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Cognitively Enhanced Products, Output Growth, and Labor Market Changes: Will Artificial Intelligence Replace Workers by Automating Their Jobs?

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ABSTRACT. This research synthesizes existing studies and investigates the relationship between cognitively enhanced products, output growth, and labor market changes. Building our argument by drawing on data collected from Adobe, BMI Research, Econsultancy, Marketing Charts, Pew Research Center, and PwC, we per-

formed analyses and made estimates regarding the impact of artificial intelligence (AI), machine learning, and predictive analytics on business, percentage of technology and telecoms respondents who see a high impact from certain technologies on areas of their business, and percentage of U.S. adults in each group (Democrat/lean Democrat, Republican/lean Republican) who say they would favor particular policies in the event that robots and computers are capable of doing many human jobs.
JEL codes: E24; J21; J54; J64

Keywords: artificial intelligence; cognitively enhanced; output growth; labor market

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1. Introduction

Output boosts from cognitive tools may also bring about significant job losses. Cognitively enhanced products constitute a goal of an unexpectedly large amount of companies. Artificial intelligence (AI) can reinforce computerizing designed and undiversified work operations, frequently through robotics or cybernetic process automation, attaining deeper knowledge via large-scale investigation of structured data (Drugău-Constantin, 2018a; Kliestik et al., 2018a; Meilă, 2018; Nica, 2018), generally employing machine learning, becoming involved with consumers and personnel, utilizing natural language processing chatbots, smart agents, and machine learning. (Davenport, 2018)

2. Conceptual Framework and Literature Review

The rate of job destruction is constantly surpassing the one of job creation, particularly due to deficiencies in capital markets, impeding the capacity of business persons to capitalize swiftly on novel opportunities as they are expanded. AI and other alterations in technology require substantial regulations, and while people and the economy more extensively can adjust to moderate changes (Drugău-Constantin, 2018b; Kliestik et al., 2018b; Mihăilă, 2017), things might be different when the progress is fast. (Korinek and Stiglitz, 2019) Technology is outgrowing the analytical to predictive and normative capacities with the advance of AI that is thoroughly adopted to dig out, interpret, and calculate massive quantities of data in flexible sectors. The physical display of machinery operating on the concrete realm, harnessing sensors from Internet of Things incorporated into robotics, puts forward an innovative kind of automation. (Skilton and Hovsepian, 2018)

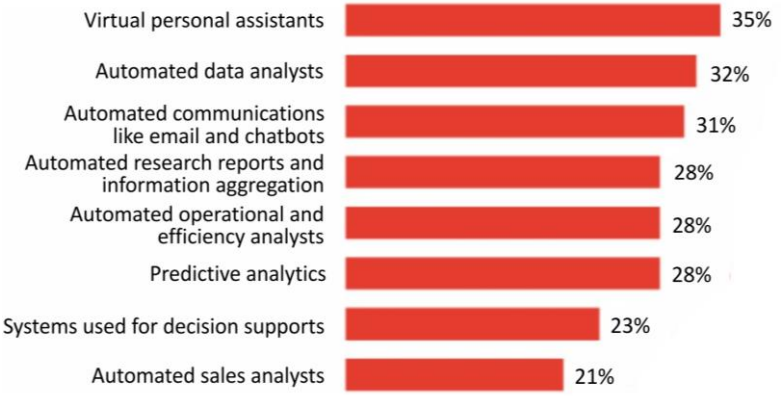
3. Methodology and Empirical Analysis

Building our argument by drawing on data collected from Adobe, BMI Research, Econsultancy, Marketing Charts, Pew Research Center, PwC, we performed analyses and made estimates regarding the impact of artificial intelligence, machine learning, and predictive analytics on business, percentage of technology and telecoms respondents who see a high impact from certain technologies on areas of their business, and percentage of U.S. adults in each group (Democrat/lean Democrat, Republican/lean Republican) who say they would favor particular policies in the event that robots and computers are capable of doing many human jobs.

4. Results and Discussion

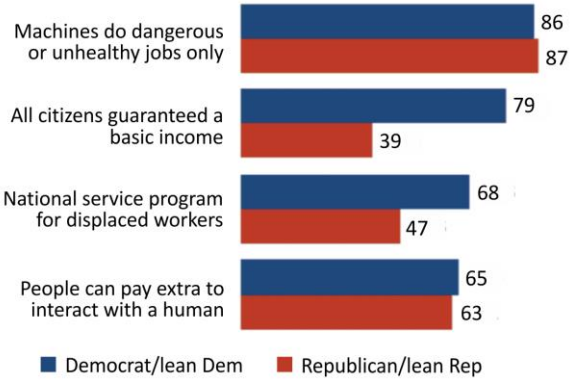
Societies should build up intelligent organizations so as to catalyze innovation processes that may generate more and superior jobs. Declining working hours are instrumental in the carrying out of labor saving process technologies. Economic circumstances are significant, but social capabilities are decisive in guiding the direction and underlying forces of technological change, intensifying market expansion and compensation consequences, and handling the shift into the transformative and job-creating cutting edge stage of the prevailing techno-economic pattern. (Nübler, 2018) The determinants for the 4th Industrial Revolution represent the integration of various leading technologies accompanied by innovative problem-solving strategies which will shape businesses and society. (Skilton and Hovsepian, 2018) (Figures 1–5)

Figure 1 The impact of AI, machine learning, and predictive analytics on business



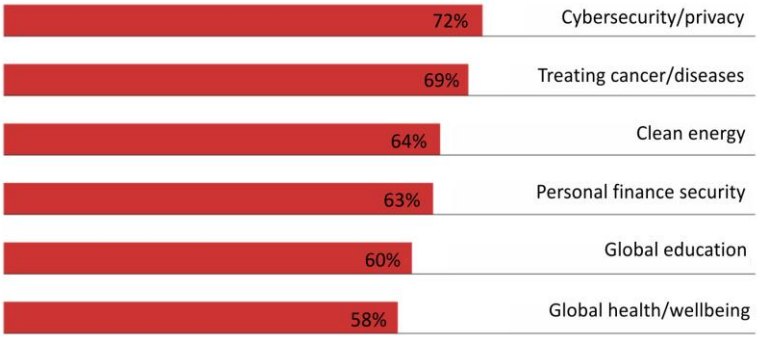
Sources: PwC; our survey among 2,800 individuals conducted September 2018.

Figure 2 Percentage of U.S. adults in each group who say they would favor the following policies in the event that robots and computers are capable of doing many human jobs



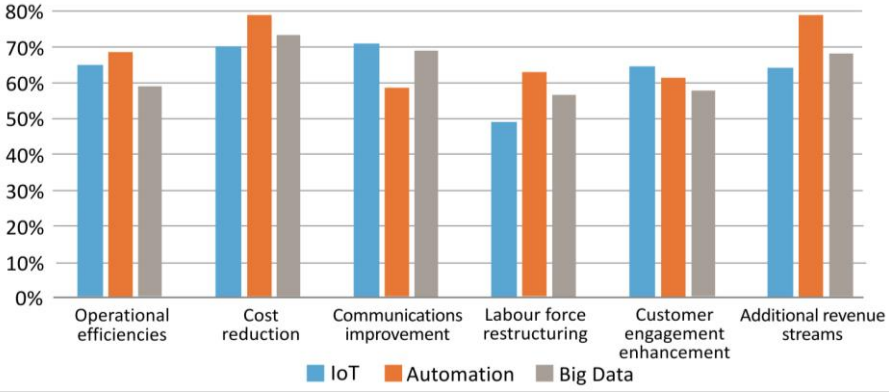
Sources: Pew Research Center; our survey among 3,400 individuals conducted September 2018.

Figure 3 Where respondents believe AI will have the biggest impact



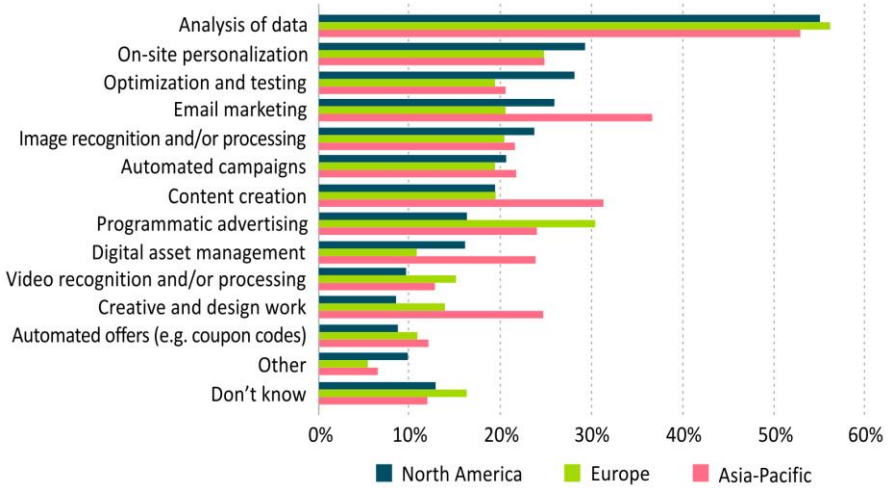
Sources: PwC; our survey among 2,800 individuals conducted September 2018.

Figure 4 Percentage of technology and telecoms respondents who see a high impact from these technologies on areas of their business



Sources: BMI Research; our survey among 2,800 individuals conducted September 2018.

Figure 5 How companies are currently using AI



Sources: Marketing Charts; Econsultancy; Adobe; our survey among 3,700 individuals conducted September 2018.

5. Conclusions and Implications

While innovative automation technologies will substitute human workers considerably, there is nonetheless a lot of space for personnel, on condition that managers consider something more than jobs displacement and start to examine work in a different manner. AI and individuals' insights are revolutionizing apparently tedious processes, expanding cutting-edge prospects for both thoroughness and growth (Balcerzak et al., 2018; Hoffman and Friedman, 2018; Lăzăroiu, 2017; Nica et al., 2018) via human–machine joint efforts. Numerous companies can shortly identify relevant gains when they employ AI in tandem with their current staff. (Daugherty and Wilson, 2018)

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Author Contributions

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

Conflict of Interest Statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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