



STATISTICATM CASE STUDY

Photronics Shares Gains in Quality Between Sites with *STATISTICA Enterprise-wide SPC System (SEWSS)*

BACKGROUND. Photronics is a leading worldwide manufacturer of photomasks, high precision quartz plates that contain microscopic images of electronic circuits. A key element in the manufacture of semiconductors, photomasks are used to transfer circuit patterns onto semiconductor wafers during the fabrication of integrated circuits and are produced in accordance with circuit designs provided by customers at strategically located manufacturing facilities in Asia, Europe, and North America.

CHALLENGE. Due to the high-precision nature of the semiconductor industry, it is important that Photronics controls their products and processes to ensure that quality photomasks are shipped to their customers. Photronics management recognized the need for a well-thought out enterprise-wide SPC System and conducted a thorough investigation of several SPC packages.

SELECTING, IMPLEMENTING, & INTEGRATING SEWSS. By standardizing their statistical analysis tools, Photronics will be able to share gains in the quality improvement process between manufacturing sites. A cross-functional team at Photronics developed a matrix of selection criteria, conducted a thorough investigation of several SPC packages, and used a weighted voting process to choose *STATISTICA Enterprise-Wide SPC System (SEWSS)*. They selected *SEWSS* based on its ease of integration with the existing manufacturing execution system and the flexibility it provides beyond the system. The *SEWSS* implementation was coupled with a rigorous SPC training program for the quality and engineering organizations which focused on the comprehensive analytical tools included in the *STATISTICA Analysis Pack*, which includes hundreds of statistical analyses and graphs. In addition, the Photronics team decided to create a limited number of charts for operations to use initially and provided training for the engineers so that they could conduct their own analysis to determine what "critical-to-quality" characteristics should be monitored.

PRESENT & FUTURE. The scalability and flexibility of *SEWSS* greatly complements the manufacturing environment at Photronics. *SEWSS* is being run on an Oracle database at six sites internationally with plans of having six more sites online by March of 2001. *SEWSS* could easily run on any other relational database platform. During the selection process at Photronics, it was important to the engineering community that they be able to set up charts with data from their existing manufacturing execution system; *SEWSS* provided Photronics with the ability to use either an internal or external data source. In the future, Photronics plans to standardize their approach to Design of Experiment (DOE) and Failure Mode and Effect Analysis (FMEA) by providing additional training for the Analysis Pack (APACK) modules, along with the Automated Data Collection (ADC) module of *SEWSS*.

"We selected *SEWSS* because of its ease of integration with our existing manufacturing execution system and because it provides flexibility beyond our existing systems."

- Barbara Manville, Director of Corporate Software Development



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