



SMART MANUFACTURING CASE STUDY

Tractor OEM achieves Zero PPM Defects in Supplier Quality by using BorgConnect®

Business Challenge

A global leader in tractors for the last 60 years wished to improve the Quality of incoming parts by Digitizing the process of monitoring Supplier Quality.

The Tractor manufacturer had a large number of suppliers of parts and each supplier supplies parts in low volume but high mix. The quality practices of each of the suppliers varied. Most of these suppliers were in the Small and Medium segment. The cost of quality of the sourced parts was undesirably high because of the variability in the quality practices of this large supplier network.

In other words, the following contributed to the poor cost of quality of outsourced parts for the OEM:

- The inspections at the supplier end were found to be subjective. The results of the various stages of the inspection process were not completely recorded for future tracking or reference.
- The suppliers provided a Final Inspection Report (FIR) to the OEM which provided the measurement values for the inspections performed by the suppliers. It was not possible to ascertain whether the suppliers were following the OEM's Quality Plan.
- Also, it was not possible to assess the extent to which operator-induced errors were present in the reports due to incorrect data entry.

As a result:

- No meaningful analysis was possible for continuous improvement.
- Post-delivery verification checks had to be performed by the OEM once again at the point of entry and defective parts had to be returned which proved costly to both the supplier and the OEM.

The Solution

BorgConnect® established a real-time integration between the supplier QA process and the OEM QA processes. Consequently, BorgConnect® enabled consistent conformance and unified visibility of supplier quality, simultaneously to both the suppliers' and the OEM's organizations.

Simple digital attachments to the dimensional measurement devices (screw gauges, vernier calipers, etc.) and a Bluetooth-based wireless transmission from the said digital attachments were integrated to the BorgConnect® platform. This data was then directly read by a tablet provided to the Inspector.

The digital attachment transmitted the measured data to a BorgConnect® Gateway in the shop floor. The BorgConnect® Gateway subsequently aggregated and wirelessly transferred the data to a BorgConnect® server in the cloud for performing advanced quality data analytics. A user-friendly BorgConnect app running in the worker's smart phone/tablet allowed for an operator to record the readings and for a manager to dice and slice the QA data in real time (refer Figure 1).



Achieve Zero Defective Parts Per Million (PPM) in Supplier Quality

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The Value

The most important benefits of the BorgConnect® solution were :

- The concurrent access (at the OEM end) to the quality of a batch BEFORE dispatch from the suppliers' sites.
- This eliminated the requirement to employ multiple quality inspectors to validate the quality of the inward supplies (on a day to day basis from multiple suppliers) at the OEM end.
- Objective data availability meant that both suppliers and the OEM had visibility into the Process Capability of the supplier allowing for corrective actions wherever required.

The Result

- The OEM was able to achieve **zero defective parts per million** within 3 months!
- Therefore, the OEM reduced Cost of Quality - both in external failures and appraisal costs (non-value-added labor to inspect incoming parts was not needed).
- Suppliers had much better visibility on improvements needed in labor training, equipment and processes.
- Human errors and omissions in measurements were eliminated and thereby a true picture of quality emerged.

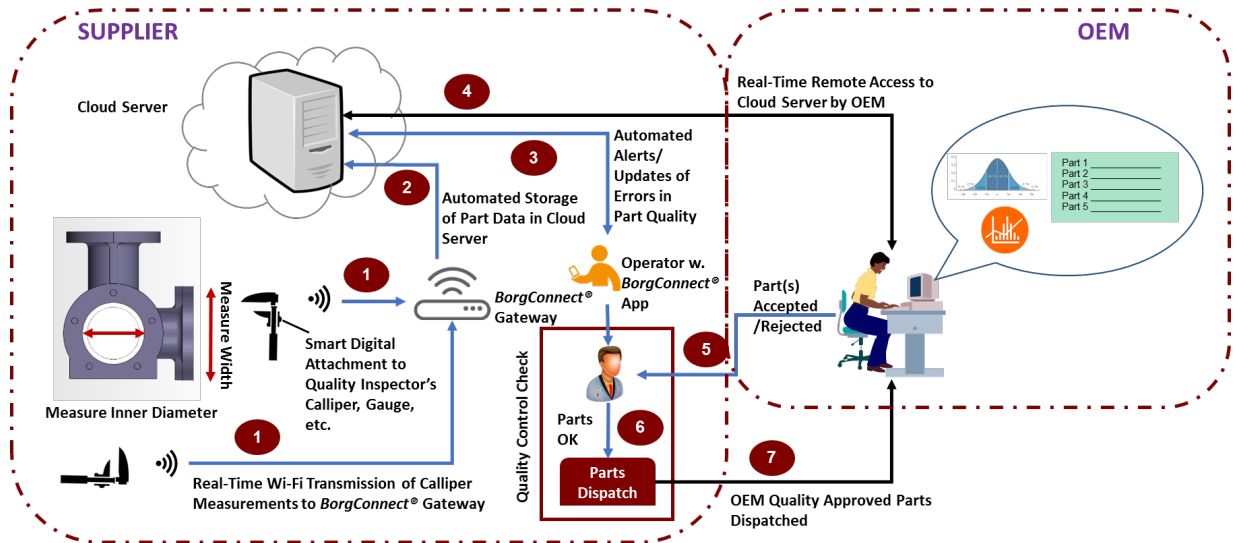


Figure 1: Supplier Quality Integration with OEM

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