Artificial Intelligence: implications ahead

Coined in 1956 by John McCarthy, Artificial Intelligence (AI) is a broad term that refers to hardware or software that simulate human intelligence processes, including learning (the acquisition of information and rules for using it), reasoning (using rules to reach conclusions) and self-correction. AI rules-based programs in the 1950s displayed rudimentary intelligence in limited contexts; now AI capability has reached a tipping point. While the debate intensifies between those who expect AI to give birth rapidly to a new era of robots and humanoids, and those who suggest caution pointing to AI's false dawns in the '50s and '80s, it is important to look pragmatically at what AI is now delivering.

This summer, a report by MMC Ventures has revealed that new tools and greater automation are improving quality of output and pace of productivity especially in manufacturing, healthcare, finance, insurance and transport. Deep machine learning has unlocked new capabilities, particularly in the domains of vision and language, enabling among other results, real-time language translation; automated medical diagnosis; automated data synthesis; traffic predictions; and recognition of world features by autonomous vehicles.

AI can also support cyber security by identifying abnormal patterns in network behavior and breaches in network security that elude traditional programs; it can respond faster and adjust its response independently of potentially erroneous human action. These benefits will have profound implications for consumers, companies and societies.

But AI also presents serious risks. Historically, accelerating cycles of innovation have reduced the period for which large companies retain value. The latter has already been reduced from an average longevity of 33 years in 1965 to 18 years in 2012. Though dynamics of AI might reverse such a trend, allowing for a domination of the leading technology companies and a monopolization of the market in some sectors, a possibility exists that faster cycles of disruption caused by an AI race can reduce large companies' ability to maintain value. This would accelerate AI's already evident tendency to displace jobs. Though new jobs

will be created thanks to AI, and greater automation may increase employment in fields resistant to mechanization, such as teaching, the short time frame in which many jobs can be lost may lead to social and political instability.

AI also poses new threats to privacy and personal data with ethical as well as political implications. Moreover, emerging AI software techniques allow for the creation of lifelike media — including images, video, music and text virtually impossible to differentiate from real content. If abused, these techniques can generate or alter footage to create fake news.

Finally, AI can have implications in the military sphere that are difficult to predict. Analysis therefore suggests that policy-makers and international organizations should approach the fast-developing AI phenomenon in consistent and forward-looking ways, to avoid being overcome by it.

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