Text 1

One of the “godfathers” of modern artificial intelligence has predicted a further revolution in the technology by the end of the decade, and says current systems are too limited to create domestic robots and fully automated cars.

Yann LeCun, the chief AI scientist at Mark Zuckerberg’s Meta, said new breakthroughs are needed in order for the systems to understand and interact with the physical world.

LeCun spoke as one of seven engineers who were awarded the £500,000 Queen Elizabeth prize for engineering on Tuesday for their contributions to machine learning, a cornerstone of AI.

Recent breakthroughs in the sector, led by the launch of OpenAI’s ChatGPT chatbot, have heightened expectations – and fears – of systems gaining human levels of intelligence.

However, LeCun said there was some way to go before AIs matched humans or animals, with the current cutting-edge technology excelling at “manipulating language” but not at understanding the physical world.

“There are still a lot of scientific and technological challenges ahead, and it’s very likely that there’s going to be yet another AI revolution over the next three to five years because of the limitation of current systems,” he said. “If we want eventually to build things like domestic robots and completely autonomous cars, we need systems to understand the real world.”

LeCun is working on systems that attempt to “understand” physical reality by forming a model that can predict how the world behaves. On current progress in AI, he said: “We’re not talking about matching the level of humans yet. If we get a system that is as smart as a cat or a rat, that would be a victory.”

Text 2

This paper investigates the literary corpus on the role of Artificial Intelligence (AI) in the construction of sustainable business models (SBMs). It provides a quantitative overview of the academic literature that constitutes the field. The paper discusses the relationships between AI and rapid developments in machine learning and sustainable development (SD). Specifically, the aim is to understand whether this branch of computer science can influence production and consumption patterns to achieve sustainable resource management according to Sustainable Development Goals (SDGs) outlined in the UN 2030 Agenda. Moreover, the paper aims to highlight the role of Knowledge Management Systems (KMS) in the cultural drift toward the spread of AI for SBMs. Despite the importance of the topic, there is no comprehensive review of the AI and SBM literature in light of SDGs. Based on a database containing 73 publications in English with publication dates from 1990 to 2019, a bibliometric analysis is conducted. The findings show that the innovation challenge involves ethical, social, economic, and legal aspects. Thus, considering that the development potential of AI is linked to the UN 2030 Agenda for SD, especially to SDG#12, our results also outline the framework of the existing literature on AI and SDGs, especially SDG#12, including AI’s association with the cultural drift (CD) in the SBMs. The paper highlights the key contributions, which are: i) a comprehensive review of the key underlying relationship between AI and SBMs, offering a holistic view as needed, ii) identifying a research gap regarding KMS through AI, and iii) the implications of AI concerning SDG#12. Academic and managerial implications are also discussed regarding KMS in the SBMs, where the AI can represent the vehicle to meet the SDGs allowing for the identification of the cultural change required by enterprises to achieve sustainable goals. Thus, business companies, academic research practitioners, and state policy should focus on the further development of the use of AI in SBMs.

Text 3

In the early stages of artificial intelligence (AI) research, scientists primarily focused on the development of rule-based systems capable of reasoning and decision-making based on predefined sets of rules (Russell, 2020). However, constructing these systems proved to be a laborious task, demanding experts to painstakingly write out the rules. Moreover, these systems were inherently limited, only able to function within the constraints of explicitly programmed rules.

As AI technologies advanced, novel approaches began to emerge, notably machine learning. This paradigm paved the way for various techniques, including the advent of Artificial Neural Networks. These networks empowered computers to autonomously acquire knowledge from extensive sets of pre-labeled

training data (Foster, 2019). However, a notable challenge with this approach is its dependency on manually annotated data. This entailed a considerable human effort to assign labels to various forms of data, such as images, text, and audio, to instruct AI systems on what to recognize and process.

Enter generative AI, a paradigm that eliminates the need for labeled data. Generative AI systems achieve this by independently learning from vast datasets (Park et al., 2023) and comprehending the inherent relationships within the data, much akin to the way animals learn from their surroundings (Marcus, 2020).

In the realm of generative AI, deep machine learning models take center stage, enabling the creation of new content based on user input, typically in the form of natural language descriptions. This newfound ability extends to generating various types of content, encompassing written text, images, videos, audio, music, and even computer code (Alto, 2023).

To illustrate, when a human inputs a question or statement into a dialogue system or chatbot (Adiwardana et al., 2020), like ChatGPT, the system responds by generating a concise yet reasonably detailed written reply. Moreover, users can engage in ongoing conversations with these chatbots, entering follow-up questions, with the system retaining earlier details from the conversation.

Generative AI has recently garnered significant attention due to rapid advancements in the field. Notably, OpenAI's ChatGPT1 has demonstrated the ability to generate text that is grammatically sound and convincingly human-like. Furthermore, OpenAI's DALL-E2 tool has made strides in producing realistic images based on natural language instructions. Other tech giants, including Google and Facebook, have also joined the generative AI arena, developing models capable of generating authentic-looking text, images, and even computer programs.

■ **The main features of academic texts are listed in the following table. Find examples of each in the preceding texts.**

Feature	Examples

Feature	Examples
1 Formal or semi-formal vocabulary	
2 Sources are given	
3 Objective, impersonal style	