Will AI Take Away Jobs from Human Beings?

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Japan SPOTLIGHT Introduction

It is possible that Artificial Intelligence (AI) will take away jobs from human beings. This concern has been rapidly spreading all over the world. It has long been pointed out that computers are replacing simple labor or routine work, and with further developments in AI the replacement of human labor by machines has expanded to jobs other than simple ones that need higher intelligence. So it is said that a wider range of jobs could be replaced by AI. Whether this is true or not, with the emergence of such new technology our working circumstances are rapidly changing, and human beings will need to respond to this challenging question in our current era.

AI Created by Humans

It is clear that AI itself is not taking human jobs but the people who use AI well. For example, we hear that a robot has won a game of Go against a human professional player, which is considered the outcome of progress in AI. However, thinking about the fact that no one but a human being created the program for this winning AI and that the program was created on the basis of data from games played by humans in the past, this victory of AI is simply the result of a human being using a robot well to defeat another human being.

So unless we think the future will be as often described in science fiction novels, it is impossible for computers or robots to be perfectly independent from human beings and work at their own will and consequently take human beings' jobs. So it should be noted, first of all, that AI or robots will not take human beings' jobs but the people using them will take other people's jobs.

This point has at least two important implications. One is that the people using AI or robots could most likely earn high incomes and there would be a large income inequality between these people and those whose jobs might be taken by them. Even if this income inequality is fixed, social inequality in general would expand. The other implication is that if you are on the side of the users of AI or robots, you would get bigger business opportunities.

Utilizing AI & Robots

In order to utilize AI and robots fully, we will first of all need the capacity to transfer the necessary information and our requests to computers. In a broader sense, the capacity to connect human beings with computers will be necessary. Programming is a basic tool to achieve it and a capacity for programming is essential to fully utilize AI and robots. In addition, we will need a capacity to arrange operational contents in a logical manner and comprehensively assess to what extent computers can handle the information

imposed upon them. We will need a very careful study of what kinds of job will be replaced by AI in order to conceive of their full utilization in the future.

I am currently engaged in a research project organized by the National Institute for Research Advancement (NIRA), one of the largest Japanese think-tanks, together with Prof. Noriko Arai at the National Institute of Informatics of Japan and Prof. Nobuya Ouchi at Kobe University. The main subject of this research is the impact of AI upon the labor market and the institutional amendments necessary for its mitigation.

For example, if asked whether lawyers could be replaced by AI or not, the majority of the people would respond negatively. But lawyers work in a wide range of fields. They may wish to leave their work arranging documents or searching for judicial precedents related to their actual cases to AI. That would in many cases lead to raising efficiency in their work. On the other hand, it would be difficult to leave the work of negotiating with clients and opponents in judicial cases to AI. In many industrial sectors, there will be changes like this revealing jobs or professions where work can be divided into what can be replaced by AI and what cannot.

AI is very good at selecting the optimal alternatives within a limited range by referring to past data. But human beings are far more competent than AI in discovering completely new systems that best fit their operational requirements or in studying unique phenomena to which past data cannot easily be applied. So jobs that add new value by taking advantage of such competency unique to human beings are less likely to be replaced by AI.

Another human capacity essential for full utilization of AI is communication among human beings. Even if AI produces an excellent solution, there may be enormous differences in the impressions of the people concerned, whether they got to know about it from computers or from other people. The information that a human being as a living creature can transfer is far more abundant than anything computers can do. This is another unique competency

of human beings.

This point is shared by other researchers such as Prof. David Deming at Harvard University or the research done by the OECD, considering high social skills as a human capacity necessary for the future. They say that social skills such as communication or team work are much less likely to be replaced by AI, and that in fact jobs requiring such social skills are increasing.

Japanese companies tend to respect team work, based on long-term employment contracts or management taking full advantage of tacit knowledge. Thus the required level of social skills is very high. In this light, Japanese companies are in a favorable position in international competition in the era of AI. But they will increasingly need the capacity to communicate beyond companies in the future, given the vast numbers of users of new technologies, and with non-business people as well.

Enhancing Labor Mobility

We are living in an age when our job requirements are rapidly and significantly changing, and AI will further accelerate this trend. But we occasionally hear the argument that as depopulation proceeds in Japan, the replacement of human jobs by AI should work in favor of the economy. However, even though there are industrial sectors suffering from a shortage of labor due to depopulation, without the capacity and skills to work in those sectors neither AI nor human beings can work there. Therefore, the key factor enabling us to move into any sector should be skills. These skills should not be those that can be replaced by AI, but those that are genuinely indispensable for the sectors in question. By actively acquiring these particular skills, people should be able to choose where they can exercise their competencies.

In the past we could be more optimistic about the possibility of acquiring such skills, since people could trust their companies to give them opportunities to acquire them. We are now unfortunately living in an age when even the survival of our companies will not be assured, given the turbulence of economic circumstances, and so we cannot be so optimistic on this point.

The speed of the changes is also significant. If changes are big but slow, we can continue to work with our previously acquire capacities and the younger generation will acquire the new capacities needed in the new age. But we are experiencing very rapid changes in addition to longer life spans than ever, and so we need to acquire new skills whenever they are necessary, no matter how old we may be.

In order to enable us to do this, we will need to change our mindset, namely eliminate our preoccupation with the notion that skills should be acquired while we are young. At the same time, we will need institutional reforms – for example, public policy support to encourage new capacity building and provide learning opportunities. Besides this, further labor market reform will be necessary to approve a diversity of permanent workers so that people who have acquired new skills can change their working place and style easily.

CHART

Human competency expected in era of AI
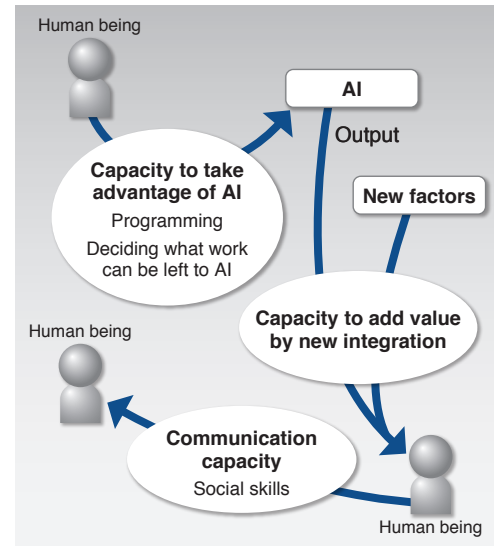
Education Reform in Age of AI

Given this situation where people will need working skills to enable them to adapt to rapidly changing times and places, I believe that school education must be fundamentally changed. The current Japanese school education system seems to fail to provide opportunities for raising the necessary competency for human beings in the age of AI. Instead, it seems to have resulted only in the capacity to be easily replaced by AI. This may have been fine in the past, but from now on, unless this school education system is changed, AI will increasingly replace human labor. The most important step towards reform of the Japanese education system should be elimination of the distinction between natural sciences and the social sciences and humanities. The competency urgently needed today is that of solving social problems by utilizing AI ingeniously, and to acquire this a fusion of these two big subject areas is indispensable.

School education is a long-term investment and it takes time for us to see its results. But we need to look to the future over the long term and learn the skills that will be necessary in advance through our school education system.

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