# IMPLEMENTATION OF MASS CUSTOMIZATION:

# CASE STUDY IN ABB

## SUMMARY
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This thesis provides readers a holistic view of the development and implementation of mass customization paradigm in ABB for ACx580-07 product family. Thesis provides empirical evidences in company example that competitive advantage can be achieved by using established theoretical knowledge of mass customization. Basis of the thesis is ABB global development project that started in 2016 to develop new industrial cabinet drive product family for water, HVAC, Utilities, Power and chemical industry segments.

Main objective was to develop the most efficient production process for ABB Drives Jüri factory to produce new ACx580-07 product family. Objective was achieved by implementing design for assembly techniques and assembly line process principles. Key to produce high variability, in a rigid assembly line, is variability that can be measured with standard deviation. By implementing design for assembly techniques, comparable product standard deviation was reduced by 50%. Only by reducing variability to minimum acceptable level from product design perspective, assembly line could be used for customized products. Based on the case study, using assembly line further provided decrease of throughput time and variability.

Assembly line implementation is not only one time activity, but should be continually improved in terms of line balancing. Line of balance problem can be complicated to plan beforehand and needs sophisticated software's. More traditional approach is to measure each assembly line workstation cycle times, and divide allocated workload until sufficient level of balance has been achieved. This balancing problem was clearly indicated in the thesis with production simulations runs, as assembly line workstations operate in sequence, time variability between workstations results blockage time. This significantly reduces assembly line efficiency and output. Simulation results showed that, by reducing workstations cycle time by one standard deviation, system throughput increased by 10%.

In given thesis workstation cycle times were measured with optical and electromagnetic sensors. Sensors measured each individual workstation cycle time and stored data into SQL database. Due to sensors, production system data is more consistent and provides possibility to continuously balance assembly line by highlighting the bottlenecks.