

ITI8740: Software Development Team Project. 2025

01. Course Introduction

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After the course you ...

1. ... have an understanding of methods, tools and approaches that can be used when initiating a new startup or in-house project in established organization.
2. ... formulated a problem statement and validated it on a real target audience.
3. ... built a Minimal Viable (Lovable) Product that solves said problem.

Course Overview

ITI8740

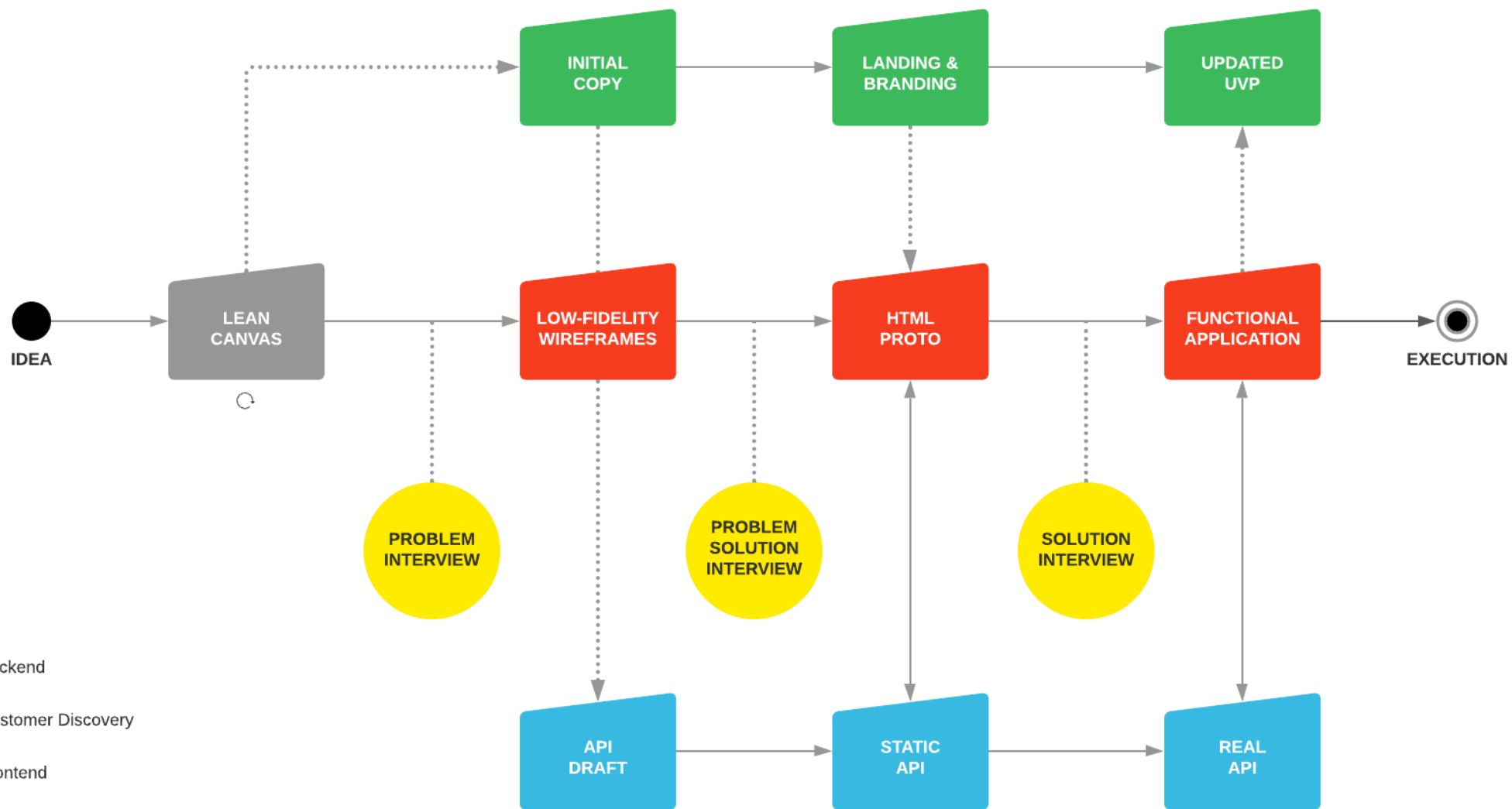
- Tarkvaraarenduse meeskonnaprojekt
- Software Development Team project

ITX8522

- Software Development Team project
- Software Entrepreneurship Project

Overall

- 12 ECT, autumn 2025.
- 1 lecture + 1 seminar per week.
- 2 days of individual work per week
- Deliverables as per schedule, team demos (4x)
- Teams: 4 to 6 persons
- weekly team meetings with supervisor.
- optional individual mini-assignments.
- participation at a hackathon (<https://garage48.org/events/g48anniversaryhack15>)



- Backend
- Customer Discovery
- Frontend
- Marketing
- Single Source of Truth

Tools and Environments

- Main course website: <https://courses.cs.taltech.ee/pages/ITI8740>
- Supporting: <https://moodle.taltech.ee/course/view.php?id=36194>
- Ongoing communications: Teams
- Main work environment: <https://gitlab.cs.ttu.ee/>

Rules for using AI

- Code generation using AI is allowed if the solution is documented and validated.
- Image generation using AI is allowed.
- When writing text and documentation, AI can be used for language correction, but not for content creation.
- The use of generative AI is prohibited when performing tests and assessment tasks.

A **startup is a human institution designed to deliver a **new product** or service under conditions of **extreme uncertainty**.**

Eric Ries, The Lean Startup

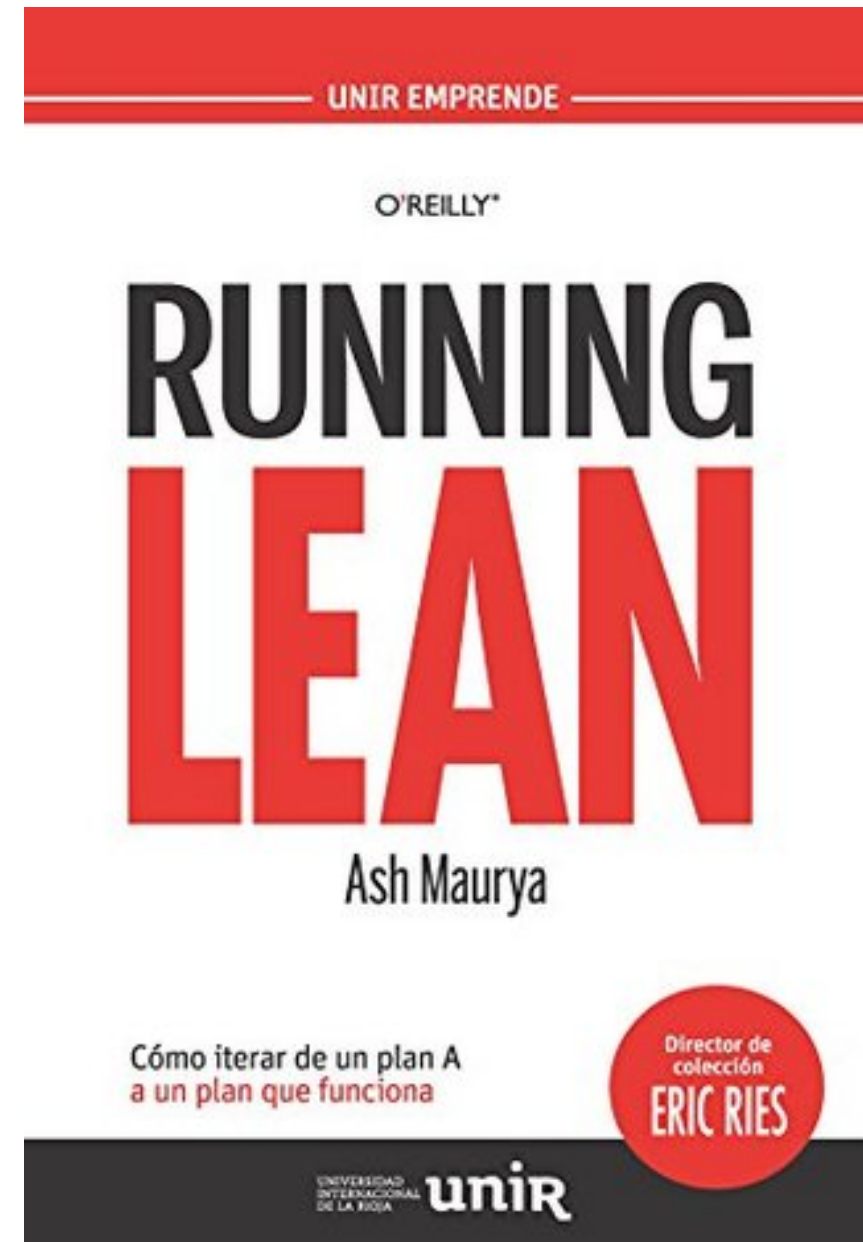
Fail fast and cheap.

Fail often. Fail in a way

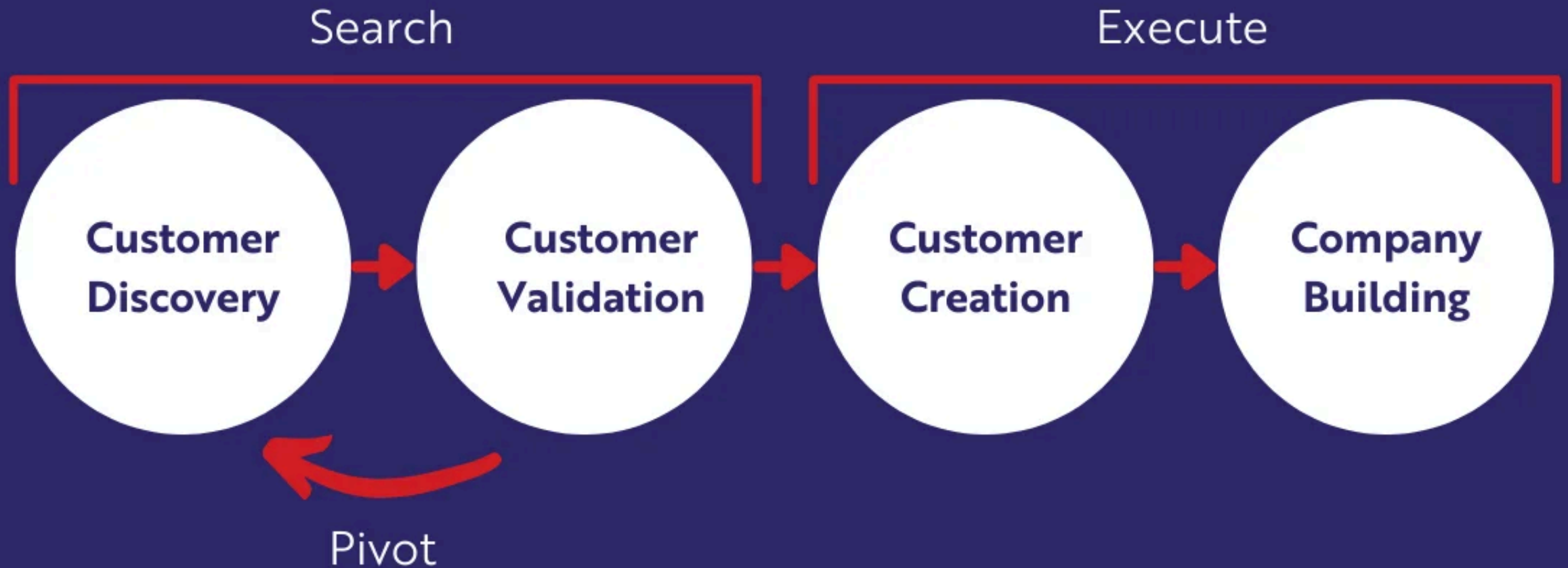
that doesn't kill you.

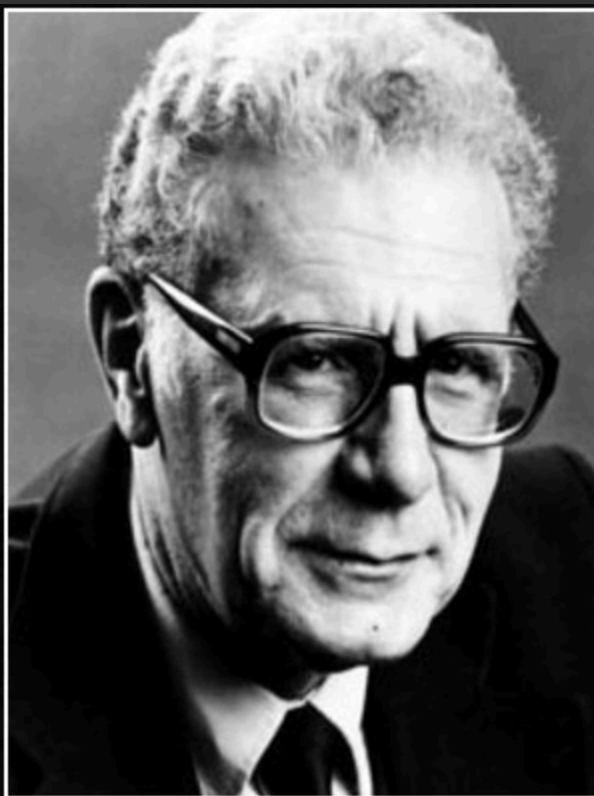
Running Lean: Iterate from Plan A to a Plan That Works

Ash Maruya.



Customer Development Process





Successful problem solving requires finding the right solution to the right problem. We fail more often because we solve the wrong problem than because we get the wrong solution to the right problem.

— *Russell L. Ackoff* —

AZ QUOTES

Strong-link vs Weak-link problems

- A *weak-link* problem is where success depends upon the quality of the worst component,
- A *strong-link* problem is where it depends upon the quality of the best. So

BAD

GOOD

Strong Link



Weak Link



When you have a STRONG-LINK problem:	When you have a WEAK-LINK problem:
Increase outliers/variance/weirdness because you'll benefit from having more very good things	Decrease outliers/variance/weirdness because you'll be harmed by having more very bad things
Don't gatekeep because you might accidentally keep the best out	Gatekeep because it keeps the worst out
Ignore the worst	Improve the worst
Improve the best	Ignore the best
Accept risk , because the downside doesn't matter	Avoid risk , because the downside is all that matters

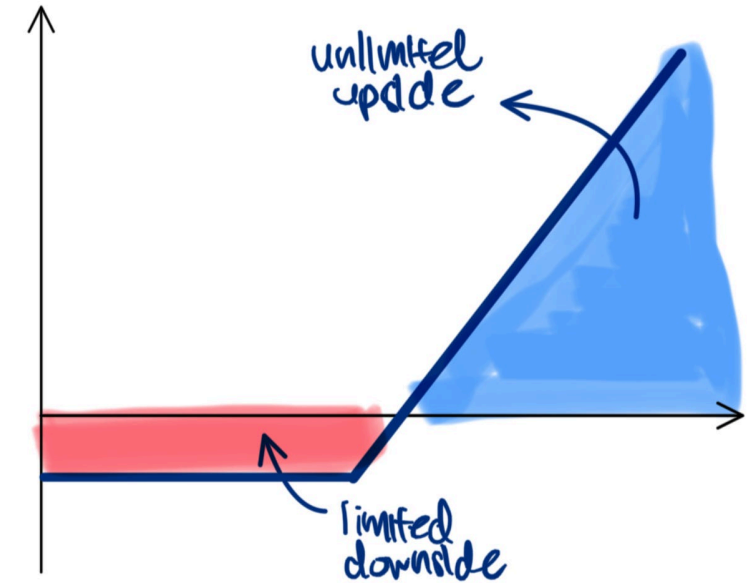
Upsides vs Downsides

Upside: High variance, high reward.

- Early adopters love novelty, chasing unique utility.
- “Strong-link” problems—solving them creates outsized value.

Downside: Risk, reliability, performance, security.

- Mature markets demand stability—“weak-link” problems.
- Uptime, audit logs, cost, access controls become vital.





Candy



Vitamin



Painkiller

	Painkiller	Vitamin	Candy
Tagline	"Must have."	"Need to have."	"Fun to have."
Type	Must haves, and the are easiest to sell.	Can improve yout life, but they are only nice-to-have.	A nice treat, but you can live without it.
Examples	Google Maps. Amazon Echo. Uber	Grammarly. Fitness trackers.	Pleasure, desire and luxury products.

See: <https://medium.com/strategy-dynamics/painkillers-vs-vitamins-d3bdc76ddd31>

Coming up with a good idea

Think about your research and studies

- Ideas that have not been implemented for wider audiences
- Possible monetization of research topics.
- Experimentation and finding value experimenting with novel technologies.

Coming up with a good idea

Think about everyday problems in your field ...

- Repeating everyday activities
- Annoying activities
- Tasks requiring a lot of manual work, or prone to error
- Unreasonably slow processes
- Unreasonably expensive solutions or processes

Coming up with a good idea

Think about everyday problems in your field ...

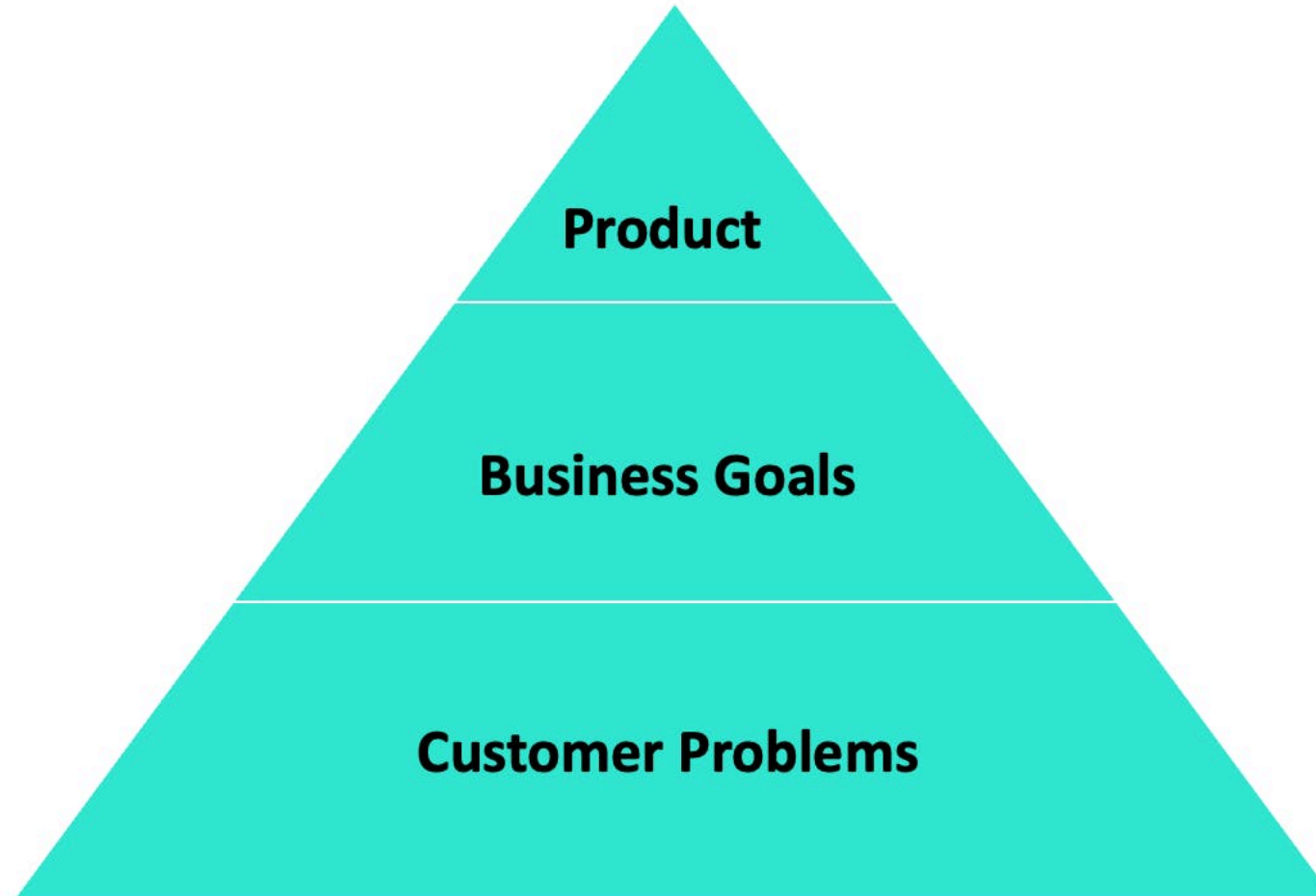
- Also think **wider on life** and try to **have a more general** view on things. What can be changed or fixed?
- Raise the **level of ambition** - expand the solution for a wider group in a society.
- Use the unfair advantage of your education - try to apply the problem statement of your thesis to a real world scenario.

Coming up with a good idea

YCombinator Requests for Startups

- <https://www.ycombinator.com/rfs>
- Check also requests from previous years
- Narrow down the scope to be solvable during the course.

CUSTOMER PROBLEMS ARE THE BEDROCK OF ANY GREAT PRODUCT



Describing an idea

1. **What's the problem you are solving?** Write the problem down with one sentence
2. **Who's the customer** - the profile of the person you are solving the problem for?
3. **What's the solution** for this problem? Write it down with 1-2 sentences.
4. **Why is the solution special?** Different of competitors? Sentence or two.
5. **How will it earn money?** Does it have any business potential? Describe the revenue source with a sentence.

Humans understand stories. Most used narrative by startups is the problem - solution statement.

During next class we will present the ideas to each other and start building teams. You will have 90 seconds to present your idea.

You already have the structure

1. Say Hello, say your name.
2. What's the problem?
3. What's the solution?
4. The special sauce.
5. Is there money to be made?
6. Say thank you and smile while listening for the applause :)

Just practice a bit - easy!

To Get Started

- Creative thinking - how to get out of the box and generate ideas: Giovanni Corazza at TEDxRoma. <https://www.youtube.com/watch?v=bEusrD8g-dM>
- Think Small to Solve Big Problems, with Stephen Dubner.
<https://www.youtube.com/watch?v=fypkPgeQxBQ>
- The art of innovation. Guy Kawasaki, TEDxBerkeley.
<https://www.youtube.com/watch?v=Mtjatz9r-Vc>
- Generating ideas. Shimpei Takahashi, TEDxTokyo.
<https://www.youtube.com/watch?v=ZdJOhgSQJ1Q>
- Adam Neumann: How to Find a Problem Worth Solving | Inc. Magazine
<https://www.youtube.com/watch?v=8NooqQKrdGE>

Links

- Decoding the 'Candy, Vitamin, Painkiller' Framework in Product Marketing.
<https://www.linkedin.com/pulse/decoding-candy-vitamin-painkiller-framework-product-anna-borbotko-1zj4e/>
- And Ideas, Or Ideas. <https://www.alexcrompton.com/blog/and-ideas-or-ideas>
- A never-ending list of business ideas and problems to solve.
<https://medium.com/@paulegraves/a-never-ending-list-of-creative-jazzy-business-ideas-6c9782d2d470>
- Startup Lesson 1: Vitamin vs. Painkiller. <https://www.linkedin.com/pulse/startup-lesson-1-vitamin-vs-painkiller-vitaly-pecherskiy/>

Links

- About strong-weak link problems. Upsides and Downsides. <https://calv.info/upsides-and-downsides>
- Candy Vitamin Painkiller. <https://www.dalziel-pow.com/news/is-your-brand-a-painkiller-vitamin-or-candy>
- Upside vs Downside Focus. <https://joi.ito.com/weblog/2009/09/04/upside-vs-downs.html>.
- Is AI a Painkiller, a Vitamin, or a Candy? Unveiling the Multifaceted Nature of Artificial Intelligence. <https://aimresearch.co/council-posts/is-ai-a-painkiller-a-vitamin-or-a-candy-unveiling-the-multifaceted-nature-of-artificial-intelligence>

Thank you!