

AI and Business

-

Mapping the Present for Harnessing the Future

-

Rahul Pratap Singh Kaurav
Surabhi Koul

AI and Business

This page intentionally left blank

AI and Business: Mapping the Present for Harnessing the Future

BY

RAHUL PRATAP SINGH KAURAV
FORE School of Management, New Delhi, India

AND

SURABHI KOUL
FORE School of Management, New Delhi, India



United Kingdom – North America – Japan – India – Malaysia – China

Emerald Publishing Limited
Emerald Publishing, Floor 5, Northspring, 21-23 Wellington Street, Leeds LS1 4DL.

First edition 2026

Copyright © 2026 Rahul Pratap Singh Kaurav and Surabhi Koul.
Published under exclusive licence by Emerald Publishing Limited.

Reprints and permissions service
Contact: www.copyright.com

No part of this book may be reproduced, stored in a retrieval system, transmitted in any form or by any means electronic, mechanical, photocopying, recording or otherwise without either the prior written permission of the publisher or a licence permitting restricted copying issued in the UK by The Copyright Licensing Agency and in the USA by The Copyright Clearance Center. Any opinions expressed in the chapters are those of the authors. Whilst Emerald makes every effort to ensure the quality and accuracy of its content, Emerald makes no representation implied or otherwise, as to the chapters' suitability and application and disclaims any warranties, express or implied, to their use.

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN: 978-1-83708-889-8 (Print)
ISBN: 978-1-83708-888-1 (Online)
ISBN: 978-1-83708-890-4 (Epub)



INVESTOR IN PEOPLE

To my late father, whose wisdom still guides me.
And to my mother, whose prayers carried me here.
—Rahul Pratap Singh Kaurav

To my parents, especially my late father, whose dream of writing a book lives on through these pages. This is as much his story as it is mine.
—Surabhi Koul

This page intentionally left blank

Contents

About the Authors *ix*

Preface: Why This Book, Why Now *xi*

Acknowledgements *xiii*

Chapter 1 Introduction to Artificial Intelligence *1*

Chapter 2 The Current Landscape of AI in Business *31*

Chapter 3 The AI Ripple Effect: Transforming the BFSI *45*

Chapter 4 AI in Healthcare: Paradigm Shift in Modern Healthcare *61*

Chapter 5 AI in Retail: Redefining the Future of Commerce *73*

Chapter 6 Reimagining Education: The AI Revolution in Learning *89*

Chapter 7 Implementing AI in Your Business *107*

Chapter 8 Scaling, Governing and Sustaining AI in Enterprises *137*

Chapter 9 Business Opportunities in Metaverse *173*

Chapter 10 Navigating the AI Landscape: Ethics, Governance and Responsible AI *203*

Chapter 11 The Future of AI in Business *227*

Chapter 12 From Strategy to Reality: AI Case Studies Across Business Sectors *255*

Index *275*

About the Authors

Dr. Rahul Pratap Singh Kaurav is an accomplished academician, a researcher and an author with a demonstrated expertise in marketing analytics, artificial intelligence (AI)-driven research methodologies and digital transformation in education and business. Currently serving as an Associate Professor at the FORE School of Management, New Delhi, Dr. Kaurav brings more than 17 years of academic experience. His research portfolio spans journal articles, book chapters and authored or edited books, many of which examine the intersection of marketing, technology and data analytics. He has published extensively on AI applications in tourism, marketing and human resource management, offering cutting-edge insights into how intelligent technologies can transform consumer experiences, organisational efficiency and decision-making processes.

Dr. Kaurav is proficient in both quantitative and qualitative analytics platforms and has contributed to major research projects funded by AICTE and ICSSR. He actively supervises doctoral students and consults on projects leveraging AI and machine learning for data-driven solutions. His collaborative works with leading international scholars and institutions, including BITS-Pilani and Taylor's University, Malaysia, University of Liverpool, UK, reflect his global perspective on the transformative role of AI in business and education. With a passion for integrating AI tools into research and pedagogy, Dr. Kaurav continues to champion innovation, offering readers an evidence-based understanding of AI's evolving potential in marketing, analytics and beyond.

Dr. Surabhi Koul is an accomplished academician, a researcher, and an educator with demonstrated expertise in the area of Marketing. Currently serving as an Associate Professor of Marketing at FORE School of Management, New Delhi, she brings nearly a decade of academic experience, including prior faculty roles at NMIMS Navi Mumbai and BITS Pilani. Dr. Koul has established a robust research portfolio, comprising approximately 20 international publications. Her research focuses on emerging Gen Z consumption patterns, as well as understanding the new-age consumer tools like SoLoMo-commerce, AI-enabled shopping assistants, and influencer-mediated platforms. In the classroom, she champions co-value creation, fostering interactive, experiential learning where students and faculty collaborate as partners in knowledge construction. Her teaching interests lie in Branding, AI & Marketing, and Product Management. With a passion for integrating innovative consumer research methods and pedagogy, Dr. Koul continues to pioneer evidence-based insights at the intersection of marketing, technology, and education.

This page intentionally left blank

Preface: Why This Book, Why Now

We are standing at a unique inflection point in human history – where lines of code influence billion-dollar decisions, where machines learn and adapt faster than entire industries and where AI is no longer a futuristic concept but a present reality. Whether you're leading a multinational enterprise, managing a start-up, teaching in a classroom or just entering the workforce, you are already part of this transformation.

This book was born from one simple, pressing question we kept hearing in **corporate meetings, student interactions and coffee chats**: '*How do we actually use AI in business?'* Not the hype, not the jargon, but real strategies, practical tools and honest reflections. Across sectors – from healthcare to retail, logistics to education – organisations are experimenting with AI. But many still face hesitation, confusion or fear of falling behind.

We wrote this book for the curious students, the reflective policymakers, the hands-on managers and, of course, the risk-taking entrepreneur. It speaks to all who are eager to understand not just *what* AI is but *how* to apply it responsibly and intelligently. The world of business is not becoming digital; it already is. The next step is to make it *intelligently digital*.

This book is designed to serve as a core or supplementary text for a wide range of management and executive programs. It is particularly relevant for courses such as Artificial Intelligence for Business, AI and Marketing, Digital Transformation, Technology and Innovation Management, Strategic Management, and Executive Education modules on AI-driven decision-making. The integrated blend of conceptual foundations, industry cases, and managerial frameworks makes it suitable for MBA, PGDM, executive education, and advanced postgraduate programs, while also supporting practitioner-oriented learning and applied research.

Inside, you'll find a mix of foundational concepts, future-forward trends, ethical reflections and real-world 40+ case studies. But more than that, you'll find a guiding philosophy***: AI is not about replacing people – it's about augmenting human potential***.

To quote no one in particular but many in spirit: '*You don't need to be a coder to shape the future, but you do need to understand how code is shaping it.'* This book is your invitation to step in – not tomorrow but today.

Welcome to the new era of business intelligence. Let's build it together.

This page intentionally left blank

Acknowledgements

The creation of this book has been an intellectually stimulating and deeply collaborative journey. Along the way, I have had the privilege of engaging with colleagues, students and mentors whose insights and encouragement made this work possible.

I am especially thankful to ***Dr. Subir Verma***, Director of FORE School of Management, New Delhi, for fostering an academic environment where innovation is encouraged and scholarship is supported. His belief in interdisciplinary work, focused on the technology, and commitment to intellectual curiosity were vital in bringing this project to life.

I owe particular gratitude to my ***co-author, Dr. Surabhi Koul***, for her insightful ideas and steady support, especially during the slower, more uncertain phases of this project. Her thoughtful curation of content, willingness to explore perspectives beyond the conventional and instinct for identifying what truly matters have added depth and originality to this book. Working with her has been both a professional and creative privilege.

To all the scholars and writers whose academic contributions have shaped the way I think, write and question – thank you. Your work has laid the foundation for much of what I've come to believe and has subtly guided the writing of this book. In particular, I would like to acknowledge the enduring influence of Peter Gentsch, Christopher Penn, Ethan Mollick and Paul Roetzer – whose writings and insights have profoundly impacted my academic journey and this work.

I am profoundly grateful to my family – whose unwavering love forms the quiet strength behind all my pursuits. To my **beautiful wife, Neeraj, and kids, Himanshi and Tanishk**, thank you for your tireless patience, your understanding and the countless hours you sacrificed so I could focus on this work. Our late-night coffee and snack sessions were more than moments of comfort – they were a constant source of encouragement and joy that carried me through.

Finally, to all those who contributed in ways both visible and invisible – your support is sincerely appreciated. If any names have been inadvertently omitted, please accept my apologies and my heartfelt thanks.

Rahul Pratap Singh Kaurav, *PhD*

Writing a book is never a solitary pursuit; it is shaped by the guidance, encouragement and silent support of many people who walk beside you. This journey has been deeply personal and profoundly collaborative. As I look back, I am filled with gratitude for those who believed in this vision, stood by me through the long nights and endless edits and made this milestone possible.

I extend my deepest gratitude to **Prof. Subir Verma**, Director FORE School of Management, for his encouragement and belief in this endeavour. You have always reminded us to '*take a step ahead of technology',* and that thought has guided me throughout the development of this work. Your visionary leadership continues to inspire and push us towards meaningful innovation.

To my co-author and dear friend, **Dr. Rahul Pratap Singh Kaurav**, thank you for being a true collaborator in every sense. It was you who initiated this and reminded me every time that I can do it. Your insights, partnership and camaraderie made this process not only enriching but also enjoyable. A special mention to my colleague, **Prof. Faisal Ahmed**, for his timely guidance and valuable inputs at critical junctures of this writing process. Your mentorship and perspective added depth and clarity when it was needed most.

I owe heartfelt thanks to my **mother and mother-in-law**, whose values and love have shaped me. A special mention to my **late father**, whose dream of writing a book has found life through these pages. In many ways, I feel I have lived his dream through this work.

And of course, to my **loving husband, Nitish,** thank you for being my unwavering support system. From stepping in during the busiest days to patiently typing long paragraphs as I dictated, you've been my quiet strength behind every word. Your presence made the impossible seem possible.

Finally, to everyone who contributed, whether in ways seen or unseen, your support has meant more than words can express.

Surabhi Koul, *PhD*

Chapter 1

Introduction to Artificial Intelligence

> Artificial intelligence is more than a mere tool created for the ease of mankind. It is a mirror that reflects the challenges we face and the solutions we desire. It can be understood as the evolving narrative of human ingenuity in the business world.

Case Study: The Evolving Landscape of Generative AI (Gen AI) Applications in 2025

In 2025, Gen AI has matured from a convenience to an essential tool for personal life activities, jobs and integrated business processes. In Zao-Sanders' (2025) article in the Harvard Business Review, the author discusses this transformation and offers a detailed account of what he considers the top 100 Gen AI use cases from a user viewpoint in 2025. This modern study suggests a fairly balanced partitioning of Gen AI application usage across personal and work-related spheres, with many use cases serving both domains concurrently.

Key Insights

1. Balanced Utilization Across Domains: The applications of Gen AI technology tend to be rather evenly split across personal and business considerations, suggesting it is generic in nature and widely accepted.
2. Multi-Purpose Use: The roles of Gen AI span across content generation, data analytics, personal virtual assistants, aiding in business intelligence and several other functions.
3. Integration into Daily Workflows: Gen AI has been incorporated seamlessly into the functioning of the industries in spheres such as marketing, customer support and product engineering, which has

(*Continued*)

AI and Business, 1–29
Copyright © 2026 Rahul Pratap Singh Kaurav and Surabhi Koul
Published under exclusive licence by Emerald Publishing Limited
doi:10.1108/978-1-83708-888-120261001

(*Continued*)

automated routine functions, resulting in increased productivity and innovation and great value to business processes and work culture.

4. Addressing Emotional Support Needs: Gen AI is not just limited to technical aspects, but an increasing application of Gen AI for human emotional needs is growing in areas such as therapy and self-improvement training, indicating a growing attention to human concerns.

Implications for Business

The effects of Gen AI on business processes are apparent, including the anticipated widespread integration of Gen AI by the year 2025. Organizations that fully harness these technologies stand to gain in productivity, customer engagement and competitive advantage. Moreover, applications of Gen AI that emphasize human interactions suggest the need for ethics beyond responsibility in placing AI calls for ethical boundaries on its use.

If employed effectively, artificial intelligence (AI) can optimize workflows with optimum results. It is proven to be a significant practical force which is accessible today. From elementary marketing to customer service and even business at retail, finance, healthcare and education, AI serves as a core component in every process as companies seek to enhance efficiency, expand operations and remain competitive. Its impact can be measured in areas like powering decision engines, automating monotonous work and analyzing unprecedented volumes of previously inaccessible data.

AI's evolution into a powerful business tool starts with understanding what it really is, along with its components like machine learning (ML) and deep learning (DL). Therefore, the chapter provides a clear snapshot by deconstructing the characteristics of AI. Readers will delve into the categories of AI systems, starting from narrow and task-focused systems to the more advanced speculative superintelligent agents. Covering AI's historical journey and unpacking its fundamental concepts equips you to engage critically with contemporary issues concerning its place in business and its potential for redefining the future.

Defining AI

In the course of doing any kind of business, an advanced technology is being used today called AI, and it is applied in a very generic and loose manner, confused with robotics and automation or business processes driven by algorithms. The domain of AI as a science is, in fact, much deeper and multidimensional. As defined, AI is the capabilities of modern technologies to enable

machines to replicate tasks performed by humans, including reasoning, learning, perception and problem-solving, more quickly.

The primary definitions, dating back to the inception of AI, continue to greatly shape the understanding of the field today. One of the AI founding fathers, John McCarthy,[1] defined it as 'the science and engineering of making intelligent machines.' A more pragmatic definition stems from Stanford's AI Index, which refers to AI as a set of technologies designed to perform tasks requiring human-like skills. These definitions have one aspect in common: the use of computation to replicate or augment human intelligence.

Distinguishing AI From Related Terms

AI is frequently confused with some of its practical applications, such as ML, DL or even data science. Such distinctions are important to avoid confusion about the concepts in question.

(1) AI is the overarching term that refers to the intelligent behaviour exhibited by machines.
(2) ML is a branch within AI that is concerned with algorithm development for predicting or decision-making based on the learnt data.
(3) DL is a subfield of ML that deals with sophisticated image and speech recognition using multi-layered neural networks.
(4) While data science is not a form of AI, it enables data manipulation, cleaning and analysis, which is essential for training AI models.

The understanding of these differences is critical for recognizing the role of AI in the broader digital transformation strategy and how different tools interact within the AI system.

Fig. 1.1 aids in clarifying the confusion that most people have regarding the terms in AI. DL, which is at the centre of Fig. 1.1, is a branch of ML. It concentrates on sophisticated neural networks that perform high-level computations for tasks such as image and voice recognition. ML, in turn, is a branch of AI, which is the broad definition that encapsulates every single system that simulates human cognitive functions. All of this is encircled with data science, another supporting field which facilitates AI and ML by providing means for data collection, cleaning, preparation and data analysis. Such a discipline can neither be classified as a branch of AI nor as any form of AI. Nonetheless, data science serves as a pivotal foundation for the operation and efficiency of AI systems.

Even though the classification of AI and its related domains aids understanding of the context of the field, one must also remember that 'algorithms' and 'models' are two other terms which need a clearer comprehension. While these terms are often used interchangeably, they have distinct features.

[1] https://www.pro5.ai/blog/what-is-artificial-intelligence

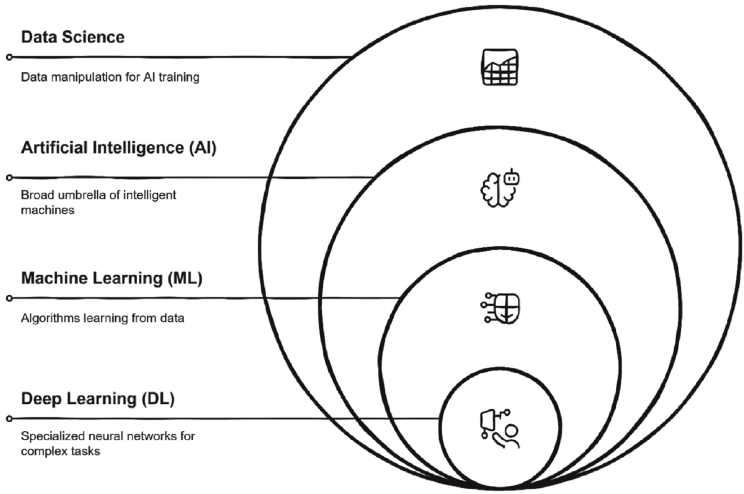


Fig. 1.1. Hierarchy of AI and Related Concepts.

An algorithm refers to a predefined rule set that dictates how a model training system learns from its data. It defines the process of learning – the 'how' aspect of the procedure. In contrast, a model defines what the system receives from an algorithm after data analysis is performed. The model is what gets used in actual operations to predict or make automated decisions in the real world.

Using a kitchen analogy, the algorithm is demonstrated by the recipe, while the model is the completed dish, which is made by following the instructions using specific ingredients (data).

The comprehension of the distinction is critical for the business leaders and managers who are at the forefront in interacting with the AI vendors or analytics teams. The investments do not happen just in the algorithm but in the models that are built with the help of the algorithms. These models can be built for any purpose, such as forecasting sales, credit scoring or the detection of fraud (refer Table 1.1).

The 4A Framework: Core Characteristics of AI in Business

To illustrate AI's practical importance in business, an emphasis on four notable characteristics is essential. These traits constitute what we refer to as the 4A Framework: Autonomy, Adaptability, Agility and At Scale. Collectively, these explain the reason why AI is not solely an appendage technology but rather a core foundational enabler of a company's competitive edge.

(1) Autonomy: As the companies implement the AI system, it requires nearly zero human input. The technology is such that it automates all the functions and requires no external support. For example, AI chatbots, when

Table 1.1. Key Differences Between Algorithms and Models.

Aspect	Algorithm	Model
Definition	A set of rules for learning from data.	The trained result derived from using data and algorithms.
Role	Guides the learning process.	Executes predictions, classifications or decisions.
Nature	Static and reusable across tasks.	Dynamic and updated with retraining.
Example	Decision Tree, Linear regression	Customer churn prediction model

employed by companies, respond to several queries on a regular basis. This facilitates round-the-clock services and significantly reduces operational costs.

(2) Adaptability: The AI system is designed such that it can learn from past interactions and data and curate responses over the period. With the help of old data and new inputs, different information is stored and analyzed in the system. Based on this information, modifications are needed in the results produced. This is fruitful, especially in an environment which is rapidly changing. A good example of this is a retail business which is based on predictive data modeling and suggest changes for enhanced user engagement.

(3) Agility: AI technologies have the ability to process vast amounts of data and provide instant insights and decisions to be made, simultaneously. The effectiveness of analyzing large data sets is particularly useful in stock exchange trading or real-time bidding for digital advertisement spaces. Also, in the logistics area, AI can revise delivery schedules based on real-time traffic and weather conditions.

(4) At Scale: Once the training is complete, AI can be published across borders, businesses and customer groups with minimal system configuration changes needed. The whole organization can be run on the same AI technology with little to no changes needed across several branches. This is beneficial as it does not require constant revisions in the system.

Fig. 1.2 presents the four characteristics that add business value to AI: autonomy, adaptability, agility and scale. Each capability brings with it unique advantages when integrated within organizational operations. The 4A

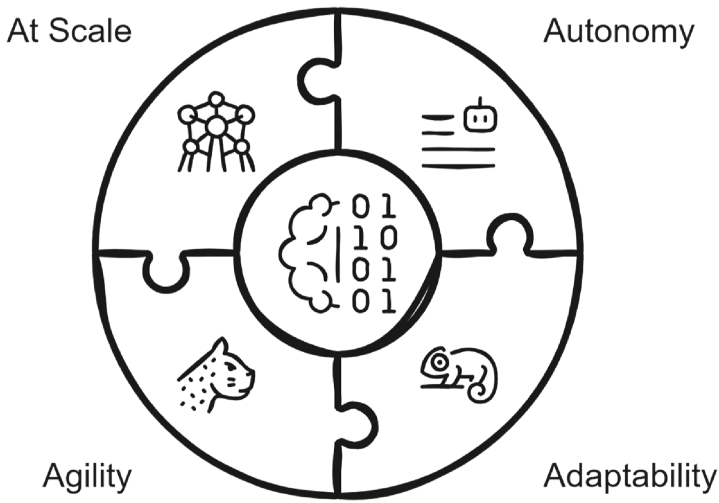


Fig. 1.2. The 4A Framework of AI Characteristics.

Framework outlines an easy way to understand AI's strategic importance in today's businesses. Autonomy refers to AI's ability to function without the supervision of a human, which is automating monotonous tasks fully disengaged from people. Adaptability focuses on learning; being able to function optimally within shifting contexts and environments over time exhibits a form of broad intelligence that many associate with living beings. With operational integration of AI technology into workflows, businesses gain all of these characteristics as individual strategic advantages. The 4A framework provides a straightforward method to understand the strategic implications of AI in business today. Agility encompasses rapid pace in data processing and delivery of outcomes deemed useful by stakeholders. And finally, at scale refers to successful performance regardless of scope: small or large organization, within departments and across branches around the world. Collectively, these attributes highlight why AI is not just regarded solely as a piece of technology but rather as a transforming asset for any organization.

Why This Matters for Business

These are the main reasons AI has become a strategic focal point for numerous enterprises. Unlike older forms of automation that execute monotonous tasks, AI's ability to respond to complex stimuli and recognize intricate patterns makes it much more capable than any rule-based automation. It achieves seamless centralization in decision-making, offers insight at the needed moments with empirical data analysis grounded in the underlying facts, and interaction with customers is scalable and personalized at unprecedented levels.

In addition, AI functions do not stop at backend operations. AI functions don't merely end with backend activities. These involve front-end positions like digital imitative human assistants and proactive systems that service user needs. Now that we view the AI development timeline, it is clear that the capabilities we enjoy today are a culmination of years of growth, research, mistakes and successes. In order to maximize AI, companies need to grasp its origins in the technology timeline and appreciate where the technology is heading.

A Brief History of AI

Tracing the Roots of Intelligence in Machines

Just like human imagination and scientific rigour go through various stages, AI includes a broad range of engineering, social science and technologies. The development of AI was founded on traditional logic, philosophy and reasoning, which further shifted to the computing breakthroughs of the 21st century.

Early Philosophical and Mathematical Origins

The idea of intelligent machines started a long time ago in myths such as the automata in Egypt and China or the mechanical slaves of Hephaestus in Greek mythology. However, it was not until the 20th century that these ideas evolved into formal thinking about intellect and computation.

In 1950, Alan Turing posed the famous question, "Can machines think?" In his paper Computing Machinery and Intelligence, he proposed the Turing Test – a machine's ability to demonstrate conversational human-level intelligence – as a benchmark for evaluation. This question, albeit theoretical, provided the core pillar of research for AI development.

The Birth of AI as a Discipline (1956–1970s)

The field officially commenced in 1956, when John McCarthy, Marvin Minsky and Claude Shannon, alongside others, organized the Dartmouth Conference. It is widely acknowledged as the birth of AI. McCarthy called it 'artificial intelligence,' envisioning a field developed for machines capable of learning and demonstrating intelligence in every possible way.

The period of the 1960s and 1970s was characterized by heightened optimism. Scholars constructed symbolic AI systems, referred to as 'good old-fashioned AI' (GOFAI), which relied on formal logic and rules to solve problems. Human-computer interaction was demonstrated, superficially, with programs like ELIZA, which was a precursor to chatbots and functioned as a psychotherapist. Early enthusiasm was affected by the limited capabilities of these systems. Deficient in learning mechanisms, they faltered in the face of real-world complexity and ambiguity.

The First AI Winter (Mid-1970s to Mid-1980s)

Interest and investment plateaued with expectations outpacing technological developments, marking the beginning of the first AI winter. Many AI projects did not produce significant value, prompting governments and private entities to reduce investment. Problems arose due to insufficiency in computing resources, inflexibility of scalability, and fixed, overly regimented systems that depended on pre-established guidelines.

The Rise of ML and Expert Systems (1980s–1990s)

As expert systems emerged in the 1980s, AI became popular once again. These new computer programs mimicked decision-making procedures on the basis of rule-based reasoning offered by human specialists. As a result, they began to be used in fields like medicine, as can be seen through the diagnostic system MYCIN, and finance.

At the same time, another method was gaining momentum: ML. Unlike rule-based AI, ML-enabled machines detect patterns in data without being