

Case Study: Gigaset Communications GmbH

*Cordless and VoIP phone provider
guarantees product and service quality with MES technology*

Improving production efficiency with MES



itac
SOFTWARE

Gigaset Communications GmbH

Munich-based Gigaset Communications GmbH manufactures and markets phones for fixed networks, VoIP and PBXs. The main Gigaset production facility is in Bocholt where the company manufactures products that reflect the highest quality and environmental standards – while generating annual revenue of over half a billion Euros. In addition to compliance with

standards and guidelines, Gigaset’s primary focus is continuous performance improvement. The success of Cordless Voice, a core business segment comprising a comprehensive range of telephone products including the flagship model Gigaset SL400A – the smallest Gigaset in the world which was launched last year – makes an important contribution to this goal.



Gigaset Communications GmbH,
Bocholt

Some 1,300 employees work in an area of around 60,000 sq. m. at the main production facility in Bocholt which has been using state of the art technology for many years now in striving for the optimum production automation strategy.



Improving Gigaset production efficiency with a Manufacturing Execution System

Every second a phone is manufactured in Bocholt. Gigaset Communications is Europe's DECT market leader and one of the largest manufacturers of cordless phones in the world. Outstanding quality, innovative products, productivity and profitability are the levers that the company deploys to sustain and improve its leadership. iTAC's manufacturing execution system makes an important contribution in this process.

Maintaining the "State of the Art"

Gigaset can only achieve its objectives through efficient production in a State of the Art environment. Fast response times, tight, efficient process chains and effective quality control are all essential aspects of efficient production. Every link in the value chain has to be synchronised and interlocked.

Increasing product complexity and diversity means that at every stage of the production process, checks have to be made to ensure that every single product conforms to hardware and software development specifications. To reliably produce the right version of a product according to the development specifications, information from many different source systems such as CAD, PLM and ERP has to be made available

and verified online – facilitating checks as to whether the fitted components are approved for the product version and have an appropriate lifespan – while in parallel ensuring that tests are performed according to the prescribed procedures.

As is often the case in hightech production, numerous cross-organisational factors need to be considered, e.g. the optimisation of material and packaging logistics to reduce unnecessary material consumption, version control on the final assembly lines and operations / machine data acquisition in all production sectors. Ultimately, all these measures are implemented with the objective of achieving sustainable efficiency gains.

“We need a manufacturing execution system to fulfil our specific requirements that provides both the process interlocking functions that are so important for us as well as other services that support us in achieving our optimisation goals”, explained Reinhard Thies, Head of Production Engineering at Gigaset Communications GmbH.

Choosing the iTAC.MES.Suite

To meet the requirements of a high performance factory deploying a manufacturing execution system (MES) is mandatory. Among numerous benefits, an MES facilitates quality improvement, reduces the defect rate and increases productivity.

With this in mind, the MES has to support a “built as planned” strategy. Not only does it have to collect comprehensive and complete information, it also has to highlight defective processes, identify faulty components and provide data for early fault recognition so that defects can be prevented in advance.

After a thorough market evaluation, Gigaset chose to implement the iTAC.MES.Suite in 2000. While the solution supported the standardised integration of SAP ERP, iTAC’s traceability and process interlocking functions were the two most important decision criteria.

One solution to integrate all areas

The DECT handsets production process in Bocholt involves many interlinked steps and components: development, pre-production, technical production (board assemblies), assembly (display, key pad, final assembly), packaging and dispatch.

The iTAC.MES.Suite is used across all production areas, specifically SMT production, display assembly, final assembly, packaging and dispatch. The software records all relevant data – from development to finished product, from individual component to handset – and transfers the data to SAP ERP and other logistics systems. Over 1000 database queries per second are handled by a central MES infrastructure.



Process interlocking to improve quality

One of Gigaset's most critical requirements was active process interlocking. It involves checking the products within each process step, designating them as 'good', 'rework' or 'reject', checking them against product part lists and, if necessary, assigning them to a specific repair process.

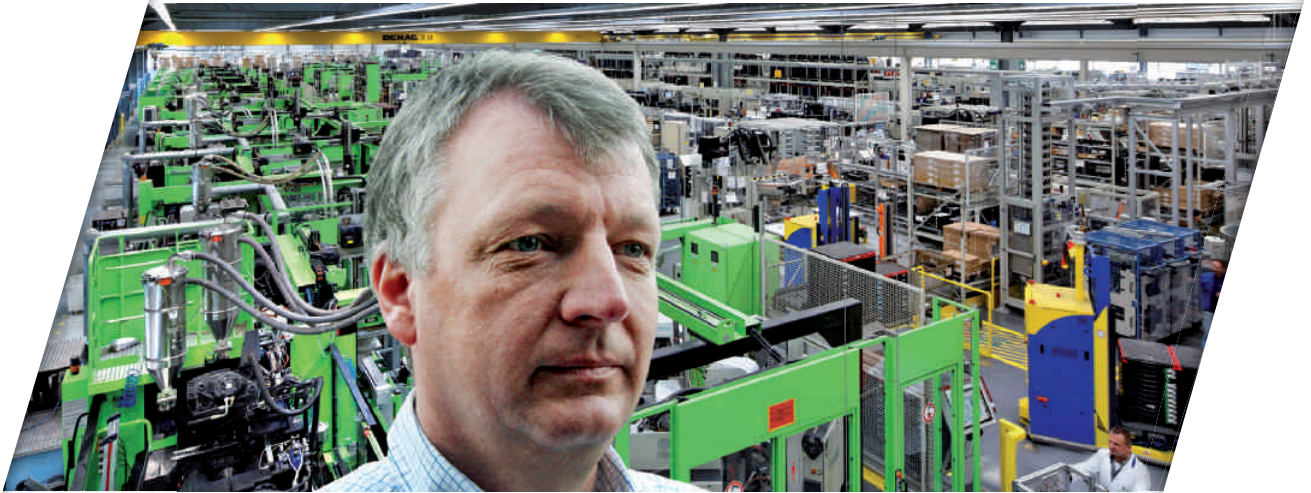
"Unlike the automotive industry, we generally don't need component traceability. We deploy traceability in our multi-stage production process to document all production-related data preventing the production of large batches of products with the wrong parts, with defective components, assemblies or with an incorrect software version," said Andreas Welsing, MES Project Manager at Gigaset Communications GmbH. Continuous real-time product tracking at the unit or container level – from raw material to packaged product, and from the supplier to the customer – is possible with the ITAC.MES.Suite.

The solution enables the immediate identification of irregularities in the production process, supports root cause analyses and corrective action within the framework of a continuous improvement process. The effectiveness of the processes can then be evaluated on the basis of the collected data. Using this approach, the defect rate can be minimized enabling "almost" zero defect production.



Every single circuit board is verified at the beginning of a new process step. Stefan Niehuis, Gigaset Communications GmbH's Head of IT in Bocholt confirms, "In the past, we had people standing at the end of the production lines checking the products. Today we have people standing at the beginning of the lines so that we can make changes at any time and ensure that the correct production version is being manufactured."

Stefan Niehuis, Gigaset Communications GmbH



Traceability and interlocking in detail

High product variance is a challenge for manufacturers. The MES manages product variance through a process of serial number and version interlocking. Each product is assigned a unique serial number which the iTAC.MES.Suite recognizes and processes using the appropriate labels and readers.

The deployment of a series of standardised interfaces to SAP ERP supports this process. These interfaces import master data (e.g. material master data, part lists etc.) and export movement data (material batches, production orders, order feedback on quantities and material consumption) back to the SAP ERP. It is then possible to trace the precise time that specific process steps such as SMD mounting, testing, display mounting, assembly and final testing were carried out for every (semi-) finished product.

Higher productivity

through operational data acquisition

The manufacturing execution system also boasts bi-directional machine integration supporting the acquisition of all the relevant operational data. This information can be evaluated and analyzed in real-time. As a result, production volumes, interruption / downtime causes and component rejects can be optimised.

Reject data is automatically read, verified and stored, then transferred back to SAP ERP in rapid, timely feedback processes. The operational data (production volumes and cycle times) enables the iTAC.MES.Suite to perform an objective analysis on efficiency levels / OEE without manual input, delivering timely comparisons of target and actual status. Documenting the current status increases transparency for all process participants.

Real-time data simplify quality assurance

Before it implemented the MES solution, Bocholt had deployed a numerous quality management systems. These stand-alone solutions were all replaced by the iTAC solution – today, there is only one single central data base and the bespoke MS Office-based quality reports are a thing of the past.

The iTAC.MES.Suite QM Service provides standard product and process quality evaluations, while delivering attributive defect characteristics. In addition to historical data evaluation, it facilitates preventative quality assurance which significantly enhances process quality.

An online performance monitor used by Gigaset – including FPY display – signals defects in the production process which are immediately analysed by the MES. Instead of analysing the defective processes after they have happened, this control loop method supports the continuous improvement process. Defects are identified and analysed, process parameters are changed and the impacts of these changes are checked again. This considerably improves process quality and prevents the production of defective products.



IT harmonization right up to goods issue

The iTAC.MES.Suite supports the entire packaging and supply process. The original, effective Inhouse-Solution was mapped to the iTAC solution, a major step in consolidating the IT environment.

This enables product traceability along the entire supply chain. By assigning trading unit numbers to all packaging units, customer requirements can also be met.

Summary

The use of the iTAC.MES.Suite at Gigaset Communications guarantees the reliable production of the required products with optimum quality. The resulting customer satisfaction provides the company with a key competitive advantage. In parallel, the data provided by the MES software support a continuous improvement process that has a very positive impact on all key production parameters – while minimizing IT costs.

The central benefits of this concept for individual part tracking are

- Early recognition of defects
- Prevention of production crashes
- Reduction of module defects through installing the right modules in the right devices
- Reduction of plastic component rejects
- Minimization of overtime
- Improvement of the OEE

This improves

- Quality of supply
- Delivery conformity
- Process quality



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