

FIT1055 Assignment 1 2022

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Topic: The potential for AI techniques to be used for negative or positive social Purposes

In our everyday lives, technology revolves around all of us. From the complex programs needed to run the transportation in our country, to the image recognition needed to access our own phones. These different technologies are run by different AI techniques which is defined as procedures that make computers show human like intelligent (Habib, 2019). Since AI techniques is still evolving and being implemented into many aspects of our daily life, there are still many potentials that AI techniques could be used for good social purposes which can benefit society, however there is no perfect thing in this world. Therefore, AI techniques could be indirectly causing negative social purposes when trying to achieve a goal. The top four AI techniques used commonly today as stated by Vanherle (2021) are Machine Learning, Natural Language Processing (NLP), Automation and Robotics and lastly Machine Vision. In this report, I will be discussing and benefits and drawbacks of one AI technique and how they could benefit the society as a good social purpose while also discussing the negative social purposes that could come from when achieving a good social purpose.

Among the four top AI techniques available, I have chosen to focus on Automation and Robotics as the AI technique and will focus on the topic of implementation of Automation in a factory. This discussion will be split into two parts. Discussion on the benefits that comes along with automation in a factory and discussion on the drawbacks of automation in a factory.

Here are a few of the benefits that come along with automation of a factory.

Increased workplace safety. In a factory before automation, there used to be lots of dangerous tasks that workers would often need to perform (Ye, 2021). However, with the introduction of automation, workers no longer have to worry about performing dangerous tasks since they have been replaced by automation (Ye, 2021). Now since there are lesser dangerous tasks for workers the workplace in the factory has become more safer.

Increased productivity within the factory. With the introduction of automation, unlike human, machines don't need to rest for as long and as frequent as humans (Ye, 2021).. Machines can also work for prolonged periods of time with less impact towards the maintenance which will lead to increase production and productivity within the factory (Ye, 2021).

Increased level of focus leading to better efficiency. Introducing automation into a workplace means leaving the difficult, repetitive, and demanding physical work to robots. This would allow employees to focus on trying to improve the efficiency and extending the product possibilities (Ye, 2021).

Despite automation bringing many benefits towards a workplace, there will also be drawbacks that can happen from the implementation of automation. Below are some drawbacks from automation in a factory.

Loss of jobs. With the introduction of automation, physically demanding and dangerous jobs will be replaced by machinery which can lead to lots of redundant jobs and cause the worker to lose their jobs (Granta, 2017). During this period the worker may also face worker displacement which comes from the period of emotional stress from being replaced by machines (Advantages and disadvantages of automation, n.d.).

High capital expenditure. Implementation of machinery to automate a factory will have a high cost. Despite the return of investment (ROI) normally being effective and positive from automation, when purchasing machinery, it can cost a lot of money and normally it will take a higher level of maintenance than a machine manually operated by human and could potentially be less flexible in comparison to humans which are very versatile. These reasons could possibly make the investment not as valuable and the capital could be spent somewhere else with a better ROI (Advantages and disadvantages of automation, n.d.).

Possibility for automation to become redundant. When a machine is bespoke just for a certain process in the manufacturing if for example, the factory decides to change production into another line-up, the chances that the bespoke machine can be used elsewhere will be unlikely (Granta, 2017). This will cause the machines to be redundant.

After doing my own research for the benefits and drawbacks towards automation in factories, I have found a total of four sources where two sources will be for benefits and the other two will be for drawbacks. In this case I will firstly start with discussion of the benefits.

Looking through the three benefits written down from the source above which are “Increased workplace safety”, “Increased productivity within the factory” and lastly “Increased level of focus leading to better efficiency” we can firstly validate that these are benefits which are similar in other sources through using the two sources benefits that I managed to find to compare with the benefits of the original source. We can find that they are very similar benefits like “Means Workplace Safety” (Robotics Online Marketing Team, 2017), “tedious labour can be left for machines” (Robotics Online Marketing Team, 2017), “To increase the quality and safety of the product” (Fert, 2021) and “Automation Means Higher Productivity” (Robotics Online Marketing Team, 2017). From all three benefits written, there was at least one source or more where the same benefit was found in the other sources. This would mean that the writer of the source was not biased when writing. Otherwise we would be able to see major differences in the benefits. Another method to validate these benefits is through logic. An example is the first benefit which states that with automation in a factory, there would be more safety. If machines were used to handle those dangerous jobs there would be improved in safety in the factory. Therefore, I agree with all of these benefits and think they are all correct.

Now moving on to the drawbacks of automation in manufacturing where I will be using the other two sources to validate the drawbacks of automation in factory.

Looking through the three drawbacks written down from the source above which are “loss of jobs”, “High capital expenditure” and “Possibility for automation to become redundant”. We can validate these drawbacks through the same method applied in benefits however now with two different sources and instead of benefits it is drawbacks. So, following that method to validate the drawbacks, there were many similar drawbacks among the two source I choose and the original source. Some of them were “Increase in unemployment” (Blue, 2013), “increased unemployment” (Admin, 2020) for “loss of jobs” and “Large initial investment” (Blue, 2013), “large capital for investment” (Admin, 2020) for “High capital expenditure”. So these 2 drawbacks contained similar drawbacks in different sources. This will validate that the author from the original source is not bias. However, for the drawback “Possibility for automation to become redundant” it could not be found in any of the two sources which means it’s unique to only that source.

As a result of my research, I can see that each benefit and drawback are correct when it comes to automation in factory. However, I won’t be able to choose one specific point of view is correct and stick with that since nothing is perfect in this world. Like if there is a solution to a problem, the solution itself could contain new problems. For example, if I decide to side with going with implementation of automation, there would be winners and losers. The winners would be the owners of the factory and the software developers behind the machines which will benefit the most since they directly benefit from the growth of the business but when you try to solve one problem, another one appears. In this case it would be the workers who were working at the factory. They would lose their jobs from the automation of factory and face worker displacement. That’s why there is a potential that automation in factory could lead to good social purpose however, it is only for those who are the owners or people who directly benefit from the increase in productivity and there is also potential for automation to lead to a bad social purpose. For example, workers. It just depends on which side you’re in. Therefore, in conclusion, I won’t be siding with whether any side as the implementation of anything to society will have its benefits along with the drawbacks that come with implementation.

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