Expanding Domains of Design: Ascertaining its Impact on the Discipline

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Abstract:

Design is now seen as a strategic asset that can make a critical difference between success and failure of enterprises. In the innovation-driven global economies of today, the design is increasingly recognized as the core of the innovation process. And the design will be the driver of tomorrow's creative economies and their mass-customized markets. Design is now established as an independent discipline. Began with a restricted objective of beautification of objects, messages, and environment, design now deals with interactions, services, experiences, and strategies. With creative execution, design now encompasses creative definition. Today the designer deals with the challenges that are complex and exist within larger systems having their elements interconnected and in constantly changing relationships. The traditional product-centric design approach has changed to the human-centric design approach and further to the humanity-centric design approach. From design as an outcome, the profession has expanded to utilize the design process and design thinking to all spheres of economy and life. Started as a generalist discipline, design now encompasses a range of specialization within the discipline.

Preamble:

Innovation has today emerged as the driving force of the economy. And the design is now increasingly recognized as the core of the innovation process [1]. Industries around the world are struggling to keep pace with the accelerated rate of change. In the barrier-free global markets of today, industries need to constantly provide new offerings and improve their existing offerings. Design is now seen as a strategic asset that can make a critical difference between success and failure of enterprises [2]. Design is the starting point for innovation. It helps envision the future and makes those visions reality. Design helps create new concepts and realize them into products, services or systems for the benefits of both, the users as well as the producers. The concept of design brings in not just the aspects of quality, functionality, and aesthetics, but also a commitment to social values, culture and tradition, and user preferences. There is increasing awareness of the fact that design contributes positively to the quality of our living, both economic and social

well-being. According to the 2015 Design Value Index created by the Design Management Institute and Motiv Strategies, design-led companies have outperformed the S&P 500 over a 10 year period by an extraordinary 211% [3].

Design, traditionally equated with aesthetics and crafts, has now transcended to a strategic tool influencing all the various components of the organization. And there is now not much distinction between business strategy and design of the user experiences [4]. Realizing the strategic importance of design, more and more organizations are today bringing the design to the center of their organizations. It is not just to improve their products or their offerings. Rapid technological developments, demanding markets, fragmented product segments; they all have increased complexities of modern technology and business. Agile, flexible and responsive organizational culture is thus the need of the hour to respond to the ever-increasing demands and aspirations of the fast-changing markets of today. There is now a visible shift towards developing a design-centric culture in the organizations.

Design and it's Beginning:

Design and its pedagogical approaches can be traced back to the Bauhaus era and other modernist efforts during the period [5]. The principles guiding the design practice were influenced by the industrial economy. The focus was on improving the function and appearance of the product, message, and environment. The design process was mostly linear; a process of incremental change. The primary role of design was to simplify complexity, mainly by reducing the number of interacting variables in the problem context. Sketching with paper and pencil as their primary tool, designers worked to make things more beautiful. The invention of new materials and manufacturing processes in the fifties and sixties offered further scope to explore forms. And the arrival of computers and CAD in the eighties provided further opportunities and freedom to the designer for their creative expressions as well as streamlining its process of development. Designers could now capture their design intent along with information for engineering and manufacturing [6]. Designers thus became the crucial link between the markets and the industry, and for developing its unique value proposition. Industries started realizing the potential of design to gain a competitive advantage in the markets. Focus thus started shifting from the conventional technology and engineering-driven approach to a design-driven approach.

Design, as we know it today, is the product of thought and deliberate action that is composed of intentions and imagination and its effects are refined by iterative explorations and supported sensitive judgments and convictions where actions come before the provision of proof of concept [7]. The design process involves trans-disciplinary, creative and lateral thinking and has the power to effectively supplement technology and management to generate business solutions in an increasingly complex global economy. Design helps develop the idea/invention further to a practical and contextual solution - an innovation that matches user aspirations. By the very nature of its profession, design helps bring in the much needed empathetic understanding and holistic vision to connect and integrate various efforts towards a positive outcome [8]. The designer utilizes the unique strength of the idea, helps to connect it to the users' aspirations, and in the process helps to overcome typical resource and skill constraints.

Design helps deliberate and reason shaping and making of our environment in ways that satisfy our needs and give meaning to our lives (Heskett 2002) [9]. Design is recognized as the central factor of innovative humanization of technologies and the crucial factor of cultural and economic exchange. Rooted in empathy for people and a deep understanding of cultures and user context, design helps democratize technology to reach out to the wider strata of the society. The design brings together the finest sensibilities of the arts with the logic of science in an innovative framework that encompasses the study of materials and material culture, a design attitude, and methodology that establishes connections with the fabric of the society [8]. With increased expectations and demands from design, the capabilities and skillsets of the designers also expanded. Tom Kelly, co-founder IDEO, in his book *'Ten Faces of Innovation'* terms today's designer as 'T' shaped designer, the one having empathy and ability to collaborate across disciplines along with deep knowledge of specific domain [10].

Expanding its boundaries:

With the shift from product design to experience design, designers further developed their ability to create unique user experiences. And with the emergence of the digital economy, user interface, UI and user experience, UX have now become the next frontier for the designers. The traditional value proposition, the promise of utility, has

now transcended into the promise of feelings [4]. People transition across devices and they expect seamless and unified experiences [5]. From product aesthetics, the focus has now shifted to the customer journey and user experiences, the intangible aspects of the products, messages and the business as a whole. With these increased complexities, greater risks involved and reduced time for design; today's economy demands the design process, especially the design methods and tools to be far more refined and precise, while still maintaining creativity.

Challenges faced by today's designers are complex and they exist within larger systems. Their elements and forces are interlinked and are in constantly changing relationships. Technology plays an outsized role in the system [5]. The traditional method, the incremental process of improvements and based majorly on refining form (the tangible aspects) is thus inadequate to address these dynamic nature of challenges. Alistair Parvin described this traditional design, the product-centered design as something done *to* and *for* people, not *with* or *by* people [5]. This product-centered design approach has now changed to the human-centered design approach, where people – the stakeholders are active participants of the process of design in generating the content, the direction as well as the solution. IDEO defines human-centered design as a creative approach to problem solving that starts with people and ends with innovative solutions that are tailor-made to suit their needs [11]. This demands continuous process of data collection, information retrieval, feedback, and evaluation of the design actions across the lifespan of the product (be it a product, message or environment). A systematic process of design research has thus assumed significance in the process of design.

Today's organizations deal with a large chunk of data and complex information that needs to be organized, simplified and presented in a meaningful way. Design helps "making sense of things"; finding patterns in big data, discerning underlying stories, giving significance and identifying relations with others [9]. Designers attempt to organize, manipulate, prune and filter gathered data into a cohesive structure for information building [12]. Designers thus today describe their profession as a way of organizing complexity or finding clarity in an overwhelming amount of data. Designers can thus create normalcy out of chaos (Veen, 2000) [12]. This ability to create normalcy, normally termed as synthesis, referenced as critical in sense making, organization and in drawing important connections between elements that appear to

be unrelated, is one of the core strengths of designers. Fieldwork, theory and evaluation data provide systematic input to the process but do not by themselves provide the necessary whole [13]. Design helps discover "the whole".

With the shifting paradigms, as the economy is changing rapidly from that of product and industrial economy to experience and innovation economy, one needs to constantly keep invigorating oneself with new thinking and newer approaches to align with the changing needs and expectations of the society. With increased responsibilities and involvement in a variety of complex projects with risks of serious consequences and long-term impact, design needs to now take into account broader humanitarian, social, ethical and environmental concerns. Designers have thus evolved from human-centered design thinkers to humanity-centered designers, to design systems that will have a minimum negative impact [14]. For the designer, his individualistic design approach as an artist has changed to a collaborative design approach to fulfill his new role as a strategic innovator. The classical design domains /disciplines '*Design of ... (products, graphics, spaces..)*' have changed to *'Design for .... (Services, Experiences, Interactions....)'.* The new role of the designer as Ezio Manzini describes, *"in the new scenario, the designer tends to be an operator who acts within a more complex network of actors ...he becomes a process facilitator who acts with design tools by generating ideas on possible solutions, visualizing them, arguing them through, placing them in wide, multi-faceted scenarios"* [15]*.*

The focus has now shifted to imparting the principles of design to the way people work. This set of principles now widely known as design thinking includes empathy with users, accepting ambiguity, a discipline of prototyping and tolerance for failure chief among them [4]. Design thinking is now increasingly recognized as a tool for developing an agile, responsive and flexible organizational culture. Design thinking is about rediscovering innovation over execution. It helps develop the ability to ideate very quickly. As its process, the participants will use post-it notes and a whiteboard and think about ideas and move them around as if they're sketching the organization [16]. Applied to experiential or digital channels, design thinking helps improve the journey of its customers [11]. Design thinking is now recognized as the key ingredient for modern businesses to create artifacts, messages, systems, services and governance of the future [7].

Over the years the expectations from design have increased many-folds and now varies from that of products and graphics to interactions, services, strategy, and experiences, etc. Design now deals with both tangible and intangible aspects. With the saturated markets of the world today and the shift towards experiences, designer's emphasis is now on studying people in everyday life and figuring out how to solve the problems they encounter. Design is today more about creating problem definition. The design has thus witnessed a massive shift, from creative execution to creative definition [17]. Fundamentally a systematic *'problem solving'* methodology, the design's scope has now expanded to include *'problem defining'* methodology. New approaches to forecasting change, structuring strategic conversations, innovating business models, and making sense of research data comprise an essential toolkit for today's designers [5]. From a rough, ambiguous territory, the design has now moved into a reasoned inquiry. Its process now encompasses iterative, creative, user-focused, empathetic, systematic, systemic and holistic thinking approach resulting in tangible outcomes.

Conclusion:

Design's origin can be traced to the industrialization of the objects. It's process and the pedagogical approaches were influenced by the industrial economy. The focus was on the beautification of the objects. Sketching with paper and pencil being the tools of the designer. The profession expanded as the economy grew, and with it the skills and capabilities of the designers. With the technological developments and market expansions, the engineering and technology-driven approaches of the organizations shifted to design-driven approaches. The design thus transcended to a strategic tool influencing all the various components of the organization. Design-led companies have now outperformed other companies. There is now a visible shift towards developing a design-centric culture in the organizations. The focus has now shifted to imparting the principles of design to the way people work. This set of principles, known as design thinking is now recognized as the key ingredient for modern businesses. Coupled with these, it is now recognized that innovation-led designs can help find new meanings, approaches, and directions for future growth.

With the emergence of the digital economy, user interface, UI and user experience, UX have now become the next frontier for the designers. Their focus has now shifted

to the customer journey and user experiences, the intangible aspects of the products, messages and the business as a whole. Today's designers also have to deal with an overwhelming amount of data and complex information. They help organize these data to find patterns that make sense and provide clarity. Designers now deal with complex challenges that exist within a larger system, with their elements interlinked and in constantly changing relationships. They need to take into account broader humanitarian, social, ethical and environmental concerns to avoid any negative consequences or impacts.

The traditional product-centric design approach has changed to a human-centric approach and further to humanity-centric design approach. For the designer, his individualistic design approach as an artist has changed to the collaborative and participatory design approach. She is now a strategic innovator. She performs as an actor and a facilitator as part of the larger and complex system. Her responsibilities have increased many-folds and her actions/decisions carry serious consequences and impacts. New approaches to forecasting change, communication strategies, innovating business models, etc. are among the essential toolkit of today's designers.

Began with a restricted objective of beautification of objects, messages, and environment, design now deals with interactions, services, experiences, and strategies. The design thus deals with both the tangible and intangible elements. With the technological advancements, the constraints for development and realization of vision have now reduced considerably. With the emerging domains of IoT and ubiquitous technologies; artificial intelligence, virtual reality, etc. are today the new mediums that aid design. And co-creation, participatory design, crowdfunding, etc. are some of the models emerging in design practice. The focus has now shifted to developing meaningful interactions and immersive experiences to connect with the users at emotional and personal levels. The design has thus shifted from creative execution to creative definition. It is now established as an independent discipline. And the design will be the driver of tomorrow's creative economies and their mass-customized markets. Once a rough, ambiguous territory, the design has now moved into a reasoned inquiry. From design as an outcome, the profession has expanded to utilize the design process and design thinking to all spheres of economy and life. Started as a generalist discipline, design now encompasses a range of specialization within the discipline.

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