

Project Design

Protopaja – ELEC-D0301



Aalto University
School of Electrical
Engineering

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2.6.2020

Project management

You need to select a project manager

- Serves as the contact point for course staff and the company

Also recommended

- Responsible for submitting documents
- Invites meetings and assigns responsible for making memos on decisions
- Tracks project progression
- Other responsibilities agreed in each team

Discuss and agree on the roles in your team

- Write these down into your project plan

Team 1

Ensto

- Oinonen Igor
- Popov Alexander

Team 2

Futurice

- Hannula Kasper
- Angerpuro Iivo

Team 3

Granlund

- Zheng Wanfu
- Mao Yue
- Jin Wangkang

Team 4

Helvar

- Liesiö Panu
- Karppelin Olavi
- Rabb Johan

Team 5

Savox 1

- Nyman Samu
- Eskola Antti
- Wickström Joel
- Moolawi Peyman

Team 6

Savox 2

- Linnanen Patrick
- Heikkinen Jaakko
- Pallonen Lauri Ilmari

Team 7

Xiphera

- Sumu Virpi
- Jämsen Matti

The contract

I hope you all have signed the contract. Anyone not signed yet?

Designing a Project

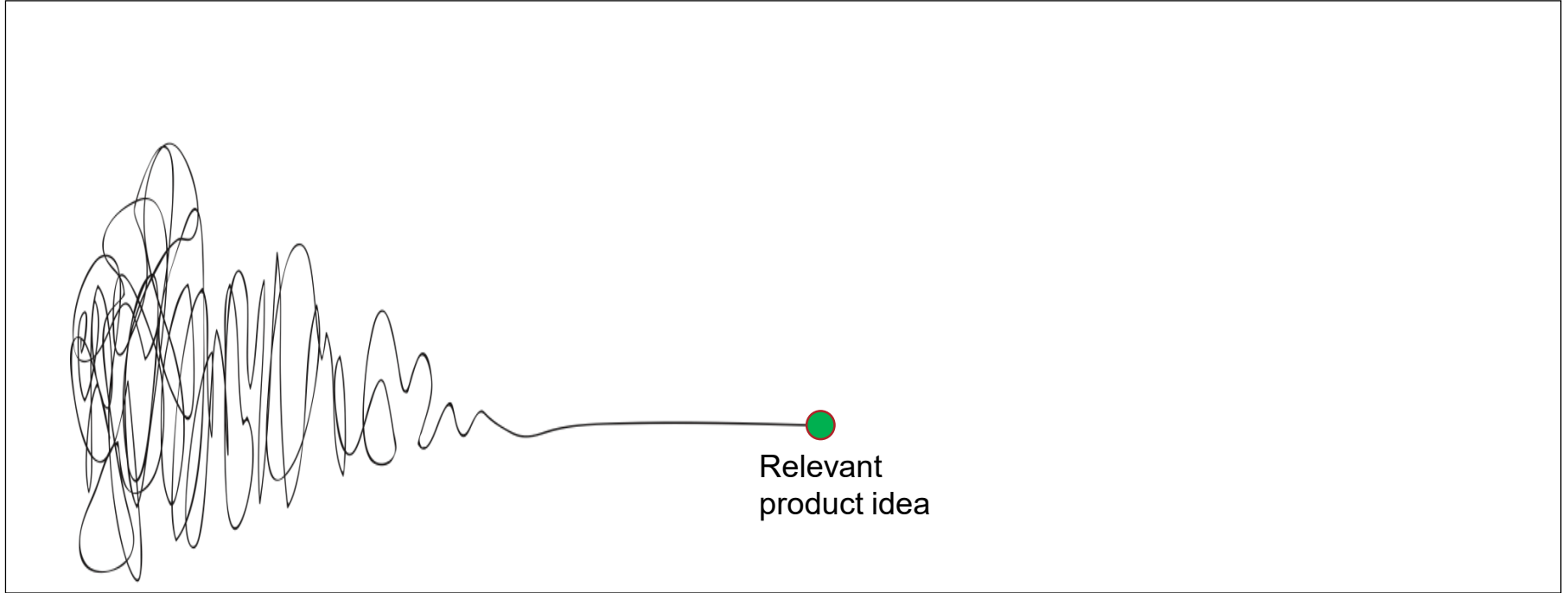
Projects are different

- **Especially the amount of uncertainty differs**
- **Uncertainty comes from three sources**
 - You don't know the stuff yet
 - Nobody knows the stuff yet
 - Situation changes rapidly – and nobody can know the stuff yet

Projects are different

Uncertain

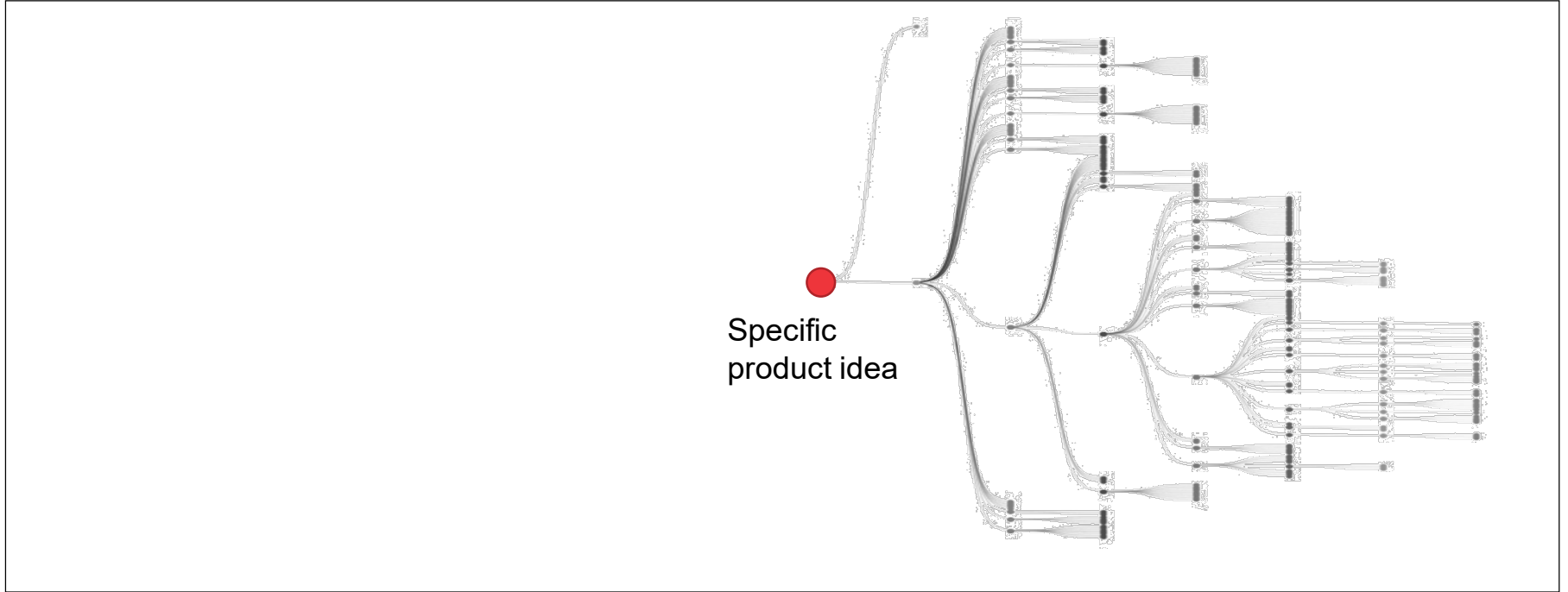
Certain



Projects are different

Uncertain

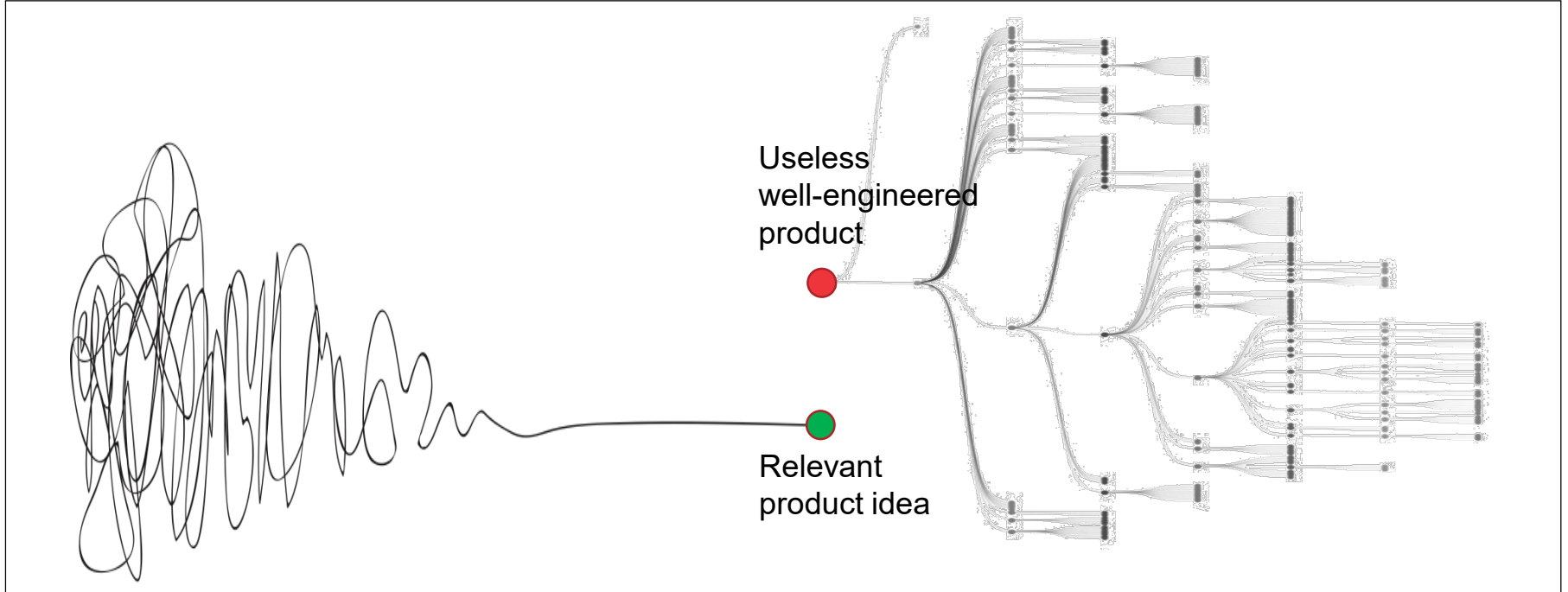
Certain



Projects are different

Uncertain

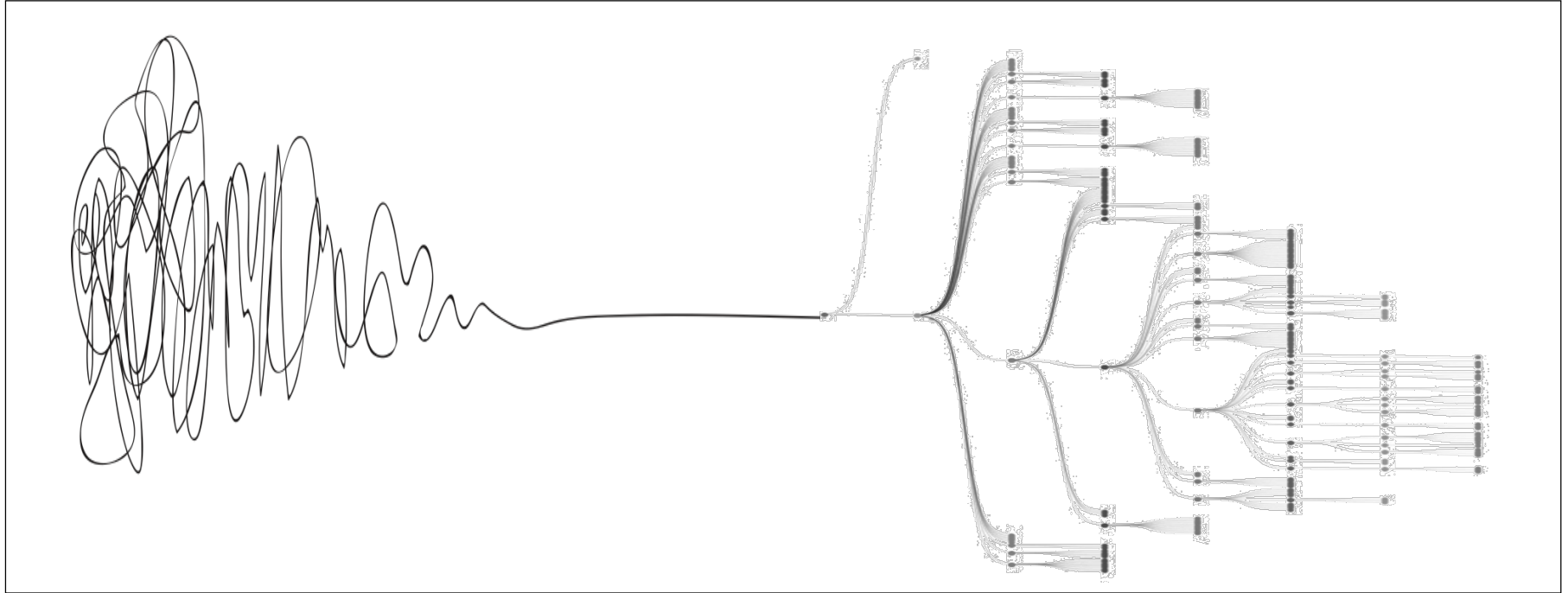
Certain



Overall aim of project planning

Uncertain

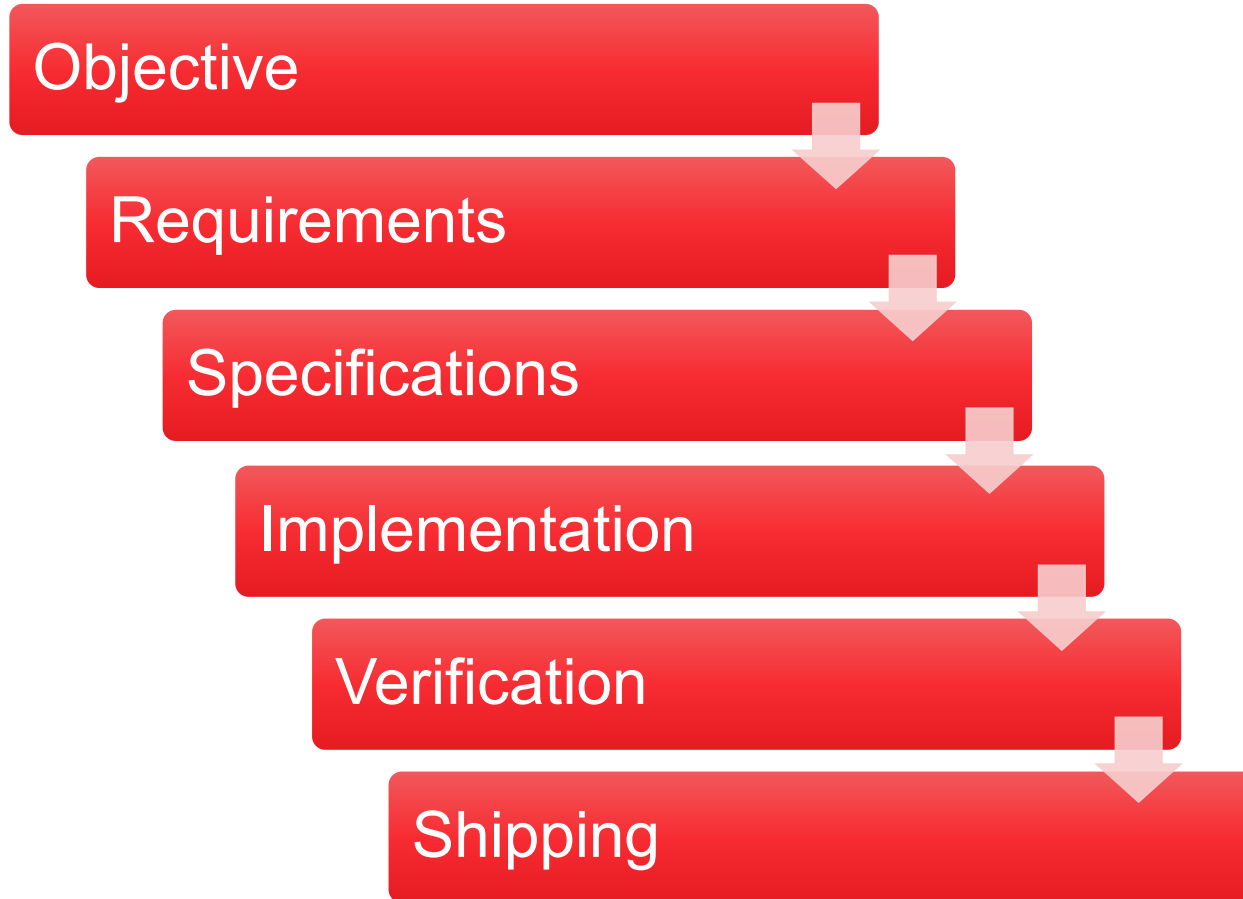
Certain



Frameworks to think about project

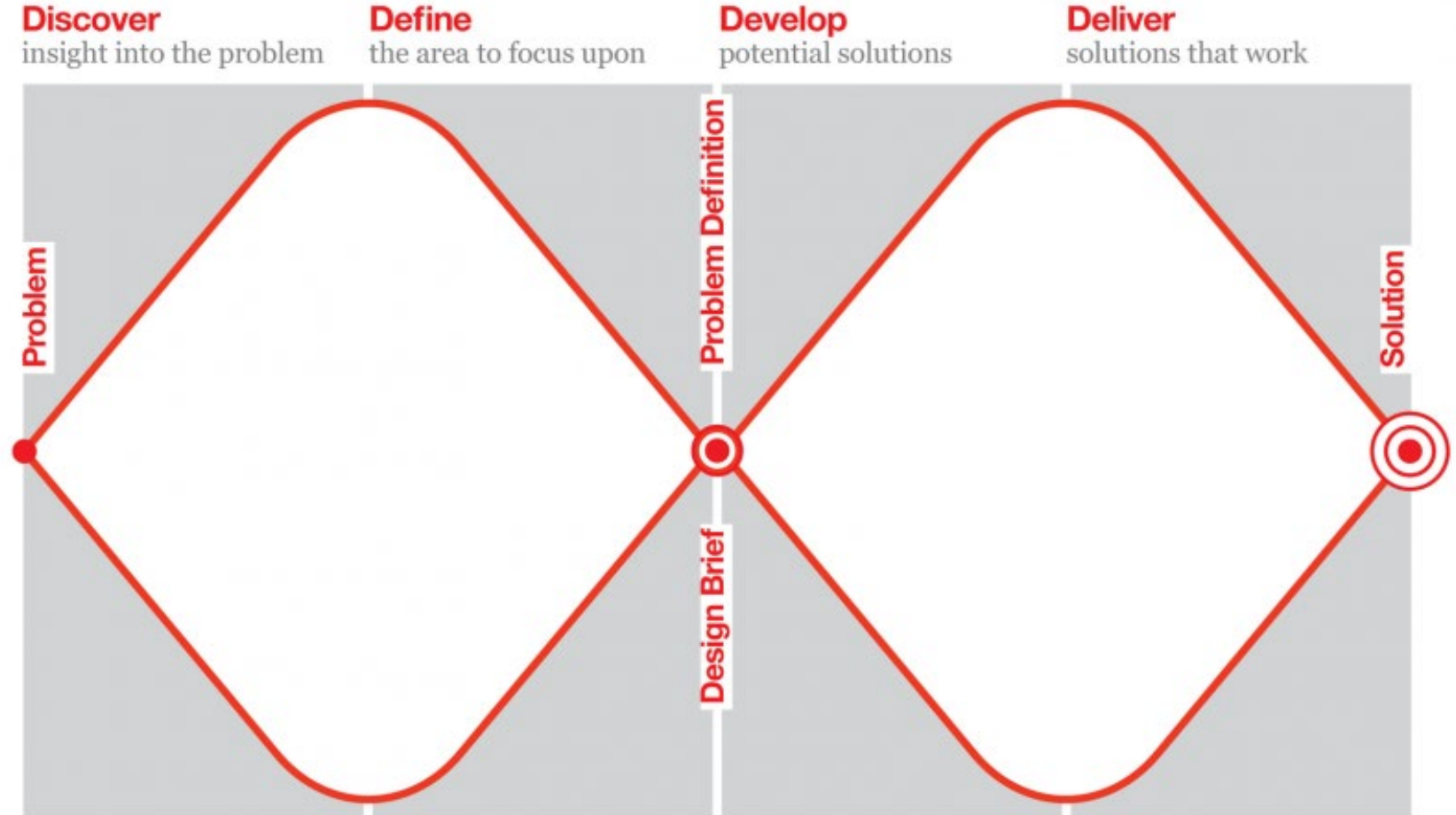
1. Waterfall
2. Diamond Process
3. SCRUM

Waterfall



Double Diamond

Council, D. (2007). *Eleven lessons: Managing design in eleven global companies. A study of the design process.* British Design Council. Retrieved from www.designcouncil.org.uk



A?

SCRUM

Curcio, K., Navarro, T., Malucelli, A., & Reinehr, S. (2018). Requirements engineering: A systematic mapping study in agile software development. *Journal of Systems and Software*, 139, 32–50. <https://doi.org/10.1016/j.jss.2018.01.036>

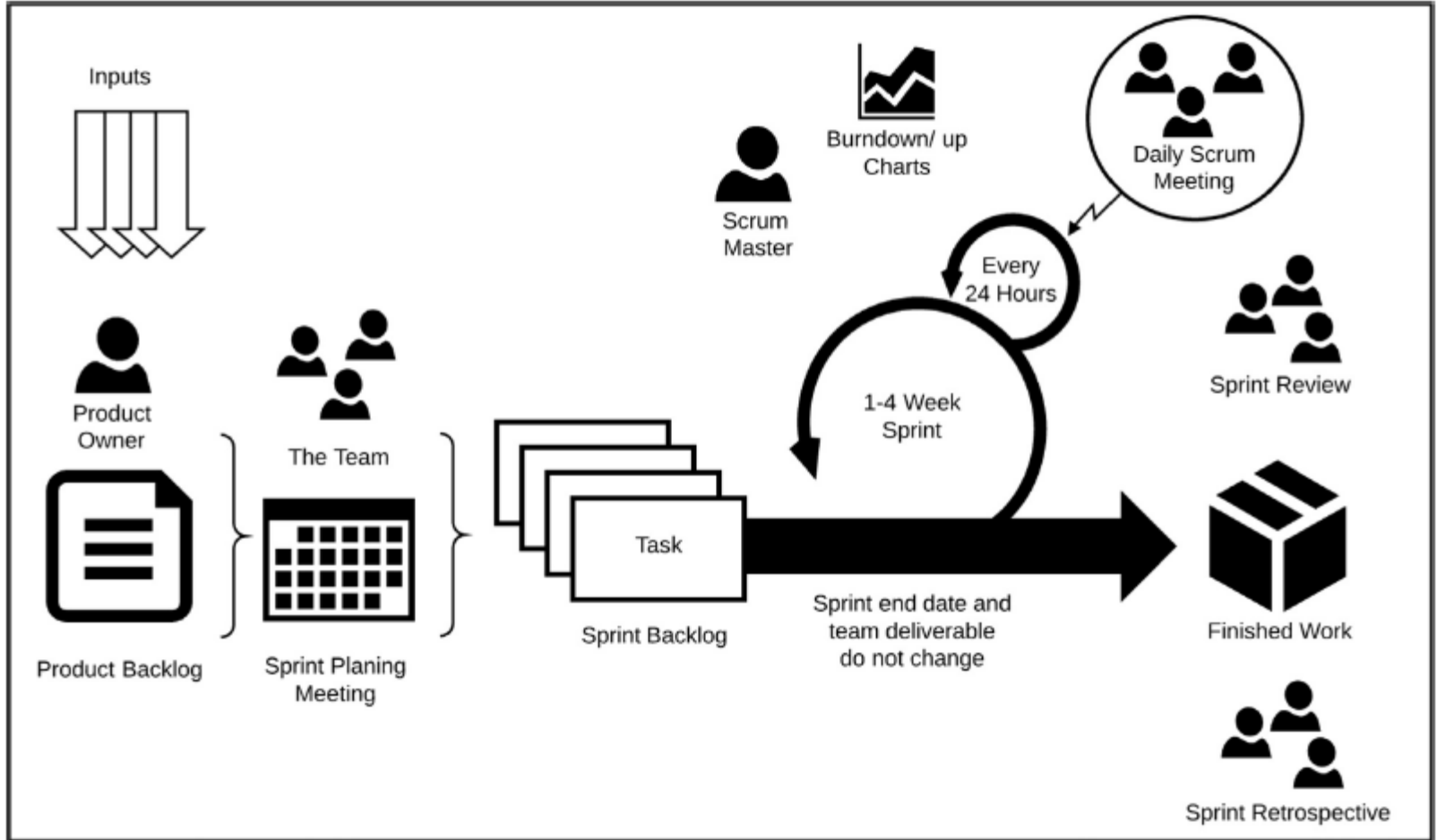


Fig. 2. Scrum Framework based on Schwaber and Sutherland (2018).

A?

Exercise 20 min.:

Contacting the Company

Sketch the message

Think of the recipient:

- What kind of a person gets your message?
- In what kind of a situation?
- What to tell?

- 15 mins sketching
- 5 mins discussing the good stuff

From Patrick Linnanen to Everyone: 10:46 AM

No reply yet :(

1) Who we are

2) We would like to meet

3) Our schedule is free, whenever they want

4) We're very excited to work with you :)

Yes

Oh yes: 5) we have now signed the contract

As in we told in the email that we have now signed

Tips for Contacting the company

Begin with the project brief

- **The project brief is a suggestion**
 - You can question / suggest / negotiate it

Ask your client

- **Make NOTES!!**
- **Ask what the client expects**
 - Ask for recommendations (tools, parts, materials, etc.)
 - Ask for training/collaborative sessions
 - Be open about what your skills are (assistants will help though!)
- **Write down every requirement / constraint / proposal / idea**
 - This is important, because clients tell more than they give you in writing
- **Verify your interpretation**
 - Tell your client how you are planning to proceed, get feedback

You aim is to get your plan right

Plan key activities

- **Phases**
- **Milestones**
- **Work packages**
- **Tasks**

What is a Phase?

A product development project may have phases, such as

1. Specifying the requirements
2. Component design
3. Component integration
4. Testing
5. Reporting

Phases always end with a milestone

What is a Milestone?

Milestones are moments of presenting results/handing out deliverables and making decisions

What is a Work Package?

- **Work package represent one of the key activities in a project**
 - They may overlap different phases, such as 'project management,' 'reporting,' 'circuit design' or 'interaction design'
- **Tasks within a work package share the overall goal as well as the resources**

What is a Task?

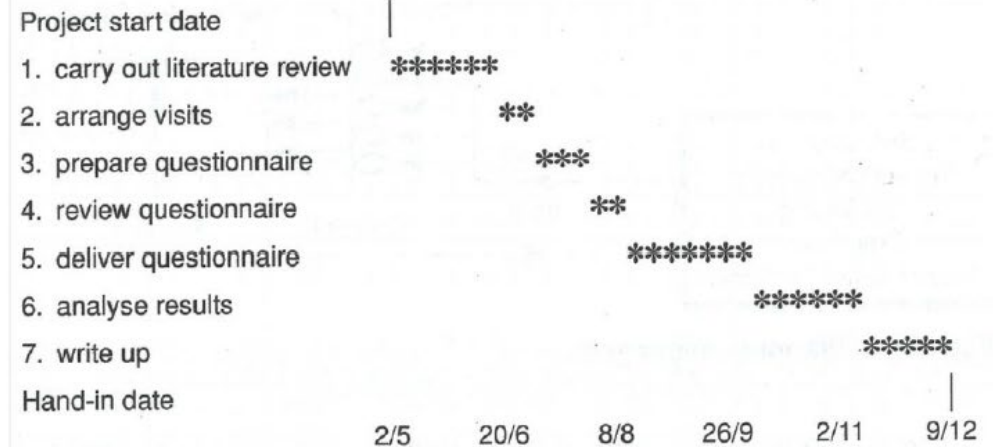
- **A task is the lowest level unit in the plan**
- **It is a single manageable thing to be done**
 - Clear start and end condition
 - Clear resources
 - Clear expectations on results

Scheduling: Activities take time...

- **Setting up the development context, installing things**
- **Learning the tools, software, etc.**
- **Negotiations / meetings**
- **Modelling, building, coding, soldering, testing, debugging**
- **Reading data sheets, purchasing, waiting for stuff to arrive**
- **Travelling, Writing**
- **People have different skills, and may be available at different times**
- **ASK – Don't assume!**

Scheduling

Project start date	2/5
1 carry out literature review	2/5–20/6
2 arrange visits	20/6–4/7
3 prepare questionnaire	4/7–25/7
4 review questionnaire	25/7–8/8
5 deliver questionnaire	8/8–26/9
6 analyse results	26/9–2/11
7 write up	2/11–9/12
Hand-in date	9/12



Multitasking?

When and how to work in parallel?

Durations

Interfaces

Responsibilities

- 1 responsible / task
- Max 3 persons on a task

Person \ Activity	1	2	3	4
A		●	○	○
B	●		○	
C	○	○	○	○
D			●	
E	○			○
F		○		●

- Person having primary responsibility
- Some involvement

Work Breakdown Structure (WBS)

- **Hierarchical structure for the project to organise work**
- **Helps to coordinate work and schedule tasks**
- **The smallest units should be defined on the basis of what is 'manageable'**
 - i.e. you know what there must to be done and what it will take
 - You may need to do quite a bit of work before being able to do a proper WBS

How to create a WBS?

- **Start with the structure of the product? What parts / functionalities it must have?**

How to create a WBS?

- Consider ready-made components that you can use

How to create a WBS?

- Consider the required deliverables
 - What must be done in order to meet the deadline?
- Consider the scheduling order when things depend on each other
 - Identify critical paths

How to create WBS?

- Consider the resources
 - People and their availability (man-hours)
 - Tools
 - Money

Risk management

What are risks?

- **Expected undesirable events that make it more difficult for you to reach the desired goal**
- **Sources**
 - Internal: tech, people, process
 - External: supply, environment
- **Avoiding risks**
 - Expert judgment, informing, planning, negotiating, agreeing
- **Responding to risks**
 - Changing scope, budget, or schedule

Effective meetings

Always have clear goals for each meeting

- **Is it a meeting for decision-making or information gathering?**
 - What do you need to decide in the meeting?
 - What do you want to learn about in the meeting?
- **Information gathering meetings can be about**
 - Substance for the project, i.e. discussing with client
 - Coordinating the project, i.e. checking the situation (task updates, risks)

Each meeting results in a document (or other artefacts)!

Updating the plan

- **When you need to update your project plan, make a new version with a version date**
- **Get agreement for the updated version**
 - With minor changes internal approval is enough, for major changes you need to agree with your client
- **A complete version needs to be handed to the staff through MyCourses on the 16th of June by midnight**

**What experiences you have in
your team?**

Biggest problems?

Workload

10 ECTS => 10 * 27h = 270h

Project Plans - Due 16.6.

- Use the given template

Next steps in the project

- **Contacting the companies**
 - Calling or e-mailing (contact info in the project leaflet)
- **Making the project plan**
 - Deadline 16.6.
 - You need to use the template