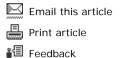# Consistency in manufacturing variables

This approach stood SSMC and 3M in good stead when they went through the audit process for MAXA, reports JOYCE HOOI

THE world of manufacturing is a paradoxical one, where change is necessary to survive but constants are absolutely essential.

Systems on Silicon Manufacturing Company's CV Jagadish understands perfectly the need for constants. At the semiconductor wafer manufacturing company's plant in Pasir Ris, every variable has to be monitored closely for consistency down to the most minute detail.

Going forward: Mr Jagadish of SSMC (above) says the journey of cost excellence is not purely about cost-cutting but also about improving productivity in terms of yield, cycle time and defect density and Mr Sommerfeldt (next) of 3M says that feedback from the MAXA process gives them a very good idea of what their best practices are - and what they can work on

'The business of making semiconductor wafers requires predictability. You can't even afford to have a fluctuation in electricity, such as a light-bulb flickering in your house. If such a thing happens at the plant, we literally have to shut down all the tools and restart. And that can cost as much as $1-5 million dollars,' said Mr Jagadish, SSMC's chief executive.

Over at manufacturing giant 3M Singapore, senior manufacturing and engineering manager Frank Sommerfeldt is just as well-acquainted with the concept of consistency in production. 'The customer wants the same product time after time after time,' said Mr Sommerfeldt.

This approach to manufacturing stood the two companies in good stead when they went through the application and audit process for the Manufacturing Excellence Award (MAXA), with each firm gaining one for Operational Excellence in 2007.

MAXA is jointly organised by the Economic Development Board, management consultancy McKinsey & Company, the Singapore-MIT Alliance and the Singapore Manufacturers' Federation.

Launched in 2006, its objective was to recognise excellent Singapore-based manufacturing operations that display long-term sustainability.

SSMC was no stranger to the awards circuit, having previously obtained ISO9001 certification and the Singapore Quality Award. By the time 2007 rolled around, the company was ready for a more specialised form of verification.

Manufacturing focused

'Maxa was very clearly focused on the manufacturing part of business excellence. We are a manufacturing-centric company, so participating in Maxa gave us a chance to evaluate where we were in terms of manufacturing excellence,' said Mr Jagadish.

The MAXA process was likened to a journey by Mr Jagadish - and by all accounts, it was an epic one for both SSMC and 3M.

Companies were shortlisted for a two-day audit process carried out by the McKinsey and graduate students from the Singapore-MIT Alliance, under the supervision of a senior auditor.

The Singapore-MIT Alliance is a graduate education and research collaboration in science and engineering between Massachusetts Institute of Technology (MIT), the National University of Singapore (NUS) and Nanyang Technological University (NTU).

3M Singapore's Mr Sommerfeldt said: 'We are always looking for opportunities to point out weaknesses we can improve on. There was the option of internal audits, but that would have been like grading ourselves. The feedback from the MAXA process was unbiased and very candid, and we have acted on it.'

The choice of institutions and companies on the panel was crucial to the process, according to Mr Jagadish.

'McKinsey has the knowledge because it has seen so many manufacturing companies,' he said.

For Mr Sommerfeldt, the feedback process proved invaluable. 'It gave us a very good idea of what our best practices were - and what we could work on.'

3M's Woodlands plant, with 850 workers and 150-200 workers on the floor at any one time, managed to go 4 1/2 years or 8.5 million hours with zero lost-time due to injury.

Mr Sommerfeldt is a Black Belt in the Six Sigma system, implemented at 3M in 2001. 3 1/2 years ago, the company put in place the Lean system to eliminate waste. At 3M today, employees are fully indoctrinated with a combination of the two systems.

'Winning, for us, was just the icing on the cake,' said Mr Sommerfeldt.

Post-MAXA process, the effects on SSMC and 3M Singapore are clear.

'Maxa resulted in improved productivity by encouraging us to go for process development and embarking on a journey of cost excellence,' said

Mr Jagadish.

The company's journey of cost excellence was made all the more relevant by the recession last year, he said.

'We had two choices. Be afraid and try to downsize, or make the business even more competitive so it could withstand this global economic crisis.'

SSMC chose the latter, electing to focus on process development and cost excellence.

'The journey of cost excellence is not purely about cost-cutting,' Mr Jagadish said. 'It's also about improving your productivity in terms of yield, cycle time and defect density. At SSMC, if you start production with 1,000 wafers, you will get more than 990 wafers every time.'

This year has been challenging, and Mr Jagadish is proud of SSMC's commitment to operational excellence and its people.

'The whole team here, all 1,200 employees - we've been through the austerity measures, and every employees here has cooperated, for an outcome that has run like clockwork,' he said.

At 3M too, people will be at the heart of the business going forward. 'We've got a very strong and solid roadmap history and we've made our own luck. It can continue to make leaders, we will continue to grow,' said Mr Sommerfeldt.

MAXA is holding the inaugural Manufacturing Excellence Community (MEC) Networking Event to provide a platform for manufacturing companies to share and cross learn best manufacturing practices, develop strong networks within the manufacturing community, and stay engaged with MAXA as a continuous journey.

For more information, please log on to http://registration.maxa.sg/form.php

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