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## **Design Thinking - Design's Prodigal Son?**

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### ***Abstract***

Businesses are increasingly facing complex, even *wicked*, operating conditions with hyper-competition, digital disruption, faster cycle-times, a shift in power to their consumers and often a race to the bottom in pricing as the internet provides a new (and, at times, unhelpful) level of transparency. The twin forces of globalisation and digitisation are removing the traditional barriers to entry so that established firms can no longer rely on manufacturing capacity, global supply chain or even great distribution channels to stop challengers capsizing their business. Despite such hostile conditions, companies are still tasked with revenue and share growth. Many businesses look to innovation as their saviour and they pile resources into new product development. However, results are generally patchy because innovation is risky, it's messy, it's nonlinear, it carries a high risk of failure and most companies don't have the skilled personnel or the experience to navigate their way through the potential minefield of creating new products, new experiences, new services or new business models.

But there is one innovation technique, in particular, to which many businesses are turning. Design Thinking has attracted significant attention in the management journals, in the business press and in business in general. It has been championed by established global brands like Apple and, equally, by disruptors like Hailo and Airbnb. Ironically, the one constituency in which it is still regarded with a degree of suspicion is the design industry itself. Some suggest that this is because the design community are shy of oversimplifying their object of study. This article will examine the rise and rise of Design Thinking and explain precisely what it is and how it has evolved from the theory and practice of design. Finally, we speculate whether the Prodigal Son is, in fact, a relevant metaphor and we conclude that more insight might be found in one of Aesop's fables.

### **Background**

Fortune Magazine (2018) reports that smart business leaders 'are embracing the idea that design - channeling insight to delight and truly connect with customers and users can be a crucial differentiator.' Kimbell (2009) notes the term "design thinking" has come to the fore amongst educators, academics, managers and the design community as a way to distinguish between the technical, craft skills of actual designers, and a way of approaching business or management problems that reproduces, in a simplified way, the approach a designer might take. Businesses look at it as a way to balance the natural tension between

'explore and exploit' ( Martin 2009) or as a plug and play creative process to kick-start innovation ( Brown 2009). Incidentally, Design Thinking does not draw too heavily on the roots of design research or design science.

Evidence of the arrival of Design Thinking as the preferred approach for business to successfully facilitate innovation is everywhere. On the bookshelves, popular management books, on Design Thinking, compete for space (Brown, 2009, Liedtka and Ogilvie, 2011; Martin, 2009; Mootee, 2013; Curedale, 2016). Prominent articles have also been appearing in top academic management journals such as the Journal of Product Innovation Management (2015) and the Academy of Management Journal (2015) as well as in management journals like the Economist and the Harvard Business Review, Business Week, The Wall Street Journal and the New York Times (Liedtka, 2015). But the overwhelming evidence of its success comes from all the companies who have adopted it. As Kolko (2015) puts it, there's a shift underway, one that puts design much closer to centre of the enterprise. Curedale (2016) lists a selection of these organisations which, inter alia, include: SAP, GE, Target, Pepsi, Whirlpool, Bayer, Mayo Clinic, DHL, P&G, Philips, AirBnB, GSK, Nike, Airbus, Panasonic, Shell, Cisco, Unilever, JetBlue, Black & Decker, IDEO, Intuit, Mattel, Bank of America and Microsoft.

Design Thinking has gained traction not just with the corporate sector but also with government bodies. Kimbell (2009) notes that:

'In the UK, for example, the government-funded national Design Council, argues that design thinking plays a key role in innovation (Design Council 2009). In Denmark, a cross-ministerial innovation unit called MindLab combines design-centred thinking and social science approaches to create new solutions for society (Mindlab 2009).'

Ireland is also becoming a hotbed of design thinking as a consequence of hosting local operating units and sometimes R&D centres for many of these companies. But in case there could be any doubt of the all-pervasive nature of Design Thinking, this was dispelled when Bank of Ireland, the country's oldest (230 years old) and, arguably, most conservative bank, hired a head of Design Thinking in 2015. Equally, when the practice of *project management*, traditionally focussed exclusively on the 'solution space' says they need to embrace Design Thinking's approach, its capacity and tools to clarify and elaborate on the 'problem space'; you can tell things are changing (Dijksterhuis and Silviu, 2017).

Professional services have also joined the party with Accenture snapping up Fjord, a global design agency, in 2013. PriceWaterhouseCoopers (PwC) acquired BGT, a digital creative consultancy while Ernst & Young (EY) bought a design agency called Seren. In Ireland, Deloitte acquired Red Planet and internationally, they bought Doblin and Monitor, both design-driven, innovation agencies. McKinsey bought Lunar, a design agency based in Silicon Valley in 2015.

But the one community that remains skeptical is Design. Although Design Thinking, helpfully, foregrounds design in the innovation process, they fear that reducing the activity to a prescriptive series of steps is oversimplifying design. Cynicism among designers reached

a peak in August 2017 at the 99U conference, Pentagram partner and designer Natasha Jen gave a presentation with an eye-catching title: "Design Thinking is Bullshit." In her talk, her main criticism is that it relies too much on post-it notes and possibly overpromises on the outcomes it can deliver. Indeed, she echoed the refrain of many designers, that it is hard to point to anything concrete that is attributable to design thinking. Whereas our built environment, our offices, our homes, every transaction we make all surround us with things we owe to design.

### **But what exactly is Design Thinking**

A precise and universal understanding of Design Thinking has yet to unfold, and the concept has been variously interpreted to reflect, on one hand, the elements related to cognition (internal) and its external rules and tools. Design thinking is not yet fully defined or understood (Chen, 2016). Liedtka (2015) acknowledges that a generally accepted definition of Design Thinking has yet to emerge but all definitions share one or more common elements. Lockwood (2009), a former President of the Design Management Institute suggests Design Thinking is:

‘a human-centred innovation process that emphasises observation, collaboration, fast learning, visualisation of ideas, rapid concept prototyping and concurrent business analysis.’

Mootee’s (2013 p32) definition focuses more on the process and defines design thinking as:

‘the search for a magical balance between business and art, structure and chaos, intuition and logic, concept and execution, playfulness and formality and control and empowerment.’

Mintrom and Lieutjens (2016), whose emphasis is on the policy arena, assert:

‘Design thinkers exhibit curiosity and empathy in their efforts to interpret how target populations engage with their world. They deploy various investigative techniques that have the potential to illuminate problems in new ways and indicate effective client focused solutions.’

Like marketing, Design Thinking foregrounds the wants and needs of consumers but Curedale (2016) notes design thinking has moved past and is superior to marketing. Far from being merely a tool of the marketing armoury where it helped, through advertising and packaging, *make people want things* it is now about *designing things people actually want*. What connects the definitions is that Design Thinking is invariably user-centred and founded, ideally, on some actionable insight. It is highly visual and relies on customer observation: developing thick, rich ethnographic portraits of customer behaviour and trying to identify themes and patterns (unmet or under-served needs) from the observations.

Design thinking emphasises the importance of problem definition. The inclusion of customer, consumer or ‘end-user’ perspectives in finessing the problem facilitates a better comprehension of the issue and makes it more likely that the solution will be based on higher ground rather than common ground (Chambers 2015; Fung 2004). It characterises consumers into discrete segments and develops individualised persona’s for each segment

and then uses techniques to generate, novel, original and radical ideas for each segment. The generation of ideas is a group, interdisciplinary exercise: it brings in multiple viewpoints and multiple stakeholders and challenges assumptions. Then ideas are prototyped and field experiments designed to measure the appeal of the ideas and to discover whether they might find traction with the target market.

**Table 1 - Conventional Elements of a Design Thinking Process or Approach**

- 1) **Problem Definition** - one that accurately describes the problem the initiative is trying to resolve or the opportunity it is attempting to exploit.
- 2) **Insights and Empathy** - an ability to 'walk in the users' shoes' and to understand their pains and gains is vital to being able to develop ideas likely to resonate with them. When the process uncovers genuine insights about what people do; why they do it and how their experience can be improved, this can lead to better design criteria, and ultimately, great work.
- 3) **Iterative Approach** with a bias towards experiment and action - unlike traditional quantitative market research where a little information is gathered about a lot of people - design thinking thrives on the opposite. It builds an intimate and vivid portrait of just a few people and tries ideas out with them. Designers do not follow a direct route from problem to solution, but instead move to and fro between problem(s) and solution(s). For instance, Cross indicates that 'designing does not proceed in a sequence of stages that targets each one of the (partial) problems initially identified or outlined. Instead, designing appears to proceed through an iterative form of interplay between partial problems and their solutions'.
- 4) **Abductive Reasoning** - (Dunne and Martin, 2006) refer to this as the logic of what *might be* whereas *deductive* and *inductive* are the logic of what should be or what is. Abduction is more than just 'backing a hunch'. It is an approach in conventional problem solving when, according to (Dorst, 2011 p523) 'we know both the value we wish to create, and the 'how', a 'working principle' that will help achieve the value we aim for. What is missing is a 'what' (an object, a service, a system), that will give definition to both the problem and the potential solution space within which an answer can be sought.' Abductive reasoning is a key part of design thinking (Kolko, 2010; Dong et al, 2015).

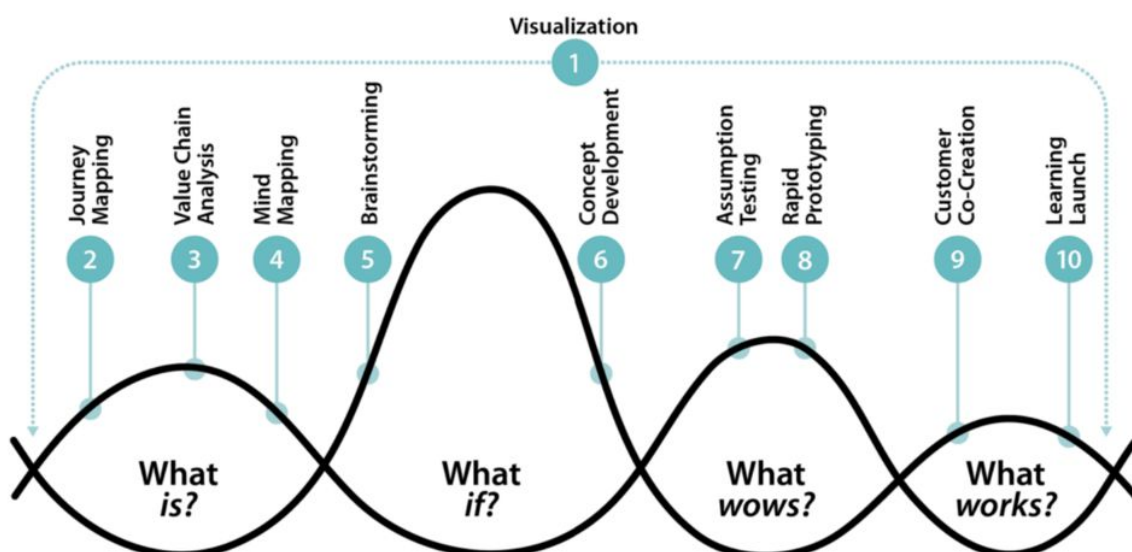
This process is most often found using a visual observation example, in which a person makes hypotheses or tries to explain some behaviour they've seen. It is very often also associated with the "flash of insight" or the "eureka-moment" in a discovery, according to Pauwels et al (2013).

- 5) **An Ethnographic approach** - deep, rich, vivid observations are deemed more likely to reveal actionable insights hence design thinking favours close observation often in the form of actual participant diaries, video diaries, vlogs, photos, recordings where the emphasis is on capturing the customer behaviour at the key moments of truth in a customer experience.
- 6) **Brainstorming and Ideation** - finesse mild and wild ideas about potential opportunities. These tools encourage creative behaviours such as withholding

judgment, avoiding debates and seeking higher order thinking by building on the ideas of others and leveraging the diversity of the team. Cross (2006) noted that science investigates existing forms but design initiates new forms and it does this through brainstorming and other creative techniques.

- 7) **Prototyping Techniques** - these facilitate, according to Ogilvie and Liedtka (2011), making abstract ideas tangible and easy to understand and comment on by participants. Techniques include, storyboarding, concept or mood boards, user scenarios, metaphor, experience journey maps and simple graphic illustrations.
- 8) **Co Creation** - incorporates tools and methods that allow consumers or users engage in the design of future product, service or experience ideas.
- 9) **Learning launch, Pilot and Field Experiments** - are designed explicitly to test underlying assumptions in the field. Ideally, these are done in controlled environments and latterly, crowdfunding sites like Kickstarter and Indiegogo are very helpful in gauging likely future interest in proposed new ideas.

Liedtka (2015) observes that none of these elements are new; individually, they can all be found elsewhere in management theory and practice. Similarly, Mulgan (2009) observed that design thinking is 'a synthesis of methods drawn from many fields that, when sewn together helpfully mitigate the traditional limitations of their individual origins. They conclude that when the elements are combined in an end-to-end process or programme (see below) that Design Thinking does emerge as a distinctive and valuable system of practice. Design Thinkers have to take what Dorst (2009) calls a 'double creative step' by both designing new ideas or solutions and also testing and modifying them in parallel. This parallel creation defines design thinkers as very separate from traditional managers who rely predominantly on logical reasoning, data and analysis.



*Figure 1: The Darden Model of Design Thinking - an end to end sequence of tools (Liedtka & Ogilvie, 2011)*

Academics and practitioners alike now coalesce around broad definitions of Design Thinking that see it as a creative, iterative, hypothesis-driven process that is focussed on both the problem and the solution. Relying on abduction and experimentation, it balances the twin drivers of possibility and constraint and works best in situations of high complexity, ambiguity and uncertainty. It has to navigate between customer wants and needs, client expectations, social circumstances, business models, opportunities in technology and contemporary aesthetic canons.

But, *design thinking* is clearly not the same as *design doing*. Norman (2002) says that 'design (doing) is a complex endeavour, covering many disciplines', that it includes buildings, products, fashion, experiences, interior decorating, gadgets even landscaping. Cross (2011) notes that it is only relatively recently that the practice of design became separated from the practice of doing. A potter would make a piece without formally designing it as would a jewelry maker. Only latterly have these two practices, designing and doing, become uncoupled. Designing is conceived as a complex, personal, creative and open-ended or unstructured skill (Dreyfus and Dreyfus, 1986). van Dooren et al (2013 p54) suggest, "For experienced designers the process is not split up in separate steps and actions but the process is an undivided whole with automatic, unconscious steps, actions based on common practice or routine, and moments of reflection and exploration." This is part of the dilemma for design educators: design is an implicit process which, in order to teach, educators need to make explicit.

While some designers try to make their steps explicit, Cross (2011) observes that others are deliberately, even wilfully, obscure when it comes to revealing the processes they use to arrive at great designs. Philippe Stark suggested that his was a 'magical' process of epiphany and, similarly, Alessi said ideas came to him in a 'vision'. But a recurring theme in design research is the role of intuition and it is the quality of this intuition that probably separates the best designers from the rest. An additional characteristic commonly possessed by designers is a capacity to dwell in a problem space where there can be an uncomfortable degree of ambiguity and apparently conflicting demands. Design Thinking, on the other hand, has evolved to eliminate, or certainly reduce, both intuition and ambiguity by providing a series of simple, stepwise templates that give users the comforting illusion of control over the process. In design, the quest is for options rather than solutions and this is not always the case with Design Thinking.

### **Brief History of Design Thinking**

Cross (2001) notes that the 1960s was referred to as the 'design science decade': the decade culminated with Herbert Simon's outline of 'a science of design' in the universities: 'a body of intellectually tough, analytic, partly formalizable, partly empirical, teachable doctrine about the design process.'

The origins of design thinking are thought to lie in Simon's (1996 *3rd Ed*) *The Sciences of the Artificial*. Simon observed that 'the intellectual activity that produces material artefacts is no different fundamentally from the one that prescribes remedies for a sick patient . . . or a social welfare policy for a state' (p. 55–56). The work of Herbert Simon has undoubtedly helped to mainstream design and design thinking. Simon, a pioneer in so many areas made significant contributions to: artificial intelligence, information processing, attention economics, organisation theory, complex systems, and computer simulation of scientific discovery. He argued that design is an everyday task; 'Everyone designs who devises courses of action aimed at changing existing situations into preferred ones.'

Stanford's Robert McKim, was the man who helped design what became Stanford's "Joint Program in Design" (JPD) an interdisciplinary collaboration, between arts, engineering and creativity, which ultimately evolved into the D-School. McKim (1972), in his book *Experiences of Visual Thinking*, sees design as simply another way of thinking. Of course, there are techniques associated with this way of thinking, such as, sketching, seeing, imagining and prototyping.

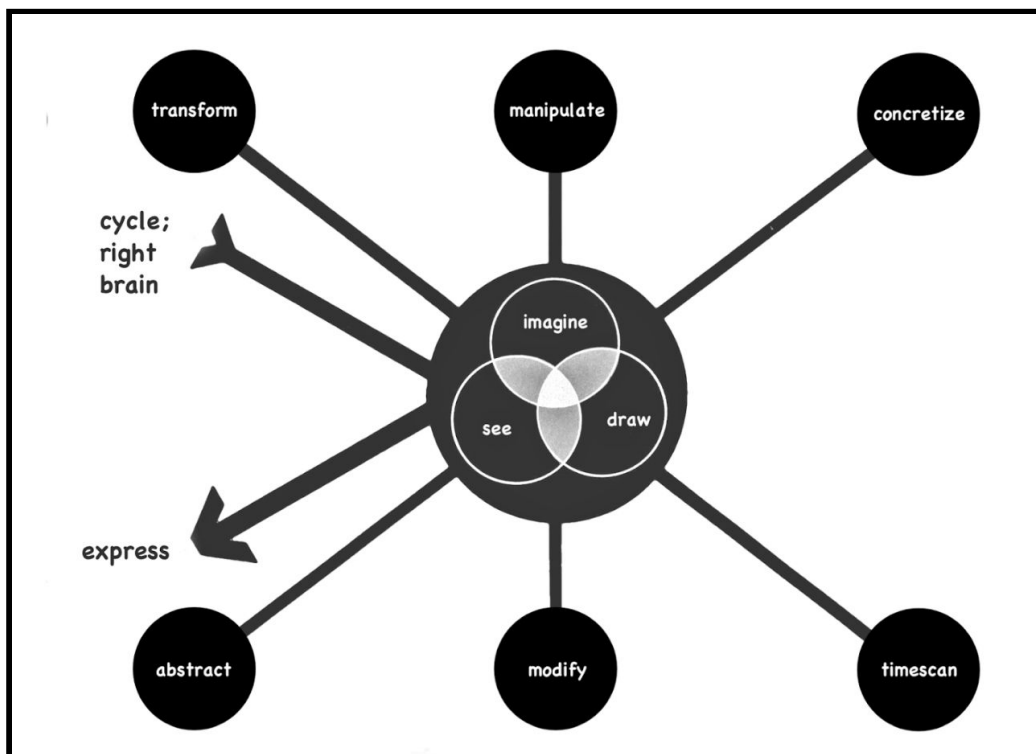


Figure 2: McKim's Visual Thinking Strategies - (*Experience of Visual Thinking* 1972)

In the early 1980s Nigel Cross began investigating design methodology and his book *Designerly Ways of Knowing* (1982) observed designers at work either alone or in teams



and noted the habits, the conditions and the mindsets that designers used to come up with creative ideas. He concluded:

‘Everyone can and does design. We all design when we plan for something new to happen, whether that might be a new version of a recipe, a new arrangement of the living room furniture or a new layout of a personal webpage. (...) So design thinking is something inherent in human cognition: it is a key part of what makes us human.’  
(Cross, 1982)

With his theory of “a designerly way of knowing,” Nigel Cross suggests:

‘For too long a narrow idea of human reasoning has prevailed which only accepts simple induction and deduction as worthy of the name of thinking. But there is a prior and pervasive kind of reasoning that scans a scene and sizes it up, packing into one instant’s survey a process of matching, classifying and comparing. [...] Metaphoric appreciation, as all the words we have used suggest, is a work of approximate measurement, scaling, and comparison between like and unlike elements in a pattern.’

Donald Schön (1983) also disagreed with the positivist paradigm underpinning the ‘design science’ movement, and, instead proposed a different approach. He characterises design thinking as a sensemaking process, in which the designer “*must make sense of an uncertain situation that initially makes no sense.*” He challenged Simon’s view of a ‘science of design’ because ‘science’ implies clear, unambiguous problems, whereas designers are rarely tasked with clear, well-formed problems, they generally have to contend with ‘messy, problematic situations’. As a counterpoint, Schön proposed to search for

*‘an epistemology of practice implicit in the artistic, intuitive processes which some practitioners do bring to situations of uncertainty, instability, uniqueness, and value conflict,’* and which he characterised as *‘reflective practice’*.

The inclusion of artistic and intuitive components helped form the core of Design Thinking.

In 1987, Peter Rowe, then Director of Urban Design Programs at Harvard, wrote *Design Thinking*, which was, according to Curedale (2016) the first popular usage of the term in the literature on design. However, Rowe’s book is, specifically, about the design possibilities and process in architecture and urban planning in the US. In 1992, Buchanan, then Head of Design at Carnegie Mellon University, published a key paper in *Design Issues* entitled *Wicked Problems in Design Thinking* and this paper moved the discussion forward on a couple of key axes. First, it planted a solid flag for design in the camp of Liberal Arts, arguing that design has the capacity to ‘integrate useful knowledge from the arts and sciences alike but in ways that are suited to the problems and purposes of the present.’ (p6)

In his later writing, in which he expands on design’s integrative capacity, *Design as a New Liberal Art*, Buchanan noted that ‘Design has no subject matter, that’s what makes it such a powerful discipline, we MAKE our subject matter.’ He positions design thinking at the intersection between science, art and practice. The second contribution of Buchanan’s paper was to connect design thinking with wicked problems and to explore the types of problems designers encounter and the patterns of reasoning they employ to solve them.

The classification of wicked problems originated with Horst Rittel, a designer, mathematician and lecturer. Rittel sought an alternative to the linear, step-by-step approach to design widely accepted by design researchers and theorists because he thought these only ever applied to the most trivial design problems. In 1972, Rittel published 10 properties of wicked problems and they built upon his original 1960 summary`;

*'class of social system problems which are ill-formulated, where the information is confusing, where there are many clients and decision makers with conflicting values, and where the ramifications in the whole system are thoroughly confusing.'*

This is probably an accurate, if mildly amusing, summary of what confronts designers with every new assignment.

Cross built on work from Archer, Lawson and Rittel and Webber when he wrote:

*'(...) that design problems are ill-defined, ill-structured, or 'wicked' (Rittel and Webber 1973). They are not the same as the 'puzzles' that scientists, mathematicians and other scholars set themselves. They are not problems for which all necessary information is, or ever can be, available to a problem-solver. They are therefore not susceptible to exhaustive analysis, and there can never be a guarantee that "correct" solutions can be found for them. In this context a solution focused strategy is clearly preferable to a problem-focused one... the designer's task is to produce "the solution"...' 'In order to cope with ill-defined problems, the designer has to learn to have the self-confidence to define, redefine and change the problem-as-given in the light of the solution that emerges from his mind and hand.'*  
(Cross, 1982: 224)

Largely because of the complexity facing designers, a core skill of the role is the ability to continually propose options: creating more and different options before making choices. Cross (1997) noted that the practice of generating multiple options and iteratively testing them is one common to architects, engineers and other designers and so this is a core part of design practice. Owen (2007) confirms that design thinking tries to avoid making final choices for as long as possible by gradually experimenting and testing to reduce uncertainty and thereby, ideally, de-risk decision making.

Rolf Faste, was Stanford's head of Product Design and a pioneer of whole-brain, ambidextrous or kinesthetic thinking. Faste saw design simply as another way of thinking. In a 1992 interview, he said: 'ignoring the grammar of visual perception is tantamount to shunning one of the five senses.' He made everyone in his engineering class draw and design. Faste introduced courses in Stanford with titles such as: Ambidextrous Thinking: Need Finding; Visual Thinking, they came with lots of defined reading but they approached learning by way of design activity. He saw Design Thinking as 'a method of creative action.'

Design Thinking became absorbed into the corporate world largely as a result of the success of one of Faste's colleagues, Tom Kelley, who adapted its mindset, its tools and its rules in a commercial design practice called IDEO and also located in Stanford. By the 1990s, David Kelley of IDEO, Larry Leifer (a distinguished academic specialising in the topic of radical innovation) and Terry Winograd (a computer science professor from Stanford) were amongst the pioneers of what had become to be known as the Design Thinking Movement.

Gracio et al (2017) note, while creativity may be at the heart of design: design has to serve economic as well as creative goals and this explains why it has become such a popular theme for business conferences. The Design Thinking process gives non-designers a flavour of the type of thinking that characterises professional design. It gives businesses an appreciation of the very special skills good designers bring to projects. Bjögvinsson et al (2012) look at the work of Tim Browne, particularly *Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation* (New York: HarperCollins Press, 2009) and acknowledge that Design Thinking and 'has a better articulated and more appealing rhetoric.' They agree with Design Thinking but consider, like all design, it has to get past merely designing for 'single use' or commercial things.

In 2005, SAP co-founder and CEO, Hasso Plattner was so impressed with the potential of Design Thinking that he made a personal donation of \$35m to fund the d.school in Stanford which is officially named the 'Hasso Plattner Institute of Design at Stanford'. This high profile endowment acted as a catalyst and now design thinking is taught in leading business schools such as Harvard, Oxford, Darden and the Rotman School in Toronto.

Celebrating the Year of Irish Design in 2015 gave a shot in the arm to Design Thinking in Ireland and, to coincide with it, the leading employers organisation, IBEC, brought over Tom Kelley from IDEO to headline their annual conference that year. Similarly, the IRDG (Irish Research and Development Group), a lobby and networking group for companies investing in R&D, had Darden's Prof Jeanne Liedtka visit Dublin for their conference. Both conferences had Design Thinking as their explicit themes.

### **Some examples of outputs from Design Thinking**

IDEO, the preeminent design agency in the design thinking space, regularly headline talks and articles on design thinking with the case study of the General Electric MRI scanner and the Design Thinking approach taken by innovation manager, Doug Dietz (Kelley and Kelley, 2013). This is a story that will be well known to the design community but it tells of the redesign of the children's MRI experience from one in which 85% of patients had to be sedated because of fear of the machine itself, leading Dietz to commission the redesign of the room or suite and the machine itself to look like a Pirates of the Caribbean adventure rather than a sterile, fear-inducing, clinical machine. The result was a dramatic shift in patient experience leading not solely to better patient outcomes but to better stakeholder outcomes for the staff, for the parents and for the hospital too.

In the literature, instances of successful design thinking cases are relatively rare but the applications are extremely varied and include, inter-alia, using design thinking: to build a cultural cluster in Dublin around Merrion Square (Robbins and Devitt, 2017): to enhance service delivery for people with developmental disabilities in San Francisco (Sutton and Hoyt, 2016): to develop innovations in an Australian airport (Price and Wrigley, 2016): to innovate in the circular economy (De los Rios, 2017) and in the sustainable construction sector in the UK (Georgeiadou et al, 2013).

In their book, *Solving Problems with Design Thinking: 10 Stories of What Works*, Liedtka et al (2013) provide ten examples of successful design thinking projects in which the Darden team have been directly involved. These include cases from IBM, Toyota and SAP as well as instances in social innovation too from Denmark to Dublin. Interestingly, as Design Thinking is concerned primarily with the Fuzzy Front End of innovation, there is invariably a considerable time lag between the activity itself and the ensuing outcome and moreover if the result is successful, other, later stage organisational processes may get the credit.

## Conclusion

Readers of scripture will remember that the prodigal son was the one who squandered the resources of the family (his half, anyway) and ultimately had to return to the homestead seeking refuge, understanding and forgiveness. His father, seeing him in the distance, ordered the best robes to be placed upon him and the fatted-calf to be prepared for a welcoming feast. Not everyone agreed with the readiness of the father to reconcile with his profligate son and this is likely to be the case when *design* embraces Design Thinking.

There is a certain schizophrenia in the attitude of designers to Design Thinking. On the one hand, they like it because it brings corporate attention to design: non-designers are suddenly interested in design. Also, it positions design at the forefront of the creative push for new ideas for business. Design and innovation are now inseparably linked and this was not the case before Design Thinking forged that link. It also elevates design into the boardroom as organisations increasingly see it as vital for differentiation and not just a sub-process of marketing or R&D.

On the other hand, Design Thinking offers a diluted version of design which, while making it digestible for business, detaches the 'thinking' from anything resembling real 'design.' In uncoupling design from Design Thinking, there is a danger that design will be written out of the Design Thinking story and some academics are already doing this (Martin, 2009). Like the prodigal son, some believe Design Thinking may be giving away the spoils of design too cheaply.

Nevertheless, many firms suffer from what Martin (2016) labels 'innovation envy'; they long for innovation; to create something new, ideally something game-changing in their industry but despite investing in R&D, they confine themselves to figuring out how to get one extra percent market share or shave one percent from their costs. Devitt et al (2017) say that firms can be inhospitable environments for innovation as they prefer the certainty of standard operations. They rely, Martin believes, on analytical thinking which is based entirely on current knowledge and data about the past. Martin and Goldsby-Smith (2017) take issue with conventional, MBA-led business analytics: instead they say businesses can't chart a course for the future or bring about disruptive change merely by analysing history. They suggest, for instance, that the behaviour of customers will never be transformed by a product whose design is based on an analysis of their past behavior. For companies to win, they need Design Thinking.

There is no doubt that part of the problem designers have with Design Thinking is that some, contemporary authors, on the topic, are almost excluding designers from the Design Thinking narrative, making it seem that it is really done by entrepreneurial business people. Martin (2009) used case studies of best practice in Design Thinking. Within these case study narratives, designers themselves didn't feature. Notable case-studies, in this book, were the RIM Blackberry case as well as Proctor & Gamble's move to an external innovation focus but one could be forgiven for thinking that Design Thinking was responsible for all the success while design itself played no role. This type of revisionism, where the cognitive processes that form the origin of Design Thinking are overlooked has caused other academics to label Design Thinking as 'meaningless' (Roozenburg, 2010).

So, it seems that the future for Design Thinking is assured because businesses, with the complexity they face and the need to help shape or invent promising options for their future, really need designers or, at a minimum, people who think like designers. However, the question with which we began the article is why is there a degree of antipathy to Design Thinking from designers. It seems that some designers cannot even bear to use the term at all. Dilmot (2018) refers to *Thinking Design* which he prefers to the more contemporary term Design Thinking. Dorst (2011) believes that Design Thinking tends to reduce the process of design and this is 'quite problematic for a design research community that has been shy of oversimplifying its object of study, and cherishes multiple perspectives and rich pictures.' (p521)

Obviously, there is much more to design than just Design Thinking. There is the making, the doing, the craft of it; the touch, the feel; the process itself: there is the intuition, the instinct and the artistic knowledge, the capacity to choose guiding themes and aesthetic affinity and, maybe most of all, the rigorous and extensive training, often in the form of an apprenticeship. Design thinking tries to synthesise these so that MBA students or business people can call on the 'designerly' way of thinking by simply using templates and this is clearly a very incomplete and anaemic variation of design.

But casting Design Thinking as the prodigal son is wrong for one obvious reason. Unlike the prodigal son, Design Thinking has not squandered the resources in a wanton and profligate way. Quite the reverse, Design Thinking has thrived: it has succeeded to the level where it is almost eclipsing the parent, certainly in the corporate world. So perhaps a better parallel is Aesop's ancient fable of the father, his sons and the bundle of sticks. The fable emphasises the strength of unity and the perils of disunion. In it, the father (Design) is perturbed by the constant bickering of his sons ( who, in this case, represent the sub components of design including perhaps one son, Design Thinking, who frustrates the others). But the father, as he reaches the end of his days, wants to illustrate to his offspring how they are stronger together and how constant fighting will render them vulnerable and weak. So, he summons his boys to his chamber and hands them a bundle of sticks, tightly bound together and asks each son to try to break the bundle. One after the other, the sons strain but are unable to break the bundle of sticks. Then, the father separates the bundle and hands his sons just one single stick each and again asks them to break the stick, which they do with ease. He then addressed them in these words: "My sons, if you are of one mind, and unite to assist each other, you will be as this bundle, uninjured by all the attempts

of your enemies; but if you are divided among yourselves, you will be broken as easily as these sticks."

It can be argued there is more that connects Design and Design Thinking than divides them. Further, *design* has more to gain from embracing Design Thinking as its parent, welcoming it back to the fold and controlling how it develops than it does from standing aside from it and allowing it thrive and possibly even overshadow its original discipline. Design and Design Thinking will be far stronger together than apart. We should listen to Aesop!

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