

**Increased production,
reduced emissions of
harmful substances**

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In the summer of 2000, Philips sold several factories to the Taiwanese company Yageo. In these factories, the so-called multi-layer capacitors or multilayer ceramic capacitors (MLCCs) were produced. Given the strong growth of the electronic components market, the new owner decided to greatly expand the capacity of the site in the Netherlands. A new factory had to be built for this. In one year, the production would be increased from twelve billion to forty-eight billion pieces per year.

The following technical and organizational requirements were set for the new plant: short lead times for the products, high yields for all processes, statistically controlled processes, a significant reduction in the burden on the environment, and a significant improvement in efficiency. The following organizational requirements were also formulated: great satisfaction of employees, sufficient variation in work, participation of employees in important decisions about their workplace, authority of employees to make decisions about the process in specific situations, good cooperation among employees and between management and employees, good communication between employees and between management and employees, a culture of continuous improvement, and careful prioritization and problem solving.

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A design of the new factory was made based on these requirements. The most important elements were: the new factory consists of seven mini-factories, and a strict separation is made between mini-factories with different types of materials. Each mini-factory also makes a limited number of types. For a full case description see: Maarten J. Verkerk, Jan Hoogland, Jan van der Stoep and Marc J. de Vries, *Philosophy of Technology. An introduction for technology and business students*, (2016), London: Routledge.