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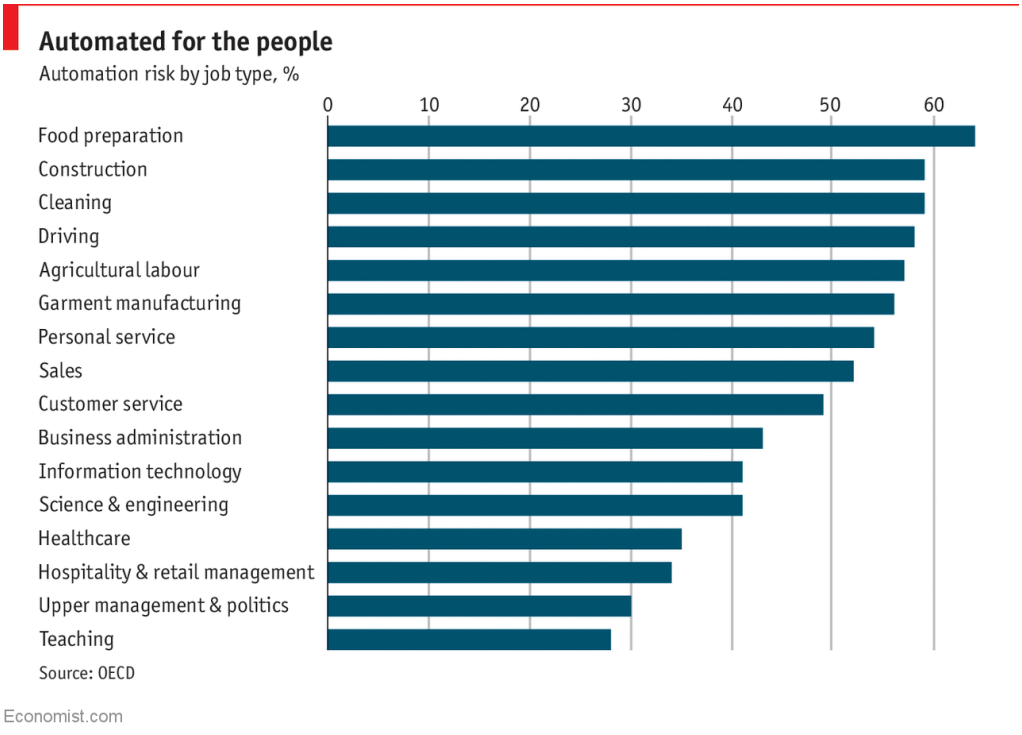
Job replacement:

Some manufacturing jobs, as well as everyday jobs, will be computerized in the future. There is already beginning to be a trend towards computerizing jobs and using robots in manufacturing and this is highly likely to continue. A study conducted by researchers at Oxford University in 2013 found that as many as 47% of all jobs in the US can and may be computerized. Since then, several other studies have come out each with different data. The article, "Automation and the future of work – understanding the numbers" by Carl Benedict Frey and Michael Osborne looks at how these studies compare to their own study at Oxford. The article states, "one study published by a group of researchers at the University of Mannheim suggests that only 9% of jobs are exposed to automation" (Frey & Osborne, 2018). There is also a more recent study by the OECD that suggests 14% are highly automatable and another 32% have a significant risk of automation (Frey & Osborne, 2018). Each study appears to infer that the automobility of jobs is based on the tasks performed within their jobs so why is there such great differences between the estimated percentages? According to the authors, it is because one other study actually uses "worker and firm characteristics, as well as demographic variables" (2018) and essentially says that automation discriminates against certain types of workers. This potentially faulty idea was used to determine the figure of 6%. The third study by the OECD does not believe many jobs are automatable but does not explain why (Frey & Osborne, 2018). The exact percentage of jobs replaced by automation is uncertain regardless, but it is fair to say there will be workers who lose jobs because of it.

With many jobs being filled by robots, people are concerned with how such a change will affect not only the economy but their own livelihoods as well. Many low-income workers are especially worried with how their employment will be affected and for good reason. Jobs such as food preparation, driving, and customer service are among the most likely jobs to be automated, according to a working paper by the OECD which looked at the automation risk in 32 mostly developed countries. Some of the countries included in the study are the United States, Ireland, Australia, Israel, and Japan. The study is based upon an assessment of the automobility of each task within a given job and was based on a survey of skills back in 2015. It came to the conclusion that 210 million jobs were at risk in the 32 countries ("A study finds nearly half of jobs are vulnerable to automation", 2018).

The image below displays the results of this study and the jobs most likely to be automated in these 32 countries.



Economic Impact:

What will be the economic impact of this replacement of jobs? This portion of the paper will be primarily looking at how robots entering manufacturing will affect the United States' economy. It will also explore what steps could be taken to make the transition a smoother process. There are both beneficial and potentially negative effects regarding the automation of jobs, and both sides of the coin need to be taken into consideration.

One definite result of robots entering manufacturing is that there will be increased competitiveness as well as efficiency within companies that utilize these technologies. Robots can ensure that a company can maintain a consistent labor cost and that productivity will go up. This is a positive since industrial mechanization has been shown to improve the economy (Rock, 2016).

American jobs may also be reshored if robots enter the workforce. Companies enjoy having inexpensive labor, so some American companies have moved offshore to countries where labor is not as expensive. Countries such as China and Indonesia do not have as many protections for workers or as high of a minimum wage which are reasons companies may gravitate towards them (Rock, 2016). Unless some laws come into play where companies that utilize these robot workers are taxed at a higher rate, companies will be incentivized to return to the U.S. if it is a front-runner with this technology as work within the country will be made more efficient.

There is research that shows adding robots in manufacturing could be healthy economically on a global scale. A report from September, 2018 by the Mckinsey Global Institute found “artificial intelligence has the potential to incrementally add 16 percent or around $13 trillion by 2030 to current global economic output” (Wladawsky-Berger, 2018). This is an annual contribution to productivity growth of 1.2 percent. This is not the only report showing this positive outlook. A report by PwC had found that AI technologies could increase global GDP up to 14% between now and 2030 (Wladawsky-Berger, 2018).

Even with a relatively positive outlook on the benefits of robots in manufacturing, there is still the question of what to do with the workers who lose their jobs due to this. Some people hope to not allow the technology replace jobs altogether, and others are in favor of it joining the workforce. Robots are likely to continue entering regardless, so what are some possible ways to make this transition smooth? Tesla CEO Elon Musk, Facebook cofounders Mark Zuckerburg and Chris Hughes, and current Democratic candidate Andrew Yang all are in favor of some sort of basic income where each U.S. citizen receives a specified amount of money each month (Feloni, 2018). Andrew Yang in particular is in favor of making an opt-in program where each American aged 18-64 can received $1000 per month regardless of their income (Feloni, 2018). He believes that this amount of money is ideal because it is not too much where people will rely on it but it is enough so there is at least something for the people who lose their jobs to robots or for people undergoing a job search. Only time will be able to tell what strategy for handling robots entering manufacturing will be the most effective.

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