

TAKING
COOPERATION
FORWARD

📍 D.T2.4.2 Joint Social Entrepreneurial Skills and Competences training

💬 Design Thinking Training

👤 IN SITU, STEP RI PP8, Mario Vukelić

Design Thinking



From designing products to designing solutions: systems and experiences

**Innovation
methodology**

**Boosting
creativity**

**Visual
expression**

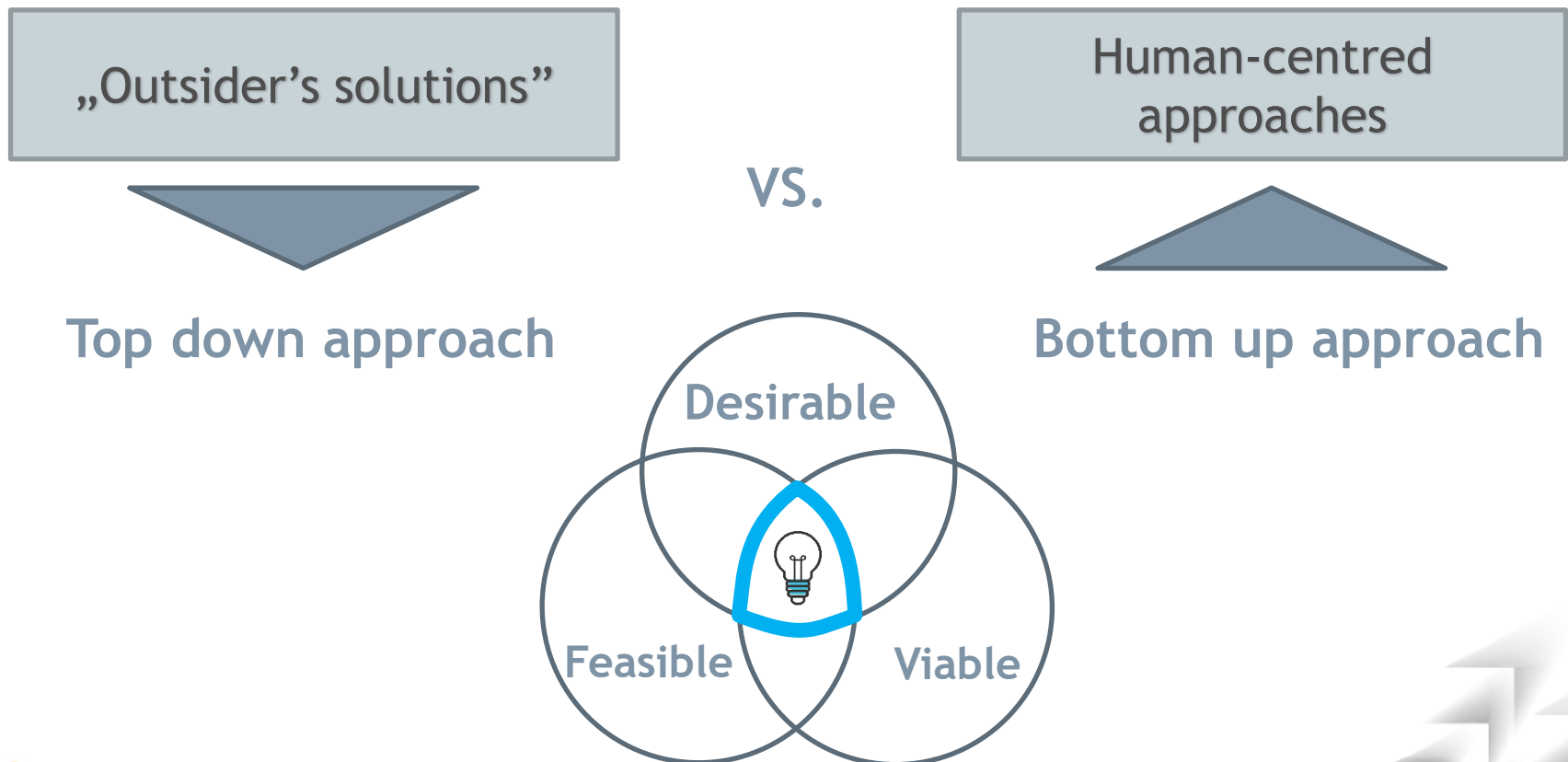
**Human-centered
approach**



David Kelley, Stanford University, IDEO

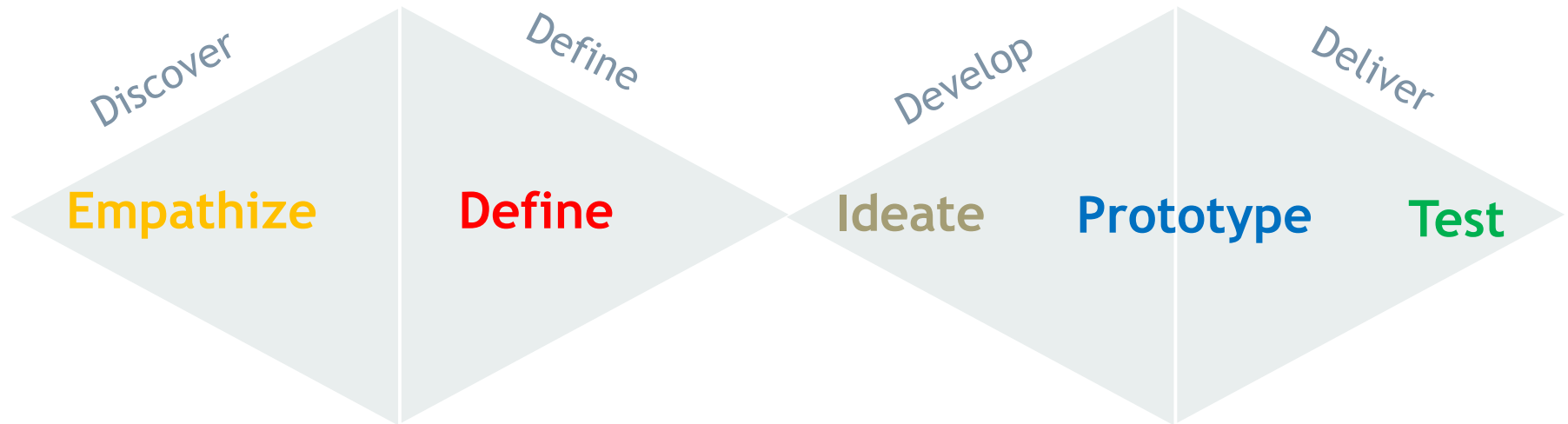


Design Thinking in social innovation and entrepreneurship



THE PHASES

Not a linear process!



The Double Diamond framework of Design Thinking



Empathize



Discovering what are the people's needs

„What I want” ≠ „What I need”

Activities that will help us truly understand the user's problem.



What are they doing?

Why are they doing this?

How?

When?

Where?

Under which circumstances?

What are the limitations?



Gathering the information

Desk research

Data analysis

Interviews

Observation

Photo/video

Shadowing



All aspects of users experience must be taken into account!

What is the user thinking and feeling?

What is the user doing and saying?



What is the user seeing?

What is the user hearing?



Reach conclusions

Customer Journey Map

Empathy Map

EMPATHY MAP Customer name _____ Author _____

HEAR

THINK AND FEEL

SAY AND DO

PAIN
fears, frustrations, obstacles

GAIN
wants, needs, measure of success

www.businessdesigntools.com Adapted from XPLAIN

Stages:	Getting information Preparing	Buy Purchase	Deliver	Use Consume	Add-ons Supplements	Maintenance	Disposal
Doing							
Thinking							
Feeling Experience							
Front end Touchpoints							
Back end Infrastructure							
Customer Pains Opportunities							

es / Other

Image source: www.businessdesigntools.com, adapted from XPLAIN



EMPATHIZE

EMPATHY MAP Customer name _____ Author _____ Date _____ [BDT]

The diagram is an Empathy Map template. It features a central circle with a face (eyes, nose, mouth). Six lines radiate from the face to six yellow rectangular boxes. The boxes are labeled as follows: 'THINK' (top), 'SEE' (right), 'SAY AND DO' (bottom), 'PAIN' (bottom-left), 'GAIN' (bottom-right), and 'HEAR' (left). The 'PAIN' and 'GAIN' boxes are further divided into two sub-sections: 'fears, frustrations, obstacles' and 'wants, needs, measure of success'.

THINK

SEE

SAY AND DO

PAIN
fears, frustrations, obstacles

GAIN
wants, needs, measure of success

HEAR

www.businessdesigntools.com Adapted from XPLANE

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Social issue/topic:

Increasing students' knowledge and interest in science and engineering.



EMPATHY MAP

Customer name _____ Author _____ Date _____ [BDT]

HEAR
fears, frustrations, obstacles

SEE
wants, needs, measure of success

FEEL

PAIN
fears, frustrations, obstacles

GAIN
wants, needs, measure of success

outdated curriculum

I want to try it myself!

frustrated

More interesting stuff on Internet

I keep hearing about some cool stuff from friends abroad

Old books

I want to see how it works

ancient technology

Skipping class

I'm not sure that my teacher is competent

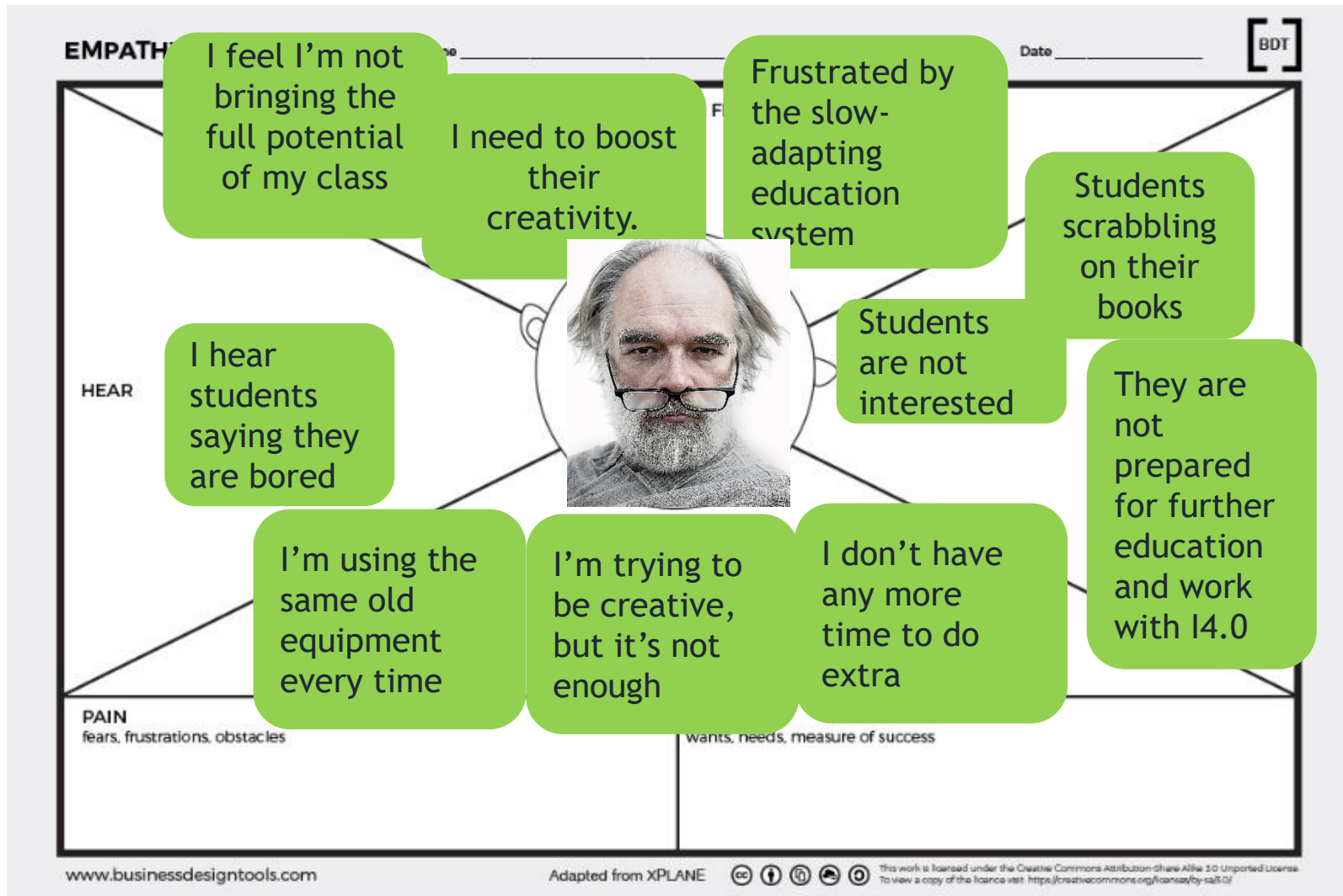
Boooring...

www.businessdesigntools.com

Adapted from XPLANE

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TAKING COOPERATION FORWARD

Image by Pexels from Pixabay

Empathy map source: www.businessdesigntools.com, adapted from XPLAIN

Pains (what is making them unhappy)

They find the technology interesting, but the classes are not interesting. They don't find the topics that important.

They are not preparing new generations as they should. They want to change their approach but there is no time and money.

Gains (what would make them happy)

To learn about some cool new technologies in a fun and interactive way.

A quick and simple solution that will boost interest and creativity of students.



Designed for:

Designed by:

Date:

Version:

Empathy Map Canvas

1 WHO are we empathizing with?
Who is the person we want to understand?
What is the situation they are in?
What is their role in the situation?

2 What do they need to DO?
What do they need to do differently?
What job(s) do they want or need to get done?
What decision(s) do they need to make?
How will we know they were successful?

3 What do they SEE?
What do they see in the marketplace?
What do they see in their immediate environment?
What do they see others saying and doing?
What are they watching and reading?

4 What do they SAY?
What have we heard them say?
What can we imagine them saying?

5 What do they DO?
What do they do today?
What behavior have we observed?
What can we imagine them doing?

6 What do they HEAR?
What are they hearing others say?
What are they hearing from friends?
What are they hearing from colleagues?
What are they hearing second-hand?

7 What do they THINK and FEEL?
PAINS
What are their fears, frustrations, and anxieties?
GAINS
What are their wants, needs, hopes and dreams?
What other thoughts and feelings might motivate their behavior?

GOAL

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Last updated on 16 July 2017. Download a copy of this canvas at <http://gamestorming.com/empathy-map/>





Define



Defining the essential problem of our user

„Make sure you solve **the right problem** before solving the problem right.”
TISDD

USER
ORIENTED

MEANINGFUL

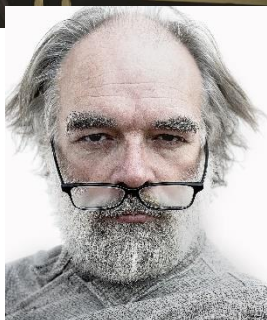
SOLVEABLE

WELL
STRUCTURED



User problem

We met...



...we found out...



Pains (what is making them unhappy)

They find the technology interesting, but the classes are not interesting. They don't find the topics that important.

They are not preparing new generations as they should. They want to change their approach but there is no time and money.

Gains (what would make them happy)

To learn about some cool new technologies in a fun and interactive way.

A quick and simple solution that will boost interest and creativity of students.



...identified a need:



User problem / Customer problem / „Job to be done”

„A need for a simple and applicable solution that would increase number of students interested in STEAM fields, deliver the knowledge in a fun way and raise a new generation of engineers.”

„And, of course, it must be cheap.”





Ideate



Going after the best possible idea

„The best way to have a good idea is to have lots of ideas.”
Linus Pauling

Explore all the
(im)possible options.



Elaborate the best idea.



Idea generation methods

Brainstorming

Group method

Ideal for groups of 5-10 persons

Role of the leader is important

Problem and the ideas must be visible to everyone



Idea generation methods

Brainwriting

Group method

For groups of up to 5-6 persons

Sharing the ideas in circle

Up to 3 ideas / approx 5 min per circle



Idea generation methods

Hot potato

Group method

Participants are randomly throwing the „hot potato” at each other

The one who catches it must quickly generate an idea



Idea generation methods

10 plus 10

Group method

Teams prepare 10 different ideas

Additional 10 variations of 1 idea

Result: 20 concepts



Idea generation methods

Meditation

Solo method

Write your ideas to paper/post-its

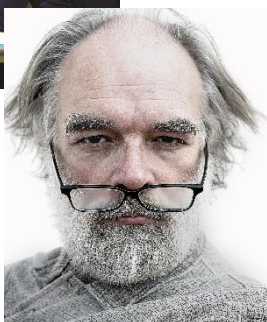
Defined time

Put the ideas on a visible spot and present them



Choosing the best idea

Group and evaluate



infrastructure

STEAM lab

equipment

Education
equipment

R&D equipment

Different
media (video,
Internet,...)

curriculum

Train teachers

Change
curriculum

System reforms
Additional
programs

events

Organize events

Involve experts

Collaborate
with other
organizations

field trips

Visit industry
stakeholders

Visit R&D
stakeholders

Visit higher
education
stakeholders

other

Robot assembly
kit



Further elaborating the best idea

Give it a name and make a sketch

Describe your offering and your competences

Revise your customer/user

Define key elements of the Value Proposition

Your Idea Napkin name: _____
idea: _____

1. who are you?
People (P)

2. what are you offering?
Offering (O)

3. who are you offering it to?
Customer (C)

4. why do they care?
Value proposition (VP)

5. what are your core competencies?
Core competencies (CO)

Truly distinctive competencies contribute to your capability to add value, and are at the same time:

- valuable and visible to the customer
- rare among solution providers
- superior to those of competitors
- costly for others to imitate

+ substitutes and alternatives (SA)

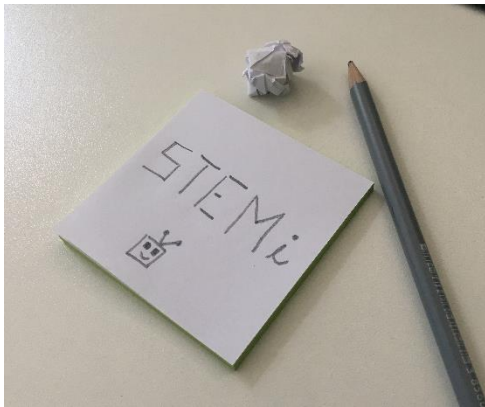
proudly made available under creative commons: by **the innographer**
www.theinnographer.com/toolkit/idea-napkin

Seek the top right corner of this chart:

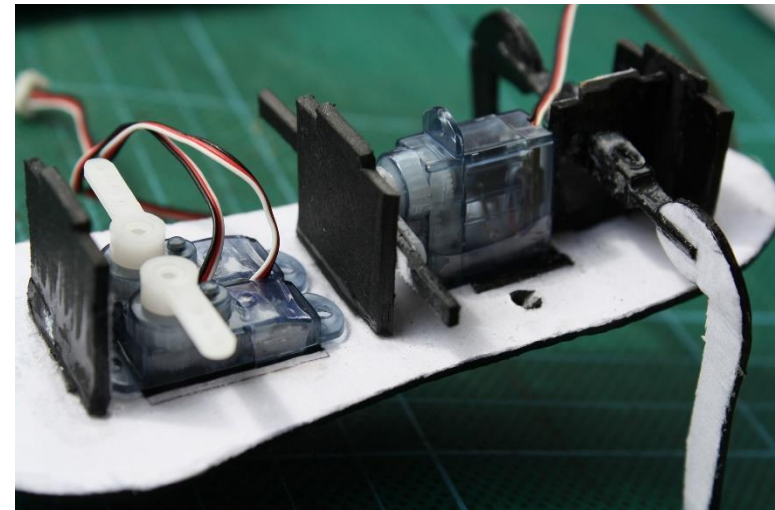
high
impact
feasibility
high



Further elaborating the best idea



A robot assembly kit that creates opportunity for children of all backgrounds to explore the science and engineering (STEAM) subjects.



Prototype



Further exploring the idea

„...you produce work which is grounded in reality, not in assumptions and opinions” TISSD

Activity

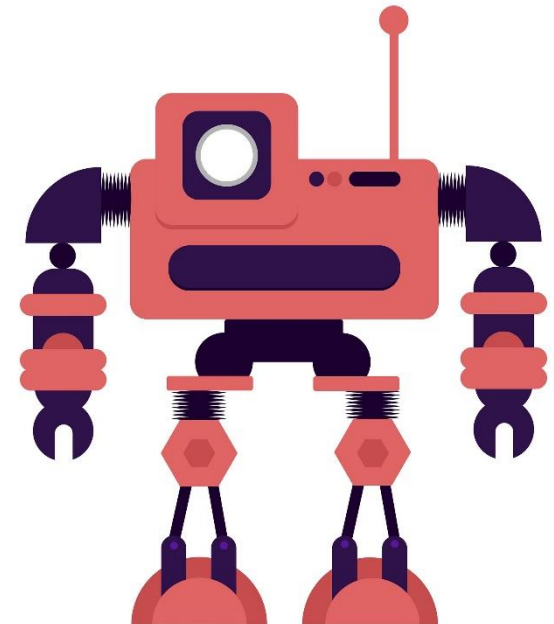
Bring your idea to life!

Goal

Explore, evaluate and communicate the idea.

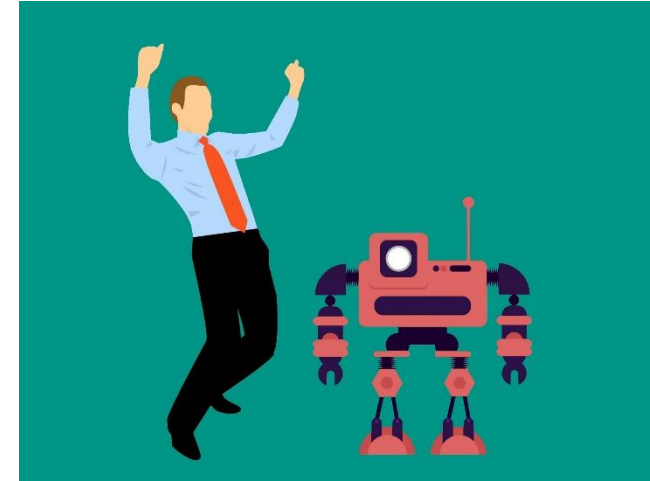
Result

- early prototype / minimum viable product
- deeper understanding and new insights



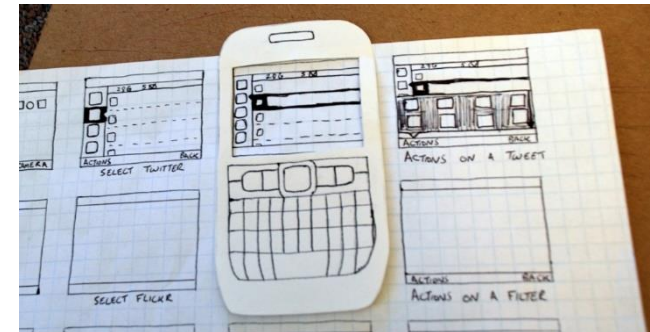
Types of prototype

Physical prototype



Service/interaction prototype

- Person \leftrightarrow Person
- Person \leftrightarrow Technology



Methods: Wizard of Oz, paper prototype, life-sized prototype...





Test



Test your solution with the users

Gather feedback from the user

Reassess the solution

Get back to one of the previous phases



Analyse feedback

What was good/successful?

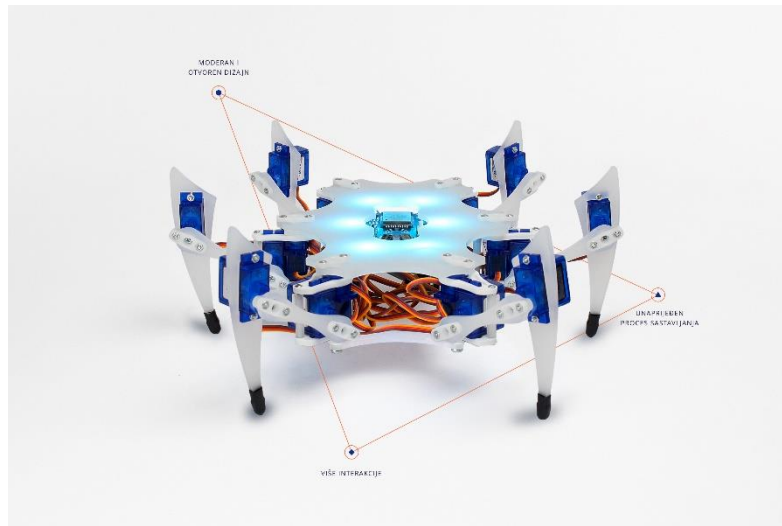
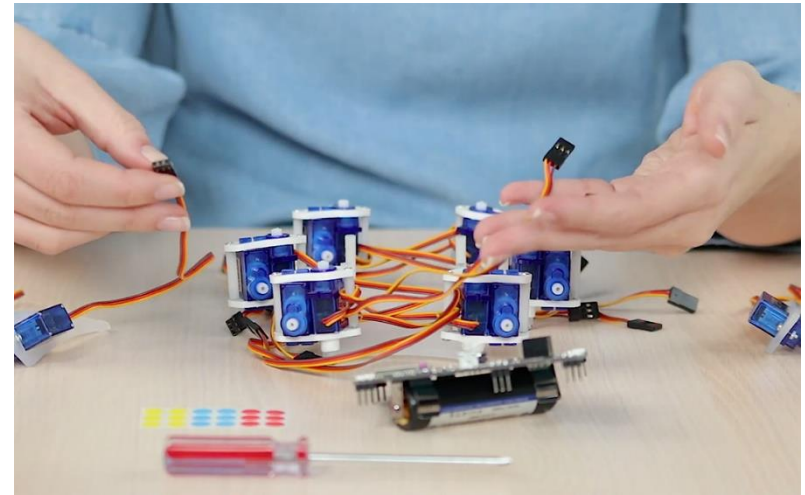
What can be enhanced?

What is not clear/questionable?

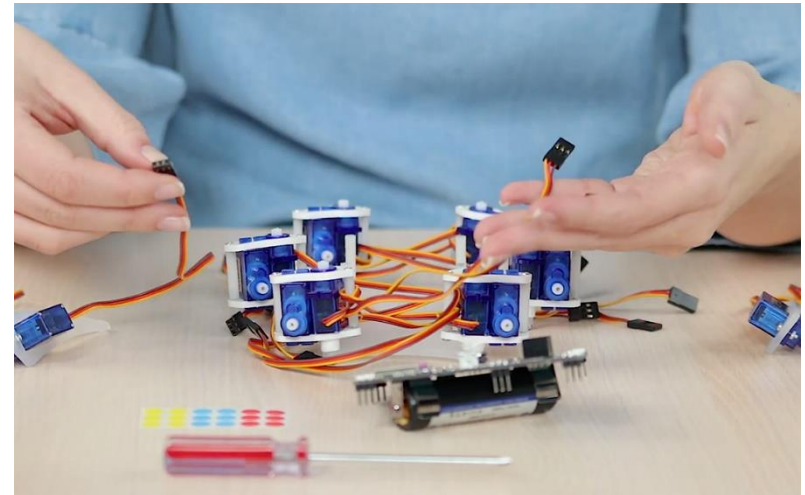
New ideas!



THE SOLUTION



THE SOLUTION



<https://www.stemi.education/>

<https://www.funderbeam.com/syndicate/stemi>



Collaborative methodology revolving around the needs of a certain user.

Encourages multidisciplinary teamwork and visual expression.

Allows quick adaptation to new circumstances and opportunities.

Shortens the time needed for R&D.



THE DESIGN OF THE UX



A user's journey



A user's journey



A user's journey



A user's journey



A Customer's Journey Map

Stages:	Getting information Preparing	Buy Purchase	Deliver	Use Consume	Add-ons Supplements	Maintenance	Disposal
Doing							
Thinking							
Feeling Experience							
Front end Touchpoints							
Back end Infrastructure							
Customer Pains Opportunities							



THE DESIGN OF THE UX



A Customer's Journey with **STEMI** LEARNING BY CREATING

Stages:	Getting information Preparing	Buy Purchase	Deliver	Use Consume	Add-ons Supplements	Maintenance	Disposal
Doing	Asking a friend Searching the web Reading about STEMI	Order online Paying via card Public procurement?	Waiting Unpacking	Reading the manual Learning to code and operate the robot	Video training STEMI Labs app	Spare parts Software update	Dismantle Recycle bin
Thinking	Hmm, this looks cool	Relatively painless	Who those Finally!	Very easy to use I love it It's not easy though I want my effort to be recognized	Some kids want to be even more engaged!	Replacing a part lasts for ages	Are some of these parts reusable?
Feeling Experience	4/5	4/5	3/5	3/5	2/5	3/5	3/5
Front end Touchpoints	Webpage	Webpage Customer service Conf. email	Third party Customer service	The box Customer service	Website Customer service	Website Customer service	Recycle bin
Back end Infrastructure	Admin	Selling dept., acctn., logistics	Logistics dept. Customer service	Customer service	Customer service	Customer service, R&D, logistics...	?
Customer Pains Opportunities			●	●	●	●	●



THE DESIGN OF THE UX



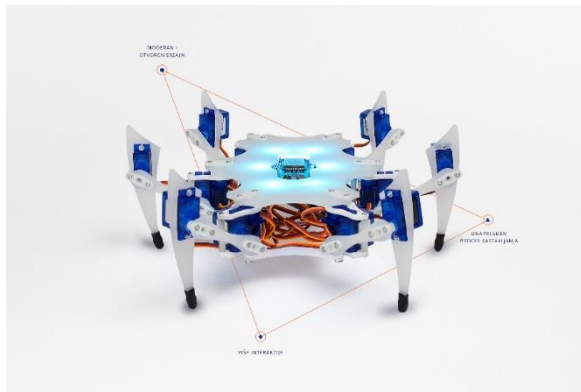
A Customer's Journey with **STEMI** LEARNING BY CREATING

Stages:	Getting information	Buy Purchase	Deliver	Use Consume	Add-ons Supplements	Maintenance	Disposal
Doing	Finding STEMI	Buying a licence	Account + Hardware	Plug&Play Curriculum	Total support		Renew/end the license
Thinking	Hmm, this looks cool	Relatively painless	Finally!	It's not easy though I want my effort to be recognized	Some kids have to be even more engaged!	Replacing a part lasts for ages	Are some of these parts reusable?
Feeling Experience	4/5	4/5	4/5	4/5	4/5	4/5	4/5
Front end Touchpoints	Webpage	Webpage Customer service Conf. email	Third party Customer service	The box Customer service	Website Customer service	Website Customer service	Recycle bin
Back end Infrastructure	Admin	Selling dept., acctnt., logistics	Logistics dept. Customer service	Customer service	Customer service	Customer service, R&D, logistics...	?
Customer Pains Opportunities			●	●	●	●	●



THE DESIGN OF THE UX

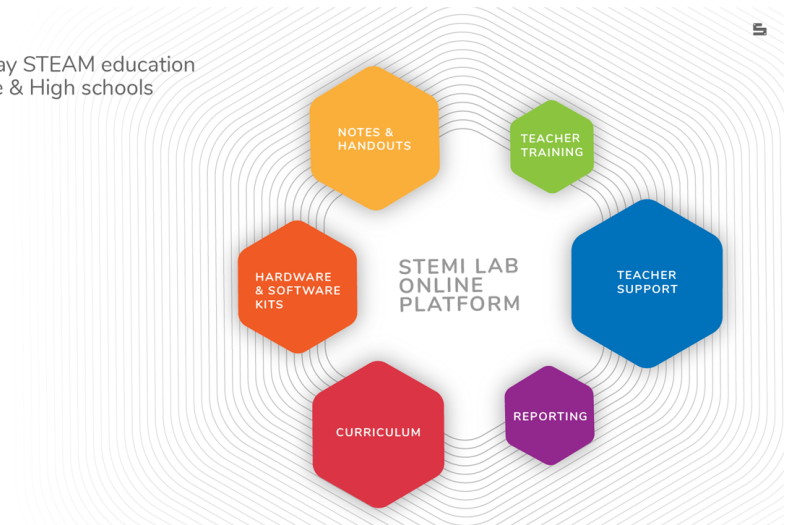
A Customer's Journey with **STEMI** LEARNING BY CREATING



Product



Plug & Play STEAM education
for Middle & High schools



Product-based service
HOLISTIC SOLUTION



THANK YOU FOR YOUR ATTENTION!



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