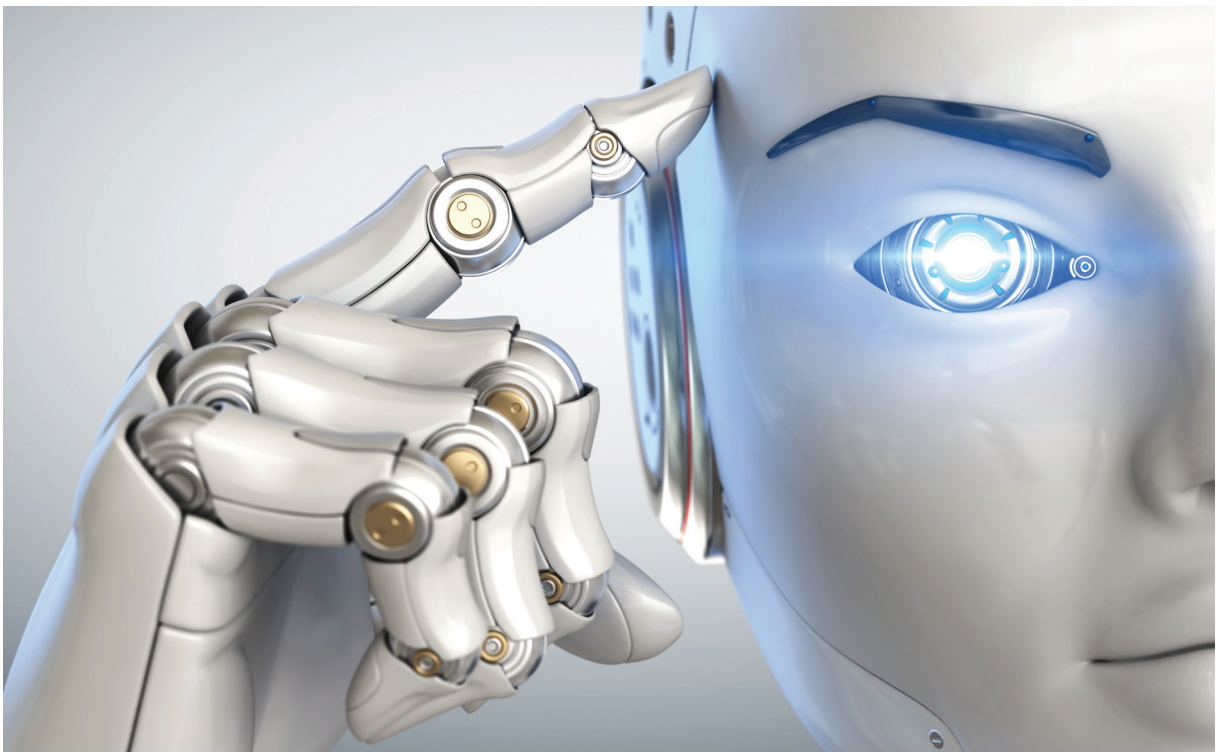
MBRF Produces and Disseminates Knowledge Worldwide

Artificial Intelligence and the Prospects of Knowledge

Thanks to the direction of His Highness Sheikh Ahmed Bin Mohammed Bin Rashid Al Maktoum, Chairman of the Mohammed bin Rashid Al Maktoum Knowledge Foundation (MBRF), the Foundation has built a reputation for excellence. This has strengthened Dubai's position as a leading regional and global destination for the transfer, dissemination, and production of knowledge in line with the UAE's vision of building knowledge societies.

At MBRF's annual Knowledge Summit in December, top-tier panelists discuss latest developments in the fields of science and knowledge. Through its international partnerships, MBRF launched important knowledge initiatives and programs to bolster the status of the Arabic language such as Arab Innovation, Arab Professionals Forum, Ladies Lounge, My Family is Reading, and Nobel Museum.

The Foundation's mission is not only to spread knowledge in the UAE, but also to transfer it to all Arabs. It has established partnerships to support Arab innovators and creators wherever they are. It has launched its own Knowledge Award to honor the achievements of innovators from all over the world and has developed the Global Knowledge Index.



The MBRF also plays an important role in knowledge dissemination through its books, publications, and partnerships with publishers. The Knowledge reports, produced in collaboration with the United Nations Development Program (UNDP), are among the Foundation's most important publications. The following is from one of those reports, first published in 2018, entitled 'The Future of Knowledge: A Foresight.'

Future Technologies

When we talk about the future of societies, technological change cannot be considered in isolation. Other forces—or trends—such as globalization, sustainability, demographic shifts and urbanization, will also affect the future state of the economy and the future of work. Therefore, if we want to understand how the future will be shaped, we need to acknowledge the interactions embedded in these trends as they often reinforce each other.

We believe that certain types of technologies can help overcome most of the challenges associated with these trends, such as the ageing population, increasing scarcity of resources (including food shortage in developing economies) and growing inequalities. The European Commission calls these technologies 'key enabling technologies' and they are also commonly referred to as 'exponential technologies.' In this report, we refer to them as 'key technologies for the future.'

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All key technologies for the future present two principal common features. First, they form together an ecosystem in which each technology both exploits and fosters the development of the others. In other words, the novel technologies that are being grafted onto existing and more mature technologies amplify the performance of the latter, and vice versa. Second, they enable the exponential acceleration of innovation, as each technological improvement leads to innovation, which in turn functions as a platform for further technological improvement and innovation. These technologies therefore help developing multiple novel applications in a wide range of sectors and industries.

As highlighted in the 'Technology Profiles', AI, cybersecurity, blockchain and biotechnology possess these two features. In addition, they are all still at an early stage of development as evidenced by their position in the latest Gartner Hype Cycle. For each of them, many avenues for future research, experimentation, and innovation remain, which could lead to unexpected results.

We therefore believe that these four technologies are good options to bet on and invest in for the future, as together they could be used to build solutions to the world's most pressing environmental, economic, and social challenges with greater speed and accuracy, thereby helping to realize the 17 Sustainable Development Goals.

Artificial Intelligence

Artificial Intelligence (AI) refers to the "ability of a computer or a computer-enabled robotic system to process information and produce outcomes in a manner similar to the thought process of humans in learning, decision making, and solving problems." By extension, the objective of AI systems is to develop systems capable of tackling complex problems in ways similar to human logic and reasoning.

Progress in AI is accelerating thanks to advances made in key other technologies. Since its initial conception in the 1940s, AI has reached a historical moment because of six converging factors, four of which are technological:

Big Data: Today, the availability of greater volumes and sources of data (both structured and unstructured(is enabling capabilities in AI that were not possible in the past due to lack of data availability and limited sample sizes.

Cloud Computing: Breakthroughs in cloud computing technologies have made it cheaper and faster to handle large volumes of data with complex AI-empowered systems through parallel processing.

Social Media Platforms: Advances in several aspects of AI such as deep learning and reinforcement have been facilitated by the existence of open source communities who are developing and sharing AI tools and applications.

Open Source Software and Data: Similarly, open source software and data are also accelerating the uptake of AI as they allow spending less time on routine coding and industry standardization.

New Era

Recent advances in AI presage a new age for many other technologies. For example, AI could improve cloud technology just as cloud technology has improved AI development. Their combination has the potential to change the way the data are stored and processed across various geographies. AI has also taken root in biotechnology, where for instance, machine learning shows great promise to make drug discovery cheaper and quicker.

Today, AI is already used to forecast crop yields from space, automate microscopes to diagnose malaria, and make customer support multilingual. These are only a few examples of how different sectors can benefit from the technology. More than 60 percent of consumers and business decision makers believe that AI can help provide solutions to the most important issues facing modern society ranging from clean energy to cancer and disease.

By tailoring drugs and treatments, the technology could deliver savings of up to Đ8.45 trillion in the healthcare sector. In the energy sector, AI has the potential to cut 10 percent off national electricity usage by using deep learning to match energy generation and demand in real-time, increasing efficiency, use, and storage of available energy.

Machine learning could also yield 12 percent fuel savings for manufacturers, customers and airlines by optimizing flight routes. AI techniques are also opening up various new approaches to protect and sustainably manage oceans. In order to protect endangered marine species, new systems could use image analytics and machine learning to track the numbers and locations of invasive species. AI-powered robots could also be used to monitor ocean conditions by detecting pollution levels and tracking changes in temperature and pH of the oceans due to climate change.

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