Artificial Intelligence and Business Model Innovation: A Review from Dynamic Capabilities Theory

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Abstract

Artificial Intelligence (AI) has become a transformative force in business model innovation (BMI), allowing firms to sense opportunities, seize competitive advantages, and reconfigure their strategies in dynamic environments. This review paper This study examines how Artificial Intelligence (AI) reshapes Business Model Innovation (BMI) by extending Dynamic Capabilities Theory (DCT). It introduces the AI-Driven Dynamic Capabilities Model (AIDCM), which conceptualizes AI's role in sensing, seizing, and transforming business opportunities. The study also addresses ethical and governance challenges arising from AI-driven transformations.

Methodology: This research adopts a conceptual and theoretical approach, synthesizing literature on AI, BMI, and DCT. It develops AIDCM to explain how AI enhances predictive analytics, decision automation, and business adaptability.

Findings: The AIDCM framework reveals that AI-driven firms demonstrate enhanced market sensing, real-time strategic execution, and self-learning business models. However, AI-driven transformations also introduce new ethical and governance challenges, necessitating regulatory oversight and structured AI governance frameworks. The findings highlight that AI is not just an operational tool but a fundamental driver of strategic innovation.

Conclusions: To harness AI's full potential, firms must integrate AI within structured governance frameworks, ensuring ethical AI deployment, human-AI synergy, and sustainable business transformation. The study proposes a future research agenda for empirical validation of AIDCM, emphasizing AI's role in sustainable, ethical, and adaptive business models.

Keywords: Artificial Intelligence (AI), Business Model Innovation (BMI), Dynamic Capabilities Theory (DCT), AI-Driven Transformation, Strategic Agility, Ethical AI Governance

1. Importance of Artificial Intelligence (AI) in Business Model Innovation (BMI)

Artificial Intelligence (AI) has rapidly emerged as a transformative force in business, redefining how firms create, deliver, and capture value in competitive environments (Brynjolfsson & McAfee, 2017; Teece, 2018). AI-driven Business Model Innovation (BMI) enables organizations to leverage big data analytics, machine learning, and automation to optimize operations and enhance customer engagement (Cheng, 2024; Oliveira, 2024). As AI technologies advance, firms increasingly rely on

predictive analytics, natural language processing (NLP), and robotic process automation (RPA) to augment decision-making, enhance personalization, and drive operational efficiencies (Davenport & Ronanki, 2018).

The integration of AI into business models provides firms with capabilities such as real-time demand forecasting, dynamic pricing strategies, and hyper-personalized customer experiences (Parmaxi et al., 2024). AI-powered business models are particularly evident in platform economies (e.g., Uber, Airbnb, Amazon Web Services), where algorithms dynamically match supply and demand, enhancing efficiency and profitability (Benbya & Leidner, 2018). The shift from product-based to AI-driven service and subscription models has further reshaped traditional revenue streams, demonstrating AI's critical role in business model evolution (Chesbrough, 2010). The importance of AI in BMI is evident across industries, including financial services, healthcare, retail, and manufacturing, where AI enables organizations to innovate rapidly and adapt to market shifts (Ignacimuthu & Kulasekarapandian, 2025). For example, FinTech firms leverage AI-driven risk assessment and fraud detection, while healthcare providers use AI for diagnostics, telemedicine, and precision medicine, redefining how value is created in these sectors (Adner & Kapoor, 2016).

Artificial Intelligence (AI) has emerged as a transformative force in business model innovation (BMI), enabling firms to automate decision-making, optimize processes, and develop new revenue models (Jorzik et al., 2024). Companies such as Amazon, Netflix, Tesla, and Alibaba leverage AI to enhance customer engagement, dynamic pricing, and supply chain optimization, demonstrating AI's potential to disrupt traditional business models (Teece, 2018). Business Model Innovation (BMI) refers to fundamental changes in how a firm creates, delivers, and captures value (Chesbrough, 2010).refers to the process of reconfiguring a firm's value creation, delivery, and capture mechanisms to gain a competitive advantage (Chesbrough, 2010). AI enables BMI by facilitating hyper-personalization, algorithmic decision-making, and data-driven insights (Davenport & Ronanki, 2018). Companies such as Netflix, Uber, Amazon, and Tesla leverage AI-powered predictive analytics and automation to create innovative business models that disrupt traditional markets. AI enhances BMI by enabling hyper-personalization, algorithmic decision-making, and data-driven customer engagement (Davenport & Ronanki, 2018). The rise of platform economies (e.g., Uber, Airbnb), AI-as-a-Service (AIaaS), and digital ecosystems showcases the deep integration of AI into modern business models.

Dynamic Capabilities Theory (DCT) provides a theoretical framework to examine how businesses adapt to technological disruptions and market shifts. DCT, introduced by Teece et al. (1997), defines a firm's ability to sense opportunities, seize competitive advantages, and transform operations to remain competitive. AI enhances these capabilities by detecting emerging trends, automating decision-making, and enabling adaptive business strategies (Teece, 2018). To understand the strategic implications of AI in BMI, Dynamic Capabilities Theory (DCT) provides a useful theoretical lens. Teece et al. (1997) define dynamic capabilities as a firm's ability to sense, seize, and transform opportunities in a rapidly evolving business environment. AI significantly enhances these capabilities:

1. Sensing Opportunities: AI-driven predictive analytics and machine learning detect market trends, customer preferences, and emerging business opportunities (Jorzik et al., 2024).

2. Seizing Opportunities: AI-powered automation, dynamic pricing, and supply chain optimization enhance strategic agility and decision-making (Teece, 2018).

3. Transforming Business Models: AI enables continuous adaptation and digital transformation, facilitating the transition from traditional models to data-driven, AI-enabled platforms.

This paper reviews how AI impacts BMI through the DCT lens, discussing opportunities, challenges, and future research directions.

2. The Role of Dynamic Capabilities Theory (DCT) in AI-Driven Business Transformation

The Dynamic Capabilities Theory (DCT) provides a strategic framework to understand how AI empowers businesses to adapt, evolve, and sustain a competitive advantage in dynamic environments (Teece, 2018). The key ways AI influences business transformation through DCT include:

a. Enhancing Organizational Agility and Innovation: AI enables firms to respond to market volatility and technological disruptions with agile decision-making (Cheng, 2024). AI-driven automation reduces time-to-market for new products and services (Oliveira, 2024).

b. Facilitating Sustainable Competitive Advantage: AI-driven predictive maintenance and smart supply chains ensure operational efficiency (Ignacimuthu & Kulasekarapandian, 2025). AI-powered dynamic pricing models maximize revenue across diverse industries (Benbya & Leidner, 2018).

c. Enabling Continuous Business Model Reconfiguration: AI provides firms with real-time data insights for business strategy optimization (Davenport & Ronanki, 2018). AI-driven platform ecosystems foster new value-creation mechanisms (e.g., AI-enabled marketplaces) (Parmaxi et al., 2024).

2.1 Dynamic Capabilities Theory (DCT) and Its Relevance

Dynamic Capabilities Theory (DCT), introduced by Teece, Pisano, and Shuen (1997), provides a strategic framework for understanding how firms adapt, innovate, and sustain competitive advantage in volatile environments. Unlike traditional resource-based views that focus on static competitive advantages, DCT emphasizes a firm's ability to reconfigure resources, processes, and capabilities in response to external changes.

Teece (2018) refined DCT into three key capabilities:

1. Sensing: Identifying market opportunities, technological trends, and consumer needs.

2. Seizing: Mobilizing resources to capture opportunities and build competitive advantages.

3. Transforming: Continuously reconfiguring business models, processes, and strategies to remain competitive.

In the AI-driven business landscape, these capabilities align closely with how AI facilitates decision-making, operational transformation, and business model evolution.

2.2. AI's Role in Enhancing Dynamic Capabilities

2.2.1. Sensing Opportunities: AI for Market Intelligence and Predictive Insights-Sensing refers to a firm's ability to identify and analyze external trends, emerging technologies, and market shifts. AI plays a pivotal role in enhancing sensing capabilities by leveraging:

- Big Data Analytics: AI-driven analytics tools process vast amounts of structured and unstructured data to detect patterns, customer preferences, and emerging market trends (Jorzik et al., 2024).

- Natural Language Processing (NLP): AI-powered sentiment analysis tools track consumer sentiment, competitor strategies, and industry movements in real time (Teece, 2018).

- Predictive Analytics: AI models help businesses forecast demand fluctuations, financial risks, and industry disruptions, enabling proactive decision-making (Davenport & Ronanki, 2018).

For example, Amazon's AI-powered recommendation system continuously analyzes user behavior, purchase history, and browsing patterns to predict consumer demand and personalize product recommendations (Jorzik et al., 2024).

2.2.2. Seizing Opportunities: AI for Competitive Advantage and Efficiency-Once opportunities are sensed, firms must act quickly to capitalize on them. AI enables firms to seize opportunities faster and more effectively by:

- Automating Decision-Making: AI streamlines strategic and operational decisions by automating repetitive tasks, optimizing resource allocation, and reducing human errors (Davenport & Ronanki, 2018).

- Optimizing Customer Engagement: AI enhances personalized marketing strategies, chatbots, and virtual assistants, leading to improved customer satisfaction and loyalty (Teece, 2018).

- Improving Operational Efficiency: AI-powered supply chain optimization, dynamic pricing models, and process automation help firms lower costs and increase agility (Jorzik et al., 2024).

A prime example is Uber's AI-driven dynamic pricing model, which adjusts ride fares based on real-time supply and demand data. This model enables Uber to maximize profits while balancing customer affordability and driver incentives (Teece, 2018).

2.2.3. Transforming Business Models: AI for Adaptability and Reconfiguration-The most critical capability in DCT is transformation, which refers to a firm's ability to continuously reinvent its business model and operations in response to technological advancements. AI facilitates transformation by:

- Driving Digital Business Models: AI enables firms to transition from traditional models to data-driven platform ecosystems (e.g., Netflix's AI-powered content recommendation system).

- Facilitating Organizational Agility: AI enhances adaptability by automating workflows, enabling real-time decision-making, and streamlining operations (Davenport & Ronanki, 2018).

- Supporting Strategic Flexibility: AI-powered insights help firms pivot their business models, ensuring long-term sustainability in dynamic markets.

A compelling case is Tesla's AI-driven transformation of the automotive industry. Tesla's AI-based autopilot system, self-learning algorithms, and battery optimization models have enabled it to outpace traditional car manufacturers in the electric vehicle (EV) market (Jorzik et al., 2024).

A prime example is Microsoft's transformation from a software licensing company to a cloud-based AI-driven service provider (Azure, Office 365, AI-powered enterprise solutions), redefining its business model (Brynjolfsson & McAfee, 2017). Similarly, Uber's AI-driven business model continuously evolves based on real-time data analytics and machine learning to optimize ride pricing, demand forecasting, and driver allocation (Parmaxi et al., 2024).

2.3 AI and Business Model Innovation (BMI)

Business Model Innovation (BMI) refers to the process of reshaping a company's value proposition, revenue streams, and operational structures to achieve competitive differentiation (Chesbrough, 2010). AI accelerates BMI by enabling:

2.3.1. AI-Driven Personalization: Hyper-Customized User Experiences- One of AI's most impactful contributions to BMI is hyper-personalization, which enhances customer engagement and retention. AI enables firms to:

- Deliver individualized content and recommendations based on user behavior and preferences (Netflix, Spotify).

- Automate customer service through AI-powered chatbots and virtual assistants (e.g., Amazon's Alexa, Google Assistant).

- Create AI-driven e-commerce platforms that dynamically adjust product recommendations, promotions, and inventory based on real-time consumer demand.

For instance, Netflix's AI-driven recommendation engine analyzes viewing history, user engagement metrics, and content preferences to curate personalized content suggestions—a key factor in its subscription-based revenue model (Jorzik et al., 2024).

2.3.2. Dynamic Pricing & AI-Enabled Revenue Models: AI enables firms to implement real-time, data-driven pricing strategies, optimizing revenue generation. This is particularly evident in:

- Ride-Sharing Platforms (Uber, Lyft): AI adjusts pricing dynamically based on factors such as traffic conditions, weather, and demand surges.

- E-Commerce Platforms (Amazon, Alibaba): AI-powered demand forecasting enables businesses to optimize inventory management and personalized discount strategies.

- Subscription-Based AI Services (AIaaS): AI enables Software-as-a-Service (SaaS) models where businesses offer AI-powered tools on a pay-per-use or subscription basis (e.g., OpenAI's GPT model).

For example, Amazon's AI-driven inventory optimization model helps retailers predict demand, adjust prices, and manage stock levels dynamically, improving both customer satisfaction and profitability (Teece, 2018).

2.3.3. AI-Enabled Automated Decision-Making-AI-powered decision-making is revolutionizing business models by:

- Reducing human intervention in key decision-making processes.
- Providing real-time insights for faster response to market changes.
- Improving risk management through predictive analytics.

For example, financial institutions leverage AI for automated fraud detection and risk assessment. AI-driven models analyze transaction data to identify anomalies and mitigate financial risks, strengthening business resilience (Davenport & Ronanki, 2018).

2.3.4. AI and Platform Economy: The Rise of AI-Driven Ecosystems- The platform economy represents a fundamental shift in BMI, where AI-driven algorithms match supply and demand, optimize logistics, and enhance customer engagement (Jorzik et al., 2024). Key characteristics include:

- AI-powered matchmaking (e.g., Airbnb, Uber) that dynamically connects service providers with consumers.
- Data-driven advertising models (e.g., Google Ads, Facebook AI-powered targeting) that maximize customer conversion rates.
- AI-driven supply chain ecosystems that optimize inventory and logistics in real-time.

A prime example is Alibaba's AI-driven ecosystem, where real-time analytics, AI-powered customer segmentation, and predictive inventory management enhance e-commerce operations and supply chain efficiency.

4. AI-Driven Business Model Innovation: Opportunities and Challenges

3.1 Opportunities in AI-Driven BMI

Artificial Intelligence (AI) is fundamentally transforming business model innovation (BMI) by enabling companies to optimize operations, develop new revenue models, and enhance strategic decision-making. Below are some key opportunities presented by AI-driven BMI:

3.1.1. Enhanced Decision-Making: AI-Enabled Strategic Planning: AI provides businesses with powerful tools to make data-driven strategic decisions that were previously impossible due to data complexity and volume. Some major contributions include:

- Real-time predictive analytics that allow firms to identify trends, customer behaviors, and market shifts before they become mainstream (Davenport & Ronanki, 2018).

- Automated risk assessment models that use AI-powered forecasting to minimize financial risks and fraud.
- AI-driven market segmentation that enables hyper-personalization, increasing customer engagement and revenue generation (Jorzik et al., 2024).

For example, Tesla's AI-powered autopilot technology utilizes machine learning and neural networks to improve its self-driving capabilities continuously, redefining the traditional automotive business model.

3.1.2. Operational Efficiency: AI for Automation and Process Optimization
AI has revolutionized operations by automating business processes, improving efficiency, and reducing operational costs. Key areas where AI improves efficiency include:

- Robotic Process Automation (RPA): AI-powered automation replaces repetitive, manual processes in industries such as finance, HR, and customer service.
- AI-driven supply chain optimization: AI helps businesses predict demand fluctuations, optimize inventory, and reduce waste.
- AI-powered chatbots and virtual assistants enhance customer service, leading to cost savings and faster response times (Jorzik et al., 2024).

A great example is Amazon's AI-driven warehouses, where robotics, machine learning, and automation manage inventory and shipments with high precision, increasing order fulfillment speed and reducing labor costs.

3.1.3. New Revenue Streams: AI-Enabled Business Models: AI has created entirely new business models that capitalize on data-driven services, including:

- Subscription-based AI services: Many businesses now offer AI-as-a-Service (AIaaS), where companies can access AI-powered tools via a subscription model (e.g., OpenAI's ChatGPT Pro, IBM Watson).

- AI-powered marketplaces: Platforms like Google Ads and Facebook's AI-driven advertising algorithms allow businesses to maximize their return on investment through intelligent ad placement.

- AI-driven financial technology (FinTech) solutions: AI enables businesses to offer automated trading, robo-advisory services, and fraud detection (Davenport & Ronanki, 2018).

For example, Netflix's AI-driven recommendation algorithm personalizes content, increasing customer retention and supporting its subscription-based business model.

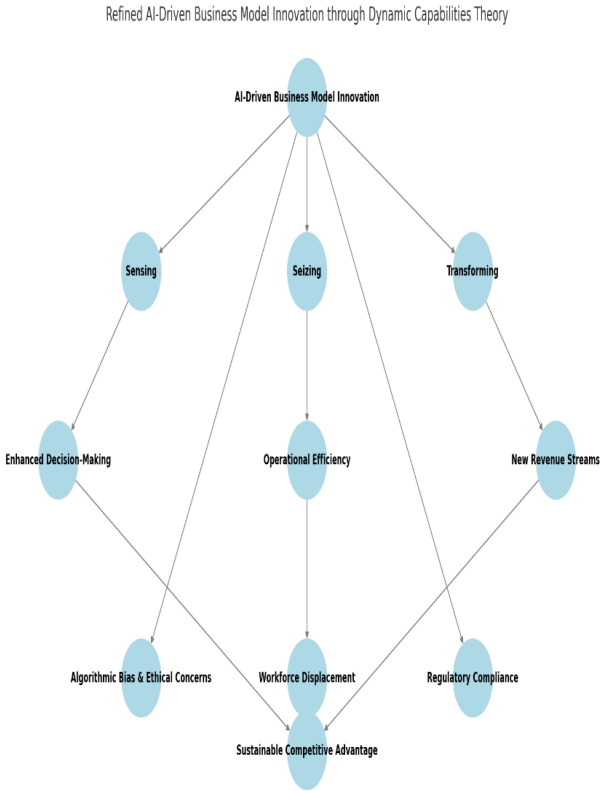

Fig 1: AI-Driven Business Model Innovation Through DCT

AI enhances Dynamic Capabilities (Sensing, Seizing, Transforming), leading to business agility and innovation. AI-driven BMI enables better decision-making, operational efficiency, and new revenue models. Challenges like algorithmic bias, workforce shifts, and regulatory hurdles must be addressed. Sustainable competitive advantage depends on ethical AI deployment and strategic AI integration. By applying AI within the Dynamic Capabilities Theory (DCT) framework, firms can create, sustain, and transform their business models dynamically, ensuring long-term profitability and resilience in digital economies.

3.2 Challenges in AI-Driven BMI

While AI offers numerous advantages, its integration into business model innovation also presents significant challenges. The most pressing issues include ethical concerns, workforce displacement, and regulatory uncertainties.

3.2.1. Algorithmic Bias: Ethical and Societal Concerns- AI algorithms learn from historical data, which can sometimes lead to biased decision-making. This has serious implications for:

- Fair hiring practices: AI-driven recruitment tools can unintentionally discriminate against candidates based on biased training data (Jorzik et al., 2024).
- Loan approvals and credit scoring: AI-powered financial models have faced criticism for reinforcing racial and gender biases.
- Healthcare AI models: Medical AI solutions must be trained on diverse datasets to avoid misdiagnosis or unequal treatment recommendations (Teece, 2018).

For example, Amazon's AI-powered hiring tool was scrapped after it was found to be biased against female applicants, highlighting the ethical challenges of AI adoption.

3.2.2. Workforce Displacement: The AI and Automation Dilemma

AI-driven automation threatens traditional jobs, particularly in industries that rely on manual labor and routine-based tasks. Key challenges include:

- Job losses in sectors such as manufacturing, customer service, and logistics due to AI-powered automation.
- Need for large-scale reskilling programs to prepare employees for AI-enhanced roles.
- Growing digital divide—while AI creates new high-tech jobs, it disproportionately affects low-skilled workers (Jorzik et al., 2024).

For instance, self-checkout AI systems in retail chains have reduced the need for human cashiers, prompting discussions on universal basic income and retraining policies.

3.3.3. Regulatory & Compliance Issues: The Black Box of AI Decision-Making- AI's opaque decision-making process (often called the "black box" problem) raises serious concerns about accountability, data privacy, and compliance with global regulations.

- Lack of explainability: Many AI models, particularly deep learning algorithms, make decisions that even developers struggle to interpret.

- Data privacy risks: AI requires vast amounts of data, raising concerns about consumer data protection and cybersecurity.

- Regulatory hurdles: Governments worldwide are working on AI governance frameworks, such as GDPR (Europe), AI Act (EU), and AI risk management policies in the US (Teece, 2018).

For example, China's AI regulation framework mandates that AI-generated content must be clearly labeled, ensuring transparency in AI-powered services.

5. The AI-Driven Dynamic Capabilities Model (AIDCM)

Artificial Intelligence (AI) is revolutionizing the way organizations innovate their business models, offering transformative capabilities that extend beyond traditional operational improvements. By automating processes, generating insights from vast data sets, and enabling real-time decision-making, AI not only disrupts established market dynamics but also creates new avenues for value creation. Through the lens of Dynamic Capabilities Theory (DCT)—which underscores an organization's ability to sense opportunities, seize innovations, and reconfigure resources—this discussion explores how AI catalyzes business model innovation (BMI). It frames AI as a strategic asset that empowers firms to continuously adapt, evolve, and maintain competitive advantage in a rapidly changing business environment.

4.1 Extending Dynamic Capabilities Theory with AI

The AI-Driven Dynamic Capabilities Model (AIDCM) extends Teece's (1997) Dynamic Capabilities Theory (DCT) by incorporating Artificial Intelligence (AI) as a transformative enabler of business model innovation (BMI). Traditional DCT emphasizes a firm's ability to sense opportunities, seize competitive advantages, and transform business models in response to dynamic market conditions. However, with the advent of AI, these capabilities are no longer solely dependent on human cognition and strategic decision-making. Instead, AI-driven systems leverage predictive analytics, machine learning, and autonomous decision-making to continuously refine business strategies, optimize operations, and develop adaptive business models (Teece, 2018; Brynjolfsson & McAfee, 2017).

Unlike prior models of business agility, AIDCM conceptualizes AI as an active and evolving agent in dynamic capabilities, offering a framework that captures AI's ability to sense, decide, and transform at scale and speed. It also incorporates governance and ethical considerations, ensuring AI applications align with regulatory standards and mitigate potential risks such as algorithmic bias, data privacy breaches, and workforce displacement.

4.2 Structure of the AIDCM Model

The AI-driven dynamic Capabilities Model (AIDCM) is structured into three primary AI-enabled dynamic capabilities, supported by two additional layers—Human collaboration and Ethical & Regulatory Compliance—which introduce feedback mechanisms for continuous learning and responsible AI governance.

(a) AI-Augmented Sensing (AI-S) – Enhancing Opportunity Identification-

AI revolutionizes the sensing phase by automating the process of detecting emerging market trends, customer preferences, and business risks. This capability is driven by the predictive Analytics so that AI-powered forecasting models anticipate market demand, financial risks, and competitive shifts. Natural Language Processing (NLP)- AI scans customer sentiment, social media discussions, and financial reports to extract real-time insights. Automated Market Intelligence- AI-driven business analytics process unstructured data from multiple sources, improving accuracy in trend forecasting. Netflix's AI-powered recommendation engine continuously analyzes user engagement patterns, refining its content strategy based on real-time data.

(b) AI-Powered Seizing (AI-P) – Accelerating Strategic Execution

Once opportunities are identified, AI enables firms to act rapidly and optimize strategic resource allocation. AI-driven seizing mechanisms include the Automated Decision-Making which AI algorithms assess multiple strategic alternatives, minimizing cognitive bias in executive decision-making. Real-Time Resource Allocation- AI dynamically reallocates financial, human, and operational resources based on real-time market shifts. AI-Augmented Competitive Positioning- AI-powered dynamic pricing models, supply chain optimization, and personalized marketing improve strategic agility. Amazon's AI-driven supply chain predicts demand fluctuations, adjusting inventory levels dynamically to minimize stockouts and overstocking.

(c) AI-Enabled Transformation (AI-T) – Continuous Business Model Reconfiguration

AI transforms traditional business models by facilitating adaptive and self-learning strategies. The key mechanisms include: Self-Learning AI Models by continuously update and refine decision-making based on historical and real-time data. AI-Powered Business Model Evolution ie., Firms shift from product-based revenue models to AI-as-a-Service (AIaaS), monetizing AI-driven insights. Algorithmic Business Process Innovation to automates customer engagement, logistics, and data-driven decision-making **to** reduce operational inefficiencies. Tesla's self-learning AI autopilot system continuously refines its navigation algorithms based on real-world driving conditions.

4.3 Feedback Loops and Ethical Governance

Unlike traditional static strategy models, AIDCM introduces continuous feedback loops, ensuring AI-driven capabilities evolve dynamically:

1. AI-Powered Business Models → AI-Augmented Sensing (AI-S): AI-generated insights continuously refine market sensing processes.

2. Self-Learning AI Models → AI-Powered Seizing (AI-P): AI-driven strategies self-optimize based on prior business outcomes.

3. Real-Time Resource Allocation → AI-Augmented Sensing (AI-S): AI dynamically adjusts sensing priorities based on evolving business needs.

4. Automated Decision-Making → AI-Enabled Transformation (AI-T): AI-driven strategies influence long-term business model evolution.

5. Ethical & Regulatory Compliance → AI-Driven Dynamic Capabilities: Ensures AI strategies align with legal, ethical, and governance requirements.

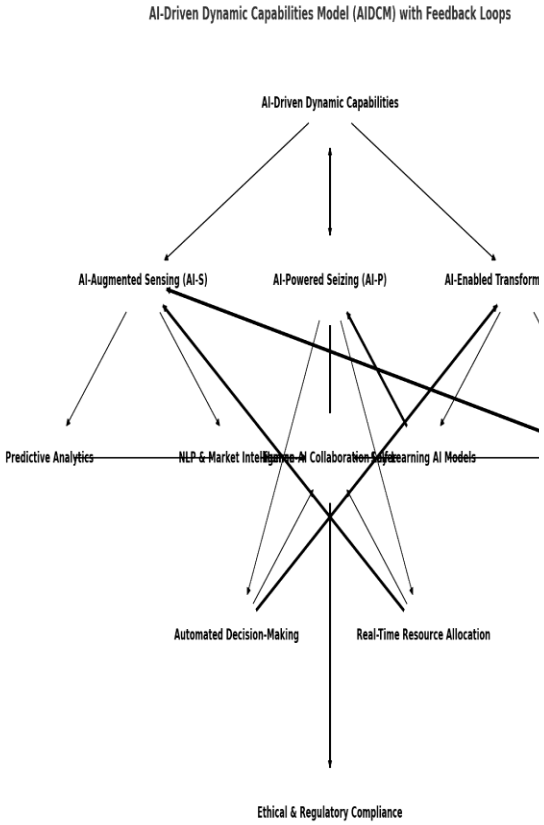

Figure 2: The AI-Driven Dynamic Capabilities Model (AIDCM) developed out of the study

4.4. Implications of the AIDCM Model for Business Model Innovation

The AI-Driven Dynamic Capabilities Model (AIDCM) has several implications for business model innovation and strategic management. Enhancing Market Agility: AI-driven businesses respond, reducing decision-making delays. Data-Driven Competitive Advantage- Firms leveraging AI-powered sensing, seizing, and transformation gain a sustainable competitive edge. Human-AI Synergy ie., The model balances automation with human expertise, ensuring AI augments rather than replaces strategic leadership. And, ethical AI & Regulatory Compliance which built-in governance layer ensures AI-driven decisions align with ethical standards and regulatory frameworks.

6. AI's Impact on BMI across Key Areas

The bar chart visually represents AI's influence across six key business areas, showcasing where AI contributes most to Business Model Innovation (BMI). The findings emphasize that AI enhances decision-making, operational efficiency, and new revenue models, while also raising concerns about ethics, workforce changes, and sustainability.

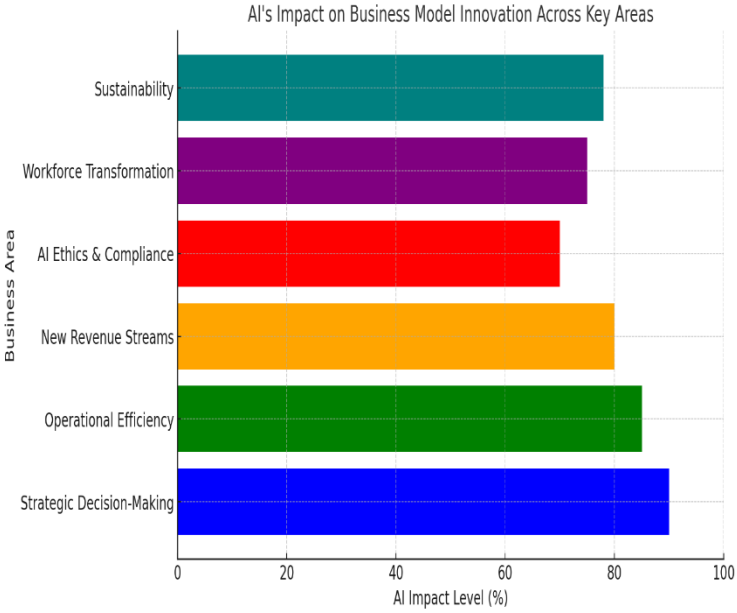

Fig3: AI's Impact on BMI across Key Areas: Source: Python data visualization

Strategic Decision-Making (90%): AI has the highest impact in this domain, transforming how businesses analyze data,

predict market trends, and make real-time decisions. Predictive analytics, AI-driven forecasting, and automation tools help businesses sense market shifts and capitalize on opportunities faster than traditional methods (Teece, 2018; Jorzik et al., 2024).

Operational Efficiency (85%): AI significantly improves business processes through automation, robotics, and AI-powered logistics. Companies like Amazon and Tesla leverage AI for supply chain optimization, warehouse automation, and dynamic pricing, improving cost efficiency and service delivery (Davenport & Ronanki, 2018).

New Revenue Streams (80%): AI enables businesses to generate innovative revenue models, such as subscription-based AI services (AIaaS), algorithm-driven pricing strategies, and data monetization. Companies like OpenAI (with ChatGPT Pro) and Netflix use AI to enhance customer engagement and maximize subscription renewals (Chesbrough, 2010).

AI Ethics & Compliance (70%): Despite AI's advantages, businesses face challenges related to algorithmic bias, regulatory compliance, and transparency. Ethical AI frameworks, such as the EU's AI Act and GDPR compliance measures, are essential to ensure fair and responsible AI adoption (Teece, 2018).

Workforce Transformation (75%) : AI is changing the way employees work, creating a shift toward AI-assisted job roles and the need for reskilling. Firms must invest in workforce upskilling and AI-human collaboration strategies to mitigate the risk of automation-driven job displacement (Jorzik et al., 2024).

Sustainability (78%) : AI-powered solutions help companies reduce environmental impact, optimize energy use, and develop green AI models. Google DeepMind's AI-driven energy optimization reduced data center power consumption by 40%, proving that AI can contribute to sustainability goals and eco-friendly operations (Davenport & Ronanki, 2018).

6. Future Research Directions

To further validate and refine AIDCM, future research should explore:

Empirical Testing: How do firms implementing AI-driven sensing, seizing, and transforming perform relative to traditional firms?

AI's Role in Sustainable Business Models: Can AI-driven capabilities foster long-term sustainability in business ecosystems?

Human-AI Collaboration Strategies: What are the optimal synergies between AI-driven automation and human expertise?

7. Conclusion

The AI-Driven Dynamic Capabilities Model (AIDCM) provides a comprehensive framework for understanding how AI transforms business agility, strategic execution, and business model innovation. By integrating AI-driven sensing, decision-making, and self-learning business models, the framework advances Teece's (1997) Dynamic Capabilities Theory and provides a practical roadmap for firms adopting AI-driven strategies. As AI continues to evolve, firms must adopt responsible AI governance, ensure human-AI collaboration, and integrate AI-driven capabilities into their strategic DNA to maintain long-term competitiveness.

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