

Design Thinking: Transforming Strategic Thinking towards Human - Centric Innovations

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Abstract

Today innovation in everyone's business is get lean and to do better with less, in all spheres of economic activities: a manager in the corporate world, an start up entrepreneur, an employee in a government department, and even a teacher in a school/college. Design thinking is an organized and creative approach to solve challenging problems providing the tools at every level in every kind of organization to become an innovative thinker and uncover creative opportunities. Design thinking principles applied to a firm's strategic thinking process discovers the original path for innovation. A mixed methodology was used to discuss the potential of design thinking to uncover compelling design solutions supporting futuristic innovations. The paper provides an overview of design thinking applied to strategic decision making designed for changes and develops a model containing tools to help understand design thinking as a problem solving a human-centric approach.

Keywords: *Strategic thinking, Idea generation, Innovation, Design Thinking, Mind Mapping, Story Telling*

Introduction

All successful innovation begins with a precise assessment of what is going on today by developing a better understanding of current reality as a hallmark of design thinking. Managers frequently want to run immediately to the future to start the innovation process by brainstorming new options and ideas. The phase of brainstorming is initiated to think outside the box and intends to generate many creative ideas. The original plans are combined to form business concepts, and each idea will be treated as a hypothesis for systematically evaluating against the design criteria. An innovative thinker will identify that "WOW" sweet spot matching organizational resources and capabilities, transforming into

experiments to be conducted among potential users as a prototype before delivering the final innovative offering. Design Thinking bestows a solution-based technique for fixing issues, an iterative system to understand the user, venture assumptions and redefine problems to try picking out opportunity, techniques and answers that may not be right away obvious with the preliminary stage. Design thinking enables to broaden empathy with the goal user within the system of thinking: questioning the trouble, wondering the assumptions and thinking about the implications (Dam and Siang, 2018).

Design thinking, a user-driven approach, a human-centric approach and also a problem-solving approach considers four crucial questions relating to human-centred, possibility-driven, option-focused and iterative to be answered in its method (Gheerawo, 2018). Human-centered is where it always starts, with people, with real human beings. Design thinking emphasizes the importance of in-depth exploration into the lives and the problems of

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the people adopting market research methodologies that are qualitative and empathetic. And also enthusiastic about engaging other human beings in co-creation to generate value before being allowed to start developing solutions. Possibility driven means asking questions as to what extent was it possible in creating new ideas focusing on multiple options managing a portfolio of options making it choice focused too? The process is iteratively committed to conducting cycles of real-world experiments rather than running analysis using historical data as it is not expected to get it right the first time. Constructive feedback to refine the prototype for scaling its effectiveness will be carried out in the action stage of workability. Design thinking is increasingly adopted in organizations aimed to develop innovations leading to successful new products and services (Nakata and Hwang, 2020). It has been heralded as a unique problem-solving method well prepared to manage and overcome the challenges business corporations face in encouraging innovation and growth. Design thinking is valuable for enhancing innovation outcomes by assisting decision-makers to reduce their level of cognitive biases (Liedtka, 2015). Design thinking was typically described as an analytic and innovative procedure that engages someone in possibilities to experiment and create prototype models, acquire feedback, and redesign (Razzouk and Shute, 2012). Design thinking equips organizations to holistically explore an answer with the customer to solve complicated human-centred demanding situations and promote smart decision-making, which can be the precise component for a successful strategy. The advent of design thinking as an instrument for innovation has brought about its adoption by several organizations (Wrigley, et al., 2020).

The paper provides an overview extracting the principles of design thinking using both quantitative

and qualitative approach. Data is collected from organizations to make a comparative study of the benefits attained through design thinking for futuristic developments and also finds suitable tools which assist organizations in the move towards infusing design thinking.

Strategic thinking

Strategic thinking is a unique control activity to find out novel, creative techniques that may rewrite the guidelines of the competitive game; and to check ability for future considerably distinct from the present (Heracleous, 1998). Strategic thinking develops step by step over a length of time and are preferred till it experiences compelling growth. Companies have to preserve vital making plans periods regularly (Goldman, 2007). Strategic thinking seeks internal alignment and knows interdependencies, systemic in awareness. It requires the ability to recognize and combine throughout levels and elements, each horizontal and vertical and to align techniques throughout those levels. Strategic thinking is constructed on the inspiration of a systems perspective.

The change is considered to be inevitable for any industry, and innovation is no different. Many companies who embraced change to experience innovation success through design thinking principles, support the conclusion "Design thinking Wins". The opposite mindset pushes companies at the risk of failure and even more devastating. The challenges business leaders face today are substantially different than the ones encountered in previous times. The lessons learned from the failure have allowed companies to learn from the mistakes and continue to innovate in future. Many companies have emerged with new strategies, innovations, technologies and have embarked on design thinking principles for sustainability.

Table 1: List of high performing companies that were put to risk
 (Aaslaid, 2019 <https://www.valuer.ai/blog/50-examples-of-corporations-that-failed-to-innovat...>)

Nos	Company	Reason for failure
1	Kodak	The management focussed on film success and failed to see digital photography as a disruptive technology
2	Nokia	Overestimate the power of the brand, more focus on hardware and failed to recognize the importance of software
3	Xerox	First to invent PC but management did not exploit the opportunity to go digital
4	Blockbuster	Video rental company failed to innovate into a digital market with much less streaming
5	Yahoo	Undervalued the importance of search neglecting consumer trends and user experience
6	Segway	Personalized motorized scooter with revolutionary transport option with high price tag find difficulty for practical users
7	IBM	Failed to alter to the personal computer revolution
8	JCPenney	Department store failed to identify its new niche and faced an identity crisis
9	The Rack	Tie retailer failed to research shopping behaviour
10	Blackberry	Mobile industry failed to adopt changes in manufacturing, continued with small screens
11	MySpace	Website dominating social networking could not catch up with Facebook and changed its focus
12	Sears	Department store found it challenging to adapt to changing consumer tastes
13	Macy's	Department store chains stick with the concept of a traditional store - brick and mortar.
14	Hitachi	The electronic industry did not change with the electronic revolution and take up opportunities
15	Polaroid	Failure to adopt digital photography
16	Commodore Corp	Due to low resources and economy of scale, could not keep up with the advancements in PC
17	Toshiba	Competitors were able to sell computers for lower prices via the online platform
18	RadioShack	The electronic retail company was not able to spice with new marketing strategies
19	Borders	Bookstore failed to adapt to new technologies and the Internet
20	Motorola	Failed to realize that customers required innovation in software
21	Palm	The company failed to realize that Smartphone customers wanted wireless voice and data from the device
22	Sony	Did not adopt technological innovations and the shift towards software
23	Pan Am	Airways lost trust from customers, and innovative ideas could not save the airline company
24	National Geographic	Refused to start a channel at first and Discovery channel became the competitor, lately launched its satellite channel a little late
25	Nike	Nike Fuel Band was a failure in the market as the product was not a necessity.
26	Circuit City	Failed to compete in the market due to the lack of talent management
27	Google	Google Glass failed in the market due to high pricing and privacy concerns
28	Hummer	Highly expensive vehicle but consumers were increasingly environment friendly and took the product in a negative light
29	Netscape	The company had technological innovation but failed to Internet explorer
30	Abercrombie\$ Fitch	Fashion brand became outdated and offensive to teens

31	Atari	Gaming industry failed to make a shared experience in games
32	MapQuest	Web mapping service failed to adapt to changes, and the interface was hard to understand
33	Toys R Us	Kids retail store missed the opportunity to develop its e-commerce presence
34	Pets.com	Online selling of pets could not plug solutions for e-commerce management
35	HMV	Could not keep along with digital disruptions of downloading music online
36	Tower Records	Retail music chain was not able to keep up with digital revolution like music piracy and streaming services
37	Compaq	Struggled to keep up with price wars
38	Clinton Cards	Greeting card company did not force the purchasing of greeting cards to shift from physical stores to online
39	Enron	The management was not successful in building up the brand with trust
40	Hostess	Failed to keep up with taste trends and issues with branding strategies
41	General Motors	Failed to innovate and ignored competition in the market
42	American Online	Failed to rebrand and position the product and lost the customers
43	The Sharper Image	Consumer electronics and lifestyle company failed in strategic decision making
44	TiVo	Digital video recording product did not correctly identify the market and was late
45	Pebble	Smartwatch market was still small and was not mature to support the success of wearable's
46	XFL	The business model was a failure when it came to live telecast
47	DeLorean Motor	The car was a failure with its innovative design which were considered as shoddy performance
48	The Concorde	Technologically unfit airline due to high energy consumption
49	The Daily	A bold experiment in digital publishing but failed in finding a larger audience for a long run
50	Nortel	The telecom company were blamed for fraudulent activities from the management side

Table-1 shows an example of 50 such companies which were put to risk as a result of refusing to evolve with the market and needs of customers (Aaslaid, 2019)

Lack of strategic thinking results in choice of bad techniques (http://iwire365.com/strategic_thinking_difficulty/); unclear the objective, quicker modifications and that could affect the survival of those organizations. The strategy gives strong data support and analytics options to make the most logical decisions about the move in the future (Frank, <https://www.kepner-tregoe.com/>). A strategic thinker has an intellectual version of the entire give up-to-end system of cost creation

and knows interdependencies within it (Liedtka, 2000). Proper alignment of principles of strategy with awareness at the improvement of strategic thinking might cause higher selections that might enhance results, while developed within all levels of the organization, each person and with the group. Strategic thinking is the more creative, visionary and reflective manner that affords broader and higher expertise of the corporation and its organization and permits a trendy development of control mainly in the long term (Dionisio, 2017).

Design thinking finds a right fit with the strategic thinking by sensitizing the ability to look out into the world, the power of observations and discovers

new solutions to traditional problems evoking curiosity. Design thinking consists of inter-related mindsets and actions strengthening new products and services with robust effects across levels of market turbulence (Nakata and Hwang, 2020). Good design thinking is about bringing wildly divergent points of view together to have a diverse set of inputs for approaching a challenge that offers another skill set and another approach. Both convergent and divergent thinking, developing a prototype and the iteration based on customer research with ethnographic qualitative dimensions will result in disruptive innovation through design thinking.

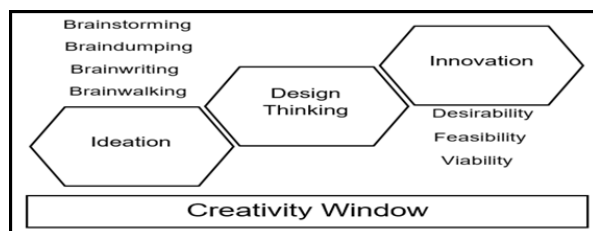
Design thinking to generate innovative ideas

Action that creates a possibility is not random as opportunities are available for people, and strategy is required for taking movement and seizing possibilities that always display talent (Horowitz, 2020). Opportunity evaluation is the technique of figuring out and exploring conditions for enhancement to higher positions for employees in the corporation, to recognize high profitability, efficiencies, marketplace ability or different ideal/objectives (Porcaro, 2016). There are conditions under which concept sharing in companies may be productive. One critical component is the quantity to which group participants cautiously process the thoughts exchanged within the institution. Another is the possibility for group participants to mirror at views after the alternate method. Both elements have been tested through the use of a brain writing paradigm (Paulus and Yang, 2000). Traditional idea generation strategies based on consumer input generally acquire statistics on new product desires from a random or typical set of customers (Lilien et al., 2002). The methods expert designers use for problem-solving is of value to corporations looking to innovate and to societies looking to make change

happening (Kimbell, 2015). Ideation aims to generate a significant amount of thoughts that the group can then clear out and reduce down into the best, maximum sensible or maximum innovative ones as a way to encourage new and higher layout answers and products. Ideation facilitation is a challenging and complicated task, requiring experience in understanding and coping with teams, people dynamics, adaptability and versatility and several other soft skills. Some important ones are Brainstorming to construct desirable thoughts from each other, Brain dumping similar to brainstorming but performed individually to generate beneficial ideas, Brain writing, where everyone writes down and passes views for others to feature to earlier than discussing and Brain walking in which individuals walk about the room, adding to others' ideas, are a few identified ideation facilitation techniques (Dam and Siang, 2017).

Ideation sessions seem to include an element of fun and certainly exciting. People need advice, ideas and activities, in a physical and cognitive manner. Ideation is an innovative and focused step to create the proper kind of surroundings to assist that creates an innovative work culture with a unique, courageous and focused environment. Design Thinking and Ideation sessions require an area wherein everyone is equal (Dam and Siang, 2019). Design thinking is based on the human ability to be intuitive, to understand patterns and to assemble thoughts which might be emotionally significant in addition to being functional. Design thinking is a human-centred practice to innovation combining the needs of people, technological opportunities along with all the necessities for success of an enterprise. Design thinking brings collectively what's suitable from an human aspect of view even permitting people who are not as skilled as designers to apply innovative tools to cope with a vast variety of challenges (Muller and Thoring, 2012).

Figure 1: IDI Window of Creativity: designed by authors



The value of the design solution will increase if there is a balance in feasibility, desirability and viability (Orton, 2017). Figure 1 shows how ideation supports design thinking for innovation in all aspects of life and business, which can be named as the IDI window of creativity. Innovation has to be feasible, measuring the operational competencies leveraged in a brand new solution, desirable focusing on whether the answer is acceptable and Viable, suggesting long-time period sustainability.

The Feel of Design thinking

The Nobel Prize-winning company IBM has embarked on and is successful in transforming the company by embracing design thinking. Case analysis is carried out to explore how IBM turned as a company designed by engineers to a company engineered by designers. The case focuses and relates to a team from Experience Marketing firm collaborating with IBM to apply design thinking principles, tools and techniques to transform trade shows from spectacles into conversations. The human-centred approach and the collaborations between the designers and users have finally driven the outcome of the thought-provoking story.

IBM takes part in more than 8,000 trade shows per year. IBM had another business objective born out of recognition that the world was becoming more dynamic and complex, a new strategy called IBM Smarter Planet. The technology was playing a more significant role in addressing global pressure points and solving the problems across industries through technology. Smarter Planet is not just

a campaign for IBM, but a way of looking at the world, a call to action to use systems thinking and technology to address the world's biggest problems and business practices. Accordingly, IBM wanted to make experiences that embody these principles and elements of smarter planning. The problem that IBM focused on was the disconnect between various events and positioning, strategic capabilities and legacy of innovation. IBM was looking for a way from the trade shows to demonstrate the depth and breadth of expertise, to strengthen customer relationships and to drive revenue growth in an increasingly complex world. To attain the objective, IBM team took a three-part approach- Step one examined what the current state of the art knowledge on social interaction is in generating powerful insights into learning and collaboration. Step two, mirroring what if stage and to come up with new ideas that can be used across various events and context. And then step three unite what wows and what works to create testable prototypes that could be validated in the marketplace. IBM team wanted to begin by explicitly moving away from existing models of trade shows. They elected to focus instead on a broader topic, how human beings engage and learn. With this more extensive research goal team members decided to cast their nets wide, to gather data on social interaction from experts in a wide variety of fields as diverse as theatre design and military training.

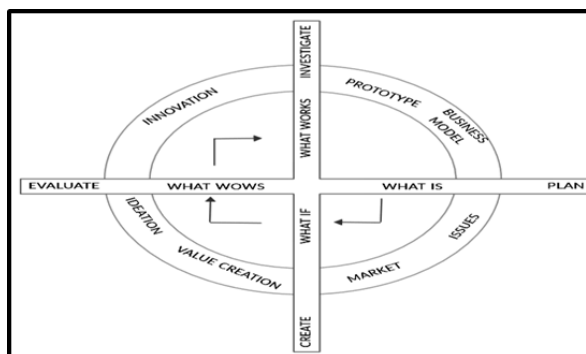
Over several months, the team interviewed more than 100 experts in 20 different fields, seeking to understand why people act the way they did, how they learned and how to engage them better. Out of these interviews, themes began to emerge around human cognition and learning. There was a series of ideas that came out of it. The more comfort is created, the more people act as though they are comfortable. This suggested that the fair media environment for learning might be the exact opposite of the typical

business development environment where people are put in a conference room with closed walls, no windows, the temperature's not right. There is one glass of water on the table that everybody brawl over. Interactions that appeared like they were spontaneous, but designed to occur in a certain way. Planned spontaneity, like comfort creating, had real implications for the team's work on trade shows. Another significant insight emerged around the track one greets a guest to make them comfortable. The question was how to enact all of the themes in an actual trade show experience. Design thinking is about finding relevant data that's already out there, which will be a perfect source of insights and not always about first-person ethnography and use of secondary resources. So the team needed to translate the ideas into design criteria that IBM could perform at thousands of events spanning markets and audiences. The physical environment, need to incorporate all of the different ways, visual and auditory, comfortable and engaging that people can learn. It would be conducive to be in informal communication and uplift the building of trust.

Team members thought of generating physical spaces as communication landscapes to facilitate collaboration. For comfortable physical space, conversation zones with thick carpeting for the people to stand were created. IBM organized 18 different technology-based banking solutions and pointed people towards another part of the space at the trade show, depending upon the solution required. In the new approach, a more flexible interconnected environment where participants could engage in a variety of settings were created to focus on the way that conversations naturally take place and the clues were extracted based on customer needs during the interaction process itself. Further to create opportunities for more formal discussions in conference rooms with large screens and whiteboards, hybrid environments which

support clients to be more comfortable across the different communication contexts were created. The team members concentrated on the details of each situation and the implications for human interaction. Along with the physical environment, opportunities were created for planned spontaneity. Incorporating the insights into new trade show concept, the team was able to develop, client-centred multi-directional communication and learning experience.

Figure 2: Design thinking principles in practice:



Once the team members had generated new environments, they sought an opportunity to create prototypes and to test the inference in a Learning Launch. Figure 2 shows the principles applied for design thinking, the 4Ws - What is, What if, What wows and What works for a design-led business model. Planning is done during the 'What is', stage to identify issues and opportunities in the market which leads to creating value creation, 'What if using idea generation tools and techniques followed by the role of an innovative thinker as well as a design thinker to evaluate 'What wows' in the situation leading to innovation and reaching the ultimate goal of 'What works' by building a prototype simulated to the most-awaited business model. When IBM executives find the results, they decided they did not need further pilots for Learning Launches and they decided to scale the new approach immediately. The first use secondary research to answer what is the question, and turn

these insights into specific design criteria that their ideal unique trade show experience would meet. They brainstorm solutions and then concentrate on what wows to surface assumptions and then to construct 2D prototypes that began to test them.

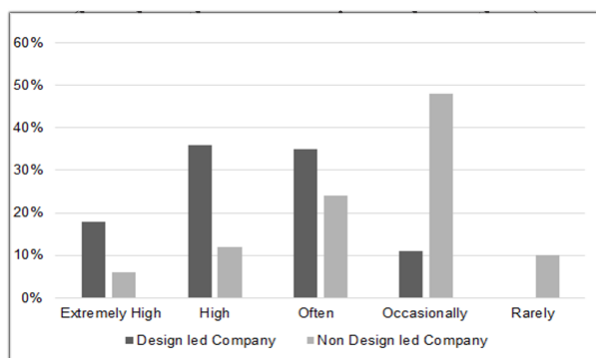
Sibos: IBM Financial Services participate every year Trade shows named as Sibos, an event that brings together senior executives from the financial industry and their technology partners. Compared to large trade shows Sibos are small, drawing only about 7,000 participants where the team conduct its Learning Launch on its latest design. The Learning Launch is the mechanism that steers the whole process of iteration that is so central to design thinking. The focus is on integrating communications and technology into the experience in ways that would enhance flexibility and flow across both informal and formal situations. Notably, the physical space, employee training and technology all are planned and integrated to provide a cohesive and engaging client knowledge at the trade show. Physical elements, puzzle piece table, are a huge hit. Data around the depth of engagement show that the new trade show design lead to higher relationship building. The case of IBM strongly supports forward-thinking with emphasis on the power of design thinking. It is continuing its longstanding tradition of reinvention adapting to the ever-changing needs of its customers with an agile human-centred approach.

Experimentation and Findings

Business today, has a big challenge around, doing the right thing, around sustainability. From above, it is clear that design can be applied at a strategic level and through consistent storytelling across user experience creating core value to the organization. A survey was conducted with a population of 45 managers/experts in the design thinking/decision making from 15 various companies. Based on the

interview responses, companies were identified as design thinking led strategic decision making organizations, and non-design thinking led organizations. Eighty-eight per cent (88%) of design thinking led companies are using tools to test ideas with customers, and eighty-one per cent (81%) apply a well-defined process to generate innovative ideas as problem-solving solutions. Ninety-two per cent (92%) of design-led companies specifically have a design team working with ideation.

Figure 3: Applying design practices in strategic level



A comparison between companies who apply design thinking at strategic level companies and companies who do not use design thinking is shown in figure 3. The figure represents that design thinking led organizations are a strong influencer of practising design thinking practices stressing the relevance of design teams in strategy formulation for sustainable success. A comparative study of the organizations revealed that the benefits of design-led organizations out-weighed more in all aspects of the firm's performance. A culture to do better and lean supporting a range of skill sets with experienced strategic oriented designers applying collaborative tools and techniques to unify workforce were the highlights of the design thinking led organizations. Organizations that emphasis on design thinking approaches work along with the notion of customers and in the way customers want to be associated. It is, therefore, crucial to bring in an emotional

touch to consistently connect with the customers, majority of the firms keep track on the relevance of design thinking but find difficulty in connecting the dots across various channels, devices, technology, employees and finally how it is resonating with customers and consumers. But there is a path that can head to move in that regard which is critical in today's digital landscape. Mind mapping tools and the art of storytelling works well in the designed organizations making each activity engaging internally and externally. Mind mapping will enable to generate, visualize, shape and classify thoughts to search for patterns and insights that provide critical layout criteria. Storytelling permits careful attention to flow and logic that is essential to leadership in tomorrow's world.

Discussion- Stepping with the tools of Design thinking

Mind mapping is considered to be one of the tools to help to move forward in the design process. Mind mapping is used to impart critical and analytical skills and permit peer relationships among principles and additionally as a way of assessment. Pictures and established diagrams are used to convey ideas more transparently to demonstrate the expertise of complicated topics (Davies, 2011). The goal is to form the basis for the, what-if idea, generation phase and is pivotal in the design thinking process. Mind mapping provides a seaway from what is to, what if, the engaging alternatives to sum up and communicate in charts and spreadsheets. Mind mapping is more intuitive, more creative, visual and more engaging. In design thinking, the mind mapping process is used to capture and represent the minds of the customers to involve developing an ordinary mind regarding the current reality of a design challenge. Through mind mapping, data are extracted in a way that lets patterns and insights

emerge involving many stakeholders.

Figure 4: The design thinking model (Authors own

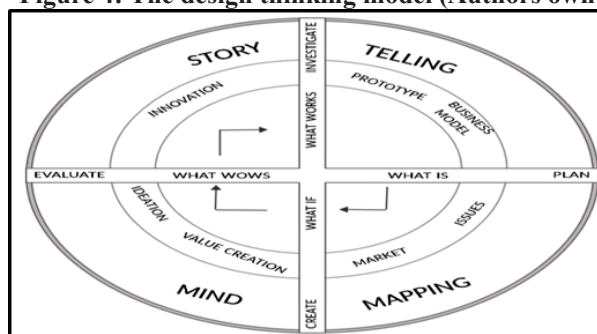


Figure-4 shows a design thinking model incorporating the two useful tools of design thinking. Storytelling is always a part of the business and a responsibility for managers. Storytelling includes a few things that have to be done from a manager's side to create a perfect story. A good story is outlined for the audience, first and the foremost thing is to know the audience. The second part of a good story is a precise sequence of events that moves the story from the beginning to an end. The third one is having moments of reflection. The great storyteller asks and answers questions along the way, building suspense and then reducing the suspense by answering the questions. Storytelling can overcome the primary challenges that leader's face- getting the audience to pay attention, create energy, passion and excitement around something and make strategy accessible. Storytelling makes it simple, makes it relatable, gives strategy colour, and life in character and plot allowing even the line workers to understand what they are doing.

Storytelling, in particular, has four factors: message, conflict, characters and plot (Boje, 2008) and a fundamental part of every great brand. Every great product, every excellent service, every great institution, has a story behind connecting emotions, characters, values of the people. IBM has taken up storytelling as a tool for design transformation;

however, it has carried out so with inside the context of expertise management (Srinivasan, 2005). The particular set of relationships that may generate through the deployment of the factors will represent a specific story. System thinking has a mono-logical narrative about the organization at the extent of image, symbol and transcendental components of dialogism (Boje, 2008). Storytelling is not regarding the list of things that have to be done but about the connection that gives people about a piece of information to share. A good story at its essence is merely conveying a message that has logic. It has an emotional connection, and it also has a larger purpose.

Conclusion

Design thinking is specifically a problem-solving approach in design, but many firms are not aware of the real and tangible competent advantages of this as the very bottom line of business. Organizations can leverage design practices to align the customer in all touch points with emotional bonding and investing in talent and capabilities that promote a culture of collaboration and shared vision. The article covers an overview of design thinking linking with strategic thinking for ideation and innovation for sustainability. A list of high performing companies which were at risk due to ineffective strategic thinking is discussed. A real-time case of business transformation to peaks of success is comprehended to build concreting evidence supporting the application of design thinking models from a business perspective. A comparative study of the organizations using survey data revealed that the benefits of design thinking supported organizations out-weighed more in all aspects of the firm's performance. Mind mapping and the art of storytelling finds a right fit for those organizations to connect across various channels, technology, employees and customers and consumers. Design thinking will be beneficial

for solving complex issues and in future, design thinking will concentrate more on using tools such as strategic foresight and future casting for further improving user experiences.

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