

CASE STUDY ON THE IMPLICATIONS OF AI-ENABLED BUSINESS MODEL INNOVATION AND MARKETING STRATEGIES IN THE SMEs IN THE UK

Abstract: This qualitative case study delves into the transformative impact of artificial intelligence (AI) on business models (BMs) and marketing strategies, specifically focusing on small and medium-sized enterprises (SMEs) in UK. By critically analysing AI's influence on various components of BMs, this study aligns with Osterwalder and Pigneur's (2010) ontology for Business Model Innovation (BMI). Despite the ambiguous value of AI during digital transformation, this research aims to bridge the gap in AI-enabled marketing strategies. Recognizing the successes of large corporations and the unique challenges faced by SMEs in leveraging AI, further primary research within the SME/s in the UK is strongly advocated.

Keywords: Business Model, Business Model Innovation, Digital Transformation, AI, Marketing Strategies, SMEs, UK.

1. INTRODUCTION:

The transformative power of Artificial Intelligence (AI) is evident in large corporations, leading to numerous benefits such as cost reduction, profit maximisation, increased productivity, and improved experiences for both customers and employees.

However, SMEs face difficulties in fully leveraging AI due to various limitations, such as lack of technical expertise, insufficient funding, and inadequate government support. This situation highlights the crucial role of business models and their innovation in navigating the digital transformation enabled by AI in the SMEs. A strong and innovative business model can help SMEs overcome these challenges and fully utilise the potential of AI. By incorporating AI into their business models, SMEs can drive a digital transformation that not only addresses their current limitations but also opens up new opportunities for growth and competitiveness. Therefore, the intersection of AI, business model innovation, and digital transformation provides a compelling framework for understanding the future of SMEs in the digital era. This forms the basis for the study on the transformative potential of AI-enabled value creation and value capture within the SME sector, which aims to answer the following research question:

RQ: What are the implications of AI for business model innovation and marketing strategies in SMEs in the UK?

2. METHODOLOGY:

This research adopts a Qualitative Research approach to delve into the research objective, as it allows for the exploration of multiple viewpoints and the identification of various factors that contribute to a comprehensive understanding of the subject matter (Creswell, 2013; Flick,2020). As Strauss and Corbin (1998) suggest, qualitative methods are beneficial for probing areas of interest that are either nascent or well-established but require a deeper understanding and the collection of elusive details about a phenomenon that other methodologies may struggle to capture. This research will utilise a single or multiple case study strategy (Yin, 2019;Flick,2020). This strategy in scenarios where the research aims to

answer ‘Why?’, ‘How?’ or ‘What?’ questions are often used in explanatory and exploratory research to thoroughly examine a program, event, activity, or process (Saunders et al., 2009; Flick,2020). The study will investigate one or two Small and Medium-sized Enterprises (SMEs) in UK. **The results derived from the Primary Case Study analysis will be disseminated appropriately in the forthcoming period. This is intended for inclusion as part of the final thesis.**

3. **RESEARCH GAPS:**

- The absence of scholarly literature on AI-enabled marketing strategies precludes a discernible alignment between organizational strategy and marketing strategy.
- Business models have been reinvented using AI, especially large Companies, and technical startups. However, empirical evidence on SMEs leveraging this technology both in business model and marketing strategies has not been evaluated and synthesised.
- The heterogeneity and dual dimensionality of value creation have not been considered in AI-enabled business models.

4. **THEORETICAL IMPLICATIONS:**

- To establish conceptual clarity on AI-enabled business model innovation and digital transformation.
- To establish conceptual clarity on AI-enabled value creation and value delivery

PRACTICAL IMPLICATIONS:

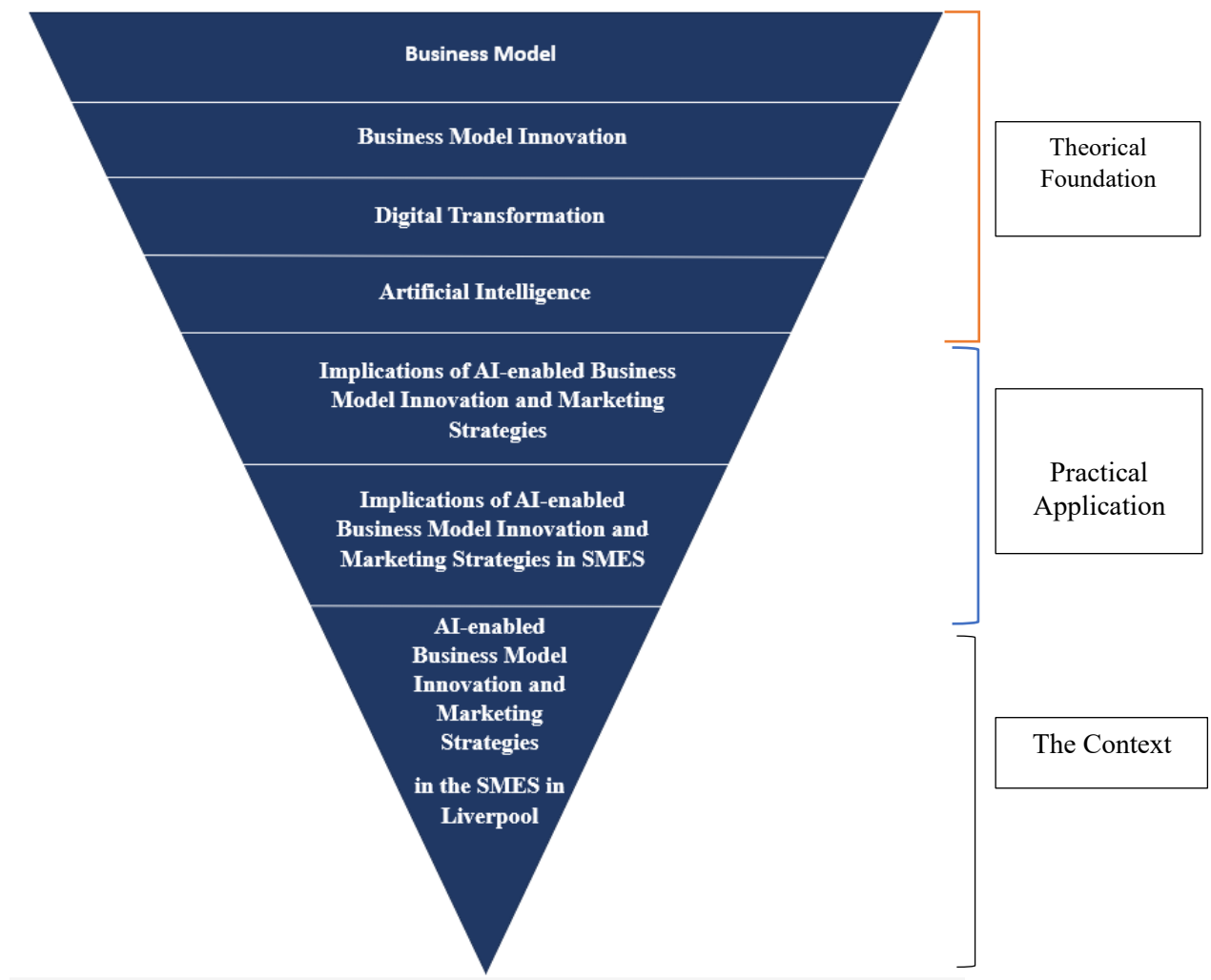
- Identify any barriers that hinder the successful implementation of business model innovation through AI.
- Enable SMEs to align organizational strategies to create, deliver, and capture value through AI-enabled digital transformation.
- Help smaller businesses utilize AI to enhance productivity, cut costs, and improve customer and employee experiences.

5. **LITERATURE REVIEW:**

The organizational structure of this literature review transitions from a broad examination of the fundamental concepts (BM, BMI, Digital Transformation, AI) to a more focused analysis of the specific aspects of the research question (AI-enabled BMI), as outlined by Flick (2020, pp. 90-92) and as shown in Figure 1. This approach ensures a comprehensive understanding encompassing theoretical foundations and practical applications within the context of SMEs.

Figure 1

Structure of the Literature Review



Source: Authors' Work

5.1 BUSINESS MODEL:

In his book “Images of Organization”, Morgan (1986) presents eight metaphors to understand organizations: Machines (logical, repeatable systems), Organisms (adaptive to environment), Brains (information processors and learners), Cultural Systems (mini-societies with distinct cultures), Political Systems (power games), Psychic Prisons (limiting myths and stories), Instruments of Domination (means for personal gains), and Flux and Transformation (ever-changing systems). Each metaphor provides unique insights into organizational complexities. BM is pivotal in management studies despite their varied interpretations and lack of a standard definition (Ritter & Lettl, 2018; Shafer, Smith & Linder, 2005). They encompass Activities, Logic, and Elements, with alignment being crucial (Chesbrough, 2007; Shafer, Smith and Linder, 2005; Baden-Fuller & Morgan, 2010; Johnson, Christensen and Kagermann, 2008; Osterwalder et al., 2010; Magretta, 2002). BMs are distinct yet interrelated with strategy, preparing for future scenarios and surpassing the BM’s scope during contingencies (Magretta, 2002; DaSilva & Trkman, 2014; Casadesus-Masanell & Ricart,

2010; Osterwalder et al., 2010). A common understanding of BM remains elusive due to overlapping definitions (Osterwalder, Pigneur, and Tucci, 2005; Zott, Amit, and Massa, 2011; Morris and Schindehutte, 2005). BM is a complex system as per various definitions (Johnson, Christensen and Kagermann, 2008; Osterwalder and Pigneur, 2010; Foss and Saebi, 2017; Shafer, Smith and Linder, 2005; Teece, 2010). This study examines BM frameworks, notably the Business Model Canvas (Osterwalder et al., 2010), Johnson, Christensen and Kagermann, (2008) model, and Wirtz et al.'s (2016) comprehensive frameworks. Value creation, a recurring theme in business model research, is central to a firm's strategy (Richardson, 2008; Wirtz et al., 2016; Zott et al., 2011; Osterwalder & Pigneur, 2010). Richardson (2008) identifies three components of business models: value proposition, value creation and delivery, and value capture. Wirtz et al. (2016) propose a comprehensive framework for business model analysis, including value proposition, value architecture, value finance, and value network. Zott et al. (2011) view a business model as a system of interdependent activities, emphasizing value creation through novel activity system design and governance. Osterwalder and Pigneur (2010) highlight the role of value creation in solving customer problems and meeting needs through a value proposition. However, most frameworks view value as a one-way transfer from a firm to its customers (Osterwalder & Pigneur, 2010). Drawing on Gareth Morgan's metaphorical framework, a business model can be likened to an organism, adapting to its environment, evolving over time, and exhibiting interdependence of parts for survival. This perspective illuminates the need for business models to be resilient, adaptable, and capable of value creation to meet customer interests. Thus, the business model, like an organism, undergoes a life cycle of birth, growth, maturity, and potential decline if adaptation fails.

5.2 BUSINESS MODEL INNOVATION:

Scholars debate BMI constituents, with some considering minor BM changes as BMI (Frankenberger et al., 2013), while others advocate for more substantial alterations (Lindgardt et al., 2009; Wirtz and Thomas, 2014; Afuah, 2019; Spieth and Schneider, 2016). BMI, viewed as a long-term competitive advantage strategy (Wirtz and Thomas, 2014), introduces novel value propositions (Souto, 2015; Afuah, 2018; Johnson et al., 2008). Despite varied definitions, disagreement persists on BM boundaries (Foss and Saebi, 2018). BMs hinge on novelty and extent of change (Foss and Saebi, 2018). BMs and technology are intertwined, but technology alone doesn't guarantee success (Doganova and Eyquem-Renault, 2009; Chesbrough, 2007). Effective BMs are essential for fully leveraging technology's potential (Chesbrough, 2007). Thus, BMI is acknowledged as a dynamic process where firms strive to maintain their competitive edge by altering certain activities and functions within their BMs and exploring new architectural designs that offer novel possibilities for adopting new technologies in value creation, distribution, and capture (Foss and Saebi, 2018; Sorescu et al., 2011). To remain competitive, companies need to continuously innovate their business models because BMI is not a one-time event but rather an ongoing process (Osterwalder and Pigneur, 2010).

5.3 DIGITAL TRANSFORMATION:

DT offers benefits like productivity and value generation (Paige, 2023; Matt, Hess & Benlian, 2015). It's a substantial alteration process driven by internal motives and external disruptions (Vial, 2019; Bouwman, De Reuver, & Shakrokh, 2017). DT leads to new business models (Remane et al., 2016), enhances customer experience (Verhoef et al., 2021), and is more complex than previous IT transformations. It transforms operations, people, and networks for competitive advantage (Ismail, Khater, & Zaki, 2017), but aligning IT with other strategies is challenging (Bouwman et al., 2017). The nature of the technology influences the BMI (Bouwman, De Reuver, and Shakrokh 2017) and in pursuit of digital transformation business model innovate (Verhoef et al., 2021).

5.4 ARTIFICIAL INTELLIGENCE:

AI, unlike traditional IT, imparts human-like intelligence to computers for problem-solving and comprehension (Davenport 2018; Benbya et al., 2020; Mikalef & Gupta, 2021; Eriksson et al., 2020; Bytniewski et al., 2020). It's defined as autonomous with capabilities like perception, learning, and adaptation (Demlehner & Laumer, 2020; Kolbjørnsrud et al., 2017; Wang et al., 2019; Makarius et al., 2020). AI methodologies often involve machine learning (ML) and deep learning (DL) and Artificial Neural Networks (ANNs), with a focus on process automation, cognitive insight, and cognitive engagement (Davenport & Ronanki, 2018). AI's role in automation and augmentation leads to advanced task management and enhanced expertise across sectors (Davenport, 2018; Marr & Ward, 2019; Brown, 2020; Enholm et al., 2021). However, an "automation and augmentation paradox" exists due to their intertwined nature, causing a "spillover" effect (Raisch & Krakowski, 2021; Spring et al., 2022).

5.5 VALUE CREATION AND VALUE CAPTURE IN AI-ENABLED BUSINESS MODEL INNOVATION:

5.5.1 AI TRANSFORMING CUSTOMER SEGMENT:

AI is reshaping customer segmentation, enabling precise marketing and boosting customer value (Enholm et al., 2022; Davenport and Ronanki, 2018; Kotler, Kartajaya and Setiawan, 2021). Firms like Facebook and Amazon use AI to improve customer experiences (Marr and Ward, 2019; Sena and Nocker, 2021; Enholm et al., 2022). Cognitive computing helps identify audiences by analyzing large data (Finch, Goehring and Marshall, 2017).

5.5.2 AI TRANSFORMING VALUE PROPOSITION:

AI is transforming Professional Services Firms (PSFs) and improving efficiency and productivity (Spring, Faulconbridge, Sarwar, 2022). Stitch Fix uses AI for personalized styling (Brown, 2020; Davenport et al., 2019), while Sephora's AI and VR-based app merges physical and digital shopping experiences (Bonnet and Westerman, 2021). Firms such as Amazon and Netflix optimize customer value through AI-powered recommendations (Enholm et al., 2022; Marr and Ward, 2019). AI also aids in process augmentation, as seen with Schindler (Bonnet and Westerman, 2021), and transforms traditional manufacturing into service-oriented models, as with GE and Atlas Copco (Deloitte, 2020). Similarly, Hilti's 'tools-on-demand' service (Bonnet and Westerman, 2021). Generative AI is increasing efficiency in software engineering (Kanbach et al., 2023). Lastly, AI plays a role in value migration, as seen with companies like Amazon and Spotify (Sena and Nocker, 2021).

5.5.3 AI TRANSFORMING CHANNELS:

E-commerce, set to hit \$5.4 trillion by 2026, could gain from drone tech, used by Amazon and UPS for efficiency (Benbya, Davenport and Pachidi, 2020; Garg et al., 2023). Zipline and JD.com use drones for delivery (Brown, 2020). Autonomous robots like Amazon's Scout are used in various sectors (Marr and Ward, 2019; Law et al., 2021). AI and ML have boosted sales in Starbucks and Sweetgreen (Edelman and Abraham, 2022). AI is used in after-sales services for quality and efficiency in GE's SmartSignal and Rolls-Royce's analytics (Deloitte, 2020; Osterwalder and Pigneur, 2010; Marr and Ward, 2019).

5.5.4 AI TRANSFORMING CUSTOMER RELATIONSHIP:

AI and cognitive computing enhance guest services and operations in hospitality (Finch, Goehring, and Marshall, 2017). AI chatbots contribute to cost savings and market growth in financial services (Biallas and O’Neil, 2020). Henn-na Hotel’s robotic workforce proved efficient (Hertzfeld, 2019). AI facilitates value co-creation (VCC) in service sectors, optimising customer experience (CX) (Solakis, 2022). Community-based services like Giffgaff promote VCC (Bonnet and Westerman, 2021), while Amazon and Netflix personalise VCC using AI (Chandra and Rahman, 2023; Samson, Ellis and Black, 2023).

5.5.5 AI TRANSFORMING KEY RESOURCES:

AI aids decision-making, interprets business indicators, improves sales, and assists in healthcare (Enholm et al., 2022). It enhances productivity, as seen in Huntington Ingalls Industries’ use of augmented reality (Bonnet and Westerman, 2021). Bonnet and Westerman (2021) also discuss “Future-readying” and “Flexforcing” strategies, exemplified by Cargill, Target, and UPS.

5.5.6 AI TRANSFORMING KEY ACTIVITIES:

AI and ML transform PSFs and enhance financial services (Spring, Faulconbridge and Sarwar, 2022; Finch, Goehring & Marshall, 2017). They expedite tax case resolutions (Finch et al., 2017), optimise staff time, and aid in fraud detection (Finch et al., 2017). AI and NLP improve efficiency in UHS, saving costs (Wamba-Taguimdje et al, 2020). DL enhances agility in FinTech (Wang, Huang, and Zhang, 2019). AI improves manufacturing efficiency in BMW and Siemens, and enhances productivity in ADNOC (BMW, 2019; Srai et al, 2022; Wamba-Taguimdje et al., 2020).

5.5.7 AI TRANSFORMING PARTNERSHIPS:

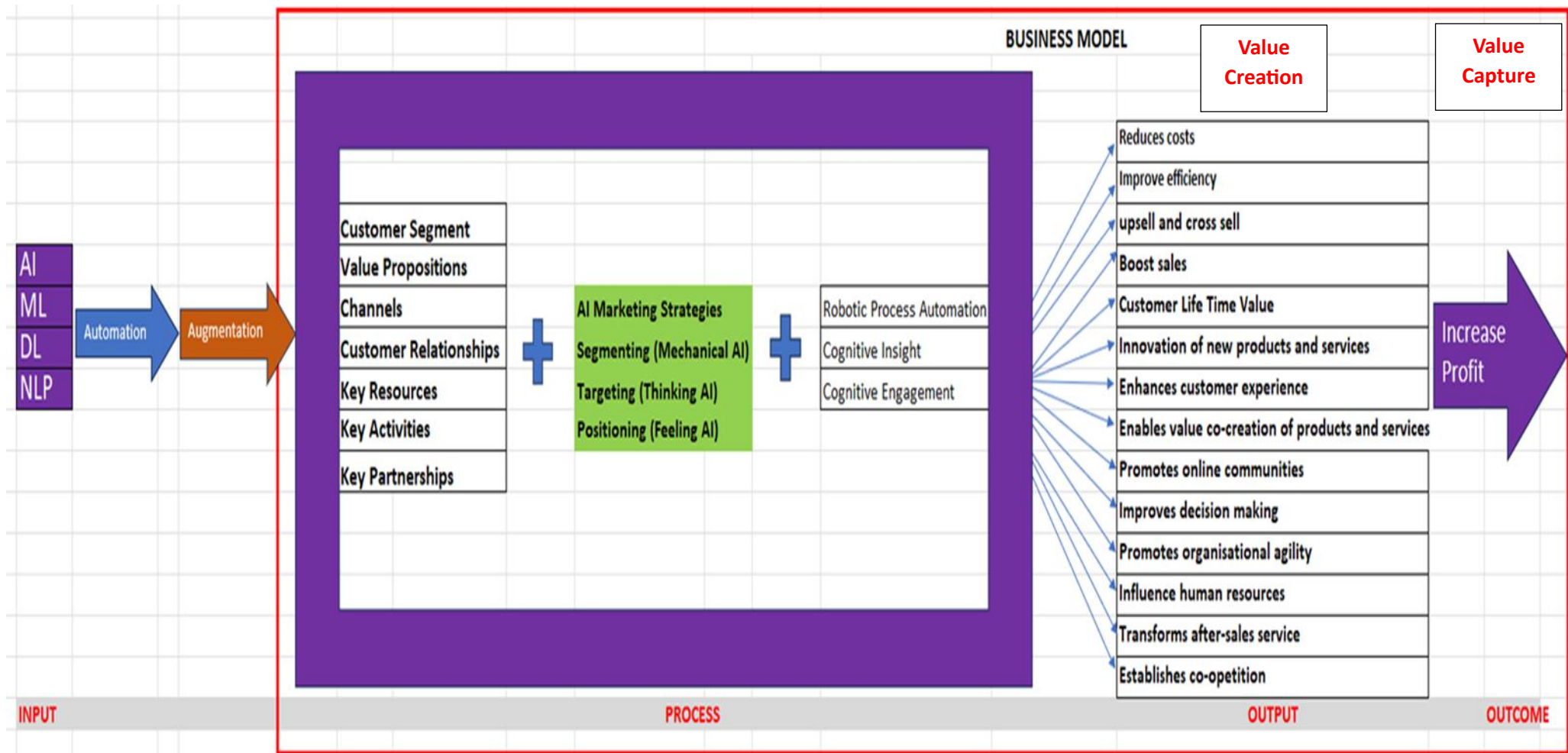
Coopetition-based business models, where rivals form value networks, are rising in the digital landscape, stimulating growth and efficiency (Velu, 2019; Velu & Stiles, 2013; Velu, 2017; Ritala et al., 2014). AI plays a role in creating ecosystems that integrate resources from multiple businesses, leading to new services and value networks (Sena and Nocker, 2021).

6: AI IN SMES:

SMEs understand AI benefits but lag in adoption due to technical know-how, resource constraints, lack of finance, and lack of government support in terms of finance (Masood and Sonntag, 2020). Overcoming these challenges is crucial for their future growth and innovation (Sevinc, Gur and Eren, 2018; Türkes et al., 2019; Ghobakhloo and Ching, 2019; Pech and Vrchota, 2020; Ko et al., 2020; Cimini et al., 2020; Yu and Schweisfurth, 2020; Ingaldi and Ulewicz, 2020; Masood and Sonntag, 2020; Ulrich and Frank, 2021).

The conceptual framework as shown in *Figure 2* delineates AI’s implications for business model innovation and marketing strategies, despite the ambiguity in value creation (Referenced Literature). Both incremental and radical models are crucial, with traditional industries and platform economies favouring each respectively. Huang and Rust’s (2021) AI classification into Mechanical, Thinking, and Feeling AI provides a new perspective on marketing strategies, facilitating segmentation, targeting, and positioning respectively. This approach indicates a promising avenue for future research.

Figure 2 IMPLICATIONS OF AI-ENABLED BUSINESS MODEL INNOVATION AND MARKETING STRATEGIES



Source: Authors' Work.

7. The integration of AI has the potential to enable substantial transformations in SMEs. Here are some projected outcomes:

Productivity Enhancement: AI has the capability to automate mundane and time-intensive tasks, thereby liberating employees to concentrate on more crucial tasks.

Customer Service Augmentation: AI can aid SMEs in delivering personalized experiences on a large scale, thereby boosting customer satisfaction. Chatbots powered by AI can offer self-service alternatives for customers.

Amplified Opportunities for Upselling and Cross-Selling: AI has the ability to forecast cross-sell and upsell opportunities, presenting appropriate recommendations to customers at the optimal time.

Logistics Improvement and Intelligent Supply Chains: AI can scrutinize vast amounts of data, offering comprehensive visibility and supporting superior decision-making.

Transformation of Business Model: AI can empower SMEs to modify their business models, targeting key elements, leading to productivity and outreach augmentation, and scaling their operations.

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