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The Forthcoming Artificial Intelligence (AI) Revolution: Its Impact on Society and Firms

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The rise of powerful AI will be either the best or the worst thing ever to happen to humanity. We do not yet know which.

Stephen Hawking

Abstract

The impact of the industrial and digital (information) revolutions has, undoubtedly, been substantial on practically all aspects of our society, life, firms and employment. Will the forthcoming AI revolution produce similar, far-reaching effects? By examining analogous inventions of the industrial, digital and AI revolutions, this article claims that the latter is on target and that it would bring extensive changes that will also affect all aspects of our society and life. In addition, its impact on firms and employment will be considerable, resulting in richly interconnected organizations with decision making based on the analysis and exploitation of “big” data and intensified, global competition among firms. People will be capable of buying good and obtaining services from anywhere in the world using the Internet, and exploiting the unlimited, additional benefits that will open through the widespread usage of AI inventions. The paper concludes that significant competitive advantages will continue to accrue to those utilizing the Internet widely and willing to take entrepreneurial risks in order to turn innovative products/services into worldwide commercial success stories. The greatest challenge facing societies and firms would be utilising the benefits of availing AI technologies, providing vast opportunities for both new products/services and immense productivity improvements while avoiding the dangers and disadvantages in terms of increased unemployment and greater wealth inequalities.

KEYWORDS: Artificial Intelligence (AI); Industrial Revolution; Digital Revolution; AI Revolution; Impact of AI Revolution; Benefits and Dangers of AI Technologies.

Over the past decade, numerous predictions have been made about the forthcoming Artificial Intelligence (AI) Revolution and its impact on all aspects of our society, firms and life in general. This paper considers such predictions and compares them to those of the industrial and digital ones. A similar paper was written by this author and published in this journal in 1995, envisioning the forthcoming changes being brought by the digital (information) revolution, developing steadily at that time, and predicting its impact for the year 2015 (Makridakis, 1995). The current paper evaluates these 1995 predictions and their impact identifying hits and misses with the purpose of focusing on the new ones being

brought by the AI revolution. It must be emphasized that the stakes of rightly predicting the impact of the AI revolution are far reaching as intelligent machines may become our “final invention” that may end human supremacy (Barat, 2013). There is little doubt that AI holds enormous potential as computers and robots will probably achieve, or come close to, human intelligence over the next twenty years becoming a serious competitor to all the jobs currently performed by humans and for the first time raising doubt over the end of human supremacy.

This paper is organized into four parts. It first overviews the predictions made in the 1995 paper for the year 2015, identifying successes and failures and concluding that major technological developments (notably the Internet and smartphones) were undervalued while the general trend leading up to them was predicted correctly. Second, it investigates existing and forthcoming technological advances in the field of AI and the ability of computers/machines to acquire real intelligence. Moreover, it summarizes prevailing, major views of how AI may revolutionize practically everything and its impact on the future of humanity. The third section sums up the impact of the AI revolution and describes the four major scenarios being advocated, as well as what could be done to avoid the possible negative consequences of AI technologies. The fourth section discusses how firms will be affected by these technologies that will transform the competitive landscape, how start-up firms are founded and the way success could be achieved. Finally, there is a brief concluding section speculating about the future of AI and its impact on our society, life, firms and employment.

Table 1 summarizes the major inventions of the industrial, digital and AI revolutions. The first two columns have been taken from the 1995 paper (Makridakis, 1995) replacing “Widespread use of” with “Actual use in 2015” while the third one is new referring to the AI revolution and its existing and new, widespread used inventions by the year 2037. The challenge is to correctly predict the impact of AI inventions and how the role of humans will be affected when machines of equal, or superior intelligence could substitute, supplement and/or amplify practically all mental tasks that until now have been the exclusive province of humans. As with technological predictions made in the past, as well as those in the 1995 paper, it is necessary not to extrapolate in a linear fashion in order not to underestimate the rate of technological change and its impact on all aspects of our society, life, work and firms. In my opinion the forthcoming technologies of the AI revolution and their impact over the next twenty years will probably be many times the magnitude of those of the digital one from 1995 to 2015 and probably even greater than those of the Industrial revolution.