

Project Design

Protopaja – ELEC-D0301



Aalto University
School of Electrical
Engineering

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Team P3

Helvar

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- Torpo Eero
- Rezaei Zainollah
- Bhutta Snehpal

Team P4

Saab

- Railio Tom
- Nguyen Tuan
- Mäki Miikka

Team P5

Savox 1

- Marttinen Jenni
- Juutinen Taneli
- Lappalainen Janna
- Le Minh

Team P6

Savox 2

- Parkkonen Pekka
- Bhatia Arun
- Kankkunen Elmo
- Lång Markus

Team P7

Solita

- Babayans Gharadaghi Nerses-Vahe
- Reineck Anthony
- Lindh Lauri
- Hiidenheimo Jaakko

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

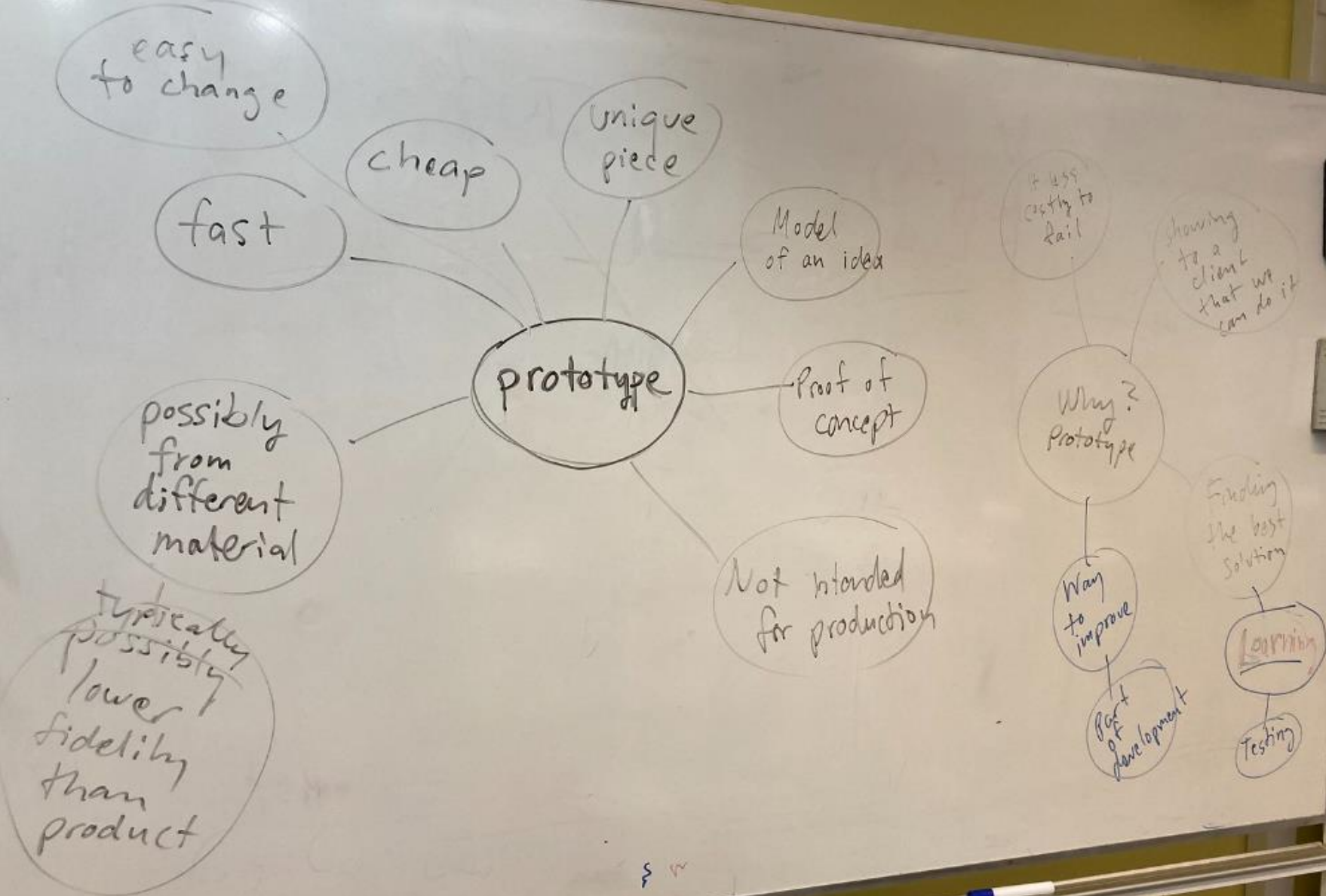
- Write these down into your project plan

The contract

Contracts are here – please, sign.

What is a prototype?

Why to prototype?



Designing a Project

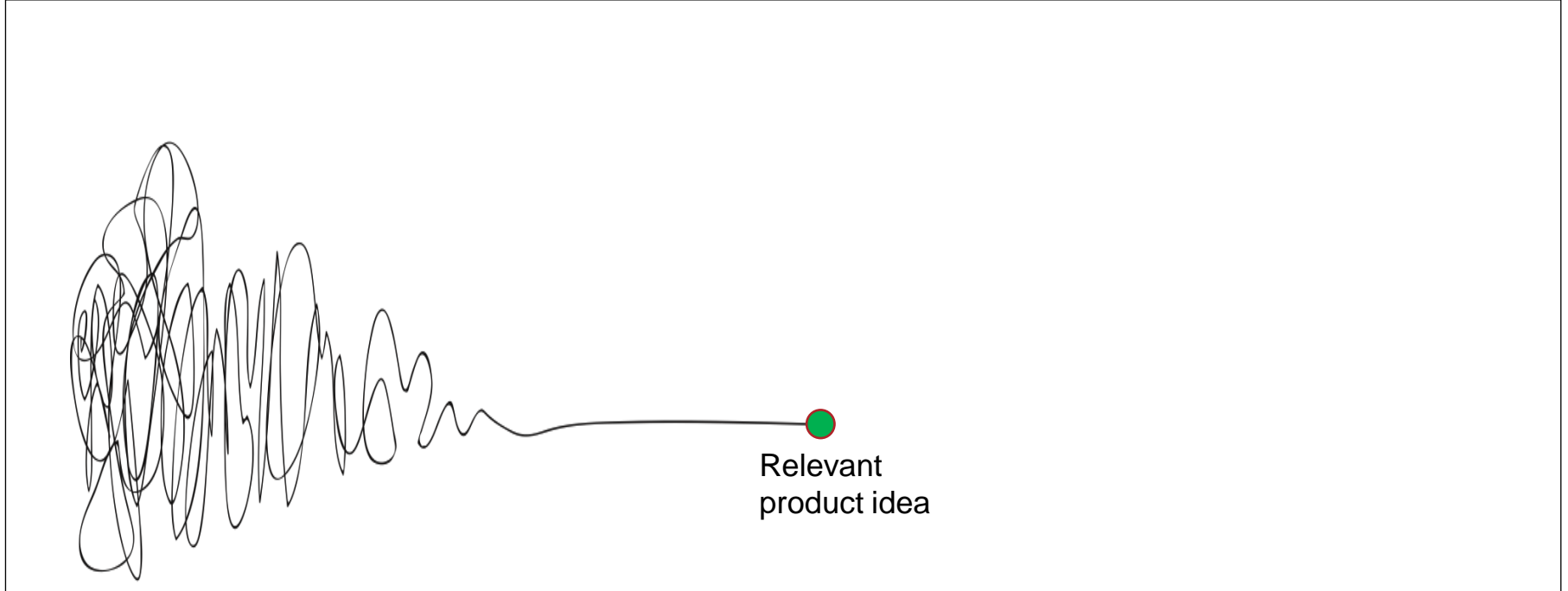
Projects are different

- **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

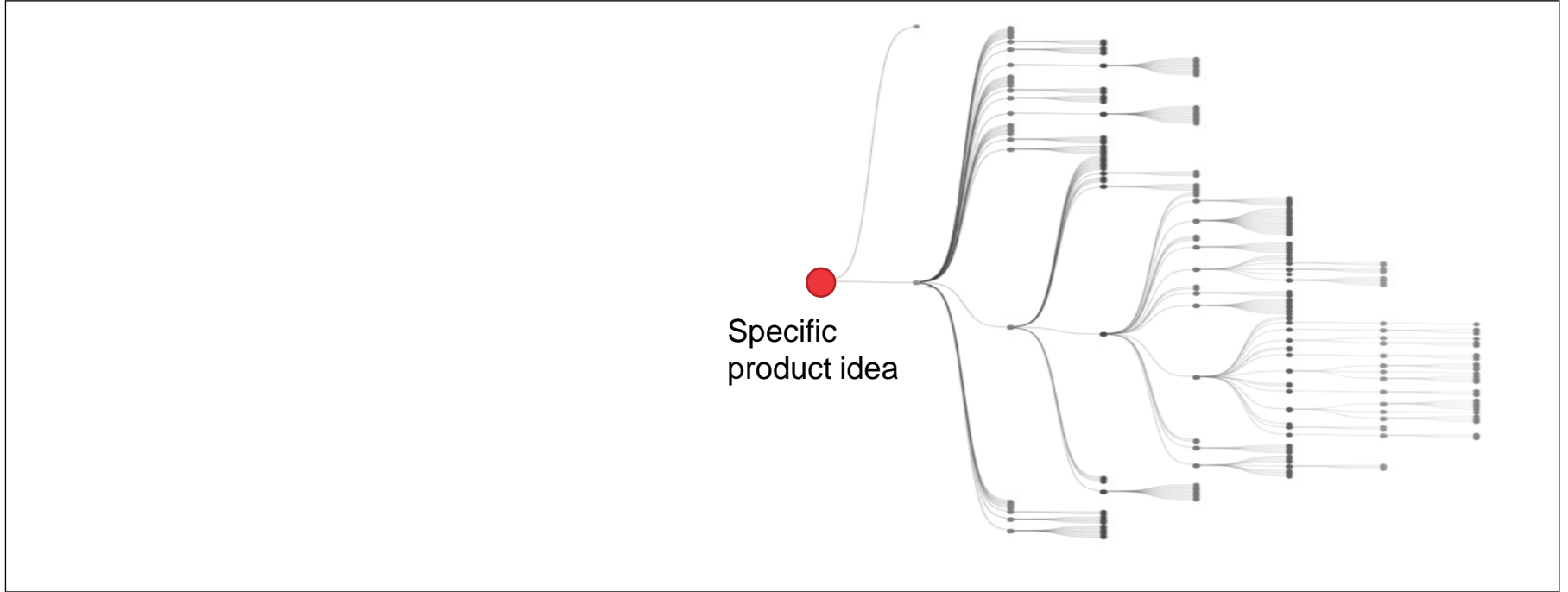
Certain



Projects are different

Uncertain

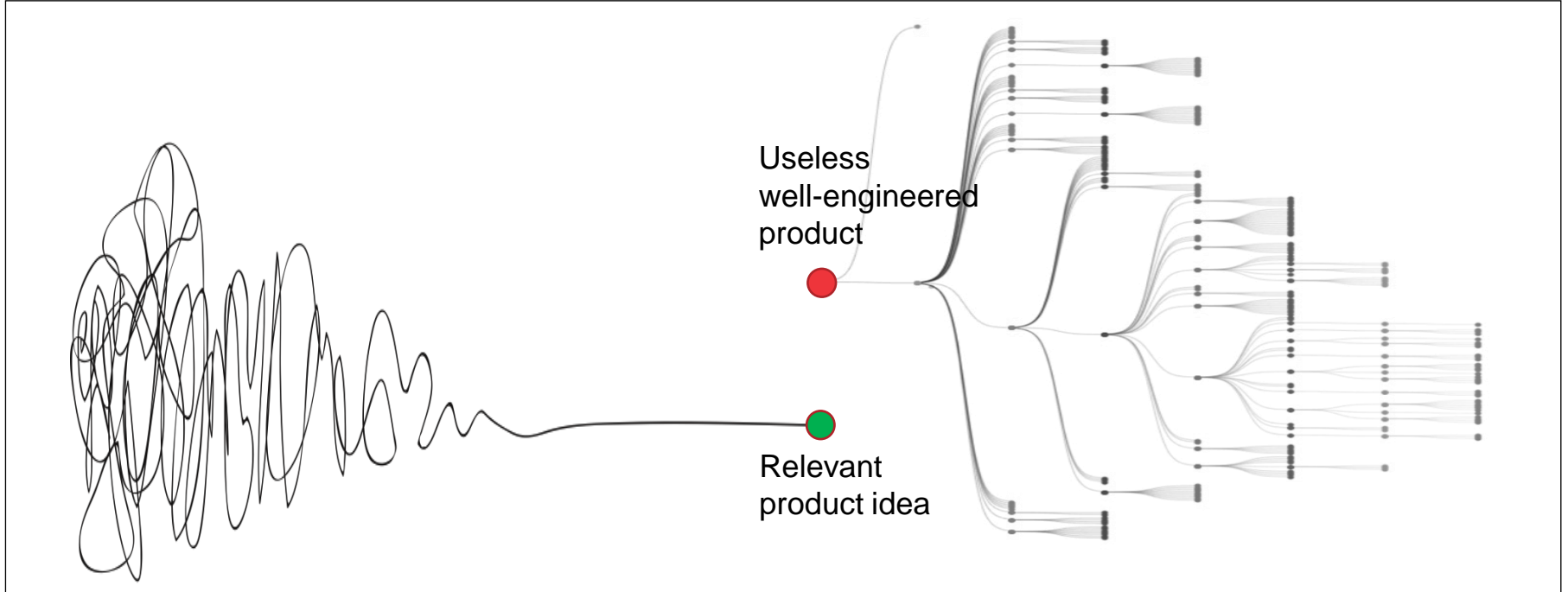
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Projects are different

Uncertain

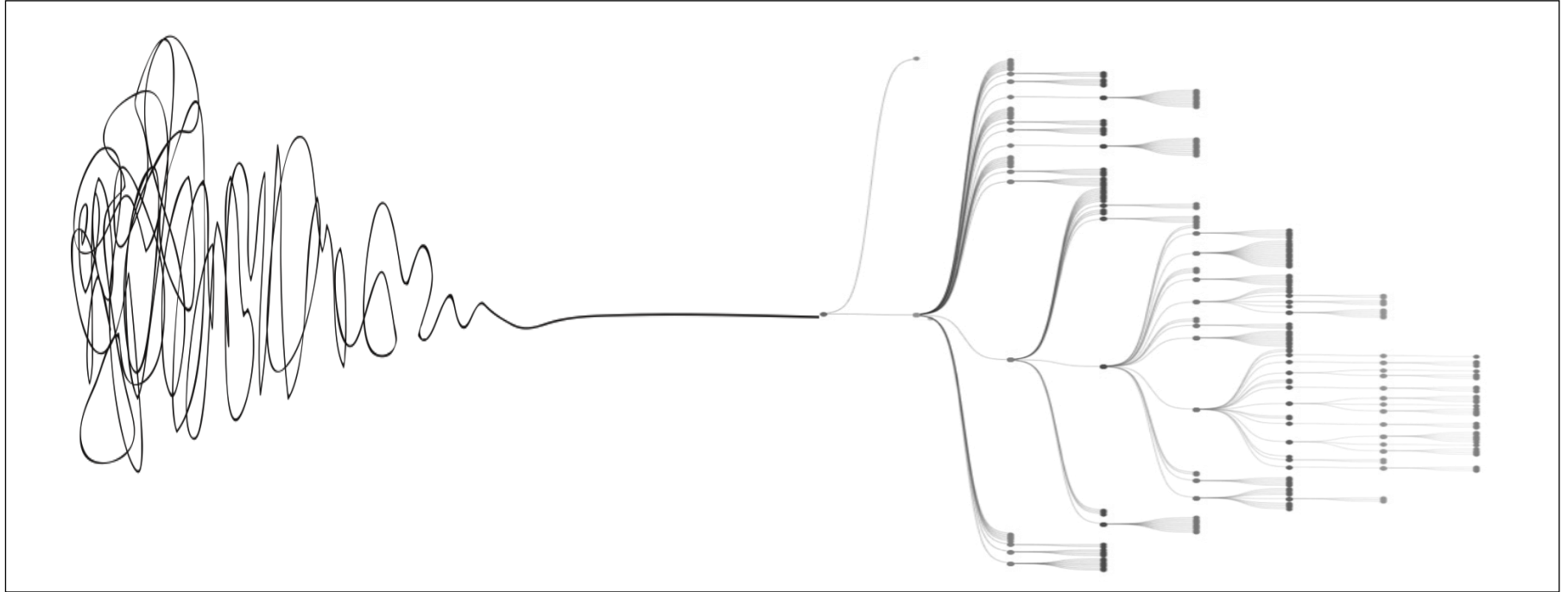
Certain



Overall aim of project planning

Uncertain

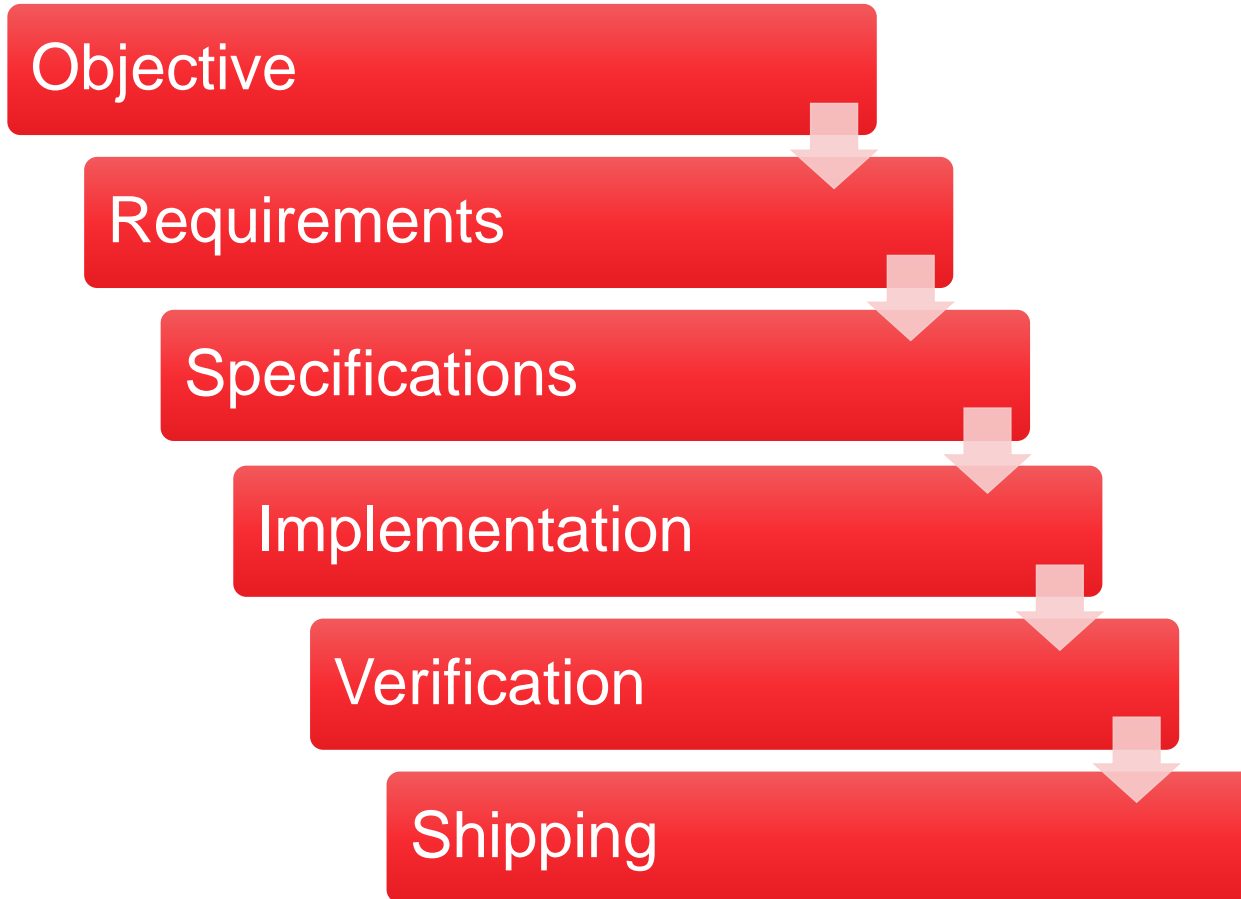
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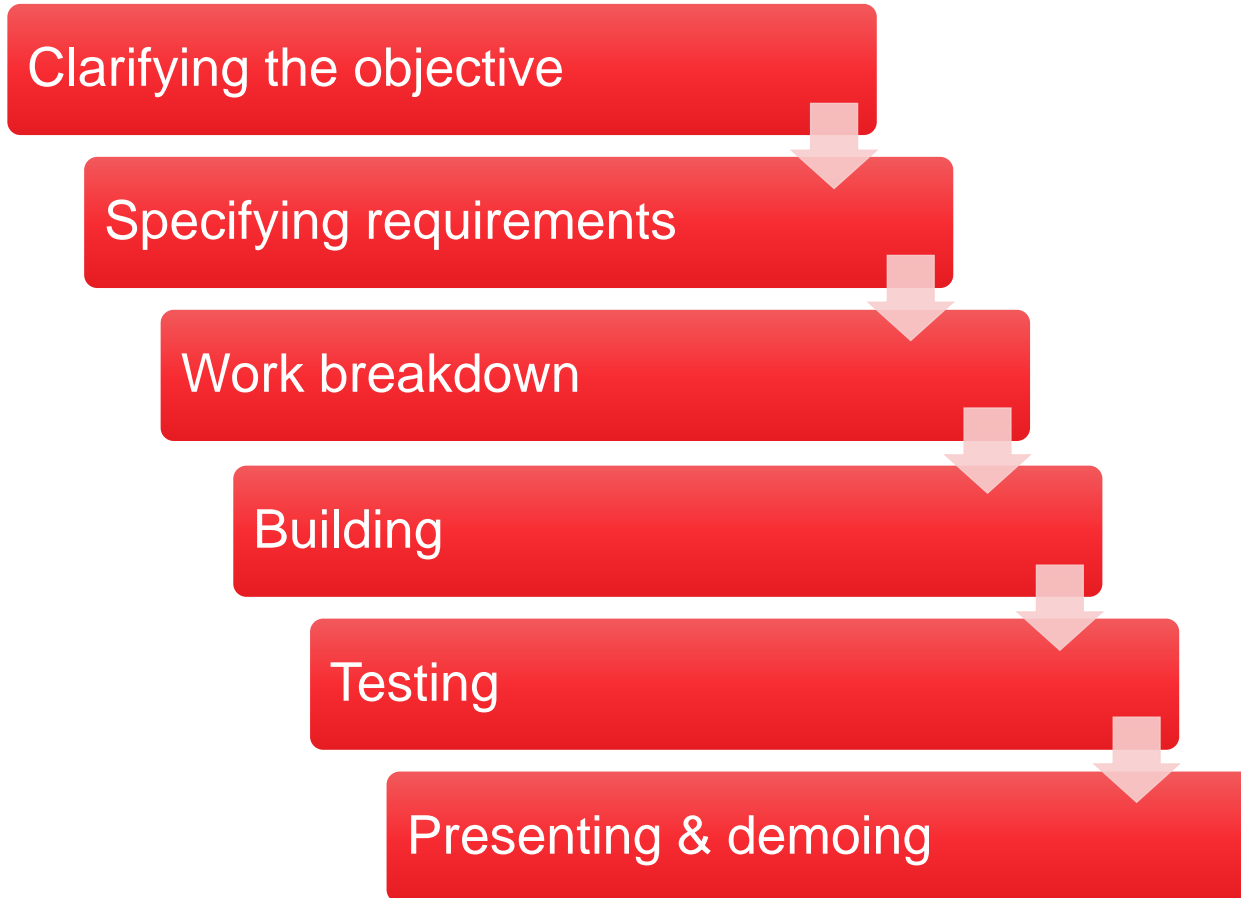
Frameworks to think about project

1. Waterfall
2. Diamond Process
3. SCRUM

Waterfall

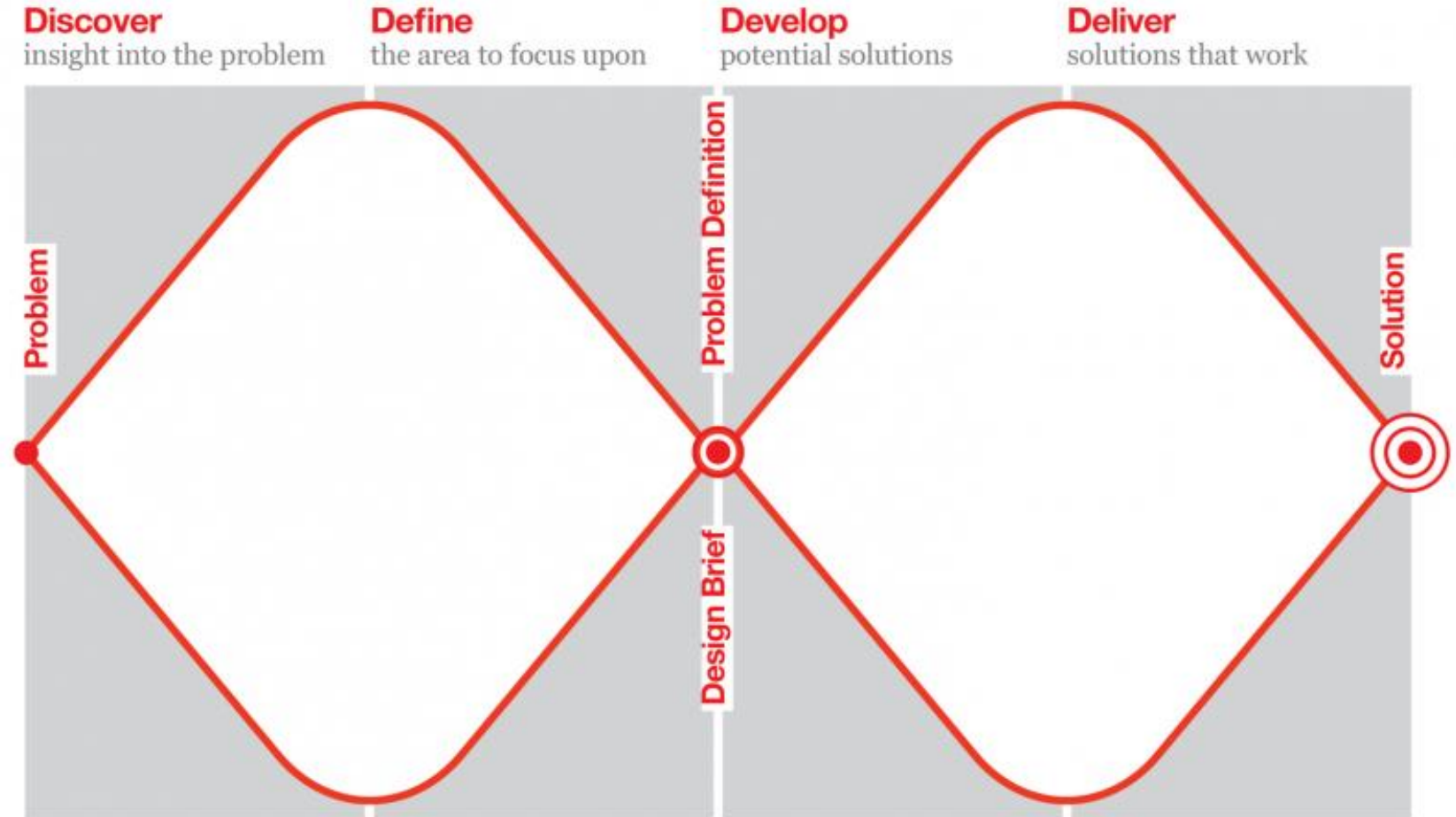


Waterfall



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>

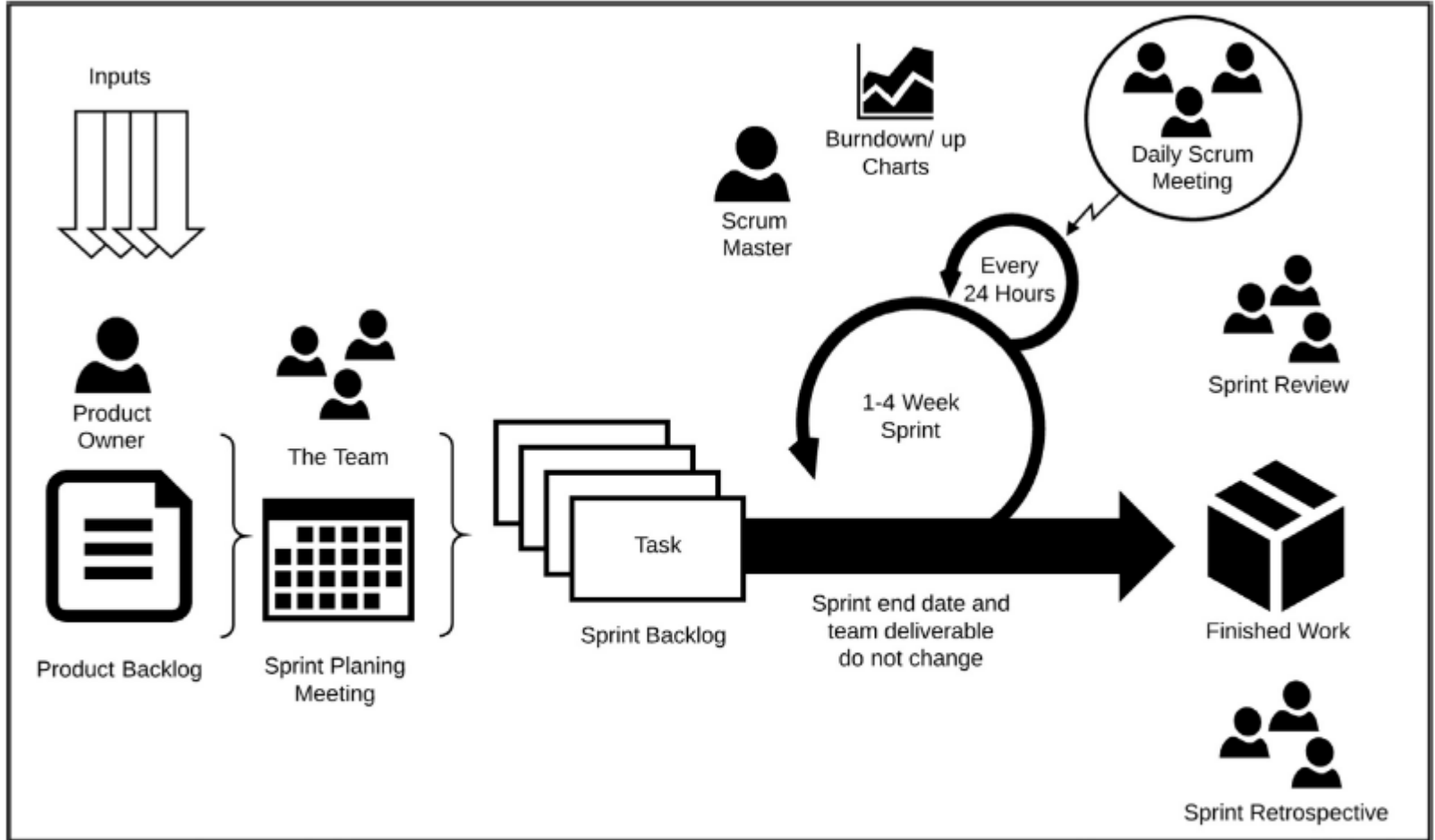


Fig. 2. Scrum Framework based on Schwaber and Sutherland (2018).

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?

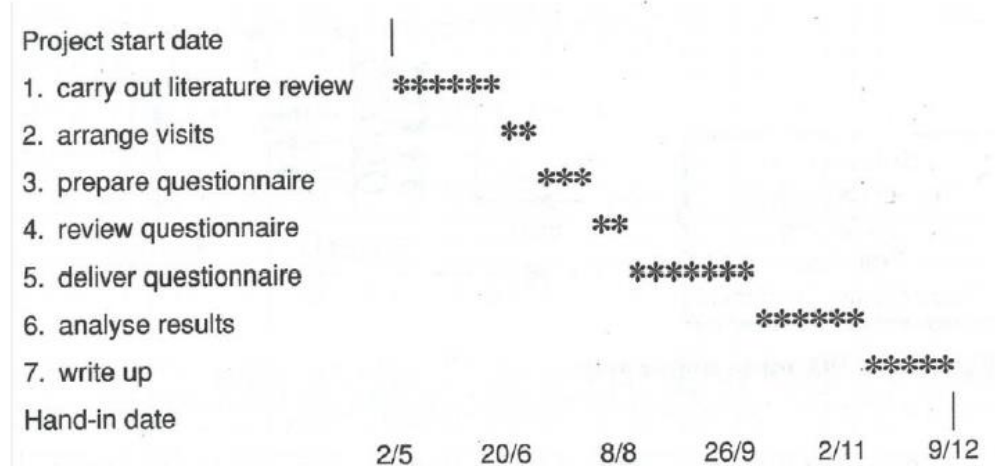
- **A task is the lowest level unit in the plan**
- **It is a single manageable thing to be done**
 - Clear start and end condition
 - Clear resources
 - Clear expectations on results

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 17th of June by midnight**

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

Biggest problems?

Workload

10 ECTS => 10 * 27h = 270h

Project Plans - Due 17.6.

- 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 17.6.
 - You need to use the template