



## Increasing Manufacturing Capacity Through Overall Equipment Effectiveness

Our client, a worldwide silicon wafer production leader, partnered with many of the world's foremost chip manufacturers. The company operates manufacturing facilities throughout Europe, Asia, and the United States.

### Challenge

Our client was experiencing problems with capacity at three of their key plants located in Oregon, Japan, and Singapore. With increased customer demand and the bottom line not supportive of any capital investment the company needed to increase output from the sites with the existing infrastructure in order to meet demand and keep manufacturing costs competitive with the highly competitive global marketplace.

The company contracted with Tefen to benchmark the production lines of both the 200mm and 400mm wafers, and design a solution that would meet client demands without relying on new equipment or technology. The overall goal of the project was to increase Overall Equipment Effectiveness (OEE) at each of the designated sites.

### How Tefen Helped

Tefen conducted a Scoping at each of the three sites to increase output without purchasing additional equipment. Tefen began its engagement with a week-long analysis of the wafer lines at each of the production facilities. This process quickly unveiled a synergistic problem common throughout: Scrap and rework were deemed to be the largest inhibitor of increasing capacity. This was followed by over-automation which further disallowed the plants from increasing output. During the 2nd half of the week, line experiments were conducted to insure the

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proposed solutions would yield the expected results. The test proved the solutions feasible and plans were developed and put in place to achieve future state goals.

Although the assignment began as a simple OEE project, Tefen's analysis utilized all three components of OEE: quality, scheduling, and machine availability (unplanned maintenance). Through the project team's analysis, Tefen further identified a number of additional process constraints and associated remedies. Constraints were found in the following areas: Robotic asynchronization, Wafer introduction, Unit unavailability, Product design, and Quality.

## Performance Excellence Delivered

At the end of the engagement each of these segments stood as prime opportunities for the company to achieve their goals of increased wafer production and meeting the demands of their customers. After all constraints and inefficiencies revealed, Tefen ultimately made possible several million dollars' worth of savings for the company, whilst deferring any capital investments through 2010.

### **Financial Impact:**

At the end of the engagement, the client was able to impact "top line" savings by \$3.1M - \$3.6M per month by 2007 and \$2.1M - \$2.8M per month in 2008.

### **Operational Impact:**

#### *Production:*

The client saw an increase in production of 51,297 units in 2007 and 34,198 units in 2008.

#### *Manufacturing:*

In 2007 the client was able to see 8,477 units of core manufacturing and 12,716 units in 2008.

#### *Capacity:*

In 2007 the client was able to increase their capacity to 59,774 units and in 2008, 46,914 units.

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## About Tefen

Tefen is an international management consulting firm, committed to improving overall operational effectiveness for Fortune 500 companies around the world. The firm's main areas of focus include operations excellence, manufacturing, quality, customer service, research and development and supply chain management. With its "hands-on" approach philosophy, the company has achieved tremendous success in delivering quantifiable and value-driven results for its clients in a variety of industries, including healthcare, life sciences, general manufacturing, high-tech and financial services. All of Tefen's support programs are ISO 9001 certified. Tefen currently employs over 300 professionals worldwide.

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