning & Sterman's model indicates that the balancing loop Work Harder does not include any investment or impact on capabilities.</p> <p>Further, Tuff & Nagji's Innovation Ambition Matrix suggests that Core Innovations are those that leverage existing capabilities by participating in current markets and leveraging existing products & assets</p>
Work Smarter	Higher-Ambition Innovation (Core and Adjacent)	<p>Repenning & Sterman's model indicates that the balancing loop Work Smarter does, in fact, include investment in capabilities.</p> <p>Further, Tuff & Nagji's Innovation Ambition Matrix suggests that Adjacent and Higher-Ambition Innovations are those that require investment in capabilities by participating in new markets and leveraging new products & assets.</p>
Time Spent on Improvement	Design Research-Led Problem-Finding Innovation Processes	<p>If the above assumptions about Work Smarter are held true, in that these initiatives require an investment in capabilities, and that innovation initiatives which require capability investments are considered higher-ambition innovations, then Tuff & Nagji's analysis would suggest that these innovations require design research-led problem-finding innovation processes in order to be effective.</p>
Time Spent Working	Rapid Innovation, Hypothesis-Led Processes	<p>If the above assumptions about Work Harder are held true, in that these initiatives do not require an investment in capabilities, and that innovation initiatives which do not require capability investments are considered core innovations, then Tuff & Nagji's analysis would suggest that these innovations can be executed using rapid innovation, hypothesis-led processes to be effective.</p>

Table 3: Analogous Concepts between the Improvement Paradox and the Innovation Ambition Matrix

With these equivalencies established between the Improvement Paradox and Innovation Ambition Matrix, Figure 15 depicts a revised version of Repenning & Sterman's system map, herein referred to as *The Ambition Dilemma*, which introduces new language consistent with the innovation processes and theories discussed in this paper. Notably, The Ambition Dilemma introduces what will be referred to as the *Core Innovation Trap* (depicted as B1), where the rise in popularity of rapid innovation processes, as explained in *Pattern 1 - Faster Design* contributes to core innovations which, over the long term, fail to address the structural issues underlying the markets an organization serves. The Core Innovation Trap will be explained in detail in the following section.

Additionally, The Ambition Dilemma reflects another significant finding identified in the literature review in that it includes the implications of *Pattern 2 - Bigger Problems*. Here, the increasing scale, urgency, and interconnectedness of complex problems - combined with the rapid pace at which these problems are advancing - further increases capability erosion of organizations, as their current stock of capabilities becomes less relevant when compared to the problems that require solving.

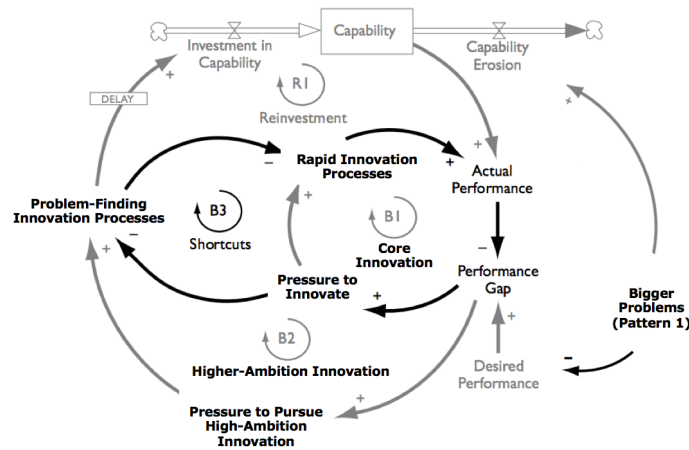


Figure 18: The Ambition Dilemma

An adapted model of the Improvement Paradox, introducing new terminology and language consistent with the Innovation Ambition Matrix based on the equivalencies in Table 2. Of particular focus for this project is the introduction of the Core Innovation Trap (B2), explained in the following section.

Of particular interest in The Ambition Dilemma and Core Innovation Trap is the identification of delays and incentives in the system which may explain the decisions organizations make about their investments across innovation ambition levels.

Any investment in higher-ambition innovation and, therefore, problem-finding innovation processes, translates to the experience of a delay before benefits are realized and the impacts of capability improvement are felt. The benefits of higher-ambition innovation and capability investment tend to be lasting and of significant benefit, but as explained by Tuff & Nagji, require significantly different innovation

processes than core innovations. “It takes time to uncover the root causes of problems and then to discover, test, and implement solutions,” say Repenning & Sterman, “shown in the diagram as a delay between improvement activities and the resulting change in process capability”.

Contrast this delay with what happens when an organization increases their investment in core innovations. The organization receives immediate benefit, albeit not through capability investment, but in a way that helps to address the current pains of needing to increase company performance.

Driving investments in either of these options - doing more core innovation through rapid processes or building new capabilities through problem-finding processes - is the gap between the company’s current performance and desired performance. Desired performance is a factor of where the company’s performance stands in comparison to factors such as internal growth plans and forecasts, but also changing expectations of customers, market forces, or regulations. Given the rapid pace of change in today’s society and economy, this system driver, labeled as Bigger Problems (Pattern 1), is accelerating and placing more pressure on companies as it continually and more significantly increases the Performance Gap (Reeves & Pueschel, 2015). As this pressure increases, so does the firm’s sense of urgency to quickly

increase performance in an effort to close this gap, which drives more core innovation and rapid processes.

Here, it becomes possible to understand why the popularization of rapid innovation methods, as described in *Pattern 1 - Fast Design*, has taken root so quickly. In an era of rapid change and a company's contextual landscape continually shifting and increasing the Performance Gap, providing an incentive for managers to pursue 'quick hit' innovation, any inclination to pursue the time-consuming activities involved in true problem-finding is therefore dis-incentivized - as these involve investments in new capabilities and results which may not immediately close the performance gap. That is to say that "while investments in capability might eventually yield large and enduring [innovations], they do little to solve the problems managers face *right now*." (Repenning & Sterman, 2001).

While the investment in core innovation quickly improves performance and closes the Performance Gap, the key in the system diagram is that core innovation does not ever improve capabilities, which are continually eroding as they become outdated and outpaced by market changes, general technological improvements, and in relative value when compared to the increasing complexity and interconnectedness of problems requiring solving.

Over time, these eroding capabilities work to decrease performance of the organization, widening the Performance Gap, and *even further* increasing the pressure for managers to invest in core innovation to quickly improve results.

This balancing loop is the **Core Innovation Trap** and it works in a viscous cycle to incentivize and encourage companies to adopt methods that lead to faster, accelerated cycles of incremental improvement to existing offerings. To demonstrate the consequences of the Core Innovation Trap to the health of companies' innovation portfolios, a view of the 2012 study on how companies manage innovation investments across different levels of ambition is relevant. Tuff & Nagji tell the story of a consumer products company which continually pursued core innovation and fell into The Core Innovation Trap:

Take the example of a consumer goods company we know. Attuned to the need to keep its brands fresh in retailers' and consumers' minds, it introduced frequent improvements and variations on its core offerings. Most of those earned their keep with respectable uptake by the market and decent margins. Over time, however, it became clear that all this product proliferation, while splitting the revenue pie into ever-smaller slices, wasn't actually growing the pie. (Tuff & Nagji, 2012)

One may wonder why managers don't employ these rapid innovation techniques only to course-correct when new performance gaps occur,

reinvesting in capability-building efforts for long-term growth once the gap is closed. In the experience I mentioned in the introduction to this paper, this was also part of my hypothesis - that closing the gap through a series of short-term rapid innovation projects would help our client reach market 'parity' and, then, there would be opportunity to pursue the bigger, higher-ambition opportunities which would call for true problem-finding and framing activities at the outset of those initiatives.

This rarely occurs, however; and this observation by Repenning & Sterman echoes many the tensions which surfaced as a result of the autoethnographic research.

Instead, what we repeatedly observe, and what is more difficult to understand, are organizations in which [core innovation] is not merely a means to deal with isolated incidents, but is instead standard operating procedure... What starts as a temporary emphasis on working harder quickly becomes routine" (Repenning and Sterman, 2002).

While this is discouraging for the use of problem-finding processes to achieve higher-ambition innovation within organizations, there is hope. Repenning and Sterman have identified that when a temporary emphasis is placed on one option - either core innovation or higher-ambition capability building - that option is likely to become the norm,

entering a reinforcing loop that self-sustains. Theoretically, just as the above-described loop that drives a vicious cycle in the Core Innovation Trap of B1, investments in higher-ambition capability building will, over time, see higher growth at a sustained level that improves productivity and returns of investments, and makes available more resources to be reinvested back into additional innovation projects, as seen in B2 and R1. Citing the quantitative analysis of Tuff & Nagji on the financial returns on investments across different levels of innovation ambition, the possibility of this higher-ambition innovation cycle, and corresponding reinvestment, is further supported by the significantly higher proportion of bottom-line gains produced by adjacent and transformational efforts; 20% and 70%, respectively, compared to just 10% for core innovations.

While this higher-ambition reinforcing loop is possible in theory, it is important to note that one of the key differences between the problem-finding processes of higher-ambition innovations and the rapid processes of core innovations is the presence of a significant system delay between flows into new capabilities and the time at which benefits are realized. This delay is a significant driver of the decisions that firms make about what type of innovation projects to pursue and how, a finding that was reinforced in the autoethnographic research and spanning across all four identified Tensions.

This can be wishful thinking, however. Consider that the delay that exists between the investments in higher-ambition innovations and the time to realize benefits from those new capabilities also applies in *reverse*. Just like the delay exists between investing in the higher-ambition innovation and realizing the benefits, the delay also exists between *not investing* in higher-ambition innovation and feeling the effects of *eroding* capabilities. That is, companies can pull investments from higher-ambition budgets and reallocate those resources into core innovations without feeling any negative consequences in the short-term while those capabilities take time to erode. This is the Shortcuts cycle, depicted as B3. The Shortcuts cycle is further reinforced by the fact that, while capabilities erode, several core innovation projects may occur. In that time, not only is there no pain from reducing higher-ambition investments, there is actually net gain as the benefits from core innovations are felt. As a result, organizations make decisions to scale back from higher-ambition investments frequently, at the expense of the long-term health of the company's innovation pipeline.

In summary

- The **Innovation Ambition Matrix** provides a way to categorize innovations based on the level of uncertainty and requirement for investment in new capabilities. These levels are core and higher-ambition (adjacent + transformational). Core and higher-ambition

innovation projects require different innovation processes; while core innovation can benefit from rapid processes, higher-ambition innovation relies on problem-finding activities to help navigate uncertainty.

- The **Improvement Paradox** provides an analogous system to help shape an understanding of how managers, executives, and firms make decisions to invest in core innovation or higher-ambition innovation.
- Combining concepts from the Innovation Ambition Matrix and the Improvement Paradox give us a new model, the **Ambition Dilemma**. Within this model, a balancing loop called the **Core Innovation Trap** can create a vicious cycle in which organization continue to make core innovation investments to relieve the business of present performance gaps, and underinvest in higher-ambition innovations, largely because of **the delay** between initial investment and realization of benefits.

In the following section, this paper will leverage the learnings of the literature scan, autoethnographic research, and system map to develop a set of design principles and insights intended to act as a springboard for generating solution sets.

6.0 Areas of intervention

6.1 Design principles

This research project set out to provide insights into the questions: What factors might influence the way large organizations pursue meaningful innovation? How do decisions get made with respect to ambition and long-term investments in new capabilities and growth opportunities? And how do design-led consultancies overcome those barriers to drive better innovations with clients?

By better understanding the lived experiences of consulting practitioners and the systems dynamics at play behind innovation decisions within client organizations, the following principles emerged from the research for how design-led innovation consultancies might better enable higher-ambition innovations through problem-finding processes. Design principles are a tool to “purposefully transition from the insights that we have framed to begin to explore concepts in a disciplined manner, so that concepts we develop are fully grounded in objective research data rather than biased by subjective assumptions” (Kumar, 2013).

The design principles are:

Improve and increase sensing - Managers often make decisions based solely on their view of the situation, responding to the pressures and incentives put in place around the performance of the business in the near-term, without understanding the context of where those particular pressures are coming from and what the underlying forces might be. Any solution set should give managers a way to see beyond just their own immediate symptoms to understand (i) how forces are driving the erosion of capabilities and (ii) create a new reference point for what is urgent and prioritized when it comes to investing in initiatives of different ambitions.

Reduce delays - As described by Repenning & Sterman and Nagji & Tuff, one of the leading reasons managers fail to invest in long-term, higher-ambition innovation initiatives is that the return on innovation is unclear when it comes to timing and payback periods. The Ambition Dilemma points to the delay that occurs between an initial investment in new capabilities and when that improved capability actually increases the performance of the business. Interventions developed might take into consideration how to reduce these delays or, introduce new leverage points that help ease or overcome this delay through buffers. Taking the opposite approach, a solution might consider

introducing a delay in how managers and executives experience the rewards of core innovation - making the relative comparison of investing in core or higher-ambition initiatives more favourable for long-term projects which ultimately lead to higher returns.

Re-align values & incentives - For design-led innovation consultancies, the pressures of utilization and billable hours lead to higher-than-desired acceptance of engagements that involve core innovation work, despite practitioners' true interest in doing work centred in higher-ambition methods such as problem-finding. That is to say that the pressures found within the client organization which lead to over-investment in core initiatives, are unfortunately aligned with the pressures within the consulting organization to sell new work and keep resources staffed on billable projects. Just like it is easier and more pressing for client organizations to fix the 'now', so is the case within the consultancy. This alignment of stakeholder needs actually leads to a reinforcing loop which drives more and more core innovation work. Re-aligning the values and incentives at play here so that one or both sides have an incentive to drive towards higher-ambition work might lead to better problem-finding activities and outcomes.

Focus on the human behaviours and decisions - Most of the literature refers to under-performing innovation investments as an 'organizational' problem. As seen in the autoethnographic experience

audit, however, this is a very human problem whereby the behaviours and decisions of individual actors within the system ultimately add up to both client organization and consultancy pursuing core-innovation too often. Solutions developed should take this into consideration, thinking through how the intervention will lead to better personal decision-making around innovation at a manager, executive, practitioner, and consulting firm leadership level.

De-risk innovations - Over and above the delays in returns on investment in higher-ambition innovation projects is the sheer uncertainty of returns at all. As Nagji & Tuff point out, the problem-finding activities introduced in higher-ambition innovation initiatives often imply that deliverables, outputs, capabilities, resources, and business models can all be uncertain and emergent throughout a long process. While Nagji & Tuff suggest one method of de-risking innovation at a portfolio level, through a balanced mix of innovation initiatives across ambition levels, other solutions might take into consideration other ways to effectively de-risk innovations at a project basis. This is especially important given the design principle of *human behaviours and decisions* as it is likely that many managers and executives won't be working at a portfolio level, and therefore do not benefit from the hedging of the balanced mix of initiatives.

6.2 Framing interventions

With these design principles in mind, a list of opportunity areas was generated in the form of “How might we?” questions. Coming back to the original research questions and problem frame, these How Might We questions are intended to find ways in which design led consultancies might help client organizations produce better problem-finding outcomes (Stanford d.school, n.d.).

How might we reduce the delay in benefits realization when investing in higher-ambition innovation that stems from problem-finding processes?

How might we increase the tangibility of capability investments - making the benefits feel as real and rewarding - or more real and rewarding - as improving the core business?

How might we increase the rewards and incentives for investing in long-term innovation and problem-finding? How might we reduce the rewards and incentives associated with core innovation?

How might we increase the sensing capabilities of client organizations in an effort to help executives and managers see beyond the current business?

How might we reduce the risk and uncertainty - and perception of risk and uncertainty - related to investments in higher-ambition innovations and capabilities?

How might we allow client organizations to pursue a balance of innovations that simultaneously pursue core innovation and higher-ambition innovation so that temporary shortcuts don't turn into permanent behaviours?

How might we increase the awareness of the implications of the tradeoffs of short-term vs long-term innovation to shift the mental models of executives and managers?

How might we ease the short-term pains of the transition that occurs when resources are reallocated from short-term core innovation projects to long-term higher-ambition projects?

How might we re-allocate the risks associated with higher-ambition innovation across client and consultant?

How might we align the incentives and values of the client organization and consultant to pursue higher-ambition innovation?

While contemplating these questions, two attributes overwhelmingly emerged that helped characterize the dimensions by which future solutions might take shape. These attributes, informed by the research, represent what appear to be the most significant and uncertain strategic uncertainties for how design-led consultancies of the future reorient themselves to drive better problem-finding outcomes.

6.3 Y-Axis: What will be the consultancy's unit of focus?

Throughout the autoethnographic research it was observed that the process of problem-finding and framing, if employed at all, occurs once a client is already or nearly secured and the work has commenced in earnest. It is at this crucial stage where challenges begin as pressures of project timing, scope, and client risk tolerance begins to impact the methods and activities that take place. This is often the time where tensions between methods and project economics are felt the most.

When global design consultancy IDEO announced their acquisition by Japanese conglomerate Kyu 2016, they cited the nature of problem-finding and their desire to pursue bigger and more complex challenges. In a blog post titled "The Next Big Thing in Design" which announced the acquisition, CEO Tim Brown discusses the role of external,

independent design firms as being able to start an engagement with problem-finding, as opposed to beginning with solutions. This tension Brown describes strikes similarity to the patterns identified in the literature review: between the popularization of rapid approaches and the need to solve increasingly complex problems (Brown, 2016):

You see, even when you have a pack of designers roaming your halls, it's hard for analytical cultures to integrate creative ones. The reason being that analytical cultures traditionally start with an answer, and then break the problem down into its constituent parts, whereas creative cultures start with questions and look at problems holistically. From the very beginning, IDEO has been a culture that starts with questions. It's the only way we know how to uncover pressing human needs and design toward them. That's at our core. But for us, those questions can't be limited to digital experiences. We've been working on those for 30 years, and our hunch is that they've reached a "peak design" moment. That's not to suggest that digital experiences are unimportant or can't get any better, but simply that they've become commoditized at this point. It's time to apply our collective design practice to greater challenges, namely:

- 1. Serving the needs of the global poor*
- 2. Designing new approaches to health, including aging and the end of life*
- 3. Designing healthy and profitable food systems that can serve the needs of all*
- 4. Designing citizen-centered government services*
- 5. Designing the future of our urban communities*
- 6. Anticipating the opportunities and challenges of over-the-horizon technologies*
- 7. Designing the future of work and the corporation itself*

Those are the edges of design and it's where we feel a gravitational pull (Brown, 2016).

Brown's post suggests that, in response to the commodification of design tools for core problems and the need for designers and design firms to be focused on the increasingly complex problems facing society, they must turn their attention to specific problems with intent and purpose.

This insight forms the basis for the Y-axis of the 2x2: whether the design-led consultancy of the future will be client-focused or problem-focused, as Brown signals. Client-focused consultancies, on the other hand, will be defined as serving the specific needs of a client and the problem they bring to an engagement - much like how consultancies operate today. It is important to note here that these two configurations - client-focused and problem-focused - may not be entirely mutually exclusive.

The axis is intended to represent the primary focus of the consultancy. Is the consultancy focused primarily on finding and solving problems in a system, agnostic to who the end client may be? Or is the consultancy focused primarily on meeting the needs of a client, and willing to approach, for the most part, any given problem that client may be interested in solving?

This y-axis is represented with the following end points:

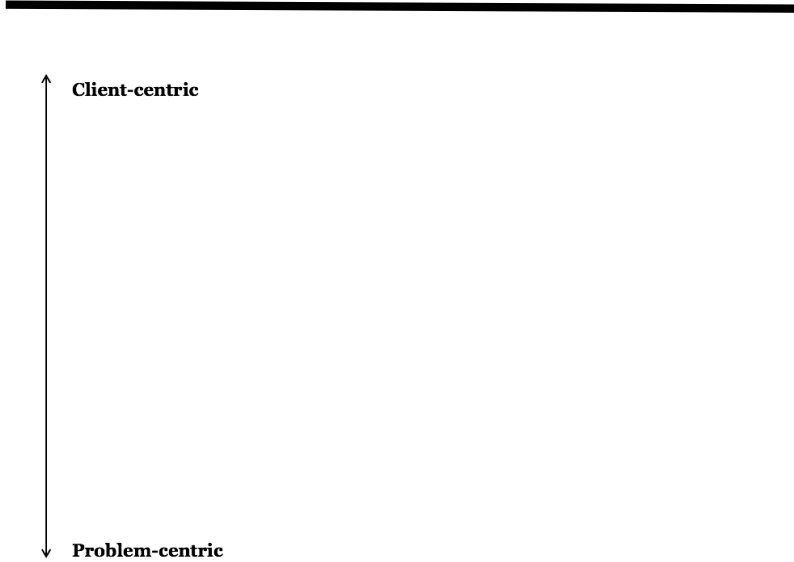


Figure 19: Y-Axis - Focus of the Design-Led Consultancy

The y-axis: what will be the primary focus of the design-led consultancy?

6.4 X-Axis: How will the consultancy align to risk?

Throughout the research, one of the recurring themes was the concept of risk and uncertainty and the possibility of the design-led consultancy acting as a barrier, distributor, or load-balancer of sorts to organizations when investing in higher-ambition innovations. Because of the large investment, complexity, new capabilities required, and duration of delay between spend and return, companies are often unable to come to terms with pursuing higher-ambition innovation which requires problem-finding - especially when compared to allocating that investment in core innovations with a much higher degree of certainty and faster payback periods.

In the literature review, it was found that multiple design firms experimenting with business models are pursuing revenue streams whereby they place fees at risk. In this manner, they effectively share the risk of an innovation project, while also sharing in the returns on investment. Namely, Frog Design, IDEO, and Fahrenheit 212 have experimented with these models, indicating emerging business models where the design-led consultancy makes an effort to align their incentives and rewards with the ultimate success of the project and, by doing so, alleviates some of the risk for the client or beneficiary of the work (Frog Ventures, n.d) (IDEO Futures, n.d) (Sniukas, 2016).

In the autoethnographic research, it was discovered that some of the most significant pain points for design-consulting practitioners occur because of the tension between the time / methods required to *effectively* find problems and the traditional consulting business model which dictates a set scope, number of hours, and deliverables at the outset of a project - which often fall prey to the Core Innovation Trap.

Because of this significance, the X-axis represents how design-led consultancies will configure their business models with respect to risk sharing on innovation projects:

The X-axis is as follows:

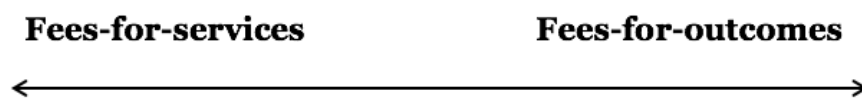


Figure 20: X-Axis – Design-Led Consultancy Acceptance of Risk

The x-axis: how will the design-led consultancy align to risk?

On one end, we see the traditional consultancy business model where fees are typically paid for services incurred, often fixed in contract through negotiation in the sales process and estimated by the firm in

terms of billable hours. In this configuration, the revenue stream largely leaves the risk of pursuing innovation with the client. It could be argued that the client decreases their risk by temporarily adding capabilities via the consultancy, however for the purposes of this project, I have considered that risk to remain fully on client organization. If the innovation fails, the client organization forgoes their investment in the project, the expected future earnings, and the opportunity cost incurred by not placing those resources in another project where a higher return on investment may have been possible. The consultancy, however, collects their fees as stated in the fee-based contractual agreement despite the outcomes of the innovation. From this perspective, it becomes clearer how organizations continue to make decisions to pursue core innovation. If the project succeeds, the rewards - just like the risks - again rest completely with the client. The consultant's fees don't change and payment is made. This end of the axis is 'service-based fees'.

On the other end of the axis is the possibility of design consultancies placing their fees at risk depending on outcomes of the innovation project, which may take form in any number of arrangements. The key here is that in an outcome-based arrangement risk is shared across the boundary of client and consultancy, reducing the degree of uncertainty and difficulty of moving resources from core innovation projects to

higher-ambition innovations. This end of the axis is represented as 'outcome-based fees'.

The Focus-Risk Matrix

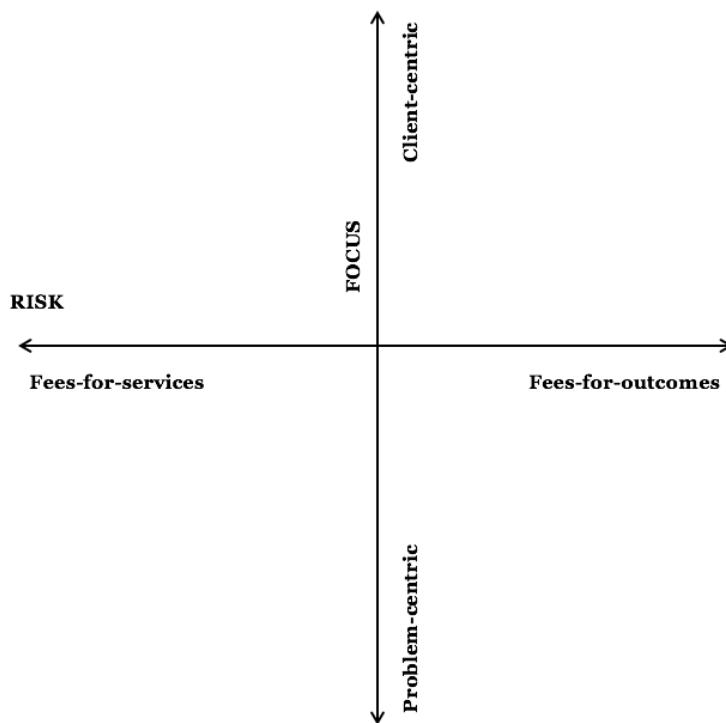


Figure 21: The Focus vs. Risk Matrix

When combined, the two axes form a 2x2 matrix that allows the speculative generation of solution sets to be formed against the key attributes, represented as four quadrants.

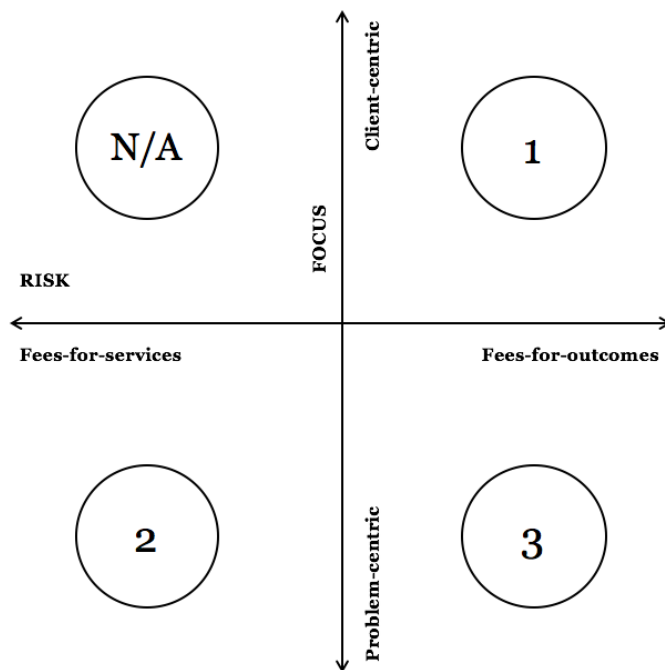


Figure 22: Focus vs. Risk Quadrants

The Focus vs. Risk Matrix quadrants. 1, 2, and 3 will be explored in this section.

N/A - Client-centric and Pay-for-services

This quadrant represents the traditional consultancy as we know it today, where the practitioner focuses on serving the needs of the client and their problems as presented by the client. Fees are based on a fixed-fee scheduled, and incurred as billable hours. Because this is the standard operating model that exists today, and where many of the patterns, tensions, and insights emerged from in the research, this project will not generate solutions in this space.

1- Client-centric and Pay-for-outcomes

In this quadrant, the project explored new configurations for a designed consultancy in which the consultancy continues to focus its efforts on the needs of clients, however instead of collecting a fee-for-service as traditional consultancies do, they receive fees based on outcomes and the success of innovations, implying a sharing of risk between client and consultancy.

2- Problem-centric and Pay-for-services

Instead of serving the needs of clients, consultancies pursue specific problems that require solving, generating revenues through a traditional fee-for-service business model.

3- Problem-centric and Pay-for-outcomes

In this quadrant, the furthest away from today's standard consulting model, consultancies seek out problems worth solving and receive payment for outcomes. This represents the most extreme of the possible configurations, pursuing the ideal process in terms of problem-finding activities, while also reducing the uncertainty and risk for the client organization. It does, however, require the largest transformation in capabilities and mindset for the consultancy, as will be explained in the possible interventions later in this paper.

The following interventions explore a possible solution set in three of the four quadrants, exploring opportunities in each of the possible scenarios defined by these attributes. Because the first quadrant, *Client-focused and Pay-for-services*, represents the traditional client-consultant interaction model known today, the interventions below only focus on quadrants 2, 3, and 4. Each intervention is offered with a description, business model implications, precursors, potential barriers, and the inherent level of transformation required for the traditional consultancy to make this transition.

6.5 Quadrant 1: The Client-Consultant Co-owned Innovation: Client-centric and Fees-for-outcomes

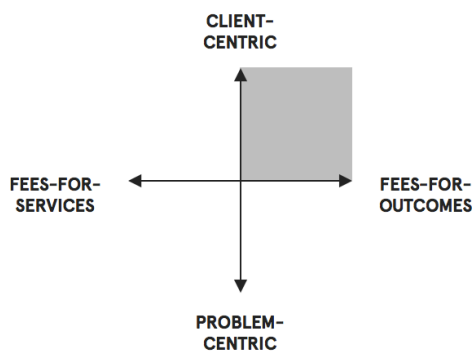


Figure 23: Client-Centric and Fees-for-Outcomes

Description

The Client-Consultant Co-owned (C3) innovation model would allow client organizations and innovation consultancies to jointly invest in a new, innovative offering. For a specified period of time after the innovation launches, the consulting firm would manage and operate the new offering, including collecting a fair share of profits from the innovation in this initial phase. Ultimately, however, the ownership of the innovation would fully transfer back to the client organization to own and operate - and a guarantee to do so would need to be stipulated in the arrangement. This agreement could be accompanied by staged or performance-based payments at the time of transfer. Although in

theory this co-ownership model could be applied to core innovations, because of the long-term contractual nature of the relationship, the consulting firm and client would both see incentives to produce an offering which leads to significant benefits realized over the medium to long term, as opposed to minor benefits or core innovation improvements realized in the short term. Concurrently, this sharing of risk might allow the client organization to effectively develop a long-term innovation - with an incentive to pursue true problem-finding - while still continuing their day-to-day operations and management of core innovations. With fixed resources within the firm, this may also ease the tension of the immediate shift of dollars from core innovation efforts into higher-ambition innovations.

Business model implications

The shift to the C3 concept has deep implications for the future design-led consulting business model. Instead of revenue streams derived from billable hours and fixed fee contracts, the way that the consultancy would make money in this model is based on performance and outcomes. While, for the client, the risk shifts away from their firm when compared to traditional consulting models, for the consulting organization the opposite is true. This 'skin-in-the-game' approach requires a certain level of risk tolerance. Additionally, consulting firms will need to improve their own capabilities when it comes to the

delivery and operation of innovations. Depending on the consultancy, this may be a significant leap.

Precursor

Public-Private Partnerships. An increasingly popular model in the delivery and operation of public infrastructure projects, P3s have proven successful in many countries by bringing together the public and private sectors to align interests in the long term nature of complex initiatives. While the way Public-Private Partnerships are technically arranged can vary depending on the goals and governance structure of the specific project, large and complex infrastructure initiatives have successfully been delivered - including roads (such as the Highway 407 in Ontario) and hospitals.

Potential Barriers

The C3 model distributes temporarily across the consultancy and client organization over time. This period introduces a new risk in the potential for the evolution of either the innovation, the client organization, or the consultancy over that time. If any of these variables change significantly over the agreed-upon time period, the client organization faces the possibility that the offering is no longer a strategic fit. This will require new types of shared governance across client and consultancy in a way that allows for the resolution of conflicts along the way.

For the consultancy, there is also a risk in that it may not always be possible to operate the new innovation as a standalone new business, meaning there may still be dependencies on accessing existing client capabilities and data, again introducing the need for new types of shared governance and coordination.

Level of transformation required

For the design-led consultancy, the C3 model represents an Adjacent innovation, whereby they adapt their current model along the x-axis of the Innovation Ambition Matrix to introduce the fees-for-outcomes model.

6.6 Quadrant 2: The Syndicated Problem-Finders Club (Problem-centric and Fees-for-services)

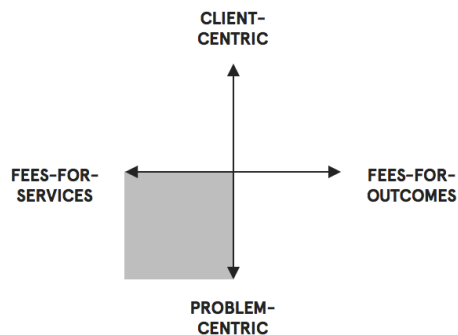


Figure 24: Problem-Centric and Fees-for-Services

Description

In the Syndicated Problem-Finders Club (SPFC), design-led consultancies would proactively pursue problem-finding activities in order to determine an area or areas of interest where a problem is deemed worth solving. By foregoing the traditional business development activities of first seeking out clients or responding to incoming requests for engagements with a specific client, the SPFC model prioritizes their key activities around seeking out problems. By changing the unit of analysis and pursuing the problem-finding process prior to engaging clients, consultancies can help avoid the tensions at play when business development activities and contractual

arrangements occur. In SPFC, the consultancy may not have the risk tolerance or capital available to align to the “Pay-for-outcomes” end of the x-axis in the matrix.

Because many of the identified higher-order problems deemed worth solving may lie outside of the traditional client base where significant funding lies within a single client’s budget, SPFC employs a syndicate model. This means that once a problem is identified and framed, the SPFC seeks out a number of partners who may be interested in co-funding the innovation project together. Conceptually, the SPFC consultancy - where they cannot accept or tolerate risk enough to move across the x-axis - distributes this risk amongst a broad set of partners. That is to say that, instead of a single client committing to a fee as the only funder of that work, a lower fee is paid by more funders, decreasing the monetary downside to any single client organization if the innovation were to fail.

One attractive part of this future business model for the consultancy is the now-viable opportunities that may emerge pursuing new types of problems at the societal level with multiple partners. By spreading the fees and risk across multiple funding partners, the pursuit of these ‘non-commercial’ problems may become more viable for the consultancy and these new types of client organizations than the traditional consultancy model.

This new degree of agency for consultancies to pursue higher-order problems, combined with a new option for shared revenue streams, implies that the SPFC model could significantly increase the likelihood that consultancies are able to approach the “wicked problems” (Buchanan, 1995) described by the likes of Tonkinwise and Norman (as identified in the literature review).

The collaborative nature of the SPFC is ideal in situations where there are limited competitive tensions between funding partners. Here, public healthcare in Canada is a fitting example, where multiple hospitals in a single region have shared interests in solving societal problems. Without the shared problem-finding vehicle of the SPFC, these problems are likely outside of the scope of their capabilities and resources to pursue as a single organization. To illustrate this point is the simple example of a typical consulting engagement which may cost \$1,000,000 in consulting services - a price tag likely to be significantly higher than any single hospital's' budget for innovation work. Now consider that the same engagement is shared by multiple partners. If 10 hospital organizations co-fund the engagement, each pays only \$100,000 - a number far more likely to be deemed as viable. Partnering introduces the opportunity for those 10 hospitals to each spend \$100,000, yet receive the benefits of that \$1,000,000 engagement.

The economics of the SPFC model directly intervene in the Ambition Dilemma in a significant way. First, it contributes to removing the delay that occurs when organizations pursue higher-ambition innovation. By decreasing the total investment amount for a single organization, yet providing the same amount of benefit as if they were sole-funders of the engagement, their payback period is significantly reduced. Therefore, the capability only needs to improve a portion of what it would have if there were a much larger initial investment before the benefits of the innovation produce a return. That is to say that the SPFC model allows a much higher flow into the stock of capabilities for a much lower outlay of capital.

The participation of multiple funders of the SPFC model, however, means that the innovation is not proprietary to one organization. As such, all of the organizations involved in the co-funding of the innovation project will benefit from improved capabilities of the same nature. This implies that capability erosion may occur faster for each organization as a result - if they are competitors or play the same role in the value chain - as new capabilities and innovations become commodified relatively quickly. Again, this stresses the dependency in this model on non-competitive or complementary organizations coming together as co-funders.

Business model implications

Facilitating collaboration across interdisciplinary networks of talent and client groups will be a key activity introducing a new capability for the consultancy that pursues the SPFC model. Additionally, proactive design research and problem-finding activities mean incurring significant costs before a revenue-generating client group is involved, which introduces new risk and potential cash flow challenges. This proactive client-seeking also implies a new key activity related to business development where challenges are introduced in securing multiple clients with non-conflicting interests who are willing to fund an innovation project - significantly more difficult than pursuing a single client at a time.

Precursors

nGenera insight. A Toronto based think-tank that developed custom research and advisory services for a syndicated grouping of clients, decreasing the required spend by each individual client, but delivering the value of the fully-funded program in totality

Vistage International. A network of business owners and chief executives who come together on a regular basis to share and collaboratively solve problems with non-competing firms.

Potential barriers

One of the key considerations in the SPFC model will be the configuration and assembly of the appropriate group of funding partners. Given the competitive nature of the private industry, SPFC may need to be limited to partner arrangements where there are limited conflicts of interest and mutual agreements across partners. This will be no easy task and any consultancy interested in shifting to the SPFC model will need to take this into consideration.

Where the implementation of any given innovation is specific to the organizational context of the client, this factor becomes multiplied by the number of partners involved. This concern around innovation implementation is particularly concerning given Norman's DesignX (DesignX, n.d.) movement which calls for designers who work on complex problems to increasingly play a role in how new innovations actually make their way into the world. If Norman's suggestion is accepted and adopted by designers of the future, the SPFC model will present significant challenges when it comes to implementation.

Level of transformation required

SPFC represents an Adjacent innovation for design-led consultancies, taking similar offerings today to new markets and customers.

6.7 Quadrant 3: The Request-for-Clients Lab (Problem-centric and Fees-for-outcomes)

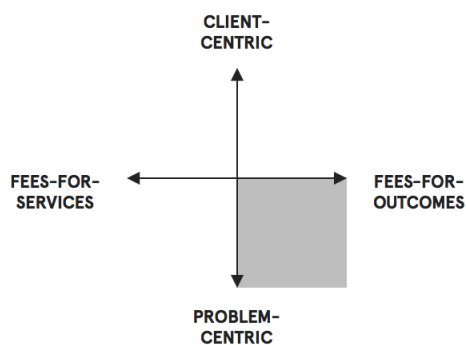


Figure 25: Problem-Centric and Fees-for-Outcomes

Description

The Request-for-Clients Lab (RFC) represents the most ambitious future model for the design-led consultancy. The “RFC” term here plays on the idea of flipping the traditional procurement process, or the Request for Proposals (RFP), where the consultancy responds to a client-framed problem and engagement. Not only does it pursue a pure problem-finding approach, it also accepts the highest degree of risk by choosing the “Pay-for-outcomes” revenue stream. In the RFC model, the consultancy proactively seeks out problems it deems worth solving before approaching a single client to transition the work into a paid

engagement. This quadrant introduces the unique combination of the consultancy continuing to be commercially focused *and* sharing in the rewards of successful innovation work. At the core of this speculation is the idea that the consultancy, by maintaining the agency to pursue effective problem-finding, produces more effective innovations that are especially desirable, feasible, and viable in the long-term. By pursuing this activity, which as described in the systems mapping portion of this project is quite difficult within the client organization alone, the RFC consultancy provides new opportunity for clients (once identified) to benefit from problem-finding activities without the pain or costs of trying to transition out of the Core Innovation Trap internally. Specifically, by accepting the risk of Payment-for-outcomes, the consultancy addresses the issue of the systems delay that occurs when client organizations allocate resources to higher-ambition innovation projects internally, where the benefits of those investments take a significant time to accrue and return their value. Instead, the RFC model insists on zero or little up-front investment resources, and relies on investment dollars flowing from client organization to consultancy only when capabilities have been developed and the outcomes and benefits achieved.

By significantly decreasing the time between investment and return for the client - and, in fact reversing it - RFC introduces a new leverage point to effectively change the system dynamics at the core of why

client organizations struggle to pursue higher ambition innovations. RFC effectively changes the boundary of the innovation subsystem, in a way redrawing it to exclude higher-ambition innovation and problem-finding processes from within the realm of the client organization - and placing it in the realm of the consultancy. This intervention removes the Ambition Dilemma, by removing altogether the tension between the competing Core Innovation Trap and the need for higher-ambition innovation.

Business model implications

Like the SPFC, the RFC model implies that the consultancy is prepared and willing to spend significant resources in problem-finding activities before work with a client ever commences in earnest. Tension will exist in the business model between servicing existing clients and their needs, as opposed to moving on from a client in order to pursue another problem space the consultancy is interested in. Additionally, outcomes-based fees, while introducing the opportunity for higher reward in the long-term, makes forecasting and resourcing difficult to hire, which may imply a requirement for a more flexible talent and expenses model.

Precursors

Mars Solutions Labs takes a proactive approach to identifying complex social and economic challenges which require solutions, although

according to secondary research, their process begins with hypotheses as opposed to design-research-based problem-finding activities

Social impact bonds, while not involving a traditional consultancy in today's model, social impact bonds proactively identify challenges that require solving, convene investors and solutions providers, and pay a return to investors on an outcomes-based fee schedule

Gates Foundation uses a four-stage process from identifying problems and developing new concepts. From there, they issue a call for interested partners and collaborators, issuing investment dollars and funding based on outcomes-based measurable targets

Potential barriers

Because of the inherent risk involved for the consultancy, there will remain an incentive to pursue problems where there is a hunch that a client will ultimately fund the project. One potential solution here is to phase the outcomes-based measurements, with specific targets indicative of the nature of the work along the innovation project journey even beyond problem-finding. For example, this could include fees released based on success milestones aligned to launch, piloting, testing & refining, and scaling. This added measure would provide incentives for the client and consultancy relationship to endure, while

also ensuring that innovations are following through into implementation.

RFC also flips orthodoxies around traditional business development. Specifically, the concept of long-term, repeat clients through follow-on work is less aligned to the values of the problem-finding consultancy. As such, a tension may exist when consultancies face the choice of where their next revenue-generating opportunity lies: choosing to pursue a new problem-finding activity or choosing to extend work with an existing client and forfeiting the ability to genuinely seek out problems worth solving.

Level of transformation required

The RFC model represents the most ambitious of the proposed interventions. It introduces a new product in the form of a new outcomes-based offering and, by way of not being client-centric, implies that the consultancy will pursue new types of clients associated with problems that were not considered clients before.

7.0 Recommendations and next steps

Building a design-led consultancy which uses any of the characteristics of the models explored in this project would need to be supported by further research and prototyping. Because this project utilized autoethnographic methods to explore the personal reflections of a single consulting practitioner in the space, a conscious decision was made to forego breadth of research and representative sampling in place of deep, ethnographic inquiry. As such, there remains more to learn through understanding the nuanced interactions that occur across different practitioners and consulting firms, each with their own cultures, behaviours, attitudes, and capabilities which may help to surface further insights and implications for the interventions proposed in this project.

Similarly, this project would serve to be enhanced through a qualitative and quantitative exploration of client organizations and the stakeholders within them. While the research here initiated a systems-based view of the organization as a whole, there are likely other intricacies and dynamics at a cultural, team, and departmental level that may have implications to the willingness and readiness to pursue higher-ambition innovations - even through the models proposed in the project.

The practitioner in this study represents one view of the consulting industry, with Canadian clients consisting largely of complex, multinational firms in financial and professional services. Given these limitations, the research in this project may be extended by exploring the specific innovation behaviours and systems patterns across industries, geographies, and sizes.

Given the framing and limits of this major research project, there may also be value in exploring the broader context of actors and players in the innovation ecosystem beyond even client organizations and the consulting firms who serve them. This is much to be learned about the system of organizations' clients, for example, and the dynamics at play in those relationships. At a macro scale, there are also likely leverage points for governments and non-governmental organizations and institutions, including incentives, grants, and policies around innovation and research & development at a municipal, provincial, and federal level. This project implies an assumption of a geographic boundary(s) around the system under investigation, which was not an explicit choice made in this project but is implicit given the perspective of the autoethnographic study and nature of the firms involved.

With additional research, it may be possible to prototype, test, and evaluate the proposed models in this paper in order to de-risk the

transition to any given model. This prototyping could include detailing and generating specific configurations of business models, conducting evaluative interviews with client organizations and practitioners, building speculative financial models to understand cash flow and revenue implications, and even piloting on a project-by-project basis to measure and monitor qualitative and quantitative indicators. This process may also be informed by further secondary research to identify additional analogies, precursors, and sources of inspiration across industries and geographies.

Finally, a more thorough assessment and scan of signals, trends, and drivers of change may be useful in understanding the broader forces at play and how those uncertainties generate possible futures for client organizations and consultancies. This foresight-based approach may provide a richer view of the plausible futures for design, innovation, and industry in general, leading to better-informed strategy decisions about the design-led consultancy of the future(s).

8.0 Reflections on the process

This project has had many ironies to it.

To start with, I began the investigation with a hypothesis around rapid innovation methods and prototyping. Could rapid innovation be used as a 'wedge' to begin the larger transformation of getting client organizations to eventually pursue higher-ambition innovation projects? And, if so, how might we embed better prototyping and rapid innovation competencies into our practices and clients' practices?

In the true spirit and promise of design research and problem-finding, what I soon discovered was that I was, myself, leading with a hypothesis and setting out to prove or disprove that solution. By not exploring the broader context of industry forces, complex system dynamics, and deep human issues of the people at play - I was exhibiting the very behaviours I was interested in overcoming. While I am not myself a large, complex organization, I was able to zoom out from these hypotheses and instead pursue a project that led with questions, not potential solutions.

Thus, the real learnings for me in this project are two-fold.

First, this work is hard because it's so easy to *not* do the difficult work in the short-term. As humans, we are not always privy to the broader context and problem-finding luxuries that come with the design researchers' mindset. Like everyone else, we face very real emotional pressures that lead to the decisions we make. These decisions are far from rational - they are informed by our prior experiences, cultural upbringings, contextual social norms, personal identities, and goals & aspirations. The learning here is that to change the innovation behaviours of an organization is to deeply understand the people within it, and all of the complexity of how humans make the decisions they do. This reflection also gives me confidence that the design-led consultancy will, in fact, have a role to play - despite the enormous efforts of industry to build their own design capabilities. Because of the pressures explained in the paper, the design-led consultancy which moves *inside* of a larger complex organization quickly loses what made it valuable in the first place - the liberty and freedom of not being subject to the inner workings of the Core Innovation Trap.

Second, on a personal level, the process of this paper has tested and stretched my own beliefs and values as a design researcher and innovation practitioner. When beginning this project, I held a provocative and controversial hunch that, perhaps, rapid innovation processes which forego problem-finding activities are the path to innovation effectiveness. While I knew rapid, core innovations were not

the end goal, at a subconscious level I think the design research-educated version of myself knew that there was something inherently antithetical to the emerging, integrated-thinking, innovator's role as complex problem navigator in the world.

Finally, the elephant in the room, so to speak, of this project: if design-led consultancies are to continue - or increase their ability to - play a significant role in shaping breakthrough innovations for clients, they will need to pursue problem-finding activities *themselves* to escape their own Core Innovation Traps. This is the hard work to be done before we design research practitioners can pursue the hard work we are equipped to do.

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Appendix A: Glossary of Key Terms

Ambition Dilemma – refers to the decision firms and executives face when deciding how to allocate resources between core and higher-ambition innovation initiatives. Explained in detail on page

Core Innovation Trap – refers to the tendency for firms and executives, when faced with the Ambition Dilemma, to pursue core innovation initiatives due to the system dynamics of increasing pressure to perform and the long-term nature of returns on higher-ambition innovation initiatives

Problem-finding & design research - –refers to parts of the design process whereby the designer dedicates effort not to the solution of a problem, but to the discovery, formulation, and framing of what problem is to be solved (Getzels, 1979). These activities are commonly referred to as the *analysis* and *synthesis* stages of design. See page 10 for more detail.

Practitioner – refers to the innovation consulting practitioner servicing clients

Design-led consultancy – refers to consultancies which utilize generative problem-finding and design research methods as a primary way of approaching, as opposed to hypothesis-led consulting as found in traditional management / strategy consultancies. See page 10 for a detailed definition and page 15 for a classification of design-led consultancies

Rapid innovation – refers to hypothesis-led innovation processes which do not utilize robust problem-finding / design research methods and have been popularized in recent years. See page

Higher-ambition innovation – refers to adjacent and transformational innovations as per the Innovation Ambition Matrix (Tuff & Nagji, 2012). The further along each axis, the greater the need for exploratory, generative design research. This is the case because each successive level of ambition implies increased uncertainty - as it is further away from the core business. The greater the gap between the markets the organization currently serves / the products the organization currently offers and the markets/products of the intended innovation effort, the more is to be learned, discovered, and designed.

Pay-for-services / Pay-for-outcomes – refers to the end points of the x-axis of the Focus vs. Risk matrix. On one end, we see the traditional consultancy business model where *fees are typically paid*

for services incurred, often fixed in contract through negotiation in the sales process and estimated by the firm in terms of billable hours. In this configuration, the revenue stream largely leaves the risk of pursuing innovation with the client. On the other end of the axis is the possibility of design consultancies placing their *fees at risk* depending on outcomes of the innovation project, which may take form in any number of arrangements. The key here is that in an outcome-based arrangement risk is shared across the boundary of client and consultancy, reducing the degree of uncertainty and difficulty of moving resources from core innovation projects to higher-ambition innovations. This end of the axis is represented as ‘outcome-based fees’.