Intel's Manufacturing—a Competitive Edge

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Intel has a long history of technology innovations that have led the industry in establishing new capabilities in semiconductor technologies thereby enabling advances in computing. One of our successes in helping drive technology has been our ability to incorporate innovations in our manufacturing sciences. This is a critical strategy as technology alone will not ensure that products can be built at the right volumes with the right costs and then delivered to our customers at the right time.

During the 80's, we were driven to find methods to improve our manufacturing competence. Our competitors were achieving higher yields, transferring and ramping new technologies faster than us, and, overall, running their factories more efficiently. To remain competitive, we made the basics of manufacturing technology a key piece of our agenda.

One of the main issues we faced was the phenomenon of something called the Intel U. The Intel U was a predictable drop in factory performance every time a new technology or product was developed and transferred to manufacturing. This phenomenon, when plotted as a function of yield versus time, always showed a U-shaped curve. There were many approaches taken over the years to fix this problem but until the concept of Copy Exactly! was developed, we had limited success in eliminating the Intel U. Today, this phenomenon is non-existent, and Intel U stands for Intel University, not a yield problem.

There have been many innovations in manufacturing that have addressed, among others, defect improvements, modeling, capacity management, and improving the speed of our supply line. Today, Intel is faced with the challenges of developing new concepts and methods in manufacturing in order to address the changes we have seen in the marketplace. The world is moving at Internet speed fostering the concepts of build to order, E-Commerce, product segmentation, and so on. As we move into the future, we will need to focus not only on TECHNOLOGY, but also on COST, SPEED, AND FLEXIBILITY in order for manufacturing to continue to provide Intel with a key competitive advantage over the next decade.