

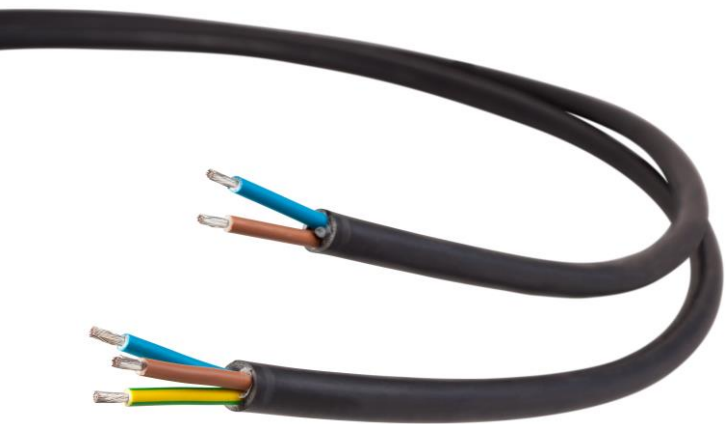
Problems - fuel for innovation

Tuuli Utriainen 10 .5.2016, OSU @ IdeaSquare

Technology based
innovation



<https://goo.gl/BNWyQS>
<http://goo.gl/Oe31aA>

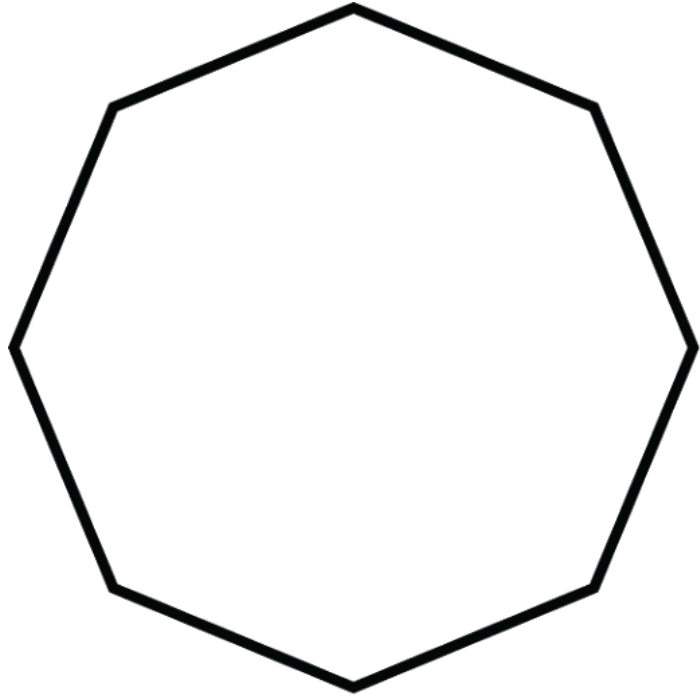


<https://goo.gl/BNWyQS>
<http://goo.gl/Oe31aA>
<http://goo.gl/bDrFJM>

Proton therapy

... but hard to make the jump starting from
technology

Start from the need?



Challenge Based Innovation

Multidisciplinary team

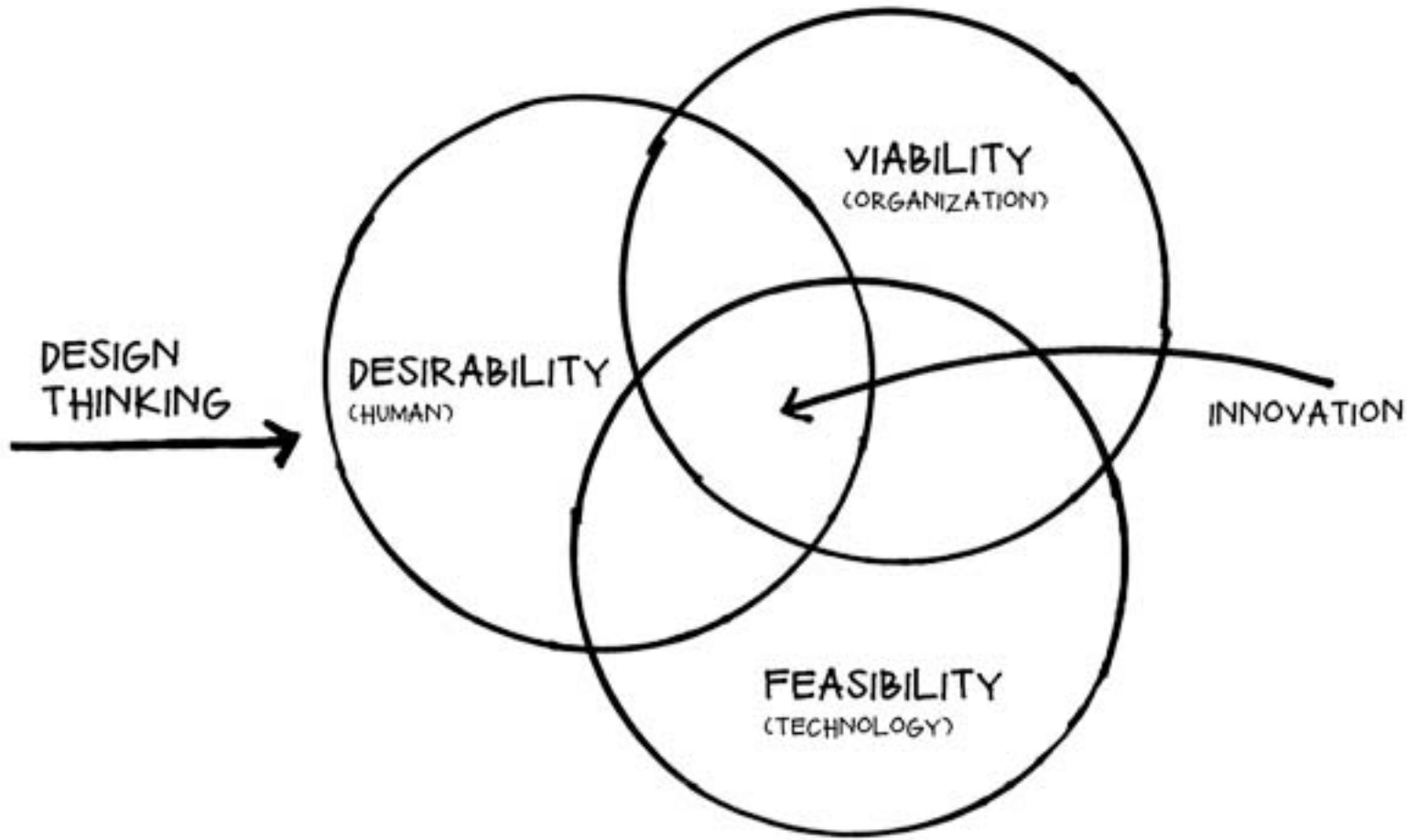
Solving power - different points of view

NGOs

Problems worth solving – driving the solution if successful

CERN

Technology feasibility support - inspiration



3-6 Months, Global teams, Kick off and
Gala at CERN, Human centered design

Aalto University Finland - Engineering, Art & Design, **Business based**

NTUA Greece - **Architecture based**

UNIMORE Reggio Emilia - **Business Engineering based**

ESADE + IED + UPC Barcelona - **Business, Engineering and Design based**

Swinburne Australia - **Product Design based**

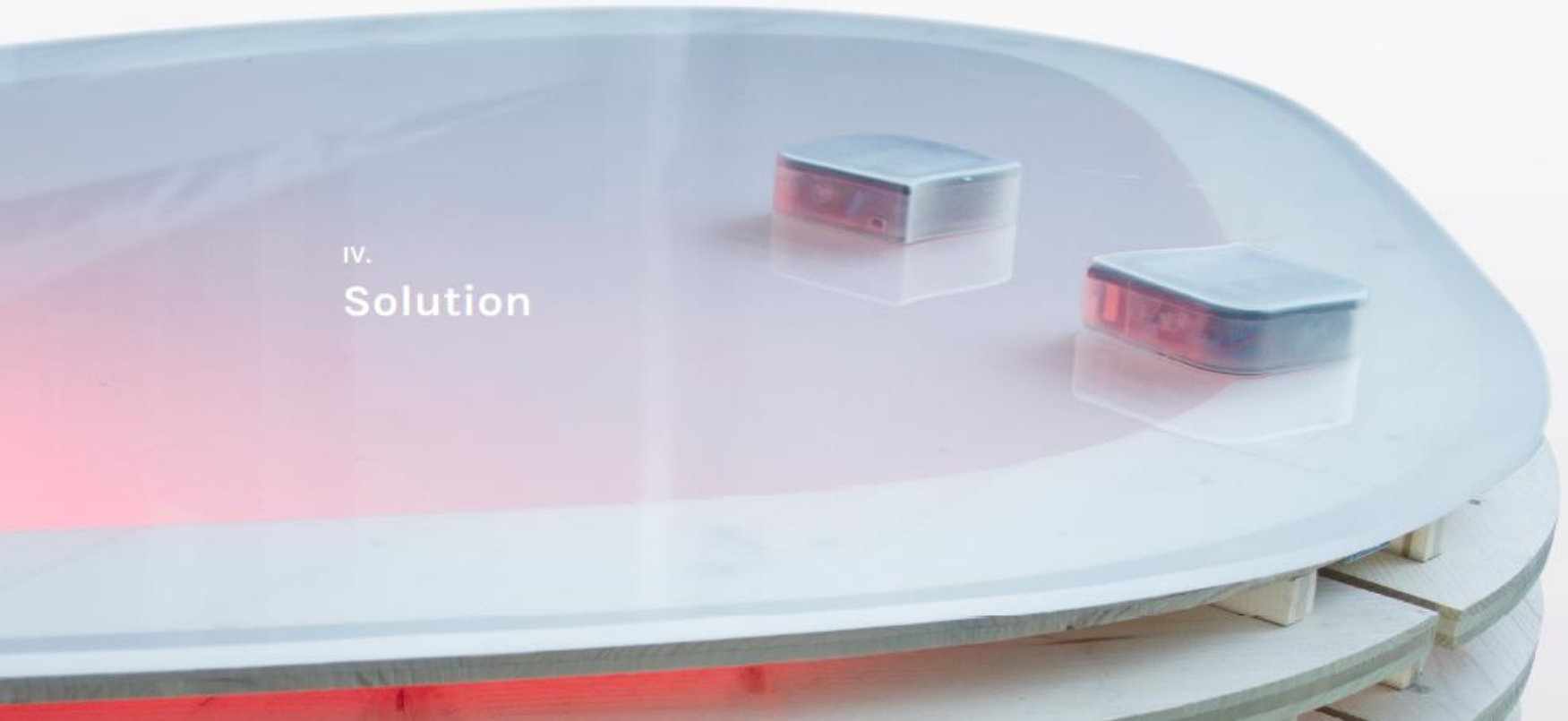
NTNU Norway - **Product Development based**

A hand is shown holding a small, glowing purple cylindrical object. The object has a bright blue light emanating from its center, creating a lens flare effect. The background is dark, with a soft red glow emanating from the bottom left corner. The overall scene suggests a futuristic or technological context.

Needfinding → Solution generation → Proof of concept

Remember Edumind?

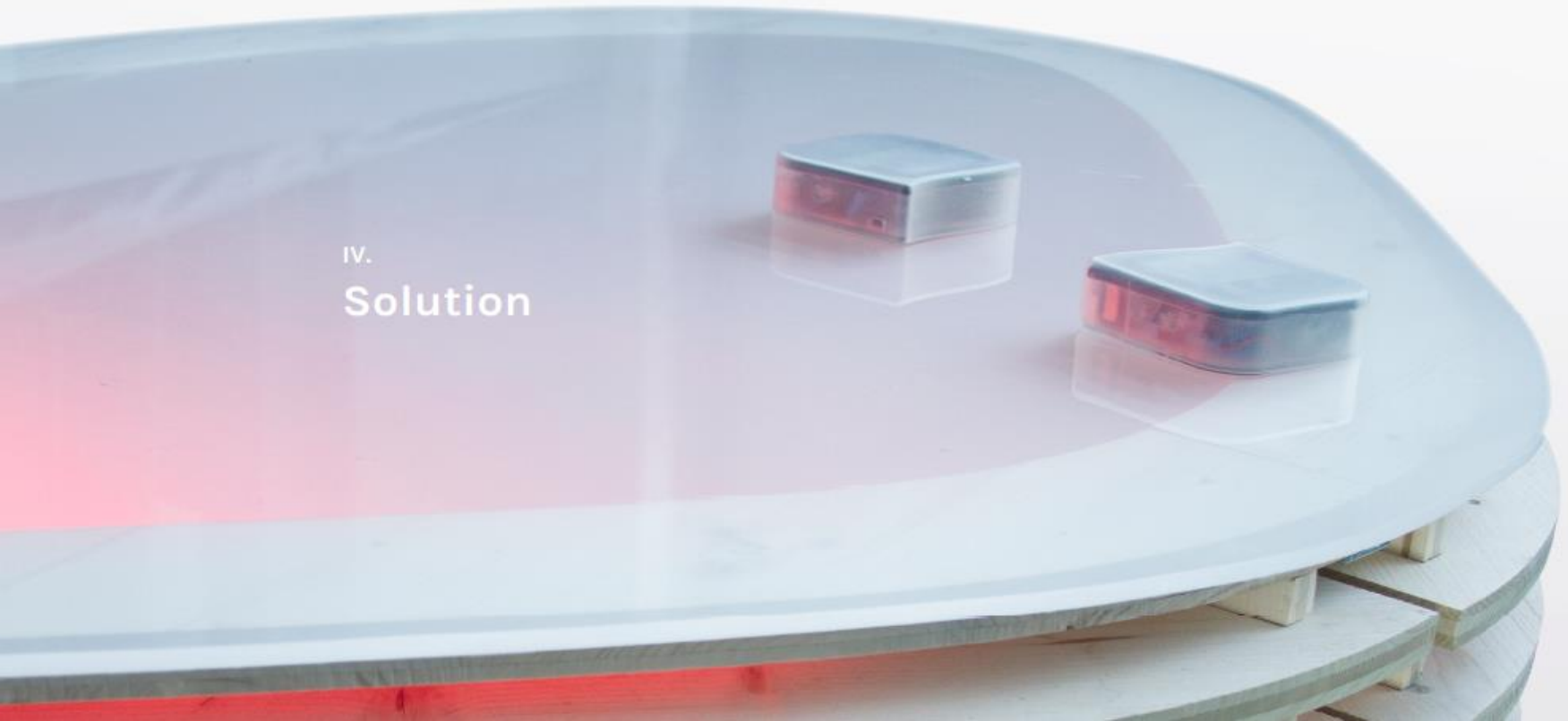
IV.
Solution



Problem:

Social skills are difficult to learn (by heart through scenarios)

IV.
Solution



Parents

- Safety (bruises)
- Experts without validation
- Mental tiredness
- Availability of facilities and treatments
- No science behind alternative treatment
- **Feeling powerless**

Kids

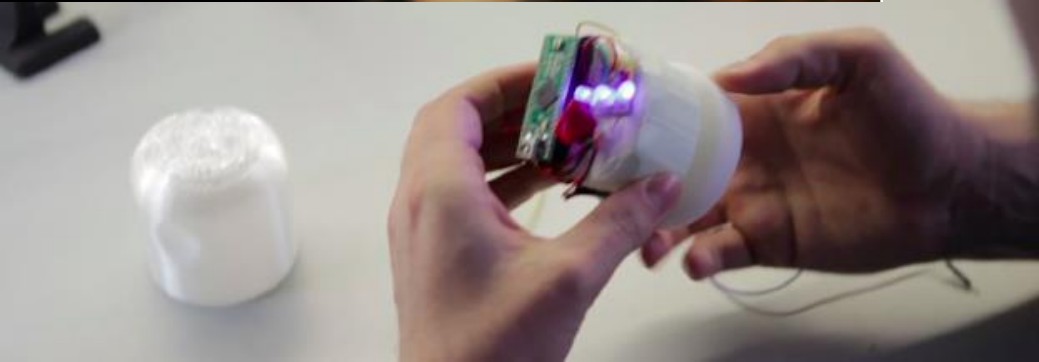
- Frustration
- No ideal models – each situation is unique (e.g. picture of a cup)
- Self understanding (e.g. own strength)
- Missing communication tools (e.g. language)
- Scared of social situations
- **Overwhelming inputs lead to extreme reactions**
- Attention span low
- Distracted very easily
- Don't understand others – needs to learn everything by heart
- Tiny comfort zones – what food, colors, etc. are acceptable

Therapists

- Safety (bruises)
- **Mental tiredness**
- Keeping track of advancement (multitasking during sessions)
- Finding out a best unique study plan for each child
- Little knowledge of technology (though iPad)
- No in-house R&D except for spaces and methods, but not for tools
- No time to redesign

Team

- Limited hardware/software resources
- Scientific validation lacking
- PhD style supervision / role split
- Lack of time
- Decision making
- **Ethics and access to users**
- Language issues (French children)
- ...



Different problem setting:

*Keeping track of advancement and multitasking during sessions
(Tool for therapists)*



Team Ampere

Enhance the mobility of people who
have lost it

ENHANCING MOBILITY

AMPERE TEAM



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Computer Engineering & Tele-
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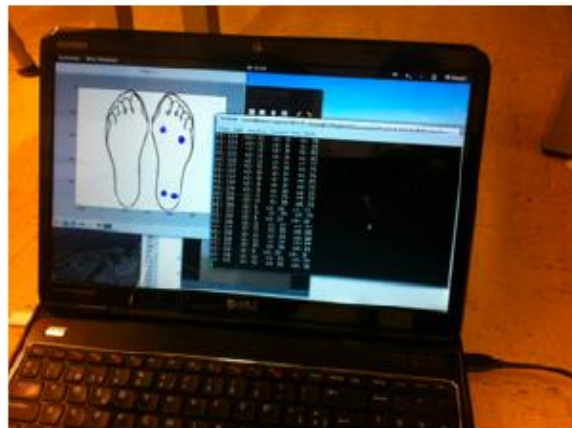
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FIRST PROTOTYPES

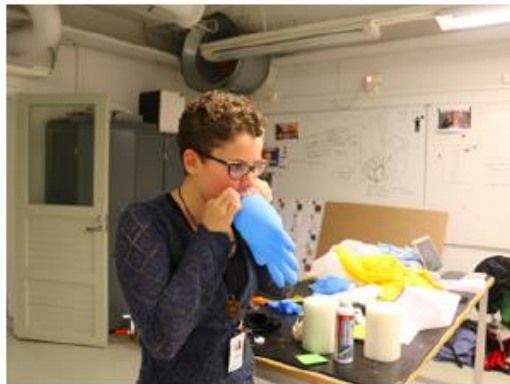
INSOLE SENSORS



Coding and testing some sensors placed in a shoe insole in order to collect some data and analyze how the pressure in different points affects the falls.

FIRST PROTOTYPES

HIP AIRBAG



Testing some hip Airbags and some triggers to check the efficiency of the idea.



THE BLACK HOLE CHALLENGE

FALL DETECTION ELECTRO ESTIMULATION



The aim of the black hole challenge was to try some crazy ideas that can give an answer to our briefing. We decide to use electro stimulation in order to “control the muscles” to improve the balance of the body by moving the arms when it's need it.





No **solution** can be better than the **problem** that it is supposed to solve.

... all about the interplay

Problem swap!

Define your problem

Discuss with your team to find the biggest problem you are dealing with (5 min.)

Write the problem on a sheet in the form of a question “How might we...?”

Consider this sheet as a problem transform medium. The clearer you are the better solutions you will get (think outsourcing mishaps)

Pair exchange

Water– Power

Recycle– Food storage

You have 30 min to solve this problem!

Points for being **as tangible as possible**

Make the solution **as applicable as possible** (not “move more and eat less”)

3 minutes for give away

Give away

Points for being **as tangible as possible**

Make the solution **as applicable as possible** (not “move more and eat less”)

3 minutes for hand off

Helping hand **award**

