FROM INFORMATION TECHNOLOGY TO ORGANISATIONAL INTELLIGENCE

Strategic Resources, Artificial Intelligence and Sustainable Competitive Advantage in the Intelligence Age

Author

Asst. Prof. Dr. Engin ŞİRVAN

Vizetek
Yayıncılık

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DECLARATION

I hereby declare that this dissertation is my own original work and that it has not been submitted, in whole or in part, for any degree or qualification at any other institution.

All sources of information used in this dissertation have been appropriately acknowledged and referenced in accordance with academic standards.

This dissertation represents an original academic contribution developed through independent research and critical analysis.

ACKNOWLEDGEMENTS

The completion of this dissertation represents not only an academic achievement but also the culmination of a long intellectual journey that began more than a decade ago.

The original version of this research was completed in 2010 and focused on the strategic role of information technology within the hospitality industry. Since then, the business world has undergone extraordinary transformation through digitalization, social media, big data, cloud computing and artificial intelligence.

The development of this revised and expanded study has provided an opportunity to revisit earlier ideas and re-evaluate them within the context of the emerging Intelligence Age.

I would like to express my sincere gratitude to the academics, managers, colleagues and industry professionals whose insights and experiences have influenced my understanding of technology, strategy and organizational development throughout the years.

Special appreciation is extended to my family for their continuous support, patience and encouragement during every stage of this academic and professional journey.

Finally, I dedicate this dissertation to all individuals who believe that learning is a lifelong process and that intellectual curiosity remains one of the most powerful drivers of personal and professional growth.

ABSTRACT

This dissertation examines how organizations strategically leverage digital technologies, artificial intelligence and data-driven capabilities to create sustainable competitive advantage in the modern corporate world.

While information technology has long been recognized as a strategic resource, recent developments in artificial intelligence, advanced analytics, cloud computing and digital ecosystems have fundamentally transformed the nature of organizational competition.

Drawing upon the Resource-Based View, Knowledge-Based View, Dynamic Capabilities Theory and contemporary Artificial Intelligence literature, this study develops an integrated theoretical framework that explains how organizations transform technological resources into intelligence-based competitive advantage.

The research argues that sustainable competitive advantage is no longer primarily derived from technology ownership. Instead, competitive advantage increasingly emerges from the organizational capability to transform technology, data, artificial intelligence and human expertise into organizational intelligence.

To explain this process, the dissertation introduces the Strategic Intelligence Capability Framework (SICF), a multi-layered framework consisting of foundation resources, digital capability, data capability, artificial intelligence capability, human and governance capability, and organizational intelligence.

Furthermore, the study develops the Organizational Intelligence Advantage Framework (OIAF), which conceptualizes organizational intelligence as the primary source of competitive differentiation in the Intelligence Age.

The findings suggest that future competitive success will depend not on the possession of technology itself, but on the capability to transform technology into intelligence and intelligence into strategic action.

TÜRKÇE ÖZ

Bu çalışma, örgütlerin dijital teknolojileri, yapay zekâyı ve veri temelli yetenekleri kullanarak sürdürülebilir rekabet avantajını nasıl oluşturduklarını incelemektedir.

2010 yılında hazırlanan ve bilgi teknolojilerinin konaklama sektöründeki stratejik rolünü inceleyen önceki araştırmanın genişletilmiş bir devamı niteliğinde olan bu çalışma, dijital dönüşüm ve yapay zekâ çağında rekabet avantajının doğasını yeniden değerlendirmektedir.

Araştırma, Kaynak Temelli Görüş (RBV), Bilgi Temelli Görüş (KBV), Dinamik Yetenekler Teorisi ve çağdaş Yapay Zekâ literatürünü bütünleştirerek örgütlerin teknolojik kaynakları örgütsel zekâya nasıl dönüştürdüklerini açıklayan yeni bir teorik çerçeve geliştirmektedir.

Çalışmanın temel savı, sürdürülebilir rekabet avantajının artık teknoloji sahipliğinden değil, teknolojiyi, veriyi, yapay zekâyı ve insan uzmanlığını örgütsel zekâya dönüştürebilme yeteneğinden kaynaklandığıdır.

Bu doğrultuda Stratejik Zekâ Yetkinliği Çerçevesi (SICF) ve Örgütsel Zekâ Avantajı Çerçevesi (OIAF) geliştirilmiştir.

Araştırma sonuçları, geleceğin başarılı kurumlarının en fazla teknolojiye sahip olanlar değil, teknolojiyi zekâya dönüştürebilen kurumlar olacağını göstermektedir.

Anahtar Kelimeler: *Yapay Zekâ, Örgütsel Zekâ, Dijital Dönüşüm, Rekabet Avantajı, Stratejik Kaynaklar, Dinamik Yetenekler.*

EXECUTIVE SUMMARY

Background and Motivation

In 2010, information technology was largely viewed as a supporting organizational resource capable of improving efficiency, productivity and customer service within specific industries such as hospitality. Since then, the business environment has undergone unprecedented transformation driven by digitalization, social media, cloud computing, mobile technologies, big data and artificial intelligence.

These developments have fundamentally altered the mechanisms through which organizations create value and sustain competitive advantage.

The original research investigated the strategic evaluation and implementation of information technology in the hospitality sector. The present study extends that investigation beyond industry boundaries and explores how modern organizations create competitive advantage in the emerging Intelligence Age. The original dissertation's focus on IT as a strategic resource provides the conceptual foundation for this broader inquiry.

The relationship between information technology and competitive advantage has been a central theme within strategic management and information systems literature for several decades. The original version of this research, completed in 2010, examined the role of information technology as a strategic resource within the hospitality industry and explored how technology investments could contribute to sustainable competitive advantage.

Since then, the business environment has experienced profound transformation. The emergence of cloud computing, social media platforms, mobile technologies, big data analytics, artificial intelligence and generative AI systems has fundamentally changed the nature of organizational competition.

Today, organizations operate within environments characterized by:

- Continuous technological disruption
- Global digital connectivity
- Data abundance

- Accelerating innovation cycles
- Increasing decision complexity

Consequently, the traditional assumption that technology ownership itself creates competitive advantage has become increasingly questionable.

This study was therefore undertaken to re-examine the relationship between technology and competitive advantage within the context of the Intelligence Age.

Research Objective

The primary objective of this dissertation is to investigate:

How can organizations strategically leverage digital technologies, artificial intelligence and data-driven capabilities to create sustainable competitive advantage in the modern corporate world?

The study seeks to identify the organizational mechanisms through which technological resources generate strategic value.

Rather than focusing solely on technology adoption, the research examines how organizations transform technology, data, artificial intelligence and human expertise into organizational intelligence.

Research Approach

The study adopts a conceptual and theory-building approach.

The analysis integrates insights from:

- Resource-Based View (RBV)
- Knowledge-Based View (KBV)
- Dynamic Capabilities Theory
- Digital Transformation Literature
- Artificial Intelligence Literature
- Organizational Learning Literature
- Governance and Trust Literature

By combining these perspectives, the study develops a comprehensive explanation of competitive advantage in intelligence-driven environments.

Key Findings

The research generated several important conclusions.

Technology is Necessary but Not Sufficient

Technology remains an important organizational resource.

However, technological resources have become increasingly accessible and therefore less capable of generating sustainable differentiation on their own.

Data Creates Potential Value

Data represents a strategic organizational asset.

Nevertheless, data itself does not generate competitive advantage.

Value emerges when organizations transform data into actionable intelligence.

Artificial Intelligence Amplifies Capability

Artificial intelligence enhances learning, prediction and decision support.

However, AI should be viewed as an enabling capability rather than an independent source of sustainable competitive advantage.

Human Expertise Remains Critical

Despite rapid advances in artificial intelligence, human judgement, leadership, creativity and contextual understanding remain indispensable.

The most effective organisations are likely to be those that successfully combine human and artificial intelligence.

Governance and Trust Create Sustainability

Intelligence capabilities require governance structures that ensure transparency, accountability, security and ethical responsibility.

Without trust, intelligence advantages cannot be sustained.

Principal Contribution

The central contribution of this study is the proposition that:

Organisational Intelligence is the primary source of sustainable competitive advantage in the Intelligence Age.

The study argues that organisations no longer compete primarily through technology ownership.

Instead, they compete through their ability to transform technology into intelligence and intelligence into strategic action.

Strategic Intelligence Capability Framework (SICF)

To explain this process, the study introduces the Strategic Intelligence Capability Framework (SICF).

The framework consists of six interconnected capability layers:

1. Foundation Resources
2. Digital Capability
3. Data Capability
4. Artificial Intelligence Capability
5. Human and Governance Capability
6. Organisational Intelligence

The framework explains how organisations transform resources into intelligence and intelligence into competitive advantage.

Organisational Intelligence Advantage Framework (OIAF)

The study further develops the Organisational Intelligence Advantage Framework.

The framework proposes that:

Technology
+
Data
+
Artificial Intelligence
+
Human Expertise
+
Governance
+
Organisational Learning

create

Organisational Intelligence

which subsequently creates

Intelligence Advantage

and ultimately

Sustainable Competitive Advantage.

Conclusion

The study concludes that the future competitive landscape will not be defined by organisations that possess the most technology.

Rather, competitive success will increasingly depend upon organisations' ability to transform technology, data, artificial intelligence and human expertise into organisational intelligence.

Consequently, organisational intelligence represents the next evolutionary stage of competitive advantage in the modern corporate world.

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CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Over the last four decades, information technology has become one of the most significant drivers of organisational transformation and economic development. Organisations across industries have increasingly invested in information systems, digital infrastructures and technology-enabled processes in pursuit of improved efficiency, innovation and competitive advantage. During the late twentieth century, information technology was primarily viewed as a supporting organisational resource that facilitated automation, communication and information processing (Porter & Millar, 1985).

As technological capabilities expanded, scholars began to recognise that information technology could influence not only operational performance but also strategic positioning. Resource-Based View (RBV) theorists argued that technology-related resources and capabilities could contribute to sustainable competitive advantage when they were valuable, rare, difficult to imitate and organisationally embedded (Barney, 1991; Wernerfelt, 1984).

The original version of this research, completed in 2010, investigated information technology as a strategic resource within the hospitality industry and examined how technological capabilities contributed to competitive advantage. The study was grounded in Resource-Based Theory and focused on the relationship between information technology investments and organisational performance.

Since that time, however, the technological and competitive landscape has changed dramatically.

The emergence of cloud computing, social media, mobile technologies, digital platforms, big data analytics, machine learning and artificial intelligence has transformed the nature of organisational competition. Digital technologies are no longer confined to operational support functions. Instead, they increasingly shape organisational strategy, business models and value creation mechanisms (Westerman, Bonnet, & McAfee, 2014; Vial, 2019).