Orchestration of AI and Humans to Create Value: A Meta-Ethnographic Study

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Artificial Intelligence (AI), is the black box for some organizations but for some source of competitive advantage. Through this study, we orchestrate the efforts of organizations leveraging AI for organizational success. This study employs the meta-ethnography of the literature on AI use cases in management. Twenty papers are reviewed and a seven-stage meta-ethnographic approach to synthesize the key findings. Thus, this study provides evidence that through orchestration of organizational technical, basic, human, and intangible resources to develop dynamic capabilities of collaborative human AI culture can create value for organizations.

Keywords: Meta-Ethnography, Artificial Intelligence, Human-Machine Collaboration

1. Introduction

Artificial intelligence (AI) has emerged to be a powerful digital transformation tool to stay ahead of the times (Pramanik et al., 2019). AI is an umbrella term used and it is synonymous with the technological transformation for Industry 4.0. (Ivanov, 2022). The year 2022 marked a significant milestone in the field of artificial intelligence (AI) as numerous consumer-facing applications such as ChatGPT, DALL.E, and Lensa were released (Deloitte, 2023). Deloitte, 2018, has defined AI as broadening its horizons "AI refers to a broad field of science encompassing not only computer science but also psychology, philosophy, linguistics and other areas".

As per the McKinsey, 2024 AI adoption report, its adoption has surged from 55% in 2023 to 72% in 2024. The survey is based on the usage of AI in at least one organization function. However, AI integration with more than 5 organization functions remains as low as 8% in the year 2024 (McKinsey, 2024). The business functions that report utilizing these tools the most are product and service development, marketing and sales, and service operations, which include back-office support and customer care. This implies that businesses are utilizing these new tools where they have the greatest potential (McKinsey, 2023).

Extent literature on Artificial Intelligence use cases has demonstrated its implications for different organizational functions and different industries. The findings are scattered and AI is often viewed with ambivalent attitudes and is feared to replace human intelligence (Dang & Liu, 2021). We have conducted meta ethnographic study, that facilitates comparing an idea from one study to its equivalent in another by analyzing the results of several studies (Khanra & Joseph, 2019) of the use cases published to answer the research questions below and to understand synergy between the technology and humans,

1. What are organization functions that are integrated with AI?
2. What are the tasks performed by AI?
3. How AI is orchestrated in organizations for value creation?

Before reporting the findings of the study, the background literature is as in section 2. Section 3 elucidates the methodology. Sections 4 and 5 deal with findings and discussion consequently. Section 6 deals with the implications of the study. Limitations of the study are discussed in section 7. Section 8 concludes the paper

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2. Background Literature

From computer vision to expert systems, artificial intelligence (AI) is a rapidly developing science with many applications (AJuhi 2020). According to Frankish (2014), a cross-disciplinary approach is revolutionising human connection and providing fresh perspectives on the human mind. Many academic fields, including computer science, biology, psychology, linguistics, mathematics, and engineering, are the foundation of artificial intelligence (AI) (Sonone 2019). With a major impact on industries including science, engineering, business, medicine, and weather forecasting, its objective is to automate tasks that presently require human intellect (Aggarwal 2019).

AI is renowned for bestowing benefits to various stakeholders, such as shareholders, customers, employees, suppliers, and society at large, stand in multifaceted ways (Güngör, 2020). However achieving this promise will require overcoming major organizational challenges, which businesses must better comprehend AI to do (Someh, 2020). Russo-Spena (2018) highlights that AI can stimulate value creation through novel service offerings and interactions, as evidenced by the IBM Watson case study. Additionally, through technological innovation and business model transformation, AI platforms can generate new value (Chekanov, 2018).

2.1 Organization Resources

Resources can be broadly classified as tangible, human, or intangible resources according to the Resource-Based View (RBV) (Grant, 1991; Barney, 1998). In his work connecting RBV and IT, Powell (1997) claimed that for IT to be successful, human resources, technological resources, and business resources must be integrated with a quotient of "management difference" to make a difference. According to Pospelov (1983), artificial intelligence is an improvement over information technology. The RBV lens of AI illuminates the unique resources that AI possesses in value creation.

2.2 Dynamic Capabilities

According to Eisenhardt (2000), corporations establish novel resource configurations using procedures known as dynamic capacities. According to Teece (2007), these competencies are essential for businesses to maintain exceptional performance in a setting that is changing quickly. These capacities are being impacted by the spread of artificial intelligence (AI), especially in the domains of sensing, seizing, and reconfiguring (Hercheui, 2020). By strengthening the organization's capacity to recognize environmental changes, grasp opportunities, and reallocate resources, artificial intelligence (AI) can augment these capacities. In his investigation of the processes by which organizations acquire dynamic capacities, Zollo (2002) places particular emphasis on the roles played by experience building, knowledge articulation, and knowledge codification procedures.

2.2.1 Orchestration of Human and AI

With an emphasis on interactive Machine Learning (iML) interfaces, the changing field of Human-AI Collaboration is examined in a number of disciplines (Al. 2023). Clinical Documentation Integrity Specialists (CDIS) and AI-embedded software work well together in the healthcare industry, with the AI acting as a helpful assistant (Bossen 2022). Nevertheless, there are difficulties in assigning jobs to AI in human-AI collaboration; people frequently find it difficult to assign work to AI successfully because of inaccurate self-evaluation and a lack of planning (Fügener 2019). According to Wang (2019), data scientists believe that human and AI systems will work together in the future, with automation and human knowledge being equally important.

Thus, we consider human-AI collaboration as a dynamic capability to leverage AI.

3. Methodology

Human resource management is one of the sectors that has used meta-ethnography, a technique for synthesizing qualitative research, (Tufa, 2023). It has been discovered to offer fresh perspectives and advanced theoretical frameworks. It has been prominently utilized in the medical field for instance to pinpoint adherence barriers for people with type-2 diabetes, exposing universal patterns among many nations (Vermeire, 2007).

Metha-ethnography aims to establish patterns, and to arrive the same a seven step process is recommended by (Noblit & Hare, 1988). The seven steps of the meta-ethnography technique are as follows: the first is about initiating the process and determining an area of intellectual interest. To properly synthesize the texts, the next two phases are devoted to compiling material pertinent to the area of intellectual interest and carefully reviewing the chosen studies. The fourth phase's topic is figuring out how the studies relate to one another so that important ideas can be contrasted. This phase is followed by a phase when the studies are translated into one another using discovered analogies. Translations are combined in the sixth phase so that key ideas are consolidated and transferred to the final phase, where the combined findings are succinctly presented (Noblit & Hare, 1988, Khanra & Joseph, 2019).

3.1 Identification of relevant studies

We researchers are keen to understand the “AI use cases” and the extent of literature on the same. In this process, we have searched the “Google Scholar” database to identify the relevant articles for our study. We have used the keyword “Artificial Intelligence and case studies in management”. This has resulted in 42, 10, 000 results in 0.22 seconds. We have customized the range from the year 2020 to this data, as AI is ever-changing in nature and the studies older seemed obsolete. A total of 79 papers were identified after removal of duplicates.

3.2 Selection of studies

After examining the abstracts of the 79 papers, we have eliminated 32 based as they are qualitative papers but not use cases. Out of the remaining papers, we have tried to access the full texts and after reading the papers 26 papers were eliminated based on the below criterion,

- Few of them are not available online
- The quality of the paper is poor, the concentration was on descriptive statistics
- Not applicable to the context of the study

Thus, we have a rich sample of 21 papers, that are relevant and are use cases in the management domain, making relevant contributions to the AI literature.

3.3 Juxtaposition of key concepts

After carefully analysing the selected papers, we found that the AI in significant in the value creation of organization functions such as warehouse management (Zhang et al., 2021,Wachnik, 2022), operations management (Modgil et al., 2021, Xu et al.,

2020, Helo & Hao, 2022), HR services (Trocin et al., 2021, Allal-Chérif et al**.,** 2021), Public services (Asatiani et al., 2021, van Noordt & Misuraca, 2022, Wamba-Taguimdje et al., 2020, Neumann et al., 2024, Ma et al., 2019), Marketing and sales (Helo & Hao, 2022, Vladimirovich, 2020), financial services and accounting (Strich et al., 2021, Spring et al., 2022), and fashion forecasting (Banerjee et al., 2021) as reported in Table 1 which answers RQ1, along with the tasks performed by AI.

Table 1 *Artificial Intelligence in use*

Organization/ Industry	**Country**	**Processes**	**Tasks performed by AI**
Alibaba fulfilment centre (Zhang et al., 2021)	China	Goods storing Order picking Order packing	Automatization Tri-dimensional storehouse (ATS) Warehouse management system (WMS); Warehouse control system (WCS) Robots with real-time monitoring for order picking "order to man" (O2M) AGVs, "goods to man" (G2M) AGVs, and forklift AGVs Human workers + 3D packing algorithm
Supply chain management (Modgil et al., 2021)	-	Personalized Solutions Last mile delivery Procurement strategy Reduce disruption Impact Transparency	Predictive analytics Managing Workforce Paperless technique for delivery force Virtual Chatbot Automated Warehouse Robotic processes
Sales, configure-price-quote (Helo & Hao, 2022)		Sales Configuration	Rule-based system with constraint satisfaction programming
Operations Planning (Helo & Hao, 2022)		Production planning and control	Genetic algorithm running optimization
Production (Helo & Hao, 2022)		Quality control of products	Deep Neural Network conducting visual inspection
Service (Helo & Hao, 2022)		Spare parts and maintenance orders	Clustering analysis and anomaly detection with machine learning
Company D (Xu et al., 2020)	China	Operational Decision-Making	Predictive analytics
New Relic (Vladimirovich, 2020)		. B2B segment sales	Sales: automation of activity data collection, integration of data-based sales training. Marketing: automation of contact creation, CRM optimization. Customer success: identifying customer information, monitoring customer coverage
Gainsight (Vladimirovich, 2020)		B2B segment sales	Sales Analysis: provides analysis of data on 360 customers to whom Gainsight ensures revenue growth.
Public sector (Ma et al., 2019)	China	Smart traffic	real-time supervision
		Intelligent information management	"National Citizenship Information System" based on intelligent technology to manage the identity data of Chinese citizens and provide national citizen information services for the government and the community
		Intelligent government service	Intelligent search engine can also help the staff of the administrative department of government to retrieve relevant historical data, policies and regulations and make decisions
		Smart healthcare	Patients can view electronic medical records through mobile medical applications and get healthcare reminders. Smart healthcare will enhance patient satisfaction and engagement and promote preventive care
Car manufacturing	Germany	Car manufacturing	Human - Robot integration Sequencing optimization Bin picking

(Demlehner et al., 2021)			Matrix production Visual quality control Factory energy management Cut-out waste reduction Reduction of robot energy consumption Paint bath composition control Worker walk path optimization Staff assignment Object labelling
Stylumia (Banerjee et al., 2021)	India	Fashion forecasting	Market Intelligence Technology (MIT) and Fashion Intelligence Technology (FIT)
Public sector (Neumann et al., 2024)	Swiss	State owned enterprise	Optimization of disposition and scheduling of operations assets Optimization of resource allocation in an internal service and voice recognition for customer service
		Ministry	Optimization of people allocation Digitalization of services, business process optimization, and solutions for specific business tasks
		Agency monopoly environment	Service delivery through conversational agent and automatization of customer service provision
		Municipal administration	Service delivery through conversational agent
Abu Dhabi National Oil Company (ADNOC) (Wamba-Taguimdje et al., 2020)		Oil extraction	Watson (IBM) to evaluate rock samples
United Healthcare Services (UHS) (Wamba-Taguimdje et al., 2020)		Health care	Computer-Assisted Physician Documentation (CAPD)
Professional Service firms (Spring et al., 2022)		Law services	Document review using ML-based system Small Personal Injury claims using expert system Insurance reserves planning using bespoke ML application
		Law services	Self-serve contract review and drafting system based on NLP Also use document review based on ML
		Accounting	Audit system using some ML and NLP Bookkeeping using an AI-assisted system AI-facilitated data entry (outsourced to third party) Cashflow forecasting app with AI functionality
		Accounting	Audit system using some ML and NLP Chatbots to handle routine progress-chasing enquiries from clients
Polish Industry (Wachnik, 2022)	Poland	Project management	Translation Text recognition – Introducing purchase invoices into the accounting system Actuating elements – Robotic Process Automation in the area of data introduction into the system
		Warehouse management	Translation Text recognition – Introducing purchase invoices into the accounting system Actuating elements – Robotic Process Automation in the area of data introduction into the system (Multi-)agent system – chatbot
		e-learning	Translation (Multi)agent system – chatbot
Public sector (van Noordt & Misuraca, 2022)	Europe	Estonian Agricultural Registers and Information Board (ARIB),	analysis of the satellite data using the deep learning methods of recurrent and convolutional neural networks for the
		Day-Care Services	Healthcare inspection using data mining
L'Or´eal (Allal-Chérif et al., 2021)		Intelligent recruitment	Reveal from L'Or´eal is a video game designed for students and graduates. Players discover

			how the company functions interact: purchasing, logistics, production, marketing, sales, R&D, HR, and finance.
XPO Logistics, Liberty Mutual Group, CDW Corporation, Randstad (Allal-Chérif et al., 2021)		Recruitment	Ari chatbot to automate all the simple and repetitive tasks that a recruiter has to do
Randstad (Allal-Chérif et al., 2021)		Recruitment	Randstad Big Data locates job requirements and skills that could be satisfied in different regions and even countries and promotes the geographic mobility of applicants who access distant but very attractive offers.
Car manufacturing (Herrmann & Pfeiffer, 2023)		Predictive maintenance	Predictive Maintenance for a Car Manufacturer
Healthcare (Herrmann & Pfeiffer, 2023)		Medical image analysis	Healthcare predictive analytics
Samsung (Prabhu & Bhat, 2020)		Mobile applications	The device Bixby assist to connect the smartphone especially Galaxy S8, implementation of MLtechnique lead to the quality of image in 8K The Saram is used for navigation purposes
Scandinavian companies (Trocin et al., 2021)		HR services	AI afforded digital innovation Reonetologize decision making Complying with GDPR Data driven legitimization Targeted recommendations
Public Sector (Asatiani et al., 2021)	Dutch	Danish Business Authority (DBA)	Auditor's Statement, Bankruptcy, Company Registration, Land and Buildings, ID Verification, Recommendation, Sector Code, and Signature
Television industry (Ridwan & Heikal, 2023)	Indonesia		Strategic Management advanced data analysis and automation techniques
Finance (Strich et al., 2021)		Small loan approval	CleverLoan as an AI System for the verification of the applicant data

4. Results and Findings

In the previous section we have reported the functions performed by AI and the functions in the organization that have been integrated with AI, here in this section we present the key findings.

4.1 Translation of Key Concepts

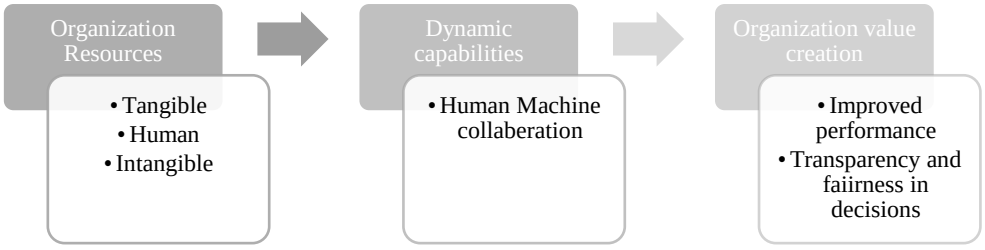
In the fifth phase of the meta-ethnography study, we interpret the key findings of the case studies. Table 2 presents the similarity or translation of key concepts from the selected literature. It may be noted that AI is an umbrella term and in the cases reviewed different technologies that are part of AI such as Machine Learning (Prabhu & Bhat, 2020), automated warehouse (Modgil et al., 2021); employees (Vladimirovich, 2020); Internet of things (Ma et al., 2019); Machine learning (Banerjee et al., 2021); technology (Wamba-Taguimdje et al., 2020), algorithms (Zhang et al., 2021, Modgil et al., 2021, Helo & Hao, 2022), robots, facilities or equipment (Zhang et al., 2021, Modgil et al., 2021, Helo & Hao, 2022; Demlehner et al., 2021) are used. We have assigned data to the concept of both structured and unstructured data. By interpreting the justification given for each of the collected codes, we thus tried to transfer concepts from one case study into another and vice versa.

Table 2 *Axial Coding (Grounded theory Approach)*

Group 1	Data (Zhang et al., 2021, Modgil et al., 2021, Helo & Hao, 2022, Ma et al., 2019; Demlehner et al., 2021), algorithms (Zhang et al., 2021, Modgil et al., 2021, Helo & Hao, 2022), systems (Zhang et al., 2021, Modgil et al., 2021, Ma et al., 2019, Demlehner et al., 2021), robots, facilities or equipment (Zhang et al., 2021, Modgil et al., 2021, Helo & Hao, 2022; Demlehner et al., 2021), training (Zhang et al., 2021, Ma et al., 2019; van Noordt & Misuraca, 2022), automated warehouse (Modgil et al., 2021); employees (Vladimirovich, 2020); Internet of things (Ma et al., 2019); Machine learning (Banerjee et al., 2021); technology (Wamba-Taguimdje et al., 2020); organization resources and funding (van Noordt & Misuraca, 2022); IT resources (van Noordt & Misuraca, 2022); management support (van Noordt & Misuraca, 2022); organization culture (van Noordt & Misuraca, 2022); bixby (Prabhu & Bhat, 2020); AI affordance (Trocin et al., 2021)
Group 2	Human AI collaboration (Zhang et al., 2021, Xu et al., 2020), collaborative decision-making (Zhang et al., 2021, Helo & Hao, 2022), human intuition (Banerjee et al., 2021); augment (Spring et al., 2022); automate (Spring et al., 2022); intelligent recruitment (Allal-Chérif et al., 2021); human centered artificial intelligence (Herrmann & Pfeiffer, 2023); complying with organization rules (Herrmann & Pfeiffer, 2023); human agents are an integral part of envelopment (Asatiani et al., 2021); strategic decision making (Ridwan & Heikal, 2023); empower less qualified employees (Strich et al., 2021)
Group 3	Improved performance (Zhang et al., 2021, Helo & Hao, 2022), Supply chain resilience (Modgil et al., 2021, Helo & Hao, 2022), speed, accuracy, flexibility (Xu et al., 2020), accuracy in sales forecasting (Vladimirovich, 2020); Productivity (Vladimirovich, 2020, Demlehner et al., 2021); quality control (Demlehner et al., 2021), consumer loved product (Banerjee et al., 2021); quality of public services and public value creation (Neumann et al., 2024); firm performance (Wamba-Taguimdje et al., 2020); simple automation (Wachnik, 2022); quality assessment in hiring (Allal-Chérif et al., 2021); improved quality (Prabhu & Bhat, 2020); less biased decisions (Trocin et al., 2021); perceived fairness (Trocin et al., 2021); increased revenues (Trocin et al., 2021); transparent feedback (Trocin et al., 2021); increased communication (Trocin et al., 2021); transparency (Modgil et al., 2021), strategy (Modgil et al., 2021, Helo & Hao, 2022), Operational Decision Making (Xu et al., 2020); smart traffic (Ma et al., 2019), intelligent information management (Ma et al., 2019),

4.2 Synthesization of Key Concepts

In the sixth stage of this study i.e., meta-ethnography, we have found that 74 (each code from the papers though cited under single code ex., Data (Zhang et al., 2021, Modgil et al., 2021, Helo & Hao, 2022, Ma et al., 2019; Demlehner et al., 2021) is counted as 5) out of 81 codes could be assigned to the 7 different first-order constructs as in table 3. The first group attributed to the technical resources is an amalgamation of 10 codes extracted from 21 papers. The second group constitutes two codes leading to basic resources, third and fourth groups with two codes each on human resources and intangible resources respectively. Groups one to four are further categorized under organizational resources.



The fifth group amalgamation of 8 codes about Human Machine Orchestration which is further coded as a dynamic capability. Eight codes are categorized as the sixth group i.e., improved performance, and another eight codes related to fairness and transparency in decisions is the seventh group of this study. The sixth and seventh are part of the higher-order construct of organizational value creation as in table 3. This answers our RQ2.

5. Discussion

AI is one such technology that has been feared the most (Dang & Liu, 2021), but at the same time, its benefits the organization make it a must to stay ahead in the competition (Mikalef & Gupta, 2021). Through this study, we have provided evidence from the industry that human in loop is the most opted AI approach, as the AI is a black box and the explainability of AI for its decisions is still a mystery (Xu et al., 2020). Given the challenges posed in the current stage of AI, owing to the ethical challenges we propose that the organizational resources i.e., technology, basic resources, human resources, and intangible resources can create value to organizations in the context of AI, developing collaborative human and AI culture can create value like no other as in Figure 1. Organizational value creation is measured in terms of Improved performance (Zhang et al., 2021, Helo & Hao, 2022), resilience (Modgil et al., 2021, Helo & Hao, 2022), speed, accuracy, flexibility (Xu et al., 2020), accuracy in sales forecasting (Vladimirovich, 2020); Productivity (Vladimirovich, 2020, Demlehner et al., 2021); and, quality of services offered (Neumann et al., 2024). In the cases studied, AI is attributed to fairness and transparency in decision-making. Therefore, this study proposes that it is evident that synergizing human and AI capabilities can make organizations stand tall amidst market turbulence

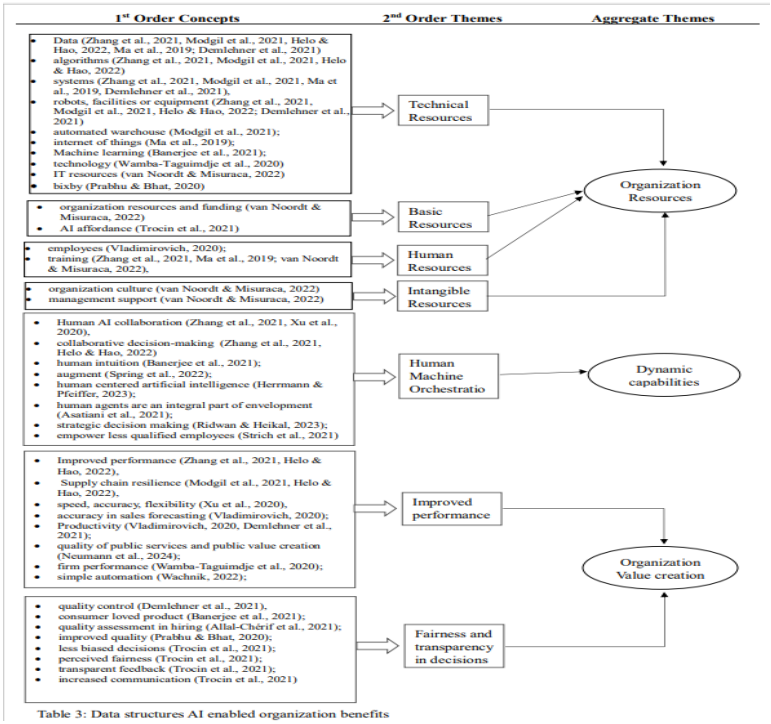


Table 3: Data structures AI enabled organization benefits

Figure 1 *Conceptual Framework*

6. Study Implications

6.1 Theoretical Implications

If we review the extent of the literature on AI, it is wide, and has generalization of the key concepts is the main contribution of this study. This study proposes a dynamic capability framework orchestrating a resource-based view, extending the AI literature to value creation. This is the first meta-ethnographic study in this direction, therefore, it assumes paramount importance in the literature related to AI and Machine collaboration, as this study summarizes the findings of the actual industry scenario

6.2 Managerial Implications

This study appeals to managers to prioritize in creating a strong data infrastructure since data is an essential resource for AI development and training. This covers the gathering, storing, cleansing, and safeguarding of data and also it is critical to hire or upskill staff members who have experience with AI. Data scientists, AI developers, and even business analysts who are aware of the various applications of AI may be involved in this. Budget AI projects based on its value additions that of following market trends. We recommend to concentrate on projects where AI can manage monotonous, repetitive elements while people bring experience, imagination, and analytical skills. Training staff members on how to use AI to collaborate efficiently can lessen the fears regarding AI. This entails being aware of the potential biases, limits, and capabilities of AI.

7. Limitations and future scope

We acknowledge that this study has certain limitations. Given the nature of AI, we have only included the latest papers, and our primary focus was to understand human-machine collaboration in the industry setup. The ethics, privacy, and transparency issues of AI have been not touched as they can deviate from the scope of this study. Hence, we appeal to future researchers to perform a meta-ethnographic study synthesizing the key ethical aspects of AI and extending this study with the ethics component.

In the cases examined, the type of human-machine collaborations i.e., complementary, substitution, and additive are studied. Further understanding of the type of collaboration and co-value creation through use cases can further streamline AI research.

8. Conclusion

The primary aim of this paper is to identify the orchestration of human and AI capabilities in the organizational setup through the case studies published. This objective is met through the systematic review of the existing Artificial Intelligence use cases following a vigorous meta-ethnographic approach. In this process, the findings have bridged the gap in the AI literature through a focus on AI and human synergy. Thus, this study provides evidence that through orchestration of organizational technical, basic, human, and intangible resources to develop dynamic capabilities of collaborative human AI culture can create value for organizations.

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