

How to Increase the Digitization Level of Administrative Processes in the Semiconductor Industry

Explanation of the Idea

- > The digitization level of a production facility can be defined as the degree to which digital technologies are used for information exchange.
- > Digitization rate according to “Tomanek, D. P., & Schröder, J. (2017). Analysing The Value Of Information Flow By Using The Value Added Heat Map. Business Logistics in Modern Management” for measuring the level of digitization of a fab (right box):

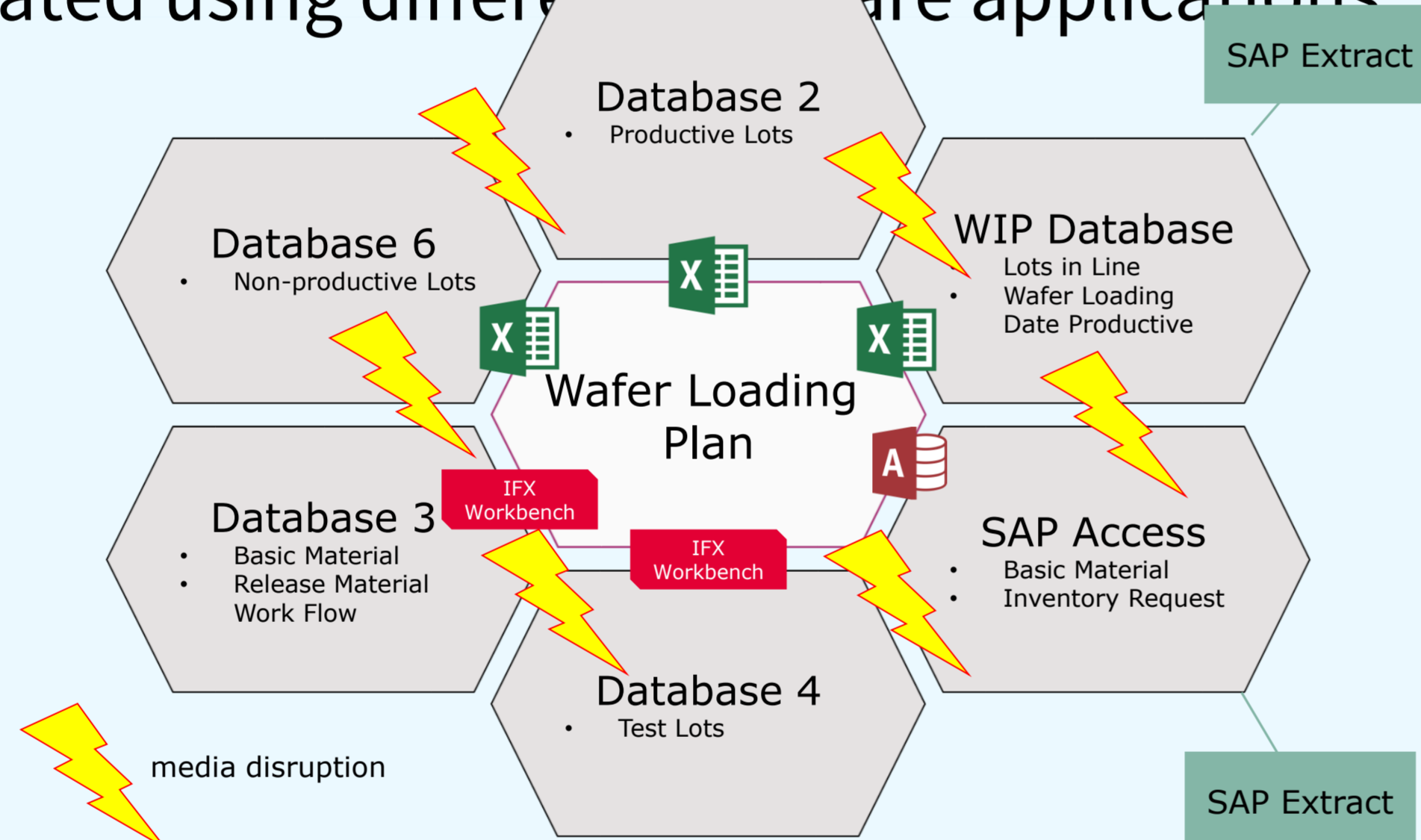
$$\text{DIGITIZATION RATE (layout - specific)} = \frac{\sum_{i=1}^N (\text{Information Transfer} \times \text{Value Added Level})_i}{N \times \text{Max}(\text{Value Added Level})} \times 100$$

with

- Information Transfer $i = 1, \dots, N$;
- $N = \text{Amount of Transferred Information per Time Unit}$;
- Value Added Level = 0, ..., 5.

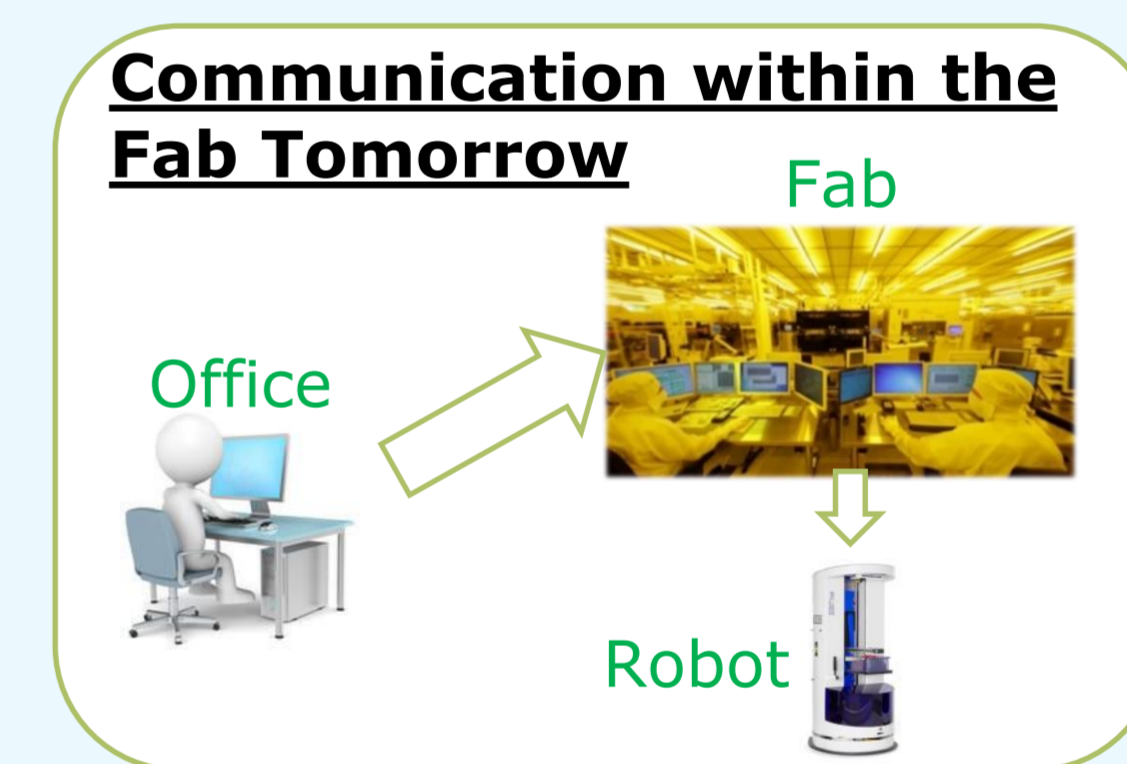
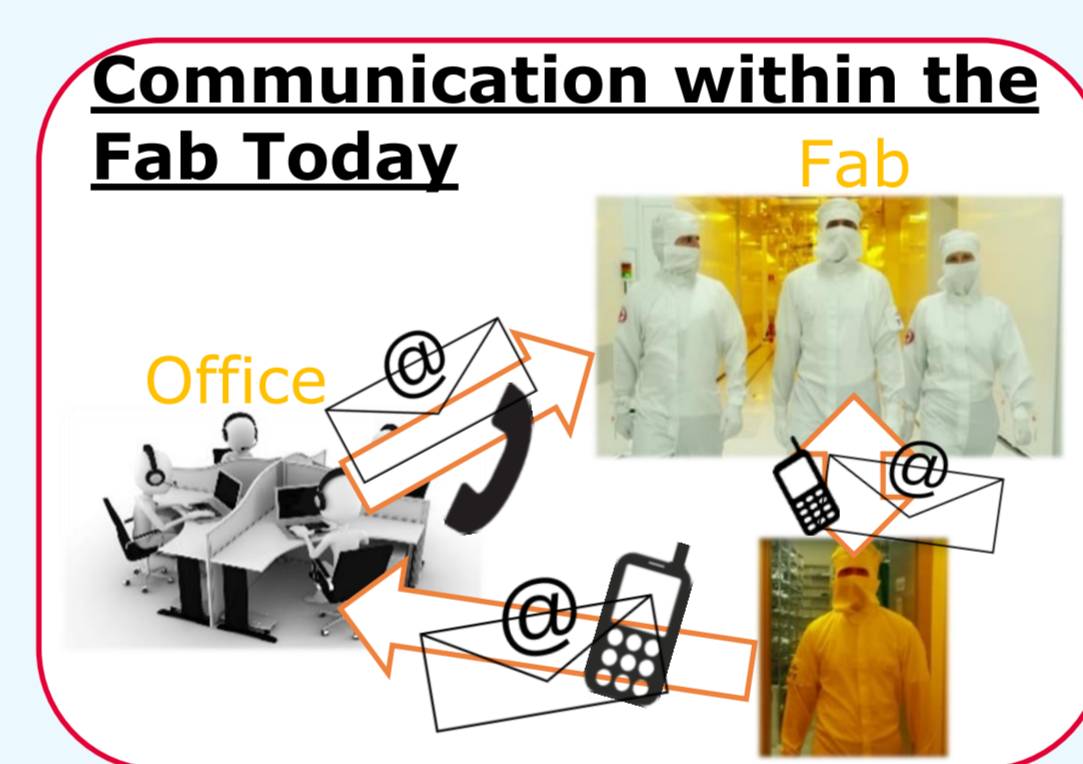
Goal

- > The goal is to choose business processes which can be simply automated using different software applications



Key Benefits

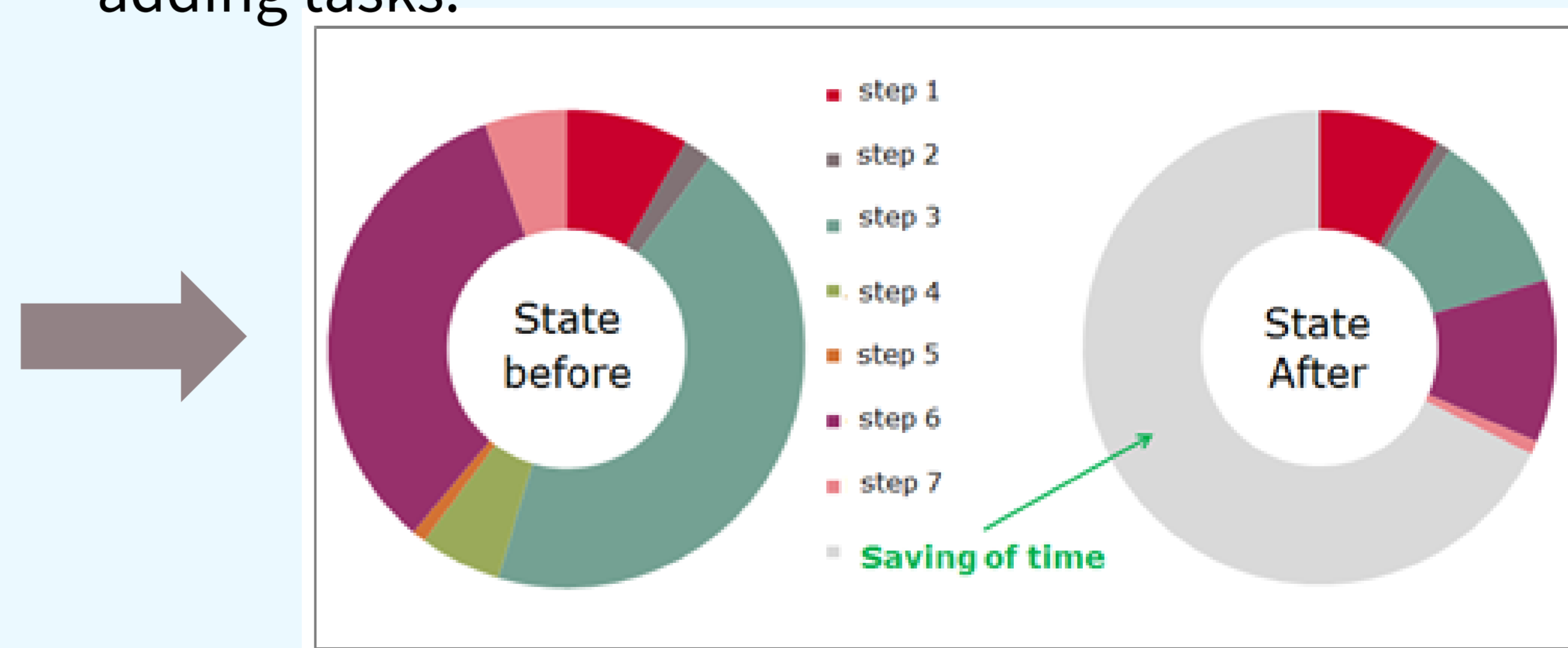
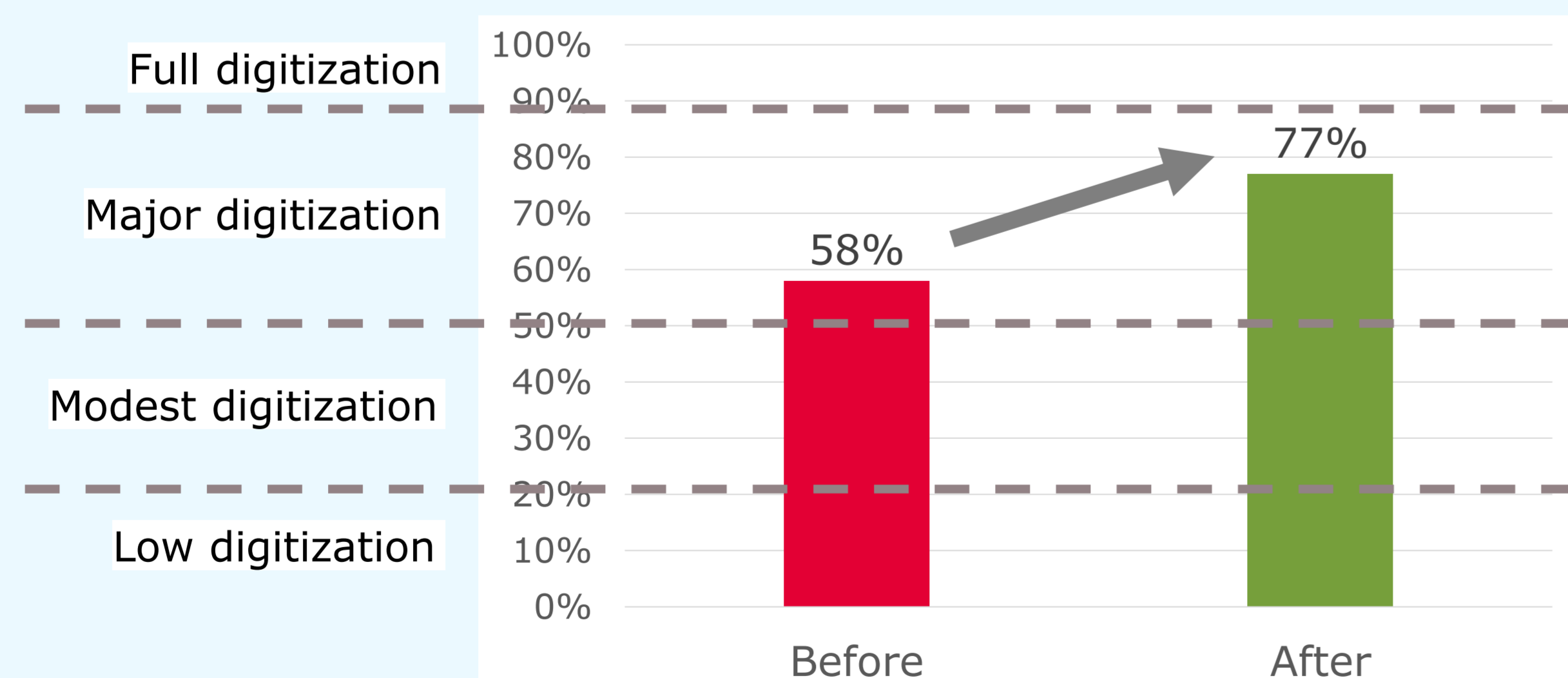
- > Increase of digitization level from 58% to 77% in first examined administrative process.
- > Mainly through elimination of email communication.



Additional Information

- > Throughout the last years the wafer start for semiconductor products has become increasingly complex.
- > The results of this work are a first step in the direction of automating repetitive administrative processes.

- > Here, one of the simplest processes, where only a simple rule is necessary to automate the dataflow, was chosen.
- > Important results are that for five operators working on this task daily more than 50% of these tedious tasks can be saved and instead be used for higher value adding tasks.



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