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Creating value across the knowledge funnel

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Among CEOs, Steve Jobs is widely viewed as a design thinker, thanks to the many captivating products from Apple's stable. But he is not the solitary design genius of popular imagination, writes **Roger Martin** in '***The Design of Business: Why design thinking is the next competitive advantage***'. He adds that it was Apple's designers, led by Jonathan Ive, who realised those innovative products. "Jobs played a different, equally critical role: he created an organisation that placed 'insanely great' design at the top of its hierarchy of values, and he gave the green light to spend the resources necessary to make lasting successes of his designers' innovations."

To become a design thinker, you must develop the stance, tools, and experiences that facilitate design thinking, the author guides. "Stance is your view of the world and your role in it. Tools are the models that you use to understand your world and organise your thinking. Experiences are what build and develop your skills and sensitivities over time."

The book opens with a chapter titled 'the knowledge funnel,' depicted with 'mystery' at the top and 'algorithm' at the bottom, and 'heuristic' coming in the middle. The ultimate destination of algorithms as of the late twentieth century is computer code, explains Martin. Once knowledge has been pushed to a logical, arithmetic, or computational procedure, it can be reduced to software, he notes.

"Armed with the algorithm for gravity, clever engineers at Honeywell were able to create autopilot systems for giant commercial aircraft so that they could be made to fall out of the sky in a passenger-friendly fashion without human intervention."

Another example is of software inspired by the fifteenth-century Florentine painter and architect Filippo Brunelleschi, who innovated 'a repeatable method – an algorithm – that allowed him and other artists to reliably create the illusion of three-dimensional space.' How is the algorithm for perspective applied? "Computers now use the three-dimensional data transferred from a camera to spit out a two-dimensional representation of it based on the formula handed down by Brunelleschi and codified in matrix-multiplication software."

Creating value across the knowledge funnel requires two very different activities, the author says. One, moving across the knowledge stages of the funnel from mystery to heuristic and heuristic to algorithm; and, two, operating within each knowledge stage of the funnel by honing and refining an existing heuristic or algorithm.

He cautions that the business remaining at one stage in the knowledge funnel can fail to capitalise on the option created when knowledge is advanced quickly through the funnel, because it misses the opportunity to delve into the next mystery and push that mystery through the funnel ahead of the competition.

"To exploit that opportunity, a company can choose to redeploy the personnel who successfully tackled the last mystery and advanced knowledge along the funnel. By putting these resources to work on new mysteries, the company both defends its current position and goes on the offensive by exploring new opportunities."

Martin rues that the vast majority of businesses follow a common path – a path that begins with the birth of the company through a creative act that converted a mystery to a heuristic through innovative thinking, and then honing and refining that heuristic through increasingly pervasive analytical thinking, and entering a long phase in which the administration of business dominates. "And in due course, a competitor stares at the mystery that provided the spark for this company, comes up with a more powerful heuristic, and supplants the original business."

Successful companies balance exploration and exploitation by continuously looking back up the knowledge funnel to the next salient mystery (or back to the original mystery) and driving across the knowledge funnel, in a steadily cycling process, the author decodes. "These few businesses come to be defined by their balanced approach. They become design-thinking businesses."

Martin finds it disturbing that many businesses increasingly rely on algorithm-based decision-making and decision-support software, and are getting highly skilled at using algorithms to produce outcomes that are reliable, that is, consistent and predictable. "Companies that devote all their resources to reliability lack the tools to pursue outcomes that are valid, that is, that produce a desired result. Indeed, many organisations see no value at all in valid outcomes. Little wonder, then, that those same organisations don't know how to manage validity-seeking activities to generate lasting business value."

While 'reliability-oriented' management systems are vital to the operation of any large organisation, they are no panacea, the author advises. As example, he mentions how an ERP system can provide useful real-time data to track whether resources are being used efficiently but it cannot generate a robust strategy.

Similarly: "CRM systems put a wealth of data at the fingertips of customer-service reps, but data is no substitute for intimacy, as corporations discover when customers complain that the systems make them feel as if they are buying from Big Brother. Six Sigma and TQM systems drive out waste from the business as currently configured, but they will not generate innovative new business designs."

So, too, KM (knowledge management) systems may attempt to organise all the knowledge in a corporation, but they cannot produce imaginative breakthroughs, Martin avers. Advances in knowledge, he says, emerge from the pursuit of valid results.

Highly reliable processes lead to fall in costs and rise in efficiency, by eliminating uncertainty. But an organisation that defines itself as being primarily or exclusively in the business of running algorithms is taking a high risk, the author warns.

"What organisations dedicated to running reliable algorithms often fail to realise is that while they reduce the risk of small variations in their businesses, they increase the risk of cataclysmic events that occur when the future no longer resembles the past and the algorithm is no longer relevant or useful."

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