

IN5140

Smart processes and agile methods in Software Engineering

Group session

Agenda

First hour:

- Weekly exercises

Second hour:

- Weekly exercises?
- Help on Delivery 2

Weekly exercises

1. Why are software process assessments performed?

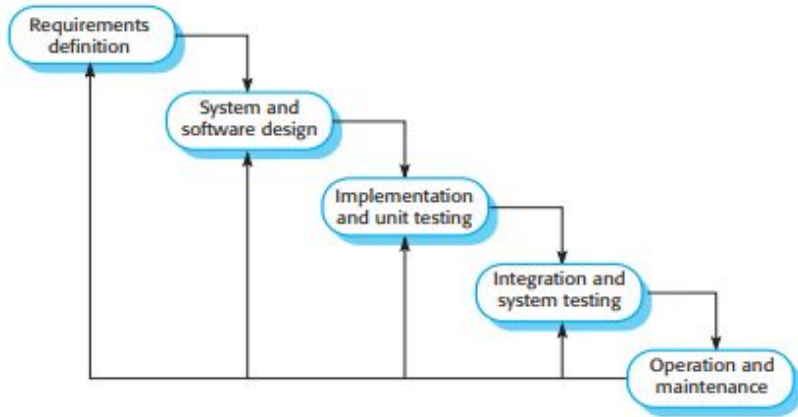
- **Understand** existing software processes and how the organization works
- **Identify** strong and weak aspects and key areas for improvement
- What to base assessments on?
 - Organization needs and goals
 - Benchmark compared to other similar organizations

2. Define the terms formal and real process

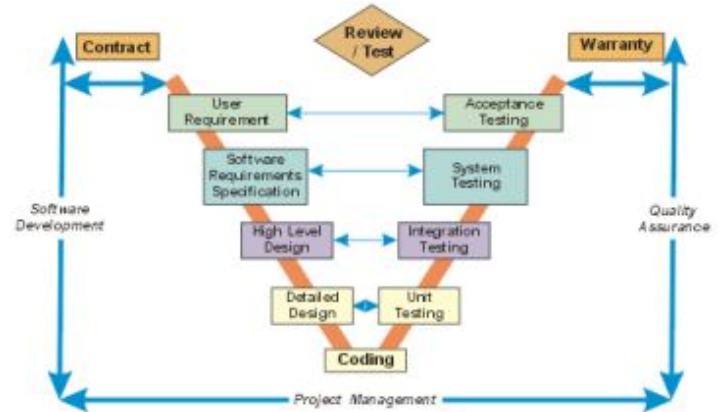
- Formal process: An abstract representation of a process. The model describes the process from a certain perspective such as formal process is presenting what we say we do or **what we should do**. e.g. "Cooking recipe", "Delivery route".
- Real process: Activities that are carried out in a development project such as execution of processes that describes **what we actually do**.

Waterfall and V model

Waterfall



V-Model



Waterfall model

Sequential: requirements before design, design before implementation (coding), etc.

Controlled improvement of earlier phases is still acceptable

V model

Demonstrates the relationships between each phase of development and associated testing

- Strong emphasis on testing, emphasizes early test planning

The waterfall and V models

Advantages of both

- Easy to understand
- Well-defined stages (phases) make it clear who are responsible at each time and facilitates management

Advantages of V model

- Demonstrates the relationships between each phase of development and associated testing
- Strong emphasis on testing, emphasizes early test planning

Disadvantages

- Requirements and design risks are not discovered until late in the life cycle, for example, different interests among different stake holders
- Inflexible regarding changes in requirements
- Written definitions of requirements often lead to misinterpretations
- Working software is produced late

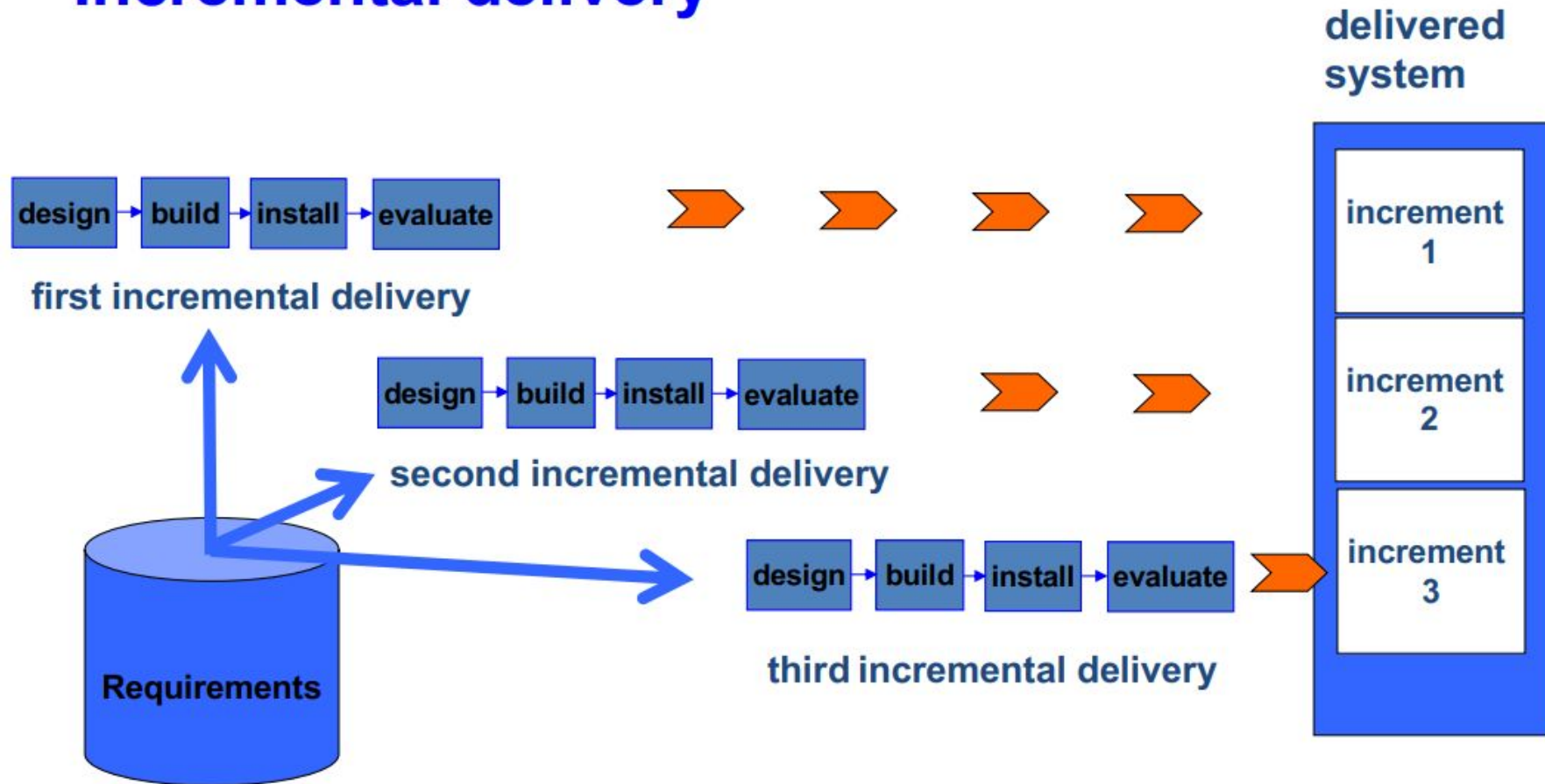
Agile

An increment is a part that fulfills a subset of the requirements – an aspect of the system

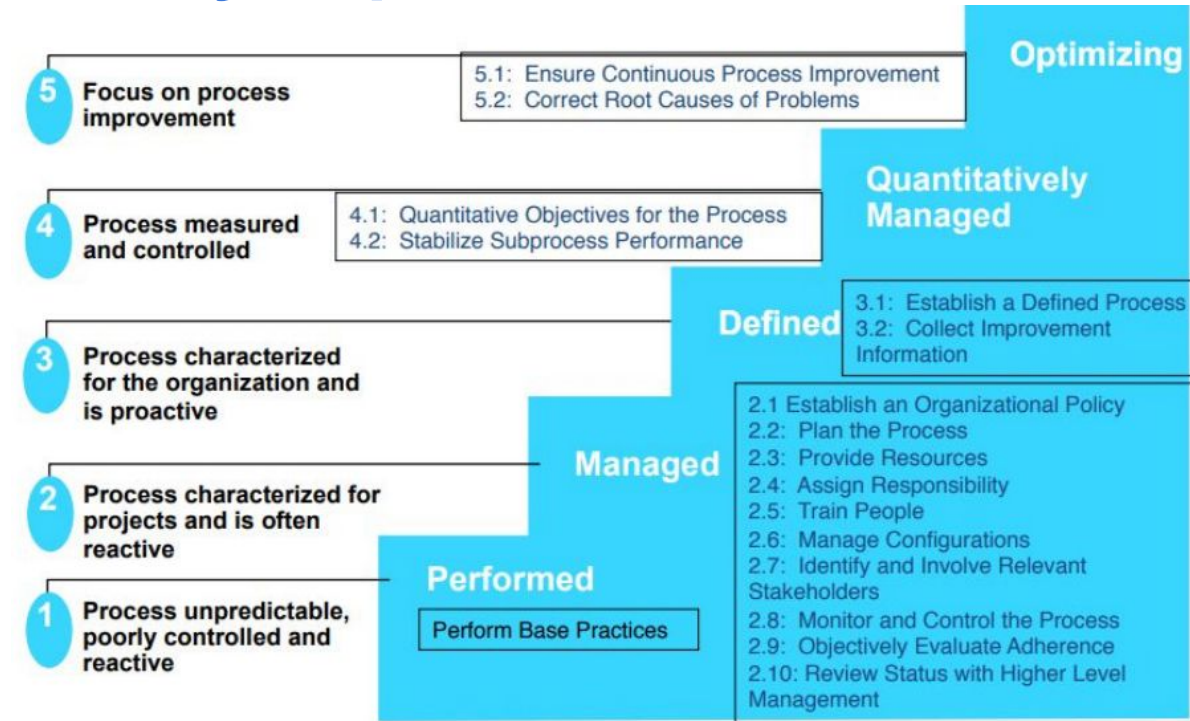
An iteration is a cycle in the development – an aspect of the process –

The purpose of an iteration is to develop or improve an increment but may also be to improve the structure of a system

Incremental delivery



3. Select three activities or subprocesses of your study process at the university .Which level in CMMI would you put them?



Exercise 3

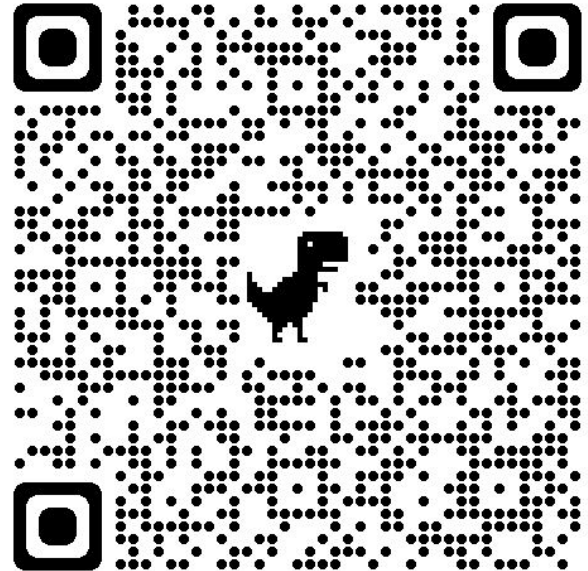
- **Maturity Level 0 – Incomplete:** At this stage work “may or may not get completed.” Goals have not been established at this point and processes are only partly formed or do not meet the organizational needs.
- **Maturity Level 1 – Initial:** Processes are viewed as unpredictable and reactive. At this stage, “work gets completed but it’s often delayed and over budget.” This is the worst stage a business can find itself in — an unpredictable environment that increases risk and inefficiency.
- **Maturity Level 2 – Managed:** There’s a level of project management achieved. Projects are “planned, performed, measured and controlled” at this level, but there are still a lot of issues to address.
- **Maturity Level 3 – Defined:** At this stage, organizations are more proactive than reactive. There’s a set of “organization-wide standards” to “provide guidance across projects, programs and portfolios.” Businesses understand their shortcomings, how to address them and what the goal is for improvement.
- **Maturity Level 4 – Quantitatively managed:** This stage is more measured and controlled. The organization is working off quantitative data to determine predictable processes that align with stakeholder needs. The business is ahead of risks, with more data-driven insight into process deficiencies.
- **Maturity Level 5 – Optimizing:** Here, an organization’s processes are stable and flexible. At this final stage, an organization will be in constant state of improving and responding to changes or other opportunities. The organization is stable, which allows for more “agility and innovation,” in a predictable environment.

4. For each of the three activities / subprocesses specified in task 3:

- Define a goal for improvement.
- Define a variable (measurement) that would help answering the questions defined above.

5. Discuss how different cultural aspects may affect what processes are suitable in projects with people in different countries?

- You can have a look at this:
<https://www.hofstede-insights.com/country-comparison/japan,the-netherlands,norway,switzerland/>
- Note that there may be larger individual differences among the people within a country than between the stereotypes in the Hofstede model.



Exercise 6: Multiple choice

a) What is the correct order of activities in a systematic approach to Software Process Improvement (SPI)?

- i) Check, act, do, and plan
- ii) Plan, do, check, and act
- iii) Act, check, do, and act
- iv) Plan, act, check, and do

Exercise 6: Multiple choice

a) What is the correct order of activities in a systematic approach to Software Process Improvement (SPI)?

- i) Check, act, do, and plan
- ii) **Plan, do, check, and act**
- iii) Act, check, do, and act
- iv) Plan, act, check, and do



- **PLAN** what you want to accomplish over a period of time and what you might do, or need to do, to get there
- **DO** what you planned to do
- **CHECK** the results of what you did to see if the objective was achieved
- **ACT** on the information – standardize or plan for further improvement

Exercise 6: Multiple choice

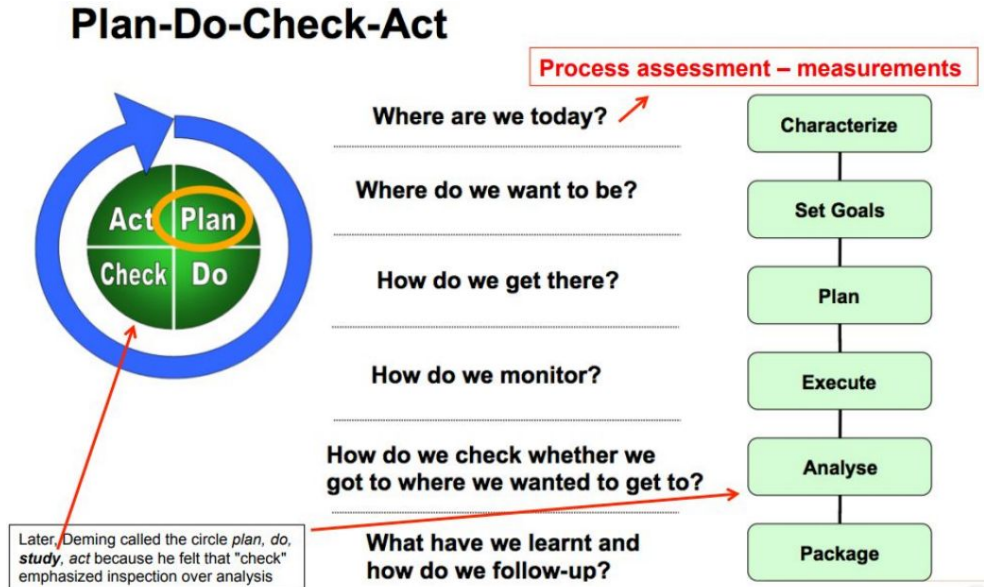
b) The questions such as, “How do we get there?”, “Where are we today?” are asked in which of the following phases of a systematic approach to SPI?

- i) Do
- ii) Act
- iii) Plan
- iv) Check

Exercise 6: Multiple choice

b) The questions such as, “How do we get there?”, “Where are we today?” are asked in which of the following phases of a systematic approach to SPI?

- i) Do
- ii) Act
- iii) **Plan**
- iv) Check



Exercise 6: Multiple choice

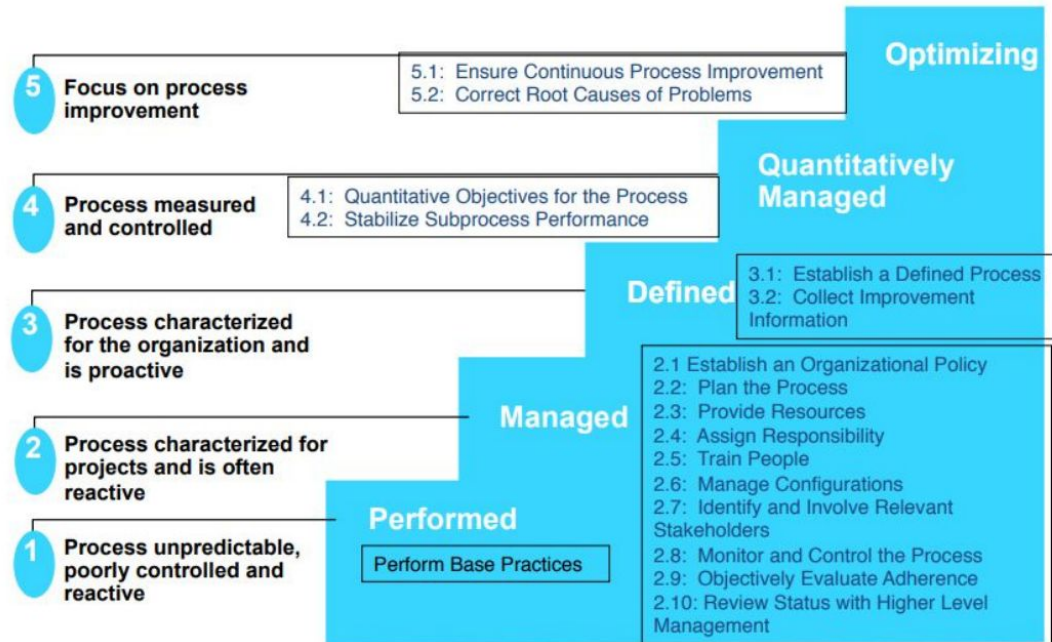
c) According to CMMI, the level with focus on process improvement is at which of the following maturity levels?

- i) Defined
- ii) Managed
- iii) Performed
- iv) Optimizing

Exercise 6: Multiple choice

c) According to CMMI, the level with focus on process improvement is at which of the following maturity levels?

- i) Defined
- ii) Managed
- iii) Performed
- iv) **Optimizing**



Exercise 6: Multiple choice

- d)** The focus on ITIL (IT Infrastructure Library) is on which of the following area?
- i) Continuous improvement
 - ii) Service management or operations
 - iii) Software development, integration, deployment and maintenance
 - iv) Application development, ICT infrastructure projects

Exercise 6: Multiple choice

d) The focus on ITIL (IT Infrastructure Library) is on which of the following area?

- i) Continuous improvement
- ii) **Service management or operations**
- iii) Software development, integration, deployment and maintenance
- iv) Application development, ICT infrastructure projects

Standard framework for IT service management. Focuses on:

- Customer satisfaction
- Service quality and time
- Cost efficiency

Break until 11:15 

Help with Deliverable 2



Weekly tasks, etc.

Thank you for today!