

SMART MANUFACTURING CASE STUDY

Small & Medium Manufacturer Improves Production Performance using BorgConnect®

Business Challenge

A Small & Medium Manufacturer (SMM) in India, which manufactures precision components for leading auto OEMs, wanted to embark on an initiative to improve productivity of their plants through Smart Manufacturing. They had the following challenges:

- Since all their facilities were spread out in different geographical locations, it was not possible for the senior executive team to travel to each location on a daily basis to exercise oversight of their production.
- Production was planned by shop level supervisors but in many occasions the production was delayed and *the material wastage were significant*. Moreover, such shop floor production information was available to the senior management only on the following day when the daily production report was shared by the shop floor supervisor.

As a result:

- The shop floor did not have real-time visibility of its operations to make informed decisions for improving productivity or reducing waste.
- Consequently, the company was frequently unable to meet customer delivery schedules due to poor productivity.

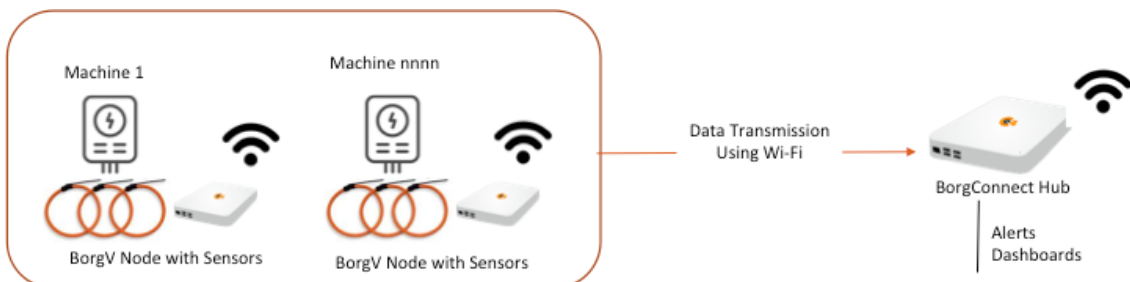
- Excess material was used as there was no traceability of material usage across the plant. The material loss accounted for roughly 10% of the company’s profit margins in value.
- There was a perennial need for procurement of additional material at higher cost and in short notice from the suppliers to compensate for the poor tracking of material usage waste.

The manufacturer was thus looking for smart manufacturing solutions which could provide real-time monitoring of their production, materials, quality and delivery to improve their customer delivery responsiveness and reduce their material and wastage losses .

The Solution

The BorgConnect® platform was deployed at their plant according to the architecture shown below. The platform connected to critical machines using non-invasive wireless sensors to track all types of waste – material waste, quality waste, energy waste, production time waste, etc.

Therefore, the platform incorporated multiple sensors for tracking production performance, energy performance and quality performance. These sensors formed a wireless network and was orchestrated by the BorgConnect® Hub at the edge. The system provided the manufacturer the following:





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- Timely, real-time tracking of production and instantaneous alerting of the Plant Supervisor of any reduction (against plan) in speed, quality, availability and/or material wastage.
- In response to the above, capability to make instantaneous incremental improvements in all the above using *Short Interval Control*.
- Objective dimensional measurement of machined parts that provided real-time insights on the quality of the batch and whether it is in accordance with the quality plan.
- The above-mentioned information was available in real-time to executive management from a remote location– therefore, useful interventions and corrections were possible in real-time without the need to travel to the locations .

The Value

1. **Traceability:** Real-time traceability of wastage allowed the executive management team to make proactive interventions and ensure each day’s production targets are met according to plan.
2. **Actionable Intelligence:** More specifically, the platform identified material wastage in three machining stations and the cause for the waste. This enabled remedial action that contributed significantly to reduce material costs.

The Result

The SME was able to achieve material wastage reduction of 30% by implementing BorgConnect®. This reduction contributed to increasing about 2% of the plant’s profit margin.



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