2 Analysis of AI in Automated Manufacturing Executive Summary

This report is intended for manufacturing executives and business leaders who are looking to see what the current state of Artificial Intelligence is in Manufacturing. It will provide several things:

- Motivation for transitioning to a more autonomous and intelligent factory.

- Showcase some of the current technologies being implemented.

- Explain what some of the challenges are.

- Describe the social repercussions of AI in manufacturing around the world.

The biggest motivator was that just as we have seen many technological revolutions over that last 200 years, you cannot stop the flow of progress of AI. This in turn has led to the fact that there will always be people looking to innovate in this regard. Thus, to stay competitive you need to adapt to change.

There are many current AI technologies in manufacturing from advanced supply chain software packages to self-driving forklifts and vision systems. It is not enough to simply implement a small portion of automation into your factory, but rather you need to redesign the entire work process to promote AI.

But despite advances in AI, there are factors that provide resistance to the adoption of AI, primarily cost and jobs. Manufacturing with its large, fixed assets are not as adaptable or modifiable as say a software system. As a result, to achieve the best performance, you need to redesign the entire production line, which is something many factories are hesitant about. Tied to that, if entire production lines are changed, that means jobs will be affected. Many employees and including managers are resistant to change. Thus, achieving alignment across all levels of the company is difficult since many people fear the unknown and losing their job.

Implementing AI has shown to increase job growth, specifically in high skilled work. This makes the role of Human Resource departments as a key component of the organization. They are responsible for retraining and hiring top talent to maintain, engineer, and built these AI systems.

Lastly, there is a significant social and economic consideration, mainly found in developing countries. There is a push for reshoring and bringing back jobs, reducing the need for cheaper labor overseas.