

# Concept Generation

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# What is a Concept?

-Concept = an approximate description

-Drawings, lists, etc.

-Concepts are needed to showcase the possible technologies, principles and form that the final product might take

-Compared to subsequent development phases, concepts are relatively inexpensive in money and time

-Concepts are usually developed in a bulk and only few of them are green-lit

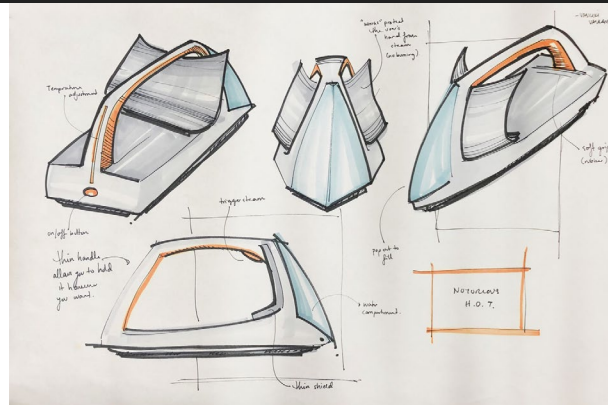
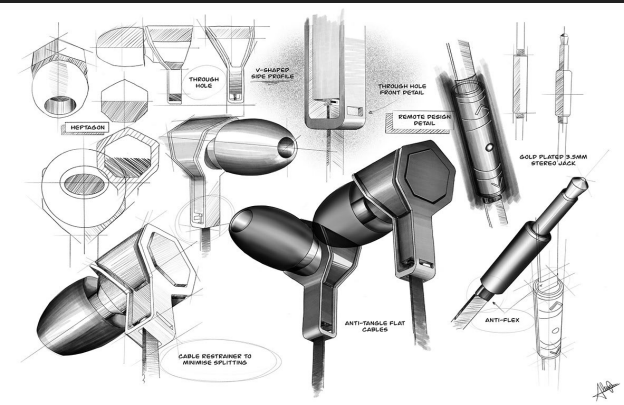


Fig. 1, 2 & 3: Concept drawings

# What is concept generation?



Fig. 4: Most uncomfortable chair

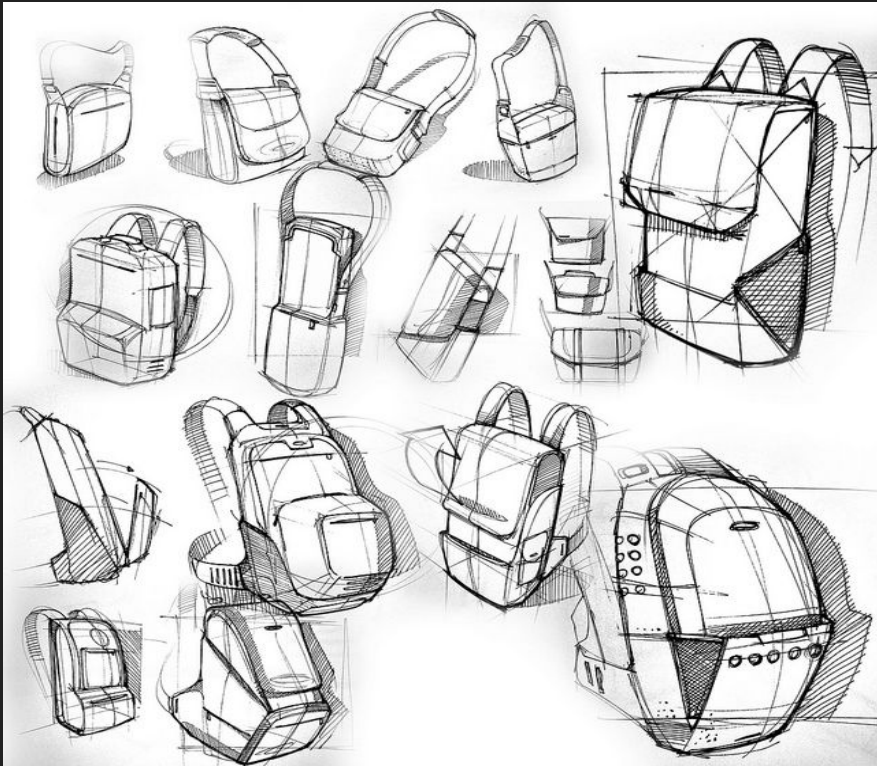


Fig. 5: Drink spiller



Fig. 6: Ketchup soda

# What is concept generation?



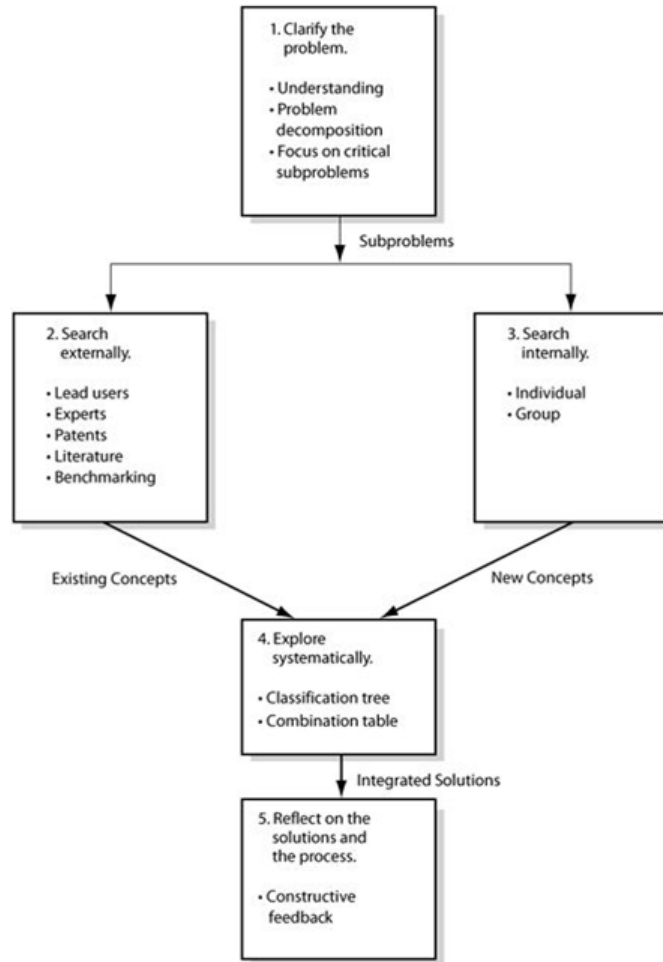
-Concept generation is the process of creating multiple alternative product designs

-Part of concept generation is evaluating the different concepts to identify the best ones - must take target specifications and requirements into account

-There are multiple effective techniques for concept generation

Fig. 7

# The Five-Step Method



# Case Study: Burton Ion Snowboard Boot



# Clarify the problem

Function & aesthetics

Decomposition by sequence of user actions or key customer needs?



*Burton boot mechanics*



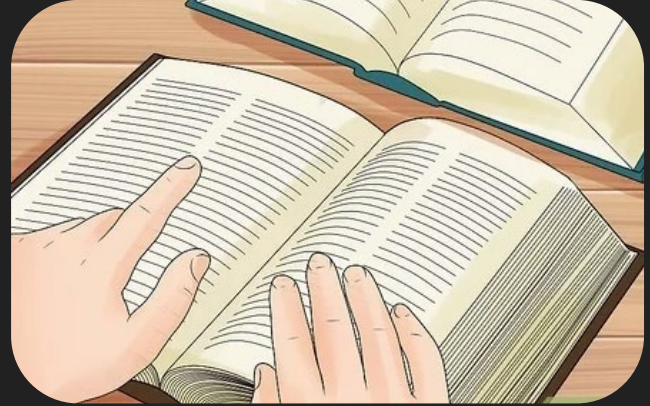
*Burton boots from the 1980's*



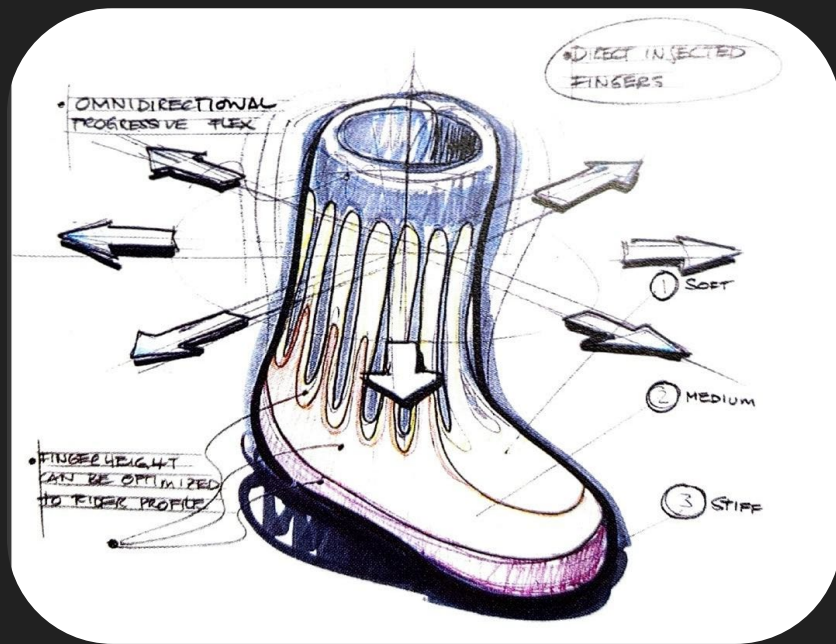
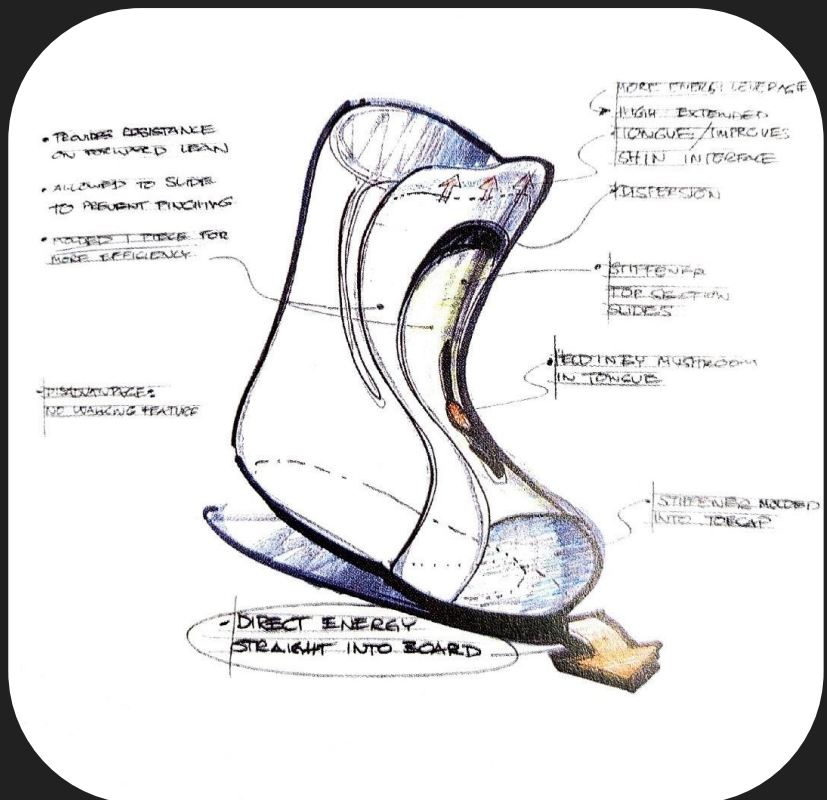
# Searching internally



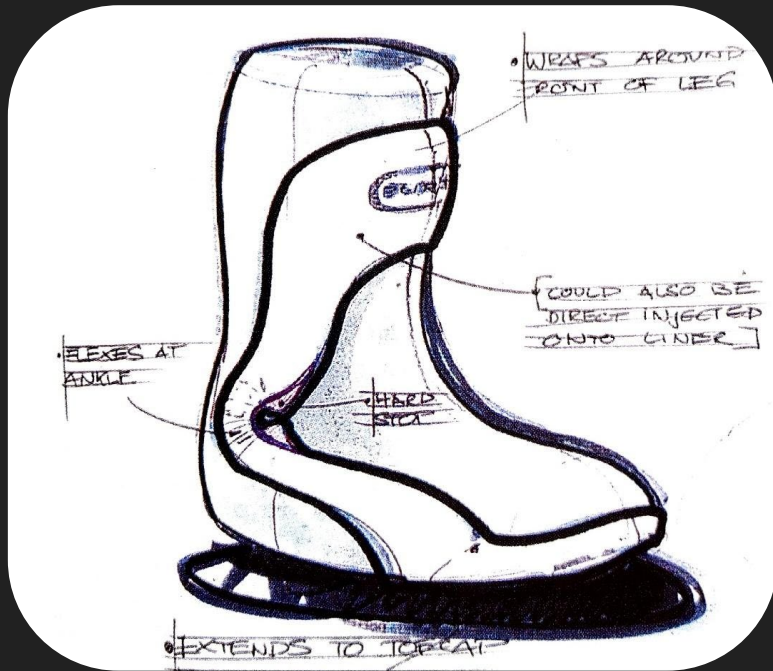
# Searching externally



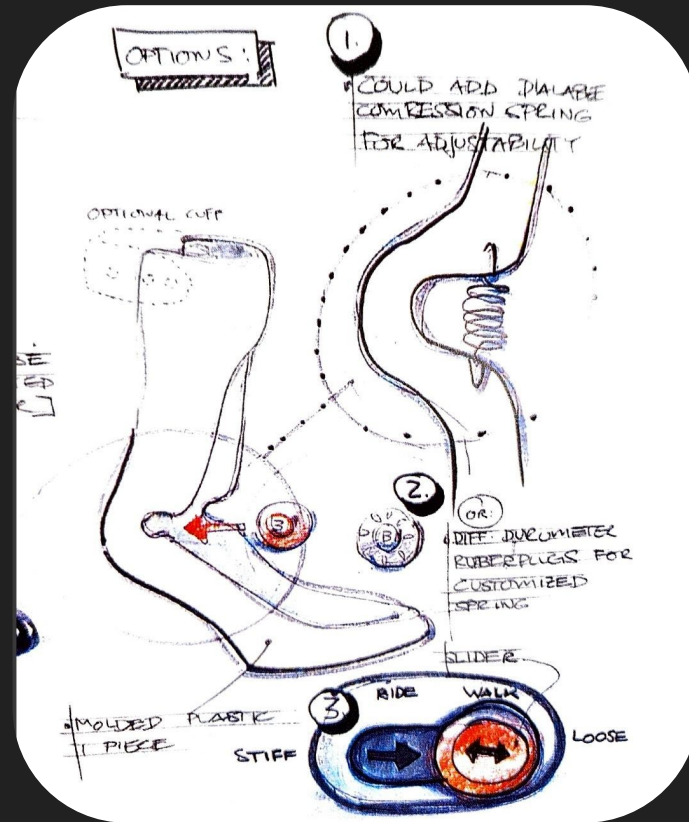




How will different linings affect the mechanics of the boot?



Use of an exoskeleton to improve the function of the boots.



# Extended product approach

## Aesthetics

High-end  
European  
textiles

Modern  
appearance

## Function

New welding  
methods for  
lighter overall  
weight

Improved power  
transfer from  
boot to board



vs

Thinking  
about the  
bigger picture

## A Few other methods to generate ideas for concept

- Brainstorming
- Reverse Brainstorming
- Whiteboarding
- Mind mapping
- 6-3-5 Brainwriting
- The 5 whys

# Brainstorm



creativity

A/a

sketch

Design

HARD

\* Focus on



# Rules of Brainstorming

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Defer Judgment



One Conversation at a Time



Encourage Wild Ideas



Be Visual



Build on the Ideas of Others



Go for Quantity



Stay Focused on the Topic



# Continuous technological development work

Case: Steps of railway measurement system innovations



# Traditional manual measuring device

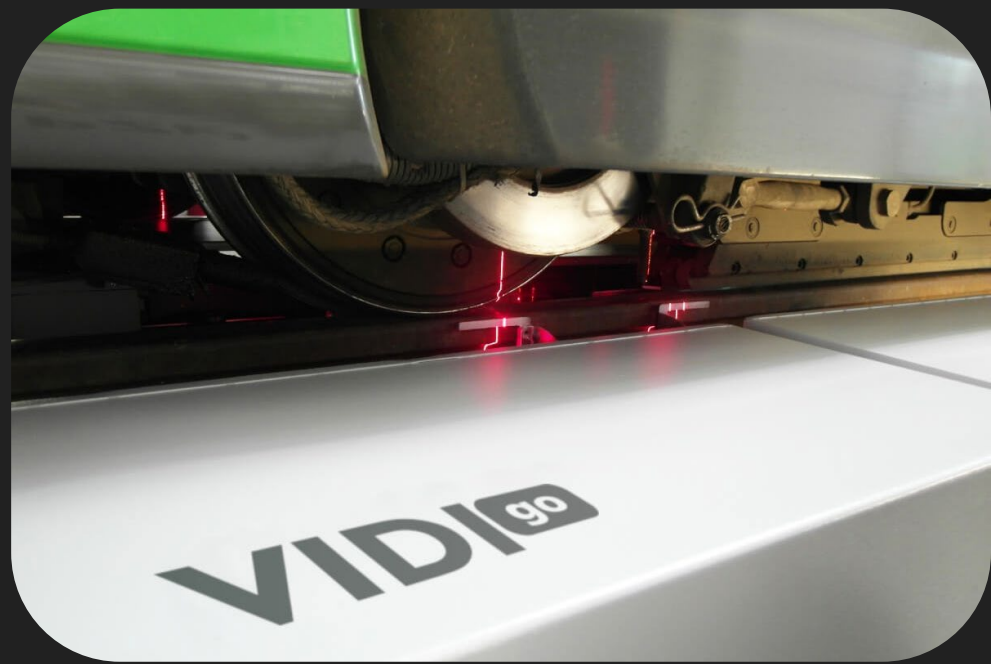
- Accurate in the right hands
- Results are recorded manually
- Not efficient, the measurement time usually takes more than an hour per train.



# Wheel profile scanner



# Fully automated measurement system



# Final point

- Concept generation begins with needs and a target
- After successful concept generation, the team has a set of alternative product concepts
- Next step is concept selection



“We're in the age of the idea. The organization that can develop a culture of creativity and idea generation will be the winners.”

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- Kevin Roberts, adman and a businessman



# References

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Fig. 6: <https://i.pinimg.com/originals/14/c7/ba/14c7baf92fdc6dbcb6bb6443c76368e1.jpg>

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