

Artificial Intelligence for Business

Ana Landeta Echeberria
Editor

Artificial Intelligence for Business

Innovation, Tools and Practices

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PREFACE

Dear readers,

The book builds on the previous research and real business practices of Universidad a Distancia de Madrid (Spain), “Technological Social Sciences Research Group” and TodoStartups Ltd. to draw up principles to facilitate innovation, adoption and trust in Artificial Intelligence (AI). Their debates inspired some of the principles of how AI is currently used and its future potential in day-to-day areas of application.

Moreover, this work emphasizes the need to adopt real AI practices and also maps the economic, legal and social impacts of the applications and implications of AI technologies, presenting real AI practices.

AI as a field is still in its formative stages, and the diversity of approaches and applicability methods and techniques are crucial to its development. Until now, AI theory is mainly based on techniques and methods for the technical purposes of ICT. Therefore, this book constitutes an academic-professional guide, “A how to use AI techniques and methods for real purposes”, for AI performance in global scenarios.

This book takes current scholarship forward in its engagement with AI theory and practice for enterprises and applied research and innovation. Its main objectives are to:

- Evaluate the further implementation of AI business applications in all industrial sectors;
- Empirically explore the implications of AI evolution and impact in society, economics, labour market and finance;

- Examine the relationships between AI methods, techniques and technologies and
- Contribute to a better understanding of the challenge for the world-wide industry and to provide organizations with an opportunity to integrate AI within their daily activities.

AI is reshaping economies and promises to boost productivity and improve efficiency. These technologies, however, are still in an emergency phase, but they are ready to address global challenges and promote innovation and social benefits.

I hope you find it a useful and gratifying read.

Madrid, Spain
July 2021

Ana Landeta Echeberria

OVERVIEW

This book seeks to build a shared understanding of Artificial Intelligence (AI) today and in the near term within the global business scenario. It also seeks to co-ordinate and generate consistent discussions on this topic between different disciplines.

The book builds on the previous research and real business practices of Universidad a Distancia de Madrid (Spain), “Technological Social Sciences Research Group” and TodoStartups Ltd. to draw up principles to facilitate innovation, adoption and trust in Artificial Intelligence (AI). Their debates inspired some of the principles of how AI is currently used and its future potential in day-to-day areas of application.

This book takes current scholarship forward in its engagement with AI theory and practice for enterprises and applied research and innovation. Its main objectives are to:

- Evaluate the further implementation of AI business applications in all industrial sectors.
- Empirically explore the implications of AI evolution and impact in society, economics, labour market and finance,
- Examine the relationships between AI methods, techniques and technologies, and
- Contribute to a better understanding of the challenge for the world-wide industry and to provide organizations with an opportunity to integrate AI within their daily activities.

Therefore, it outlines international practices for the promotion of reliable AI systems, trends, research and development, fostering a digital ecosystem for AI and preparing companies for job transformation and building skills.

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INTRODUCTION

This book seeks to build a shared understanding of Artificial Intelligence (AI) today and in the near term within the global business scenario. It maps the economic, legal and social impacts of the application of AI technologies and their implications, presenting evidence and real-life case studies. It also seeks to co-ordinate and generate consistent discussions on this topic between different disciplines.

Therefore, it outlines international practices for the promotion of reliable AI systems, trends, research and development, fostering a digital ecosystem for AI and preparing companies for job transformation and building skills.

Chapter 1, “The Foundations of AI”, provides a historical overview of AI evolution from its symbolic development—AI definition, history, fundamental framework and main elements. It also proposes a general framework for comprehending AI for business purposes. Chapter 2, “AI: Methods and Techniques. Knowledge-Based Systems”, reviews expert systems (production systems, structure and components of rule-based systems); modes of reasoning and knowledge acquisition; knowledge-based systems (artificial neural networks and their definition, typology, construction methodology and learning). Chapter 3, “The Impact of AI in Business, Economics and Innovation”, offers guidance from consultants and identifies documented professional practices with reference to the current overall impact of Artificial Intelligence (AI) in business, economics and innovation. Consequently, it focuses on business-oriented design, AI

tools to model business processes and the benefits of AI technologies. It also shows how business leaders can remain competitive in the new economic environment, developing the required skills to understand the economic implications of AI, considering the changes that business must undertake in order to address the economic and social implications of large-scale AI applications. Additionally, it highlights the importance, benefits and applications of Machine Learning and proposes a future AI research agenda for certain industries (Strategy, Relationship Marketing, Servicescape, Customer acceptance, Social acceptance, Management, Workforce and Transhumanism).

Chapter 4, “AI Implications for the Future of Work”, illustrates key concepts in understanding the implications of AI for employment in the future; digital transformation in the workplace; AI for work-related decision-making; the impact of robotisation processes on the labour market; new ways of working (teleworking and working on digital platforms); new professions in the Industry 4.0 and the impact of AI on education.

Chapter 5, “AI Integration in the Digital Transformation Strategy”, presents three frameworks (Digital Strategic Framework, AI readiness and AI integration in Digital Transformation Strategy Model) that help to address new businesses challenges and a series of strategic-operational suggestions that permit an initial and future approach associated with AI integration, as new technological elements of the digital transformation strategy.

Chapter 6 presents several “Cases of AI Use and Applications in Every Industry and Business Functions”, assessing and implementing business applications: Customer service, Consumer: Marketing and sales, Energy, resources and industries, Financial services and FinTech, Government and Public Administration, Life Sciences and healthcare, HealthTech, Retail, Mobility and self-driving cars, Human Resources, Operations and Startups.

Finally, Chap. 7, “Technological Singularity and Ethical Issues of AI”, explores the possibility of achieving an artificial general intelligence that exceeds human intelligence, one of the major paradigms of life for humanity today according to certain current ethical issues of AI.

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