

Artificial Intelligence Capabilities and Sustainable Competitive Advantage: A Cross-Functional Perspective

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Abstract

AI has become one of the strategic resources that can assist organizations to achieve sustainable competitive advantage (SCA) in a constantly challenging and data-driven business environment. The role of AI capabilities will be viewed in the cross-functional perspective in this research, and it will specifically be considered in terms of how it may be incorporated by the key areas of the organization, such as operation functions, marketing, finance, human resource management. The research relies on two conceptualizations of AI capabilities, including the Resource-Based View (RBV) and the Dynamic Capabilities Theory, upon which the firm applies the conceptualization of AI capabilities, the combination of technology infrastructure, data resources, and the organizational capabilities resulting in higher firm performance.

After the qualitative comparative design by relying on secondary data and case expertise, the research determines the efficacy of the cross-functional integration of AI to realize the economies of scale, innovation, and superior decision-making. The results indicate that organizations that take AI as a multi-faceted and coordinated target to all operations have increased opportunities of developing resiliency and difficult-to-mimic capabilities and hence, sustainability in competition in the long run.

Important to the body of literature is that the paper recommends the need to have a cross-functional AI capability framework, and the importance of aligning organizations as well as

governing data and working with people and AI. It also has certain practical implications to the managers who might want to apply AI as a strategic engine of further performance in the competitive markets.

Keywords:

Artificial Intelligence (AI); Sustainable Competitive Advantage (SCA); Cross-Functional Integration; Resource-Based View (RBV); Dynamic Capabilities; Digital Transformation; Organizational Agility; Data-Driven Decision Making; Innovation Capability; Human-AI Collaboration.

1. Introduction

Artificial Intelligence (AI) has rapidly become a bygone technology innovation and assumed the position of the central element of the modern-day organizational strategy. Machine learning, natural language processing, predictive analytics have assisted firms in producing data of a massive level, Automating processes that are more complex and developing actionable insights in real time. This leads to the fact that AI is not just an operational tool anymore, but a strategic strength capable of determining a competitive position and performance over the long term (Brynjolfsson and McAfee, 2017; Davenport et al., 2020).

In competitive and dynamic markets, attainment of sustainable competitive advantage (SCA) has been among the main goals of organizations. The classical view of benefit, including cost leadership or differentiation, is more and more augmented and even supplanted by data-driven and AI-driven benefits. Nevertheless, even after significant investment in AI technologies, a lot of organizations cannot translate such investment into their sustained performance improvement. Such a discrepancy is a sign of a serious problem: the introduction of AI in itself does not lead to the achievement of competitive advantage, it is the successful formation and introduction of AI features into the processes of the organization that is important.

The literature available has diverged to explore AI largely in functional silo, addressing AI individually in the marketing analytics or operational automation or financial forecasting domains. As much as these studies are very insightful, they tend to be inconsistent because they do not consider the fact that modern organizations are interconnected such that the value creation relies on a smooth line of coordination of various functions. Disparate treatment of AI implementation will provide inefficiency and redundancy and will result in suboptimal use of data bodies.

To fill this gap, the cross-functional approach is taken in the current study, which mitigates that the real potential of AI is seen in its capacity to integrate and coordinate activities within the important organizational business areas, such as operations, marketing, finance, and human resource management. As it facilitates data exchange, improves communication, and promotes coordinated decision-making, AI is a binding force guaranteeing the cohesiveness and responsiveness of an organization.

This paper is based on the theoretical framework of the Resource-Based View (RBV) and the Dynamic Capabilities Theory. Within the realm of RBV, the embedded ability of AI can be viewed as valuable, rare, inimitable, and non-substitutable resources in the cases that they are integrated

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in firm-specific processes and they are backed by unique data sets (Barney, 1991). In the meantime, Dynamic Capabilities Theory focuses on how AI will help organizations to feel what opportunities are out there, take up the opportunity by means of strategic response, and reorient resources in reaction to changes in the environment (Teece et al., 1997).

In this regard, the main aim of the study is to assess the role of AI capabilities in creating sustainable competitive advantage, in instances where the capabilities are developed and integrated beyond functional boundaries. In particular, the study attempts to: (1) conceptualize AI capabilities in terms of cross-functional lens, (2) determine the processes by which the capabilities affect the organizational performance, and (3) give practical recommendations to firms which intend to use AI strategically.

The research will contribute to closing the gap between the potentials of technology and strategic achievement through expanding the existing knowledge on the subject topic of AI and competitive advantage to have a broader picture of how firms can take advantage of AI to achieve a long-term success in a more digitalized world.

2. Research Methodology

The chosen research design is the qualitative and theory-based one to explore the significance of Artificial Intelligence (AI) capabilities in the development of sustainable competitive advantage (SCA) in a cross-functional role. As the research is exploratory in nature and the very idea of AI implementation in the operations of various organisations is complicated, a qualitative comparative study is considered the one, which will be the most effective.

Research Design

The paper is premised on multiple-case comparative study involving secondary data sources in the adoption of AI in different industries, including the healthcare sector, the financial industry, retailing, and manufacturing sectors. With this design, patterns and difference between how organizations develop and integrate AI related capabilities in functional areas is identifiable.

A qualitative approach is particularly suitable because it allows for:

- In-depth understanding of organizational processes
- Exploration of cross-functional interactions
- Identification of underlying mechanisms linking AI capabilities to SCA

Data Collection

The paper relies on the secondary sources which were collected by utilizing various and scholarly materials and resources:

- Peer-reviewed journal articles (Scopus-indexed)
- Industry reports (e.g., McKinsey, Deloitte, PwC)
- Company case studies and white papers
- Publicly available organizational documents and digital transformation reports

The application of varied data adds strength to the information by data triangulation and hence increases credibility of the findings.

Sampling Strategy

Sampling was done using a purposive approach in which cases who describe a tremendous degree of AI usage and cross-functional integration were selected. The following were the selection criteria:

- Evidence of AI implementation across multiple functions
- Availability of detailed and reliable data

- Representation of different industry contexts

The methodology will be used to make sure that the cases in the study are informative and are valid to the research purposes.

Data Analysis

The data were analyzed using thematic analysis, following a structured coding process:

1. Open Coding - mining of the key concepts according to AI capabilities and combination of functions.
2. Axial Coding - Comparing the categories to find out the association between AI capabilities and performance outputs.
3. Selective Coding - Development of overarching themes on the spread of sustainable competitive advantage by AI.

The approach will enable the qualitative data to be explicated in a systematic way and will be able to create theories.

Analytical Framework

The study is guided by an integrated analytical framework combining:

- Resource-Based View (RBV) - to identify the strategy of AI capabilities.
- Dynamic Capabilities Theory - to test the flexibility and innovativeness.
- Cross-Functional Integration Perspective - to gauge co-ordination within an organization.

It is a multi-theoretical approach that provides a general picture of the role of AI to the attainment of SCA.

Validity and Reliability

To ensure the rigor of the research, several measures were implemented:

- Construct Validity: Use of established theoretical frameworks (RBV and Dynamic Capabilities)
- Internal Validity: Pattern matching and explanation building across cases
- Reliability: Systematic data collection and coding procedures

Additionally, triangulation of multiple data sources strengthens the credibility of the findings.

Limitations of Methodology

While the qualitative approach provides rich insights, it has certain limitations:

- Reliance on secondary data may limit access to real-time organizational practices
- Findings may not be fully generalizable across all industries
- Potential bias in interpretation of qualitative data

These constraints are realized and managed by the use of stringent data selection and stringent analytical processes.

3. Literature Review

The issue is the correlation between the Artificial Intelligence (AI) competences and sustainable competitive advantage (SCA), which has become the subject of further research over the past few years. This section will be a synthesis of available literature in four major streams, which are AI capabilities, Resource-Based View (RBV), Dynamic Capabilities Theory, and cross-functional integration.

Artificial Intelligence Capabilities

AI capabilities have been described as the capacity of an organization to successfully obtain, implement and utilize AI technologies in order to generate value. Such capabilities do not just involve technical infrastructure, including information systems, algorithms, and computing power, but also reflect on organizational aspects, including a set of skills, processes, and a culture. (Davenport et al., 2020).

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Scholars argue that AI capabilities are multidimensional, involving:

- Data capability (availability, quality, and governance of data)
- Technological capability (AI tools and platforms)
- Human capability (skills and expertise in AI and analytics)

Recent researches underline that companies should not stop at the simple implementation of AI technologies but create combined capabilities that can be implemented according to the strategic objectives (Mikalef et al., 2019). The absence of such alignment will doom AI investments to fail to provide signification in performance.

Resource-Based View (RBV) and AI

Resource-based View (RBV) offers a theoretical framework in the context of determining the contribution of AI to competitive advantage. RBV states that the firms gain long-lasting advantage in case they have the resources that are valuable, rare, inimitable, and non-substitutable. (VRIN) (Barney, 1991).

AI capabilities can meet these criteria when:

- They are supported by proprietary datasets
- They are embedded within firm-specific processes
- They are complemented by organizational expertise

As an example, distinct data of customers and heavy AI algorithms can develop the insights that cannot be easily copied by competitors. RBV however goes further to propose that technology in and of itself is not enough, it needs to be merged with organizational resources so as to produce lasting value.

Dynamic Capabilities Perspective

RBV is concerned with the ownership of resources whereas the Dynamic Capabilities Theory is interested in the capacity of firms to adjust to changing environments. According to Teece et al. (1997), dynamic capabilities refer to the ability of the firm to incorporate, develop and restructure both internal and external competencies.

AI enhances dynamic capabilities in several ways:

- Sensing: AI identifies market trends and customer preferences through data analysis
- Seizing: AI supports strategic decision-making and opportunity exploitation
- Reconfiguring: AI enables continuous improvement and process transformation

The current studies demonstrate that AI-driven companies are more agile and responsive, which enables them to retain a competitive edge even in unstable markets. (Warner & Wäger, 2019).

Cross-Functional Integration and AI

The concept known as cross-functional integration is the adherence of various sections of an organization. It has been acknowledged to be one of the key factors to enhance performance and innovation. (Kohli & Jaworski, 1990).

AI acts as an enabler of cross-functional integration by:

- Facilitating real-time data sharing
- Supporting collaborative decision-making
- Aligning strategic objectives across functions

As an example, information produced due to marketing analytics can be used in operations production planning as well as in finance decision-making, e.g., in budgeting. This is a combined strategy that fosters efficiencies and curbs company silos.

AI and Sustainable Competitive Advantage

According to the literature, AI will support SCA in several ways, such as cost-cutting, novelty, and value generation to customers (Brynjolfsson and McAfee, 2017). The sustainability of this benefit however depends on the extent to which AI is integrated in the organizational processes.

The more likely to gain benefits in the long term, those firms that do not consider AI as a tool but as a strategic capability. This requires:

- Strong leadership support
- Continuous learning and capability development
- Integration across functional areas

Research Gap

Despite growing interest in AI and competitive advantage, several gaps remain:

1. **Fragmented Analysis:** Most studies focus on individual functions rather than cross-functional integration.
2. **Limited Empirical Insights:** Comprehensive frameworks to fit AI capabilities to SCA are absent.
3. **Underexplored Mechanisms:** It is not well understood how AI facilitates long-term benefit.

The paper shall address these gap areas by proposing inter functional framework that has the power of AI to introduce competitive advantage coupled with a feeling of sustainability.

4. AI Capabilities and Cross-Functional Integration

The Artificial Intelligence (AI) ones provide the most strategic value when implemented across multiple functions of organizations as opposed to implementation in separate silos. The application of cross-functional perspective demonstrates that AI is an integrative process that should be employed to direct and be able to coordinate, share data, and make informed decisions in various departments. The section looks into the role of AI in major functional areas and why there is a need to integrate them in the creation of sustainable competitive advantage.

AI in Operations

In operations management, AI enhances efficiency, accuracy, and scalability. Technologies such as machine learning and predictive analytics are widely used for:

- Demand forecasting and inventory optimization
- Predictive maintenance of equipment
- Process automation and quality control

Such applications save on operation costs and enhance productivity. More to the point, operational information created utilizing AI systems can be disseminated to other departments, including the marketing and financial one, to make comprehensive planning and decision-making.

AI in Marketing

AI has transformed marketing by enabling firms to better understand and engage with customers.

Key applications include:

- Customer segmentation and targeting
- Personalized recommendations
- Sentiment analysis and customer insights

AI enables companies to provide personalized experiences to customers by analyzing huge amounts of customer data, which has led to enhanced customer satisfaction and loyalty. Marketing intelligence when combined with operations could help to shape product development and supply chain decision making to make sure there is consistency with the customer demand. (Davenport et al., 2020).

AI in Finance

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In the finance function, AI contributes to improved accuracy, risk management, and strategic planning. Applications include:

- Fraud detection and prevention
- Credit risk assessment
- Financial forecasting and budgeting

The financial analytics of AI allow an organization to make better and quick decisions. Incorporating the rest of the functions guarantees that the financial planning is in time with the actual operational and market-driven information to improve overall performance in the organization.

AI in Human Resource Management

AI is increasingly used in human resource management (HRM) to improve talent acquisition, development, and retention. Key uses include:

- AI-driven recruitment and candidate screening
- Performance evaluation and workforce analytics
- Employee engagement and training personalization

AI helps the HR to verticalize the capabilities of the workforce with organizational strategy. As an illustration, AI intelligence can be used to pinpoint areas of skills that employees do not possess to drive digital transformation projects within their departments.

Mechanisms of Cross-Functional Integration

The true strategic value of AI lies in its ability to connect these functional areas through shared data and coordinated processes. Key integration mechanisms include:

- **Unified Data Platforms:** Centralized data systems that allow real-time access across departments
- **Collaborative Decision-Making:** AI-driven insights that support joint planning and strategy formulation
- **Process Synchronization:** Alignment of workflows across functions, reducing redundancies and inefficiencies

As an example, the forecasting of customer demand, created in marketing, may impact the production optimization in operations and the forecasting of finances in finance directly. This interdependent style increases agility and responsiveness of the organization.

Strategic Implications of Integration

Cross-functional integration of AI capabilities leads to several strategic benefits:

- **Enhanced Organizational Agility:** Faster response to market changes
- **Improved Innovation:** Collaboration across functions fosters new ideas
- **Resource Optimization:** Efficient allocation of financial, human, and operational resources

Stability in Strategy Implementation: Coordination of departmental objectives to the general company goals.

Companies that manage to incorporate AI within their business functions are in a better position to generate value that is hardly easy to recreated by the competitors, therefore, sustainable competitive advantage.

5. Sustainable Competitive Advantage through AI

Artificial Intelligence (AI) has proven to be one of the most important facilitators of sustainable competitive advantage (SCA) by the way it changes how businesses create, provide, and appropriate value. Contrary to the traditional technologies, AI has an exclusive capacity to learn, evolve, and develop with time, which means that this technology is a dynamic and developing

strategic resource. Nevertheless, AI-based competitive advantage is not only sustainable with respect to its implementation but to the extent to which it is developed, integrated, and embedded.

AI as a Strategic Resource

In the lens of the Resource-Based View (RBV), AI resources may be regarded as strategic resources in case they fulfill the set criteria of VRIN valuable, rare, inimitable, and non-substitutable (Barney, 1991). AI is useful when it supports efficiency and decision-making; uncommon when based on proprietary information; and inseparable when it is well embedded in the processes of the firm; and non-substitutable when it is coupled with other complementary organizational capabilities.

To illustrate, when the organizations align AI with distinct datasets and professional knowledge, they build knowledge assets that cannot easily be reproduced by their competitors. This confirms the ability of their competitive advantage to continue.

Mechanisms Linking AI to Competitive Advantage

AI contributes to sustainable competitive advantage through several key mechanisms:

Efficiency and Cost Leadership

AI-based automation lowers the operational expenses of companies by reducing the number of people that have to apply their manual skills and maximizing resource exploitation. Robotic process automation and predictive maintenance are just some examples of applications that enhance productivity and decrease downtime.

Innovation and Differentiation

The AI is new, which enables an innovative model of service, product, and business development. Artificial intelligence (AI) as recommendation engines and intelligent services may serve as an example of such technology to both offer their customers a better customer experience and allow the companies to stand out in the competitive market.

Superior Decision-Making

AI enhances the quality of decisions by providing real-time and data-driven information. Predictive and prescriptive analytics will enable the managers to anticipate the patterns and avoid the risks and sound decisions in the strategic perspective.

Customer Value Creation

With personalization and targeted customer engagement, AI enhances customer satisfaction and loyalty. This brings about more customer relationships and revenue generation on a long term basis. (Brynjolfsson & McAfee, 2017).

AI and Dynamic Capabilities

AI is instrumental in enhancing dynamic capabilities, which are needed to ensure the maintenance of competitive advantage in an environment that is changing very fast. Specifically, AI enhances:

- **Sensing Capabilities:** Identifying emerging opportunities and threats through advanced analytics
- **Seizing Capabilities:** Enabling swift and informed strategic responses
- **Reconfiguring Capabilities:** Supporting continuous adaptation and transformation of organizational resources

By enabling continuous learning and adaptation, AI allows firms to remain competitive even as market conditions evolve (Teece et al., 1997).

Barriers to Imitation and Sustainability

The sustainability of the AI-based competitive edge can be observed in the extent to which it can be imitated by the rivals. This is due to a number of reasons:

- **Data Exclusivity:** Access to large, high-quality proprietary datasets
- **Organizational Embedding:** Integration of AI into core processes and culture

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- Human Capital: Skilled workforce capable of developing and managing AI systems
- Complementary Assets: Alignment with existing technologies and business models

These elements create a complex system of interdependencies that competitors cannot easily replicate, thereby sustaining competitive advantage.

Risks and Challenges

Despite its potential, leveraging AI for sustainable advantage presents several challenges:

- High Implementation Costs
- Data Privacy and Ethical Concerns
- Skill Gaps and Talent Shortages
- Integration Complexity Across Functions

Organizations must address these challenges to fully realize the benefits of AI.

Strategic Alignment and Long-Term Value

The AI activities are to be aligned with the business strategy to achieve sustainable competitive advantage. This includes:

- Integrating AI into long-term strategic planning
- Ensuring cross-functional collaboration
- Investing in continuous learning and capability development

Firms that adopt a strategic and holistic approach to AI are more likely to create enduring value and maintain a competitive edge.

6. Discussion

The content of the authors in the article reinforces the perception that the Artificial Intelligence (AI) does not mean a technology but a part of a competitive strategy in approaches where redefining of how companies achieve and maintain competitive advantages that they possess occurs. In justification of the importance of integrating AI capabilities within the context of an organization, the paper gives the cross-functional lens because it developed on the literature available.

AI as an Integrative Strategic Capability

One of the most important things found during the analysis is that AI is valuable and can join functions and not optimize them individually. It is true that, although previous research has focused on functional advantages (e.g., marketing personalization or operational efficiency), the study illustrates how sustainable competitive advantage (SCA) is most likely to occur when AI enables coordination between departments.

This observation also is consistent with the Resource-Based View (RBV) that AI is considered to be a valuable and inimitable resource only when it is integrated into the processes of the organization and reinforced by other assets (Barney, 1991). In a similar vein, in the dynamic capabilities approach, AI will increase the capacity of the firm to sense, capture and reconfigure an ever-changing environment. (Teece et al., 1997).

From Data Silos to Data Synergy

The other point of discussion that is important is the shift of data silos to data synergy. The issue of information systems acquisition that is not well fragmented is normally encountered in organization with different departments operating independently. Through built-in data platforms, AI capabilities can assist in easing data and real-time insights sharing across the operations.

This shift from isolated data usage to integrated data ecosystems leads to:

- More accurate forecasting and planning
- Improved alignment of strategic objectives
- Enhanced responsiveness to market changes

Thus, AI will be used to propel organisational integration since it will transform lost information into strategic intelligence.

The Role of Organizational Readiness

It is also observed that the other strengths of the study are insufficient, technological capability is lacking. The workings of AI are based on the willingness of the organization that suggests:

- Leadership Commitment: Strategic vision and support for AI initiatives
- Cultural Alignment: Openness to innovation and data-driven decision-making
- Skill Development: Availability of talent with AI and analytical expertise

Those companies lacking these aspects are not likely to use AI to their full potential despite significant financial allocations toward technology.

Human-AI Collaboration

One of the outstanding features of AI-based goodwill is anthropomorphic connection. The AI is able to offer partial information and suggestions instead of substituting the decision of human beings. The human-ai cooperation is further improved:

- Decision quality
- Creativity and innovation
- Operational efficiency

This suggests that firms should focus on designing systems where human expertise and AI capabilities complement each other, rather than compete.

Strategic and Managerial Implications

The strategic level of discourse gives preference to organizations to cease thinking in a disjointed AI work, and rather, they must think in company vision. Managers must:

- Break down functional silos
- Invest in integrated data infrastructures
- Foster cross-functional collaboration

In addition, the strategy of integrating AI efforts with long-term strategic objectives will make investments add to sustainable value creation instead of immediate profits.

Contribution to Theory

This study contributes to the literature in three significant ways:

1. Synthesis of Theoretical Perspectives: It is founded on the amalgamation of RBV and Dynamic Capabilities Theory to discover the position of AI in SCA.
2. Cross-Functional Lens: It alters the focus of individual functional applications to multi-modality organizational functions.
3. Framework Development: It provides a theoretical base of the perspective of AI as a strategic asset of the business.

Future Research Directions

The discussion also opens avenues for future research, including:

- Empirical validation of the proposed cross-functional AI framework
- Industry-specific studies on AI integration
- Examination of ethical, regulatory, and governance challenges in AI adoption

7. Implications for Practice

The article has various practical implications on managers and organizations that would wish to utilize Artificial Intelligence (AI) skills to achieve sustainable competitive advantage (SCA). The success of the AI initiatives could be enumerated as part of the cross-functional visions created based on the premise that the technological acceptance constitutes one of the requirements of a

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successful introduction of the AI initiative within the context of the strategic fit, organizational analysis, and the building of capabilities.

Develop a Holistic AI Strategy

Organizations need to purchase a global and enterprise-wide approach of AI, as opposed to solitary AI endeavors. This involves:

- Aligning AI initiatives with overall business objectives
- Ensuring coordination across departments such as operations, marketing, finance, and HR
- Prioritizing long-term value creation over short-term gains

This would be a coordinated approach so that the AI investments result in long-term competitive advantage instead of short-term gains.

Invest in Data Infrastructure and Governance

Data is the foundation of AI capabilities. Firms must invest in:

- Data platforms which are centralized and permit real-time access to data in all functions.
- Data quality management tools to have accuracy and reliability.
- Strong data governance systems to deal with privacy, security and compliance challenges.

Good data management facilitates decision making and cross functional integration.

Foster Cross-Functional Collaboration

To reach the full potential of AI, the organizations must remove functional silo-ing and promote collaboration. This can be achieved by:

- Organizing cross-functional teams of AI.
- Promoting common purpose and performance indicators.
- Adopting participative decision-making.

This kind of integration will be such that knowledge that is created in one role can be utilized in the rest of the organization.

Build Human Capital and AI Skills

AI adoption requires a workforce equipped with relevant skills. Organizations should:

- Invest in artificial intelligence and information analytics training and upskilling.
- Hire skill Machine learning, data science and AI strategy.
- One of them will be to promote human-AI collaboration by introducing AI tools in daily life processes.

A skilled workforce enhances the effectiveness and sustainability of AI capabilities.

Strengthen Leadership and Organizational Culture

Leadership plays a crucial role in driving AI transformation. Managers should:

- Lead AI projects and spread the strategic significance of them.
- Create a culture of data-driven innovation and experimentation.
- Promote flexibility and life long learning.

A supportive culture ensures that AI initiatives are embraced across the organization.

Focus on Scalable and Flexible AI Solutions

The priority of the organizations should be the scalability and adaptation of AI systems to the requirements of evolving businesses. This includes:

- Modular AI architectures that can be expanded over time
- Cloud-based solutions for flexibility and cost efficiency
- Continuous monitoring and improvement of AI models

Scalability ensures that AI capabilities remain relevant in dynamic environments.

Ensure Ethical and Responsible AI Use

As AI becomes more embedded in decision-making, ethical considerations become increasingly important. Firms must:

- Implement transparent AI systems
- Address issues related to bias and fairness
- Ensure compliance with legal and regulatory standards

Responsible AI practices enhance trust among stakeholders and reduce reputational risks.

Align AI with Dynamic Capabilities

Organizations should leverage AI to strengthen their dynamic capabilities by:

- Using AI to identify emerging opportunities and threats
- Enabling rapid strategic responses through real-time insights
- Continuously reconfiguring resources and processes

This alignment ensures that AI contributes to long-term adaptability and resilience.

8. Limitations and Future Research

Although the paper informs well on the potential of applying the Artificial Intelligence (AI) capacities as a means of guaranteeing the establishment of sustainable competitive advantage (SCA) in a cross-functional format, it is important to note that the scope is limited in some aspects. Such limitations are also a way of availing future research.

Limitations of the Study

Reliance on Secondary Data

The data will be founded on the secondary sources of information, such as scholarly literature and industry reports as well as case studies. Although this method is also elastic in order to cover a wide area and attain a comparative analysis, it might not go as far as the primary data (i. e. interviews, surveys) and offer the depth and real-time data.

Limited Generalizability

The results cannot be generalized to all the industries and organizational settings because it is qualitative and exploratory research. The maturity of AI and adoption issues, as well as, performance outcomes in different sectors might be varied.

Potential Interpretive Bias

The thematic analysis procedure implies the subjectivity of the coding and interpretation. Despite the systematic procedures that were done, researcher bias is impossible to be removed completely.

Rapid Technological Evolution

AI technologies are evolving at a rapid pace. As a result, some insights presented in this study may become outdated as new tools, techniques, and applications emerge.

Limited Empirical Validation

The paper is mainly based on the conceptual and analytical development of a pattern without some large-scale empirical research. This restricts the statistical validation of the associations among AI potentials and sustainable competitive advantage.

Future Research Directions

Empirical Quantitative Studies

Future studies should be directed at quantitative research in order to test the hypotheses of relationships between AI capabilities, cross-functional integration, and SCA. Statistical validation and improvement of generalizability can be provided by large scale surveys and econometric models.

Longitudinal Studies

The impact of AI potentials on the long-term competitiveness in dynamic markets requires long-term research to identify the potentials of AI in the long-run competitive advantages. This would assist in seizing the time aspect of AI-driven change.

Industry-Specific Analysis

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The sectors which have shown a variation in the adoption of AI could also be studied in the future, with particular models specific to sectors, like healthcare, manufacturing, finance, and retail. Practitioners can get more niched insights as a result of such studies.

Role of Organizational Culture and Leadership

It requires additional investigation of how the effectiveness of integrating AI across functions depends on the leadership styles, company culture, and change management practices.

Ethical and Regulatory Considerations

The following research will be carried out to solve the issues based on the AI proliferation like data privacy, algorithmic bias, and responsibility.

Human-AI Collaboration Models

Along with the exploration of the successful trends in the human-AI communication, perhaps, a better insight into how a company may succeed in automating and humanizing its operations can be provided to guarantee that the most performance can be achieved.

Concluding Remark on Research Scope

Nevertheless, the paper seems to have a solid conceptual model of the views on AI as a cross-functional strategic capability despite the weaknesses. The possible studies that can be created in accordance to the outline and, more specifically, will be founded on the factual side of the empirical confirmation and the interpretation inside the framework maybe arranged in the manner that it will result in the establishment of the body of knowledge in academic field and the practical realization of the area in a broader extent.

Conclusion

The emerging force is Artificial Intelligence (AI) that is redefining how organizations establish and sustain competitive advantage in the digital era. The paper has explored AI potentials in terms of cross-functional dimensions, noting the functions of AI in coordinating organizational activities and increasing the overall strategic performance. The results indicate that AI, as an integrated and embedded power, and not viewed as the piece of technology should play a significant role in creating sustainable competitive advantage (SCA).

The research, based on the Resource-Based View (RBV), and the Dynamic Capabilities Theory, notes that AI capabilities can be fully useful when they are managed as per the strategy of the organization, high-quality data, and incorporated into the primary areas of organizational activity, which entail operations, marketing, finance, and human resource administration. With this kind of integration, the firms gain efficiency, can enhance innovation and also improve decision-making which are very important factors in regard to competitiveness in the long term.

An important contribution of the given research is that the integration across different functions takes center stage in unleashing the potential of AI. It is organisations that abolish functional silos and view AI as an integrating variable that is more aptly positioned to react to market change, utilise the resources more productively and derive greater customer value. In addition, the AI-related benefit is sustainable in the terms of data exclusivity, its assimilation into the organization, human resource, and lifelong learning.

Nevertheless, to attain such results, it will not be enough to invest in technology. It would require appropriate leadership and the culture of organization founded on information and will along with the necessity to continue improving capabilities. To introduce responsible and efficient AI use, the companies are to tackle the issues of ethics, governance, and complexity of integration.

To sum up, AI potential offers a very high probability of achieving sustainable competitive advantage, and the effects of AI will rely on its level of strategic alignment and cross-functional integration. Companies that first integrate holistic, flexible, and people-centered approach to AI

will better be able to work under the circumstances of the modern business environment and retain their competitive advantage over time as soon as it will arise.

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