Practitioner's Corner
Derailing Design Thinking

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> "Business people don't need to understand designers better:
> *they need to be designers."*
> ~Roger Martin (2004, p. 10)

Since the dawn of the Industrial Revolution, corporations have focused upon operational efficiency. In 2004, Roger Martin, dean of the Rotman School of Business at the University of Toronto, suggested a remarkable new paradigm that complements efficiency efforts. Martin (2004) asserted that businesspeople need to become designers with a designer's attitude and metrics for success. Martin (2004) noted that key differences exist between traditional and "design" firms, including flow of work life, source of status, style of work, mode of thinking, and dominant attitude. The paradigm of design thinking is still in its infancy and has been haphazardly applied by corporations with mixed results. Design thinking is abductive, inclusive, and problem based, and companies that have appropriately used it have achieved substantive gains in innovation and enjoyed success in the dynamic global marketplace.

"Business people don't need to understand designers better: *they need to be designers.* They need to think and work like designers, have attitudes like designers, and learn to evaluate each other as designers do" (Martin, 2004, p. 10). With those remarkable words in his seminal article entitled, "The Design of Business" in *Rotman Management*, Martin, of the Rotman School of Business at the University of Toronto, introduced a radical paradigm that ultimately called for new corporate structures, significant changes in how everyday work is conducted in the enterprise, and major new directions in organizational leadership. This paper reviews the fundamental premises of business design as outlined in the paper by Martin (2004), the conceptual foundations of business design as it relates to design thinking, the importance of design thinking, and contemporary acceptance of the construct.

Corporate Philosophy Prior to Design Thinking

Since the dawn of the Industrial Revolution in Great Britain, the fundamental focus of corporations has been on operational efficiency. In "The Design of Business," Martin (2004) traced the historical progression of efficiency from mysteries to heuristics to algorithms to binary code and now to the complementary paradigm of design thinking. As Martin (2004) explained:

> Over the course of time, phenomena enter our collective consciousness as *mysteries*—things that we observe, but don't really understand . . . We develop *heuristics*—ways of understanding the general principles of heretofore mysteries. Heuristics are rules of thumb or sets of guidelines for solving a mystery by organized exploration of the possibilities. (p. 7)
> In due course, increasing understanding can produce an *algorithm*: a logical, arithmetic or computational procedure that, if correctly applied, ensures the solution of the problem . . . because our understanding of gravity has moved from a *mystery* to a *heuristic* to an *algorithm* to *binary* code. (p. 8)
> Value creation in the 20th century was largely defined by the conversion of *heuristics* to *algorithms*. . . . As a result, many 20th century organizations succeeded by instituting fairly linear improvements, such as re-engineering, supply chain management, enhanced customer responsiveness, and cost controls. These ideas were consistent with the traditional Taylorist view of the company as a centrally-driven entity that creates wealth by getting better and better at doing the same thing. (p. 7)

"New" Paradigm of Design Thinking

Martin (2004) asserted that the utility of creating an algorithm out of a heuristic is diminishing in the dynamic global economy, and design thinking is necessary. As Burney (2006) noted, the concept of design thinking has historical precedent: "Design thinking is a term being used today to define a way of thinking that produces transformative innovation. While the term feels trendy, the way of thinking is hardly new" (¶ 5). Although not specifically named, many of the key concepts of design thinking were ably outlined by Kuhn (1962), Rowe (1987), Hirshberg (1998), and Kelley (2000). Historical accounts of the routine work of innovative geniuses like Edison clearly show the effective use of design thinking as early as the mid-19th century (Israel, 1998).

Around the turn of the millennium, executives noted the success and methods of design firms that advised their corporations on product development.

> In the literature on design, product development and innovation, the word "design" refers to many things: a creative art, a phase of product development, a set of functional characteristics, an aesthetic quality, a profession, and more. In the lexicon of more and more companies, however, the word has come to denote the totality of activities and competencies that gather all relevant information and transform it into a new product or service. (Lojacono & Zaccai, 2005, p. 11)

Some companies ported over aspects of the design methodologies to their regular operations with mixed results. As Fraser (2006) noted, "The core principles and practices behind all great design can be more broadly leveraged into general problem-solving and, most importantly, the reframing of opportunities in a strategic sense. This is what is often referred to as 'design thinking'" (p. 25).

Although there is no single, comprehensive definition for design thinking, it is generally defined as a process for developing numerous practical alternate solutions to specific problems or issues fully using the individual and group capabilities and ideas of employees, customers, vendors, and the general public. Judgment on an appropriate solution is generally suspended until dozens (or hundreds) of far-ranging alternatives are posited and explored. As IDEO President Tim Brown (2005) asserted, design thinking has important strategic implications for businesses:

> Design thinking is indisputably a catalyst for innovation productivity. That is, it can increase the rate at which you generate good ideas and bring them to market. Where you innovate, how you innovate, and what you innovate are design problems. When you bring design thinking into that strategic discussion, you join a powerful tool with the purpose of the entire endeavor, which is to grow. (p. 53)

Burney (2006) concurred, noting, "Design thinking is more than a methodology. Design is a cultural way of thinking. It's important to understand its power, commit to evolving your culture, even restructuring the company, resourcing and rewarding those who practice design thinking" (¶ 18).

Key Differences Between Traditional and Design Firms

In "The Design of Business" and other subsequent journal articles extolling design thinking, Martin (2005a) noted, "Design organizations vary significantly from traditional firms along five key dimensions: flow of work life, style of work, mode of thinking, source of status, and dominant attitude" (p. 5). Each of these dimensions is briefly described as follows:

1. Flow of work life – In traditional corporations, daily routines focus upon regularly planned tasks: "Daily work at a tradition-bound firm consists of a series of permanent, ongoing tasks: Make the 30-day forecast, upgrade the core product, manage the next sales initiative" (Martin, 2006, p. 57). The workday is structured quite differently in a design firm: "Whereas traditional firms organize around ongoing tasks and permanent assignments, in design shops, work flows around projects with defined terms" (Martin, 2004, p. 10). Furthermore, "All work is temporary and project-based, and people are judged by their ability to add value to it" (Martin, 2006, p. 57).

2. Source of status – Status in most traditional firms is found in managing big budgets and large staffs:

> In traditional firms, status—the protein that nourishes the ambitious as they claw their way up the corporate org chart—is conferred on those who run brawny organizations with big-time budgets. The relationship between size and status is pretty straightforward: The larger the revenue and the bigger the staff, the higher one's station and the greater the reward. (Martin, 2006, p. 57)

   Conversely, in a design firm, status "derives from building a track record of finding solutions to 'wicked problems'—solving tough mysteries with elegant solutions" (Martin, 2004, p. 10). For companies to change from traditional to design thinking, Martin (2005b) noted that "the linchpin of the required change lies with 'wicked problems'" (p. 7).

3. Style of work - As Martin (2005b) suggested,

> Traditional firms have a style of work that is consistent with the ongoing, permanent tasks that characterize their flow of work life. Roles tend to be carefully, if not rigidly, defined, with clear responsibilities for each individual laid out and economic incentives linked tightly to those responsibilities. Individuals are typically much more adept at describing "my responsibilities" than they are at describing "our responsibilities." (p. 5)

As expected, the style of work in design firms is substantially different: "Whereas the style of work in traditional firms involves defined roles and seeking the perfect answer, design firms feature extensive collaboration, 'charettes' (focused brainstorming sessions), and constant dialogue with clients" (Martin, 2004, p. 10), and, "In a design shop, the style of work is much more collaborative . . . projects are typically assigned to teams rather than to individuals" (Martin, 2005a, ¶ 10).

4. Mode of thinking – Martin (2005a) said,

> Traditional firms utilize and reward the use of two kinds of logic. The first, inductive, entails proving through observation that something actually works. The second, deductive, involves proving—through reasoning from principles—that something must be. . . . Any other form of reasoning or arguing outside these two is discouraged and, at the extreme, exterminated. The challenge is always, "Can you prove that?" And to prove something in a reliable fashion means using rigorous inductive or deductive logic. (¶ 15)

Designers also use and value inductive and deductive reasoning. Designers induce patterns through the close study of users and deduce answers through the application of design theories. Designers add one important element:

> Designers value highly a third type of logic: abductive reasoning. Abductive reasoning, as described by Darden professor Jeanne Liedtka, embraces the logic of what *might be*. Designers may not be able to prove that something "is" or "must be," but they nevertheless reason that it "*may* be." This style of thinking is critical to the creative process. (¶ 18)

5. Dominant attitude – Constraints are often seen as impediments in traditional organizations:

> The dominant attitude of traditional firms is to see constraints as the enemy and budgets as the drivers of decisions. The common argument is, "We can only do what we have budget to do." If only budget constraints could be relieved, these managers seem to imply, so much more would be possible. (¶ 27)

Design firms *welcome* constraints: "By contrast, design shops' dominant mind-set is: 'There's nothing that can't be done.' If something can't be done yet, it is only because the thinking hasn't yet been creative and inspired enough" (Martin, 2005a, ¶ 20). Additionally, "For design shops, constraints are never the enemy. On the contrary, they serve to increase the challenge and excitement-level of the task at hand" (Martin, 2005b, p. 7).

The Importance of Design Thinking

The idea of design thinking may be the single most important business concept to emerge from the 20th century. Design thinking is a perfect complement to the earlier efficiency movement. While the scientific method of management espoused by Frederick Taylor and later refined by Juran and Drucker provided a key framework for *how* work should be done, design thinking answers *what* should be done. Design thinking is an essential antecedent to the effective development and initiation of corporate strategy: "In this year's most far-reaching development, we see how companies like Procter & Gamble and Samsung are using design thinking to recast their strategic thinking. Design thinking engenders innovation" (Fast Company Staff, 2005, p. 49).

Most modern executives are not familiar with design thinking:

Exotic methods of financial analysis do not create value. Only inventing and delivering new products, processes, and services that serve human needs can do that. But managers are not trained for that type of life. Instead, they are trained and rewarded for being decision makers—to have alternatives presented to them from which they make choices by computing net present values, optimizing underassumed constraints, and trading off risks for returns. (Boland & Collopy, 2006, p. 52)

Boland and Collopy ably compared efficiency (decision attitude) to design thinking (design attitude):

A "decision attitude" toward problem solving is used extensively in management education. It portrays the manager as facing a set of alternative courses of action from which a choice must be made. The decision attitude assumes it is easy to come up with alternatives to consider, but difficult to choose among them. The "design attitude" toward problem solving, in contrast, assumes that it is difficult to design a good alternative, but once you have developed a truly great one, the decision about which alternative to select becomes trivial. The design attitude appreciates that the cost of not conceiving of a better course of action than those that are already being considered is often much higher than making the "wrong" choice among them. (p. 50)

Design thinking possesses three important attributes that help it complement operational efficiency and bolster strategic formation; it is abductive, inclusive, and problem-based.

1. Abductive – Design thinking reaches well beyond deductive and inductive reasoning to build up a mountain of possible answers. Constraints are temporarily ignored and initial judgement is suspended as all plausible ideas are positively reviewed. As Liedtka (2006) said,

   Great design inevitably starts with the question "What if *anything* were possible?" After all, if strategy is an invention, a product of our imaginations, and our assumptions are bound only by what we can imagine, then removing the assumptions that arise from the belief in constraints is job number one. (p. 18)

   The rapid development of inexpensive prototypes is encouraged to help refine possible answers. Numerous failed ideas may be abandoned or reconstituted in the process of finding the best alternative.

2. Inclusive – In design thinking, employees, customers, and even competitors are all important elements in the discovery of valuable ideas. Unlike efficiency mavens who favor a focus on profitability, "This evolution is creating the *design-focused*

enterprise, an organization that uses consumer-centered product development to move quickly and effectively from intimate customer knowledge to successful product and service offerings" (Lojacono & Zaccai, 2005, p. 11). Unlike typical one-way market research, current and potential customers are engaged in an ongoing conversation to ascertain their real and perceived needs. As Fraser (2006) noted, "If you begin with the user and set out on a path to look at the broader context of their lives and activities, you will suddenly see a whole new set of opportunities to be tapped" (p. 26). Primary research, including direct observation of prospective customers, is a hallmark of design thinking:

> Designers use observational research methodologies to reveal latent needs that can form the basis of change initiatives. They do this by going out and looking at people engaged in everyday activity. Designers observe, take pictures, ask questions about the here and now. (Coughlan & Prokopoff, 2004, p. 189)

3. Problem based – The challenge of design thinking is that its primary focus is on solving complex and often difficult real-world problems. As noted earlier, design thinking does not conflict with the fiscal realities of the firm: "A design attitude can bring us path-creating ideas about new ways to use technology, new materials, and new work processes that can change the definitions of cost and efficiency, making better solutions attainable at less cost" (Boland & Collopy, 2006, p. 52). As Fraser (2006) similarly noted,

> Whether your goal is to develop new products or services, a new way of marketing to your customer, or to reinvent your entire business model, "design thinking" holds valuable clues as to how to get to bigger ideas, faster and more efficiently. (p. 25)

Some corporations have discovered the power of design thinking: "Successful companies like GE, Procter & Gamble, and Maytag have made significant investments and organizational changes to take advantage of design process and methodologies" (Burney, 2006, ¶ 2).

Maladoption of Design Thinking

In the past few years, dozens of books and articles have been written about how to implement design thinking in an organization, and design thinking has become a veritable cottage industry for consultants. Some companies that understand and have implemented the elements of design thinking have made spectacular gains in the dynamic global marketplace. Unfortunately, many more companies who enthusiastically invested valuable resources in design thinking have abandoned the concept in frustration after no positive results were achieved. Historically, every major paradigm contains the elements shown in Figure 1. In order of difficulty of development and implementation, the pyramid builds from philosophy (most difficult) through signals (least difficult). Briefly, a prevailing philosophy demarks the boundaries of the discipline and posits the social purposes of the discipline. A philosophical tenet of design thinking might be that current and prospective customers should be the prime locus of information regarding future innovation. While the philosophy of a discipline is stable, it can support multiple conceptual frameworks, some of which compete with each other. A framework of design thinking might be that direct observation of current and prospective customers would reveal subconscious needs. A theory is the bridge from abstract to concrete in a paradigm. A

possible design thinking theory might be that, when research subjects know that they are being observed, their behavior and value to the research is altered. Methods are the specific activities utilized to support design thinking. One possible method of design thinking might be videotaping a family as they loaded groceries into their van after a visit to the local supermarket. Finally, signals are the visual and auditory cues provided by corporate executives and other opinion leaders which indicate approved activities of subordinates. A possible design thinking signal might be the verbal expression of approval a supervisor makes when noting a staff member leaving the facility to observe customers in the field.
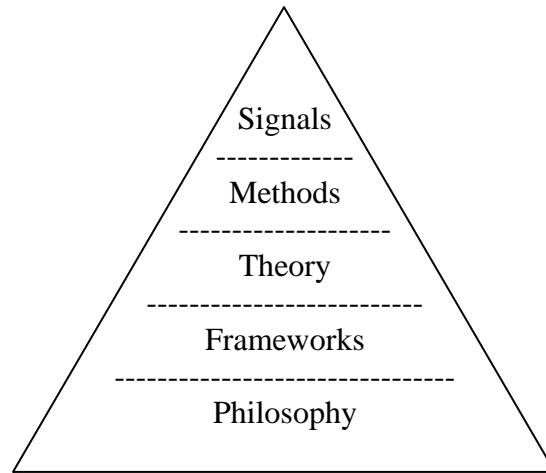
Figure 1. Foundations of design thinking paradigm. From *Advancing the PhD Through Middle Range Theory* (Working Paper; p. 5), by J. Gary, 2008, Virginia Beach, VA: Regent University School of Global Leadership & Entrepreneurship. Copyright 2008 by J. Gary. Adapted with permission.

There currently is no unified theory of design thinking. As Liedtka and Mintzberg (2007) said, "It's not clear that we even agree on what design means" (p. 25). One pundit exclaimed that design thinking is at approximately the same point medicine was when barbers were applying leeches to patients (Keeley, as cited in Skarzyonski & Gibson, 2008). Because of a lack of sophistication in the field, organizations have been haphazardly applying elements of design thinking to business problems without understanding what they were doing. Supervisors often concentrate on sending signals to their charges (e.g., casual dress is welcomed and creativity encouraged, but they do not provide the necessary linkages to design thinking). Significantly more study on and promotion of the value of design thinking is vitally needed.

To date, design thinking has faced major internal corporate resistance. By their very nature, organizations abhor change. In this age of fiscal exigency, employees are reluctant to engage in activities that are perceived as new or costly. Advocates of efficiency usually prevail:

> In many companies, for instance, new ideas are met not with open minds but with time consuming layers of evaluation—or even with harsh criticism. When someone suggests a new product or process, senior managers take weeks to respond. Or they put that person through an excruciating critique. (Amabile, 1998, p. 83)

In some organizations, acceptance of design thinking is considered a repudiation of past methods. A constant refrain is the fact that legacy methods led to the success of the organization

and do not need to be fixed. New methods are always suspect. One sterling example is the use of prototyping. As Brown (2005) noted,

> Design thinking is inherently a prototyping process. Once you spot a promising idea, you build it. The prototype is typically a drawing, model, or film that describes a product, system, or service. We build these models very quickly; they're rough, ready, and not at all elegant, but they work. The goal isn't to create a close approximation of the finished product or process; the goal is to elicit feedback that helps us work through the problem we're trying to solve. In a sense, we build to think. (p. 53)

Because continual prototyping is not typically a legacy method, many companies reject it out of hand.

As Lojacono and Zaccai (2005) asserted, "Corporate strategy is often shaped by macrodata—industry trend analysis, competitive analysis, technology assessments, demographics—and carried out by specialists focused on quarter-to-quarter sales, technical invention, measurable performance and operational efficiency" (p. 14). To demonstrate fiscal responsibility, companies have traditionally required that activities be eminently measurable, highly predictable, and promise a specific return on investment. Jones and Samalionis (2008) said, "Our basic philosophy is that, during the early stages, it's necessary to let go of reality—to be expansive and inspirational and root your efforts in market insights" (p. 22). Because design thinking rarely meets the hurdles of traditional company metrics, it is often derided.

Conclusion

The concept of design thinking introduced by Roger Martin in 2004 in his article entitled "The Design of Business" is even more important today than it was then. Competition in the dynamic global marketplace continues to strengthen. As Martin (2004) noted then, "Most companies' top managers will tell you that they have spent the bulk of their time over the last decade on improvement. Now it's no longer enough to get better; you have to 'get different'" (p. 10). Despite bellicose promotion and a paucity of comprehensive research on the concept, design thinking requires both knowledge and effort: "Yes, design is powerful, and yes, it can have a profound impact. But it isn't magic, and it isn't easy. Harnessing design for business poses all kinds of management challenges and creates all sorts of internal conflicts" (Vamos, 2006, p. 12). Companies that have effectively utilized design thinking have proven Roger Martin correct. As Fraser (2006) summarized, "When the conditions are ripe for innovation and the general principles and methodology of design are put into play, it is remarkable how big and broad the impact can be" (p. 27).

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