

## Chapter 5

# Artificial Intelligence as Driver for SME Competitiveness

**Nicola Del Sarto**

*Scuola Superiore Sant'Anna, Italy*

**Andrea Piccaluga**

*Scuola Superiore Sant'Anna, Italy*

### ABSTRACT

*Artificial intelligence is profoundly changing the way in which companies compete and do business. In particular, artificial intelligence can represent a very interesting opportunity for small and medium-sized enterprises, which are constantly looking for new technologies to be able to remain competitive in a turbulent market. However, research exploring how SMEs may successfully adopt artificial intelligence technology are missing. To address this gap, the authors reviewed the literature on artificial intelligence and identified four key features that SMEs need to consider when implementing this technology represented by people, processes, products, and customers. After that they described four cases of Italian SMEs which have adopted successfully this new technology taking into account one of the four dimensions. The study contributes to the literature on artificial intelligence and SMEs and may be helpful for managers who want to adopt this technology within their company.*

### INTRODUCTION

Artificial intelligence (AI) is a computer technology that revolutionizes the way humans interact with machines, and machines with each other (Yams et al., 2020). Artificial intelligence provides a robot with computing qualities that allow it to perform complex operations and “reasoning”, until recently exclusive characteristics of human reasoning, in a short time.

Artificial intelligence is already part of our daily life and is now used in more than half of large companies. Everyone is familiar with driverless cars or voice assistants like Apple’s Siri, Microsoft’s Cortana, or Google’s Alexa, but there are many lesser-known examples. Intelligent algorithms, capable of self-learning, suggest products to buy, films or music tracks in line with our tastes, they know how to

DOI: 10.4018/978-1-7998-6985-6.ch005

answer customer questions via chat, they can recognize a person's face to enable access, sort documents based on content, support doctors in reading X-ray images and diagnoses, filter CVs to select the ideal candidate (Davoyan, 2020; Gautier et al., 2020).

There are already numerous examples of how the introduction of artificial intelligence in business processes has led to positive impacts, automating repetitive and low added value parts of the processes themselves, previously carried out by man, reducing errors, allowing the development of new products and services (Wang, & Alexander, 2016). We are at the beginning, but in the next few years, we will see a quantum leap.

The major corporations are taking the first steps in this direction: the first to arrive at concrete results will benefit from a huge competitive advantage. According to the consultancy agencies Accenture and Forrester, 2025 will be the year in which such solutions will explode. Over the past two years, we have seen many companies learn to fail quickly in implementing AI initiatives, but in the future we expect them to seize the opportunities, thanks to more mature approaches.

Not only large companies, digitization is also involving small and medium-sized enterprises which are increasingly oriented towards the adoption of new technologies (Haefner et al., 2020). The introduction of such new technologies may help them overcome both liabilities of newness and adolescence which the literature has identified as crucial problems for small and medium enterprises (Strotmann, 2007). This technology adoption must include at some point, artificial intelligence technologies (Gebauer et al., 2020).

In the coming years, the junction point between the various technologies will be artificial intelligence and machine learning (Li et al., 2020). These technologies range from automation to the constantly connected objects of the Internet of Things (IoT), passing through cloud computing (Atlam et al., 2020). All those technologies will make machines more and more autonomous, meaning they will be able to make decisions without depending on the human factor (Farrokhi et al., 2020; Trunk, Birkel, & Hartmann, 2020). Moreover, they will also be able to interact with the surrounding environment, work on a human factor. Artificial intelligence and machine learning are changing the competitive landscape and several businesses must be ready to face this revolution (Benzidia, Makaoui, & Bentahar, 2020; Makarius et al., 2020).

Not approaching artificial intelligence technologies in the right way may be risky for small and medium enterprises (SMEs) as it can nullify the advantages brought by smart processing techniques. For a small and medium-sized business, this means understanding how AI systems can add value (Urbinati et al., 2019).

Despite previous literature has analyzed the technological aspect and the impact of artificial intelligence on business models and the process of value creation in general (Langley et al., 2020), only a few academic studies have analyzed how artificial intelligence may be beneficial for SMEs and what are the key features that they need to consider to successfully implement such new technology.

We attempt to fill this gap by exploring the following research questions: Does Artificial intelligent help SMEs' competitiveness? What key elements are crucial for successfully implement such new technology?

To address these research questions, we conduct an in-depth analysis of the literature on AI and examine the most relevant elements that companies must consider when implementing AI. In doing so, we propose a table that points to the importance of four key dimensions: 1) People; 2) Processes; 3) Products; 4) Customers. After, we try to validate this matrix empirically, considering four representative cases of SMEs that successfully implemented AI technologies by considering the four elements identified by the literature. Those companies were all situated in Italy, and in particular in the northeastern, central, southern, and north-west. We decided to focus on Italy as this is considered a country in which

16 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/chapter/artificial-intelligence-as-driver-for-sme-competitiveness/284976](http://www.igi-global.com/chapter/artificial-intelligence-as-driver-for-sme-competitiveness/284976)

## Related Content

---

### Recent Advances in Edge Computing Paradigms: Taxonomy Benchmarks and Standards for Unconventional Computing

Sana Sodanapalli, Hewan Shrestha, Chandramohan Dhasarathan, Puviyarasi T. and Sam Goundar (2022). *Research Anthology on Edge Computing Protocols, Applications, and Integration* (pp. 66-77).

[www.irma-international.org/chapter/recent-advances-in-edge-computing-paradigms/304298](http://www.irma-international.org/chapter/recent-advances-in-edge-computing-paradigms/304298)

### Edge-Cognitive Computing for Improvising the Healthcare 5.0

Pankaj Rahi, Monika Dandotiya, Harish Reddy Gantla, Regonda Nagaraju, Gandla Shivakanth and Vandana Ahuja (2023). *Contemporary Applications of Data Fusion for Advanced Healthcare Informatics* (pp. 369-391).

[www.irma-international.org/chapter/edge-cognitive-computing-for-improvising-the-healthcare-50/327729](http://www.irma-international.org/chapter/edge-cognitive-computing-for-improvising-the-healthcare-50/327729)

### A Survey of Authentication Schemes in the Internet of Things

Yasmine Labiod, Abdelaziz Amara Korba and Nacira Ghoualmi-Zine (2021). *Research Anthology on Blockchain Technology in Business, Healthcare, Education, and Government* (pp. 1715-1732).

[www.irma-international.org/chapter/a-survey-of-authentication-schemes-in-the-internet-of-things/268684](http://www.irma-international.org/chapter/a-survey-of-authentication-schemes-in-the-internet-of-things/268684)

### A Study on Management Information Systems and Its Role in Decision Making

M. Sriramkumar, Rosario Huerta-Soto, Jenny Elizabeth Vega-García, P. Paramasivan, J. Rahila and S. Manikandan (2024). *Data-Driven Intelligent Business Sustainability* (pp. 149-161).

[www.irma-international.org/chapter/a-study-on-management-information-systems-and-its-role-in-decision-making/334742](http://www.irma-international.org/chapter/a-study-on-management-information-systems-and-its-role-in-decision-making/334742)

### A Historical Review of Immersive Storytelling Technologies: New Uses of AI, Data Science, and User Experience in Virtual Worlds

Hector Puente Bienvenido, Borja Barinaga and Jorge Mora-Fernandez (2021). *Handbook of Research on Applied Data Science and Artificial Intelligence in Business and Industry* (pp. 1-29).

[www.irma-international.org/chapter/a-historical-review-of-immersive-storytelling-technologies/285000](http://www.irma-international.org/chapter/a-historical-review-of-immersive-storytelling-technologies/285000)