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The Impact of Artificial Intelligence Applications on Strategic Supremacy: The Moderating Role of Self-Managed Teamwork

A Field Study on Business Organizations with Green Buildings in Jordan

أثر تطبيقات الذكاء الاصطناعي على السيادة الاستراتيجية: الدور المعدل لفرق العمل المدارة ذاتيًا – دراسة ميدانية في منظمات الأعمال ذات الأبنية الخضراء في الأردن

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Authorization

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The researcher

Wesam Khataibyhe

Dedication

لأمي الغالية:

لا تحتمل الابجدية امتناني. احبكِ جداً

ولأهل غزة وفلسطين. نحن معكم ونحبكم وندعمكم ما دام النفس فينا

.

The researcher

Wesam Khataibyhe

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The Impact of Artificial Intelligence Applications on Strategic Supremacy: The Moderating Role of Self-Managed Teamwork

A Field Study on Business Organizations with Green Buildings in Jordan

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Abstract

This study aimed to examine the impact of artificial intelligence (AI) applications on strategic supremacy with self-managed teamwork as a moderating variable. The research was conducted across five green organizations in Jordan, sorted into four categories: banks, engineering companies, hospitals, and trade & business. The study involved a population of 3,365 individuals, with a sample of 344 individuals selected using proportional stratified random sampling. The study employed a descriptive-analytical research methodology and used a questionnaire as the primary data collection tool. A total of 307 valid questionnaires were retrieved and analyzed using descriptive and inferential statistical methods with the SMART PLS 4 program.

Some results were concluded, with the most important findings indicating that the level of AI applications in business organizations with green buildings was medium, and the level of strategic supremacy was also medium, while the level of self-managed teamwork was high. The results indicated that AI applications had a significant positive impact on strategic supremacy. Furthermore, this impact was enhanced by the presence of self-managed teamwork, which moderated the relationship between AI applications and strategic supremacy.

This study provided a set of recommendations, which include encouraging green organizations in Jordan to invest in AI applications, particularly fuzzy logic and neural networks, and improve employee training to prepare for future technological advancements, this would improve decision-making, resource allocation, risk management, customer satisfaction, competitive analysis, and customer-centric strategies that enhance their influence. Emphasizing self-managed teams and integrating AI applications could further strategic goals while aligning with global sustainability and green building standards to enhance competitiveness.

keywords: Artificial Intelligence Applications, Strategic Supremacy, Self-Managed Teamwork, Green Buildings in Jordan, Fuzzy Logic, Neural Networks.

أثر تطبيقات الذكاء الاصطناعي على السيادة الاستراتيجية: الدور المعدل لفرق العمل المدارة ذاتيًا– دراسة ميدانية في منظمات الأعمال ذات الأبنية الخضراء في الأردن

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الملخّص

هدفت هذه الدراسة إلى دراسة تأثير تطبيقات الذكاء الاصطناعي على السيادة الاستراتيجي بوجود فرق العمل المدارة ذاتيا متغيرا معدل. أجريت هذه الدراسة على خمس منظمات خضراء في الأردن، مقسمة إلى أربع فئات: البنوك، الشركات الهندسية، المستشفيات، وفئة التجارة والأعمال. شملت الدراسة مجتمعًا من 3365 فردًا، وتم اختيار عينة مكونة من 344 فردًا باستخدام أسلوب العينة الطبقية العشوائية التناسبية. اعتمدت الدراسة على منهجية البحث الوصفي التحليلي واستخدمت الاستبيان كأداة رئيسية لجمع البيانات. تم استرجاع 307 استبيانات صالحة وتحليلها باستخدام الأساليب الإحصائية الوصفية والاستدلالية بواسطة برنامج.SMART PLS 4

توصلت الدراسة إلى عدة نتائج، من أبرزها أن مستوى تطبيقات الذكاء الاصطناعي في منظمات الأعمال ذات المباني الخضراء كان متوسطًا، ومستوى السيادة الاستراتيجي كان أيضًا متوسطًا، في حين أن مستوى العمل الجماعي الذاتي الإدارة كان مرتفعًا. أشارت النتائج إلى أن تطبيقات الذكاء الاصطناعي كان لها تأثير إيجابي كبير على التفوق الاستراتيجي. بالإضافة إلى ذلك، عزز هذا التأثير وجود العمل الجماعي الذاتي الإدارة، الذي وسّط العلاقة بين تطبيقات الذكاء الاصطناعي والسيادة الاستراتيجي.

قدمت هذه الدراسة مجموعة من التوصيات، تشمل تشجيع المنظمات الخضراء في الأردن على الاستثمار في تطبيقات الذكاء الاصطناعي، خصوصًا المنطق الضبابي والشبكات العصبية، وتحسين تدريب الموظفين للاستعداد للتطورات التكنولوجية المستقبلية، مما سيحسن عملية اتخاذ القرار، وتخصيص الموارد، وإدارة المخاطر، ورضا العملاء، والتحليل التنافسي، والاستراتيجيات الموجهة نحو العملاء التي تعزز تأثيرها. كما تم التأكيد على أهمية فرق العمل الذاتي الإدارة ودمج تطبيقات الذكاء الاصطناعي لتحقيق الأهداف الاستراتيجية مع الالتزام بالمعايير العالمية للاستدامة والمباني الخضراء لتعزيز التنافسية.

الكلمات المفتاحية: تطبيقات الذكاء الاصطناعي، السيادة الاستراتيجية تطبيق فرق العمل المدارة ذاتيا، المباني الخضراء في الأردن، المنطق المضبب، الشبكات العصبونية.

CHAPTER ONE

Study Background and Importance

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Study Background and Importance

1.1 Introduction

Globalization, developments in information technology, and the labor revolution have resulted in a new competitive model. Building differentiated capabilities, improving strategic fit partnerships, balancing old and new business needs, and establishing a strategic thinking and learning culture are all critical for strategic supremacy in a hypercompetitive market. Furthermore, modern business organizations, facing many competitors in the work environment, tend to provide the best, most appropriate, fastest, and closest to ideal solutions by applying the latest modern technology to achieve a sustainable competitive advantage that can achieve organizational supremacy in their environments.

Strategic supremacy according to D'aveni (2010); Cenamor (2021) is creating the power needed to protect an organization's future due to the inherently chaotic nature of the competitive playing field, that influences the positioning and maneuvering of your rivals. This power gives organizations the ability to define the playing field as a way to conquer chaos and fashion a favorable world.

Rapid competition escalation is evident in strategy formulation across all global economy sectors, including high-tech industries and almost all sectors of the global economy (Correani et al., 2020). The competitive situation involves intense, fierce competition, near-impossibility of sustaining advantage, and virtual business war (Zighan et al., 2023).

How should strategy Supremacy be used in such a competitive environment?

In order to enable companies to alter competitive positions and stances rapidly and effectively when environmental and competitive conditions change, it is critical to seek approaches and strategies for organizations to attain a state of strategic supremacy. Technologies are crucial for organizational success and business necessity. One such approach that contributes to strategic supremacy is the application of Artificial Intelligence (AI).

AI is the ability of machines to perform tasks that typically require human intelligence (Webb, 2019). Organizations can use AI applications strategically or support efficient daily operations, management views AI as a competitive differentiator, providing companies with advantages in their markets (Makridakis, 2017).

AI will have a profound impact on the conduct of strategy and will disrupt existing power balances. AI can enhance strategic decision-making using modeling skills in microworlds or risk assessment. It can master vast amounts of data, identify patterns, and respond quickly to dynamic events. AI does not rely on human heuristics or emotions and does not become fatigued or stressed, its cognitive flaws are minimal, allowing it to make informed decisions without human intervention optimized to perform in the environment (Ayoub & Payne, 2016).

The introduction of AI into society will revolutionize human-AI interaction, with significant legal, moral, and social ramifications in the organizational setting (Khogali & Mekid, 2023), and according to Rickli (2020), Al will level up and empower individuals. Thakur (2012) research showed that AI has a positive impact on strategic supremacy, and this is what Bhadouria & Jayant (2017) agreed by measuring the market share using AI. And Khatib & Alshawabkeh (2022) concluded that there is a positive impact of AI advancement on strategic supremacy, it requires an understanding of internal business models, customer expectations, and market challenges for corporate management to maintain strategic supremacy.

Self-managed work team (SMTW) are a growing organizational form with autonomy in staffing, scheduling, and budgeting. Firms face the challenge of providing incentives for self-managed teams to exert efforts and share relevant information for decision-making. This challenge requires firms to adapt to the changing landscape of organizational structures (Adrian & Möller, 2020), applying SMTW is a recent action in entire institutions, and is defined as a decentralized authority, systematically abolishing middle management and supervisor-subordinate relationships, and is characterized by a radically and systematically decentralized authority structure. The shift towards a more professionalized workforce and

advanced IT systems enables faster adaptability to rapidly changing business environments, requiring quicker adaptability and increased autonomy. This shift aims to improve the coordination and management of work without managers (Lee & Edmondson, 2017). The evolution of the concept of self-managing teams is referred to as a "management transformation, paradigm shift, or corporate renaissance." (Millikin et al., 2010).

Gündüz (2017) mentioned that self-managed teamwork collaborates, breaking away from a hierarchical control culture, and informal social interactions promote information sharing for market share goals to achieve supremacy, and Weerheim et al. (2019) also confirmed that Self-managing teams enhance performance, reduce costs, and improve flexibility translating an organization's strategy into strategic supremacy.

The practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's lifecycle enables green buildings to perform intelligently by adapting to user preferences, comfort, and enhanced energy performance related to a high level of AI application use (Doan et al., 2017).

Sihite & Simanjuntak (2015) highlight that green buildings enhance management and occupant functions, integrate seamless subsystems, minimizing errors, and optimizing operations through intelligent systems, resulting in energy control, cost savings, and competitive advantages. Both smart and green buildings offer financial and conservation benefits by effectively managing energy based on scientific principles.

With all of the foregoing trends, issues and challenges as background, it is still critical to investigate how the degree of self-managed work teams influences the relationship between AI applications and strategy supremacy. As a result, the research will provide light on the moderate role of self-managed teams in the influence of AI applications (fuzzy logic, neural networks) on strategy supremacy (sphere of influence, competitive compression, competitive configuration) in green buildings.

1.2 Problem Statement

The formulation of problem statement of this study results from two sources, previous studies, and interviews.

The literature has shown that the interplay of technological advancements, scientific progress, and intricate business landscapes has led to new business models and opportunities, intensifying competition globally (Qasaimeh & Jaradeh, 2022). Scholars like Kiron and Schrage (2019) emphasize using AI to explore and capitalize on strategic prospects, executives' selection of key performance indicators (KPIs) in the AI era is vital for optimizing operations, and shaping company's strategic direction, these KPIs span customer-centric, cost-driven, process-specific, and investor-oriented metrics, crucial for generating value, ensuring accountability, and maintaining a competitive advantage.

Cave & ÓhÉigeartaigh (2018) advocate for strategic advantage pursuit in the area of AI, an approach reflecting actual shifts in strategic models. Also, emphasizes the need to identify challenges and threats and develop a cohesive strategy to address them. They recommended imparting AI knowledge to leaders, employees, and stakeholders, enabling continuous learning and human resource development. Training programs on AI applications should align with evolving customer demands and understand the dynamic landscape. Petrus (2019) agrees with the need for managerial recommendations based on understanding the environment's nature for the successful integration of new practices.

Researchers have recommended conducting further studies on the impact of strategic agility on strategic supremacy and exploring the significance of addressing various dimensions, studying competitors and the market and working on the competitive configuration, and developing human resource performance (Khatib & Alshawabkeh, 2022).

Abazeed (2022); Al-Bashqali et al. (2021) underscore the necessity to fortify systems and procedures to define spheres of influence, alleviate competitive pressures, and cultivate an exceptional organizational framework for superior performance.

In this context, AL-SHEIKLI & Hasan (2020) concluded that there is a lack of interest in the variables of the strategic vision in a way that suits strategic supremacy, and the necessity of examining the result of a culture of employee motivation to achieve the strategic supremacy. Likewise, Solansky (2008) suggested extensive research is needed in

team processes in self-managed teams. Saeed & Soltan (2022) advise revisiting approaches to achieve strategic supremacy and exploring new variables, also leveraging the dimensions of intelligent leadership in achieving strategic supremacy by enhancing the positive aspects identified in the study and addressing the negative aspects.

In order to effectively assess this gap within the Jordanian context, the researcher conducted open exploratory interviews with several specialists in green building organizations (Appendix 1). Questions were posed regarding the importance of conducting further studies on strategic supremacy and its relationship with advanced technology such as AI. Most responses encouraged such studies, highlighting the urgent need for them among green building organizations. Notably, there are no existing studies that link AI and self-managed work teams with strategic supremacy and its dimensions, particularly given the fierce local and global competition faced by green building organizations.

Nevertheless, the existing body of research is limited in fully examining and elucidating the intricate interplay between strategic supremacy and AI applications, particularly in the context of the Arab and Jordanian environments. This thesis seeks to bridge this knowledge gap by investigating the relationship between strategy supremacy and AI applications, scrutinizing how the incorporation of AI technologies influences strategic decision-making through a comprehensive exploration of the transformative potential of AI-driven insights and capabilities, this study aims to provide invaluable insights into the domain of business organizations with green buildings, specifically those in Jordan, aiming to harness AI's transformative potential in the pursuit and sustenance of strategic supremacy.

1.3 Study Objectives

The main purpose of the current study is to identify the impact of AI applications on strategic supremacy, with the presence of self-managed teamwork as a moderate role in business organizations with green buildings in Jordan by accomplishing the following sub-objectives:

1. Providing a conceptual and intellectual framework for basic study variables (AI applications, strategic supremacy, and self-managed teamwork).

2. Characterization of the levels of practice of the three variables (AI applications, strategic supremacy, and self-managed teamwork) in the business organizations with green buildings in Jordan.
3. Determining the impact of AI applications (fuzzy logic and neural networks) in strategic supremacy.
4. Diagnosing the moderate role of self-managed teams work for the impact of AI applications on strategic supremacy.

1.4 Study Importance

The significance of this study stems from its scientific and practical contribution:

1.4.1 Scientific Importance

Contributing to the body of knowledge on AI applications and strategic supremacy. And addressing the gap in the literature regarding the impact of AI and self-managed teamwork on strategic supremacy in the context of business organizations with green buildings in Jordan.

1.4.2 Practical Importance

The study sector is the business organizations with green buildings in Jordan, the results of this study can provide insights for managers and decision-makers in business organizations with green buildings in Jordan on the potential benefits of AI applications and self-managed teamwork.

Offering practical recommendations for leveraging AI and self-managed teams to enhance strategic supremacy.

1.5 Study Questions and Hypothesis

1.5.1 Study Questions

First Main Question

1- What is the conceptual and intellectual framework for basic study variables?

Second Main Question

2- The study questions, related to the problem statement can be summarized as:

2.1 What is the level of AI applications in business organizations with green buildings in Jordan?

2.2 What is the level of strategic supremacy in business organizations with green buildings in Jordan?

2.3 What is the level of self-managed teamwork in business organizations with green buildings in Jordan?

Third Main Question

3- What is the impact of AI applications on strategic supremacy in business organizations with green buildings in Jordan?

Based on the elements of AI applications the first main question can be divided into six main questions:

3.1 Is there an impact of the fuzzy logic application on the sphere of influence at business organizations with green buildings in Jordan?

3.2 Is there an impact of the fuzzy logic application on the competitive compression at business organizations with green buildings in Jordan?

3.3 Is there an impact of the fuzzy logic application on the competitive configuration at business organizations with green buildings in Jordan?

3.4 Is there an impact of the neural network application on the sphere of influence at business organizations with green buildings in Jordan?

3.5 Is there an impact of the neural network application on the competitive compression at business organizations with green buildings in Jordan?

3.6 Is there an impact of the neural network application on the competitive configuration at business organizations with green buildings in Jordan?

Fourth main question

4- Does self-managed teamwork moderate the impact of AI applications on the Strategic Supremacy in business organizations with green buildings in Jordan?

1.5.2 Study Hypothesis

First Main Hypothesis

H01: There is no statistically significant impact of AI applications (Fuzzy Logic, Neural Networks) on strategic supremacy with all dimensions (sphere of influence, competitive compression, and competitive configuration) at a level of significance ($\alpha \geq 0.05$) at business organizations with green buildings in Jordan.

Based on the elements of components of AI applications, the first main hypothesis can be divided into six sub-hypotheses:

H01.1 There is no statistically significant impact of fuzzy logic on the sphere of influence at business organizations with green buildings in Jordan at a level of significance ($\alpha \geq 0.05$).

H01.2 There is no statistically significant impact of fuzzy logic on competitive compression at business organizations with green buildings in Jordan at a level of significance ($\alpha \geq 0.05$).

H01.3 There is no statistically significant impact of fuzzy logic on competitive configuration at business organizations with green buildings in Jordan at a level of significance ($\alpha \geq 0.05$).

H01.4 There is no statistically significant impact of neural networks on sphere of influence at business organizations with green buildings in Jordan at a level of significance ($\alpha \geq 0.05$).

H01.5 There is no statistically significant impact of neural networks on competitive compression at business organizations with green buildings in Jordan at a level of significance ($\alpha \geq 0.05$).

H01.6 There is no statistically significant impact of neural networks on competitive configuration at business organizations with green buildings in Jordan at a level of significance ($\alpha \geq 0.05$).

Second Main Hypothesis

H02: Self-managed teamwork does not moderate the impact of AI applications on the strategic supremacy at business organizations with green buildings in Jordan at a level of significance ($\alpha \geq 0.05$)

1.6 Study Model and Conceptual Framework

Study Model

This study model displays the relationships between AI applications as an (independent variable), strategic supremacy as a (dependent variable) and self-managed teamwork as a (moderate variable), as shown in the following study model, Figure (1-1).

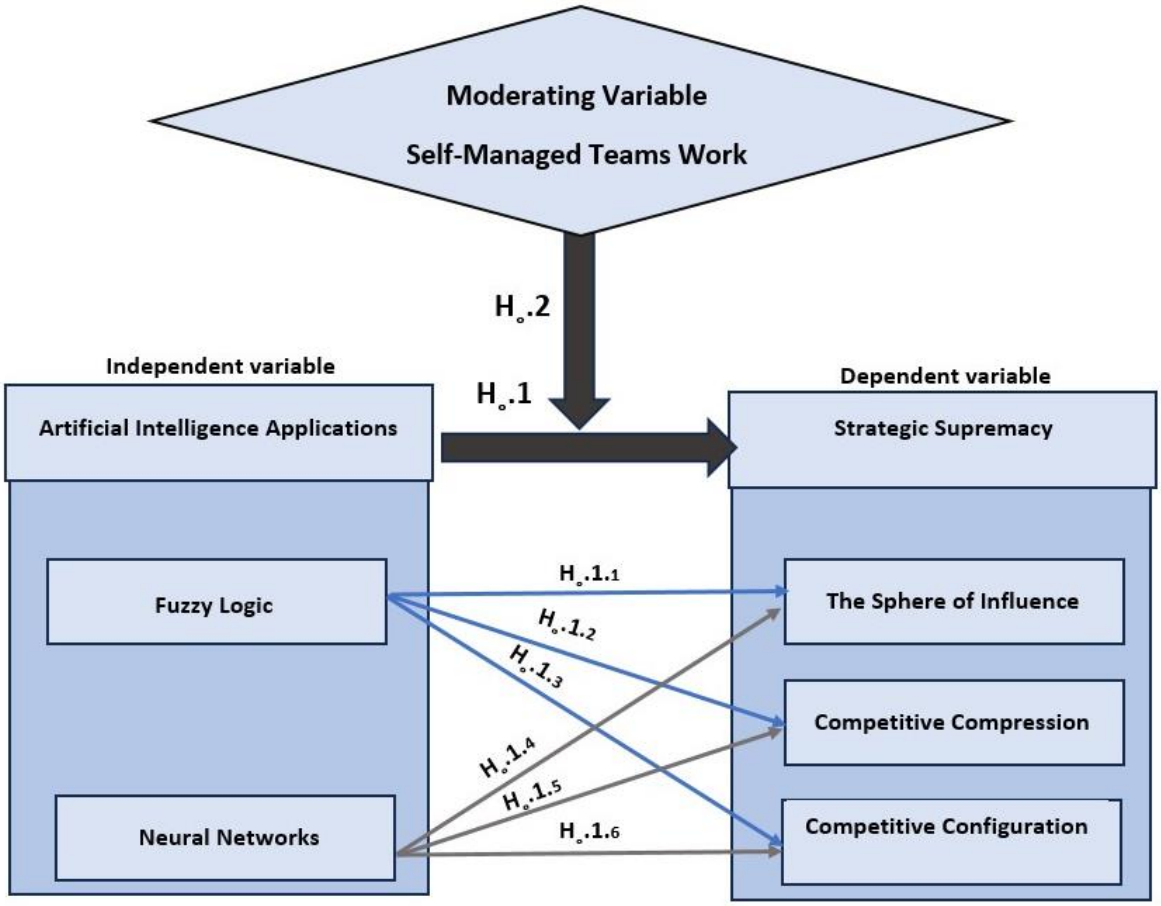

Figure (1-1): Study Model

Source: Prepared by the Researcher Based on the literature and previous studies

Based on the literature and previous studies:

Independent variables: Marakas & O'Brien (2013); Jankovic & Curovic 2023; Malik et al. 2023

Dependent variables: D'aveni (2004); Mohammed & Mohammed (2021); Khatib & Alshawabkeh (2022); AL-SHEIKLI & Hasan (2020); Abazeed (2022)

Moderator: Wageman (1997); Mohammed & Mohammed (2021); Millikin et al. (2010)

1.7 Study Limitations

1- This study applied in business organizations with green buildings in Jordan, and it is different to generalize the results on non-green buildings.

2- This study applied in the Arab environment and this may be specific to its results in other foreign environments.

3- Study results depend on the objectiveness and credibility of the sample members to the extent of their response to the questionnaire.

1.8 Study Scope

The scope of the study is composed as follows:

Time limits: The summer semester of the year 2023/2024 is anticipated to see the completion of this ongoing investigation.

Human Limits: The study tool was distributed to all organizational levels, a sample of workers in business organizations with green buildings in Jordan.

Spatial borders: Business organizations with green buildings in Jordan.

Scientific Limitation: The study was based on previous studies and theoretical literature on (AI applications, strategic supremacy, and self-managed teamwork).

1.9 Operational Definitions

Artificial Intelligence: Systems comprising applications that mimic cognitive processes typically associated with human characteristics such as learning, speech, decision-making, and problem solving. This includes various applications, and the current study relied on two of these applications, namely fuzzy logic and neural networks, as they are the accredited applications practiced in the organizations included in the current study. Measured through the questionnaire items (1- 20)

Fuzzy Logic: The set of multi-valued operations utilized by green building organizations that use imprecise terms to process inexact values and provide approximative solutions,

enhancing decision-making precision without compromising accuracy. Measured through the questionnaire items (1-10).

Neural Networks: Interconnected network of nodes (neurons) structured in layers mimicking brain software, utilized by green building organizations for deep learning, communication, data management, predictive processes, and diagnosing environmental challenges. Measured through the questionnaire items (11-20).

Strategic Supremacy: Dominant position or advantages an organization holds over others in terms of strategy, involving superior resources, tactics, or decision-making capabilities. It signifies a level of control or influence that allows the entity to outmaneuver and outperform competitors in pursuit of their goals. It includes the sphere of influence, competitive compression, and competitive configuration. Measured through the questionnaire items (21-41).

The Sphere of Influence: An integrated product portfolio that gives the organization a dominant position compared to competitors, directs resources toward it, and addresses competitive threats and pressures to maintain competitiveness within its geographic scope. Measured through the questionnaire items (21-27).

Competitive Compression: Strategic framework characterized by the comprehensive analysis of the competitive landscape, deployment of innovative tactics to constrain competitors' penetration into essential markets, evaluation of significant rivals, and recognition of unique market advantages. Additionally, it entails the proactive collection of customer feedback, ongoing surveillance of market dynamics, and the formulation of contingency plans to adeptly respond to competitive actions. Measured through the questionnaire items (28-34).

Competitive Configuration: Strategic organizational framework that focuses on forming alliances, enhancing internal strengths, and collaborating with external partners. It involves enhancing internal capabilities, collaborating with external partners, and continuously evaluating resource capacities. This approach helps organizations fortify their market

position and anticipate future trends with resilience, ensuring their competitive edge. Measured through the questionnaire items (35-41).

Self-Managed Teamwork: Organizational arrangements consist of a group of people from different specializations who integrate with each other to perform multiple tasks and activities and enjoy independence and flexibility in managing their duties without the assistance of a boss or supervisor. Measured through the questionnaire items (42-53).

Business Organizations with Green Buildings: Set of organizations that perform various activities sorted into four categories: banks, engineering companies, hospitals, and trade & business share one characteristic, designed and constructed with environmentally friendly practices aimed at reducing its negative impact on the environment and human health. This includes using energy-efficient materials, optimizing resource use, minimizing waste, and incorporating renewable energy sources. The goal is to create structures that are energy-efficient, and water-efficient, and promote a healthier indoor environment while minimizing their carbon footprint.

CHAPTER TWO

Theoretical Framework and Previous Studies

CHAPTER TWO
Theoretical Framework and Previous Studies

2.1 Theoretical Framework

2.1.1 Artificial Intelligence Application

The Historical Evolution of AI

During the early 1950s, Herbert Simon, Allen Newell, and Cliff Shaw conducted pioneering experiments focused on creating software that could emulate human thinking processes. Their efforts culminated in the development of a program known as Logic Theorist. This program was designed around established axioms and rules. Given a novel logical expression, Logic Theorists systematically explored various operations, utilizing heuristics in the process (Priestley 2017), which represented a significant milestone in the advancement of AI (Krishnamoorthy & Rajeev 2018).

Although Simon's works demonstrated the notion of intelligent computer programs, the inception of AI as a field is often attributed to the year 1956. This is due to the inaugural AI conference held at Dartmouth College in New Hampshire, organized by John McCarthy, Marvin Minsky, Nathaniel Rochester, and Claude Shanon (Skinner, 2012). This conference marked the pioneering collective effort in the domain of machine intelligence (Hayes, & Morgenstern, 2007). Notably, it was during this event that John McCarthy introduced the term "Artificial Intelligence" (Wilson, 2019). The Dartmouth conference established the groundwork for exploring the utilization of computers in symbol processing, the necessity for novel programming languages, and the application of computers in theorem proving, shifting the focus from hardware-based intelligence simulation (Hayes & Morgenstern, 2007).

In 1959, Newell, Shaw, and Simon created the General Problem Solver (GPS), which could tackle various problems including theorem proving, chess playing, and intricate puzzles. This program introduced means-end analysis, where it compared the current state to the goal, utilizing the difference between them to determine new search directions.

Additionally, GPS incorporated the ideas of backtracking and subgoal states, enhancing the efficiency of the problem-solving process (Garvey, 2021).

Subsequently, John McCarthy pioneered the LISP programming language, which emerged as the preeminent choice for AI programming (McCarthy et al., 1985). Zemčík (2019) discussed the work of Kenneth Colby at Stanford University and Joseph Weizenbaum at MIT during 1964-6.

They developed separate programs in 1960 aimed at simulating human reasoning. Weizenbaum's program, named ELIZA, utilized a pattern-matching technique to engage in realistic two-way conversations. ELIZA employed predefined rules linked to specific keywords such as 'I', 'you', and 'like', triggering execution upon keyword identification. Concurrently, MIT's Minsky-led group created a program capable of performing visual analogies. This program could analyze a pair of figures with a certain relationship and then identify another set of figures from a given collection that exhibited a similar relationship. At the same time that LottiZadeh proposed fuzzy logic (Jane & Ganeshi, 2019)

Bahja (2020); Badiru (2021) explored notable advancements in the field of AI. Bahja discussed the emergence of a linguistic problem-solving program called STUDENT, which treated sentences as equations and exhibited enhanced processing capabilities. Another significant contribution was SHRDLU, a learning program. SHRDLU was characterized by its capacity to make assumptions and learn from previously solved problems.

Alongside these advancements, in the early 1960s, John Holland conducted experiments at the University of Michigan to create evolving adaptive systems. These systems combined Darwin’s principle of survival of the fittest with natural genetics, resulting in a potent search mechanism. This innovation led to the emergence of genetic algorithms as a novel problem-solving approach.

Subsequent to this, Lambora, Gupta & Chopra (2019) mentioned that these systems exhibited implicit learning abilities and gave rise to a new category of problem-solving

methods, showcasing significant promise in various engineering domains (Hariyadi et al., 2020).

Numerous efforts have been dedicated to emulating human brain learning through computer simulations. This endeavor has led to the conception of Artificial Neural Networks (ANNs) as a prominent framework for addressing diverse engineering challenges. ANNs of various configurations have been proposed to tackle distinct problem categories. The process entails initial training of the network using available input-output pairs. Once trained, the network demonstrates proficiency in solving similar problems within the same category and generating corresponding outputs. The accuracy of the solutions hinges on the type and quantity of training data employed. Enhanced precision is achieved with a larger and more diverse dataset during network training. This approach gained substantial traction in engineering research circles, particularly when contrasted with alternatives like genetic algorithms, owing to its straightforward implementation and dependable outcome generation (Sada, 2021).

The historical journey of AI showcases the resilience of human curiosity, from initial enthusiasm to eventual triumphs. The evolution demonstrates our determination to replicate and augment human cognitive abilities, shaping a future where AI can complement and enhance various aspects of our lives.

The Concept of AI

The researchers have different definitions of AI application, but the implications were consistent among them.

Kok et al. (2009) discussed what AI truly means by the concept of intelligence. The definition and interpretation of intelligence—and by extension, artificial intelligence—remain subjects of extensive debate and confusion. For instance, one dictionary provides four distinct definitions of AI:

1. A field within computer science focused on creating computers that can perform human-like thought processes such as learning, reasoning, and self-correction.

2. The notion that machines can be enhanced to exhibit capabilities akin to human intelligence, including learning, adapting, and self-correcting.
3. The augmentation of human intelligence through computers, analogous to how mechanical tools historically amplified human physical abilities.
4. In a narrower sense, the study of advanced programming techniques to make computers more efficient.

(The New International Webster's Comprehensive Dictionary of the English Language, Encyclopedic Edition).

These definitions have evolved over time due to rapid advancements in the field. More recent definitions describe AI as "imitating intelligent human behavior," reflecting a more robust understanding. The AI community has long been striving to replicate intelligent behavior using computer programs, a complex endeavor since a program must perform various tasks to be considered intelligent.

Rather than seeking a broad definition of AI, one might focus on defining artificially intelligent systems. These definitions generally fall into four categories:

- Systems that think like humans.
- Systems that act like humans.
- Systems that think rationally.
- Systems that act rationally.

AI is one of the most promising technologies currently being developed and deployed (Acemoglu & Restrepo, 2020)

AI it is an integration of computer science and physiology, it is technology that develops computer programs to simulate human problem-solving, addressing diverse domains and methods. It's similar to human intelligence, which involves essential activities.

AI finds crucial applications in business due to its ability to efficiently solve complex problems. Traditional deterministic systems often struggle to address these challenges (Ghimire et al., 2020). AI's impact is evident in diverse sectors such as marketing and

product recommendation (Martínez-López, & Casillas, 2013), fraud detection (Bao, Hilary, & Ke, 2022), and customer service (Ping, 2019). Its wide adoption signifies AI's role in problem-solving and optimization within the business realm.

Haenlein, & Kaplan, (2019) defined AI as the capacity to accurately interpret external data and information, learn from said data, effectively interact with and manipulate it, and employ it in flexible adaptation, while Riedl, M. O. (2019) refer to AI as computer systems are designed to interact with human behavior and comprehend human language.

Silverman et al., (2016) refer to AI as a branch that constitutes a facet of computer science that explores the formulations of intelligence. These systems possess the capacity to deduce valuable inferences concerning problems.

As for Hamet & Tremblay (2017) it is a concept that involves utilizing computers to replicate intelligent behavior with minimal human involvement.

The evolution of AI has been fascinating. AI's ongoing development holds immense potential for various industries, but ethical considerations and responsible implementation are crucial to ensure positive outcomes.

The Importance of AI

Acemoglu & Restrepo (2020) discussed the economic opportunities and challenges posed by AI, most AI researchers and economists studying it view it as a way of automating more tasks. No doubt, AI has this capability, and most of its applications to date have been of this mould—for example, image recognition, speech recognition, translation, accounting, recommendation systems and customer support. But we do not need to accept this as the primary way that AI can be and indeed ought to be used. First, if all we do is continue down the path of automation, with no counterbalancing innovations to generate new tasks.

AI applications hold significant promise and possess the capacity to bring about revolutionary changes across various professional domains (Venkatasubramanian, 2019); (Wahl et al., 2018); (Vincent-Lancrin, & Van der Vlies, 2020).

Firstly, Zhang et al. (2022) state that AI systems exhibit the capability to substantially diminish or potentially eliminate human errors, particularly in contexts such as identifying violations through the utilization of weather forecasts or video surveillance. By harnessing the capabilities of AI, the impact of human errors can be minimized. Additionally, AI demonstrates its worth in reducing risks connected to perilous environments or circumstances (Dwivedi et al., 2021). For instance, Hendrycks, Mazeika, & Woodside, (2023) discuss that AI-assisted robots can identify and defuse explosive devices, thereby reducing the potential loss of human lives. This extends to situations such as interventions during natural disasters, where AI-powered solutions can mitigate the inherent hazards.

Moreover, according to Schwartz et al. (2020); Kato et al. (2019) AI contributes to heightened operational efficiency. Within industrial settings, AI-supported machinery, including those guided by decision support systems and AI-driven robots, can function continuously without the requirement for breaks, ultimately enhancing productivity (Huang et al., 2021). Davenport, & Mittal, (2023) mentioned uninterrupted machines operating 24/7 and AI-fueled customer support.

Andronie et al. (2021) discuss another pivotal advantage lies in AI technologies' ability to facilitate rapid decision-making. Rooted in algorithms and devoid of emotional influences that can sway human decisions, AI systems are proficient in furnishing prompt and pragmatic resolutions. Furthermore, AI's potential to drive innovation finds notable expression in the medical realm (Lee et al., 2019).

Essentially, the changing definition highlights the dynamic nature of the field and its continuous growth and it holds significant importance and offers various advantages across different domains.

AI Applications

O'brien (2011) indicated that the most significant applications of AI encompass three primary domains: cognitive science applications, natural interface applications, and Robotics applications. The researcher adopted cognitive science applications focusing on

two applications (Fuzzy logic and Neural network) because those the most used applications at business with green organizations in Jordan.

1- Fuzzy logic

Zadeh (2015) shared that the term "fuzzy logic" is applied in two senses: narrow and wide. In its narrow sense, fuzzy logic can be considered a logical system that generalizes multivalued logic. In its wide sense, fuzzy logic extends beyond a logical system. Informally, fuzzy logic is a reasoning and computation system where the objects involved have vague (fuzzy) boundaries. In this system, everything can be a matter of degrees, including the degrees themselves. Currently, "fuzzy logic" is mostly understood in this wide sense, which is utilized in almost all of its applications. The concept of fuzzy logic has sparked numerous new directions, Some of these directions are outlined in the following.

Carlsson et al. (2012); Kahraman et al. (2016); Ekel et al. (2019) discussed the concept of a linguistic variable opened the door to the initiation of new directions in the evolution of fuzzy logic. One such direction led to the development of fuzzy-set-based possibility theory. “Fuzzy sets as a basis for the theory of possibility”. Initially, possibility theory was treated with skepticism and derision. Today, possibility theory is widely recognized as an important tool for dealing with uncertainty. Major contributions to the development of possibility theory were made by Dubois and Prade.

Science traditionally relies on classical bivalent logic, which is characterized by binary distinctions and clear-cut classifications. This approach emphasizes black-and-white thinking, where phenomena are categorized in a dichotomous manner—true or false, present or absent, zero or one. Characterized by an emulation of human cognitive processes, they facilitate the handling of inexact values and deductions through the utilization of vague terminology such as "very high," "increasing," "somewhat decreased," "reasonable," and "very low." This intrinsic capability empowers fuzzy systems to undertake the analysis of incomplete datasets and furnish approximative resolutions to quandaries that elude conventional methodologies.

Binarization, therefore, becomes the standard method of reasoning in scientific disciplines, reinforcing the expectation of definitive answers and mutually exclusive categories.

In contrast, human cognition operates differently, frequently embracing a spectrum of possibilities and recognizing the complexity of real-world phenomena. Cognitive processes align more with pluralism, where shades of gray and intermediate states are acknowledged and valued.

One of the principal contributions of fuzzy logic is its ability to provide a theoretical framework that supports this pluralistic approach (Martinetti, 1994). Fuzzy logic introduces the concept of degrees of truth rather than absolute truths or falsehoods, allowing for more nuanced and flexible reasoning. In this system, variables can partially belong to multiple categories simultaneously, reflecting the inherent ambiguity and complexity of natural and human systems.

The shift from binary to pluralistic reasoning facilitated by fuzzy logic has profound implications across various scientific fields. This transition is expected to gain momentum in the coming years, making the influence of fuzzy logic increasingly visible and significant. As scientific methodologies evolve, the rigid binary distinctions are likely to be replaced by more flexible and inclusive frameworks that accommodate gradations and spectra. Ultimately, the adoption of fuzzy logic principles in science is likely to result in a broader acceptance of concepts as matters of degree rather than fixed states. This shift towards recognizing and embracing variability and uncertainty will provide a more accurate representation of the complexities found in nature and human experiences. Fuzzy logic systems, notwithstanding their nomenclature, represent a substantial instantiation of AI within the domain of business applications. The application of fuzzy logic inquiries holds the potential to enhance the extraction of information from commercial databases (Alakhras, Oussalah, & Hussein, 2020). It is paramount to acknowledge, however, that fuzzy logic does not entail a lack of precision in thinking; rather, it imparts precision to decision-making scenarios previously devoid of such exactitude (O’Brien, & Marakas, 2010).

2- Neural network

Currently, neural network is a hot topic. Neural networks constitute computational frameworks inspired by the intricate inter-neuronal connections within the human brain (Chen et al., 2017). These networks function in a parallel manner, engaging in dynamic interactions that enable them to undergo data-driven learning (Montáns et al., 2019). Enhanced exposure to data instances correlates with an improved capacity to replicate desired outcomes (Poernomo, & Kang, 2018). Through a process of adaptive modification, the neural network modulates the synaptic weights between its processing elements, thereby responding to evolving data patterns and the corresponding processed outcomes (Panda et al., 2017).

Recently, neural networks have become popular and valuable models for classification, clustering, pattern recognition, and prediction across many disciplines. Neural networks have proven to be competitive with traditional regression and statistical models in terms of usefulness (Dave, 2014). The applications of neural networks can be assessed based on data analysis factors like accuracy, processing speed, latency, performance, fault tolerance, volume, scalability, and convergence (Abiodun et al., 2018). One of the significant advantages of neural networks is their high-speed processing capabilities through massive parallel implementations, which has increased the need for research in this area (Izeboudjen et al., 2014).

Wang et al. (2017) stated that neural networks can be developed and applied to image recognition, natural language processing, and other fields. Today, neural networks are primarily used for universal function approximation in numerical paradigms due to their excellent properties of self-learning, adaptability, fault tolerance, nonlinearity, and advanced input-output mapping. These data analysis factors highlight why neural networks are effective, efficient, and successful in handling both complex and simple problems in various areas of life. neural networks can address issues in agriculture, science, medicine, education, finance, management, security, engineering, trading, and the arts. They are also applicable in manufacturing (Mumali, 2022), transportation (Pamuła, 2016), computer security(Bian,

2023), banking (Zeinalizadeh et al., 2015), insurance (Lin, 2009), marketing (DeTienne , & DeTienne, 2017), energy (Sharifi et al., 2019), and in solving challenges that traditional methods and conventional mathematics cannot.

Despite the extensive applications of neural networks, Gawlikowski et al. (2023) point to the growing need for a systematic approach in their development phase to enhance performance. This includes addressing key factors and topics such as data set choice (size and volume), data accuracy, data instruments, data standardization, types of data inputs, data division, and data preprocessing, validation, processing, and output techniques. Additionally, there are other common challenges in neural networks modeling that require further investigation These include developing techniques to design robust models, improving pattern transparency, extracting useful knowledge from trained neural networks, enhancing extrapolation abilities, and devising new approaches to handle uncertainty and improve convergence (Barrett et al., 2019).

Boyacioglu (2009) indicates that nowadays, the application of neural networks has become popular in various areas of human need. Many organizations are investing in neural networks to address problems across different fields and the economic sector, traditionally handled by operations research. Haykin & Network (2004) shared that what makes artificial intelligence unique is its extensive application in data analysis, proposed by academics in the social sciences and arts, in addition to its use in science and engineering.

One significant advantage of neural networks is their ability to create user-friendly and more accurate models from complex natural systems with large inputs. neural networks are novel and effective models for problem-solving and machine learning (Ciaburro & Venkateswaran, 2017). They function similarly to biological nervous systems, specifically the human brain. Recent global research has shown a growing interest in brain functionality. neural networks can be designed to mimic the human brain's performance in specific tasks. The human brain, highly efficient and capable of complex signal processing, coordinates various operations to perform tasks. Its unique design involves numerous interconnected neurons working together to solve specific problems daily. A typical example of neural

network function is the human brain, which sends and receives signals to facilitate human actions (Abiodun et al., 2018).

2.1.2 Strategic Supremacy

Strategic supremacy refers to a dominant position achieved by an organization, in terms of military (Raska, 2019)., economic (Saeed, 2017), and technological (Van et al., 2019). It involves having a clear advantage over competitors, which can enable greater influence, control, and decision-making power on various fronts. This advantage can be attained through a combination of factors such as advanced technology, effective diplomacy, robust economic performance, and innovative strategies (D'aveni, Gunther, & Cole, 2001)

The Historical Development of Strategic Supremacy

The quest for strategic supremacy within organizations has evolved significantly over time, mirroring broader historical and economic trends. From early trade guilds to modern multinational corporations, organizations have continuously developed strategies to establish and maintain dominance in their respective industries. This evolution is marked by distinct phases characterized by innovations in management practices, technological advancements, and shifts in economic paradigms.

Early Trade Guilds and Mercantile Organizations

The origins of organizational strategy can be traced back to medieval trade guilds, which emerged in the 12th century. These guilds, prevalent in Europe, were associations of artisans and merchants who controlled the practice of their craft in a particular town. They established regulations for quality, price, and the training of apprentices, thereby exerting significant influence over local economies. The strategic supremacy of these guilds lay in their ability to monopolize markets and maintain high standards of craftsmanship, ensuring their members' economic security and social status (Gustafsson, 1987).

In the late medieval period, mercantile organizations like the Hanseatic League (founded in the 13th century) exemplified early forms of strategic collaboration among businesses. This league of northern European cities and merchants sought to protect mutual trading interests and ensure safe trade routes. Their supremacy was based on a networked

approach, leveraging collective bargaining power and military protection against piracy and local rulers' interference (Kirby & Kirby, 2023).

The Industrial Revolution and the Rise of Corporations

Allen (2017) mentioned the Industrial Revolution early 18th century marked a significant shift in organizational strategy. The advent of mechanization and mass production transformed businesses from small-scale artisanal operations to large-scale industrial enterprises.

Key to this era was the development of vertical integration strategies, where companies controlled every aspect of the production process, from raw materials to finished goods. This approach allowed firms to reduce costs, increase efficiencies, and secure market dominance (Guan & Rehme, 2012).

Additionally, the rise of scientific management, as championed by Frederick Winslow Taylor in the early 20th century, introduced systematic approaches to improving labor productivity and operational efficiency. Taylor’s principles emphasized time-and-motion studies, standardization of tasks, and performance-based incentives, which became foundational to organizational strategies seeking to maximize efficiency and output (Taylor, 2004).

The Post-War Era and the Advent of Strategic Planning

The post-World War II era saw the proliferation of strategic planning as a formalized organizational practice. The rapid expansion of multinational corporations and increased global competition necessitated more sophisticated approaches to strategy. This period witnessed the development of various strategic management theories and models that have shaped contemporary organizational practices (Steiner, 2010).

One seminal development was the introduction of SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) by Albert Humphrey in the 1960s. This framework enabled organizations to systematically evaluate internal and external factors affecting their

strategic position and to formulate strategies that leveraged strengths and opportunities while mitigating weaknesses and threats (Dalton & Dalton, 2019).

Another critical advancement was Michael Porter's Competitive Advantage framework. Porter's Five Forces model provided organizations with a tool to analyze industry structures and competitive forces, guiding them in crafting strategies to achieve sustainable competitive advantage. His concepts of cost leadership, differentiation, and focus strategies became cornerstones of strategic management (Porter, 1999).

The Digital Revolution and the Knowledge Economy

The late 20th and early 21st centuries have been dominated by the digital revolution and the rise of the knowledge economy. Advances in information technology and the internet have transformed how organizations operate, compete, and achieve supremacy. Companies like Microsoft, Apple, and Google exemplify how technological innovation and knowledge management have become central to strategic supremacy (Coakley, 2001; Horowitz et al., 2022). During this period, strategic supremacy has increasingly relied on the ability to harness data and leverage intellectual capital. The development of big data analytics, artificial intelligence, and machine learning has enabled organizations to gain deep insights into consumer behavior, optimize operations, and create highly personalized products and services (Chintalapati & Pandey, 2022).

In conclusion, the historical development of strategic supremacy in organizations is a dynamic and multifaceted narrative. From medieval guilds to digital giants, the strategies employed to achieve and maintain dominance have continuously evolved in response to changing economic, technological, and social contexts. Understanding this evolution provides valuable insights for contemporary organizations striving for strategic leadership in an increasingly complex and competitive world.

The Concept of Strategic Supremacy

Day & Reibstein (2004) discussed how Large corporations often perceive their power through their immense size, global reach, and long-standing authority. However, these attributes alone do not guarantee strategic supremacy. A massive, diversified conglomerate

may have extensive resources and mitigate risks by operating across numerous businesses. Yet, it cannot influence the competitive boundaries of others due to its diffuse nature and numerous rivals. Instead, it focuses on internal adjustments rather than shaping the competitive landscape (Henry et al., 2020).

Strategic supremacy transcends mere size, reach, and longevity. It relies on how power is utilized rather than simply possessed (Yarger, 2006). Historical figures like George Washington and Mahatma Gandhi exemplify this by overcoming empires with innovative tactics and leadership, demonstrating that perceived power is more significant than actual power.

D'aveni et al. (2001) mentioned that strategic supremacy is defined by three principles: the power of perception, capturing the hearts and minds of core customers, and creating a favorable competitive environment through strategic combinations of competition and cooperation. These principles help build a "social reality" without relying on financial dominance, monopolistic power, or illegal methods.

The Power of Perception

A company's influence is shaped by perception as much as reality. For example, when astronauts first photographed Earth from orbit, no borders were visible; these borders exist only because they are perceived and accepted by people. Similarly, industry boundaries are based on shared beliefs among managers, forming a "mental map" of the competitive space. These socially constructed realities can be reshaped or redefined (Zenger et al., 2011).

Strategic supremacy involves creating a shared social reality among competitors. Through strategic signaling and maneuvering, firms can influence rivals' perceptions, directing their focus toward or away from specific markets. This negotiation of competitive boundaries establishes a dominant worldview accepted by others (Prahalad & Ramaswamy, 2004).

When a firm achieves strategic supremacy, its defined boundaries become the accepted reality. Over time, this perception shapes the competitive landscape.

Capturing Hearts and Minds

Capturing the hearts and minds of core customers is crucial for strategic supremacy. Firms achieve this by offering superior quality and service at lower prices, setting standards that competitors must follow. For example, in the 1970s, Gillette dominated the shaving market until BIC introduced low-cost disposable razors, redefining the competitive space and capturing many of Gillette's customers. Although Gillette eventually adapted and led the disposable razor market, BIC's strategy significantly impacted Gillette's profits and market position.

Gillette regained supremacy by introducing the Sensor razor, offering better shaving performance and rewriting the rules of competition. This allowed Gillette to dominate a new core market in "shaving systems," expanding globally and reshaping the competitive landscape (Yang, 2019).

Creating a Favorable Competitive Environment through Competition and Cooperation

Balancing competition and cooperation is essential for a favorable competitive environment. These dynamics drive constant action on the competitive field. No contest can be won without some level of cooperation with rivals, and no cooperative environment can last without competitive actions to maintain balance. Thus, competition and cooperation are intertwined, each fostering the other and shaping the strategic landscape (Kenworthy, 1996).

History demonstrates that no competitive contest can be won without cooperating with some rivals to prevent being attacked from all sides. Likewise, no cooperative environment can be sustained without competitive actions to enforce stability. Cooperation creates new forms of competition, and competition fosters new forms of cooperation, highlighting their interconnected nature (Bilotkach & Hüschelrath, 2019).

In summary, strategic supremacy is about effectively leveraging perception, winning customers' loyalty, and skillfully combining competition and cooperation to shape a favorable competitive environment. This dynamic process ensures sustained success and influence in the market (D'Aveni, 1999).

The Importance of Strategic Supremacy

D'Aveni (1999) strategic supremacy importance can be summarized through a series of points as follow:

1- One of the crucial topics in the field of strategic management is an essential factor in achieving organizational goals of sustainability, growth, and adaptability (Paulraj, 2011).

2- Aid managers in establishing a more accurate assessment of strengths and weaknesses within organizations, as well as identifying opportunities and threats (Valentin, 2001).

3- Enhancing the organization's capacity to innovate new products and services, swiftly establishing dominance within the industrial and service sectors over competitors. The introduction of novel services acts as a catalyst for prolonged organizational stability. (Grewal & Tansuhaj, 2001)

4- Formulating diverse strategies to uphold operational foundations within the competitive landscape necessitates an examination of competition norms in each environment. Understanding strategies that achieve strategic dominance, their preservation, and sustainability is imperative in providing an appropriate environment to enhance strategic supremacy (Yarger, 2006).

5- Directing organizational resources within its designated sphere and adopting a successful planning strategy for its services, aligned with the fluctuating environment, while considering anticipation and surprise upon entering nascent ventures, is crucial for securing operational foundations and realizing mutual interests of stakeholders (Katz, 2013).

Strategic supremacy in a business organization is crucial because it enables the company to effectively navigate the dynamic market landscape. It involves making decisions that give the company a competitive edge, aligning resources with long-term goals, and adapting to changing circumstances. Strategic supremacy fosters innovation, helps exploit opportunities, and mitigate risks, ultimately leading to sustainable growth and success.

Dimensions of Strategic Supremacy

The dimensions of strategic supremacy, as proposed by D'Aveni, (2001); Al-Bashqali & Sultan, (2019), include the sphere of influence, competitive compression and competitive configuration.

1- Sphere of Influence

In dynamic industries, relying solely on traditional portfolio models that emphasize core competencies and synergies can be perilously limited. Historical examples from politics and business reveal that framing an organization as a cohesive sphere of influence is far more effective for achieving growth, wealth, and power. This sphere is a comprehensive competitive arsenal, encompassing offensive, defensive, and reserve strategies. It includes core geo-product markets, vital interests, buffer zones, pivotal areas, and forward positions, each with distinct strategic purposes. A cohesive sphere of influence empowers an organization to attain and maintain strategic dominance from its center to its outer edges (D'Aveni, 2004).

The sphere of influence concept offers a more robust framework for growth, wealth, and power compared to traditional portfolio models. Traditional portfolios focus on related businesses or strong niches within specific markets to achieve synergies by leveraging core competencies. However, this approach can limit a company's presence in the broader competitive space and overlook opportunities and threats beyond the immediate business scope (D'Aveni, 2004).

For instance, a synergy-based portfolio might miss significant shifts like Kodak's unpreparedness for digital photography (Kestel, 2004). Seemingly unrelated threats and opportunities can shift the balance of power towards competitors with broader spheres of influence (Porter, 2008).

While related diversification seems to avoid some pitfalls of unrelated business groups, the evidence is mixed. Studies show that highly diversified groups can outperform peers in several countries, contradicting the belief that unrelated diversification is less profitable.

Historical examples also vary: Coca-Cola's focused strategy succeeded (Singaram et al., 2019), whereas Motorola's adherence to its core competencies led to decline.

General Electric exemplifies a successful deviation from traditional wisdom, thriving with a diverse portfolio from light bulbs to financial services. This suggests that senior managers might be pursuing broader strategic goals rather than just synergies(Didia & Ateke, 2017).

D'aveni (2010) mentioned that the sphere of influence approach emphasizes using portfolio elements for competitive purposes. Beyond immediate synergies, parts of a portfolio can help maneuver against competitors, enter unrelated markets, and secure future positions. Traditional models are often too static, focusing narrowly on the present and missing dynamic competitive interactions. Viewing a portfolio as a sphere of influence involves each part contributing to overall power. A company's power starts from a secure core and extends into other markets to enhance and defend its position. This strategy focuses on protecting current assets, absorbing new wealth efficiently, and positioning for future shifts. This framework reveals a portfolio as a collection of strategic intentions rather than just core competencies and synergies. It helps identify counterintuitive opportunities that can establish dominance within a company's sphere and the larger competitive space. The sphere of influence concept enables a broader, more insightful view of the competitive landscape, contributing to long-term strategic supremacy.

Key purposes of expanding a sphere include:

- Establishing dominance over lesser powers within your sphere
- Defending against other great powers in nearby territories
- Shifting the balance of power within the competitive space
- Sharing and spreading wealth and technology throughout your sphere

2- Competitive Compression

Great powers have historically established and maintained their spheres of influence through continuous evolution and strategic growth (Grygiel, 2007). Typically, growth enhances the power of a sphere, except when expansion into new markets consumes more

resources than it generates. Effective management of growth requires balancing strategies against the competitive pressures exerted by rivals. This begins with formulating a natural growth pattern—a strategic approach to expanding one's sphere of influence based on the competitive landscape, internal capabilities, and strategic goals. Simultaneously, rivals employ four primary compression strategies to thwart or reverse progress: managed containment, gradual constriction, sequential stripping, and toppling dominoes (D'aveni et al., 2001). The challenge is to navigate these forces of competitive compression so that expansion strengthens rather than depletes the sphere's power. The evolution of spheres has historically involved accumulating power and selectively adapting growth strategies to overcome obstacles posed by rival great powers (Herd, 2010).

D'aveni (2010); D'aveni et al. (2001) discussed the dynamics of rivalry, in the context of sphere expansion, Newton's third law of motion—for every action, there is an equal and opposite reaction—aptly describes the dynamics between growth and competitive compression. As entities strive to expand their spheres, rivals react by applying pressure, creating a phenomenon termed competitive compression. This can be likened to inflating a balloon: increased pressure on one side compresses expansion at that point, causing other areas to bulge. However, excessive inflation risks bursting the balloon, much like overextending a sphere of influence can lead to collapse due to external pressures. Competitive compression can manifest variably, sometimes targeting specific zones of a sphere more intensely, at other times applying a uniform squeeze. Compression may stem from a single rival or a coalition of competitors. This external pressure, as much as the sphere's internal growth strategy, drives its evolution. Competitive compression typically follows one of four patterns: managed containment, gradual constriction, sequential stripping, or toppling dominoes. Managed containment aims to restrict growth, gradual constriction narrows boundaries, sequential stripping removes vital interests or critical zones, and the toppling dominoes strategy involves dismantling buffer zones incrementally to undermine the core.

The chosen pattern of competitive compression depends on two factors: the resources available to the aggressor relative to the target sphere, and the aggressor's time horizon, with larger threats necessitating quicker action. These compression patterns, while not the sole challenges to growth, frequently play a significant role in the decline of spheres seeking to maintain or expand their supremacy.

3- Competitive Configuration

Competitive configuration is a strategic approach that generates competitive pressure among organizations by fostering rivalry among industry competitors (Porter, 2008). It involves diagnosing the industry's most formidable contenders, examining their competitive formations and strategic orientations, and leveraging alliances and partnerships(Malhotra et al., 1998).

Competitive configuration orchestrates a strategic environment where organizations engage in heightened rivalry. Key elements include diagnosing industry contenders, where formidable competitors are identified and analyzed to understand their strategic moves (Porter & Strategy, 1980). Competitive formations within companies involve structuring internal teams for competitive intelligence, strategic planning, and market analysis to respond effectively to competition. Competitor analysis examines competitors' strategies, market positions, and customer bases to gain insights for informed strategic decisions (Köseoglu et al., 2016). Deliberate competitive training systematically trains employees to understand competitive dynamics, fostering a culture of continuous improvement and innovation (Brown & Sitzmann, 2011).

A critical aspect of competitive configuration is the strategic orientation towards alliances and partnerships, which can be significant sources of competitive advantage by providing access to new markets, technologies, and expertise (D'aveni et al., 2001). Forming alliances involves establishing joint ventures, partnerships, and collaborations to pool resources, share risks, and leverage strengths. Partnerships as competitive advantages create unique value propositions that are difficult for competitors to replicate. Ensuring internal capabilities involves regularly assessing and securing internal processes, resources, and

competencies to maximize the benefits from external partnerships (Gibbs & Humphries, 2009).

While competitive configuration offers benefits, it also presents challenges. The complexity of partnerships requires careful planning and execution to align goals and values and ensure effective collaboration. Maintaining flexibility is crucial as organizations must stay adaptable in a rapidly changing market environment by regularly reassessing alliances, capabilities, and market conditions (Brinkerhoff, 2002).

Competitive configuration involves generating competitive pressure through deliberate processes of competitive training and strategic alliances. By diagnosing industry contenders, analyzing competitors, forming strategic partnerships, and ensuring robust internal capabilities, organizations can build resilient competitive configurations. This approach enhances market positions and ensures long-term success in a hypercompetitive environment. Through careful planning, execution, and continuous assessment, organizations can leverage competitive configuration to achieve sustained competitive advantage in today's dynamic business landscape.

2.1.3 Self-Managed Teamwork

A self-managed team is a group of individuals who are responsible for organizing, planning, and executing their own work without the need for constant supervision (Poe, Zamora, & Quinain, 2019). Members of such teams typically have autonomy in decision-making, problem-solving, and collaborating to achieve their goals (Adrian, 2023). This approach can lead to increased motivation, innovation, and ownership of the work, but it also requires effective communication, trust, and clear objectives to be successful (Ellis, 2023)

The Historical Development of Self-Managed Teamwork

In recent years, there has been significant discourse regarding the advantages presented by self-managed teams. These teams, alternatively referred to as self-directed teams, natural teams, or semiautonomous work groups, have garnered substantial attention and desire within various organizations. The concept of these teams' dates back to the 1940s, initially

emerging as a means of involving employees more deeply in organizational processes. Since then, a plethora of literature, comprising books and articles, has explored this subject, outlining recommended approaches for cultivating self-managed teams. These resources commonly detail the requisite activities and procedural stages for organizations to establish such teams. Moreover, they expound upon the essential proficiencies demanded of both team leaders and members, as well as delineate the progressive phases that organizations traverse on their path to realizing the integration of self-managed teams (Silverman, & Propst, 1996).

In 1990, a collaborative study conducted by Development Dimensions International, the Association for Quality and Participation, and Industry week delved into prevalent practices related to self-directed teams. The study presented a comprehensive portrayal of a self-directed team as follows: "A self-directed team is comprised of a group of employees who bear the day-to-day responsibility for their own management and the tasks they undertake. Members of such teams are typically entrusted with various responsibilities, including the allocation of job assignments, formulation and scheduling of work processes, decision-making with regard to production-related matters, and active resolution of problems that arise. Importantly, these teams operate with minimal direct supervision and are distinct from quality circles or cross-functional task groups. Noteworthy characteristics of self-managed teams work as emerging organically through direct interpersonal engagements, assuming responsibility for generating well-defined outcomes, managing a synergistic array of interrelated duties, and exercising self-governing authority in the implementation of allocated assignments. This delineation elucidates the conclusive objective that work groups aspire to achieve as they progress into self-regulating teams, a pivotal dynamic for organizational entities.

The historical development of self-managed teamwork has shown a progression towards more autonomous and collaborative work structures. Aiming to improve efficiency and employee engagement. Self-managed teams continue to evolve with the rise of remote work and digital communication tools, enabling more flexible collaboration.

The Concept of Self-Managed Teamwork

Cunningham, (2017) outlines the evolution of self-managed teams unfolds across several distinct stages. Initially, during the late 20th century, the focus was on empowerment and autonomy. This era saw organizations endeavoring to bestow employees with greater decision-making latitude, leading to the inception of self-managed teams. These teams were granted control over work processes, fostering a sense of ownership and accountability (Stray, Moe, & Hoda, 2018)

The next phase involved interdisciplinary collaboration. In response to the need for cross-functional cooperation and the breakdown of silos, self-managed teams began incorporating members from diverse backgrounds and skill sets. This approach facilitated the exchange of ideas from various vantage points, ultimately contributing to heightened levels of innovation and problem solving (Morgan, Pullon, & McKinlay, 2015).

With the advent of communication technology, the landscape shifted again. Self-managed teams adapted to the rise of digital tools, giving rise to virtual teams that transcended geographical constraints. Effective collaboration across remote settings necessitated the development of novel strategies for communication and coordination (Beck et al., 2018)

The subsequent stage embraced flexible work environments. Recognizing that effective teamwork didn't necessarily require a traditional office setup, the concept of self-managed teams expanded to accommodate remote work and flexible hours. This transition hinged on maintaining clear objectives, communication channels, and accountability measures (Raziq, & Maulabakhsh, 2015; Belbin & Brown, 2022).

The evolution then intersected with agile methodologies. Self-managed teams aligned with agile principles, prioritizing iterative processes, swift adaptation to changes, and continuous improvement. This approach enabled teams to respond adeptly to the swiftly shifting demands of the market and the customers (Brosseau et al., 2019).

A pivotal transformation also emerged in how performance is gauged. Rather than focusing solely on individual outputs, the emphasis shifted towards evaluating collective outcomes and team dynamics. This approach encouraged cohesive collaboration and shared objectives (Sendjaya et al., 2019; Nielsen et al., 2017).

Finally, leadership roles underwent a metamorphosis. Traditional managers assumed roles as facilitators and coaches, actively removing obstacles and providing resources to support self-managed teams. The hierarchical approach gave way to a more enabling environment (Barker, 2016)

The evolution of self-managed teams reflects a growing recognition of their potential to drive innovation, agility, and employee engagement. From empowering individuals and fostering collaboration to adapting to technological advancements and flexible work arrangements, self-managed teams have come a long way in reshaping how work is organized and accomplished within organizations.

The Importance of Self-Managed Teamwork

The framework comprises several key roles, each with distinct functions that contribute to effective organizational functioning These roles encompass maintaining both personal and organizational values and principles, ensuring the completion of team tasks, structuring the team's work environment, overseeing team processes, engaging in broader organization-wide systems, participating in organizational strategies at a higher level, and assuming responsibility for managing team processes (Barker, 2016). The specific responsibilities associated with each role are delineated, illustrating their integration within the organization's overarching operations. Furthermore, guidance is offered on how to introduce this comprehensive model to your organization and work group, fostering a better understanding of its implementation and benefits (Martela, 2019).

Self-managed teams are important as they foster autonomy (Magpili & Pazos, 2018), accountability, and collaboration among team members, they can lead to increased innovation (Lee & Edmondson, 2017)., better problem-solving, and higher job satisfaction (Jung & Yoon, 2016). These teams often adapt more quickly to changing situations and

promote individual growth, ultimately contributing to a more efficient and productive work environment (Belbin & Brown 2022).

The evolution of self-managed teams has been significant over time. Initially, they emerged as a way to increase employee empowerment and engagement. However, as organizations recognized their benefits, the concept evolved to incorporate more sophisticated strategies for team dynamics, decision-making, and communication. With advancements in technology and a greater focus on flexibility, remote work, and cross-functional collaboration, self-managed teams have adapted to new challenges and opportunities. This evolution reflects a growing understanding of how to optimize team structures for both individual and organizational success.

Measurement Indicators of Self-Managed Teamwork

Juuti (2017); Lee & Edmondson (2017); Barker (2016) posited that the efficacy of self-managed teams is contingent upon the presence of specific requisite attributes. Subsequent to this assertion, a comprehensive enumeration and explication of the diverse elements influencing the triumph and efficiency of self-managed teams is provided as:

Joint Responsibility: Successful self-managed teams allocate responsibility among all members, fostering a sense of ownership and commitment to the project's success (Carte, Chidambaram & Becker, 2006). This vested interest inspires heightened dedication, ideation, and meticulous analysis among team members, thereby augmenting the project's triumph. This collaborative endeavor ultimately yields a more prosperous collective outcome.

Interdependence: A pivotal facet underpinning the prosperity of self-managed teams. Through mutual reliance for information, team members cultivate trust in their peers' capabilities to deliver, thus affording them the capacity to concentrate on their respective obligations. Absent trust and interdependence, the trajectory of team accomplishments becomes uncertain, rendering interdependence a pivotal determinant in attaining triumph.

Empowerment: Empowered self-managed teams adeptly execute project plans devoid of requisites for further authorization. The organization endows the team with autonomy and prerogative to advance devoid of imposition from upper echelons. Nevertheless, stringent regulations regarding communication and execution of decisions wield amplified efficacy. The cultivation of a milieu where the team shapes decisions and allocates responsibilities internally assumes critical importance for the fruition of projects.

Shared Objective: The amplification of team accomplishments materializes when a collective goal is delineated at the project's inception. Each constituent partakes in endeavors congruous with this objective, propelling the project forward. The team bears the mantle of monitoring progression toward the ultimate objective, for each individual's contributions coalesce to shape the project's overarching success.

Training: Flourishing self-managed teams necessitates protracted, comprehensive training spanning administrative, technical, and interpersonal proficiencies. Such thoroughgoing training is imperative to foster in team members the art of decision-making, problem-solving, and rudimentary managerial acumen. To ensure members are aptly equipped to adeptly manage internal processes and function efficaciously within a collaborative framework, organizations must impart exhaustive training.

Time and Resources: The leadership's disposition to invest time, evince patience, and furnish self-managed teams with an ample resource pool comprising equipment, training, materials, and technology is paramount for orchestrating an efficacious transition to such teams.

Risk Propensity: Management's readiness to embrace risk assumes pivotal significance during a company's shift toward self-managed teams, given the potential for high costs and formidable challenges. Employees' willingness to relinquish conventional roles in favor of more demanding positions within self-managed teams stands as a testament to their endorsement of this paradigm shift.

The evolution in measuring indicators of self-managed teamwork is a positive development. It reflects a growing recognition of the importance of team dynamics, collaboration, and individual contributions within organizations. New methods and tools for measuring these indicators can provide more accurate insights into team performance and help organizations make informed decisions to enhance productivity and employee satisfaction.

2.2 Previous Studies

A Study of (Wageman, 1997) entitled:

Critical Success Factors for Creating Superb Self-Managing Teams

This study aimed to investigated professional-level teams within research and development facilities across three corporations in the electronics industry in California. Data collection involved conducting interviews with key personnel at each facility and distributing 378 questionnaires to professionals and managers. The study explored management's role in fostering teamwork, the impact of organizational and human resources practices on team performance, and the implications of transitioning to self-managing teams. Despite employing varied strategies to cultivate and transition teams, these organizations were collectively examined within the study.

A Study of (Millikin et al., 2010) entitled:

Self-management competencies in self-managing teams: Their impact on multi-team system productivity

The study aimed to examine how the composition of individual capabilities within self-managed teams translates into greater effectiveness for multi-team systems (MTS) in which the teams are embedded. This study investigated how a broad range of self-management competencies among team members aggregate to form a collective construct that influences the productivity of a team network.

In a semiconductor plant, surveyed 716 members from 97 self-managed teams across 21 MTS from the US. The findings revealed that MTS comprising teams whose members widely practice self-management strategies attain higher productivity gains. Furthermore,

multi-team systems consisting of highly cohesive teams of self-managers were found to be the most productive, as they can direct resources more efficiently, thereby providing a wider range of an integrated product portfolio.

A Study of (Al-Zu'bi, 2017) entitled:

Diagnosis of Perception Strategic Planning to Ensure Strategic Supremacy

This study aimed to study the impact of the perception of strategic planning on strategic supremacy within information technology companies in Jordan. The study encompassed all employees across 116 companies, with data collected through 218 questionnaires. Findings indicated that mission did not positively influence the sphere of influence and competitive compression, yet it did positively affect competitive configuration. Notably, strategies were the sole dimension displaying a positive effect across all dimensions of strategic supremacy. The study recommended that Jordanian businesses prioritize ongoing assessment of community interest in strategic planning attributes, employing various methods and tools to ensure sustained attention and prevent regression in these companies' strategic planning endeavors.

A Study of (AL-SHEIKLI & Hasan, 2020) entitled:

The Effect of Strategic Supremacy on Strategic Success A Case Study in Thi Qar Governorate

This study aimed to study the impact of strategic supremacy on strategic success through a case study conducted in Thi Qar province. The research variables under examination have garnered increased attention due to their significance in responding to rapid environmental changes and enhancing service delivery to citizens, both locally and internationally. Data collection involved 75 department managers and staff from the Diwan of Thi Qar province, utilizing questionnaires, visits, and personal interviews. Statistical analyses, including mean, percentage, standard deviation, Pearson's correlation test, simple linear regression, and multiple linear regression, were employed to analyze the collected data. The findings reveal a lack of interest in the research variables, hindering the effective utilization of influence for achieving strategic success. Additionally, deficiencies in strategic vision and the need for an effective motivational culture among employees were identified. The study emphasizes the

importance of leveraging constitutional control, motivating employees, fostering loyalty, and cultivating a clear strategic vision for successful policy implementation.

A Study of (Mohammed & Mohammed, 2021) entitled:

The Relationship Between Ambidextrous Leadership Behaviors and Strategic Supremacy Research Analysis in the Ministry of Construction, Housing, Municipalities and Public Works.

This study aimed to explore the correlation between Ambidextrous Leadership Behaviors and strategic supremacy while assessing the prevalence of these behaviors among administrative leaders within the Iraqi ministries. The goal was to develop strategies fostering an ambidextrous leadership culture that promotes inclusivity, creativity, innovation, comprehensive team management, and its independence to achieving strategic supremacy. Data collection involved an intentional sample of 89 administrative leaders from the ministry. Statistical analysis was conducted using SPSS and AMOS software, employing various statistical methods. Results indicated significant correlation and influence relationships between major variables and sub-dimensions, emphasizing the pivotal role of ambidextrous leadership in attaining strategic supremacy.

A Study of (Chatterjee et al., 2021) entitled:

The Effect of AI-Based CRM on Organization Performance and Competitive Advantage: An Empirical Analysis in the B2B Context.

The study sampled 39 manufacturing and service organizations listed on the Bombay Stock Exchange in Mumbai, India. Among these, 27 were identified as actively engaged in or considering the adoption of AI-CRM systems for B2B relationship management. Data analysis employed the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique, chosen for its ability to handle non-normally distributed data without sample restrictions. The research aimed to evaluate the impact of AI-CRM on B2B organizational performance and competitive advantage.

Findings indicated that the quality of the AI-CRM implementation process emerged as the primary determinant of overall AI-CRM effectiveness within organizations. Additionally, employees' skills, attitudes, and abilities, collectively referred to as individual

fit, positively influenced the outcomes of AI-CRM application for relationship management. This underscores the critical importance of both implementation quality and employee capabilities in shaping AI-CRM outcomes in the B2B context.

Moreover, the study highlighted AI integration's role in facilitating knowledge creation within organizations, leading to more informed decision-making and improved firm performance. Furthermore, organizational fit, encompassing structural, task-related, technological, and personnel factors, was found to positively impact AI-CRM effectiveness.

A Study of (Hameed Saeed & Rashid Sultan, 2022) entitled:

The Role of Smart Leadership in Achieving Strategic Sovereignty: An Exploratory Study of the Opinions of A Sample of Administrative and Scientific Leaders at (Newroz, Cihan) Private Universities in the City Of Dohuk / Kurdistan / Iraq

This study aimed to focus on exploring the role of smart leadership in attaining strategic supremacy by examining data from administrative leaders at two private universities in Dohuk. Drawing from a literature review, a hypothetical model was formulated to ascertain the correlation and impact between smart leadership and strategic dominance. Data collection employed a questionnaire comprising 49 items distributed among university respondents, with all collected responses deemed valid for analysis. Statistical methods, including SPSS, were utilized for data analysis. The study findings revealed a significant correlation and impact of smart leadership on strategic supremacy, offering valuable insights into their relationship. The research underscores the importance of enhancing academic leadership levels within these institutions to adapt to evolving market dynamics and attain strategic supremacy. It suggests that competitive positioning should stem from a thorough analysis of competitors' capabilities, market standing, and market share, necessitating a continuous state of dynamism to thrive amidst competitive pressures.

A Study of (Khatib & Alshawabkeh, 2022) entitled:

Digital Transformation and Its Impact on Strategic Supremacy Mediating Role of Digital HRM: an Evidence from Palestine

This study aimed to assess the influence of digital transformation and digital human resources management on strategic supremacy within the competitive landscape of

Palestinian cellular telecommunications companies. The research focuses on two major companies in Palestine, namely Jawwal and Ooredoo, targeting a sample of 420 top and middle managers. These companies engage in intense competition to gain market share through the provision of additional services, heightening competitive pressures. The findings indicate a positive and significant impact of digital transformation and digital human resources management on strategic supremacy within these companies.

A Study of (Qasaimeh & Jaradeh, 2022) entitled:

The Impact of Artificial Intelligence on the Effective Applying of Cyber Governance in Jordanian Commercial Banks.

This study aimed to study the impact of AI on the effective implementation of cyber governance in Jordanian commercial banks analyzed 201 valid questionnaires from employees in accounting departments, internal auditors, and programmers across 13 banks listed on the Amman Stock Exchange. The study aimed to identify how neural networks and other AI techniques (including expert systems, genetic algorithms, and smart agents) influence cyber governance. The results demonstrated a significant interdependence between these AI applications and the effectiveness of cyber governance, suggesting that AI technologies enhance governance practices. Consequently, the study recommends that Jordanian businesses increase their reliance on AI to improve cyber governance and align business operations with its strategies.

A Study of (Abazeed, 2022) entitled:

The Impact of Dynamic Capabilities on Strategic Supremacy Through Organizational Immunity at Jordanian Telecommunication Companies.

This study aimed to study the impact of dynamic capabilities on strategic supremacy in Jordanian telecommunication companies found that these capabilities significantly influence strategic supremacy through organizational immunity. Analyzing a sample of 139 managers and department heads from the three largest companies, the research revealed that dynamic capabilities affect organizational immunity, which mediates the relationship between these capabilities and strategic supremacy. The study recommends that companies focus on key areas such as learning, integration, organizational memory, benchmarking, and strategic

alliance management. It concludes that dynamic capabilities are crucial for achieving strategic supremacy, both directly and through enhanced organizational immunity, thereby improving overall strategic performance.

A Study of (Jankovic & Curovic, 2023) entitled:

Strategic Integration of Artificial Intelligence for Sustainable Businesses: Implications for Data Management and Human User Engagement in the Digital Era.

This study aimed to delves into the critical role of integrating AI within sustainability efforts in for-profit enterprises from Serbia. As organizations increasingly adopt AI-driven solutions, this study explores the significant implications of AI integration on two key aspects: data management within companies and the diversification of human engagement in the digital ecosystem. The primary objective is to analyze the AI adoption index among a sample of 240 medium and large-sized companies, excluding new enterprises, small startups, and low-scale AI applications.

Initially, the paper examines how AI technologies enhance data management by enabling efficient data collection, analysis, and utilization. It highlights the importance of AI-driven data analytics in improving decision-making processes, optimizing resources, and enhancing overall operational efficiency for sustainable practices. Subsequently, the research investigates how AI-driven personalization, omnichannel interactions, and recommendation systems substantially affect user experiences, satisfaction, and loyalty, thereby contributing to sustainable business growth.

The findings reveal three distinct profiles of companies—low, moderate, and high—based on their AI adoption index and other critical dimensions. Future research should aim to identify the prerequisites for successfully planning AI adoption index improvements, utilizing a data-driven approach.

A Study of (Malik et al., 2023) entitled:

Artificial intelligence (AI)-assisted HRM: Towards an extended strategic framework

This study aimed to study how AI impacts human resource management (HRM), thereby transforming the nature of work, workers, and workplaces. Despite the growing

recognition of AI-assisted HRM as a strategy for enhancing organizational productivity, the academic literature has yet to provide a comprehensive strategic framework to guide HR managers in its adoption and implementation. However, the existing research presents an opportunity to develop such a framework. This systematic review of 67 peer-reviewed articles addresses this gap by critically examining the organizational and employee-centric outcomes of AI-assisted HRM and developing a strategic framework to guide its practice and inform future research.

2.3 What Distinguishes This Study?

The current study is unique in that it focuses on business organizations with green buildings in Jordan, a setting that hasn't been thoroughly explored in previous studies.

The current study examines the moderating impact of self-managed teamwork, a significant but little-researched factor in the connection between AI applications and strategy supremacy.

The empirical research design used in the current study, which also includes data collection through surveys, the sample will encompass both upper and middle management, providing objective and analytical responses. Enables a more thorough understanding of the relationships between the variables.

2.4 Business Organizations with Green Buildings in Jordan

Green buildings, known as sustainable buildings or high-performance buildings, are designed and constructed with a focus on reducing their overall impact on the environment and human health. These buildings utilize sustainable materials, energy-efficient systems, and innovative design strategies to minimize their carbon footprint and resource consumption (Liu et al., 2022). The key characteristics of green buildings include:

1. Energy Efficiency: Green buildings are designed to reduce energy consumption through features such as high-performance insulation, energy-efficient appliances, and lighting systems. This leads to lower energy bills for occupants and a reduced overall environmental impact (Liu et al., 2022).

2. Water Efficiency: Green buildings incorporate water-saving fixtures, and rainwater harvesting systems to minimize strain on local water resources (Meena et al., 2022)
3. Sustainable Materials: Green buildings use environmentally friendly materials such as recycled content, rapidly renewable resources, and low-emission products to reduce waste and minimize the building's environmental footprint (Alshboul et al., 2022)
4. Indoor Air Quality: Green buildings prioritize indoor air quality by using adequate ventilation systems, and natural daylight that create a healthy and comfortable indoor environment for occupants (He, 2022).
5. Waste Reduction and Recycling: Green buildings incorporate strategies to reduce construction waste, promote recycling, and encourage sustainable waste management practices throughout the building's lifecycle (Ferrari et al., 2022).

The benefits of green buildings are numerous and far-reaching. They not only reduce environmental impact and improve occupant health and well-being but also offer long-term cost savings through reduced energy and water consumption, lower maintenance costs, and increased property value (Liu et al., 2022).

The Jordanian Green Building Council (Jordan GBC): Classifying Buildings as Green

The Jordanian Green Building Council (Jordan GBC) is a non-profit organization dedicated to promoting sustainable building practices in Jordan. One of the key roles of the JGBA is to classify buildings as green or otherwise based on a set of established criteria and standards. The process of classifying buildings as green by the JGBA typically involves the following steps:

1. Assessment Criteria: The Jordan GBC has developed a set of assessment criteria based on international green building standards such as LEED (Leadership in Energy and Environmental Design) and BREEAM (Building Research Establishment Environmental Assessment Method). These criteria cover various aspects of sustainable building design and construction, including energy efficiency, water conservation, materials selection, and indoor environmental quality.

2. Documentation Review: Building owners or developers seeking green building certification from the Jordan GBC are required to submit documentation related to the design, construction, and operation of the building. This documentation may include architectural drawings, specifications, material specifications, energy models, and performance data.
3. On-Site Verification: The Jordan GBC may conduct on-site visits to verify that the building meets the green building criteria specified in the documentation. This may involve inspecting the building's energy systems, water-saving features, indoor air quality measures, and overall sustainability practices.
4. Certification: Once the building has been assessed and verified to meet the Jordan GBC green building criteria, it may be awarded a green building certification or rating. This certification serves as a recognition of the building's sustainable design and construction practices and may provide various benefits to the building owner, such as enhanced marketability, increased property value, and access to financial incentives.

The Jordanian Green Building Council (Jordan GBC) plays a vital role in promoting sustainable building practices in Jordan by classifying buildings as green based on established criteria and standards. Through its certification process, the Jordan GBC recognizes and rewards buildings that demonstrate a commitment to sustainability and environmental responsibility, ultimately contributing to a greener and more sustainable built environment in Jordan.

By continuing to promote and support green building practices, organizations like the Jordan GBC can help drive positive change in the construction industry, reduce environmental impact, and create healthier and more sustainable communities for current and future generations.

According to the classification of the Jordanian Green Building Council, the scope of green buildings currently encompasses various sectors such as banks 4%, universities 10%, engineering firms 60%, Hospital & associations 4%, and Trade & business 23% represented by the listed companies with total of 52 company below, Figure (2-1).

Figure (2-1): Business Organizations with Green Buildings in Jordan

Source: Prepared by the Researcher Based on the Jordanian Green Building Council (Jordan GBC) Reports

CHAPTER THREE

Study Methodology

(Method and procedures)

CHAPTER THREE
Study Methodology (Method and procedures)

3.1 Introduction

This chapter illustrates several methods and procedures that were used to accomplish the objectives of the study. This chapter consists of the study methodology, the study population and sample size, the study methods used to verify the validity and reliability of data collection, the statistical methods used to analyze the data in order to answer the study hypotheses, and the study procedures. Figure (3-1) shows the method and procedures for this chapter.

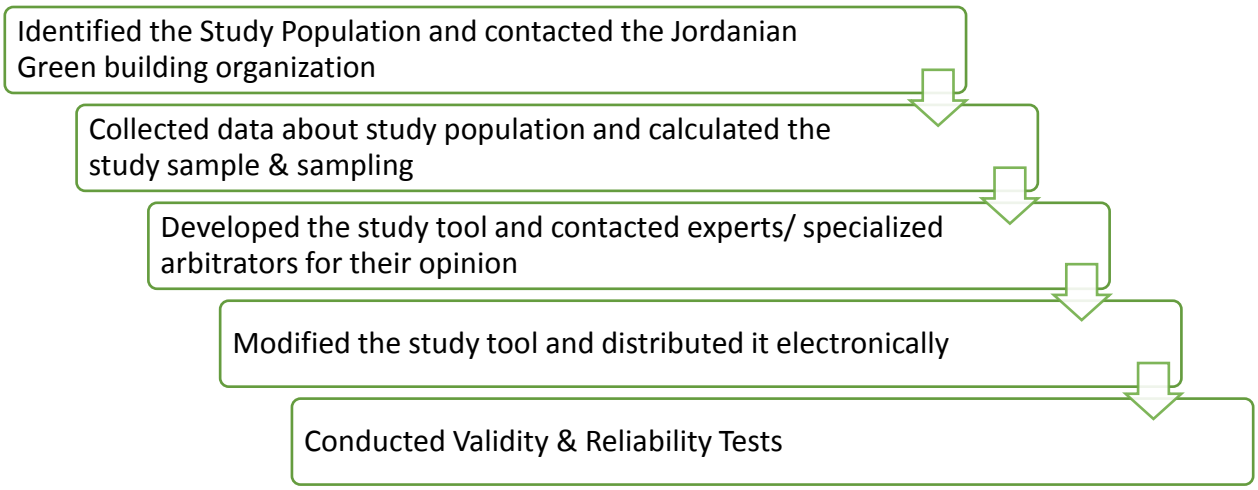

Figure (3-1): The Methods and Procedures for this Chapter

3.2 Study Approach

This study is considered as a causality study, which is an analytical descriptive approach that be used to study the Impact of AI Applications on Strategic Supremacy: The Moderating Role of Self-Managed Teamwork A field study on business organizations with green buildings in Jordan.

3.3 Study Population

Business organizations with green buildings in Jordan confer extensive advantages to various participants in the building industry, encompassing both building occupants and the broader society (Kibert, 2016). Typically, green buildings encompass enhanced air quality, ample infusion of natural illumination, provisions for scenic vistas, and effective noise

moderation (Aroul & Hansz, 2012). These attributes yield advantageous outcomes for building occupants, thereby enhancing the quality of their working or living environments (Nadeem et al., 2021).

The current study is a purposeful field because it was limited to organizations with green buildings exclusively, and there were 5 organizations the field of study consisting of 4 categories (Banks, Engineering companies, Hospitals, and Trade & Business).

The inclusion of five specific organizations, as delineated in Table 3-1, Name and size of the organization, was guided by the following criteria:

1. Demonstrated full collaboration with the researcher.
2. Relevance to strategic supremacy within the business sphere.
3. Apply the AI applications pertinent to this study (fuzzy logic and neural networks) for commercial business and profitable purposes.

Table 3-1: Name and Size of Green Buildings Organization

Sector	Organization Name	Nu. of Employee
Banking	Housing bank	2185
Engineering Company	Arab Technical Group	126
	Izzat Marji Group	195
Hospital	Istiklal Hospital	353
Trade & Business	Orange	506
Total		3365

Source: Prepared by the researcher based on The Jordanian Green Building Council (Jordan GBC) Reports

3.4 Study Sample

Given the variation in the numbers of workers in these organizations, the researcher resorted to the proportional stratified random sample method by:

- Dividing the organizations into sectors according to activities.
- Determine the total number of employees in all sectors, which was 3365.
- Determine the proportional sample size based on the size of the population. It was 344, which represents the average size of two samples combined, 3000 and 3500, which is (341, 346) according to the tables (Sekarn & Bougie, 2016:264). Data collected from employees of green buildings in Jordan.

Table (3-2) shows the result sample size for each of the sectors according to the following equation:

$$= \frac{Size\ of\ Sector * size\ of\ the\ samples}{Community\ size}$$

Table (3-2): Study Sampling Method, Sample Size, Population, and Proportional Stratified Random Sampling

Sector	Org. Name	Study Population /Sector	Sample	Study Sampling	Percentage
Banking	Housing bank	2185	344	223	65%
Engineering Company	Arab Technical Group	321		33	10%
	Izzat Marji Group				
Hospital	Istiklal Hospital	353		36	10%
Trade & Business	Orange	506		52	15%
Total		3365	344	344	100%

Source: Prepared By the Researcher Based on the Jordanian Green Building Council (Jordan GBC) Reports

3.5 Data Collection Methods (Tools)

The data is used to achieve the purpose of the study can be divided into two groups:

Secondary data: Data collected from books, journals, thesis, research, articles, working papers, annual reports, and the worldwide web.

Primary data: Includes the questionnaire, which was developed by the researcher according to the steps described below.

Questionnaire

A questionnaire was developed as a study tool based on previous studies' data collection from participants, as a questionnaire is one of the most important data collection tools in most analytical studies.

The researcher developed a questionnaire consistent with the subject of the research "The Impact of AI applications on strategic supremacy: the moderating role of self-managed teamwork" (Appendix 2)

Below are the steps for developing the questionnaire:

Preparing questionnaire Item

The questionnaire was developed by referring to the sources provided in table (3-3)

Table (3-3): Questionnaire's Variables' & Dimensions' References

Study Variables	References
Independent Variable **Artificial Intelligence Applications** -Fuzzy Logic -Neural Networks	Montagno, Sexton & Smith (2002). Al-Darraji et al. (2021). Hajirezaie et al. (2010). Ren, Yusuf, & Burns, (2003). Fraihat et al. (2023).
Dependent Variable **Strategic Supremacy** -Sphere of Influence -Competitive Compression -Competitive Configuration	الباشقالي , محمود, سلطان, & حكمت. (2021). Abazeed (2022). Rashid & Muttar (2020). Khatib & Alshawabk (2022). Jarrar & Al Shawabkeh (n.d.)
Moderating Role **Self-Managed Teamwork**	Power & Waddell (2004). Collins, Chou, & Warner (2014). Gilboa & Tal-Shmotkin (2012).

Source: Prepared by the researcher based on Previous Studies

consisted of (64) questions constructed in Figure (3-2)

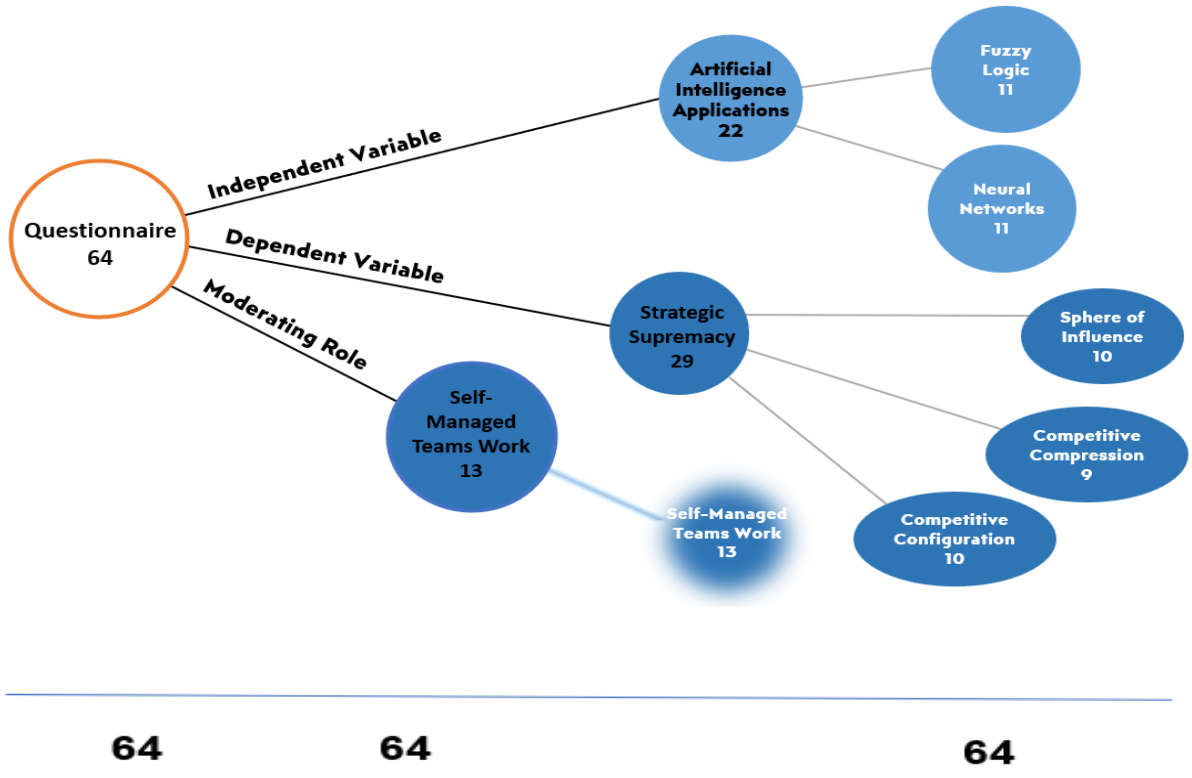

Figure (3-2): Questionnaire's Construction

3.6 Study Validity

The evaluation of validity revolves around determining the extent to which the study variables accurately reflect the intended constructs and are aligned with the study's objectives.

The validity of the study tool was verified through: Face Validity and Construct Validity, as follows:

3.6.1 Face Validity

The study tool was tested for face validity by distributing a questionnaire to a group of specialized academic arbitrators in Business Administration (Appendix 3). The initial questionnaire had 64 points and included 22 items on AI Applications, 29 on Strategic Supremacy, and 13 on the moderator's Self-Managed Teamwork. After receiving critical feedback, the questionnaire was revised to improve precision and clarity, and the semi-final form was created with 53 item. After these revisions, the questionnaire was deemed suitable for the research.

3.6.2 Construct Validity

Using confirmatory factor analysis: Smart PLS-4 software was used to implement tests related to validity. Confirmatory dimensions of the independent and dependent variables as well as the moderating variable. The results of this analysis are as follows:

Structural validity using the confirmatory method for the dimensions of the independent variable (Artificial Intelligence Applications)

Table (3-4): Saturation (Tolerance) Values for the Data Fuzzy Logic

No.	Symbol	Item	Loading Factor
1	fuzzy1	The organization uses fuzzy logic to support decision-making processes.	0.705
2	fuzzy2	The organization uses fuzzy logic in allocating resources.	0.639
3	fuzzy3	The organization employs fuzzy logic to enhance adaptation to market conditions.	0.701
4	fuzzy4	The organization adopts fuzzy logic to achieve customer satisfaction.	0.628
5	fuzzy5	The organization formulates risk management strategies using fuzzy logic.	0.629
6	fuzzy6	The organization improves the accuracy of environmental data analysis using fuzzy logic.	0.667

No.	Symbol	Item	Loading Factor
7	fuzzy7	The organization diagnoses the richness of environmental opportunities through fuzzy logic analyses.	0.677
8	fuzzy8	The organization plans to counter market fluctuations using fuzzy logic.	0.613
9	fuzzy9	The organization manages big data using fuzzy logic.	0.626
10	fuzzy10	The organization uses fuzzy logic analyses to classify competitors' threats' strengths.	0.678

Table (3-4) shows the saturation (endurance) values for each item of the Fuzzy Logic. By reviewing the saturation values, it is noted that the lowest value reached is the value (0.613) and bears the symbol fuzzy8, whereas the rest of the values were greater than 0.50 in the confirmatory analysis. Other saturation values are high and therefore considered adequate, as standardized loading estimates should be 0.5 or higher, and ideally 0.7 or higher (Hair et al., 2006). On the other hand, Field (2005) suggests considering the factor reliable. If it contains four or more loadings that are not less than 0.6, regardless of the sample size, based on this, all questions without exception fall within the acceptable range, and no items are deleted.

Table (3-5) : Saturation (Tolerance) Values for the Data Neural Networks

No.	Symbol	Item	Loading Factor
1	neur1	The organization uses neural networks to upload large amounts of data.	0.763
2	neur2	The organization uses neural networks to identify patterns from input data.	0.825
3	neur3	The organization uses neural networks to derive information from complex data.	0.806
4	neur4	The organization is able through neural networks to deal with unstructured data.	0.764
5	neur5	The organization benefits from neural networks in converting conversations into real-time documents.	0.775
6	neur6	The organization is capable through neural networks of accurately transcribing meeting videos to obtain broader content.	0.784
7	neur7	The organization uses neural networks to predict problems.	0.682
8	neur8	The organization formulates performance improvement strategies using neural networks.	0.694
9	neur9	The organization evaluates decision alternatives to choose the most appropriate using neural networks.	0.661
10	neur10	The organization expands its organized learning processes through neural network simulation systems.	0.641

Table (3-5) shows the saturation (endurance) values for each item of the Neural Networks. By reviewing the saturation values, it is noted that the lowest value reached is the value (0.641) and bears the symbol neur10, whereas the rest of the values were greater than 0.50 in the confirmatory analysis. Other saturation values are high and therefore considered adequate, as standardized loading estimates should be 0.5 or higher, and ideally 0.7 or higher (Hair et al., 2006). On the other hand, Field (2005) suggests considering the factor reliable. If it contains four or more loadings that are not less than 0.6, regardless of the sample size, based on this, all questions without exception fall within the acceptable range, and no items are deleted.

The validity of the confirmatory factor analysis for the dimensions of the dependent variable: (Strategic Supremacy)

Table (3-6): Saturation (Tolerance) Values for the Data the Sphere of Influence

No.	Symbol	Item	Loading Factor
1	sphere1	The organization adopts a specific strategy for each geographic region.	0.645
2	sphere2	The organization has a cohesive sphere of influence within its competitive space.	0.696
3	sphere3	The organization offers its products at times that suit its customers' circumstances.	0.829
4	sphere4	The organization provides products at competitive prices while maintaining an acceptable level of quality.	0.761
5	sphere5	The organization tracks competitors' moves.	0.716
6	sphere6	The organization takes the initiative to be the first mover in competitive areas.	0.893
7	sphere7	The organization considers preserving its brand identity a strategic priority.	0.651

Table (3-6) shows the saturation (endurance) values for each item of the Sphere of Influence. By reviewing the saturation values, it is noted that the lowest value reached is the value (0.645) and bears the symbol sphere1, whereas the rest of the values were greater than 0.50 in the confirmatory analysis. Other saturation values are high and therefore considered adequate, as standardized loading estimates should be 0.5 or higher, and ideally 0.7 or higher (Hair et al., 2006). On the other hand, Field (2005) suggests considering the factor reliable. If it contains four or more loadings that are not less than 0.6, regardless of the sample size, based on this, all questions without exception fall within the acceptable range, and no items are deleted.

Table (3-7): Saturation (Tolerance) Values for the Data Competitive Compression

No.	Symbol	Item	Loading Factor
1	compC1	The organization identifies the type of competitive compression.	0.661
2	compC2	The organization has the capability to face competitive pressures.	0.689
3	compC3	The organization adopts innovative strategies to limit the entry of competitors in its main markets.	0.623
4	compC4	The organization prioritizes analyzing the capabilities of the most impactful competitors in the market.	0.75
5	compC5	The organization identifies a competitive advantage for each market it operates in.	0.723
6	compC6	The organization is keen to implement the suggestions of its customers.	0.675
7	compC7	The organization relies on competitive innovation as a means of pressuring competitors.	0.619

Table (3-7) shows the saturation (endurance) values for each item of the competitive compression. By reviewing the saturation values, it is noted that the lowest value reached is the value (0.619) and bears the symbol compC7, whereas the rest of the values were greater than 0.50 in the confirmatory analysis. Other saturation values are high and therefore considered adequate, as standardized loading estimates should be 0.5 or higher, and ideally 0.7 or higher (Hair et al., 2006). On the other hand, Field (2005) suggests considering the factor reliable. If it contains four or more loadings that are not less than 0.6, regardless of the sample size, based on this, all questions without exception fall within the acceptable range, and no items are deleted.

Table (3-8): Saturation (Tolerance) Values for the Data Competitive Configuration

No.	Symbol	Item	Loading Factor
1	compcon1	The organization tends toward cooperative rather than competitive relationships with competitors.	0.689
2	compcon2	The organization has predictive capabilities of future trends of competition.	0.766
3	compcon3	The organization invests in its strengths to enhance its competitive position.	0.781
4	compcon4	The organization adopts proactive moves in building new competitive capabilities.	0.797
5	compcon5	The organization re-evaluates its resource capabilities in light of competitive fluctuations.	0.758
6	compcon6	The organization analyzes competitors' objectives to understand their strategic directions.	0.757
7	compcon7	The organization prepares multiple scenarios to face competitive changes.	0.645

Table (3-8) shows the saturation (endurance) values for each item of the competitive configuration. By reviewing the saturation values, it is noted that the lowest value reached is the value (0.645) and bears the symbol compcon7, whereas the rest of the values were greater than 0.50 in the confirmatory analysis. Other saturation values are high and therefore considered adequate, as standardized loading estimates should be 0.5 or higher, and ideally 0.7 or higher (Hair et al., 2006). On the other hand, Field (2005) suggests considering the factor reliable. If it contains four or more loadings that are not less than 0.6, regardless of the sample size, based on this, all questions without exception fall within the acceptable range, and no items are deleted.

The validity of the confirmatory factor analysis for the dimensions of the Moderating Variable: (Self-Managed Teams Work)

Table (3-9): Saturation (Tolerance) Values for the Data Self-Managed

No.	Symbol	Item	Loading Factor
1	self1	The organization's culture encourages working in self-managed teams.	0.646
2	self2	The organization grants self-managed teams the authority to define their objectives.	0.738
3	self3	The organization provides sufficient resources for self-managed teams to function independently.	0.73
4	self4	The organization enables self-managed teams to make decisions regarding creative processes.	0.748
5	self5	The organization employs the capabilities of self-managed teams to perform more than one task.	0.729
6	self6	The organization provides learning opportunities for self-managed teams.	0.812
7	self7	The organization creates a climate that encourages knowledge-sharing in self-managed teams	0.754
8	self8	The organization promotes self-management within the team culture.	0.715
9	self9	The organization prepares self-managed teams accountability mechanisms to ensure achieving responsibility.	0.739
10	self10	The organization gives access to systems that share knowledge.	0.717
11	self11	The organization evaluates the achievements of self-managed teams.	0.613
12	self12	The organization supports scalability to sustain business initiatives.	0.733

Table (3-9) shows the saturation (endurance) values for each item of the self-managed teamwork. By reviewing the saturation values, it is noted that the lowest value reached is the value (0.613) and bears the symbol self11, whereas the rest of the values were greater than 0.50 in the confirmatory analysis. Other saturation values are high and therefore considered adequate, as standardized loading estimates should be 0.5 or higher, and ideally 0.7 or higher (Hair et al., 2006). On the other hand, Field (2005) suggests considering the factor reliable. If it contains four or more loadings that are not less than 0.6, regardless of the sample size, based on this, all questions without exception fall within the acceptable range, and no items are deleted.

Table: (3-10) Average Variance Extracted (AVE) for the Research Dimensions

Variables	No. parg.	Average variance extracted (AVE)>.5
Strategic Supremacy	21	0.52
Comp C	7	0.51
compcon1	7	0.55
sphere1	7	0.51
Artificial	20	0.52
fuzzy1	10	0.51
neur1	10	0.54
Self-Managed	12	0.53

Table (10) shows values of an important indicator of construct validity, which is the rate of variance extracted (AVE), as this indicator shows the percentage of explained variance that explains one item of each dimension of the dimensions, the values of this indicator range between (zero to the correct one), and the values of this indicator 80 within this range, the preferred values are assumed to be greater than (0.50) for this to be accepted Indicator. When reviewing the values of this indicator, it becomes clear that the lowest value reached is (0.510), represented by the dimension of fuzzy logic, sphere of influence, and competitive compression, since this is the lowest value among the values, but at the same time it is greater than 0.50 This indicates the acceptance of the values of the variance extracted rate that were reached (Fornell & Larcker, 1981).

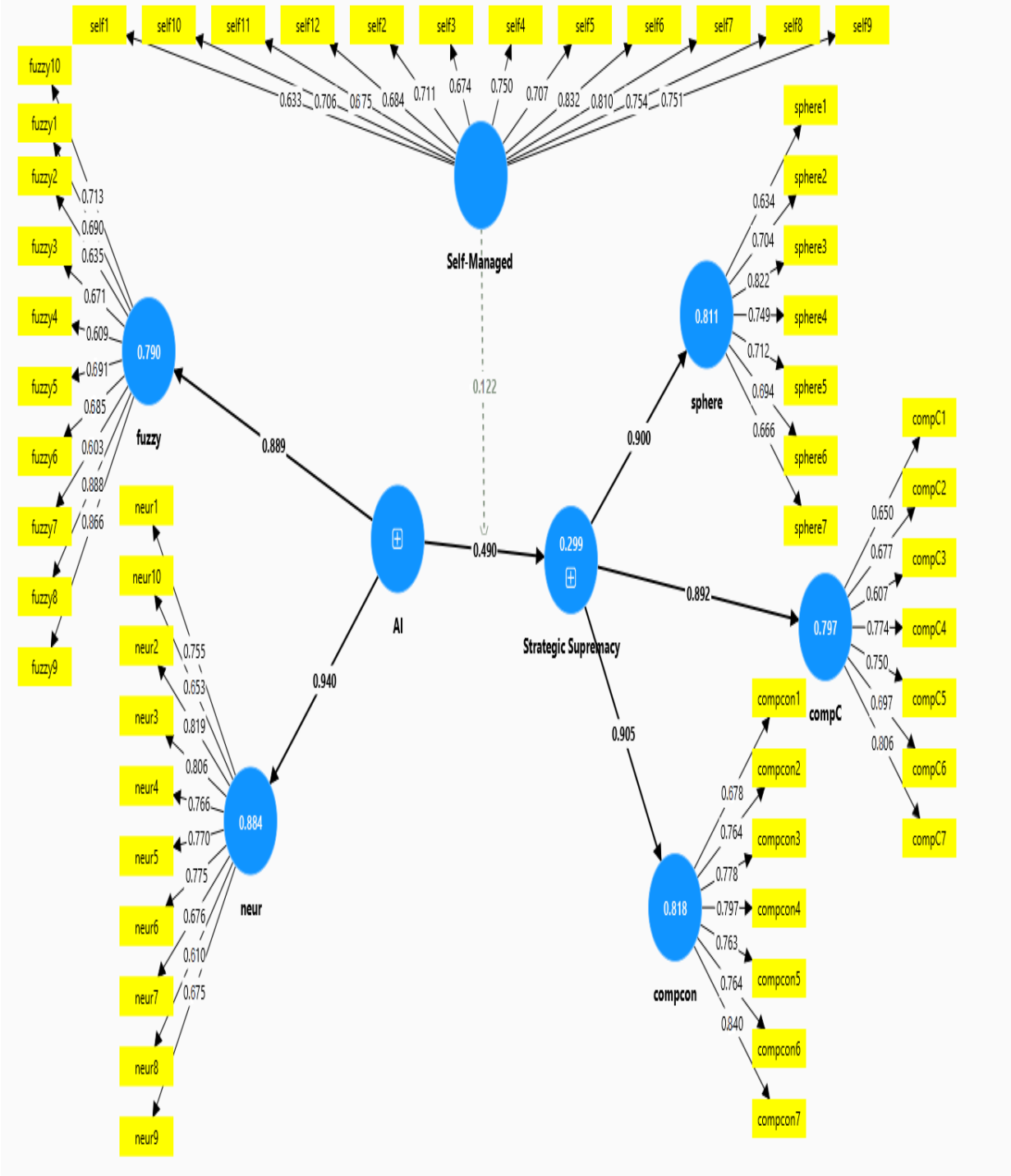

Figure (3-3): Results of SMART PLS 4.0.8.3 Programming to Measure Convergent Structural Validity Using Analysis Confirmatory Factor: (Measurement Model)

Discriminant Validity

Discriminant validity using the Fornell and Larcker method: (Larcker - Fornell) This method is based on Comparing the values of the inter-correlation coefficients of one dimension with the other dimensions with an estimated value, which represents a value The

square root of the average variance extracted (AVE) such that the correlation values are less than so that the correlation values are less than the values below, as this contributes to arriving at the idea of separation and differentiation of dimensions among themselves, as the table shows The following are the results of validity using this method:

Table: (3-11) Discriminant Validity Results by Larker and Fornell Method

	AI	Self-Managed	Strategic Supremacy	compC	compcon	fuzzy	neur	sphere
AI	0.723							
Self-Managed	0.417	0.726						
Strategic Supremacy	0.542	0.281	0.72					
compC	0.53	0.286	0.692	0.71				
compcon	0.47	0.241	0.605	0.709	0.74			
fuzzy	0.689	0.357	0.399	0.421	0.322	0.72		
neur	0.64	0.405	0.563	0.531	0.506	0.68	0.73	
sphere	0.46	0.227	0.6	0.707	0.623	0.335	0.48	0.71

The results of Table (11) indicate that all discriminant validity values are measured by the Furnell and Larker method. The idea of this type of validity is based on comparing the value of the intercorrelations for a single factor. With other correlations with the value of the square root of the variance extracted rate, the values of the correlations are t Less, and when comparing the values using this idea, it is noted that all interconnections are less than the root value squared for the variance extracted rate, which indicates discriminant validity with this method (Fornell & Larcker, 1981).

3.7 Study Reliability

Reliability using the internal consistency method of Cronbach's alpha (alpha) and the composite reliability method (composite reliability), for each dimension of the research. Cronbach Alpha method is based on a study and analyzes and finds the ratio of the total variance of the items to the total variance of one dimension after correcting it through a correction factor depending on the number of items of the dimension, while for composite stability, it depends on finding and representing the ratio of the residuals of squares of saturations to the sum of squares of saturations that is estimated during confirmatory analysis

It is assumed that the reliability value using either type is not less than (0.70), (Nunnally, 1978).

Table (3-12): Cronbach's Alpha and the Composite Reliability (CR) Methods.

Construct/ sub- construct	No. Item	Composite reliability c.r>.6	Cronbach's alpha >.7
Strategic Supremacy	21	0.86	0.905
compC	7	0.85	0.762
compcon	7	0.887	0.803
sphere	7	0.855	0.783
Artificial	20	0.86	0.912
fuzzy	10	0.841	0.837
neur	10	0.875	0.886
Self-Managed	12	0.869	0.917

According to Morera & Stokes (2016), reliability is always producing stable data and findings. The score range of Cronbach's Alpha reliability is between (0 to 1), where 1 is the best score of consistency. However, a scale of 0.6 and above is considered as an acceptable reliability coefficient. Hence, the reliability coefficient of the study variables is fully consistent as shown in the table (3-12).

After completing the validity and reliability tests, the questionnaire became in its final form consisting of (53) items.

Table (3-13): Description of the Study Sample Members through the Study's Demographic Factors and Variables.

Gender	Frequency	Percent
Male	205	66.8
Female	102	33.2
Education		
Bachelor's	266	86.6
High Diploma	6	2
Master's	35	11.4
Age		
Younger than 30 years	175	57
30 - less than 45years	99	32.2
45 less than 60 years	30	9.8
60 years & above	3	1

Experience		
Less than 6 years	43	14
6 - less than 11 years	18	5.9
11 - less than 16 years	181	59
16 years & above	65	21.1
Management Level		
First-Level Management	223	72.6
Middle-Level Management	55	18
Top-Level Management	29	9.4
Activity		
Banking	191	62.2
Engineering Companies	30	9.8
Hospital	36	11.7
Trade & Business	50	16.3
Total	307	100

We note from the previous table the following:

- **Gender**: The table shows that out of a total of 307 individuals, 102 are female (33.2%) and 205 are male (66.8%).
- **Education**: The majority of participants hold a Bachelor's degree (86.6%) represented by 266 participants, followed by Master's degree holders (11.4%) represented by 35 participants, while (2%) represented by 6 participants are High Diploma holders.
- **Age**: The age distribution indicates that the highest percentage of participants are younger than 30 years (57%), followed by 30 to less than 45 years (32.3%), and a smaller percentage in the other age group, followed by those aged 45 less than 60 years (9.8%), and 60 years & above (1%).
- **Experience**: The majority of participants have between 11 to less than 16 years of experience with 181 participants (59%) followed by 65 participants with 16 years and above of experience (21.1%), 43 participants with Less than 6 years of experience (14%), and 18 participants with 6 - less than 11 years of experience (5.9%).
- **Management Level**: The majority of participants are in First-Level Management positions (72.6%), followed by Middle-Level Management (18%), and Top-Level Management (9.4%).

- **Activity**: The participants are involved in various sectors, with the highest percentage in Banking (62.2%), followed by Trade & Business (16.3%), Hospitals (11.7%), and Engineering Companies have the lowest percentage (9.8%)

3.8 Study Variables

Independent Variable: AI Applications, two sub-applications adopted:

1- Fuzzy Logic

2- Neural Networks

Dependent Variable: Strategic Supremacy has three dimensions:

1- Sphere of Influence

2- Competitive Compression

3- Competitive Configuration

Moderating Variables: Self-Managed Teamwork

3.9 Statistical Analysis

The researcher used the following statistical treatments:

1. In order to describe the study population and sample, frequencies and percentages were used.
2. For the purpose of describing the level of the three study variables, the arithmetic mean and standard deviation were used. And a one-sided t-test.
3. To ensure the stability of the questionnaire using the test method, the Pearson correlation coefficient was used, and the consistency method was used. Internally, Cronbach's coefficient alpha was used.
4. Normal distribution was tested.
5. For the purpose of testing the direct and indirect effects, a structured equation model was used.
6. Convergent validity and discriminant validity were used.
7. The moderator was tested using a structured equation model.

3.10 Study Procedures

1. Literature and studies related to the current study were reviewed.
2. The study tool was developed and its validity and reliability were verified.
3. The necessary approvals to conduct the field study were obtained from all relevant authorities.
4. The study population was determined.
5. The researcher selected the sample members using the proportional stratified random sampling method.
6. The data was transcribed and analyzed statistically.
7. The results were analyzed and discussion and recommendations were written

CHAPTER FOUR

Study Results

4.1 Introduction

4.2 Descriptive analysis of the study data

4.3 Hypotheses Testing

CHAPTER FOUR
Study Results

4.1 Introduction

The fourth chapter provides a description and analysis of the data characteristics of the study sample from which the sample was collected, the study, which provides a description and test of its variables and the relative importance of the study sections, then an analysis. For the answers collected to the study questions, hypotheses, and comments on them.

4.2 Descriptive Analysis of the Study Data

The researcher adopted the five-way Likert scale in the questionnaire to give more flexibility to the individuals in the choice, as the value ranged between (1-5) shown in table (3-8).

Table (4-1): Five-Point Likert Scale

Strongly Disagree	Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5

Source: By Researcher

Likert scale was processed according to the following equation (Sekaran & Bougie, 2016).

$$c\text{atagorey length} = \frac{\text{Maximum Substitute} - \text{Minimum Substitute}}{\text{number of level}} = \frac{5-1}{3}$$

$$= \frac{4}{3} = 1.33$$

Category length + less weight = 1.33+1 = 2.33, the first degree of agreement (1-2.33) becomes the lower level.

The second category 1.33+2.33 = 3.66, then the second degree of agreement (2.34 – 3.66) becomes the intermediate level.

For the transition to the third category 1.33+ 3.66 = 5 then the third degree of agreement (3.67-5) becomes the high level.

Based on the treatment, the relative approval was determined according to the table (3-9) of the averages of the agreement levels.

Table (4-2): Likert Scale Processing

Degree of Agreement	Average
Low	**1-2.33**
Medium	**2.34-3.66**
High	**3.67-5**

Source: By Researcher

The descriptive statistics for the independent variables (AI Applications)

To accurately display the search results, the standard deviation and mean of each variable were calculated as follows:

Table (4-3): Means, Relative Weight, and Level of Application of the Dimensions of the Study Variables

Construct	Mean	relative weight	Importance
Fuzzy Logic	3.57	67.83	medium
Neural Networks	3.3	71.91	medium
Artificial Intelligence	3.43	69.87	medium
The Sphere of Influence	3.49	65.71	medium
Competitive Compression	3.39	63.83	medium
Competitive Configuration	3.3	71.99	medium
Strategic Supremacy	3.39	67.17	medium
Self-Managed	3.88	87.68	high

The following table shows the mean, relative weights, and importance of the study variables, where the mean for AI (independent variable) was equal to 3.43, with medium importance and a relative weight of 69.87, and the mean for the fuzzy logic dimensions was equal to 3.57, with medium importance and a relative weight of 67.83, and neural networks was equal to 3.3, with medium importance and a relative weight of 71.91. the mean for strategic supremacy (dependent variable) was equal to 3.39, with medium importance and relative weight of 67.17, and the mean for the sphere of influence dimensions was equal to 3.49, with medium importance and relative weight of 65.71, competitive compression was equal to 3.39, with medium importance and relative weight of 63.83 and competitive configuration was equal to 3.3, with medium importance and a relative weight of 71.99, the mean for self-managed (moderating variable) was equal to 3.88, with a high importance and a relative weight of 87.68.

AI Applications

The descriptive statistics for the independent variables (AI Applications)

To accurately display the search results, the standard deviation and mean of each variable were calculated as follows:

1- Fuzzy Logic

Table (4-4): Means, Relative Weight and Level of Application of (Fuzzy Logic)

Items	Mean	Std. Deviation	Relative Weight	Rank	T- test	Sig.	Importance
The organization uses fuzzy logic to support decision-making processes.	3.29	0.65	72.8	9	18.389	0.00	medium
The organization uses fuzzy logic in allocating resources.	3.53	0.57	60.68	7	17.215	0.00	medium
The organization employs fuzzy logic to enhance adaptation to market conditions.	3.01	0.65	60.2	10	16.749	0.00	medium
The organization adopts fuzzy logic to achieve customer satisfaction.	3.42	0.62	68.47	8	11.889	0.00	medium
The organization formulates risk management strategies using fuzzy logic.	3.97	0.68	79.41	1	11.126	0.00	high
The organization improves the accuracy of environmental data analysis using fuzzy logic.	3.75	0.49	84.92	4	8.063	0.00	high
The organization diagnoses the richness of environmental opportunities through fuzzy logic analyses.	3.54	0.59	80.81	6	9.864	0.00	medium
The organization plans to counter market fluctuations using fuzzy logic.	3.92	0.7	78.44	2	9.785	0.00	high
The organization manages big data using fuzzy logic	3.86	0.42	77.13	3	10.82	0.00	high
The organization uses fuzzy logic analyses to classify competitors' threats' strengths	3.62	0.56	72.38	5	15.998	0.00	medium
Fuzzy Logic	3.57		72.8				medium

Table (4-4) shows that the level of the general scale for applying fuzzy logic was an average level, with the general average reaching (3.57) and a relative weight of (72.8%). The averages ranged between (3.97-3.01) and the item stating that "The organization formulates risk management strategies using fuzzy logic" ranked first with a mean (3.97) a relative weight (79.41%) and a standard deviation (0.68). While the item "The organization employs fuzzy logic to enhance adaptation to market conditions" level to the lowest mean (3.01) and a relative weight (65%), and the standard deviation of the item is (60.2). Considering the t-test values, which ranged between (8.06-15.99), which is greater than its tabulated values of (1.64), and the Sig value (0.00), which is less than the value of (0.05), which indicates the average values expressed by the respondents in the study and expressed by the study sample members were far from neutral.

2- Neural Networks

Table (4-5): Means, Relative Weight and Level of Application of (Neural Networks)

Items	Mean	Std. Deviation	Relative Weight	Rank	T	Sig.	Importance
The organization uses neural networks to upload large amounts of data.	3.57	0.39	67.33	1	12.388	0.00	medium
The organization uses neural networks to identify patterns from input data.	3.49	0.44	65.9	4	24.275	0.00	medium
The organization uses neural networks to derive information from complex data.	3.44	0.49	64.85	6	27.12	0.00	medium
The organization is able through neural networks to deal with unstructured data.	3.29	0.57	61.86	7	26.938	0.00	medium
The organization benefits from neural networks in converting conversations into real-time documents.	3.46	0.47	65.11	5	19.681	0.00	medium
The organization is capable through neural networks of accurately transcribing meeting videos to obtain broader content.	3.54	0.42	66.81	3	15.52	0.00	medium

Items	Mean	Std. Deviation	Relative Weight	Rank	T	Sig.	Importance
The organization uses neural networks to predict problems.	3.54	0.47	66.87	2	9.894	0.00	medium
The organization formulates performance improvement strategies using neural networks.	2.78	0.72	61.69	10	10.137	0.00	medium
The organization evaluates decision alternatives to choose the most appropriate using neural. networks	2.86	0.63	63.26	9	12.291	0.00	medium
The organization expands its organized learning processes through neural network simulation systems.	2.97	0.59	65.41	8	8.85	0.00	medium
Neural Networks	3.3		64.9				medium

Table (4-5) shows that the level of the general scale for applying neural networks was an average level, with the general average reaching (3.3) and a relative weight of (64.9%). The averages ranged between (2.78-3.57) and the item stating that "The organization uses neural networks to upload large amounts of data" ranked first with a mean (3.57) and a relative weight (67.33%) and a standard deviation (0.39), while the item "The organization formulates performance improvement strategies using neural networks" level to the lowest mean (2.78) and a relative weight (61.69%), and the standard deviation of the item is (0.72). Considering t-test values, which ranged between (8.85-27.12) is greater than its tabulated values of (1.64), and the Sig value (0.00), which is less than the value of (0.05), which indicates the average values expressed by the respondents in the study and were far from neutral.

Strategic Supremacy

The descriptive statistics for the independent variables (Strategic Supremacy)

To accurately display the search results, the standard deviation and mean of each variable were calculated as follows:

1- The Sphere of Influence

Table (4-6): Means, Relative Weight, and Level of Application of (The Sphere of Influence)

Items	Mean	Std. Deviation	Relative Weight	Rank	T	Sig.	Importance
The organization adopts a specific strategy for each geographic region.	3.53	0.44	66.61	4	10.453	0.00	medium
The organization has a cohesive sphere of influence within its competitive space.	3.41	0.5	64.14	6	16.59	0.00	medium
The organization offers its products at times that suit its customers' circumstances.	3.59	0.33	87.72	2	22.419	0.00	medium
The organization provides products at competitive prices while maintaining an acceptable level of quality	3.59	0.33	67.72	3	14.258	0.00	medium
The organization track competitors' moves.	3.53	0.39	66.61	5	13.67	0.00	medium
The organization takes the initiative to be the first mover in competitive areas.	3.11	0.64	68.14	7	3.658	0.00	medium
The organization considers preserving its brand identity a strategic priority.	3.65	0.23	69.02	1	10.813	0.00	medium
Sphere of Influence	3.49		69.9				medium

Table (4-6) shows that the level of the general scale for applying the sphere of influence was an average level, with the general average reaching (3.49) and a relative weight of (69.9%). The averages ranged between (3.11-3.65) and the item stated that “The organization considers preserving its brand identity a strategic priority” ranked first with mean (3.65) and a relative weight (59.02%) and a standard deviation (69.02), while the item “The organization takes the initiative to be the first mover in competitive areas” level to the lowest mean (3.11) and a relative weight (68.14%), and the standard deviation of the item is (0.64). Considering the t-test values, which ranged between (3.65-22.40) is greater than its tabulated values of (1.64), and the Sig value (0.00), which is less than the value of (0.05), which indicates the average values expressed by the respondents in the study and expressed by the study sample members were far from neutral.

2- Competitive Compression

Table (4-7): Means, Relative Weight and Level of Application of (Competitive Compression)

Items	Mean	Std. Deviation	Relative Weight	Rank	T	Sig.	Importance
The organization identifies the type of competitive compression.	3.36	0.56	63.22	5	13.728	0.00	medium
The organization has the capability to face competitive pressures.	3.39	0.49	63.75	3	16.016	0.00	medium
The organization adopts innovative strategies to limit the entry of competitors in its main markets.	3.22	0.66	60.42	7	12.241	0.00	medium
The organization prioritizes analyzing the capabilities of the most impactful competitors in the market.	3.55	0.4	67.07	2	22.869	0.00	medium
The organization identifies a competitive advantage for each market it operates in.	3.61	0.3	68.11	1	16.17	0.00	medium
The organization is keen to implement the suggestions of its customers.	3.38	0.49	63.62	4	9.31	0.00	medium
The organization relies on competitive innovation as a means of pressuring competitors.	3.23	0.58	60.62	6	10.088	0.00	medium
Competitive Compression	3.39		63.8				medium

Table (4-7) shows that the level of the general scale for applying competitive compression was an average level, with the general average reaching (3.39) and a relative weight of (63.8%). The averages ranged between (3.61-3.22) and the item stated that “The organization identifies a competitive advantage for each market it operates in” ranked first with a mean (3.61) and a relative weight (68.11%) and a standard deviation (0.30), while the item “The organization adopts innovative strategies to limit the entry of competitors in its main markets” level to the lowest mean (3.22) and a relative weight (60.42%), and the standard deviation of the item is (0.66). Considering the t-test values, which ranged between (9.31-22.86), is greater than its tabulated values of (1.64), and the Sig value (0.00), which is

less than the value of (0.05), indicates the average values expressed by the respondents in the study and expressed by the study sample members were far from neutral.

3- Competitive Configuration

Table (4-8): Means, Relative Weight and Level of Application of (Competitive Configuration)

Items	Mean	Std. Deviation	Relative Weight	Rank	T	Sig.	Importance
The organization tends toward cooperative rather than competitive relationships with competitors.	2.55	0.77	66.94	7	2.866	0.004	medium
The organization has predictive capabilities of future trends of competition.	3.3	0.57	61.99	5	26.733	0.00	medium
The organization invests in its strengths to enhance its competitive position.	3.54	0.43	66.74	2	22.494	0.00	medium
The organization adopts proactive moves in building new competitive capabilities.	3.49	0.46	65.7	4	27.483	0.00	medium
The organization re-evaluates its resource capabilities in light of competitive fluctuations.	3.54	0.41	66.87	1	15.526	0.00	medium
The organization analyzes competitors' objectives to understand their strategic directions.	3.51	0.45	66.29	3	16.354	0.00	medium
The organization prepares multiple scenarios to face competitive changes.	3.17	0.61	69.38	6	8.63	0.00	medium
Competitive Configuration	3.3		67.7				medium

Table (4-8) shows that the level of the general scale for applying competitive configuration was an average level, with the general average reaching (3.3) and a relative weight of (67.7%). The averages ranged between (2.55-3.54) and the item stated that “The organization re-evaluates its resource capabilities in light of competitive fluctuations” ranked first with a mean (3.54) and a relative weight (66.87%) and a standard deviation

(0.41), while the item “The organization tends toward cooperative rather than competitive relationships with competitors” level to the lowest mean (2.55) and a relative weight (66.92%), and the standard deviation of the item is (0.77). Considering the t-test values, which ranged between (2.86-27.48), is greater than its tabulated values of (1.64), and the Sig value (0.00), is less than the value of (0.05), which indicates the average values expressed by the respondents in the study and expressed by the study sample members were far from neutral.

Self-Managed Teamwork

The descriptive statistics for the independent variables (Self-Managed)

To accurately display the search results, the standard deviation and mean of each variable were calculated as follows:

Table (4-9): Means, Relative Weight and Level of Application of (Self-Managed)

Items	Mean	Std. Deviation	Relative Weight	Rank	T	Sig.	Importance
The organization's culture encourages working in self-managed teams.	4.05	0.54	91.01	2	10.743	0.00	high
The organization grants self-managed teams the authority to define their objectives.	3.81	0.55	86.12	10	7.878	0.00	high
The organization provides sufficient resources for self-managed teams to function independently.	3.68	0.5	83.65	11	8.87	0.00	high
The organization enables self-managed teams to make decisions regarding creative processes.	3.81	0.56	86.25	9	9.973	0.00	high
The organization employs the capabilities of self-managed teams to perform more than one task.	3.91	0.54	88.27	6	7.018	0.00	high
The organization provides learning opportunities for self-managed teams.	3.86	0.56	87.1	7	12.173	0.00	high
The organization creates a climate that encourages knowledge-sharing in self-managed teams	3.97	0.57	89.32	4	8.514	0.00	high
The organization promotes self-management within the team culture.	4.07	0.53	91.4	1	17.771	0.00	high

Items	Mean	Std. Deviation	Relative Weight	Rank	T	Sig.	Importance
The organization prepares self-managed teams accountability mechanisms to ensure achieving responsibility.	3.94	0.55	88.86	5	20.63	0.00	high
The organization gives access to systems that share knowledge.	4	0.53	90.1	3	17.165	0.00	high
The organization evaluates the achievements of self-managed teams.	3.84	0.73	86.84	8	12.118	0.00	high
The organization supports scalability to sustain business initiatives.	3.66	0.6	83.19	12	10.742	0.00	high
Self-Managed	3.88		87.6				high

Table (4-9) shows that the level of the general scale for applying Self-Managed was (3.88) and a relative weight of (87.6%). The averages ranged between (3.66-4.07) and the item stated that "The organization promotes self-management within the team culture" ranked first with a mean (4.07) and a relative weight (88.86%) and a standard deviation (0.55), while the item "The organization supports scalability to sustain business initiatives" level to the lowest mean (3.66) and a relative weight (83.19%), and the standard deviation of the item is (0.61). Considering the t-test values, which ranged between (7-20.36) is greater than its tabulated values of (1.64), and the Sig value (0.00), is less than the value of (0.05), which indicates the average values expressed by the respondents in the study and expressed by the study sample members were far from neutral.

Testing Suitability of Study Model

To test the suitability of the study data for linear regression analysis, parametric tests were conducted. Multicollinearity and autocorrelation test, as follows: Collinearity test Multicollinearity: This phenomenon indicates the presence of an almost perfect linear relationship between two variables or variables Moreover, it inflates the value of the coefficient of determination R^2 and makes it greater than the actual value, which is why it is calculated Pearson correlation coefficient, and the value of the variance inflation factor for each variable according to the hypothesis being tested, (Goodhue et al., 2017) The results were as follows:

Table (4-10): Interference Matrix for Independent Variables

	fuzzy	neur	AI	spher	compC	compcon	STRASUP	SELF
fuzzy	1							
neur	.672**	1						
AI	.619**	.609**	1					
spher	.319**	.451**	.420**	1				
compC	.410**	.528**	.511**	.676**	1			
compcon	.300**	.491**	.429**	.627**	.660**	1		
STRASUP	.391**	.561**	.518**	.654**	.690**	.686**	1	
SELF	.382**	.409**	.432**	.247**	.303**	.218**	.291**	1

Table (4-10) shows that the correlation between the independent variables ranged between (0.3-0.67) and the highest correlation coefficient of 0.676 is between "compC" and "compcon," indicating a strong positive correlation.

The lowest correlation coefficient of 0.218 is between "SELF" and "compC," suggesting a weak correlation., since if the values of the correlation coefficient are more than (0.80) or higher, the sample suffers from the problem of multiple linear correlation. Which is considered one of the indicators (Goodhue et al., 2017). To ensure that the sample was free from the problem of multiple interference, the variance inflation factor was calculated (Variance Factor Inflation - VIF) at the dimensions of the independent variable to ensure that there is no interference Multicolinearity between all independent variables, and the results were as follows:

Table (4-11): Results of the Multicollinearity Test Between the Independent Variables

Variable	Sub- Dimension	Tolerance	VIF
AI	fuzzy	0.549	1.821
	neur	0.549	1.821
Strategic Supremacy	compC	0.451	2.216
	compcon	0.504	1.984
	spher	0.485	2.06
Self-Managed	-	0.408	2.45

Table (4-11) shows that the values of the variance inflation factor were all greater than 1 and less than 10, which confirms that there is no problem of multicollinearity among all independent study variables The values of the Tolerance test ranged between (0.549-0.408), which is less than one is correct (Kim, 2019; Pallant, 2007) (which indicates that the amount of variance between the variables Independent and moderating exist to a clear degree that

distinguishes each of these dimensions and thus the conclusion, the importance of all these dimensions for predicting Self-Managed and Strategic Supremacy (Goodhue et al., 2017)

Internal Consistency

Table (4-12) : Internal Consistency

	Correlation		Correlation
Item	**Sphere of Influence**	**Item**	**Fuzzy Logic**
sphere1	.642**	fuzzy1	.708**
sphere2	.733**	fuzzy2	.630**
sphere3	.738**	fuzzy3	.716**
sphere4	.651**	fuzzy4	.637**
sphere5	.673**	fuzzy5	.659**
sphere6	.519**	fuzzy6	.543**
sphere7	.589**	fuzzy7	.570**
Item	**Competitive Compression**	fuzzy8	.645**
compC1	.653**	fuzzy9	.582**
compC2	.672**	fuzzy10	.656**
compC3	.686**	**Item**	**Neural Networks**
compC4	.672**	neur1	.703**
compC5	.616**	neur2	.765**
compC6	.569**	neur3	.771**
compC7	.594**	neur4	.755**
Item	**Competitive Configuration**	neur5	.729**
compcon1	.502**	neur6	.716**
compcon2	.753**	neur7	.654**
compcon3	.723**	neur8	.613**
compcon4	.716**	neur9	.653**
compcon5	.690**	neur10	.623**
compcon6	.718**		
compcon7	.597**		
Item	**Self-Managed**		
self1	.648**		
self2	.735**		
self3	.722**		
self4	.745**		
self5	.723**		
self6	.804**		
self7	.747**		
self8	.711**		
self9	.732**		
self10	.718**		
self11	.647**		
self12	.739**		

Table (4-12) shows that the values of the correlation coefficients between the independent variables (fuzzy logic, neural networks) and the elements to which they belong were higher than 0.3 (Pallant and Bailey, 2005), which confirms the validity of the scale construct. The table above also shows that the values of the correlation coefficients between the dependent variables (sphere of influence, competitive pressure, competitive formation) and the items to which they belong were higher than 0.3, which also confirms the validity of the scale's construction. As for the moderate variable (self-management), the correlation value with its items ranged from (0.647-0.804), which are values that fall within the normal correlation rate.

4.3 Hypothesis Testing

The final stage of the PLS-SEM structural model was used to evaluate the associations/hypotheses by running the bootstrap algorithm and PLS algorithm in Smart PLS 4.00. Since whenever it was the paths of the coefficients in the PLS analysis are not significant or showed indicators opposing the hypothesis in the direction (Hair et al, 2011). He confirmed that the hypothesis should be rejected, and significant paths appear that reflect the expected direction. It empirically supports the claimed causal relationship between variables, and the importance of this program becomes clear in that it can Using the smoothing process to determine the connection between all factors and determining the path based on weight indicators.

First Main Hypothesis

H01: There is no statistically significant impact of ai applications (fuzzy logic, neural networks) on strategic supremacy with all dimensions (sphere of influence, competitive compression, competitive configuration) at a level of significance ($\alpha \geq 0.05$) at business organizations with green buildings in Jordan

Table (4-13): Results of the Moderator Variable Regression Analysis for the First Main-Hypotheses

Hypothesis	Path	Path coefficient	t-value	P values	R-square
H1	AI -> Strategic Supremacy	0.203	1.152	0.034	0.299

We note from the table above that there is an effect between AI and Strategic Supremacy. For this reason, table (4-13) displays the results of the hypothesis analysis of the relationship between AI and Strategic Supremacy. Table (4-13) shows that AI explains 29.9% (which is the R^2 value) of the variance in strategic supremacy, and the value of ß was equal to 0.203. The level of significance is (0.034), and therefore the researcher accepts the alternative hypothesis which states that there is a significant impact of AI applications (fuzzy logic, neural networks) on strategic supremacy with all dimensions (sphere of influence, competitive compression, competitive configuration) at a level of significance ($\alpha \leq 0.05$) at business organizations with green buildings in Jordan.

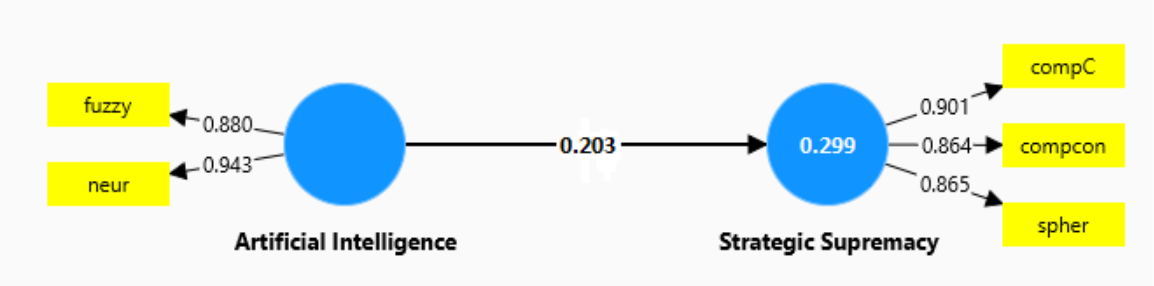

Figure (4-4): Impact of AI applications (fuzzy logic, neural networks) on strategic supremacy with all dimensions (sphere of influence, competitive compression, competitive configuration)

H01.1 There is no statistically significant impact of fuzzy logic on the sphere of influence at business organizations with green buildings in Jordan at a level of significance ($\alpha \geq 0.05$).

Table (4-14): Results of the Moderator Variable Regression Analysis for the First Sub-Hypotheses

Hypothesis	Path	Path coefficient	t-value	P values	R-square
H1.1	fuzzy -> sphere	0.203	1.152	0.034	0.125

We note from the table above that there is an impact of fuzzy on the sphere. For this reason, Table (4-14) displays the results of the hypothesis analysis of the impact of AI on strategic supremacy. The value of ß was equal to 0.203. The level of significance is (0.034), and therefore the researcher accepts the alternative hypothesis which states that there is a significant impact of fuzzy logic on the sphere of influence at business organizations with green buildings in Jordan, at a level of significance ($\alpha \leq 0.05$).

H01.2 There is no statistically significant impact of Fuzzy Logic on Competitive Compression at business organizations with green buildings in Jordan at a level of significance ($\alpha \geq 0.05$).

Table (4-15): Results of the Moderator Variable Regression Analysis for the Second Sub-Hypotheses

Hypothesis	Path	Path coefficient	t-value	P values	R-square
H1.2	fuzzy -> compC	0.164	2.058	0.04	0.214

We note from the table above that there is an impact of fuzzy on competitive compression. For this reason, Table (4-15) displays the results of the hypothesis analysis of the impact of fuzzy logic on competitive compression, the value of ß was equal to 0.164. The level of significance is (0.04), and therefore the researcher accepts the alternative hypothesis which states that there is a significant impact of fuzzy logic on competitive compression at business organizations with green buildings in Jordan at a level of significance ($\alpha \leq 0.05$).

H01.3 There is no statistically significant impact of Fuzzy Logic on Competitive Configuration at business organizations with green buildings in Jordan at a level of significance ($\alpha \geq 0.05$).

Table (4-16): Results of the Moderator Variable Regression Analysis for the Third Sub-Hypotheses

Hypothesis	Path	Path coefficient	t-value	P values	R-square
H1.3	fuzzy -> compcon	0.22	2.75	0.02	0.21

We note from the table above that there is an impact of fuzzy logic and competitive configuration. For this reason, table (4-16) displays the results of the hypothesis analysis of the impact of Fuzzy Logic on competitive configuration. the value of ß was equal to 0.22. The level of significance is (0.02), and therefore the researcher accepts the alternative hypothesis which states that there is a significant impact of fuzzy logic on competitive configuration at business organizations with green buildings in Jordan at a level of significance ($\alpha \leq 0.05$).

H01.4 There is no statistically significant impact of Neural Networks on Sphere of Influence at business organizations with green buildings in Jordan at a level of significance ($\alpha \geq 0.05$).

Table (4-17): Results of the Moderator Variable Regression Analysis for the Four Sub-Hypotheses

Hypothesis	Path	Path coefficient	t-value	P values	R-square
H1.4	neur -> sphere	0.444	5.004	0.000	0.154

We note from the table above that there is an impact of neural networks on sphere of influence. For this reason, table (4-17) displays the results of the hypothesis analysis of the impact of neural networks on the sphere of influence. The value of ß was equal to 0.444. The level of significance is (0.00), and therefore the researcher accepts the alternative hypothesis which states that there is a significant impact of neural networks on the sphere of influence at business organizations with green buildings in Jordan at a level of significance ($\alpha \leq 0.05$).

H01.5 There is no statistically significant impact of Neural Networks on Competitive Compression at business organizations with green buildings in Jordan at a level of significance ($\alpha \geq 0.05$).

Table (4-18): Results of the Moderating Variable Regression Analysis for the Fifth Sub-Hypotheses

Hypothesis	Path	Path coefficient	t-value	P values	R-square
H1.5	neur -> compC	0.437	4.634	0.000	0.123

We note from the table above that there is an impact of neural networks on competitive compression. For this reason, table (4-18) displays the results of the hypothesis analysis of the impact of neural networks on competitive compression. The value of ß was equal to 0.437. The level of significance is (0.00), and therefore the researcher accepts the alternative hypothesis which states that there is a significant impact of neural networks on competitive compression at business organizations with green buildings in Jordan at a level of significance ($\alpha \leq 0.05$).

H01.6 There is no statistically significant impact of Neural Networks on Competitive Configuration at business organizations with green buildings in Jordan at a level of significance ($\alpha \geq 0.05$).

Table (4-19): Results of the Moderator Variable Regression Analysis for the Sixth Sub-Hypotheses

Hypothesis	Path	Path coefficient	t-value	P values	R-square
H1.6	neur -> compcon	0.525	5.737	0.000	0.124

We note from the table above that there is an impact of neural networks on competitive configuration. For this reason, table (4-19) displays the results of the hypothesis analysis of the impact of neural networks on competitive configuration. the value of ß was equal to 0.525. The level of significance is (0.00), and therefore the researcher accepts the alternative hypothesis which states that there is a significant impact of neural networks on competitive configuration at business organizations with green buildings in Jordan at a level of significance ($\alpha \leq 0.05$).

Second Main Hypothesis H02: Self-Managed Teams Work does not moderate the impact of AI applications on the strategic supremacy at business organizations with green buildings in Jordan at a level of significance ($\alpha \geq 0.05$).

Table (4-20): Results of the Moderator Variable Regression Analysis for Moderating Hypothesis

Path	Path coefficient	t-value	P -Value	R-square
Self-Managed x AI -> compC	0.124	1.63	0.00	0.36
Self-Managed x AI -> compcon	0.114	1.475	0.02	
Self-Managed x AI -> sphere	0.143	1.854	0.01	
Self-Managed x AI -> Strategic Supremacy	0.122	2.968	0.00	

It is clear from the results of table (4-20) that the adjusting variable was entered among the study variables, where the model results were represented by entering the variable self-managed x AI The results show a significant impact on strategic supremacy. Regarding the coefficients table, the results showed the extent of the effect of self-managed x AI (B = 0.124, Sig = 0.00) on competitive compression. The value of the impact of self-managed x AI (B=0.143, Sig =0.01), the extent of the impact of self-managed x AI (B=0.122, Sig =0.00) on strategic supremacy, and therefore the researcher accepts the alternative hypothesis which

states that self-managed teamwork moderates the impact of AI applications on the strategic supremacy at business organizations with green buildings in Jordan at a level of significance ($\alpha \leq 0.05$).

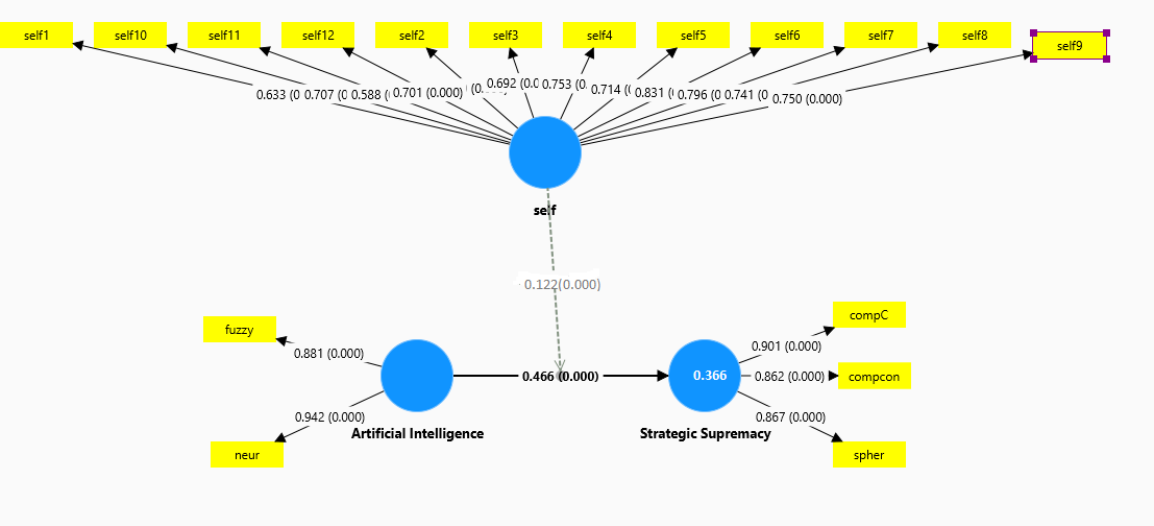

Figure (4-5): Standard loading values and P-VALUE of Self-Managed Teams on the AI Applications and the Strategic Supremacy at business organizations with green buildings in Jordan Standard loading values plus P-VALUE

Table (4-21): Coefficient Determinant

IV	DV	R-square
fuzzy and neur	compC	0.317
fuzzy and neur	compcon	0.291
fuzzy and neur	sphere	0.271
Artificial	Strategic Supremacy	0.299
Self-Managed +AI	Strategic Supremacy	0.36

We note from the previous table that the moderate impact of the (self-management) variable on the impact of (artificial and strategic supremacy) is clear, as it turns out that the amount that the independent variable artificial explains of the variance found in the variables strategic supremacy is equal to (R^2=0.299). After moderator impact on the model, the impact increased by (7%), and the final result was R^2= 0.36, which indicates the role of self-management in improving the relationship of AI to strategic supremacy.

CHAPTER FIVE

Results Discussion and Recommendations

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Results Discussion and Recommendations

5.1 Introduction

In the fifth chapter, the results of the statistical process and the results of the analysis were discussed through, analysis, the results of the answers obtained from the sample members, and the analysis of the study variables and then interpreting them. Finally, come up with recommendations.

5.2 Results Discussion and Conclusion

What is the level of AI applications in business organizations with green buildings in Jordan?

Medium, organizations leverage AI applications of fuzzy logic and neural networks at the medium level, Fuzzy logic is applied across decision-making processes, resource allocation, market adaptation, customer satisfaction initiatives, environmental opportunity assessments, and competitor threat classification. Meanwhile, neural networks play it role in handling large datasets, identifying patterns, processing complex and unstructured data, and transforming spoken conversations and meeting recordings into actionable real-time documents.

Together, these AI applications enable organizations to navigate complexities, optimize operations, and maintain competitiveness in dynamic markets, so all of the mentioned points must be enhanced and developed.

What is the level of strategic supremacy in business organizations with green buildings in Jordan?

Medium, the organizations exhibit medium utilization across strategic supremacy dimensions of the sphere of influence, competitive compression, and competitive configuration.

All of the practices fall under medium and need to be enhanced including market segmentation, customer needs, pricing, quality standards, competitor monitoring, prioritizing brand integrity, overcoming entry barriers, assessing competitors' strengths,

incorporating customer feedback, using innovative strategies, further fostering cooperative relationships with competitors, using predictive analytics for future competition trends, strengthen core competencies, conduct thorough assessments of resource capabilities, scrutinize competitors' goals, and prepare for various competitive scenarios.

What is the level of self-managed teamwork in business organizations with green buildings in Jordan?

High, organization's practices show a high level of fosters a culture that encourages self-managed teams, granting them the authority to define objectives, providing resources for independent functioning, allowing creative decision-making, and employing their capabilities for multiple tasks. The organization fosters a climate of knowledge-sharing, promotes self-management, and provides accountability mechanisms for self-managed teams. Access to knowledge-sharing systems is provided, and achievements are evaluated. The organization also supports scalability to sustain business initiatives and ensures the sustainability of self-managed teams.

Discuss the First Main Hypothesis

The results of the first main hypothesis indicate that there is an impact of AI applications on strategic supremacy; the results showed that there is a medium positive impact of AI applications on strategic supremacy in business organizations with green buildings in Jordan. This may be due to business organizations with green buildings in Jordan that direct their attention to interpreting a medium positive impact of AI applications on strategic supremacy. This suggests that the effective use of AI technologies significantly enhances the competitive advantage and overall strategic positioning. This impact implies that AI applications contribute to improved efficiency, sustainability, and innovation in green building practices, leading to better performance, reducing costs, and enhancing environmental benefits. Consequently, organizations that leverage AI initiatives are likely to achieve superior strategic outcomes, positioning them as leaders in the field.

This result agreed with a study (Khatib & Alshawabkeh, 2022) where this study provides a positive and good impact of digital transformation on strategic supremacy, the

same applies to the impact of digital human resources management thereon, competing to acquire the greatest market share of sales of their services through a set of additional services which increases the tension of competition.

Discussing the First Sub-Hypothesis of the First Main Hypothesis

The results of the first sub-hypothesis indicate that there is an impact of fuzzy logic on the sphere of influence, the results showed that there is a medium positive impact of fuzzy logic on the sphere of influence in business organizations with green buildings in Jordan, since fuzzy logic practices show a medium level of use throughout enhancing decision-making, resource allocation, market adaptation, customer satisfaction, environmental opportunity diagnosis, and competitor threat classification. This enables organizations to adopt a strategic approach that focuses on geographic regions, customer needs, competitive pricing, quality, and competitor tracking while prioritizing brand preservation and being the first to move in competitive areas.

The medium positive relationship impact of fuzzy logic on the sphere of influence in business organizations with green buildings in Jordan can be attributed to several key factors. This may be due to business organizations with green buildings in Jordan that direct their attention to its ability to handle the inherent uncertainties and complexities. Fuzzy logic enables a more precise evaluation of various environmental, economic, and social factors, leading to more reliable decision-making, it supports enhanced decision-making by accommodating a range of values and scenarios, allowing stakeholders to make informed choices. This optimization ensures that resources are allocated effectively, improving the cost-efficiency.

Additionally, fuzzy logic enhances predictive analytics, enabling better forecasting of long-term benefits and performance, which is crucial for addressing environmental challenges. By incorporating diverse stakeholder inputs and adapting to local contexts, fuzzy logic ensures that strategies are relevant and widely supported.

Furthermore, its application helps meet broader sustainable development goals, promoting long-term ecological and economic benefits in the region. These factors

collectively drive the positive impact of fuzzy logic on the sphere of influence in Jordan's green building sector.

This result agreed with (Khatib & Alshawabkeh, 2022) the study shows a positive and good impact of digital transformation on strategic supremacy, through competing to acquire the greatest market share of sales of their services through a set of additional services.

Discussing the Second Sub-Hypothesis of the First Main Hypothesis

The results of the second sub-hypothesis indicate that there is an impact of fuzzy logic on competitive compression, the results showed that there is a medium positive impact of fuzzy logic on competitive compression in business organizations with green buildings in Jordan, and since these organizations show a medium level of use of fuzzy logic for decision-making, resource allocation, market adaption, customer satisfaction, environmental opportunity diagnosis, and competitor threat categorization. As a result, they can handle competitive compression by determining and removing obstacles to the market entrance, assessing the strengths and weaknesses of rivals, spotting market advantages, putting consumer ideas into practice, and using competitive innovation to put pressure on rivals.

The medium positive relationship impact of fuzzy logic on competitive compression in business organizations with green buildings in Jordan can be attributed to several key factors. Similar to how fuzzy logic enhances decision-making by evaluating various environmental, economic, and social factors for reliable choices, companies in the green building sector can adopt competitive compression strategies to create a market edge. This involves identifying and leveraging competitive advantages in green building to reinforce strategic supremacy. Formulating contingency plans to respond adeptly to competitors' actions and applying strategic pressure on rivals are crucial for maintaining market position in the sector.

Identifying the types of competitive compression faced by green building companies allows for strategic decisions to tackle these challenges effectively. Building a capable workforce to face competitive pressures, fostering a culture of innovation, and collaborating with external partners enhance internal capabilities and overall competitive configuration.

Evaluating resource capacity ensures optimal efficiency, much like how fuzzy logic optimizes resource allocation in green buildings in each sector.

Developing proactive market strategies and a strong product portfolio enhances control and influence in the green building market, similar to how fuzzy logic improves predictive analytics for better forecasting. Collaboration with stakeholders and efficient resource use is essential for sustainable growth, paralleling fuzzy logic's role in promoting long-term ecological and economic benefits. These factors collectively drive the positive impact on competitive compression in Jordan's green building sector.

This result agreed with (Jankovic & Curovic, 2023), on the importance of AI-driven data analytics in improving decision-making processes, optimizing resources, and enhancing overall operational efficiency for sustainable practices.

Discussing the Third Sub-Hypothesis of the First Main Hypothesis

The results of the third sub-hypothesis indicate that there is an impact of fuzzy logic on competitive configuration, the results showed that there is a medium positive impact of fuzzy logic on competitive configuration in business organizations with green buildings in Jordan. As these organizations show a medium level of use of fuzzy logic for decision-making, resource allocation, market adaptation, customer satisfaction, environmental opportunity diagnosis, and competitor threat classification, they prioritize cooperative relationships with competitors and develop predictive capabilities for future competition trends. This enables them to invest in strengths to enhance their competitive position, adopt proactive moves to build new capabilities, re-evaluate resource capabilities, analyze competitors' objectives, and prepare multiple scenarios for competitive changes.

The medium positive relationship impact of fuzzy logic on competitive configuration in business organizations with green buildings in Jordan can be attributed to several key factors. To maintain a competitive configuration, business organizations with green buildings in Jordan should invest in enhancing their internal strengths and capabilities, using fuzzy logic analysis and scenario planning. Regular re-evaluation of resource capabilities analytics to identify and address potential weaknesses and provide valuable insights,

enabling these organizations to stay ahead of market trends and maintain strategic supremacy. Its predictive capabilities can forecast future competition trends, allowing business organizations with green buildings in Jordan to adapt their strategies accordingly enhancing competitive intelligence gathering and analysis, and supporting strategic planning in the green building in each sector.

This result agreed with (Jankovic & Curovic, 2023), on the importance of AI-driven data analytics in improving decision-making processes, optimizing resources, and enhancing overall operational efficiency for sustainable practices, enhance data management by enabling efficient data collection, analysis, and utilization.

Discussing the Fourth Sub-Hypothesis of the First Main Hypothesis

The results of the fourth sub-hypothesis indicate that there is an impact of neural networks on the sphere of influence, the results showed that there is a medium positive impact of neural networks on the sphere of influence in business organizations with green buildings in Jordan, since neural network practices show a medium level of use to upload large amounts of data, identify patterns, derive information from complex data, deal with unstructured data, predict problems, formulate performance improvement strategies, evaluate decision alternatives, and expand their organized learning processes. This advanced data processing capability supports the organization's strategic approach, which focuses on geographic regions to meet customer needs for competitive pricing, quality, and competitor tracking while prioritizing brand preservation and being the first mover in competitive areas.

The medium positive relationship impact of neural network on the sphere of influence in business organizations with green buildings in Jordan can be attributed to several key factors. Due to the superiority of neural networks in analyzing complex and multidimensional data, which is crucial to improving input data. Neural networks support real-time monitoring by learning from vast datasets, neural networks can identify patterns and insights that lead to more efficient and sustainable strategies and practices.

These factors enhance the sphere of influence of business organizations with green buildings in Jordan, where environmental sustainability is a priority, neural networks

facilitate the integration of renewable energy sources ensuring that green buildings meet high sustainability standards. demonstrating the critical role of neural networks in advancing the sphere of influence to achieve strategic supremacy in the shade of sustainable development and environmental stewardship.

This result agrees with (Jankovic & Curovic, 2023), which indicates that AI enhances data management by enabling efficient data collection, analysis, and utilization.

Discussing the Fifth Sub-Hypothesis of the First Main Hypothesis

The results of the fifth sub-hypothesis indicate that there is an impact of neural networks on competitive compression results showed that there is a medium positive impact between neural networks on competitive compression in business organizations with green buildings in Jordan since neural network practices show a medium level of use throughout analyzing large amounts of data, identify patterns, and predict problems. This technology aids in formulating performance improvement strategies, evaluating decision alternatives, and expanding learning processes. leading to managing competitive compression by identifying market entry barriers, competitors' capabilities, market advantages, and using competitive innovation to pressurize competitors.

The medium positive impact of neural networks on competitive compression in business organizations with green buildings in Jordan can be attributed to several key factors. Neural networks' ability to process and analyze large volumes of complex data allows for significant improvements by identifying patterns that are crucial for maintaining a competitive edge. Their predictive analytics capabilities enable accurate forecasting of the marketplace and environmental impacts, helping stakeholders make informed decisions that enhance the overall performance, the integration of neural networks into strategic planning processes empowers green building organizations to adapt more effectively to market dynamics, anticipate future trends, and maintain a competitive advantage in the field.

This result agrees with (Qasaimeh & Jaradeh, 2022), and indicates the interdependence between AI applications (neural networks) in Jordanian commercial banks, with their

effectiveness, and with (Jankovic & Curovic, 2023) and indicates affect user experiences, satisfaction, and loyalty, thereby contributing to sustainable business growth.

Discussing the Sixth Sub-Hypothesis of the First Main Hypothesis

The results of the sixth sub-hypothesis indicate that there is an impact of neural networks on competitive configuration, the results showed that there is a medium positive impact of neural networks on the competitive configuration in business organizations with green buildings in Jordan, since neural networks practices show a medium level of use throughout uploading large amounts of data, identifying patterns, deriving information from complex data, converting conversations into real-time documents, accurately transcribing meeting videos, predicting problems, formulating performance improvement strategies, evaluating decision alternatives, and expanding their organized learning processes through simulation systems. This technological capability also aids in evaluating decision alternatives, which allows the organization to possess predictive capabilities for future competition trends. It invests in strengths to enhance its competitive position, proactively builds new capabilities, and prepares for multiple competitive scenarios by re-evaluating resource capabilities.

The medium positive impact of neural networks on competitive configuration in business organizations with green buildings in Jordan can be attributed to several key factors. Neural networks play a crucial role in business organizations with green buildings in Jordan by providing data-driven insights that help them constrain competitors' penetration into markets. These insights enable companies to develop strategies to weaken competitors, monitor market dynamics, and adapt quickly to changes. Neural networks also help identify unique competitive advantages in each market, allowing organizations to develop contingency plans and apply strategic pressure. They support workforce development by identifying areas for internal capability improvements and facilitating targeted training programs. Neural networks also enable proactive market strategies by predicting future trends and helping organizations prepare for market fluctuations. This proactive approach, combined with a strong product portfolio, increases control and influence in the markets, ensuring green building organizations stay competitive.

In summary, integrating neural networks into strategic planning helps business organizations with green buildings in Jordan in each sector effectively constrain competitors, leverage market advantages, and develop robust plans to stay ahead.

This result agreed with (Qasaimeh & Jaradeh, 2022), indicates the interdependence between AI applications (neural networks) in Jordanian commercial banks, and alignment with its planned strategies.

Discuss the Second Hypothesis

The results of the second main hypothesis indicate that there is a high impact of self-managed teamwork as moderate on AI applications and the strategic supremacy at business organizations with green buildings in Jordan for several reasons, since the organization's practices show a high level of fosters a culture that encourages self-managed teams, granting them the authority to define objectives, providing resources for independent functioning, allowing creative decision-making, and employing their capabilities for multiple tasks. The organization fosters a climate of knowledge sharing, promotes self-management, and provides accountability mechanisms for self-managed teams. Access to knowledge-sharing systems is provided, and achievements are evaluated. The organization also supports scalability to sustain business initiatives and ensures the sustainability of self-managed teams.

Self-managed teamwork plays a positive moderator in the impact of AI applications on strategic supremacy, as when they entered the relationship, they led to an increase in the positive impact, and this is explained by the value of R2 between the first two models. The first main hypothesis R2 was 0.299 and in the second main hypothesis R2 was 0.36 and the difference between them is 7% positive and represents the contribution of the adjusted variable the self-managed teamwork.

Self-managed teams are known for their autonomy and agility, allowing them to adapt quickly to new technologies like AI in green building management. This adaptability enhances the strategic implementation of AI, ensuring it aligns with the strategic goals

aiming for supremacy in the marketplace and can optimize resources, efficiency, and overall processes, contributing directly to strategic objectives.

This result agrees with (Hameed Saeed & Rashid Sultan, 2022) the study concluded that smart leadership has a significant correlation and impact on strategic supremacy.

The collaborative nature of self-managed teams fosters innovation and knowledge sharing, enabling better utilization of AI tools and strategies for long-term strategic planning in green buildings. Overall, the combination of self-managed teams' agility, AI's optimization capabilities, and strategic alignment creates a symbiotic relationship in business organizations with green buildings in Jordan.

The result agreed with Chatterjee et al. 2021, employees' skill, attitude, and ability, known as individual fit had a positive impact on the outcomes of AI-CRM application for relationship management, and AI integration supports knowledge creation in organizations, facilitating rational decision making which ultimately improves firm performance.

5.3 Recommendations

1- Encourage the organizations to invest further in AI applications, particularly fuzzy logic and neural networks, and to improve employee training on AI applications use, and prepare for future technological advancements.

2- Improving the use of fuzzy logic to enhance decision-making and risk management through several key mechanisms:

- Use it in resource allocation and maximum utilization to enhance organizational flexibility and adaptability to market conditions, enabling a more responsive business environment, by analyzing customer data, leading to improved customer satisfaction
- Use it in formulation effective strategies to mitigate risks and maximize benefits enhancing the accuracy of environmental data analysis, leading to better decision-making in environmental management and the identification of new opportunities.

- Use it in analyzing the market fluctuations and managing big data efficiently, enabling the classification of competitors' threats and the development of robust counter-strategies.

3- Encourage the organization to level up of use of neural networks to improve organizational performance and competitiveness through several key mechanisms:
   - Comprehensive strategic planning and precise decision-making by analyzing complex data, which enable proactive problem solving and performance improvement by predicting issues early.
   - Enhance learning and development by integrating insights into training programs, fostering continuous innovation.
   - Monitoring regulatory changes to implement effective competitive tactics.

4- Organizations should focus on enhancing their sphere of influence, competitive compression, and Competitive Configuration to dominate the market through several key mechanisms:
   - Analyzing the competitive landscape for identifying opportunities and anticipating future trends, tracking competitors' movements, and tailoring strategies for each geographic region which strengthens organizational influence and maintains market position.
   - Adopting a customer-centric approach ensures market dominance by aligning products with customer needs, maintaining competitive pricing without compromising quality, enhancing customer retention, and preserving brand identity as a strategic priority.
   - Constraining competitors' penetration into vital markets, and emphasizing strategies to weaken competitors, alongside a vigilant approach to evaluating significant rivals, continuous surveillance of market dynamics and maintaining organizational flexibility.
   - Identifying unique competitive advantages in each market, developing contingency plans to adeptly respond to impactful competitors' actions, and

applying strategic pressure on rivals a capable workforce that addresses the type of competitive compression faced either by:

- Enhancing internal capability improvements.
- Collaboration with external partners.
- Proactive market strategies that anticipate future trends enhance resilience to market fluctuations, while a strong product portfolio increases control and influence in the markets.

5- Leaders within organizations should encourage the formation of self-managed teams as an approach to building a highly innovative and efficient workforce.

6- Strengthen the integration of self-managed teams and AI applications effectively to enhance strategic supremacy, ensuring outmaneuver competitors and achieve their strategic goals.

7- Directing organizations to prioritize aligning with global sustainability and green building trends and standards to enhance competitiveness.

5.4 Future Studies

1. Conduct longitudinal studies to assess the long-term impact of AI applications and self-managed teamwork on strategic supremacy in business organizations.
2. Explore the applicability of the study findings across different fields to understand the generalizability of the results.
3. Compare the effectiveness of AI applications and self-managed teamwork in organizations with and without green buildings to evaluate the unique contributions of sustainable infrastructure.
4. Investigate the employee perspective on the implementation of AI and self-managed teamwork to understand the challenges and benefits from the workforce's point of view.
5. Extend the research to a global context to analyze how cultural differences impact the effectiveness of AI applications and self-managed teamwork on strategic supremacy.

6. Introduction of a Mediator Instead of a moderator in the Study: This suggests considering the introduction of a mediator variable in future research studies, this approach allows for a more nuanced understanding of the relationships between variables by examining the underlying mechanisms or processes that may influence outcomes.

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Appendices

Appendix (1): List of interviewees

Appendix (2): Study Tool (Questionnaire)

Appendix (3): Names of Academic Experts

Appendix (4): A Letter to Facilitate the Task of Conducting the Study

Appendix (1)
List of interviewees

No.	Name	Position	Organization Name	Interview Time
1	Mr. Ahmad Al-Khader	Chief Operations Officer	Housing Bank	20 minutes
2	Mr. Faisal Abdallat	Director of Engineering & Operations	Engineering Company	15 minutes
3	Mr. Nadir Abusaif	Material Director / Procurement Director	Istiklal Hospital	20 minutes
4	Mr. Mohammad Shelbayeh	Senior Large and strategic Account Manager	Orange	25 minutes
TOTAL				**80 minutes**

Appendices Appendix (2)
Study Tool (Questionnaire)

جـــامـعـــة الـــشـرق الأوسـط
MIDDLE EAST UNIVERSITY
Amman - Jordan

Ladies and Gentlemen

After Greeting:

We are thrilled to invite you to take part in a questionnaire for a master's thesis titled The Impact of Artificial Intelligence Applications on Strategic Supremacy: The Moderating Role of Self-Managed Teamwork: A Field Study on Business Organizations with Green Buildings in Jordan), in order to complete the master's degree in the Business Administration Department, Middle East University, Amman-Jordan. As managers in Green Buildings organization, your insights and experiences are invaluable to the success of this research.

The objective of this study is to explore the Impact of Artificial Intelligence Applications on Strategic Supremacy in the Green Buildings in Jordan, with a specific emphasis on the role Self-Managed Teamwork. Your participation in this questionnaire will involve answering a series of questions related to your experiences, perspectives.

From this standpoint, the researcher addresses you with the attached questionnaire, requesting that you read it carefully and then answer its items by placing a tick (✓) in the field that agrees with your opinion and corresponds to each item.

While the researcher expresses his thanks for your cooperation, he would like to inform you that the information contained in the questionnaire will be used exclusively for scientific research purposes and will be treated with complete confidentiality, without anyone seeing it.

Thank you in advance for your valuable contribution.

Sincerely,

Supervisor: Prof. Dr. Ahmad Ali Salih **Researcher: Wesam Khataybeh**

General Information (Demographics Characteristics)

Please choose the appropriate answer by ticking (✓) the appropriate place:

1) Gender:

Male	( )	Female	( )

2) Educational level:

Bachelor's	( )	Master's	( )
High Diploma	( )	PhD	( )

3) Age:

Younger than 30 years	( )	30 - less than 45years	( )
45 less than 60 years	( )	60 years & above	( )

4) Years of Experience:

Less than 6 years	( )	6 - less than 11 years	( )
11 - less than 16 years	( )	16 years & above	( )

5) Management level:

Top-Level Management	( )	Middle-Level Management	( )
First-Level Management	( )		

6) Type of company activity:

Banking	( )	Engineering Companies	( )
University	( )	Others	( )

Name the company activity

……

Independent Variable: Artificial Intelligence

Systems comprising applications that mimic cognitive processes typically associated with human characteristics such as learning, speech, decision-making, and problem-solving. This includes various applications, and the current study relied on two of these applications, namely fuzzy logic and neural networks, as they are the accredited applications practiced in the organizations included in the current study.

المتغير المستقل: الذكاء الاصطناعي

مجموعة التطبيقات التي تحاكي العمليات المعرفية المرتبطة عادة بالخصائص البشرية مثل التعلم والكلام وصناعة القرارات وحل المشكلات. ويتضمن العديد من التطبيقات و اعتمدت الدراسة الحالية على أثنين من تلك التطبيقات هما المنطق المضبب والشبكات العصبونية كونهما التطبيقين المعتمدين واللذين يمارسان في المنظمات المشمولة في الدراسة الحالية.

Dimension 1: Fuzzy Logic

The set of multi-valued operations utilized by green building organizations that use imprecise terms to process inexact values and provide approximative solutions, enhancing decision-making precision without compromising accuracy.

البعد الاول: المنطق المضبب

مجموعة العمليات متعددة القيم التي تستخدمها مؤسسات البناء الأخضر والتي تستخدم مصطلحات غير دقيقة لمعالجة القيم غير الدقيقة وتوفير حلول تقريبية، مما يعزز دقة اتخاذ القرار دون المساس بالدقة.

NO.	Item	Strongly agree أوافق بشدة	Agree أوافق	Somewhat agree أوافق إلى حد ما	Disagree لا أوافق	Strongly disagree لا أوافق بشدة
1	The organization uses fuzzy logic to support decision-making processes. تستخدم المنظمة المنطق المضبب في دعم عمليات صنع القرارات.					
2	The organization uses fuzzy logic in allocating resources. تعتمد المنظمة المنطق المضبب في تخصيص الموارد.					
3	The organization employs fuzzy logic to enhance adaptation to market conditions. تستخدم المنظمة المنطق المضبب لتعزيز التكيف مع ظروف السوق.					
4	The organization adopts fuzzy logic to achieve customer satisfaction. تتبنى المنظمة المنطق المضبب لتحقيق رضا العملاء.					
5	The organization formulates risk management strategies using fuzzy logic. تصيغ المنظمة استراتيجيات إدارة المخاطر باعتماد المنطق المضبب.					
6	The organization improves the accuracy of environmental data analysis using fuzzy logic. تحسن المنظمة من دقة تحليل البيانات البيئية باستخدام المنطق المضبب					

NO.	Item	Strongly agree أوافق بشدة	Agree أوافق	Somewhat agree أوافق إلى حد ما	Disagree لا أوافق	Strongly disagree لا أوافق بشدة
7	The organization diagnoses the richness of environmental opportunities through fuzzy logic analyses. تشخص المنظمة ثراء الفرص البيئية من خلال تحليلات المنطق المضبب.					
8	The organization plans to counter market fluctuations using fuzzy logic. تخطط المنظمة لمواجهة تقلبات السوق باستخدام المنطق المضبب.					
9	The organization manages big data using fuzzy logic. تدير المنظمة البيانات الضخمة باعتماد المنطق المضبب.					
10	The organization uses fuzzy logic analyses to classify competitors' threats' strengths. تستفيد المنظمة من تحليلات المنطق المضبب في تصنيف قوة تهديدات المنافسين.					

Dimension 2: Neural Networks

Interconnected network of nodes (neurons) structured in layers mimicking brain software, utilized by green building organizations for deep learning, communication, data management, predictive processes, and diagnosing environmental challenges.

البعد الثاني: الشبكات العصبونية

مجموعة عقد (عصبونات) مترابطة في بنية مكونة من طبقات تحاكي برمجية الدماغ، تستخدمها المنظمات ذات المباني الخضراء لأغراض التعلم العميق والتواصل وإدارة البيانات وعمليات التنبؤ وتشخيص التحديات البيئية.

NO.	Item	Strongly agree أوافق بشدة	Agree أوافق	Somewhat agree أوافق إلى حد ما	Disagree لا أوافق	Strongly disagree لا أوافق بشدة
11	The organization uses neural networks to upload large amounts of data. تستخدم المنظمة الشبكات العصبونية لتحميل كميات كبيرة من البيانات.					
12	The organization uses neural networks to identify patterns from input data. تعتمد المنظمة الشبكات العصبونية للتعرف على أنماط مدخلات البيانات.					
13	The organization uses neural networks to derive information from complex data. تستفيد المنظمة من الشبكات العصبونية في اشتقاق المعلومات من البيانات المعقدة.					
14	The organization is able through neural networks to deal with unstructured data. تتمكن المنظمة عن طريق الشبكات العصبونية من التعامل مع البيانات غير المهيكلة.					
15	The organization benefits from neural networks in converting conversations into real-time documents. تستفيد المنظمة من الشبكات العصبونية في تحويل المحادثات إلى وثائق في الوقت الفعلي.					
16	The organization is capable through neural networks of accurately transcribing meeting videos to obtain broader content. تتمكن المنظمة من خلال الشبكات العصبونية من تفريغ مقاطع الفيديو للاجتماعات بدقة للحصول على محتوى أوسع.					
17	The organization uses neural networks to predict problems. تستخدم المنظمة الشبكات العصبونية للتنبؤ بالمشاكل.					

NO.	Item	Strongly agree أوافق بشدة	Agree أوافق	Somewhat agree أوافق إلى حد ما	Disagree لا أوافق	Strongly disagree لا أوافق بشدة
18	The organization formulates performance improvement strategies using neural networks. تصيغ المنظمة استراتيجيات تحسين الاداء باستخدام الشبكات العصبونية.					
19	The organization evaluates decision alternatives to choose the most appropriate using neural networks. تقييم المنظمة بدائل القرار لاختيار الأنسب منها باستخدام الشبكات العصبونية.					
20	The organization expands its organized learning processes through neural network simulation systems. توسع المنظمة من عمليات التعلم المنظمي عن طريق نظم المحاكاة بالشبكة العصبونية.					

Dependent variable: Strategic Supremacy

Dominant position or advantages an organization holds over others in terms of strategy, involving superior resources, tactics, or decision-making capabilities. It signifies a level of control or influence that allows the entity to outmaneuver and outperform competitors in pursuit of their goals. It includes the sphere of influence, competitive compression, and competitive configuration.

المتغير التابع: السيادة الاستراتيجية

الموقع المهيمن أو المزايا التي تمتلكها منظمة ما على الآخرين من حيث الاستراتيجية، والتي تتضمن موارد أو تكتيكات أو قدرات متفوقة على اتخاذ القرار. إنه يدل على مستوى من السيطرة أو التأثير الذي يسمح للكيان بالتفوق على المنافسين في المناورة والتفوق في الأداء للسعي لتحقيق أهدافهم. وتشمل على دائرة النفوذ والضغط التنافسي والتكوين التنافسي.

Dimension 1: The Sphere of Influence

An integrated product portfolio that gives the organization a dominant position compared to competitors, directs resources toward it, and addresses competitive threats and pressures to maintain competitiveness within its geographic scope.

البعد الأول: دائرة النفوذ

محفظة منتجات متكاملة التي تعطي المنظمة موقعا مهيمنا مقارنة بالمنافسين وتوجيه الموارد نحوها ومعالجة التهديدات والضغوط التنافسية للحفاظ على القدرة التنافسية ضمن نطاقها الجغرافي.

NO.	Item	Strongly agree أوافق بشدة	Agree أوافق	Somewhat agree أوافق إلى حد ما	Disagree لا أوافق	Strongly disagree لا أوافق بشدة
21	The organization adopts a specific strategy for each geographic region. تتبنى المنظمة استراتيجية محددة لكل منطقة جغرافية.					
22	The organization has a cohesive sphere of influence within its competitive space. تتمتع المنظمة بمجال تأثير متماسك ضمن مجالها التنافسي.					
23	The organization offers its products at times that suit its customers' circumstances. توفر المنظمة منتجاتها في توقيتات تلائم ظروف زبائنها.					
24	The organization provides products at competitive prices while maintaining an acceptable level of quality. تقدم المنظمة منتجات بأسعار تنافسية مع المحافظة على جودة مقبولة.					
25	The organization track competitors' moves. تقوم المنظمة بتتبع تحركات المنافسين.					
26	The organization takes the initiative to be the first mover in competitive areas. تبادر المنظمة ان تكون متحرك اول في مناطق المنافسة.					
27	The organization considers preserving its brand identity a strategic priority. تعتبر المنظمة المحافظة على علامتها التجارية أولوية استراتيجية.					

Dimension 2: Competitive Compression

Strategic framework characterized by the comprehensive analysis of the competitive landscape, deployment of innovative tactics to constrain competitors' penetration into essential markets, evaluation of significant rivals, and recognition of unique market advantages. Additionally, it entails the proactive collection of customer feedback, ongoing surveillance of market dynamics, and the formulation of contingency plans to adeptly respond to competitive actions.

البعد الثاني: الضغط التنافسي

إطار استراتيجي يتميز بالتحليل الشامل للمشهد التنافسي، ونشر تكتيكات مبتكرة لتقييد تغلغل المنافسين في الأسواق الأساسية، وتقييم المنافسين المهمين، والاعتراف بمزايا السوق الفريدة. بالإضافة إلى ذلك، فإنه يستلزم جمعًا استباقيًا لتعليقات العملاء، والمراقبة المستمرة لديناميكيات السوق، وصياغة خطط الطوارئ للاستجابة ببراعة للإجراءات التنافسية.

NO.	Item	Strongly agree أوافق بشدة	Agree أوافق	Somewhat agree أوافق إلى حد ما	Disagree لا أوافق	Strongly disagree لا أوافق بشدة
28	The organization identifies the type of competitive compression. تقوم المنظمة بتحديد نوع الضغط التنافسي.					
29	The organization has the capability to face competitive pressures. تمتلك المنظمة قدرات لمواجهة الضغوط التنافسية.					
30	The organization adopts innovative strategies to limit the entry of competitors in its main markets. تتبنى المنظمة استراتيجيات مبتكرة للحد من دخول المنافسين إلى أسواقها الرئيسية.					
31	The organization prioritizes analyzing the capabilities of the most impactful competitors in the market. تهتم المنظمة بتحليل قدرات المنافسين الأكثر تأثيرا في السوق.					
32	The organization identifies a competitive advantage for each market it operates in. تحدد المنظمة ميزة تنافسية لكل سوق تعمل فيه.					
33	The organization is keen to implement the suggestions of its customers. تحرص المنظمة لتنفيذ مقترحات زبائنها.					
34	The organization relies on competitive innovation as a means of pressuring competitors. تعتمد المنظمة الابداع التنافسي كوسيلة ضغط على المنافسين.					

Dimension 3: Competitive Configuration

Strategic organizational framework that focuses on forming alliances, enhancing internal strengths, and collaborating with external partners. It involves enhancing internal capabilities, collaborating with external partners, and continuously evaluating resource capacities. This approach helps organizations fortify their market position and anticipate future trends with resilience, ensuring their competitive edge.

البعد الثالث: التكوين التنافسي

إطار تنظيمي استراتيجي يركز على تشكيل التحالفات وتعزيز نقاط القوة الداخلية والتعاون مع الشركاء الخارجيين. وينطوي ذلك على تعزيز القدرات الداخلية، والتعاون مع الشركاء الخارجيين، والتقييم المستمر لقدرات الموارد. يساعد هذا النهج المؤسسات على تعزيز مكانتها في السوق وتوقع الاتجاهات المستقبلية بمرونة، مما يضمن قدرتها التنافسية.

NO.	Item	Strongly agree أوافق بشدة	Agree أوافق	Somewhat agree أوافق إلى حد ما	Disagree لا أوافق	Strongly disagree لا أوافق بشدة
35	The organization tends toward cooperative rather than competitive relationships with competitors. تميل المنظمة نحو العلاقات التعاونية أكثر من التنافسية مع المنافسين.					
36	The organization has predictive capabilities of future trends of competition. تمتلك المنظمة قدرات تنبؤية بالاتجاهات المستقبلية للمنافسة.					
37	The organization invests in its strengths to enhance its competitive position. تستثمر المنظمة بنقاط قوتها لتعزيز مكانتها التنافسية.					
38	The organization adopts proactive moves in building new competitive capabilities. تتبنى المنظمة التحركات الاستباقية في بناء قدرات تنافسية جديدة.					
39	The organization re-evaluates its resource capabilities in light of competitive fluctuations. تعيد المنظمة تقييم قدرات مواردها في ظل التقلبات التنافسية.					
40	The organization analyzes competitors' objectives to understand their strategic directions. تحلل المنظمة أهداف المنافسين لفهم توجهاتهم الاستراتيجية.					
41	The organization prepares multiple scenarios to face competitive changes تعد المنظمة سناريوهات متعددة لمواجهة التغيرات التنافسية.					

Moderator variable: Self-Managed Teams Work

Organizational arrangements consist of a group of people from different specializations who integrate with each other to perform multiple tasks and activities and enjoy independence and flexibility in managing their duties without the assistance of a boss or supervisor.

المتغير المعدل:فرق العمل المدارة ذاتيا .

ترتيبات تنظيمية تتكون من مجموعة من الأشخاص من تخصصات مختلفة يتكاملون مع بعضهم البعض لأداء مهمات وانشطة متعددة ويتمتعون باستقلالية ومرونة في إدارة واجباتهم بدون مساعدة رئيس او مشرف.

NO.	Item	Strongly agree أوافق بشدة	Agree أوافق	Somewhat agree أوافق إلى حد ما	Disagree لا أوافق	Strongly disagree لا أوافق بشدة
42	The organization's culture encourages working in self-managed teams. تشجع ثقافة المنظمة العمل بأسلوب الفرق المدارة ذاتيا.					
43	The organization grants self-managed teams the authority to define their objectives. تمنح المؤسسة الفرق المُدارة ذاتيًا سلطة تحديد أهدافها.					
44	The organization provides sufficient resources for self-managed teams to function independently. توفر المنظمة الموارد الكافية لعمل الفرق المدارة ذاتيا بشكل مستقل.					
45	The organization enables self-managed teams to make decisions regarding creative processes. تمكن المنظمة الفرق المدارة ذاتيا من اتخاذ القرارات المتعلقة بالعمليات الإبداعية.					
46	The organization employs the capabilities of self-managed teams to perform more than one task. توظف المنظمة قدرات الفرق المدارة ذاتيا لأداء اكثر من مهمة.					
47	The organization provides learning opportunities for self-managed teams. توفر المنظمة فرص التعلم للفرق التي تتم إدارتها ذاتيًا.					
48	The organization creates a climate that encourages knowledge-sharing in self-managed teams. تهيئ المنظمة مناخ يشجع على التشارك المعرفي للفرق المدارة ذاتيا.					

NO.	Item	Strongly agree أوافق بشدة	Agree أوافق	Somewhat agree أوافق إلى حد ما	Disagree لا أوافق	Strongly disagree لا أوافق بشدة
49	The organization promotes self-management within the team culture. تعزز المنظمة الإدارة الذاتية ضمن ثقافة الفريق.					
50	The organization prepares self-managed teams accountability mechanisms to ensure achieving responsibility. توجه المنظمة الفرق المدارة ذاتيا للعمل بأسلوب القيادة التشاركية.					
51	The organization gives access to systems that share knowledge. تتيح المنظمة امكانيه الوصول للانظمة التي تشارك المعرفة.					
52	The organization evaluates the achievements of self-managed teams. تقيم المنظمة إنجازات الفرق المُدارة ذاتيًا.					
53	The organization supports scalability to sustain business initiatives. تدعم المنظمة قابلية التوسع لاستدامة مبادرات العمل.					

Appendix (3)
Names of Academic Experts.

No.	Name of Expert	University
1	Prof. Dr. Ahmed Ghandour	Middle East University (MEU)
2	Prof. Dr. Ali Al-Adayleh	Middle East University (MEU)
3	Prof. Dr. Ghazi Abu Kaoud	Mut'ah University
4	Prof. Dr. Muhammad Khair Abu Salim	Al Balqa Applied University
5	Prof. Dr. Shafiq Haddad	Princess Sumaya University for Technology
6	Prof. Dr. Shaker Al Khashali	The World Islamic Science and Education University
7	Associate Prof. Hussam Yassin	Middle East University (MEU)
8	Associate Prof. Khaled Al-Shawabkeh	The World Islamic Science and Education University

The Names of the Experts were Arranged According to Scientific Rank and Alphabetic Letters.

Appendix (4)
A Letter to Facilitate the Task of Conducting the Study

جـامـعـة الـشـرق الاوسـط
MEU MIDDLE EAST UNIVERSITY
Amman - Jordan

مكتب رئيس الجامعة
Office of the President

الرقم: د ر/خ/1284
التاريخ: 2024/04/18

لمن يهمه الأمر

تحية طيبة وبعد،

فتهديكم جامعة الشرق الأوسط أطيب وأصدق الأمنيات، لغايات توفير وربط أسس التعاون مع خدمة المجتمع المحلي؛ نرجو التكرم بالموافقة على تقديم التسهيلات الممكنة لطالبة الماجستير **وسام زياد أحمد خطايبة**، ورقمها الجامعي **(402130034)**، المسجلة في برنامج ماجستير إدارة الأعمال / كلية الأعمال في جامعة الشرق الأوسط، والتي تتولى القيام بإعداد دراسة بحثية أكاديمية في رسالتها المعنونه بـ " **أثر تطبيقات الذكاء الاصطناعي على السيادة الاستراتيجية: الدور المعدل لفرق العمل المدارة ذاتيًا دراسة ميدانية في منظمات الاعمال ذات الأبنية الخضراء في الأردن**"، علماً بأن المعلومات سيتم استخدامها لأغراض البحث العلمي وبصورة سرية.

وتفضلوا بقبول فائق الاحترام والتقدير،،،

رئيسة الجامعة

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