

Course Title: Research Methodology in Computer Science

Course Code: AI800

Lecturer: Dr. Mohammed Anbar Hand-out

Date: 25 March 2026 Hand-in

Method: Online Submission via E-Learning.

Assignment Report: The value of artificial intelligence in business administration.

Student Card: 221000868

Student's Name: Ghaida'a Al-Suwaidan

Table of Contents:

- 1) Introduction**
- 2) Brief explanation of the best empirical research**
- 3) MIT Sloan & BCG Reports on Artificial Intelligence in Business**
- 4) Center Comparison Table**
- 5) References**

Introduction:

*** What is meant by empirical research in the value of AI?**

These are studies that rely on **actual data** from companies, field experiments, or extensive surveys to determine *the true impact* of artificial intelligence on:

- Productivity
 - Decision Making
 - Operational efficiency
 - Innovation
 - Financial Return
-

Brief explanation of the best empirical research:

*** Brynjolfsson, Li & Raymond (2023) – Generative AI at Work**

- **Value Type:** Employee Productivity, Service Quality, Customer Satisfaction.
 - **Why is it important?**
 - A real field experiment in a call center, with a comparison between a group using a generative AI tool and a control group.
 - It shows **causally** that AI doesn't just replace the employee, but it also raises their performance, especially the less experienced.
 - **Suitable for you if you focus on:**
 - The impact of AI on **human resource management**, the productivity of customer service teams, and the improvement of the customer experience.
-

*** Babina et al. (2023) – Artificial Intelligence, Firm Growth, and Product Innovation**

- **Value Type:** Sales Growth, Expansion, Innovation (Patents, New Products).
- **Why is it important?**

- It draws on extensive data on U.S. companies, and links AI adoption to growth and innovation indicators.
 - He explains that AI is associated with **long-term strategic value**, not just operational efficiency.
 - **Suitable for you if you focus on:**
 - The relationship between artificial intelligence, innovation, and corporate growth, and its impact on competitive advantage.
-

*** Mikalef et al. (2021) – AI Capabilities and Firm Performance**

- **Value Type:** Company Performance, Competitive Advantage, Organizational Capabilities.
 - **Why is it important?**
 - A survey of multi-sectoral firms, using structural equation modeling to measure the relationships between:
 - Artificial Intelligence Capabilities
 - Dynamic Capabilities
 - Performance.
 - It provides **an experiential framework** that connects investing in AI with value creation through improved organizational capabilities and innovation.
 - **Suitable for you if you focus on:**
 - Resource management, organizational capabilities, and linking AI to theories such as **Resource-Based View** and Dynamic Capabilities.
-

*** Keding (2021) – How AI Creates Business Value: A Review and Synthesis**

- **Value Type:** Operational (Cost Reduction, Automation), Strategy (New Business Models), Innovative.
- **Why is it important?**
 - Not a single trial, but **a synthetic review** of existing experimental studies.

- It offers a clear categorization of how AI creates value in business:
 - Process Optimization
 - Decision Support
 - Developing new products and services
 - Reshaping the business model.
 - **Suitable for you if you focus on:**
 - Build **a theoretical framework** or chapter of literature in a master's/doctoral thesis on the value of artificial intelligence in business administration.
-

MIT Sloan & BCG Reports on Artificial Intelligence in Business:

- **Value Type:** Financial performance, efficiency, maturity of AI adoption.
 - **Why important?**
 - It relies on surveys of thousands of executives around the world.
 - It shows that the real value comes when AI integrates strategy **and operations together**, rather than as isolated technology projects.
 - **Suitable for you if you focus on:**
 - Senior management's **perspective**, AI adoption strategies, and the gap between "experimentation" and "value creation."
-

#Which of this research is the "best"?

- **In terms of causality empirical power:**
 - The research **of Brynjolfsson, Li & Raymond (2023)** is the strongest because it is a randomized field experiment that demonstrates the impact of AI on productivity causally.
- **In terms of linking AI to company-wide growth and innovation:**

- Babina et al. (2023) **research** is one of the most significant pieces of evidence that AI is associated with higher growth and innovation.
 - **In terms of building a theoretical-applied framework for business management:**
 - **Mikalef et al. (2021)** and Keding (2021) are very useful for formulating a conceptual model in master's/doctoral theses.
-

*** Center Comparison Table:**

Key Experimental Results	Type of measured value	Sector/Sample	Type of Study	References
Generative AI increases agent productivity (especially less experienced) and improves customer satisfaction.	Productivity, Quality of Service, Customer Satisfaction	Customer Service Call Center	Random Field Experiment	Brynjolfsson, Li & Raymond (2023)
AI adoption is associated with higher growth and more innovation, especially in companies with strong organizational capabilities.	Company Growth, Innovation (Patents, New Products)	US Listed Companies	Firm-level Panel Data	Babina et al. (2023)
AI capabilities positively impact performance by enhancing dynamic capabilities and innovation.	Company Performance, Competitive Advantage	Companies from different sectors	Survey and Structural Equation Modeling Analysis	Mikalef et al. (2021)
It provides a framework that connects the types of AI applications with the types of value created in the business.	Value Types (Operational, Strategic, Innovative)	Multiple studies on companies	Review & Synthesis	Keding (2021)
Companies that integrate AI into their business model and processes perform better than competitors.	Financial performance, efficiency, AI adoption	Thousands of executives globally	Extensive Executive Surveys	MIT-BCG Reports on Artificial Intelligence (2017–2021)

*** References:**

- **Brynjolfsson, E., Li, D., & Raymond, L. (2023).** Generative AI at Work: Experimental Evidence from a Call Center. *NBER Working Paper No. 31161*.
 - **Babina, T., Fedyk, A., He, A., & Hodson, J. (2023).** Artificial Intelligence, Firm Growth, and Product Innovation. *The Review of Financial Studies* (forthcoming).
 - **Mikalef, P., Pappas, I. O., Krogstie, J., & Pavlou, P. (2021).** Artificial Intelligence Capabilities and Firm Performance: A Resource-Based View. *Information & Management*.
 - **Keding, C. (2021).** How Artificial Intelligence Creates Business Value: A Review and Synthesis. *Technological Forecasting and Social Change*, 171, 120986.
 - **Ransbotham, S., Kiron, D., Gerbert, P., & Reeves, M. (2017–2021).** Artificial Intelligence in Business: MIT Sloan Management Review and Boston Consulting Group Reports.
-