



# Greenfield Speed to MES Delivers First Round Win

## Large HT Micron back-end ready to ramp

CASE STUDY Part 1 By Julie Fraser, Iyno Advisors

## Ever heard of a high-volume semiconductor back-end implementing MES in just two months?

Now you have. To gain speed to market, the new HT Micron facility in São Leopoldo Brazil worked with their manufacturing execution system (MES) supplier to implement during October and November 2014. The plant was running test lots in the MES and training their employees in December.

By January, all reports for the semiconductor packaging and test line started coming from the MES. The business need was as fundamental as being able to generate more revenue with Tier 1 international customers. In January, this MES was able to provide everything HT Micron needed to supply to big brand name electronics customers.

The MES also serves the sister company Teikon that makes memory modules, and SSD products in the same facility. All of these operations went live on MES in just a couple of months.

How did they implement so quickly? By selecting a modern MES from an experienced company and using core functions (model with traceability, enforced routings, SPC) out of the box (OOB) with minor customization.

### Giant opportunity

Brazil's laws require major computer and memory makers to use DRAMs and NANDs packaged and tested in Brazil. To serve this market HT Micron has invested over R\$ 165 million to build the largest semiconductor facility in Latin America. With 10 thousand square meters that includes 7,500 m<sup>2</sup> of cleanroom, the plant has the capacity to create over 800 direct jobs.

They currently occupy over 3,000 m<sup>2</sup> for IC assembly and component test. This space also includes a Class 100k cleanroom for sister company Teikon's SMT and module / SSD test lines. With enough people to manage, oversee, and run several dozen wire bonders, plus wafer sawing, die attach, molding, marking, etc. this is not a small or simple new facility.

Imagine the challenge: starting this in a country that had no people to hire with industry experience. In spring 2014 Brazil did not even have an MES consultant with semiconductor experience.

The MES is critical to success. Short term, they needed it to get on the approved vendor list of global Tier 1 customers. Long term, they needed it to stay efficient and flexible as their volume and product mix grow.

### Multi-national team

HT Micron executives include both Brazilians and Koreans as the company is a joint venture between PARIT group of Brazil and Hana Micron of South Korea. This executive team hired an experienced US native as plant manager,

knowing there was little semiconductor experience available in Brazil.

While their soccer teams were all competing elsewhere in Brazil, this multi-national team was planning for a win-win. The target was to ensure that the plant and its customers would all benefit.

### Selecting a system

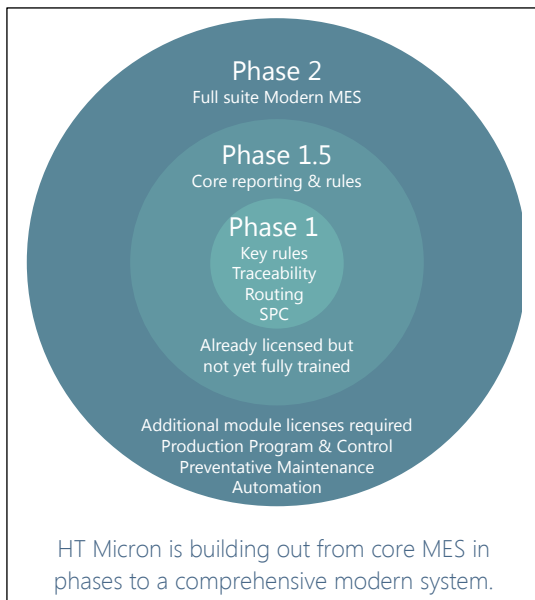
HT Micron's COO sponsored the project. The core team included the plant manager, and representatives from IT, quality, engineering, and various production areas. An experienced project manager was added from Altus, a sister company of HT micron in the PARIT group of companies.

The power of this team was that each party brought its needs and prior experience to the table. While some advocated using a system from past projects, others knew of systems they thought might allow faster start-up and change.

### Quality for all

*"To be competitive, we must supply the whole Brazilian market, both local companies and tier 1 international companies with strict requirements who qualify your quality system, quality process (which can have 500+ questions) and then spend four to six weeks testing the product itself. For that, MES is required."*

Tiago Machado  
Process Quality Supervisor  
HT Micron



They licensed a core MES platform to model the plant and store data plus WIP, equipment, durables, consumables, carrier tracking, dispatching, on-line visualization, engineering data analysis, reporting, SPC. Between October 1 and November 30, the MES supplier installed the software. Their experienced team created specific routing rules, parameter-based automatic actions and specific reports. In December, the team got up to speed, and all production was tracked in the MES from January 1, 2015.

### Support and service

*"cmNavigo is a well-designed system compared to demos and site visits of the competition. We believe Critical Manufacturing has the best chance to succeed in meeting our goals. They were agile in implementation. Given our time constraints, their speed is hard to match."*

Scott Van Etten  
Plant Manager  
HT Micron

The team narrowed the field to three MES competitors, all of whom had strong credentials in semiconductor packaging plants. The team had over 500 customer requirements. They identified which of those the MES would need to meet and forwarded those to the finalists. The software players marked which items they cover and how, plus whether they could deliver each in Phase 1.

All three finalists could have met the core needs. After thorough analysis and discussion, they made a selection. The key deciding factors were how much they could implement quickly and reliably to support a fast time to market for Tier 1 customers in early 2015, ease of configuration, vendor's ability to support a facility in Brazil, and long-term likelihood of keeping the system light and clean, based on a largely and OOB approach.

### Heading for the goal

During selection of the MES, the plant went from one pilot product into volume production for three products. Producing millions of pieces per month, they created plenty of paper with Excel and manual processes.

The MES was a prerequisite for major international customer wins. The first customer auditor was amazed that HT Micron had an MES in place so quickly that will meet all of their needs. Beyond that, MES provides faster response time, higher quality via enforced routings, and reporting from the system without manual Excel data entry.

The first phase of the MES project is considered a success by HT Micron as they have successfully qualified the tier 1 customers that they targeted in 2015.

Because they needed to train every employee, start up and get to market rapidly, HT Micron did not initially make full use of all of the capabilities they licensed. Expanding the team's know-how with the MES is called Phase 1.5.

The results from Phases 1 & 1.5 will form the foundation of a business case for expansion. In Phase 2, HT Micron plans to add automation, maintenance and other modern MES functions. Scaling and serving major customers will be a big win.

### Iyno Advisors

Iyno Advisors combines experience, intuition, intellect, and research to focus on how manufacturing and production companies and their network of partners can best benefit from software applications and services.

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