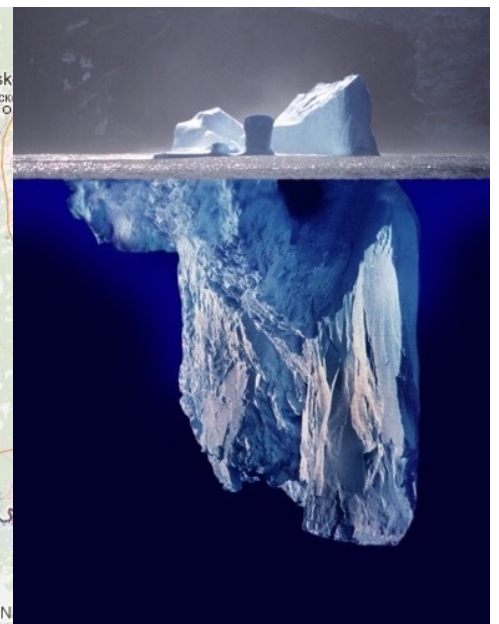
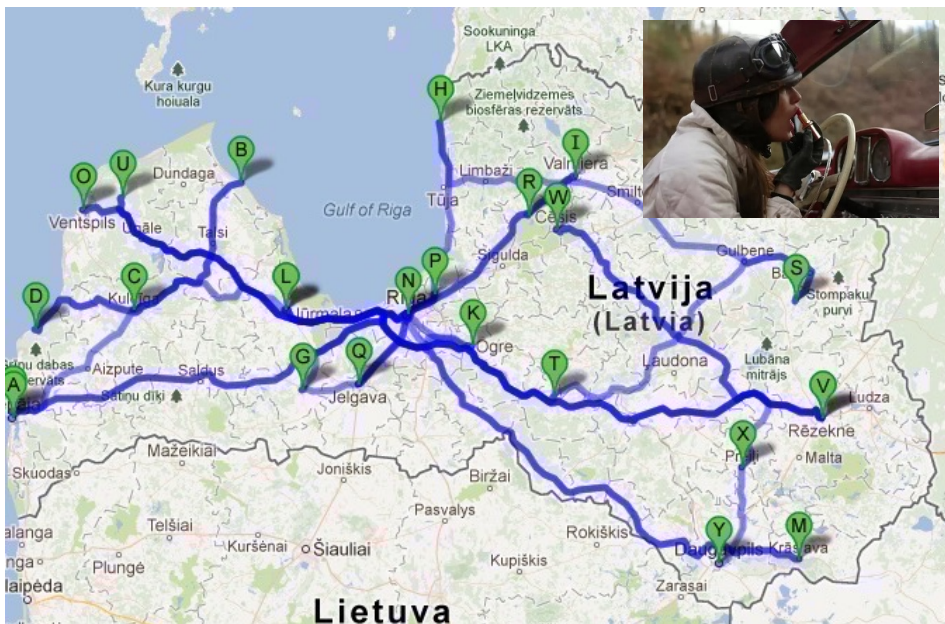




How to come up with good ideas for biotech and natural science startups?

A GOOD starting point



Portfolio: 15 years = event #1783

MISSION



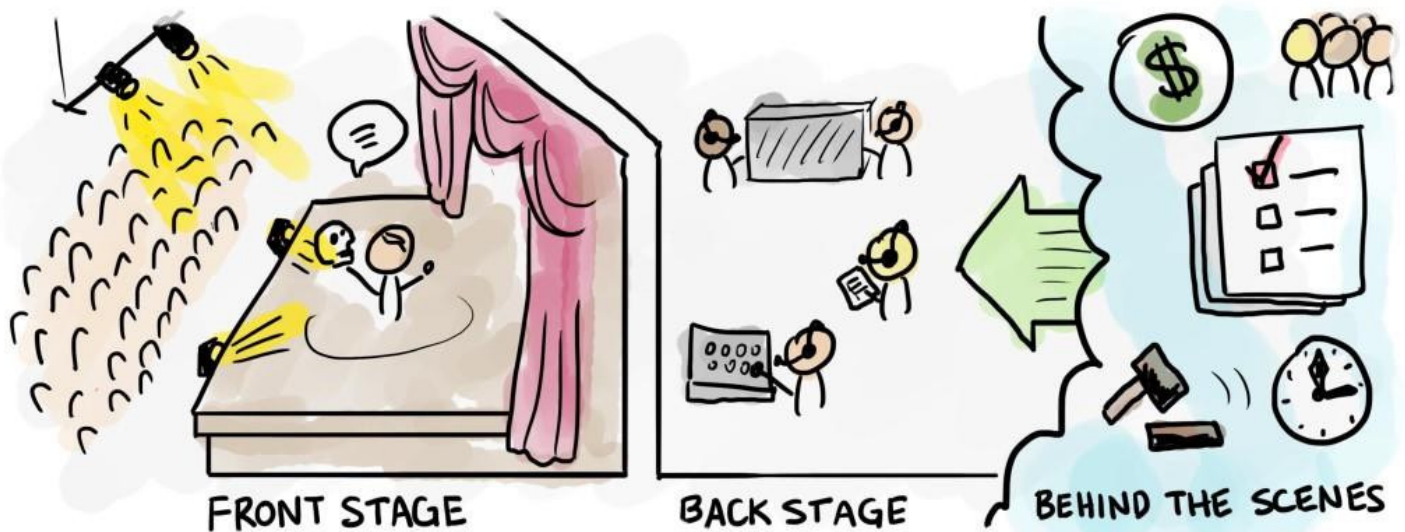
What is a **GOOD** start
for a sustainable
startup:

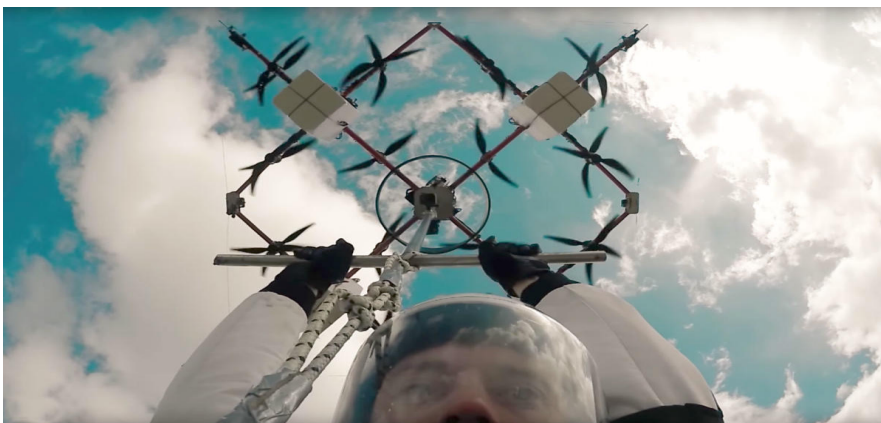
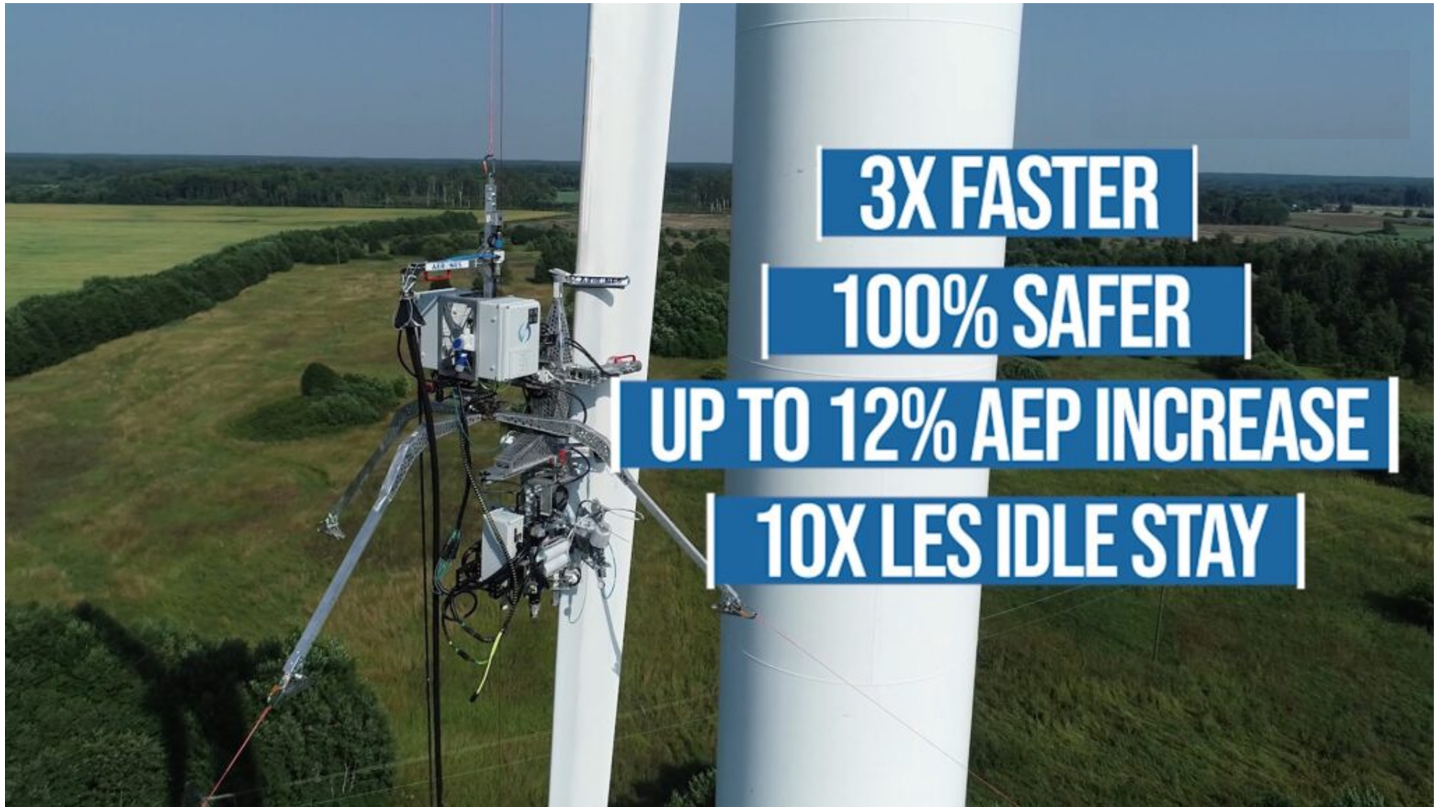
NOVELTY

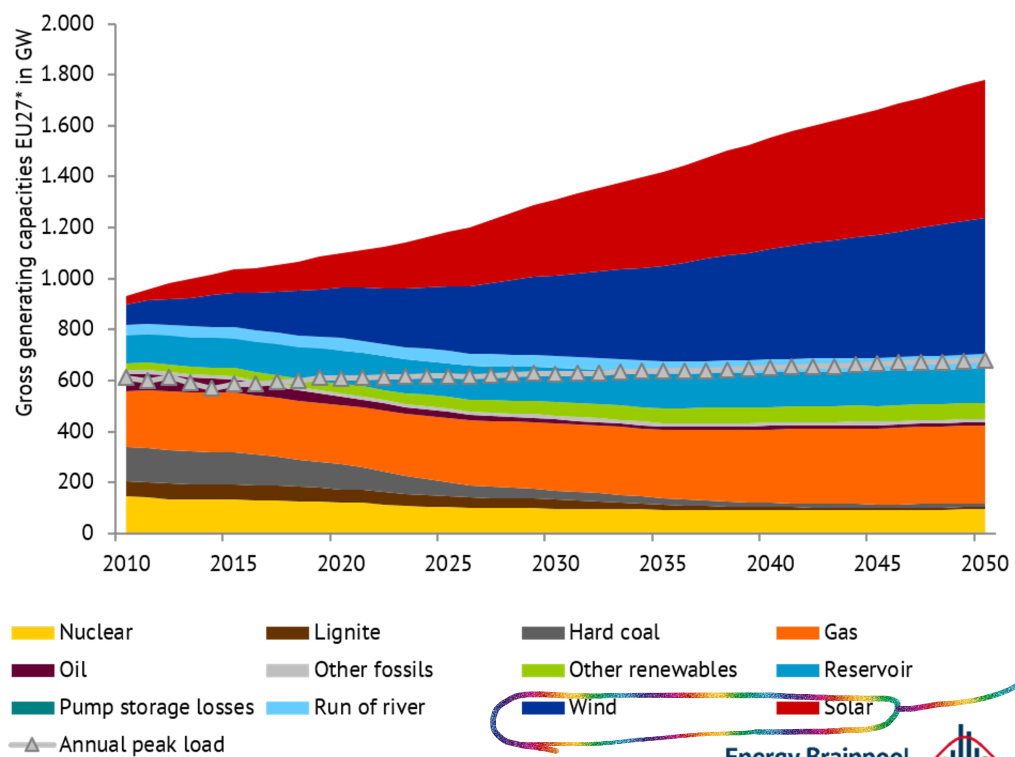
**PROBLEM/
DRAMA**

MARKET

Key question:
How much I focus on **USERS** and how much - on **NOVELTY**?









Founder of Aeronex: if you've gone with your prototype to a customer and you're **not** ashamed, then you've come **too late**.



Sustainable startup

SCIENCE

(invention)



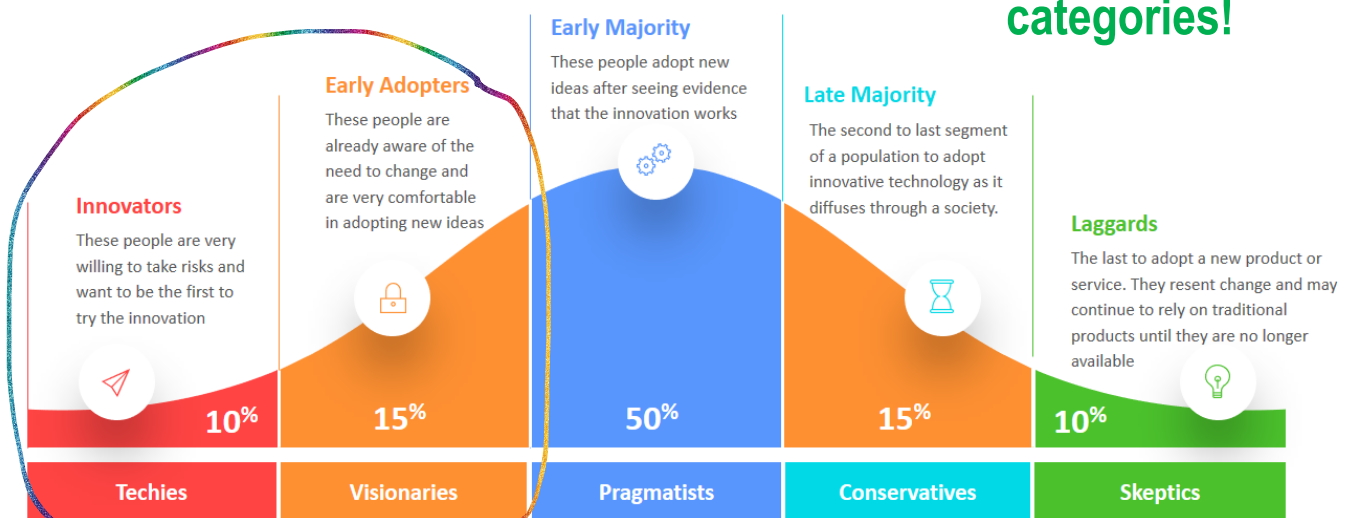
**ENTREPRENEURIAL
SPIRIT**

(income)



DIFFUSION OF INNOVATION MODEL

Your market can be in 5 different categories!





Azeron



Innovation in the gamers' world
 100 working places (Ventspils VIZIUM)
 Export to **90+** countries
 Turnover **2M** EUR (1.5 years)

BOLD MARKET – a segment that I know well
 # **NEED** – evidence of
 # **CHANNELS** - to reach
 # A product based on MY **KNOWLEDGE**



Elements of a **GOOD** customer segment



«gamers»



«pharma» sharks

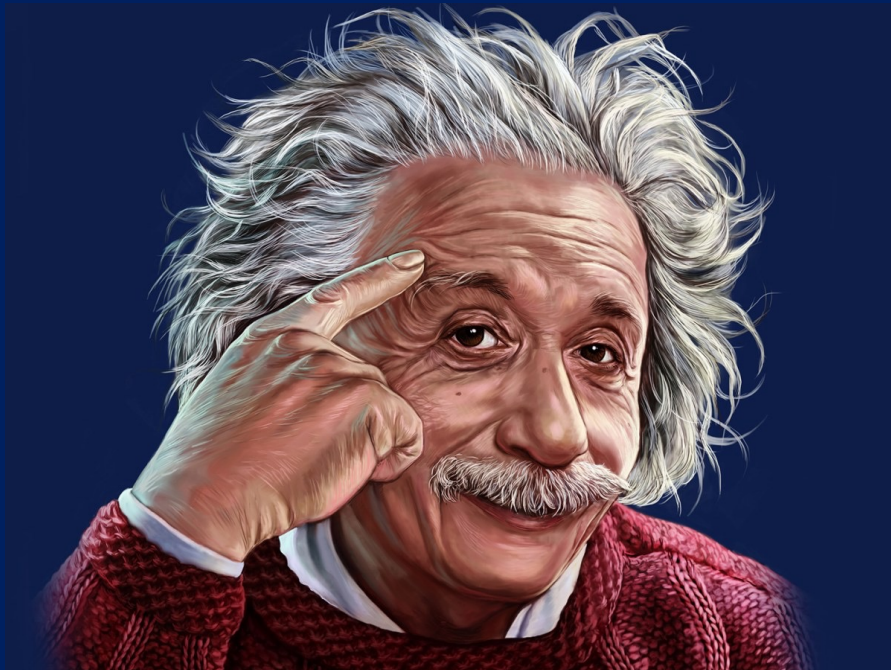


service companies

- growing and **wealthy** profile
- **RECOGNIZES** the need («I really have a problem»)
- is defined and **accessible through different CHANNELS**

Creative Thinking Techniques

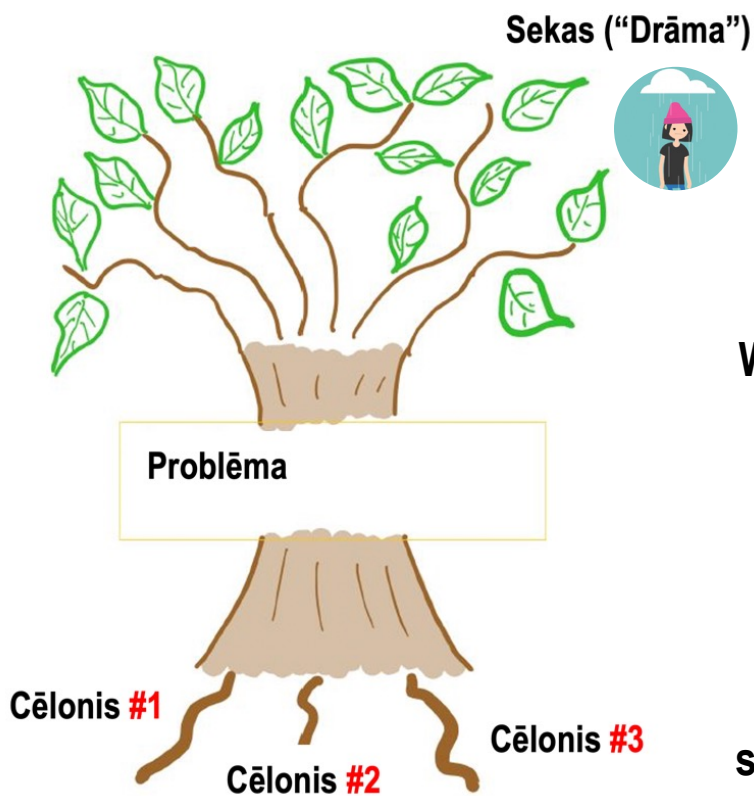
1. **Brick method** (divergent thinking)
2. **5 Why method** (cause of a problem)
3. **Problem – Solution Tree** method (from problem to solution)
4. **TRIZ method** (Genrich Altshuller)
5. **6-3-5 method** (silent brain storm)
6. **«What is a good coffee?»** (ideas based on needs)
7. **SCAMPER** method (7 different aspects)
8. **«Eye» method** (combining concepts)
9. **Orthodox method** (challenging traditional assumptions)
10. **The 6 hats method** (de Bono method)
11. **GOLDEN data** is available to administrator



1 hour

55 minutes

5 minutes



They suffer from the **CONSEQUENCES**.

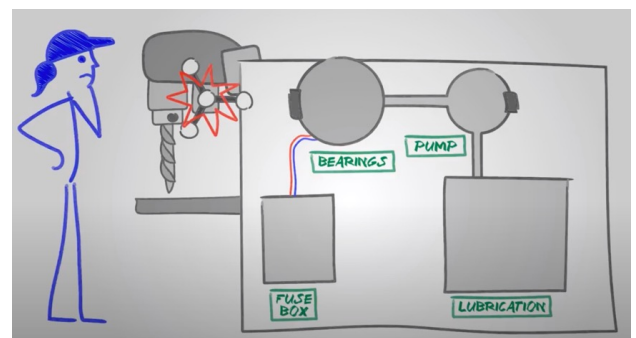
What is the **PROBLEM**?

What **PREVENTED** from solving this problem before?

What were the real **CAUSES** of the problem?

And what are the **NEEDS** so that the causes do not arise?

Taiichi Ohno (Japan)

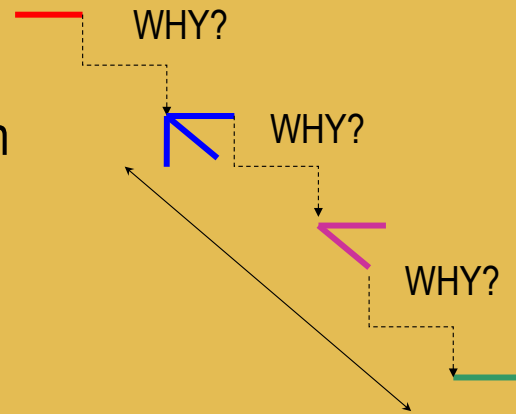


“5Why method”



Realize “**5Why**” approach
to find the cause of a problem

Can we **solve** the cause?

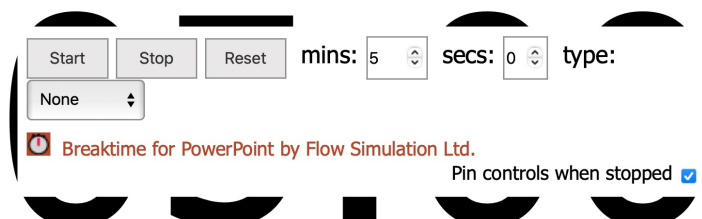


Problem: bad milk in the freezer!



If you want to create a startup,
you are **ALREADY NOW** looking for a good customer segment :

#1 list 6-8 market segments, what YOU KNOW, e.g.:	#2 Your assumption (!) on their specific "drama"	#3 Prioritize
Pharmacy chain		
LVM/ Latvia's State Forests		
X laboratory		
Nature Protection Administration		
Radiation Safety Centre		
X producer		
Food producer		



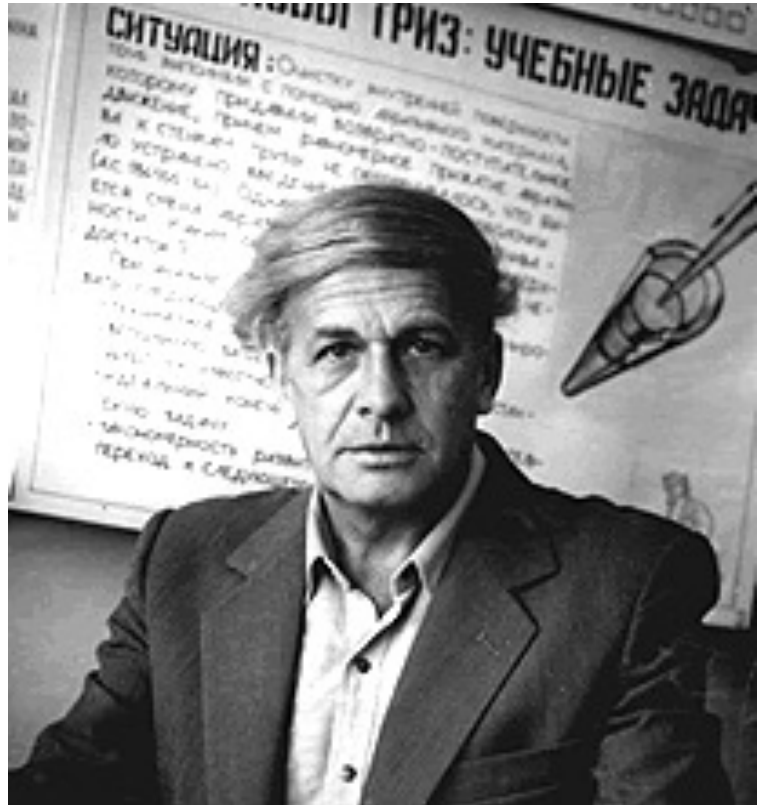
Creative Thinking Techniques

1. **Brick method** (divergent thinking)
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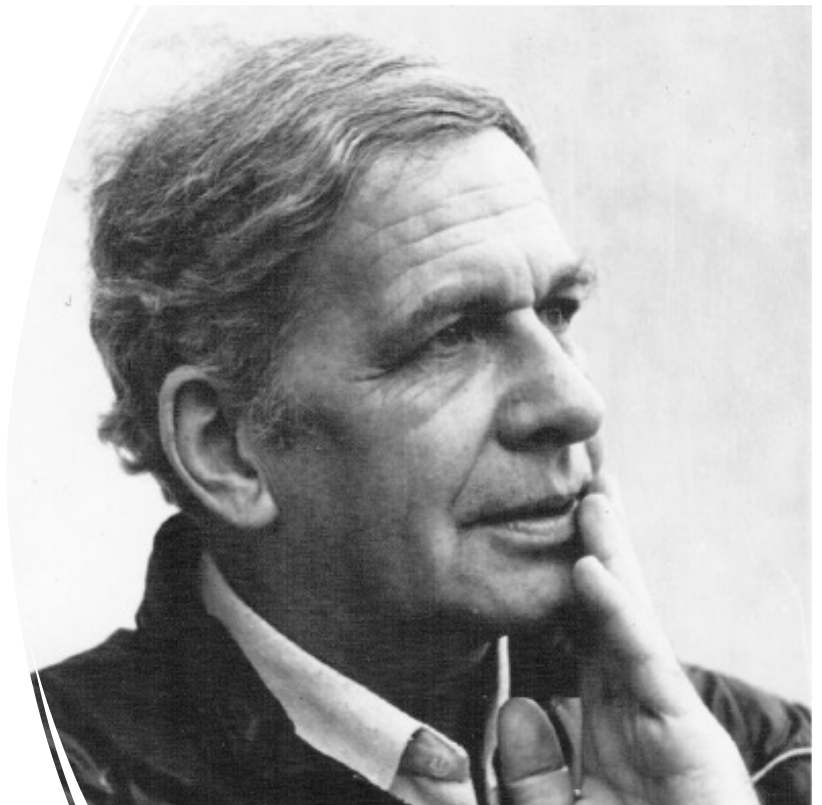
Genrich Altshuller (1926 – 1998)

Soviet engineer, inventor and writer. Remarkable with the development of the problem-solving theory of the invention, better known by the abbreviation TRIZ



Genrich Altshuller

- viewed through more than **1.6 million** patent
- out of 200,000, **only 40,000** were **innovative**
- **Basic principle of TRIZ:** search for analogous existing solutions and apply to your needs



TRIZ method

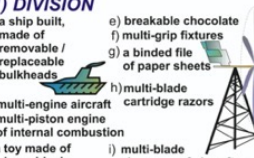


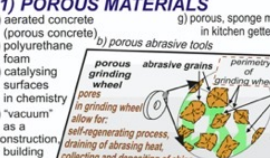
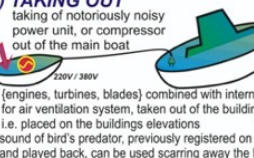
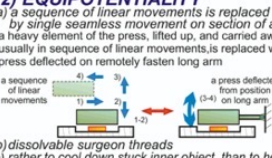

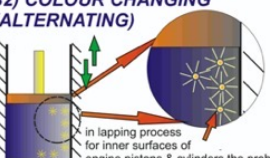
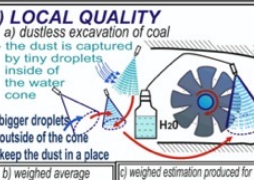
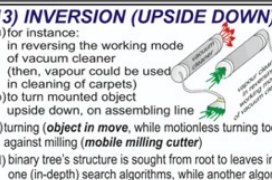
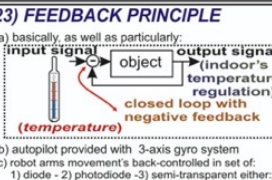
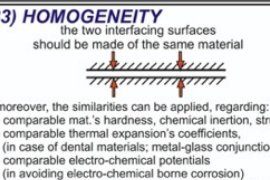
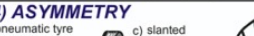


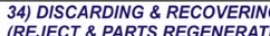
Genrich Altshuller

theory of the resolution of invention-related tasks

теория решения изобретательских задач

A) 40 principles of invention in sketches, rendered into form of vector graphics

B) 40 principles of invention in sketches, rendered into form of vector graphics

<p>01) DIVISION</p> <p>a) a ship built, made of removable / replaceable bulkheads</p> <p>b) multi-engine aircraft</p> <p>c) multi-piston engine of internal combustion</p> <p>d) a toy made of Lego blocks</p> <p>e) breakable chocolate</p> <p>f) multi-grip fixtures</p> <p>g) a binder file of paper sheets</p> <p>h) multi-blade cartridge razors</p> <p>i) multi-blade airscrews of aircrafts, or wind power-plants</p> 	<p>11) BEFOREHAND CUSHIONING</p> <p>a) for instance: a method of "dressing" of the cut tree branches</p> <p>(this action actually forces a tree to beforehand reaction, to gather healing substances)</p> <p>b) driver's airbag</p> <p>c) masking of the chosen elements, within patches on the object, before its painting</p> <p>d) gathering crops in summer and autumn seasons, while preparing for winter harsh weather conditions</p> 	<p>21) SKIPPING, QUICK MODE, OR PACE OF REALIZATION</p> <p>a) wood-borne materials in quick thermal processing</p> <p>b) laser treatments of biological tissues or in processing of hardy processed materials (both extremely soft and extremely hard)</p> <p>c) pico-second pulsed lasers (femto-second lasers) against laser of micro- and nano-seconds pulses (various materials virtually have been vapoured, while treated with pico-second pulsed laser beam of energy)</p> <p>d) steel hardening process in abrupt temperatures changes</p> 	<p>31) POROUS MATERIALS</p> <p>a) aerated concrete (porous concrete)</p> <p>b) polyurethane foam</p> <p>c) catalysing surfaces in chemistry</p> <p>d) "vacuum" as a "construction building material"</p> <p>e) openwork structures reinforcements</p> <p>f) porous, sponge materials in kitchen getters</p> <p>g) porous, sponge materials in kitchen getters</p> 
<p>02) TAKING OUT</p> <p>a) taking of notoriously noisy power unit, or compressor out of the main boat</p> <p>b) (engines, turbines, blades) combined with internal ducts for air ventilation system, taken out of the building, i.e. placed on the buildings elevations</p> <p>c) sound of bird's predator, previously registered on a tape, and played back, can be used scaring away the birds, notoriously flying near or around the airports</p> 	<p>12) EQUIPOTENTIALITY</p> <p>a) a sequence of linear movements is replaced by single seamless movement on section of arc</p> <p>b) dissolvable surgeon threads</p> <p>c) rather to cool down stuck inner object, than to heat up other bigger outer object, which seizes the former one</p> 	<p>22) "BLESSING IN DISGUISE" (CONVERT HARM INTO BENEFIT)</p> <p>a) burning out, main fire of the main fire, to cut of fire's fuel</p> <p>b) burning out, inside/outside of the blazings</p> <p>c) permafrost materials are to be "treated" with liquid nitrogen</p> 	<p>32) COLOUR CHANGING (ALTERNATING)</p> <p>a) in lapping process for inner surfaces of engine pistons & cylinders, the probing of phosphorescence distribution can be used</p> 
<p>03) LOCAL QUALITY</p> <p>a) dustless excavation of coal - the dust is captured by tiny droplets inside of the water cone</p> <p>b) bigger droplets outside of the cone keep the dust in a place</p> <p>c) weighed estimation produced for rankings of computers, printers, etc.</p> 	<p>13) INVERSION (UPSIDE DOWN)</p> <p>a) for instance: in reversing the working mode of vacuum cleaner (then, vapour could be used in cleaning of carpets)</p> <p>b) to turn mounted object upside down, on assembling line</p> <p>c) turning (object in move, while motionless turning tool), against milling (mobile milling cutter)</p> <p>d) binary tree's structure is sought from root to leaves in one (in-depth) search algorithms, while another algorithm seeks through nodes from leaves to root</p> 	<p>23) FEEDBACK PRINCIPLE</p> <p>a) basically, as well as particularly: input signal -> object -> output signal (indoor's temperature regulation)</p> <p>b) autopilot provided with 3-axis gyro system</p> <p>c) robot arms movement's back-controlled in set of: 1) diode - 2) photodiode - 3) semi-transparent either: protractor, or: linear scale - placed in between</p> 	<p>33) HOMOGENEITY</p> <p>a) the two interfacing surfaces should be made of the same material</p> <p>moreover, the similarities can be applied, regarding:</p> <ul style="list-style-type: none"> - comparable mat.'s hardness, chemical inertion, structures, - comparable thermal expansion's coefficients, (in case of dental materials; metal-glass conjunctions), - comparable electro-chemical potentials (in avoiding electro-chemical borne corrosion) - same fatigue characteristics, and amortization specifics 
<p>04) ASYMMETRY</p> <p>a) pneumatic tyre asymmetrically</p> <p>b) slanted concrete</p> 	<p>14) SPHEROIDALITY, CURVATURES</p> <p>a) applications of: b) replacement of linear movements</p> 	<p>24) INTERMEDIATE MEANS, "FITTING" PRINCIPLE</p> 	<p>34) DISCARDING & RECOVERING, (REJECT & PARTS REGENERATION)</p> 

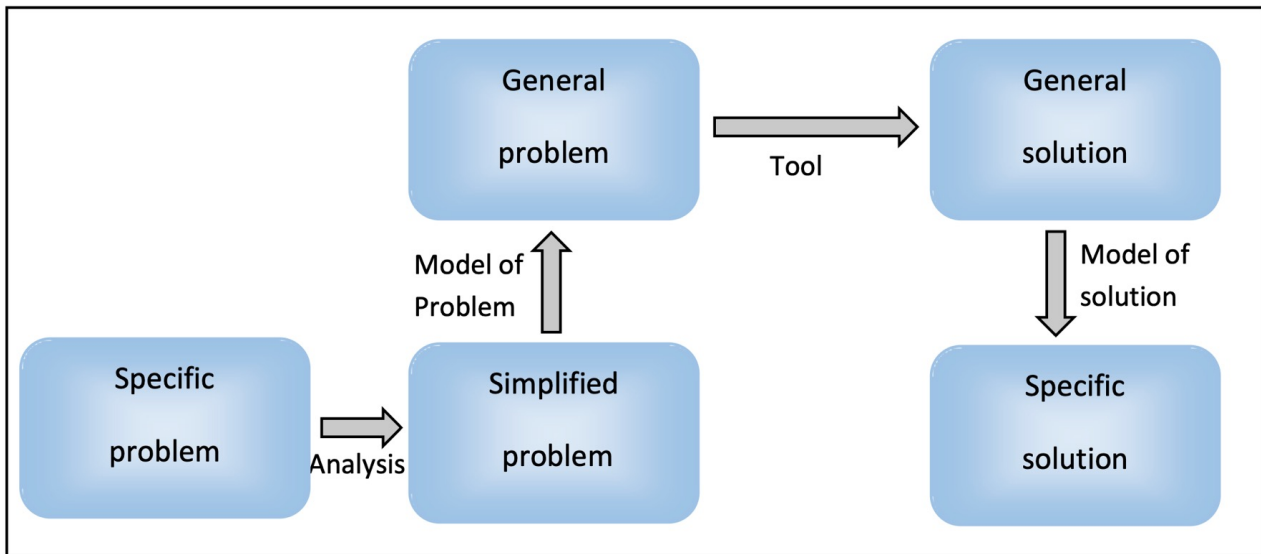
1. Segmentation	21. Skipping
2. Taking out	22. Blessing in disguise
3. Local quality	23. Feedback
4. Asymmetry	24. Intermediary
5. Merging	25. Self-service
6. Universality	26. Copying
7. Russian dolls	27. Cheap short-lived objects
8. Anti-weight	28. Mechanics substitution
9. Preliminary anti-action	29. Pneumatics and hydraulics
10. Preliminary action	30. Flexible shells and thin films
11. Beforehand cushioning	31. Porous materials
12. Equipotentiality	32. Colour changes
13. "The other way round"	33. Homogeneity
14. Spheroidality - Curvature	34. Discarding and recovering
15. Dynamics	35. Parameter changes
16. Partial or excessive actions	36. Phase transitions
17. Another dimension	37. Thermal expansion
18. Mechanical vibration	38. Strong oxidants
19. Periodic action	39. Inert atmosphere
20. Continuity of useful action Module	40. Composite materials

Light

approach

Fundamental approach

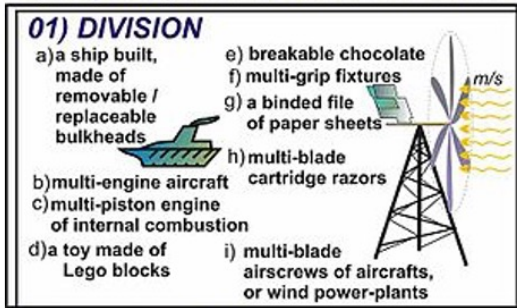
Fundamental version



		<div> <div>Worsening Feature</div> <div>Improving Feature</div> </div>							
		Weight of moving object	Weight of stationary object	Length of moving object	Length of stationary object	Area of moving object	Area of stationary object	Volume of moving object	Volume of stationary object
		1	2	3	4	5	6	7	8
1	Weight of moving object	+	-	15, 8, 29, 34	-	29, 17, 38, 34	-	29, 2, 40, 28	-
2	Weight of stationary object	-	+	-	10, 1, 29, 35	-	35, 30, 13, 2	-	5, 35, 14, 2
3	Length of moving object	8, 15, 29, 34	-	+	-	15, 17, 4	-	7, 17, 4, 35	-
4	Length of stationary object		35, 28, 40, 29	-	+	-	17, 7, 10, 40	-	35, 8, 2, 14
5	Area of moving object	2, 17, 29, 4	-	14, 15, 18, 4	-	+	-	7, 14, 17, 4	
6	Area of stationary object	-	30, 2, 14, 18	-	26, 7, 9, 39	-	+	-	

Light version





Ship **compartments** (not to sink)
Breakable Chocolate (Equality)
 Aircraft engines (**balance**)



What can be divided into several parts to reduce queues after the theater in the wardrobe?

Divided into zones by color codes

Solution by TRIZ



Ramos alarm clock



Ramos alarm clock

Funded! This project successfully raised its funding goal on Apr 1, 2012.



525

backers

\$153,585

pledged of \$75,000 goal

0

seconds to go

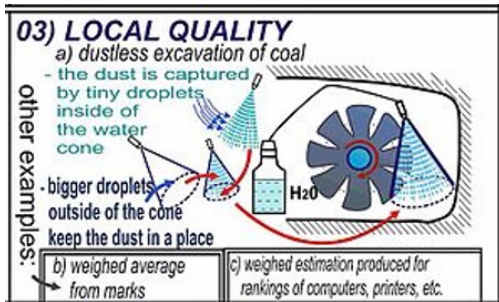
Funding period

Feb 14, 2012 - Apr 1, 2012 (46 days)



Project by

Paul Sammut

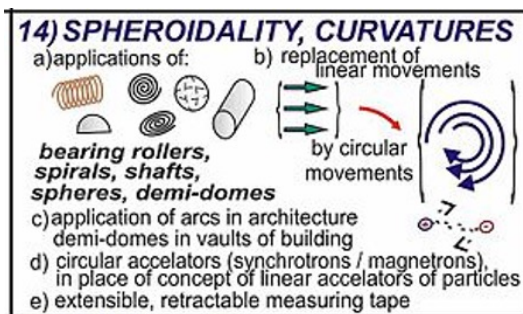


In drilling works – a heated drill bit
In dentistry – tooth cooling



Which element should be of "super quality", can reduce queues after the theater in the wardrobe?

Offer "collective"/family hooks



Measuring tape

Arches as a construction technology

"Revolvertype" parking lots



How can replacing LINEAR with SPHERICAL or CURVATURE reduce post-theatre wardrobe queues?

Sliding wardrobe (like suitcases at the airport)

05) MERGING

- a) several computers combined into functioning network
- b) a hedge made of pales
- c) textiles made of wool/poliestre/cotton fibres
- d) roofing tiles combined into coverage of house roof
- e) mobile concrete mixer, mobile crane, refridgerator, merged into single mobile machine unit, combining of the stationary machines with mobile undercarriages



Cryptocurrency farms
Mobile construction crane
Tiles with integrated PV

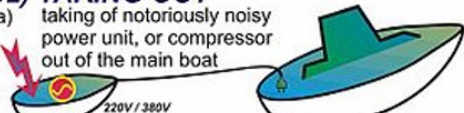
How can issue be solved by
MERGING?

Visitors give 2 keys at once



02) TAKING OUT

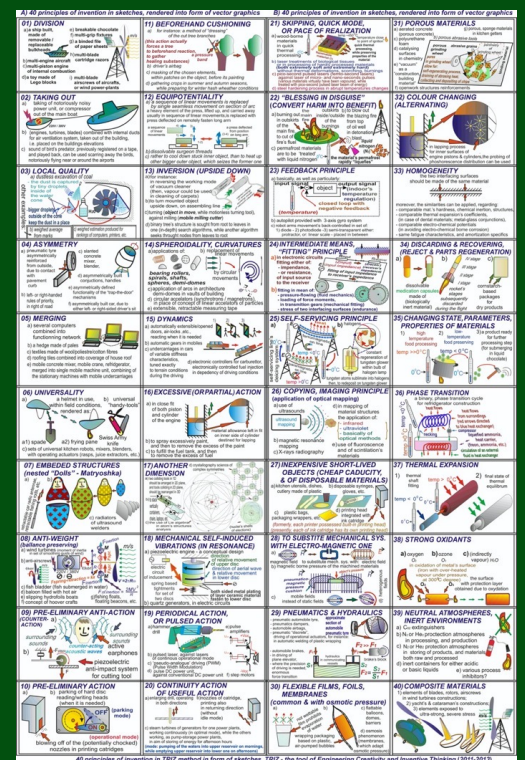
- a) taking of notoriously noisy power unit, or compressor out of the main boat
- b) {engines, turbines, blades} combined with internal ducts for air ventilation system, taken out of the building, i.e. placed on the buildings elevations
- c) sound of bird's predator, previously registered on a tape, and played back, can be used scarring away the birds, notoriously flying near or around the airports



Loud air conditioner = “remove” the
loud part/ put it on the street



How can we reduce queues by
TAKING OUT?



Hidden needs



Which process
is more enjoyable?



Who would be willing
to **BUY** this product and **WHY**?

Data Analytics

Machine vision technology



online IMPACT monitoring of CO₂ emissions in the company



Target 2025: -15%



Classification of customer needs

- Easy to express
- **Widely known and understood**
- Most likely already satisfied

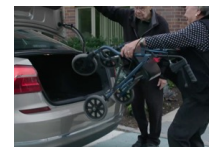
Expressed



Stable support - rollator

- Easy to express
- **Challenging to solve**
- Not completely satisfied

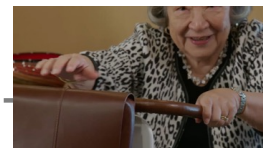
Unfilled



Compact

- **It's hard to express**
- **Not widely understood**
- Not satisfied/ resolved

Hidden



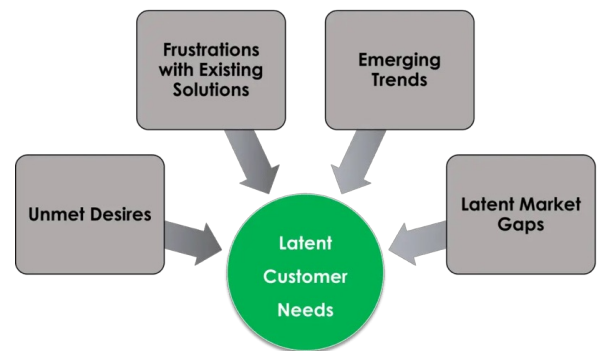
Style



Improving
the quality of life:
can we do it?



Other examples



- # Quality of Life
- # Productivity (digital twins)
- # UX (XR)
- # Usability ("Cut & Paste"; Zoom in/out)
- # Comfort (microwave oven)

“Based on true story”:
designing the product for a
GOOD customer segment

Target audience #1:
Professionals in
dog-assisted (Canis) therapy

Target audience #2:
Owners of dogs



Canis-therapists is a GOOD segment because..



- # (entrepreneur's) **MINDSET** (profit max)
- # interested in his **PRODUCTIVITY**
- # **GROWING** market (how do we know?)
- # identifiable and **REACHABLE**
- # we know some **TO INTERVIEW**



13 interviews:

professionals
and
dog owners

Target audience **#1**:
Dog-assisted (Canis) therapy **professionals**



#1 CHALLENGE & EMPATHIZE:
What is a GOOD canis-therapy process?

Treatment session

Equipment

Well-being of a dog

Complaints

Improvements

DATA mining sources for product development

#1 Tet-a-tet



#2 Experts



#3 Observation



#4 «Field work»



#5 Surveys



#6 WWW

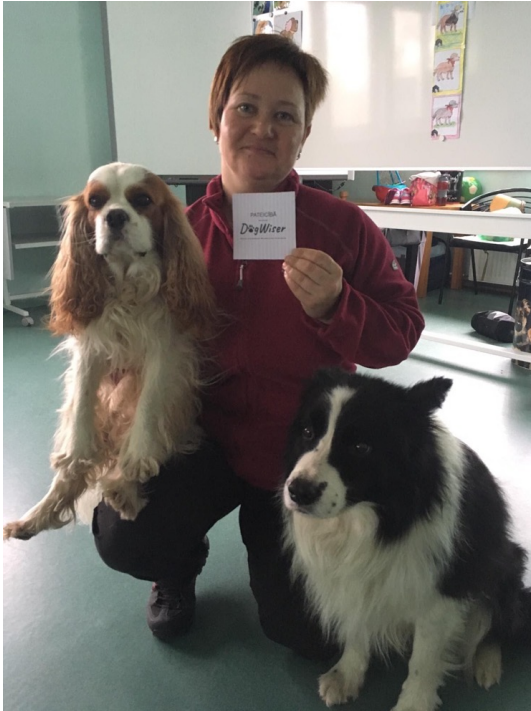


#7 Focus groups



“There are many
beautiful flowers in the meadow”





#2 DEFINE:
WHAT we will FOCUS on?

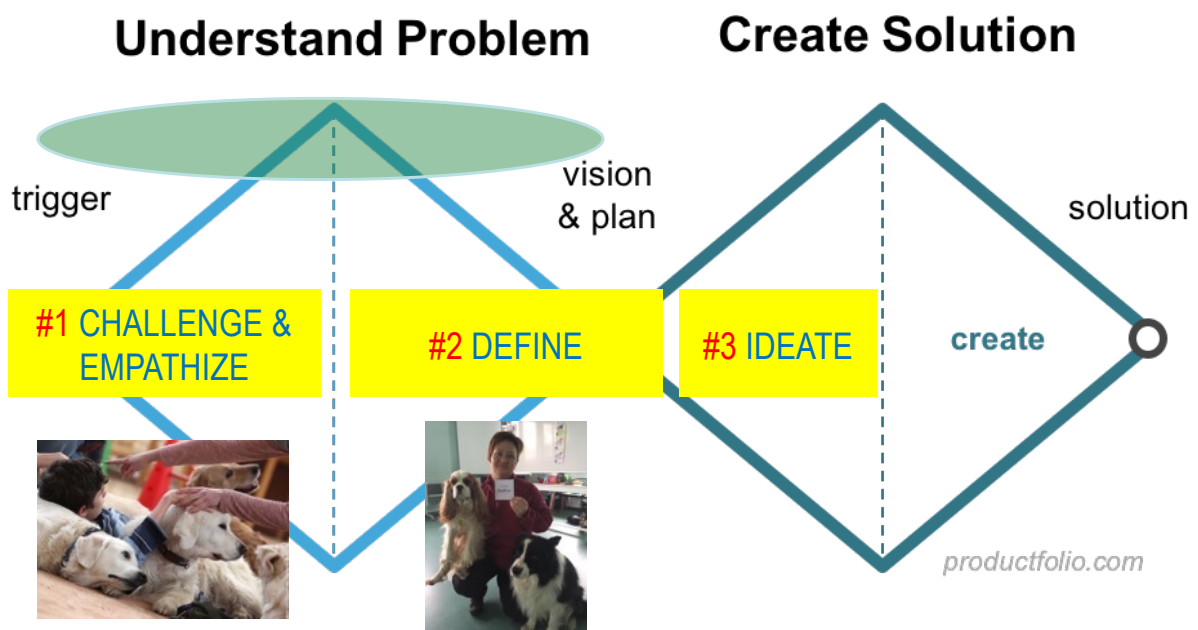
Challenge #1

a universal canis-therapy accessories set

Challenge #2

Digital monitoring system

Double Diamond design (by British Design Council)



Creative Thinking Techniques

1. **Brick method** (divergent thinking)
2. **5 Why method** (cause of a problem)
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Nr.2

MAGNĒTISKO FORMU KOMPLEKTS

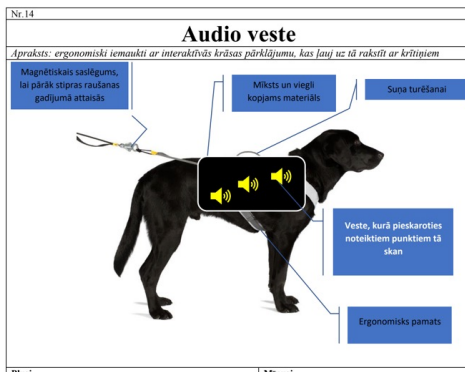
Apraksts: materiāls apmācībām ar suni, lai mācītos formas un krāsas. Papildināts esošais produkts ar magnētisku elementu, lai pa stipru pavelkot, forma attaisītos un netraumētu suni (šobrīd risinājumi traumē suni). Dažādas formas tiek liktas sunim uz kakla.

Pamatformas, pamatkrāsās, viegli kopjams plānais finieris

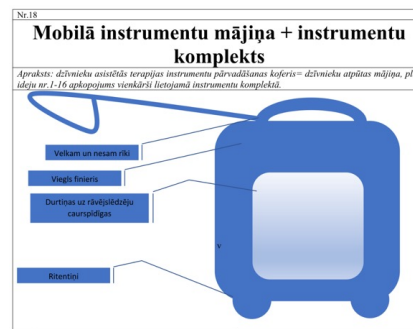
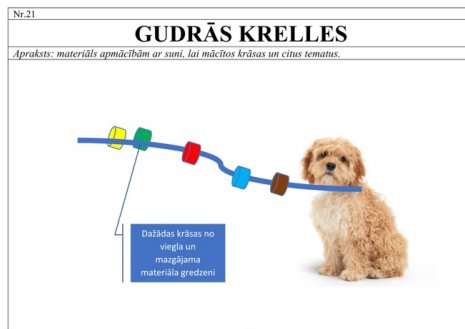
Magnēti, lai netraumētu suni, nepareizas darbības

Dažādas formas, dažādās krāsās

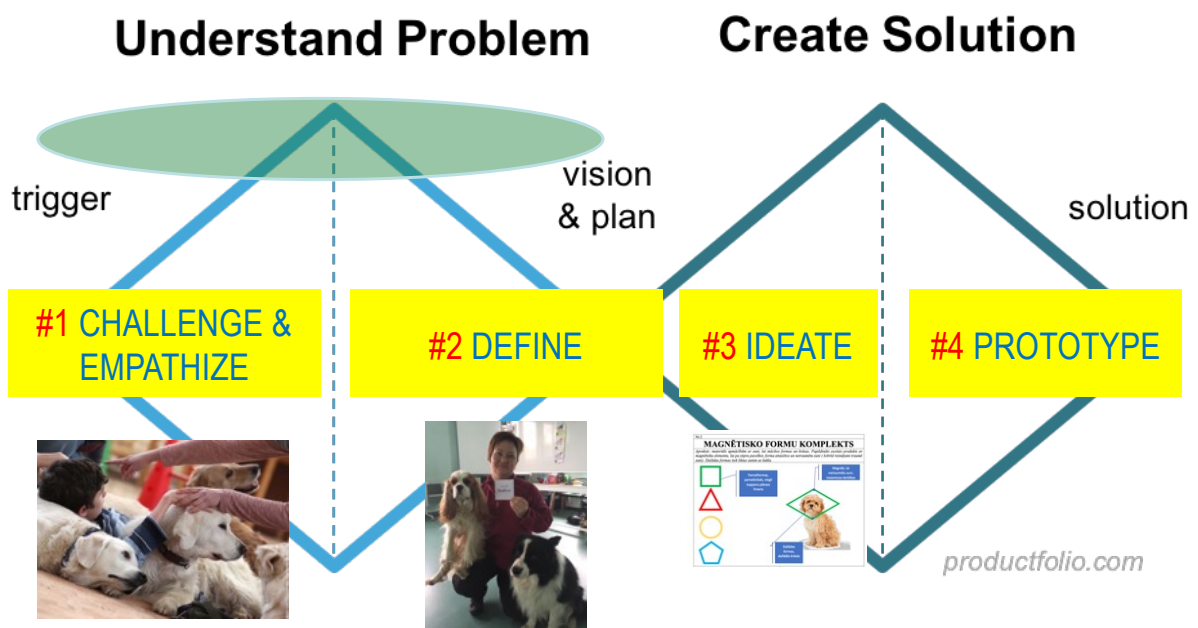
#3 IDEATE:
idea generation
(28 sketches)



#3 IDEATE:
idea generation
(28 sketches)



Double Diamond design (by British Design Council)



No client ** (buyer) – no business



** Client defines the value proposition, not entrepreneur!



#4 PROTOTYPING:

15 products



DogWiser



Product: Toolbox for canis-therapy professionals
(and their dogs, of course)



Biedrība ZINIS

SĀKUMS

PAR MUMS

PROJEKTI

AKTIVITĀTES 2024



Februāris, 2024

- 01.02. Vieslekcija biotehnoloģiju zinātnu studentiem **Rīgā**
- 06.02. Vieslekcijas vadīšana Talsu 2.vsk skolēniem **tiešsaistē**
- 08.02. Digitalizācijas treniņa vadīšana **Rīgā**
- 12.02. Pieredzes apmaiņas vizīte **Gdiņā (Polija)**
- 13.02. Pieredzes apmaiņas vizīte **Gdiņā (Polija)**
- 14.02. Pieredzes apmaiņas vizīte **Gdiņā (Polija)**
- 15.02. Pieredzes apmaiņas vizīte **Gdiņā (Polija)**
- 16.02. Pieredzes apmaiņas vizīte **Gdiņā (Polija)**
- 20.02. Vieslekcijas vadīšana Talsu 2.vsk skolēniem **tiešsaistē**
- 21.02. Vieslekcijas vadīšana skolēniem **Ādažu vidusskolā**
- 22.02. Digitalizācijas treniņa vadīšana **Rīgā**
- 26.02. Noslēguma konferences vadīšana pedagogiem **Rīgā**
- 28.02. Pasākuma vadīšana plānošanas reģiona speciālistiem **Rīgā**
- 28.02. Vieslekcijas vadīšana skolēniem **Ādažu vidusskolā**

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**IF YOU WERE THIS
WAITING FOR
A SIGN IS IT**

