

Software Engineering and Architecture

Lecture 1: Introduction

Olivier Liechti

HEIG-VD

olivier.liechti@heig-vd.ch



MASTER OF SCIENCE
IN ENGINEERING

Hello.



Course Introduction

Trends

cloud, IoT, scale, “lean”, micro-services, DevOps

Methods & techniques

continuous delivery, agile testing, BDD, DevOps

Tools

maven, Jenkins, JUnit, Mockito, Cucumber, docker

Concepts

presentations, industry articles, papers, books

Experiments

tools & techniques

Case studies

guest speakers



Scrum

1. I have already **used** it in a project
2. I know the **theory**
3. **Huh?**

Git

1. I know Git pretty **well** (branches, etc.)
2. I use very **basic** Git commands
3. **Huh?**

Java

1. I have good **experience** with Java
2. I have **basic** knowledge of Java
3. **Huh?**

Maven

1. I know maven **pretty well** (pom.xml)
2. I know what it is... **more or less**
3. **Huh?**

Java EE

1. I have good **experience** with Java EE
2. I have **basic** knowledge of Java EE
3. **Huh?**

JavaScript

1. I have good **experience** with JS
2. I have **basic** knowledge of JS
3. **Huh?**

Jenkins

1. I have already used Jenkins
2. I know what it is... **more or less**
3. **Huh?**

Docker

1. I have already used Docker
2. I know what it is... **more or less**
3. **Huh?**

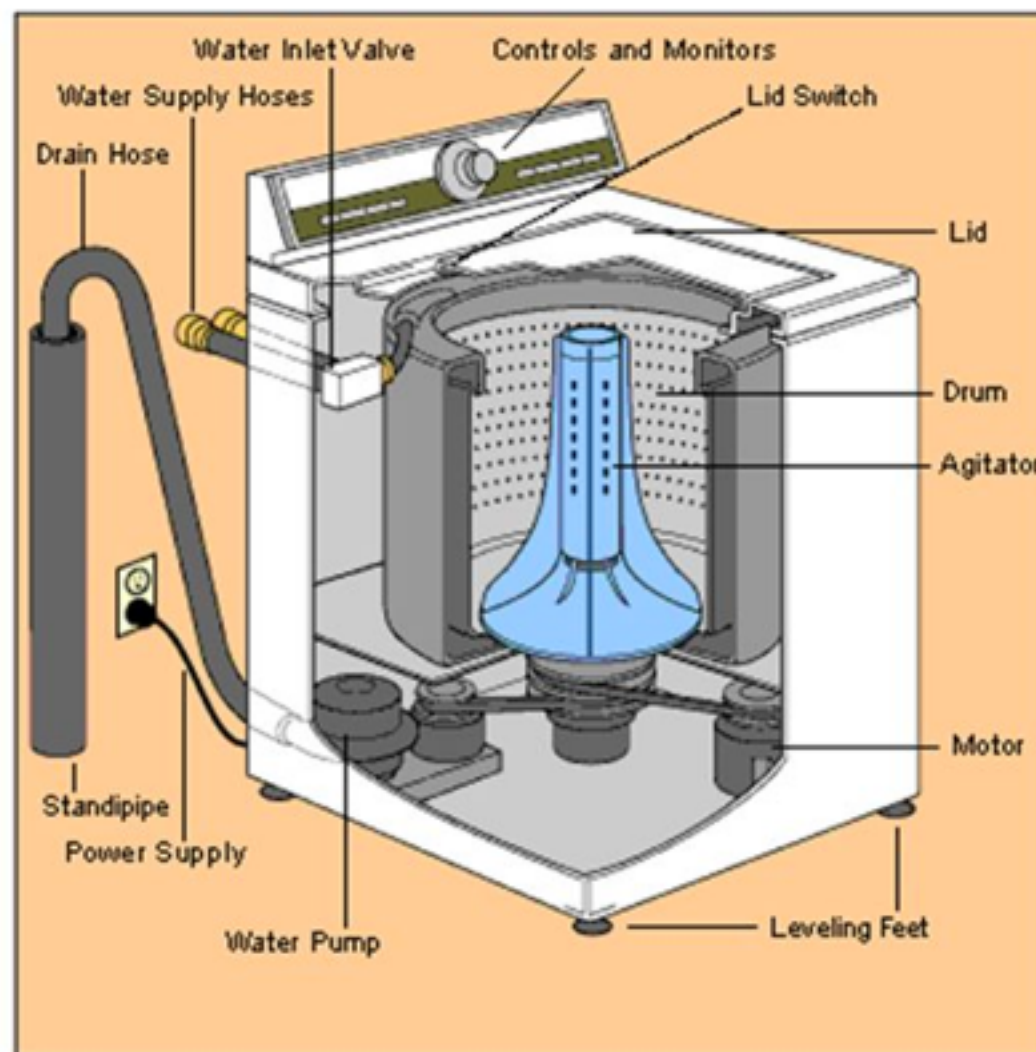
TDD / BDD / Mockito JUnit / Selenium / Cucumber

1. I am familiar with all these terms
2. I am familiar less than half of them
3. **Huh?**

Trends



APPLICATION SPECIFIC : WASHING MACHINE



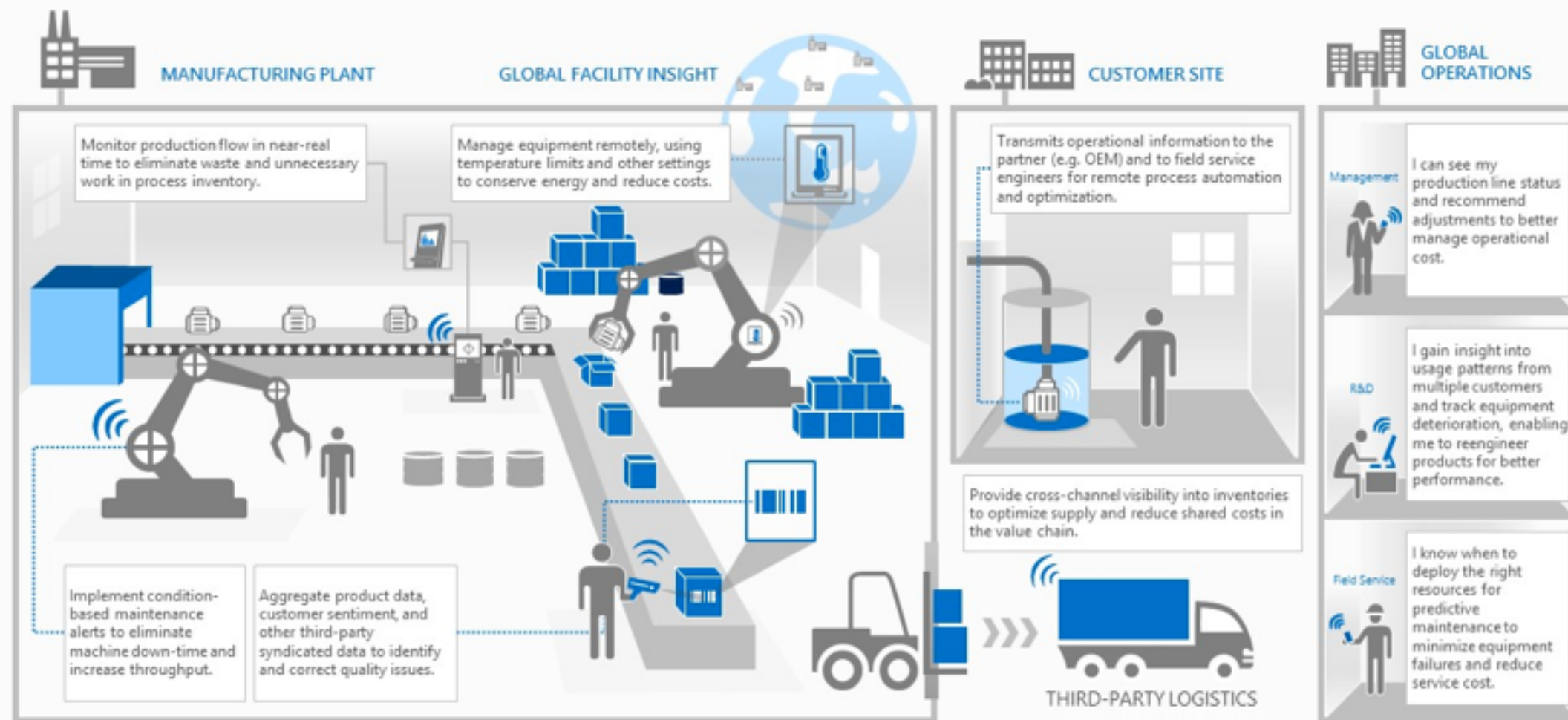
- **ACTUATORS:** agitator, tumble tub, water drawing pump, inlet valve etc.
- **SENSOR PART:** water temperature sensor, level sensor
- **CONTROL UNIT:** micro processor / controller based board (includes User Interface)





google

@MicrosoftIoT in Manufacturing



Scale

Services with millions of users, billions of devices

Speed

Time-to-market, innovation, technical innovation

Automation

Development, testing, deployment, operations

Main Topics for the course

Continuous Delivery

Micro Services

Agile Testing

Software Evolution

Group Exercise

Guidelines

- **6 groups of 6-7 students**
- **Please fork and clone my GitHub repo**
- **3 steps**
 - **Use case analysis (35')**
 - **High-level architecture design (35')**
 - **Project planning (40')**
- **Don't forget to push your slides to your GitHub fork**