Value Creation in the Information Economy: The Triad of AI, Service, and Human Work

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Advancements in artificial intelligence (AI), particularly generative AI (GenAI), have revolutionized the value generation in service[1] as well as work processes and the work environment. However, the transformative potential of AI in the context of service and work must be guided in a way that ensures its alignment with human-centric values and economic goals. Based on an interactive panel and three workshops of service researchers and practitioners at the annual conference of the German Forum for Service Research (DF)[2] in September 2023, this paper highlights six fields of action. Spanning corporate strategy, processes, and technology, these six fields of action illustrate how future-oriented service research may harness the opportunities of AI for society and the economy, manage associated risks, and foster societal acceptance. They serve as a framework for discussions and initiatives in service research, raise awareness among companies about necessary changes to remain competitive, and highlight funding needs with high relevance, societal importance, and economic potential.

1. Introduction

In recent years, advancements in artificial intelligence (AI) have significantly influenced the generation of value in service, the organization of work and innovation efforts (Fig. 1). These developments are central to a historic paradigm shift towards the "information economy" (Boes et al., 2019), which represents a new form of digital value creation. In this emerging economy, data and information are understood as the fundamental drivers of innovation. AI plays a crucial role in transforming vast amounts of data into usable information, thereby fueling innovation and facilitating continuous value creation. This process forms a recurring loop—from data to information to innovation—and is closely tied to technological advancements, fueled by the bottom-up, employee-centric possibilities that generative AI brings to the table (Reinhard et al., 2024), with human work characterized by permanent learning and embedded in these innovation processes (Boes & Langes, 2023). In addition to the continued importance of traditional service industries, also services in the manufacturing sector have evolved from a formerly accompanying to an integral and strategic component. The old paradigm, where products were sold and delivered to the customer in "spot" transactions ("value in exchange"), is giving way to a new understanding of solutions and a responsibility for customer benefit ("value in use") (Vargo et al., 2008). This shift is often enabled by digitalization. Products can be monitored, controlled ("Equipment-as-a-Service"), or adjusted ("Over-the-Air Updates") through the feedback of usage data to ensure customer benefit. The advancing integration of AI into service processes has further strengthened the focus on customer-centered value creation. This paradigm shift from pure products to integrated solutions with a predominant service character (Beverungen et al., 2019) not only promotes customer loyalty but also enables differentiation of the offering and continuous value creation over the entire product lifecycle.

Particularly transformative opportunities arise from applications of generative AI (GenAI) (Benbya et al., 2024). GenAI-enabled technological solutions like "Midjourney" and "ChatGPT" open up entirely new areas of application. These solutions are not merely tools for (operational) data processing; they are also capable of creatively generating content and developing innovative approaches (Huang & Rust, 2024). These novel forms of interactions between human and non-human actors demonstrate both the magnitude of the technological leap and the potential added value of this technology, and even make it visible and tangible for the general public. In particular, the approach of making these applications directly accessible to end-users through cloud offerings presents a new strategy—some even speak of a democratization of access to high-performance base models (Zhou et al., 2021). In the press, these developments are also referred to as the "iPhone moment of AI" (Prarthana, 2023). In addition to open applications from providers like OpenAI or Google, the use of their interfaces has greatly simplified and promoted the development of

1 In this paper, "service" rather than "services" is used to align with Service-dominant (SD) logic, which focuses on the co-creation of value through the integration and interaction of multiple resources, rather than focusing on discrete, tangible outputs.

proprietary GenAI applications that can also be shared with third parties. The analogy to the iPhone and the App Store for apps is obvious, and a similar breadth of development for specialized GenAI applications can be expected.

Consequently, both "traditional" and "novel" (generative) approaches of AI offer the potential for the development of innovative solutions and the shaping of interactions between service providers and consumers in novel ways (Huang & Rust, 2018). These new machine capabilities already translate into service innovations in practice. The application of GenAI enables the provision of more individualized and (partially) automated or augmented customer communication, which in turn facilitates the delivery of a broader range of basic and advanced customer support services. Users benefit from enhanced value through tailored communication and offerings, as well as from faster and continuously available support. Companies can offer services with higher quality and achieve better performance through automation or the integration of human-AI teams (Hemmer et al., 2022; Le et al., 2024). This new level of customer proximity not only enables improved service quality but also allows for proactive adaptation to changing customer preferences and market conditions.

However, these changes also raise important questions. What role does the human play in this changing service landscape? How can humans and AI effectively collaborate to achieve better outcomes? How can employees be empowered to use AI as a tool to enhance their skills and support their tasks? What steps are necessary to ensure that the integration of AI into work processes not only increases productivity but also promotes the professional development and well-being of employees? How can such collaborative services and service ecosystems be systematically designed in a human-centered and sustainable manner? How do successful patterns for these emerging (generative) AI-powered services look like?

This paper is based on the discussions and results of an interactive panel and three workshops at the annual conference of the German Forum for Service Research (DF)² on September 25, 2023, under the overarching theme "Shaping the Triad of Service, Work, and AI" — as a key area for future value creation (Böhmann et al., 2020; Satzger et al., 2022). It aims to contribute to a better understanding of the potentials and challenges arising from the connection of AI, service, and the future of work. Our goal is to stimulate discussion and highlight the research opportunities for a meaningful contribution to these societal and economic developments. The remainder of this paper first describes our approach to data collection and analysis, then discusses the findings, and concludes with highlighting the implications for research and practice.

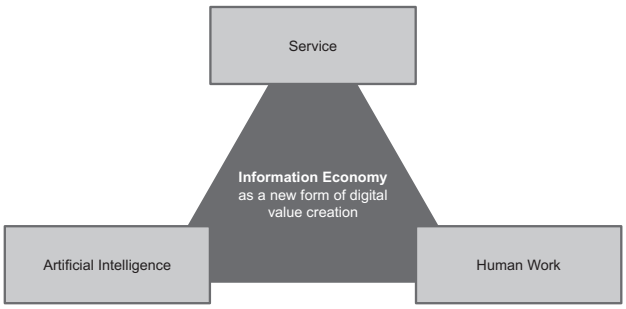

Fig. 1: Value creation at the intersection of artificial intelligence, service, and human work.

2. Method

Data collection for this paper has been performed in the course of the annual conference of the German Forum for Service Research (DF)², which convenes service researchers and practitioners to stimulate advancements for service research and practice within the framework of an annual focal theme. We employed a two-pronged data collection approach for this paper. At the (DF)² conference in September 2023, participants engaged in both an interactive panel and workshops to discuss synergies and trade-offs in managing innovative services. The first data collection cycle comprised a 60-minute interactive panel, which began with an initial line-up of two selected experts. Subsequently, the session was opened up, allowing the panel composition to change dynamically based on participant contributions. The second data collection cycle consisted of a 135-minute workshop session. It was segmented into three tracks, each corresponding to one of the three overarching perspectives guiding the conference: AI, service and human work. These workshops aimed to uncover opportunities and challenges within each theme. Each track was moderated by an expert in the respective field, and the 66 workshop participants were divided into three balanced groups, ensuring an equitable blend of academic and practical perspectives as well as diverse subject matter expertise across all groups. These groups rotated through multiple rounds between the different themes to ensure that each group could contribute impulses and content to each theme. Moreover, these rotations ensured that the three focal themes were not considered in isolation but in an interdependent manner, ultimately leading to comprehensive results. Workshop findings were collaboratively documented by the moderators and participants, supplemented by notes taken by the author team during each session.

(DF)² serves as a platform that integrates these diverse contributions into a common perspective on service research. Hence, data analysis was conducted in an inductive manner to comprehensively capture the nuances of the involved perspectives using an open approach. For the purpose of analysis, the data mate-

rial was subjected to screening and thematic clustering. Themes cluster different data points that manifest similar content and ideas and serve as a vehicle to comprehensively reflect various perspectives on a focal situation into a coherent narrative (Saldaña, 2016). The data and thematic clusters were discussed by three researchers to ensure researcher triangulation (Yin, 2018) in a process that eventually yielded 22 second-order themes. In a second cycle, these second-order themes were grouped into six overarching first-order themes, constituting the six fields of action presented in the subsequent sections. These fields of action summarize the (DF)² communities' opinions on future research demands and challenges along the interplay of AI, service and human work.

3. Results – Six Fields of Action for Future Research on the Interplay of AI, Service, and Human Work

The six identified fields illustrate how future-oriented service research can contribute to realizing the opportunities of AI, managing the associated risks, and, thus, creating adoption across diverse strata of society. The fields of action cover multiple levels—from corporate strategy to processes to technology—and serve as guiding points for discussions and initiatives in service research and practice. They raise awareness among companies about necessary changes to remain competitive, provide researchers with fundaments for future research projects, and highlight funding needs to political sponsors. The following sections outline the six fields of action and present corresponding guiding questions (see Fig. 2). Moreover, the subsections offer starting points for collaborative action to realize opportunities in each field, detailed in the paragraphs preceded by a core activity.

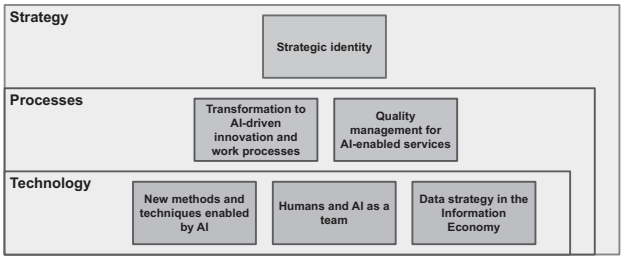

Fig. 2: Six fields of action for future research on the triad of AI, service, and human work.

3.1. Strategic Identity

The information economy challenges companies and organizations to redefine their strategic identity. Simple service innovations accompanying physical products and "service-first" approaches alone are no longer sufficient. Instead, an integrated view of the services offered by an entity in the context of its surrounding ecosystem becomes indispensable. This requires, on the one hand, a redefinition of an organization's value proposition and processes for its realization—entailing a revision of the company's mission and vision as well as the development of innovative business models. On the other hand, it necessitates the holistic integration of AI throughout the entire value creation process. While AI is currently used predominantly to support individual, separate tasks, its synergy potential will only be fully realized when it permeates the entire value creation process—across various departments and organizations.

Key question: How do companies find their strategic identity in the information economy?

Promoting Strategic Repositioning: In the course of strategic reorientation, companies are faced with the question of how to reinforce their DNA, i.e., their value proposition and vision, to get future-ready: What aspects of the established elements should be retained? How should new elements be designed? Further research is needed here to develop strategies that enable companies to preserve their core identity and long-standing brand values while leveraging the opportunities presented by AI. This involves examining how today's value propositions meet customer needs, how these customer needs might change in the context of AI, and how the actions for the fulfillment of these needs can be redesigned with the help of AI. This goes beyond marginal adjustments to processes, services, products, and delivery forms, and includes fundamental decisions regarding a complete redesign of processes, service bundles, and organizational environments.

Identifying Business Models for AI-enabled Services: Given the increasing importance of AI in services, it is crucial to direct research and development towards the identification and definition of new AI-enabled business models. How can companies design services based on human-AI collaboration? What new service levels are possible with AI integration? And most importantly: What business models can companies adopt to remain or become economically successful in the context of the new requirements around AI? Data-based or AI-enabled business models enable new forms of business but also require new skills and the development of novel processes on the part of both the organization and its customers.

Managing Ambidexterity Between Tradition and Innovation: In transitioning to AI-enabled business models, companies will need to balance their profitable traditional business models with exploratory AI-enabled ones. This requires the ability to operate ambidextrously, meaning they must manage daily operations effectively while also driving innovation. This concept is referred to as ambidexterity. Research can help develop strategies for implementing ambidexterity, thereby supporting companies in realizing AI-enabled innovations in the long

term. This may involve integrating partners, orchestrating various business areas differently, and designing roles within service ecosystems.

Bringing AI to Small and Medium-Sized Enterprises (SMEs): SMEs play a crucial role in the widespread integration of AI into services. Despite strong reservations, SMEs are aware of the potential long-term competitive disadvantages if they do not engage with AI at a strategic level. Research should focus on developing strategies to bring AI to SMEs and create opportunities and flexibility for experimentation. Particularly important could be the exploration and demonstration of low-risk strategies for SMEs to enter the field of AI. For instance, SMEs might initially test AI-enabled assistance systems for internal process improvement before implementing them at the customer interface. Additionally, defining the role of SMEs within ecosystems and developing mechanisms that regulate cooperation between partners are also essential aspects.

Adopting New Forms of Cooperation: As part of a new strategic identity, establishing diverse forms of cooperation is necessary to foster AI-enabled innovations. When companies across the value chain access data and AI models from other organizations and develop solutions collaboratively, this significantly impacts the nature and intensity of inter-organizational collaboration. As SMEs operate differently within ecosystems compared to large enterprises, the development of specific knowledge is necessary. Research can contribute by developing best practices for integrating AI into service ecosystems and finding approaches specifically suited to SMEs.

3.2. Transformation to AI-Driven Innovation and Work Processes

The integration of AI into companies represents a paradigm shift that fundamentally changes the way we work. By automating repetitive tasks, such as handling calls in call centers, the use of AI can relieve employees, creating space for more demanding and creative tasks. The collaboration between humans and AI in teams often requires a fundamental understanding of the technology and the adaptation of existing work routines. To successfully navigate this transition, it is essential to actively empower employees, providing them with the inspiration and training required for their new roles. Thoughtful change management should accompany the introduction of new technologies, promoting skill development for employees and an open corporate culture for the dissemination of learning.

Key question: How can the integration of AI-driven solutions in companies be designed with a human-centered approach?

Making AI-Driven Transformation Employee-Friendly: The introduction of AI can create significant uncertainties among employees. Concerns range from changes in their specific roles within an automated environment to questions about how to meet the increased demands of handling data and AI. If these concerns are not addressed, they can ultimately lead to resistance against technological changes. Therefore, change management for AI-driven work processes should focus on actively involving, training, and making employees aware of how AI might affect their roles within the company. Building competencies is crucial to foster an understanding of the impacts and potentials of new technologies. While not all employees need to become AI experts, a basic understanding can ease the transition. Fears of redundancy and change must be addressed and overcome through targeted measures. From a research perspective, the key questions revolve around effective methods for integrating employees into change processes and new models for designing AI-supported work processes. The development of training programs to promote a human-centered transformation can also contribute to this. Additionally, the emotional aspects of the change process for the staff should be given greater consideration.

Establishing New Processes and Supporting Change: To successfully manage AI integration at the management level, it is essential to understand and actively address technical and organizational challenges. This includes comprehending new work forms enabled by AI and planning and implementing transformation processes, such as the possible redistribution of tasks and the creation of new positions. Clear guidelines and strategies that define the integration of AI into workflows and company strategy form the foundation and require design knowledge of AI-driven organizations and innovation processes. Ethical considerations must also be guiding principles in this process. Additionally, "qualify or hire" decisions become relevant when leaders need to determine whether to train existing employees for a role or bring in external specialists.

Establishing a Symbiotic Corporate Culture: The successful integration of AI into innovation and work entails a transformation of corporate culture. Central to this is the question of how to foster the symbiosis between humans and AI while considering social aspects, with a greater emphasis on values such as collaboration, lifelong learning, and innovation. These values should be at the forefront of a corporate culture that is both AI-friendly and oriented towards human needs. It is crucial to understand not only how the increased use of AI solutions impacts people and corporate culture, but also to examine how existing corporate cultures can influence the success of AI implementation.

3.3. Quality Management for Responsible AI-enabled Services

Quality management for AI in service is becoming a key factor in designing valuable services. Companies need to determine how to integrate AI into their processes while maintaining their established quality standards. The concept of quality implies not only a value-driven perspective but also adherence to legal, societal, and ethical norms. Implementing such quality management requires continuous innovation processes to ensure these principles are considered not only during the initial design of AI-enabled services but also in their implementation and ongoing, AI-supported delivery.

Key question: How do companies design and implement AI-enabled services with the highest quality standards?

Human-Centered AI as a Quality Attribute: Quality in the context of AI can only be achieved if solutions follow a human-centered approach. This requires a systemic perspective with a clear focus on the added value that an AI solution and its implementation bring to people. An illustrative example of symbiotic collaboration between humans and AI can be found in factory automation, where robots assist and relieve humans in specific tasks within the production process. In knowledge work, an innovative strategy might involve using AI as a consultant or advisor. Such an AI could offer advice or second opinions, reflecting the common practice of decision-makers who often seek input from their human colleagues before making significant decisions or initiating projects. Approaches that promote a meaningful division of labor or the symbiotic fulfillment of tasks should be practically tested and supported by research. The goal is to develop and disseminate versatile AI integration strategies that focus on the added value for human users, thereby enhancing the quality of AI-enabled services.

Context Determines Quality Criteria: The perception of AI varies depending on the context of its application. While its use in production and maintenance tasks is generally viewed positively, AI in recruiting is evaluated more critically. Concerns often arise regarding potential negative subjective assessments by recruiters due to resume gaps or specific residential locations, which an inadequately trained AI might replicate. Therefore, quality criteria and sensitive aspects of AI-enabled services differ depending on the context. Solutions effective in one quality aspect may have unintended side effects in another criterion. Thus, quality criteria for the human-centered use of AI should always be multidimensional.

Augmentation to Enhance Service Quality: Integrating AI as a team member could offer an innovative solution to the current shortage of skilled workers in various service contexts. It is essential to explore how AI can be utilized to compensate for specific skill gaps, maintain or even expand capacities, and prevent overwork among staff. Large-scale studies with company and customer consultants already show that using GenAI-enabled non-human agents allow tasks in knowledge work to be completed more quickly and with higher quality (Brynjolfsson et al., 2023; Dell'Acqua et al., 2023). Particularly interesting in the context of augmentation to enhance service quality is that employees, who previously delivered below-average results, benefit disproportionately from using AI. Additionally, AI-trained and supported employees could potentially replace missing specialists under certain conditions. A recent study in the customer service context (Brynjolfsson et al., 2023) demonstrates that supporting employees with AI-enabled advice, which is based on best practices observed among top performers, can lead to the dissemination of these best practices and thus enable faster onboarding of new employees. This learning effect is lasting, as the performance improvement persists even during temporary outages of the AI support system. However, designing training programs for working with AI and successfully integrating human-AI teams to address the skills shortage requires further research efforts and close collaboration with practitioners.

Risk Assessment and Regulation: The increased use of AI in various service sectors has the potential to significantly accelerate the fulfillment of customer needs. However, AI systems quickly reach their limits in uncommon situations, leading to inadequate results that can impair the quality of the service provided. While using humans as a control instance can improve the quality of outcomes, it reduces the availability and speed of service delivery. This highlights the necessity for a systematic identification of criteria for assessing the risks and impacts of AI use. Such systematic identification enables companies to better evaluate the risk levels of AI applications and their use cases. The mid-term goal is to establish concrete standards for human well-being in interactions with AI solutions. Similarly to current regulations and initiatives for work ergonomics in physical tasks at factory workplaces, this would be a step toward establishing generally accepted norms (such as those proposed by the EU AI Act). The exact steps to achieve this goal are still open and require further research and extensive discussions.

3.4. New Methods and Techniques Enabled by AI

In a constantly evolving competitive environment, two critical levers for using AI in service are emerging. On the one hand, integrating AI can introduce new possibilities in the design and innovation processes for services, with the potential to enhance service quality and value. On the other hand, actively supporting actors in the co-creation of service is gaining importance. GenAI can be specifically employed to expand the capabilities of involved

actors, thereby increasing both satisfaction and the value contributed. Previous experiences in both areas should be discussed between research and practice to identify effective methods for the innovative integration of AI into service design processes. Additionally, it is essential to identify use cases for AI support in human activities and to determine the necessary skills that people need for successful interaction and joint value creation in human-AI teams.

Key question: What new methods of service innovation arise from the introduction of (generative) AI? What techniques and skills are needed to succeed in this new environment?

Creating Spaces for Experimentation: To effectively integrate AI into the ideation and innovation processes for service design, a space for creative experimentation is crucial. Companies should not only provide an organizational creative space but also ensure that sensitive data does not leave the company unintentionally. One way to encourage diverse experimentation by employees is to provide low-code platforms for constructing or customizing AI applications. The overarching goal is to establish a culture of continuous experimentation, ongoing development, and continuous learning processes. Thomson Reuters, for example, consolidates its vast data resources to provide centralized access to these data. The company actively encourages interdisciplinary teams of domain experts and IT specialists to experiment with this data foundation and develop innovations (Thomson Reuters, 2024). This approach not only contributes to creating knowledge for the successful integration of AI in service innovations but also helps generate application knowledge, facilitating the early identification of new customer needs.

Supporting Employees in the Application of AI Solutions: Human capabilities can be enhanced and extended by AI. Employees should be guided to effectively use AI and fully harness the technology's potential, for instance, through precise formulation of instructions for the AI (so called Prompt Engineering). However, not every employee has the same prior knowledge or curiosity. Therefore, identifying appropriate trainings for employees is crucial. This could involve external coaches or promoting internal knowledge initiatives, where early adopters within the company share their experiences with colleagues. Additionally, a clear benefit to their own tasks increases the likelihood of employees adopting AI solutions. Hence, companies should develop a data strategy to tailor internally used AI solutions to their specific organizational context. This approach ensures that AI solutions deliver more valuable results, which employees can utilize optimally, contributing to their satisfaction.

Developing and Teaching Methods for Managing Increased Service Dynamics: Services are increasingly emerging within ecosystems where not only human but also AI-enabled actors play a role (Wilga et al., 2024). The versatility of the application scenarios of AI solutions and the quality of their outcomes are constantly evolving. On the one hand, AI solutions are increasingly taking on tasks independently in service delivery. On the other hand, they manage and moderate processes to realize services, such as by controlling the exchange of information and expertise on platforms. The orchestration of service ecosystems with human and non-human actors is thus becoming an increasingly intriguing research field with great potential to generate applied knowledge. It is essential to investigate how the collaboration between multiple AI-enabled actors can be successfully organized and orchestrated, and what role humans will play in hyperdynamic, data- and AI-driven service ecosystems in the future. This could lead to changes in current human roles and their significance and may even give rise to new roles. For example, it is foreseeable that curating results from various AI applications by humans will gain in relevance, while certain creative processes could increasingly be handled by AI. Understanding what such developments could mean for value creation in the service sector, and their impacts on organizations, people, and their work, represents a promising area of inquiry for service research.

3.5. Humans and AI as a Team

The current perception often still holds the view that AI is meant to support humans. However, the real goal should be the development of human-AI teams that can collectively achieve outcomes beyond the individual capabilities of each team member. This paradigmatic shift requires the socially responsible integration of AI into work processes and the deliberate design of socio-technical systems to realize innovative AI-enabled services.

Key question: How can valuable human-AI constellations be identified and effectively designed to enable innovative AI-enabled services?

Identifying and Designing Valuable Workflows Between Humans and AI: For designing human-AI teams, an in-depth analysis is required to determine in which different constellations humans and AI can collaborate effectively. Identifying valuable and complementary human-AI constellations necessitates criteria or methods for recognition and evaluation. It is evident that AI can perform certain tasks more effectively and take over undesirable activities. For instance, technology can infer emotions from a caller's voice, something that technical support or hotline staff may not be able to do as reliably. However, there is a lack of a structured approach to recognize and define the potential for complementarity and effective task division between humans and AI—

especially in dynamic environments where tasks are constantly changing.

Introducing Human-AI Constellations in a Socially Responsible Manner: Identified valuable human-AI constellations must not only be recognized but also implemented and put into practice. The design of these constellations, the question of responsibility for AI actions, and the extent to which employees can participate are central to these considerations. Should the technology be imposed top-down, or are there opportunities for dynamic adaptation by employees using low-code and no-code solutions? Assigning responsibility in decision-making between humans and AI and addressing the issue of trust in AI are also crucial factors. Understanding employees' desires and fears is important for designing high-quality interactions and overcoming potential resistance or fear of machine integration. This can be achieved through knowledge dissemination or training to alleviate concerns and demonstrate the value AI can bring to individual tasks.

Clarifying Trust and Responsibility in Human-AI Constellations: Research and practice must develop knowledge to facilitate employees' work in human-AI teams and prepare, train, and support them through change processes. Key issues in designing human-AI teams are trust, responsibility, and motivation. It is essential to build trust in the outcomes generated by AI, while ensuring that humans do not blindly trust AI. The question of responsibility is also central, as ultimately, humans remain accountable for the decisions made and how they handle AI outcomes. Additionally, it is important to investigate the factors that motivate employees in human-AI teams and whether they feel as proud of their achievements when these are accomplished in collaboration with AI.

3.6. Data Strategy in the Information Economy

The successful implementation of AI requires a wide range of resources, with data emerging as a decisive element. In the digital age, companies collect vast amounts of data, yet many lack a clear understanding of how to leverage this data. The potential for professional data management is enormous. A compelling example of a successful data strategy in the information economy is Airbnb. The company uses AI to generate personalized recommendations for travelers. Simultaneously, Airbnb shares data with cities and governments to develop solutions for local challenges (Airbnb, 2023). This demonstrates that data can be used not only to optimize core business operations and internal processes but also to create new business models and explore innovative partnerships.

Key question: How can a forward-looking data strategy be designed as a foundation for the effective use of AI in companies?

Integrating Data Literacy into Effective Management of Organizational Roles: Developing data literacy at both individual and organizational levels is crucial for a successful data strategy. Data literacy encompasses the ability not only to collect data but also to understand its significance and to use it effectively. This includes critically questioning and interpreting data and being able to contextualize it appropriately. Research can support this process by developing suitable training programs tailored to the specific needs and requirements of individual employees and teams. At the same time, companies face the challenge of redefining employee roles to successfully transition to the information economy. Given the rapid developments in data science and AI, existing organizational models need to be explored, and new organizational models developed to ensure that employees possess the necessary skills and competencies for effective data and AI management. The redefinition of roles, therefore, is not only a response to technological changes but also a proactive adaptation to maximize the benefits of available data.

Establishing a Successful Data Strategy Across Company Boundaries: To work successfully with AI and enhance the performance and effectiveness of AI applications, a data strategy that enables targeted access and optimal use of data is essential. A successful data strategy includes ensuring data quality to guarantee reliable results, implementing robust data protection and security measures, establishing clear data governance guidelines, and defining strategies for the entire data lifecycle. A forward-looking data strategy should also promote innovation and integrate dual data strategy concepts. For instance, dual data strategy concepts can be introduced, enabling companies to optimize their core business while exploring new business models through AI and data exploration. By implementing these strategies, companies can enhance their competitiveness and develop innovative solutions. An additional challenge is overcoming the industry's and customers' reluctance to provide data and to promote increased collaboration and data sharing (Fassnacht et al., 2024). Therefore, research aimed at fostering a forward-looking data strategy should focus on providing blueprints and best practices that illustrate how open and trustworthy data collaboration can be achieved. This may involve transparency initiatives, data protection agreements, and partnership models.

Ensuring Data Sovereignty and Security: Given the increasing collection and sharing of data with the use of AI, research focuses particularly on the issues of data sovereignty and security. Data sovereignty refers to the

right and control over one's own data, including its collection, processing, storage, and sharing. Data security pertains to implementing protective measures and safeguards aimed at ensuring the confidentiality, integrity, and availability of data, protecting it from unauthorized access, data breaches, or manipulation. Companies are therefore required to take proactive steps to maintain control over their data and ensure its security. This includes developing data protection policies, securely handling sensitive research data, and implementing security measures to protect data from unauthorized access and potential leaks. Moreover, research faces the challenge of addressing concerns regarding unintended data leakage in AI applications. Particularly interesting is how cloud environments can be utilized for secure and effective data management. In this context, the Gaia-X example serves as a model for other joint projects in Germany and Europe (Blancato, 2023).

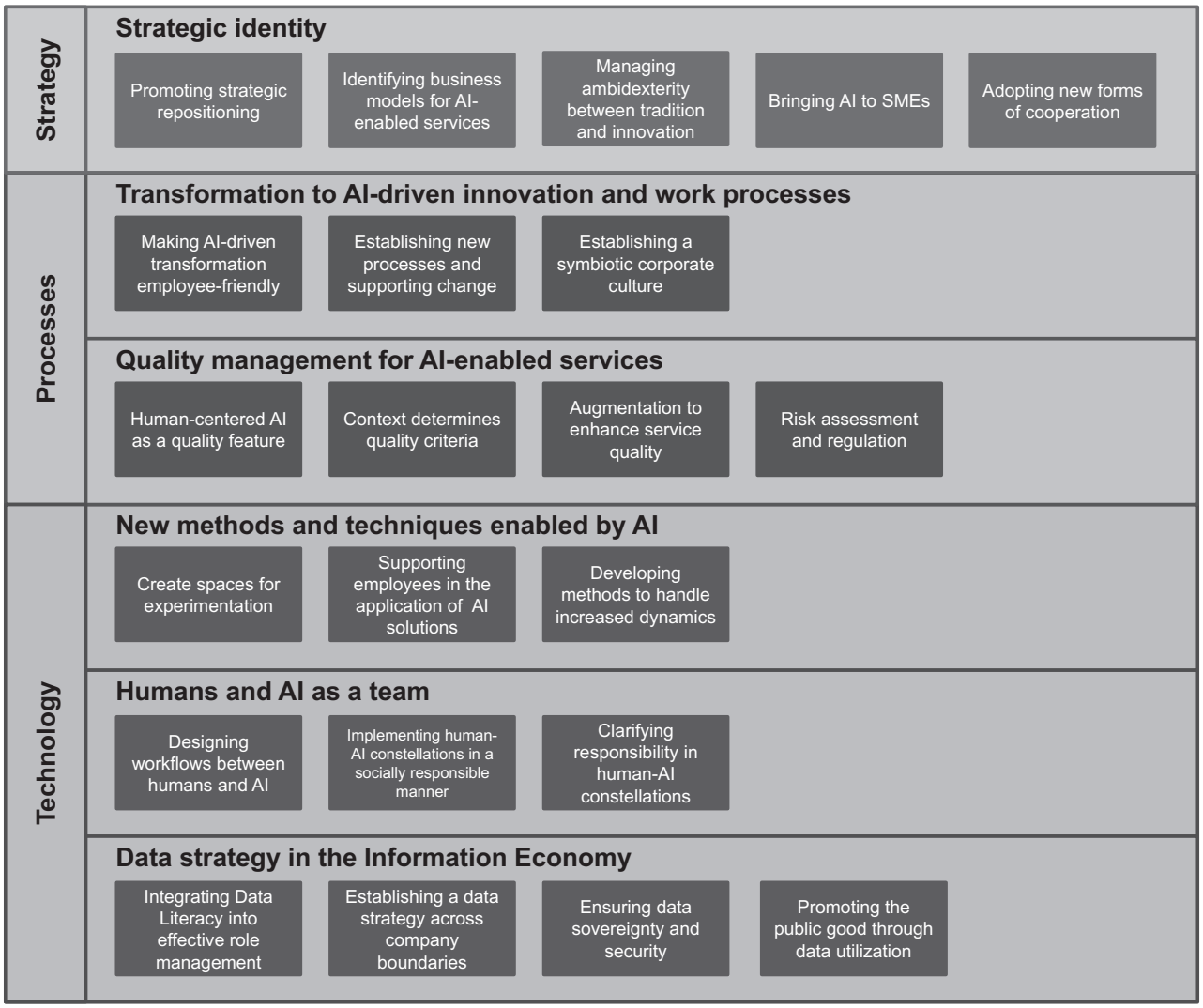

Fig. 3: Six fields of action on the triad of AI, service, and human work with the respective subtopics.

Promoting the Public Good through Data Utilization: A successful data strategy can also have positive impacts beyond company boundaries. Companies can contribute to society by deliberately using their data for public good-oriented solutions. This requires consciously aligning the data strategy with social goals and researching solutions that extend beyond corporate benefits. An exemplary model of this is Uber's Open Data Initiative with the "Uber Movement" platform. By making traffic data from various cities worldwide freely available, Uber enables urban planners, researchers, and the public to analyze traffic flows (Belmonte, 2018). This not only promotes transparency but also the development of applications and solutions that can improve urban mobility, which also benefits Uber. From a research perspective, the topic of Open Data is relevant for promoting public good-oriented data use. Highlighting the benefits for companies sharing data for free, providing practi-

cal implementation recommendations, and concrete case studies can further spread this practice.

4. Conclusion

The integration of AI into service interactions, processes, and value co-creation represents a transformative global paradigm shift that is reshaping industries and economies worldwide. The six described fields of action provide a comprehensive framework based on insights from multiple disciplines, all underscoring the transformative potential of AI to drive service innovation, improve service quality, and increase operational efficiency. These fields emphasize the importance of redefining strategies, integrating AI in a human-centered way, ensuring quality standards, and fostering innovative service ecosystems.

While Germany's preparation for AI-driven value creation may highlight specific challenges, such as data infrastructure and (corporate) culture, these insights resonate internationally. Organizations around the world must carefully balance the coexistence of traditional and AI-driven business models, actively engage employees and customers in the AI transition, and establish effective data strategies. These actions are critical to realizing the full potential of AI in the discussed contexts. As AI continues to evolve, the ongoing need for international research and interdisciplinary collaboration is essential to address the ethical, social, and technical challenges associated with its integration.

The collaboration between humans and AI should be designed to complement the strengths of each other, fostering a symbiotic relationship that enhances both productivity and satisfaction. It is crucial to monitor how the advent of AI and the integration of AI-enabled non-human agents into services and service ecosystems will redefine the human role in service interactions and transform the nature of service itself. Different regions will approach this phenomenon from diverse cultural contexts and varying infrastructural conditions, leading to distinct environments and catalyzing unique forms of service innovation. Research should methodically analyze these societal changes and thereby promote international exchange to share regional successes and learnings from unsuccessful initiatives. The objective is to develop an AI-enabled service landscape that not only drives global economic growth but also aligns with human values, social well-being, and sustainable development.

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