



How Do You Measure Up ?

Wafer Fabrication Benchmark Report 2008



NMI Wafer Fab Benchmarking Report - Executive Summary

Benefits & Perceptions of Benchmarking

The benchmarking process is not fully utilised in my opinion by the NMI network as an improvement tool. Within the operational environment benchmarking is most effective when used early on in an improvement process as valuable time, money and effort of re-invention can be saved. Within semiconductor manufacturing it would appear that asking for help or comparing information with other sites can be seen as a failure of engineering and often used as a last resort. This seems to be a classic failure of many industries. From experience, the most productive benchmarking takes place when knowledge is shared mutually over time.

Those members within the NMI network who have been involved in detailed benchmarking have realised many tangible benefits and seem to have common characteristics:

- Culture for constant learning, change and improvement.
- Site survival is the number one goal, where a degree of site autonomy within the corporation is exercised.
- Applying a strategic view to influence operational improvements.
- Constant investment in efficiency related activities or equipment (E.G. Lean methods, automation, IT / MES).

It is a daunting prospect to benchmark 15 wafer fabrication sites and provide an analysis and comment on information supplied from brief interviews using both qualitative and quantitative data.

Thankfully, good relationships and a broad knowledge of the sites have provided a robust report which intends to catalyse the improvement process within the participating sites.

Providing this unique activation / reference document where companies have the opportunity to verify their own performance against others, and where appropriate, stimulate new ideas by learning from peers, is the key goal of the overall exercise.

It is very encouraging to highlight many examples of high performance in manufacturing within our network.

The 2008 study is primarily focused on wafer fab performance and compares information from a similar study from 2005. The topics covered are: Technical Capability, Cycle Time, Productivity, Yield, Operational Efficiency, Industry Suppliers and Human Resources. Caution should always be exercised when reviewing data as many factors may influence one measure.

Key Findings and Observations

It is difficult to make a number of all encompassing recommendations for each company due to the level of complexity involved. It is expected that each of the participants make some of there own deductions from the detailed data supplied. Some of the general observations were as follows:

Technical Capability

The NMI group of companies have much technical strength in power, analogue and niche products. These strengths seem to be under estimated or perhaps under sold to some important stakeholders.

Performance Excellence

Cycle Time and Productivity are always key areas of focus for any wafer fab which have many influences such as product mix, levels of automation, production line loading and equipment capability. Those who perform best apply resources to:

- Industrial engineering and Lean methods.
- Tool and staff flexibility.
- MES and capacity models to provide simplicity and analysis on product flow and tool performance.
- Benchmarking with other sites (sister sites or within the NMI network).

Yield

The maintenance and improvement of yield is a relentless activity those achieving most success have common approaches:

- Staff involvement with prevention of scrap.
- Simplification of procedures.
- Automation and IT investment.
- Communication and awareness of costs and performance.
- Ownership and accountability of yield at specific levels.

For more details on this study please contact NMI.