

Annex B: Details on the digitalisation efforts by selected Precision Engineering companies

Certact Engineering Pte Ltd

Established in 1968, Certact Engineering Pte Ltd is a precision engineering company that provides manufacturing services for sectors such as semiconductor and medical technology. They make components using CNC milling, turning, grinding and wire cutting processes. The company has also ventured into the plastic engineering industry to provide a range of plastic fabrication services such as thermo-forming and plastic welding.

With support from ESG, Certact is embarking on their digitalisation journey through deploying robotics cells with conveyor systems to automate their machine tending process. This will replace the current manual machine tending process, connecting its equipment and machines across the network to enable quick uploading of the CNC programmes. The company also introduces IoT solutions to extract real-time production floor data to improve their decision-making process. This has enabled the company to become more manpower efficient, saving about seven man-hours per employee and S\$600 in labour costs per CNC machine each month.

The company also has plans to deploy further robotics cells and automated solutions as they look to expand its manufacturing capacity to meet the increasing demand.

Koei Tool Singapore Pte Ltd

Established in 1989, Koei Tool Singapore is a tooling company that specialises in injection moulding. With effective use of 3D printers, Koei Tool can also mould parts that traditional metal cutting cannot achieve.

Since 2019, Koei Tool has embarked on their digital transformation, where they deployed robotics and software deployment solutions to digitalise and automate part of its mould manufacturing process. The company has also adopted a Design and Computer-aided Manufacturing (CAM) software to increase their company's capability in pre-preparing work processes. This has enabled each programmer to produce up to 150 to 200 programmes per year, as compared to 40 to 50 programmes in the past.

The company has greatly benefitted from the transformation, especially in the current pandemic. During the Circuit Breaker period, the company was able to devise a new production plan quickly that allowed them to run their operations with employees monitoring the machines from home. In addition, the improved productivity has enabled Koei Tool's local operations to take on additional manufacturing orders from its other overseas manufacturing sites.

With support from ESG, the company is currently deploying more i4.0 solutions, such as robotics solutions and Manufacturing Execution System (MES), across its manufacturing lines and processes. The deployment is expected to reduce manpower requirements by another

20%, enable real-time monitoring of the production process, product quality and delivery schedule.

Onn Wah Tech Pte Ltd

Founded in 2008, Onn Wah Tech Pte Ltd (OWT) is a subsidiary of Onn Wah Precision Engineering, which provides solutions for the precision tooling market.

Since 2017, OWT has kickstarted their digitalisation journey by deploying a Manufacturing Execution System that can connect and monitor machines on the factory floor. The company has also deployed an Overall Equipment Effectiveness (OEE) system to eliminate manual data recording and compilation. These solutions allow OWT to capture and track data from individual machines or work centres, which help the management make more effective business decisions.

During the pandemic, the company also shifted some of their equipment to their employees' home. These equipment are connected to the office's server, which help employees to better support product design remotely.

With support from ESG, the company is currently working with Singapore Polytechnic to automate the design generation process via a design template, which automatically generates the 3D model of a precision component that will be manufactured.