Dashboard for Machine Learning & Visual Analytics

RWTH Aachen University, University of Malaya

January 2019

Dr.-Ing. **Max Hoffmann** MBA
Ragavan Krishnamoorthy, Steerix GmbH
Dr. **Narendra Kumar**, University of Malaya

Research Group „Industrial Big Data“

Faculty for Mechanical Engineering
RWTH Aachen University

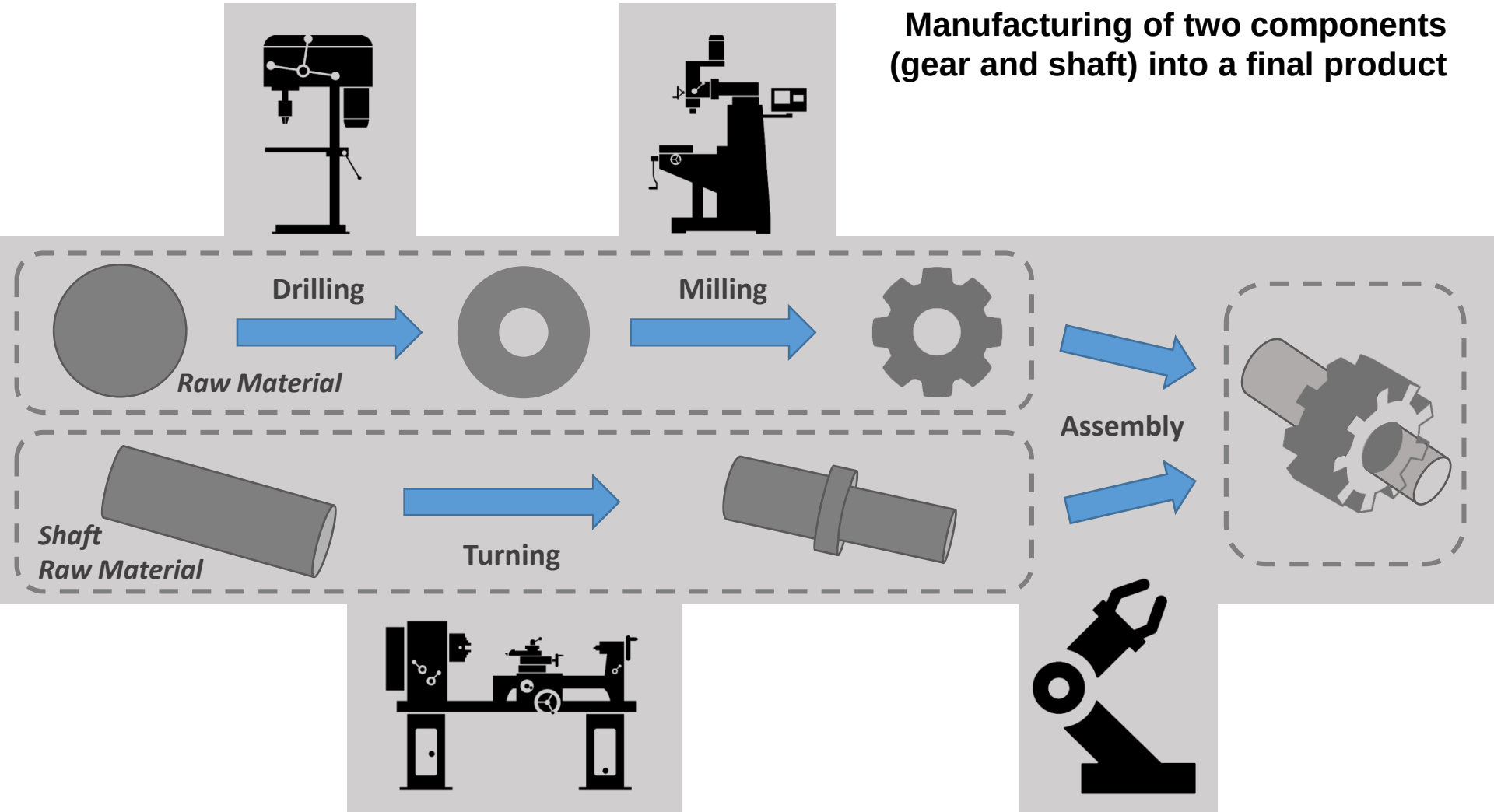
Faculty of Engineering
University of Malaya

UNIVERSITY OF MALAYA

IfU IMA RWTH AACHEN UNIVERSITY

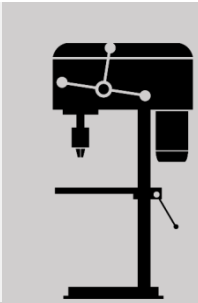
The Manufacturing Use-Case
Manufacturing and assembly task

Manufacturing of two components (gear and shaft) into a final product



The Manufacturing Use-Case
Information collected during the process

Machine Learning in advanced Production



diameter of drilling hole

drill hole surface quality

drilling speed

drilling contact pressure

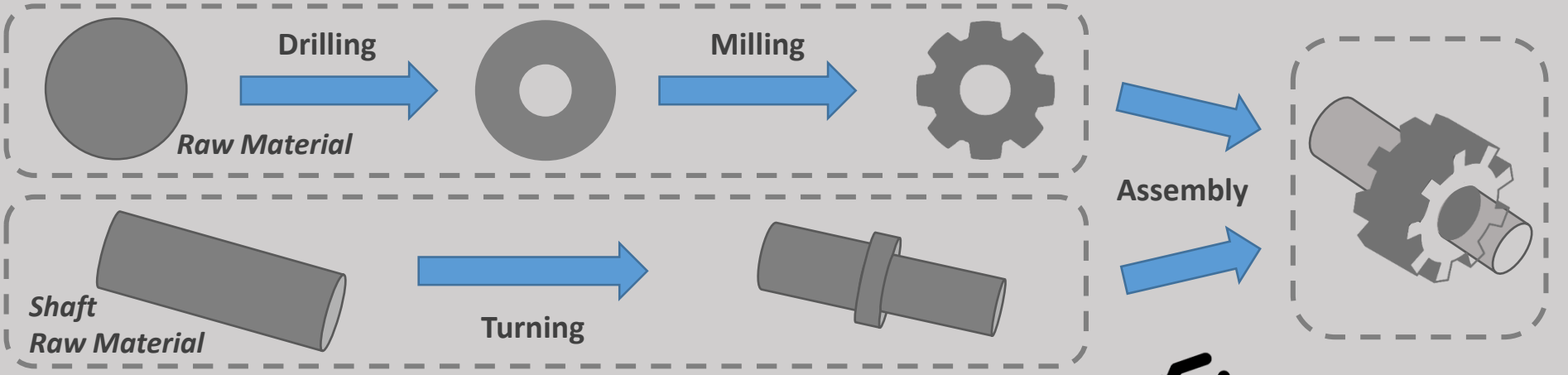
type of gear:
spur gear, bevel gear, crown gear

gearing tooth system:
involute toothing, cycloidal teeth

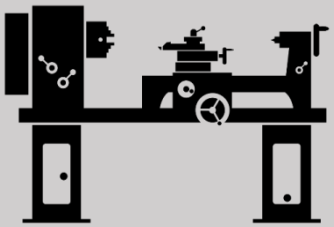
hardening process of gear:
case-hardening, nitrifying, induction hardening

depth of gear

root circle diameter



Self-Optimizing Process



turning rotation speed

shaft diameter

cutting speed

cutting depth

Assembly Methods:

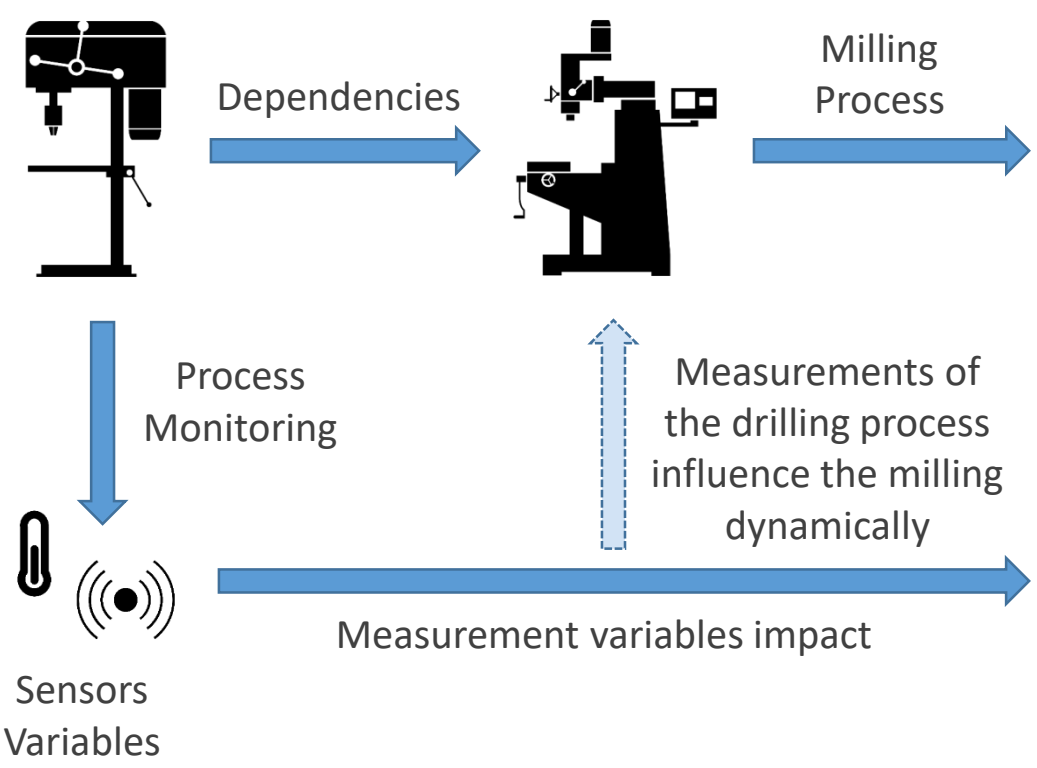
Method 1: **Interference Fit, Feather Key**

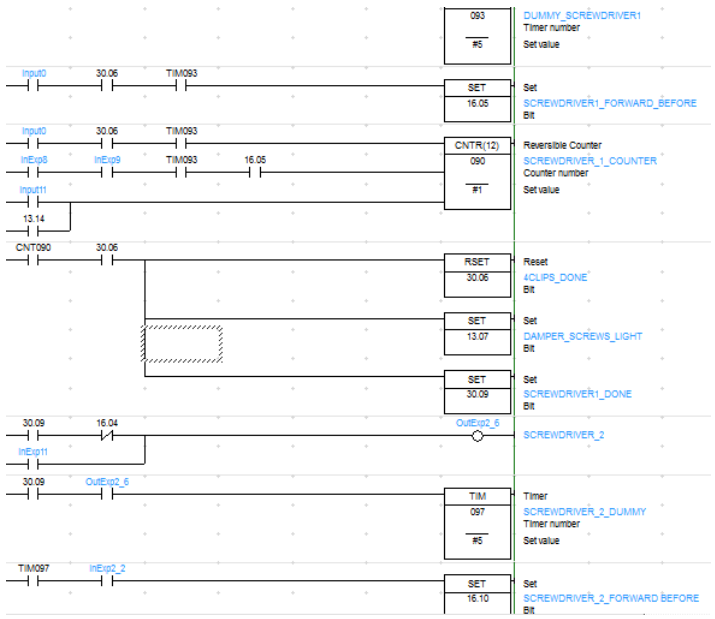
Method 2**: Welded Joint, Adhesive Bond**

number of assembled products

shipping options

The Manufacturing Use-Case
Enabling Self-Optimization

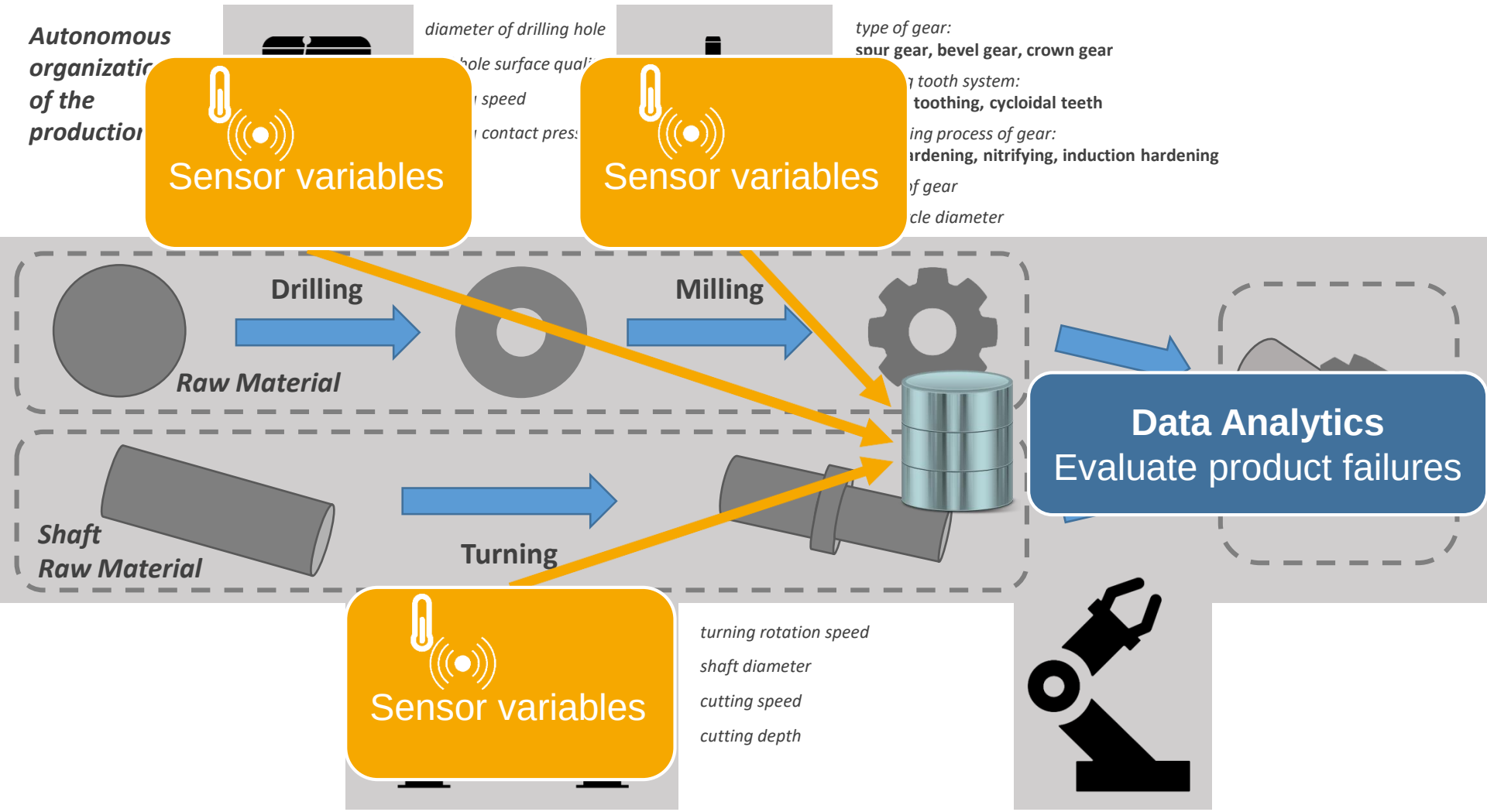




Logical Program of the Drilling Process

How to allow immediate prediction of product quality?

Collection of Data
Simulation and Collection of Data for Machine Learning



Have fun exploring the data, the Machine Learning algorithms and the Analytics Dashboard!

IfU IMA RWTH AACHEN UNIVERSITY