Design Thinking and Artificial Intelligence- A value co-creation process for Organization Success

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Abstract: Design thinking and artificial intelligence (AI) capabilities are gaining significant attention in today's volatile, uncertain, complex and ambiguous business landscape. However, research gap remains untouched regarding its contribution for organization success. Considering design thinking and AI as a dynamic capability, this research paper examines the mediating role of value creation process for organization success.
By leveraging a systematic literature review, this article able to develop a conceptual framework based on the identified variables and proposed some future search directions in design thinking and AI value creation research.

Keywords: Design Thinking, Artificial Intelligence, Value co-creation, Organization success, Organization outcome.

1. Introduction

Design thinking is not only for the designers; Design thinking is a part of managerial work, thus can be done different people rather than only designers. it is a multidisciplinary approach to solve the customer's need. Design thinking has been considered one of the prominent creative activities to solve the problem. Many years ago, design thinking was considered as an activity which can add aesthetic features to an objective. However, many authors suggest that design thinking can provide significant value to the innovation management. Now design thinking has moved from tactical level to strategic level.
Design Thinking and Strategic use of digital transformation has made the business operation more impactful to create the value proposition for the target customers [1]. Digital technologies are widely considered a source of competitive advantage in businesses' operation [2]. Digital transformation leveraged by artificial intelligence (AI) has dramatically changing the customer value co-creation (VCC) process through different phases like co-production, customer experience, service-dominant logic (SDL) and service ecosystem. The emerging digital transformation technologies like artificial intelligence & big data capabilities help to revive many business models through various customer engagement activities that were previously considered to be reliant [3].
Value co-creation is an approach where consumer and organizations jointly innovate, yield valuable knowledge to developed the different products and services to fulfill the customer need. Though customer engagement value co-creation and application of AI topic is highly relevant topic of discussion among many of academician, industry leaders and researchers, however till date there are three literature review articles published in this domain. But none of the article has emphasized on the theoretical foundation and integrated conceptual framework on this topic. This indicates a gap in the literature. The outcomes of customer engagement value creation are many like organization performance, customer repeat purchases, as well as to increase the shareholders' value [6].
This study significantly contributed to the literature as it has identified different independent, dependent, mediating and moderating variables based on the identified literature. Those identified variables helps to develop the conceptual framework and different propositions. Practically, this study

would help different stakeholder including the government and policy maker to identify the essential factors to create value through customer engagement activities while using the AI. It will

also help different organization to formulate the engagement strategies for their customers and measure the outcome.
Succeeding section will discuss about the conceptual underpinning, research justification, research methodology, descriptive research, bibliographic coupling and themes, TCCM framework, development of Integrated framework, future research agenda, theoretical contribution, discussion, and conclusion.

2. Theoretical Background

Though there are many theories which are used to explain the Design thinking and AI application to create the value creation in organization, however, the theory of dynamic capabilities provides a theoretical lens to this concept. Dynamic capabilities reflect the firm's strategic stand toward adapting, integrating and reconfiguring the internal resources to engulfing the business opportunities in the external environment. In design thinking, sensing connotes empathy, understanding use needs, and embracing diverse viewpoints. Design thinking enables organization to adopt to change internal or external condition by including human-centeredness, diversity of perspectives, visualization, experimentation, and reframing.
Whereas, the theory of Value co-creation is a prominent theory to understand the customer contribution to an organization. As per this philosophy, multi stake holders including customers plays a pivotal role for the innovation of product or services based on the required need. As per the extend literature, value co creation process should focus on the integration of the existing resources which would be beneficial for organization as well as stake holders. As per this theory, organization should give more attention to the market exchange process based on dynamic capabilities of an organization. Many researchers believed that in the process of value co-creation, integrated knowledge, information, skill of different stake holders creates an environment which helps an organization to get sustainable competitive advantage.
As per the meta-analysis report, user behaviors play an important role to influence the value co-creation process. Factors like self-efficiency, social identity, enjoyment, social interaction, trust, community culture, subjective norms positively influence the value co-creation. While analysing the literature, it is been found the different authors has used different theories like Assemblage theory, Generation Theory, Relational cohesion theory, Resource based view (RBV), stakeholder theory, value co-creation theory to explain the process. As per the above theories, relationship, experiences and co-production process helps to create the value for an organization.

3. Research methodology and data collection

Based on the above identified questions (RQ) and to develop the conceptual framework, articles are searched and collected from the Scopus database and examined using VOSviewer software. The same research methods have been followed by researcher in Organization success [8], AI & customer engagement research recently [9].
In the 1st steps, 2568 articles have been collected from the Scopus data base. While searching the relevant articles, keywords like "Customer*" AND "Engagement*" OR "Customer*" AND "Intelligence*" OR "Customer*" AND "Digital age*" AND "Artificial Intelligence* have been used to collect the database from Business Management, Accounting & Social Science Journals. These types of articles collection process to analysis the articles have been used by some of the researchers in their current publication [10].
After that, as per the PRISMA guidelines & pre-determined exclusion and exclusion criteria, intext and abstract reading, suitable articles are kept for the next steps. In these steps, duplication of the articles is verified. In this process, a total article of 723 has been collected. Out of 723 articles, the best articles

which belongs to ABDC A* and A Categories are selected for the final review (Table no:3). Some of the previous researcher who have used the PRISMA framework(Fig 1) in their previous research work like in patient satisfaction research [11], in policy change research [12], and Organization success [13], neuromarketing research [13] are significant. The reason for the Scopus database selection is as it provides 20 % more exposure compared to the WoS database [14], whereas Google Scholar provides poor data for the analysis [15].

Table 1: Widely used identified variables.

Sl No	Author	Independent Variables	Dependent Variables	Moderating Variables	Mediating Variables
1	Grewal et al (2017)	Promoted Price, Display location, Assortment Expansion, Service Responses	Store sales, profitability to brand switching	Social media	NA
2	Bhalis & Sinarta (2019)	Employees' empowerment, operational flexibility	Value For Brand, value for consumer, value for potential consumer	Social media, Technology, and online presence, Listening, monitoring and analyzing tools, Data-driven strategy, and data relevancy	NA
3	Huang & Rust (2021)	Service Delivery, service creation, service interaction	Automation, self-service, predictive analysis, Data mining, Speech emotion recognition, Deep learning, Convolutional neural networks, End-to-end learning, and Dynamic optimization.	NA	NA
4	Kumar et al (2019)	Choice criteria in decision-making, Knowledge organization & Management	Process efficiencies, Customer Experience, Customer acquisition, Customer retention	AI-driven marketing capabilities, AI-driven technological capabilities, AI-driven operational capabilities	NA
5	Marbach et al (2016)	Personality Traits	Customer perceived value	NA	Social Media Communities
6	Prentice &	Service experience with employees,	Customer Loyalty	Emotional Intelligence	Customer Engagement

	Nguyen (2020)	Service experience with AI			
7	Schuetzler et al (2020)	Tailored responses, Response variety	Perceived Humanness, Partner Engagement	Social Presence	
8	Prentice et al (2020)	AI Service performance	Customer engagement	NA	AI information quality, AI System Quality, AI Information satisfaction, AI System satisfaction
9	Moriuchi et al (2021)	Attitude towards AR/ Chatbot, attitude towards the firm	Shopping Intention	NA	Satisfaction, Technology Engagement
10	Perez-Vega et al (2021)	Customer-initiated engagement, firm-initiated engagement, collaborative and passive engagement.	Automated firm response, Manual Firm response	NA	"AI-enabled information processing system, Real-time customer insights"
11	Gupta et al (2020)	Technological evolution, firm shift to digital media, consumer preference, Data Privacy & Security	Marketing Productivity, Operational excellence, Customer value creation	Data & Analytics, developed vs emerging, Product vs service, High vs low brand equity	"Firm-related capabilities, Consumer related capabilities, Macro level capabilities"
12	Kull et al (2021)	Warm (vs. competent) chatbot Message	Brand Engagement	Brand Affiliation	Brand Self-distance
13	Meek et al (2019)	Shared language, Shared Vision, Norm of reciprocity, Social Trust	Individual network ties, Individual sense of belonging	NA	Collective social capital
14	Grimes et al (2021)	Conventional AI Capability	Conversational Engagement	Expectation Violation	NA
15	Stone & Woodcock (2013)	NA	"Winning customers, keeping customers, Developing customers, Efficiency in customer management"	social intelligence	NA
16	Utami et al (2021)	"Social Justice ethos, Technology & Innovation,	"Empowerment, Long-term relationships, Innovative product and	NA	Exchange interaction

		Collaboration and Strategic Partnership, Inclusive Business"	service quality, Sustainable business initiatives, moral imperatives, Competitive solutions and wellbeing"		
17	Donnelly et al (2012)	Retailer loyalty card marketing intelligence	Performance	NA	Small business market orientation, small business entrepreneurship orientation, Capacity to innovate
18	Hossain et al (2022)	Value Creation, Value Delivery, Value Management.	AI-Enabled CA Capability	NA	NA
19	Wei & Prentice (2022)	Employees, Customers	AI – customer loyalty	Emotional intelligence (EI)	Customer satisfaction, engagement
20	Xie et al (2023)	Trust, Loneliness, Personification	Tolerance, Salience, Withdraw (Psychological dependence).	AI Attachment Behaviour	Engagement, Relationship
21	Yin et al (2023)	AI Environment	Customer engagement	Technology readiness (TR)	self-congruity, trust
22	Engert et al (2023)	Platform owner, Customer, and other complementary	Engagement Behaviours	NA	Motives
23	Prentice et al (2023)	Consumer engagement	Brand Attachment	NA	Wellbeing
24	Ghosh & Dash (2023)	Perceived Facilitators, Perceived Barriers	Brand Engagement	Firm size	Degree of digital use
25	Bapat & Hollebeek (2023)	Perceived quality value	"Customer-Based Brand Equity"	Customer Age	Customer engagement
26	Elmashhara et al (2023)	Chatbots gamification style, Hedonic value, Price value, social value	Purchase Intention	NA	Utilitarian Motivation, Hedonic Motivation, Cognitive engagement, Emotional Engagement,

Behavioural
Engagement,

4 Development of Integrated Framework

An integrated conceptual framework, grounded on the identified variables from an SLR has been done and presented in Fig no 4. The conceptual framework shows the different antecedents, mediators, and consequences of AI application in customer engagement value creation research. The construct at the right-hand side, that is value creation, loyalty behavior development, customer understanding & sales improvement are the consequences used in the literature to reflect the outcomes of Design thinking and AI-induced customer engagement value creation research.

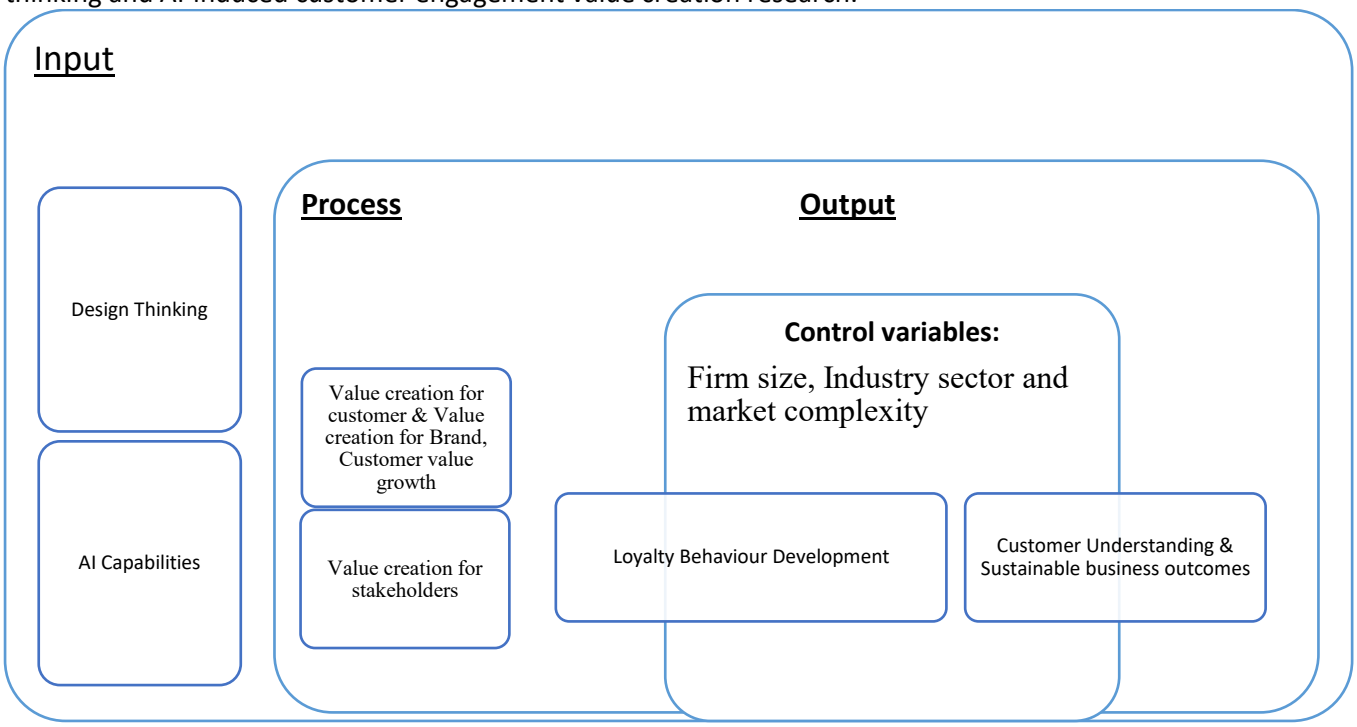

Figure 1. Integrated conceptual framework

5.Discussions

This research has contributed many ways to the existing Design Thinking and AI in Customer engagement value creation research. First, based on identified 53 articles from Scopus database and intext reading of the selected articles, it has been observed that the concept was developed in 2012 but majority of the authors has given emphasis in 2020 in AI and Customer engagement research.

Next while analysis the scientific structure of Design Thinking and AI in customer engagement value creation research, it has been observed that this subject has developed into different broad categories, namely application of AI in marketing domain, application of chatbots, customer engagement, AI and ML, Application of AI & Personalization, Application of AI in retails**.** All the themes and sub themes are related to customer engagement and how to create value for the customer. To understand the theoretical underpinning of this subject, it came to notice there are 28 different theories has been used to explain this subject. This large number of theory application numbers is may be due to popularity of this topic and its diverse application of the subject. Those 28 different theories are also can be categories into three broad areas like behavior, value creation.

and relationship. Those identified three theories may be combined to explain the customer engagement value creation process. Resource based relationship (RBT) theory may be proposed to explain the customer engagement value creation.

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Third, to understand the Design Thinking & AI application in customer engagement research, many commonly practiced methods like CFA, SEM, POMDA, ANOVA, Content analysis, T-Test, thematic analysis, longitudinal qualitative analysis and other statistical techniques, have been used till date. The reason behind the use of this methods because this subject it is in exploration and introductory stage. It is been suggested to explore this subject by using different advanced methods like meta-analysis review and use of econometric tools. This study also recommends that future research incorporate more advanced techniques, such as semantic network analysis, data mining, total interpretive structural modelling, and comparative case studies. These methods could offer deeper insights into the various factors at play in AI and customer engagement and contribute to further theory development in this field.

Fourth, this research has developed an integrated framework based on the identified antecedents and factors. The conceptual framework shows the input-process- output framework where Design thinking and AI plays and important role as an input(Independent Variables), Value creation as a Process (Mediating variables) and Customer loyalty and Sustainable business as a outcomes or dependable variables. In this process, firm size, industry sector and market complexity works as a control variable.

6. **Managerial Application**

Our study offers guidance to the managers who are involve in value creation process with the help of design thinking and AI in the organization. Embracing design thinking and AI at the organization level, practitioners would able to respond and adopt the quick decision in the dynamic environment.

7. Conclusion, limitation and future scope.

Based on the literature review, the proposed conceptual framework serves as a foundation for future Design thinking and AI and customer engagement value creation research This research article, like other research articles, has some limitations like use of keywords, use of software and identification of different theories in this research, however, research in Design thinking and AI customer engagement is multidimensional and driven by a variety of factors ranging from organization innovation capabilities, technological advancements, customer expectations, data ethics, and the business context in which AI operates. As AI continues to evolve, future research will likely focus on enhancing personalization, increasing transparency and trust, improving the scalability and affordability of AI solutions, and integrating new technologies like emotion recognition, predictive analytics, and more. Balancing efficiency with ethical considerations and ensuring that AI systems can effectively engage customers while maintaining privacy and security will remain a central theme in this area of research.

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