

# The Design Of KPI on Technology Development of Wafer Foundry

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## Abstract

Due to capital intensive characteristics, R&D departments always share production equipment with manufacturing departments in the wafer foundry industry. The goal of key performance indicators (KPIs) among these two departments is contradictory, a situation that results in longer R&D cycle times and delays in time-to-market. To solve the problem, this study has adapted the concepts of X-factor theory to construct an R&D engineering lot management model. There are two KPIs adapted in this model. The first KPI, the X-factor, is applied to trace on-time delivery performance of the new R&D technology. The second KPI, F-factor, is regarded as an index that reflects the holding cost and manufacturability of R&D lots, and simultaneously evaluates the maturity of the technology. Furthermore, a set of real data from the Fab is applied to examine the effectiveness of this model. The results reveal that this model successfully improves operational performance and shortens the R&D cycle time, which ultimately enables a factory to achieve a global optimization.

Keyword : key performance indicator; R&D; wafer foundry; X-factor; cycle time