

Transforming Factories for the Future

The Industrial Revolutions in the past have given life to the manufacturing industries and factories, transforming them throughout the course of history to make them more efficient, reduce cost and boost the margins of profit, while churning out more products to the masses. So what awaits the factories with the advent of Industry 4.0? What must these factories do in order to remain relevant in future?

The crux of Industry 4.0 lies on the Internet and the virtual world. As such, implementing the Internet of Things (IoT) in supply chain management certainly seems like the right idea. By using sensors to connect production lines, factories are capable of manufacturing more efficiently and on schedule. This is made possible by implementing predictive analytics over the collected data to allow processes to flow in a timely manner to reduce sudden breakdowns or hiccups, which would result in major losses for the factory. At the same time, the IoT systems also enable remote quality control to reduce wastages and increase productivity.

In order to speed up execution, collaborative robots or cobots are inserted to work alongside humans to automate routine tasks with the aid of computer vision. One example would be Amazon and Alibaba, two major companies that have successfully incorporated swarm robotics in their warehouse management system to take over mundane tasks previously done by humans.

While humans remain as an integral part of the production line, the use of technology helps to boost their work and reduce human error. For instance, equipment can now be made modular with the current technology which eases assembly and increases portability. In addition, introducing augmented reality (AR) in the industry will help to increase productivity. Human operators no longer have to read and memorize instruction manuals, when the information can be readily available and projected directly via a supportive headgear or Google glasses. As such, new recruits would be able to adapt to tasks much faster with less error.

Monitoring the status and health of each worker using wearables can be a useful tool to ensure that workers remain healthy and are able to work at an optimal productivity. Blockchain technology can be utilised in the process of data exchange to protect private and sensitive data, where data transfer would be encrypted to reduce the occurrences of data tampering.

In logistics and transportation, trucks no longer require human drivers with the emergence of self-driving technology. This would reduce cost overheads of using truck drivers. As the technology matures, autonomous vehicles would become the new norm in goods delivery.

Needless to say, factories would have to make significant investments in order to transform their operations to be ready for Industry 4.0. Just like the previous Industrial Revolutions, the investments made would result in good payoffs that would propel them into the future.

The Ministry of International Trade and Industry (MITI) is driving the Industry4WRD initiative to transform the manufacturing industry in Malaysia towards Industry 4.0 adoption. To find out how you can be ready for industry 4.0, visit MITI's website at <https://www.miti.gov.my/index.php/pages/view/4832>.