Technology

Harnessing Autonomous Technologies

Artificial intelligence technologies are moving forward by leaps and bounds, right before our very eyes.
How well prepared are we to treat them not as tools or rivals, but as autonomous partners?

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Nothing seems more synonymous with progress nowadays than the rapid advancement of artificial intelligence. Finding ways to skillfully harness its potential is now a central focus in various scientific disciplines. In this article, we explore the significance of autonomous decision-making, the notion of "techno-empowerment," as well as the broadly-construed concept of cyborgization. Along the way, we touch upon the issues of human–machine collaboration, positive cyberpsychology, remanualization, and digital leadership.

Techno-empowerment

The term techno-empowerment refers to the increasing importance of intelligent technologies in both organizational settings and daily human life. As the capabilities of artificial intelligence and automation grow, repetitive, monotonous, and routine tasks are increasingly being delegated to computer systems. Although techno-empowerment is often cited in social debates to instill fear about job losses and machines taking over, in fact it primarily applies to the kinds of

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tasks that provoke frustration and professional burn-out in employees. Customer service centers provide a compelling example – they experience techno-empowerment as they harness chatbots, voicebots, and intelligent complaint-handling systems. The human employees working in such centers often have to face displays of negative emotions from customers, leading to frequent sick leave and high employee turnover rates. Technology therefore empowers such companies to develop efficient solutions.

However, some businesses are still unprepared to effectively harness state-of-the-art technologies within their organizational spaces. For instance, employees who are not properly prepared to use intelligent recommendation systems may unwittingly accept even the most absurd recommendations put forward by such a system. One study by a Polish-Italian team revealed that human-resource managers were more willing to accept imposing strict disciplinary consequences when they were suggested by semi-autonomous recommendation systems, pointing to a phenomenon that can be called algorithmic conformism. Nevertheless, despite occasional mistakes, the effectiveness of intelligent recommendation systems does often surpass human capabilities. An excellent example is the application of such systems in medicine, particularly radiology. Companies now need to train employees to use these technologies in a way that does not limit their potential, while at the same time remaining vigilant, recognizing any suspicious recommendations, and responding appropriately. Employees who are insufficiently trained on how to work with intelligent systems may also "steal" tasks back from robots, even though they perform them correctly and effectively. This can occur due to a lack of trust and knowledge about how these systems operate, as well as a lack of initiative and ideas for how to integrate people and technology. Overenthusiastic managers may often introduce new technological solutions without

considering the specific tasks the particular machine is meant to perform, and disregarding staff sentiments. Consequently, machines may come to be assigned tasks that are perceived by both employees and consumers as being quintessentially human – leading to a new type of conflict, called human–machine trans-roles conflict (HMTRC). Consumers perceive this conflict, experiencing negative emotions towards the brand and engaging more readily in boycott activities. Instead of effective automation relieving employees, the initiative ends up resulting in the remanualization of certain processes and often an internal organizational crisis. Such failures at implementation are not due to bad technology but rather to insufficient awareness among managers. More broadly, the growing importance of technology should prompt us to further scrutinize the ethical implications of technological development, especially in the context of autonomous recommendation and decision-making systems. After all, it is well known that what is technologically possible is not always ethically acceptable.

Autonomous decisions

Autonomous artificial intelligence systems are capable of making decisions without human involvement. Currently, the scope of decisions delegated to AI depends on human choices – it is humans who decide when to delegate decision-making autonomy to technological systems in specific areas. What makes autonomous artificial intelligence distinctive is its capacity to learn. While automatic technologies lack this ability (e.g. an automatic car transmission will operate under identical assumptions each time: when the speed, oil temperature, or engine revolutions reach a defined value, the computer will change gears), autonomous technologies are able to learn and make future decisions on this basis. Currently, a lot of attention is getting focused on self-driving vehi-

cles, which have been performing well in operational tests. Although skeptics remain wary, the use of such vehicles could significantly reduce carbon dioxide emissions and, importantly, bring down the number of road accidents. Another technology of this kind is autonomous personal assistants, which can manage their owners' meeting schedules and make routine purchases. Autonomous investment applications are also garnering attention in the business world – they continuously analyze the financial market and strive to manage their owners' money in a way that best achieves their investment goals.

Polish research on autonomous technologies has produced some interesting insights into the profiles and motivations of individuals who are interested in utilizing these innovations, particularly as concerns gender-based differences. For instance, it appears that highly religious men are less willing to use autonomous vehicles, while women of similar religiosity are more open to the idea. Women's willingness to use autonomous vehicles does not seem to be linked to their level of religiosity, whereas for men, conversely, the higher their religiosity, the more skeptical they are about such innovations. Gender has also been found to play an interesting role in the use of autonomous assistants. Previous studies have shown that women are more cautious than men about using such innovations. They are more inclined to do so when the technology has a safety certification and is not associated with any specific country of production, whereas for men, neither certification nor origin were found to matter.

Cyborgization on the rise

The rise in autonomous decision-making is proceeding in parallel with another important phenomenon, known as "cyborgization." Understood as the incorporation of a technological component into organic structures, cyborgization can be seen as unfolding in several dimensions. In the most direct, physical sense of cyborgization, individuals may incorporate technological implants into their bodies to enhance their daily functions (e.g. microchips for payments in stores, or brain implants to gain new senses and experiences). Companies, in turn, may undergo cyborgic transformations by investing in technologies for collecting and processing vast amounts of data and making decisions based on it. There is also significant interest in the concept of supervisory AI (artificial intelligence in a management role), whereby the role of a controller, supervisor, or manager is assigned to artificial intelligence. Although this prospect may seem quite futuristic, in early 2023, NetDragon Websoft announced the launch of Tang Yu – the first robot acting as a CEO. It is unclear to what extent the company's claims of assigning Tang Yu managerial duties

actually reflect the reality, as many companies attempt to generate market interest by creating media buzz about their innovations, often without actively utilizing them. One prominent example of this is Promobot IR77, which allegedly escaped from a Russian laboratory and disrupted traffic in the nearby area. Although the situation itself seemed a laughable attempt to draw positive attention to Russian technology, the mere mention of a machine escaping sparked media interest and resulted in more articles spreading apocalyptic visions about humanity in crisis. Moreover, the trend towards ever-greater cyborgization raises profound questions about our own human identity. How will the definition of what it means to be human change in an era of widespread cyborgization? Will we become more accepting of various types of cyborgs?

Regardless of what role artificial intelligence plays, there will be an essential question about the nature of the relationship we humans have with AI. A particularly intriguing concept currently being promoted is "cobotics" (a neologism derived from "collaborative" and "robotics") – the science of trying to deter-

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mine how to create human–machine teams to achieve better outcomes together than either could achieve working independently. A lot of work being done on human–machine interactions strives to develop effective methods of creating such teams while maintaining human wellbeing and satisfaction at work. In Poland, the field of positive cyberpsychology was pioneered and is being dynamically developed by Dr. Pawel Fortuna. Moreover, the development of cobotics and positive cyberpsychology points to the need for a new approach to our relationship with technology. Instead of viewing technology as a tool or rival, perhaps we should start considering it as a partner. But what does this mean for our notions of agency, responsibility, and empathy?

Another dynamically developing research area is digital leadership, attempting to determine how contemporary leaders will use artificial intelligence and with what ethical impact. It appears that this area remains particularly underexplored, and so both scholars and practitioners should devote significantly more time to it. ■

Further reading:

Modliński A., Fortuna P., Rożnowski B., Human-machine trans roles conflict in the organization: How sensitive are customers to intelligent robots replacing the human workforce?, *International Journal of Consumer Studies*, 2023.

Przegalinska A., Jemielniak D., *Strategizing AI in Business and Education: Emerging Technologies and Business Strategy*, 2023