Nucleate Baltics

RĪGAS TEHNISKĀ UNIVERSITĀTE

biedrība ZINIS

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

 # A GOOD starting point

Portfolio: 15 years = event **#1783**

MISSION

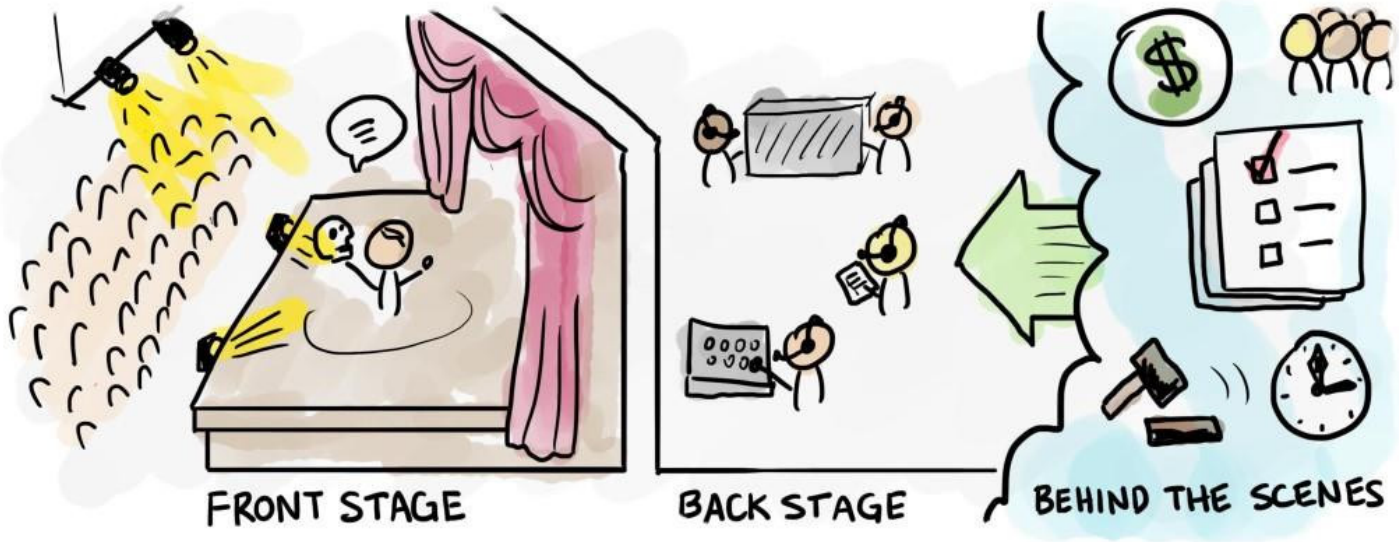
What is a GOOD start for a sustainable startup:

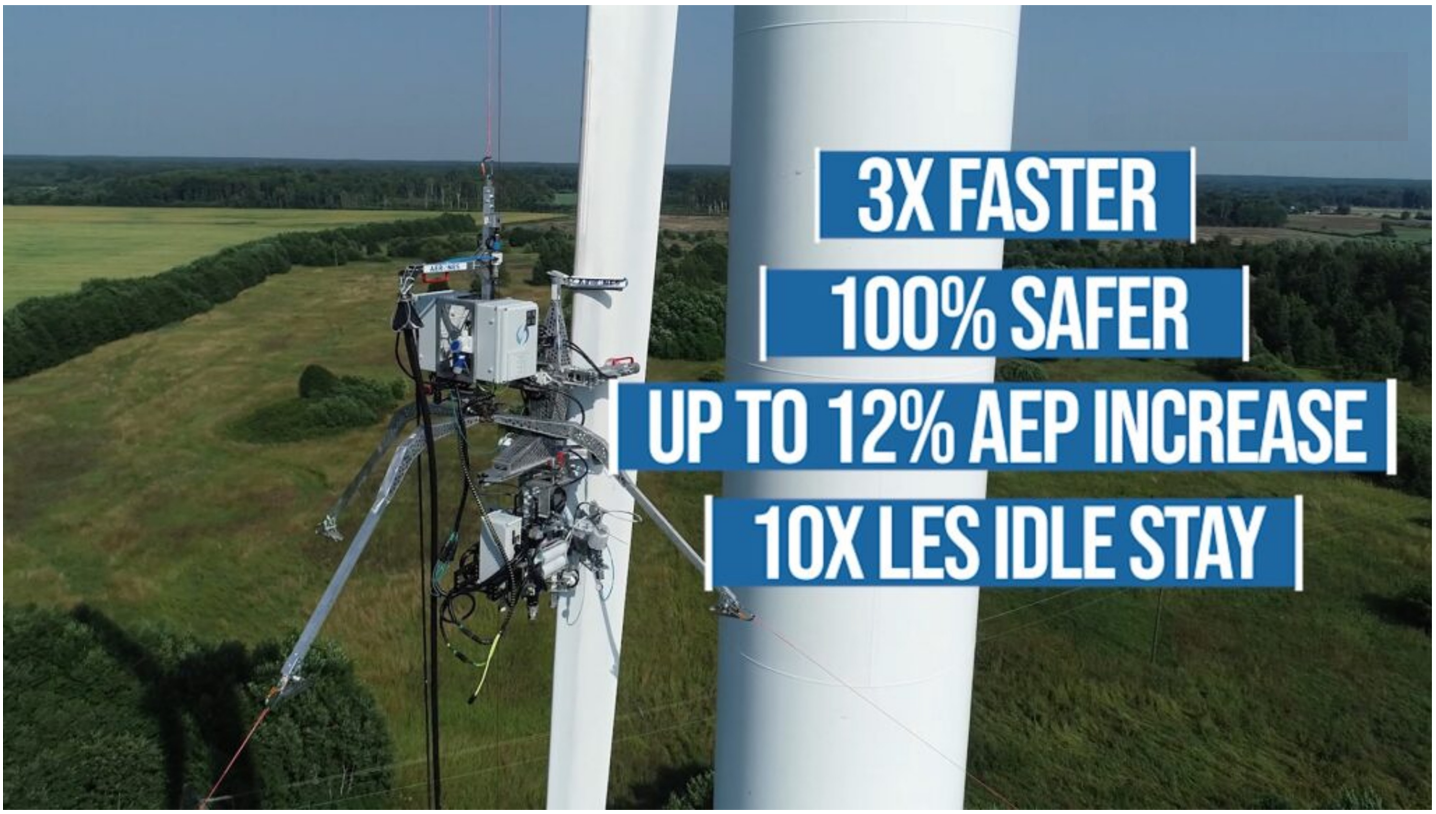
NOVELTY

PROBLEM/ DRAMA

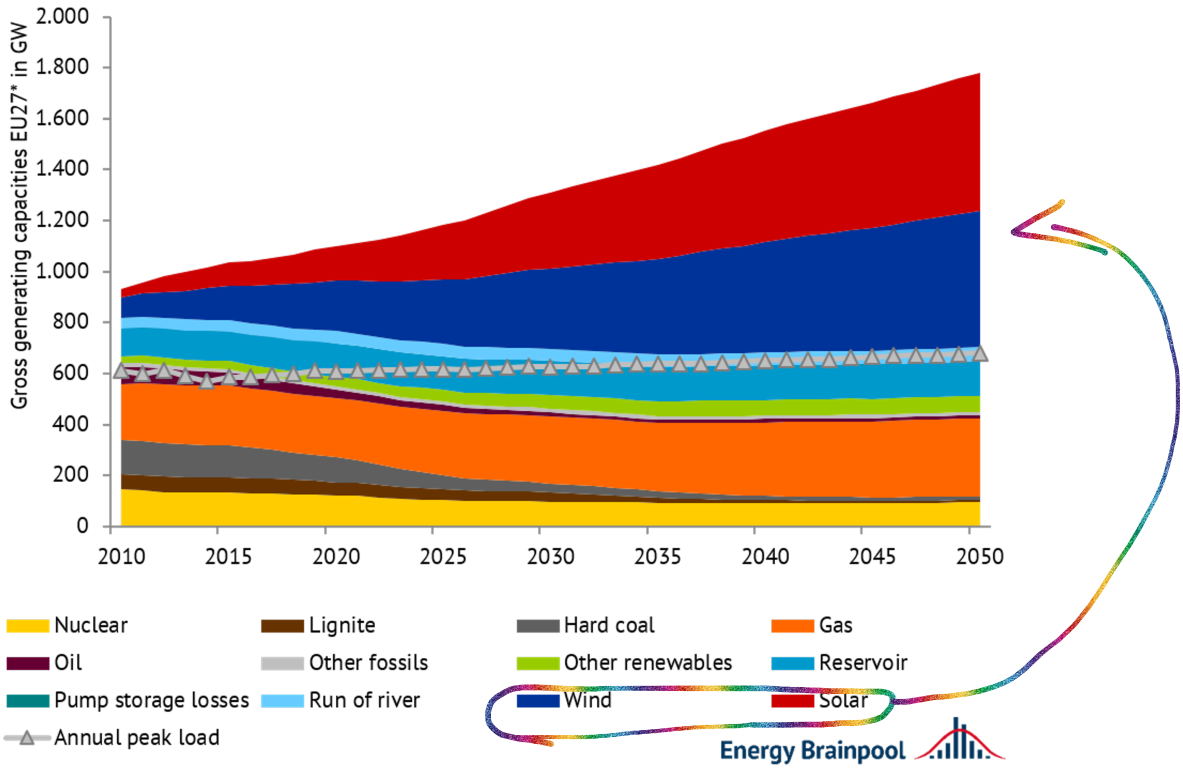
MARKET

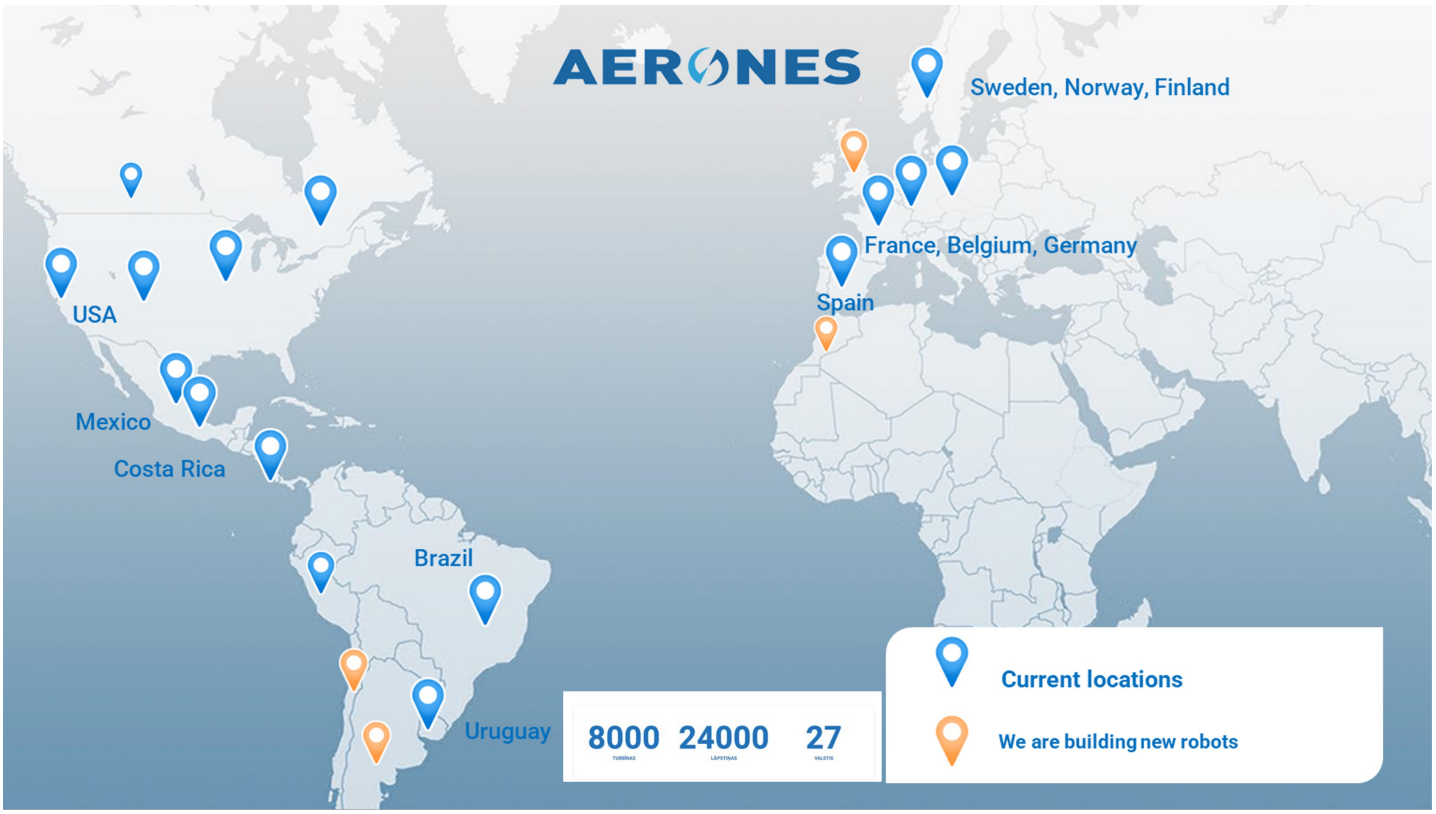
Key question:
How much I focus on USERS and how much - on NOVELTY?





AERONES


Gross generating capacities EU27* in GW
2.000
1.800
1.600
1.400
1.200
1.000
800
600
400
200
0
2010
2015
2020
2025
2030
2035
2040
2045
2050
Nuclear
Lignite
Hard coal
Gas
Oil
Other fossils
Other renewables
Reservoir
Pump storage losses
Run of river
Wind
Solar
Annual peak load
Energy Brainpool


AERONES
Sweden, Norway, Finland
France, Belgium, Germany
Spain
USA
Mexico
Costa Rica
Brazil
Uruguay
8000
24000
27
Current locations
We are building new robots

“There's a way to do it better.
Find it.“
- Thomas Edison -

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

Sustainable startup

SCIENCE

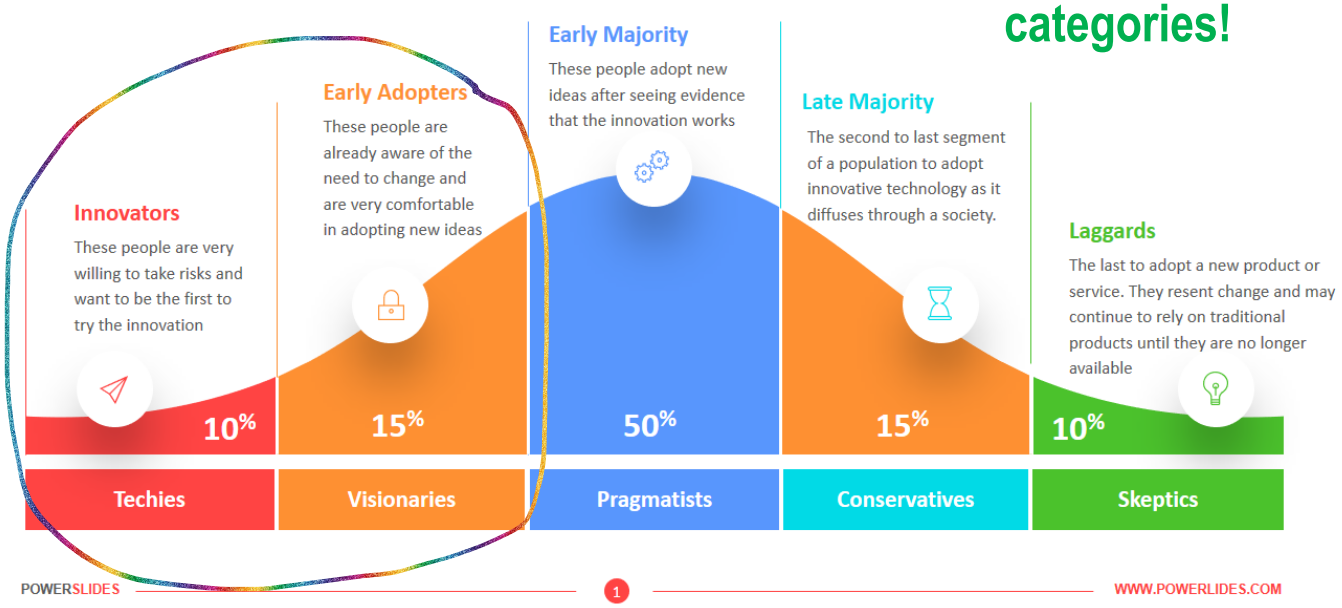
(invention)

ENTREPRENEURIAL SPIRIT

(income)

DIFFUSION OF INNOVATION MODEL

Your market can be in 5 different categories!



Azeron

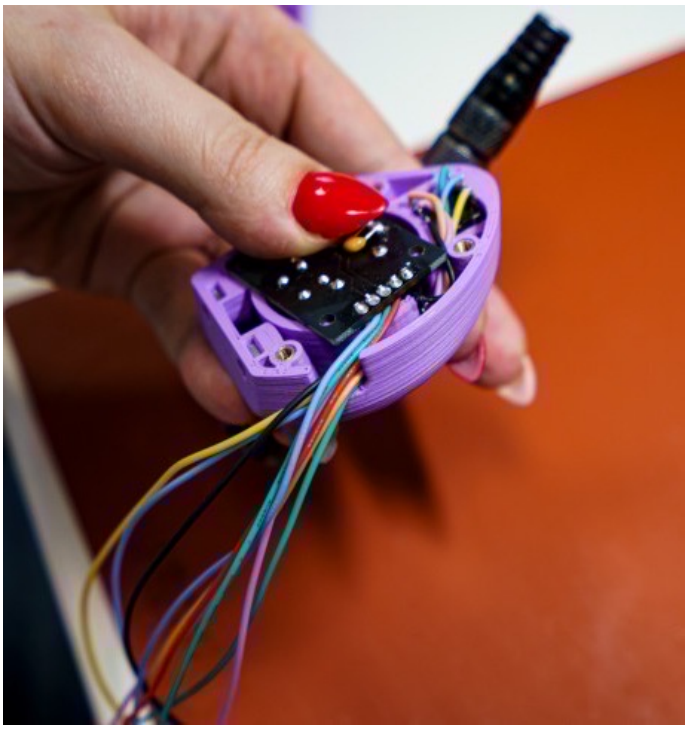
Innovation in the gamers' world
100 working places (Ventspils VIZIUM)
Export to 90+ countries
Turnover 2M EUR (1.5 years)

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»

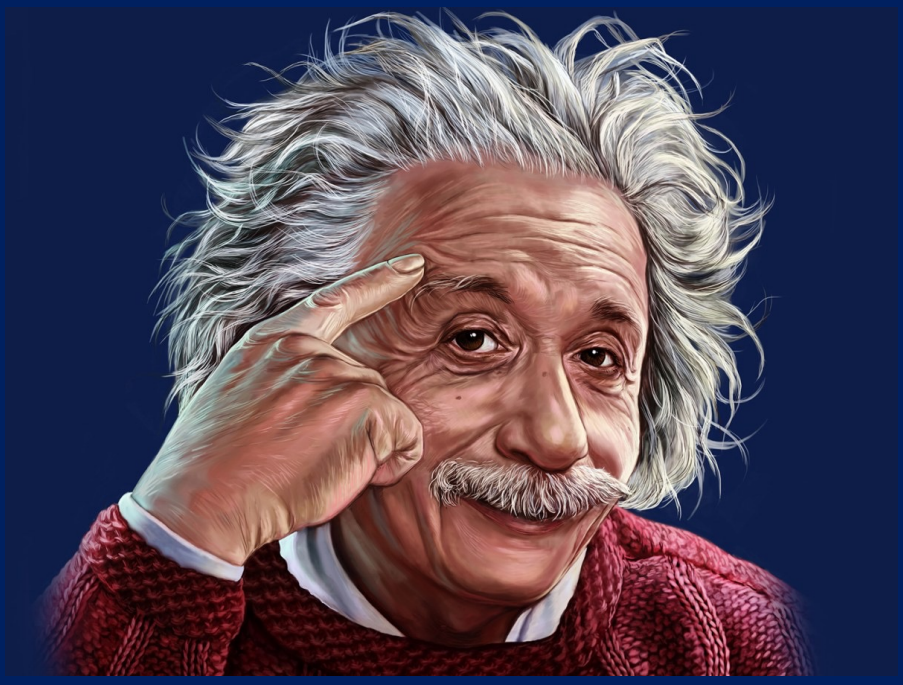
«pharma» sharks

service companies

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

Creative Thinking Techniques

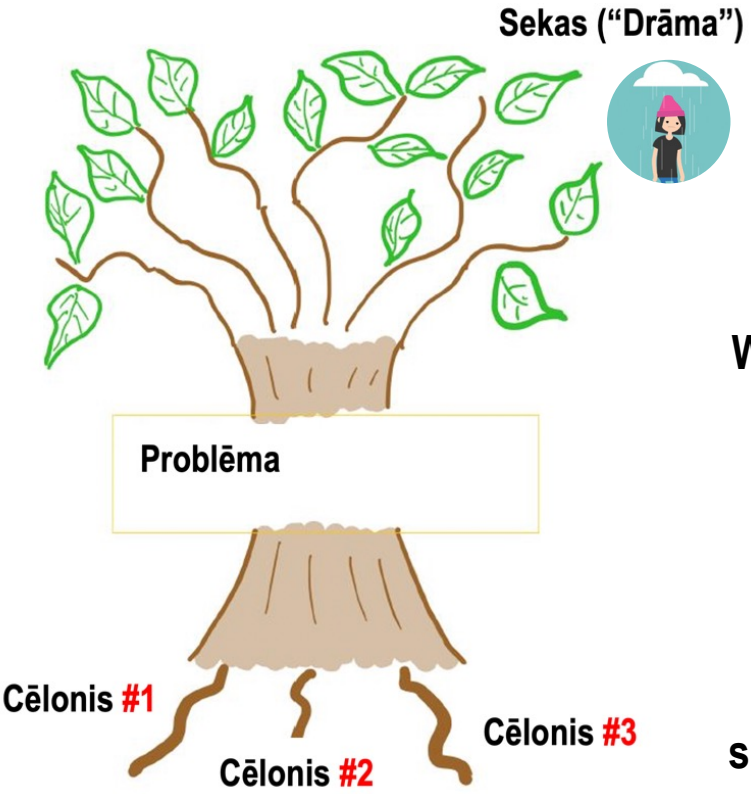
1. **Brick method** (divergent thinking)
2. **5 Why method** (cause of a problem)
3. **Problem – Solution Tree** method (from problem to solution)
4. **TRIZ method** (Genrich Altshuller)
5. **6-3-5 method** (silent brain storm)
6. **«What is a good coffee?»** (ideas based on needs)
7. **SCAMPER** method (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**.

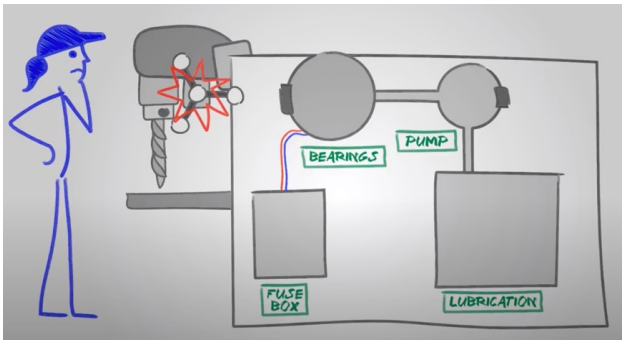
What is the **PROBLEM**?

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)

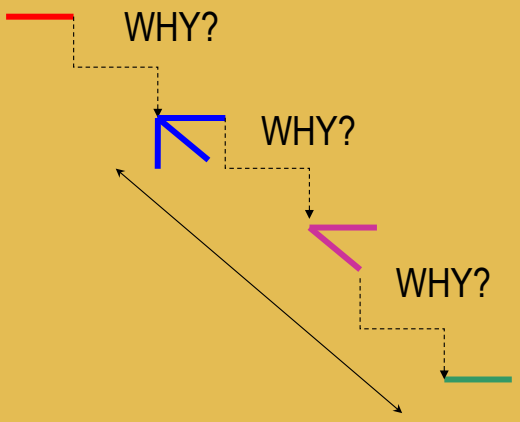


“5Why method”

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

⇣

Can we **solve** the cause?



Problem: bad milk in the freezer!

WHY?

WHY?

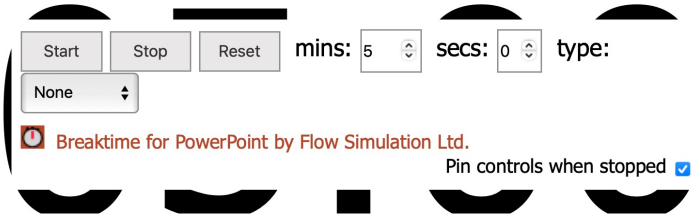
WHY?

WHY?

Conclusions?

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		



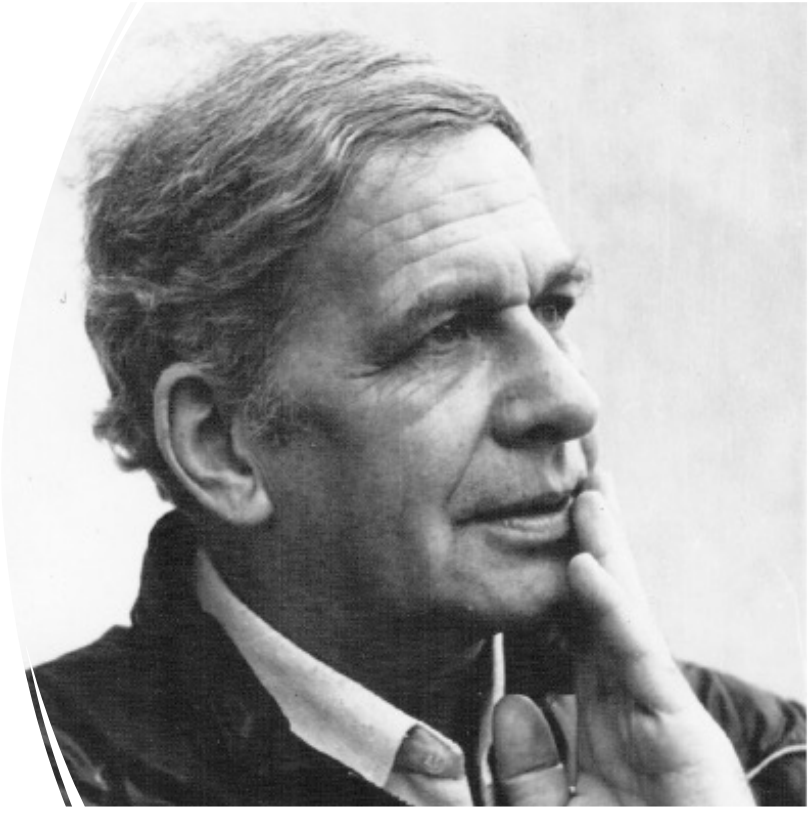
Creative Thinking Techniques

1. **Brick method** (divergent thinking)
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

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



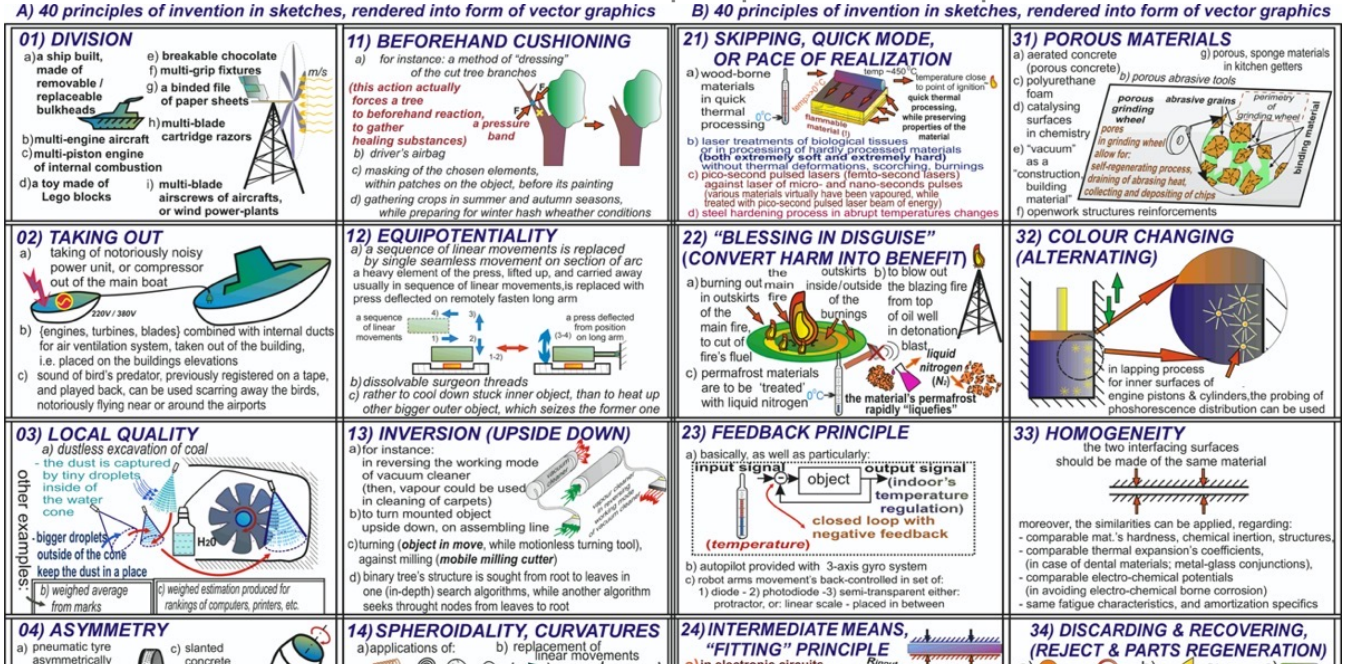
- viewed through more than **1.6 million** patent
- out of 200,000, **only 40,000 were innovative**
- **Basic principle of TRIZ:** search for analogous existing solutions and apply to your needs

TRIZ method

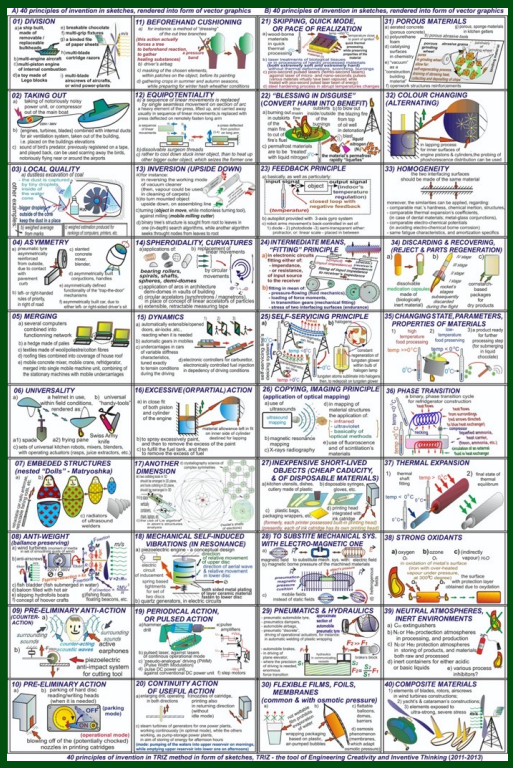
theory of the resolution of invention-related tasks

Genrich Altshuller

теория решения изобретательских задач

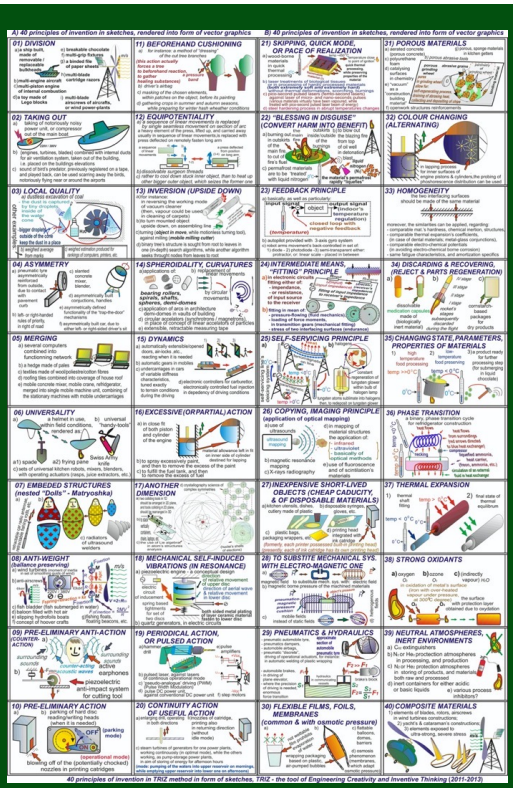


1. Segmentation	21. Skipping
2. Taking out	22. Blessing in disguise
3. Local quality	23. Feedback
4. Asymmetry	24. Intermediary
5. Merging	25. Self-service
6. Universality	26. Copying
7. Russian dolls	27. Cheap short-lived objects
8. Anti-weight	28. Mechanics substitution
9. Preliminary anti-action	29. 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

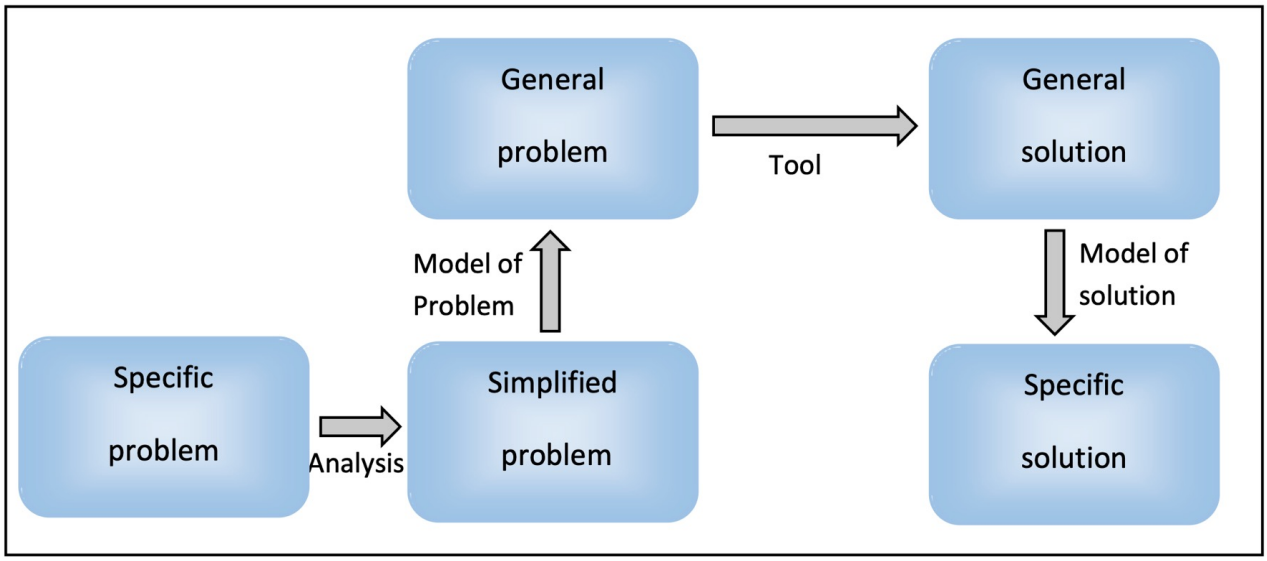


Light approach

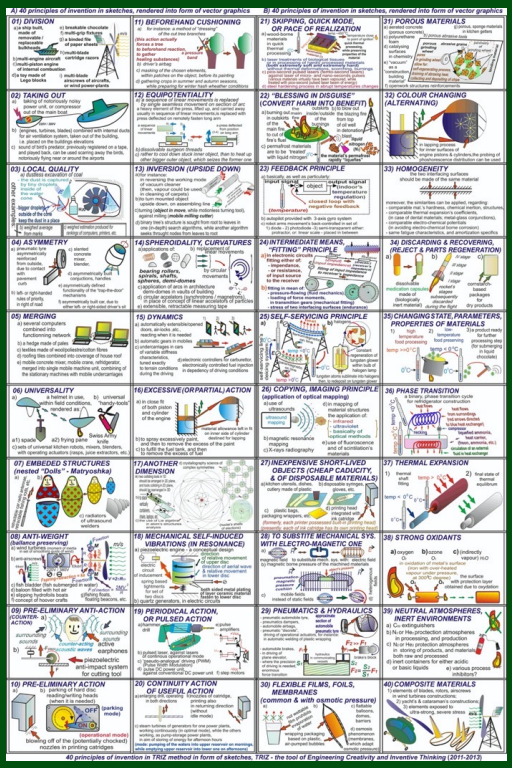
Fundamental approach



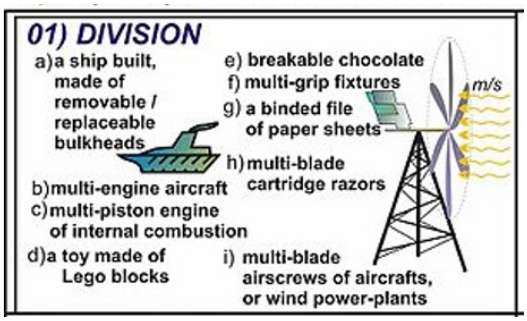
Fundamental version



Worsening Feature → / Improving Feature ↓		1 Weight of moving object	2 Weight of stationary object	3 Length of moving object	4 Length of stationary object	5 Area of moving object	6 Area of stationary object	7 Volume of moving object	8 Volume of stationary object
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.

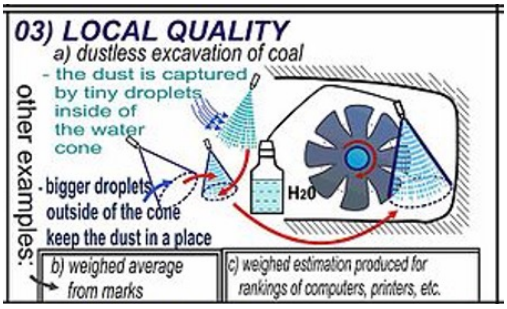
525
backers

$153,585
pledged of $75,000 goal

0
seconds to go

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

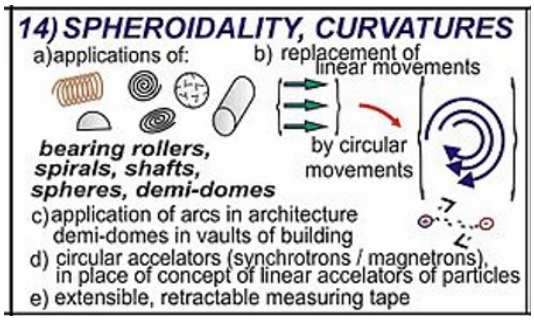
Project by
Paul Sammut



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?

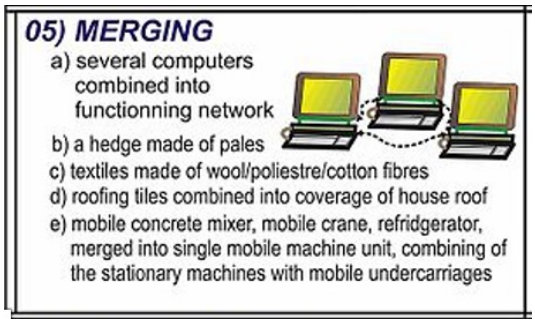
Offer "collective"/family hooks



Measuring tape
Arches as a construction technology
"Revolvertype" parking lots

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

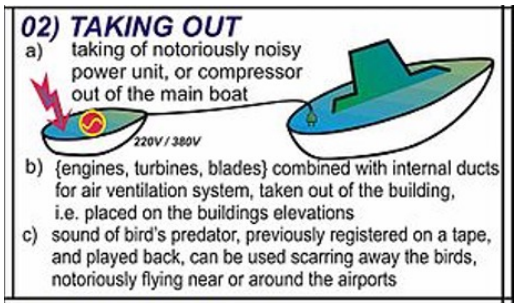
Sliding wardrobe (like suitcases at the airport)



Cryptocurrency farms
Mobile construction crane
Tiles with integrated PV

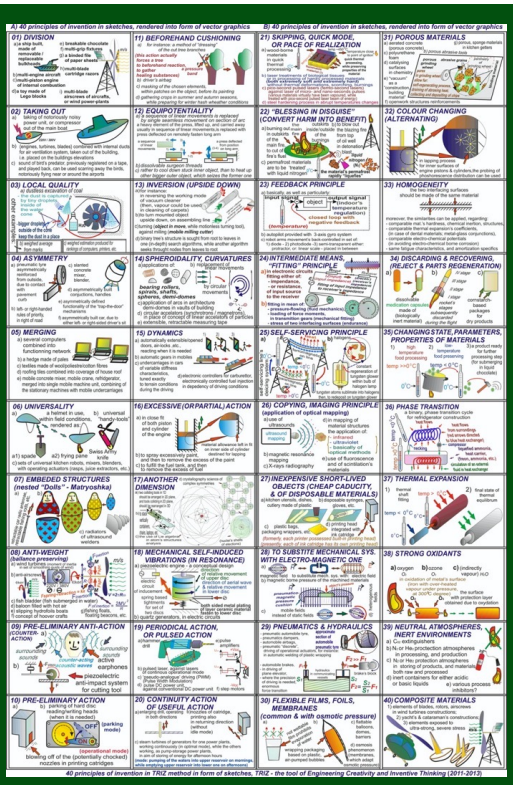
How can issue be solved by MERGING?

Visitors give 2 keys at once



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 CO^2 emissions in the company

⇣

Target 2025: -15%

Classification of customer needs

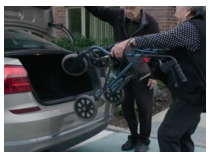
- Easy to express
- **Widely known and understood**
- Most likely already satisfied

Expressed

Stable support - rollator

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

Unfilled



Compact

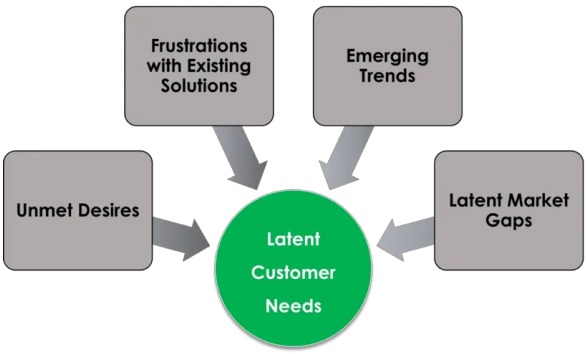
- **It's hard to express**
- **Not widely understood**
- Not satisfied/ resolved

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 owen)

“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

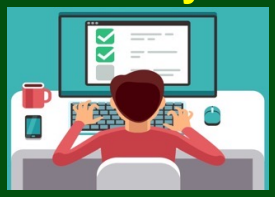
#1 Tet-a-tet

#2 Experts

#3 Observation

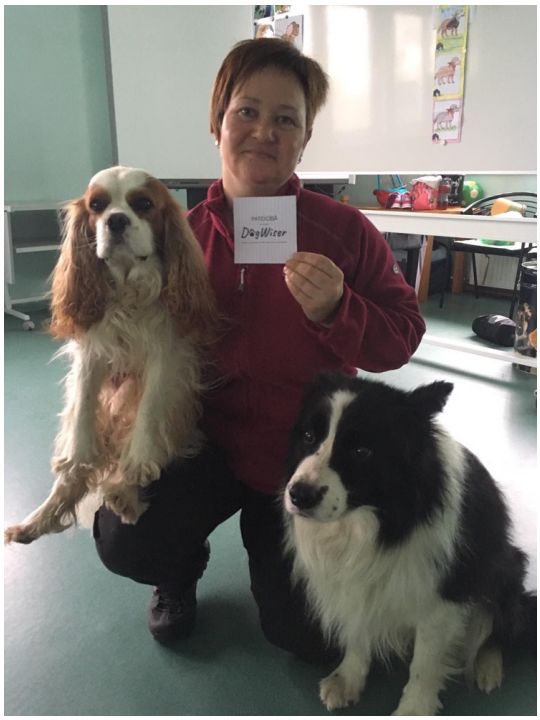
#4 «Field work»

#5 Surveys



#6 WWW

#7 Focus groups

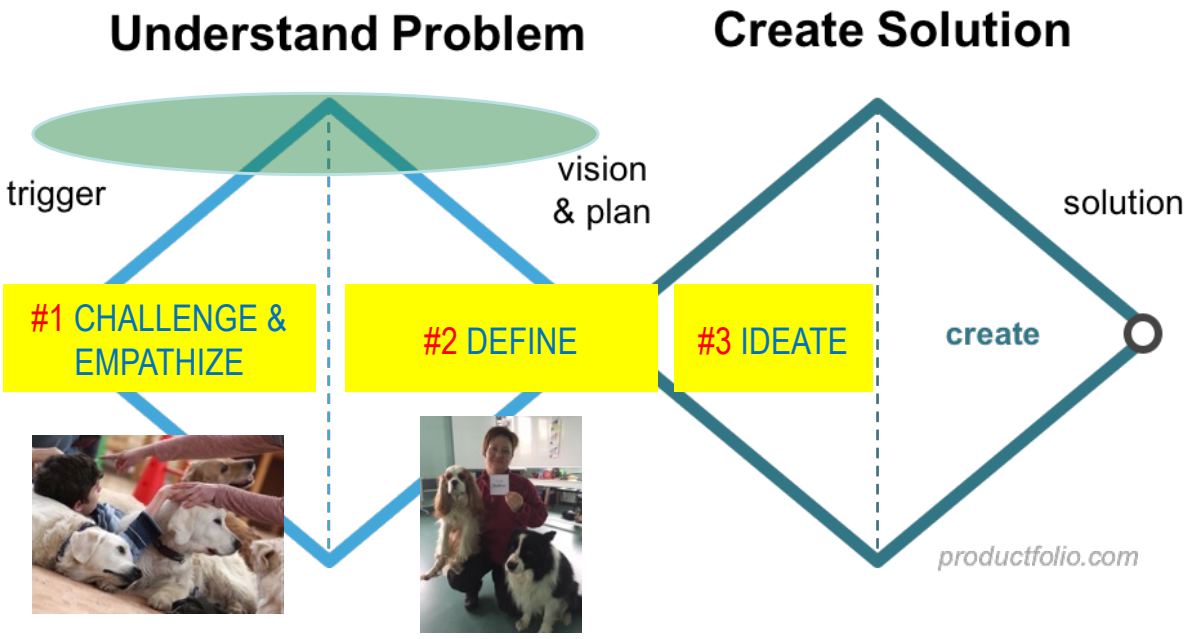


#2 DEFINE:
WHAT we will FOCUS on?

Challenge #1
a universal canis-therapy accessories set

Challenge #2
Digital monitoring system

Double Diamond design (by British Design Council)



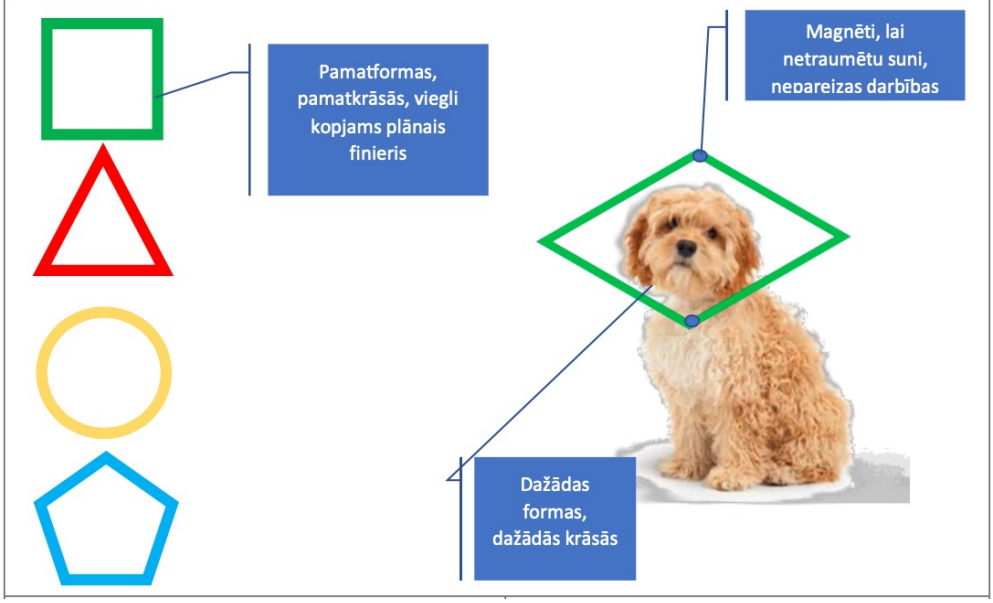
Creative Thinking Techniques

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

Nr.2

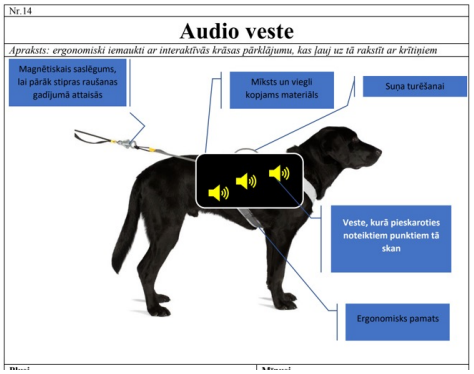
MAGNĒTISKO FORMU KOMPLEKTS

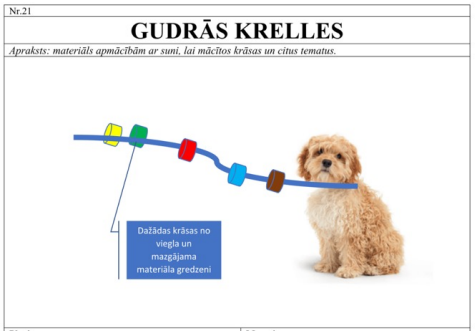
Apraksts: materiāls apmācībām ar suni, lai mācītos formas un krāsas. Papildināts esošais produkts ar magnētisku elementu, lai pa stipru pavelkot, forma attaisītos un netraumētu suni (šobrīd risinājumi traumē suni). Dažādas formas tiek liktas sunim uz kakla.

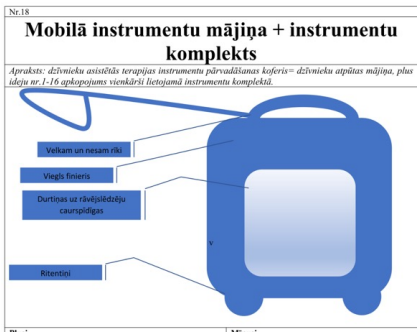


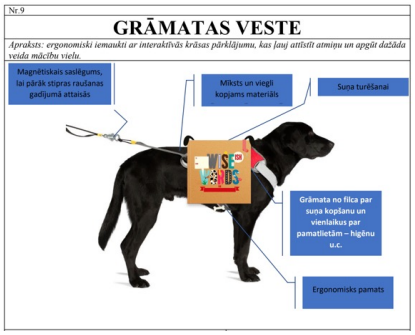
#3 IDEATE:
idea generation
(28 sketches)

#3 IDEATE:
idea generation
(28 sketches)

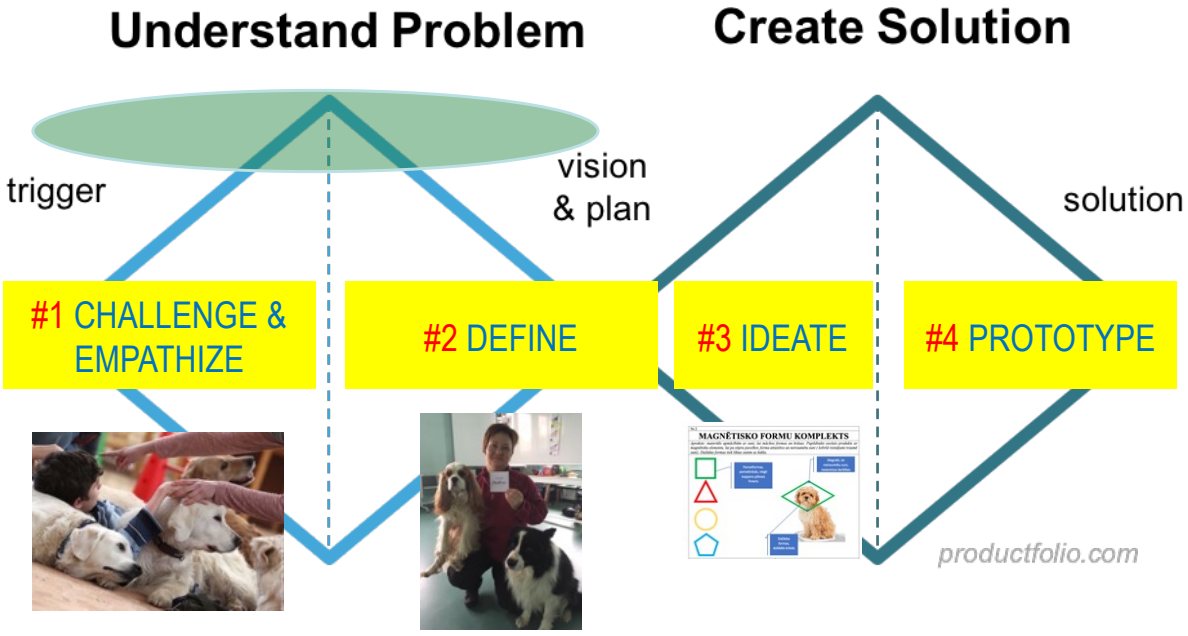








Double Diamond design (by British Design Council)



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 ZINIS KALENDĀRS

Februāris, 2024

01.02. Vieslekcija biotehnoloģiju zinātņu 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**

zinis.lv/kalendars

IF YOU WERE THIS
WAITING FOR
A SIGN IS IT