User Experience III:
Concept Development (WS 17/18)

Ideation

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About Me

- More than 5 years of research experience on
  Collaborative Creative Complex Problem Solving
- More than 10 years of industry experience in
  Innovation Consulting, Training and Prototyping
  Volkswagen, GIZ, Goethe Institut, Volkswagen, ProSiebenSat.1, MIT, Siemens AG, ForceFive AG, Waldburg-Zeil Kliniken and more than 30 SME and startups

- BSc Computer Science & Economics, 2008
  MSc (hons) Software Engineering, 2012
  cand. BA Philosophy, 2018
  cand. PhD Computer Science, 2018

- www.kreativitätstechniken.info (relaunch in Q2/2018)

What is creativity?
4P Model of Creativity (Mel Rhodes)

- Personality
- Intellect
- Temperament
- Habits
- Values
- Behaviour

- Process phases
- Process models

- Space
- Material
- Relationships

- Originality
- Usefulness
- Tangible
- Aesthetics

What makes people creative?
3 Component Model of Creativity (Amabile)

Lesson #1

Creativity is about challenging assumptions, habits and rules!

It is a skill, not a personality trait.

7 Quick Exercises to Train Creative Thinking

1. Try new things
2. Random words
3. Alternative uses
4. Cartoon Captioning
5. Incomplete drawings
6. Think of the opposite
7. Powerpoint karaoke

Practice takes time.
I need to be creative right away!

What now?

What do we expect from creativity?

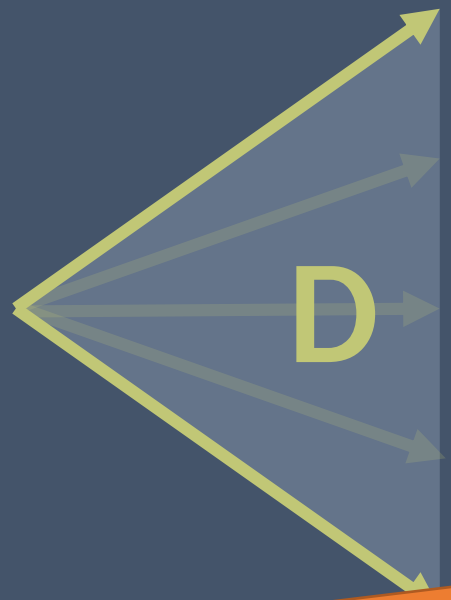
Definition of creativity
Sternberg & Lubart, 1999

noun cre·a·tiv·i·ty \ˌ krē-(ˌ)ā-ˈti-və-tē, ˌkrē-ə-\

[...] *the ability to produce work that is both novel (i.e., original, unexpected) and appropriate (i.e., useful, adaptive concerning task constraints)*

Two Cognitive Styles for Creative Thinking

Divergent Thinking



Aim for quantity!

Explore choices

Build on others

Play

Imagination

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Not so much at this...

Convergent Thinking

Aim for quality!

Logic & Reasoning

Judgment

Structuring

Focus

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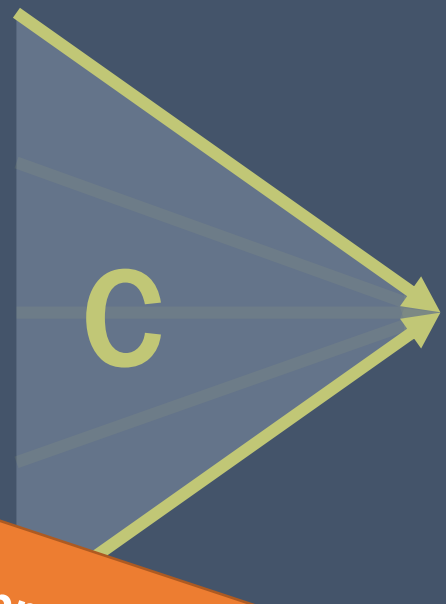


We are pretty good at this!

The Interplay of Divergent and Convergent Thinking in Creative Thinking

Novelty

Divergent Thinking

"Yes, and..."
(Aim for quantity)

Usefulness

Convergent Thinking

"Yes, but..."
(Aim for quality)

Creative thinking involves both divergent and convergent thinking!

Creativity and Technique: a Paradox?

- On the one hand, we strive for creativity in order to find unconventional, novel and appropriate ideas and solutions

- On the other hand, techniques are fixed and predetermine how certain things are done

No paradox!

Creativity techniques are not to be understood as algorithms for ideas. They are techniques to reduce biases and promote divergent thinking. Good creativity techniques separate phases for divergent and convergent thinking.

Everyone “knows” Brainstorming

“A bunch of people gather together to generate a list of spontaneous ideas around a certain issue”

- Originally proposed by Alex Osborn in 1939
- Probably the most popular creativity technique
- In practice, there is a broad range of variations. Thus, brainstorming is actually a class of more or less similar creativity techniques.

Image: Flickr, pagedooley, CC2.0

Osborn's Brainstorming

- Brainstorming is a creative conference for creating a checklist of ideas which can be subsequently evaluated and further processed

- 4 basic guidelines (only divergent thinking!)
  1. **Criticism is ruled out**
  2. **Freewheeling is welcomed**
  3. **Quantity is wanted**
  4. **Combination and improvement are sought**

Image: Flickr, pagedooley, CC2.0

Lesson #2

Clearly separate divergent and convergent phases.

And alternate between both in multiple cycles.

Group Creativity

Sometimes teamwork is indispensable,
e.g. in team sports such as volleyball

At other times, teamwork is not mandatory, but we expect that a group performs better than individuals, e.g. in Brainstorming

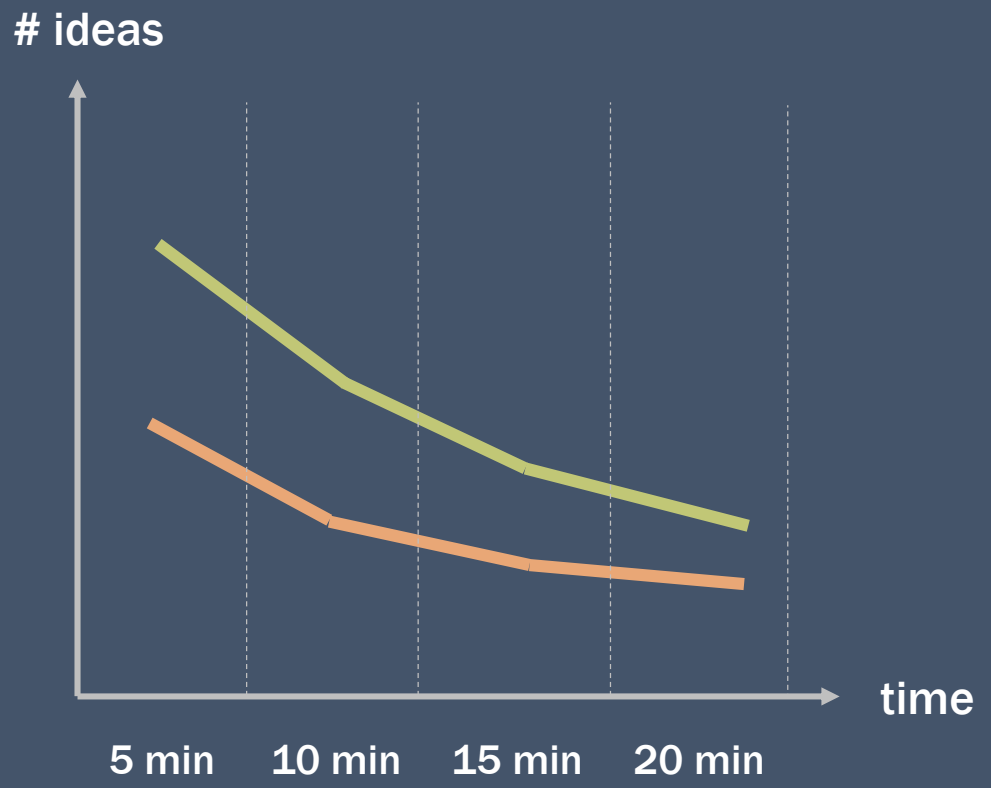
What is the best size for a brainstorming group?

1

Interacting vs. non-interacting groups

- **Interacting group**
  Same task + interaction

- **Non-interacting group**
  Same task + no interaction



Why do real groups perform worse than nominal groups?

- Framing (e.g. 30 circles exercise)
- Cognitive fixation (e.g. 9 dot problem)
- Evaluation apprehension
- Production blocking
- Groups often prefer (even incorrect) solutions proposed by the majority
- Social Loafing
- Dispensability effect
- Sucker effect
- ...

Lesson #3

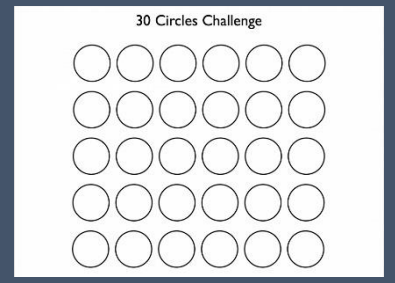
In group ideation, nominal groups outperform interactive groups.

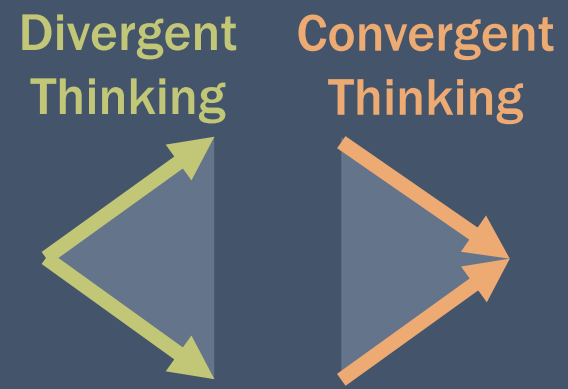
Summary & Takeaways

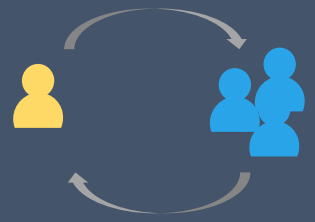
- Lesson 1
  Creativity is about challenging assumptions, habits and rules to generate novel and useful ideas!

- Lesson 2
  Ideation involves two complementary modes of thinking: divergent and convergent thinking.

- Lesson 3
  In group ideation, nominal groups outperform interactive groups.







Agenda

09:15 – 10:15	**Introduction to Creativity & Creativity Techniques**	Lecture Hall
10:15 – 10:30	**Short Break**	
10:30 – 11:15	**Divergent Thinking**	Lecture Hall
11:15 – 12:15	6-3-5 Method, SCAMPER, Analogy, Reverse Assumptions	Breakout Rooms
12:15 – 13:00	**Lunch Break**	
13:00 – 13:15	**Convergent Thinking**	Lecture Hall
13:15 – 14:15	Clustering, Dotmocracy, How-Wow-Now, POINT	Breakout Rooms
14:15 – 14:30	Short Break	
14:30 – 14:45	**Idea Refinement**	Lecture Hall
14:45 – 15:45	Six Thinking Hats	Breakout Rooms
15:45 – 16:00	**Wrap-up & Outlook**	

Divergent Thinking

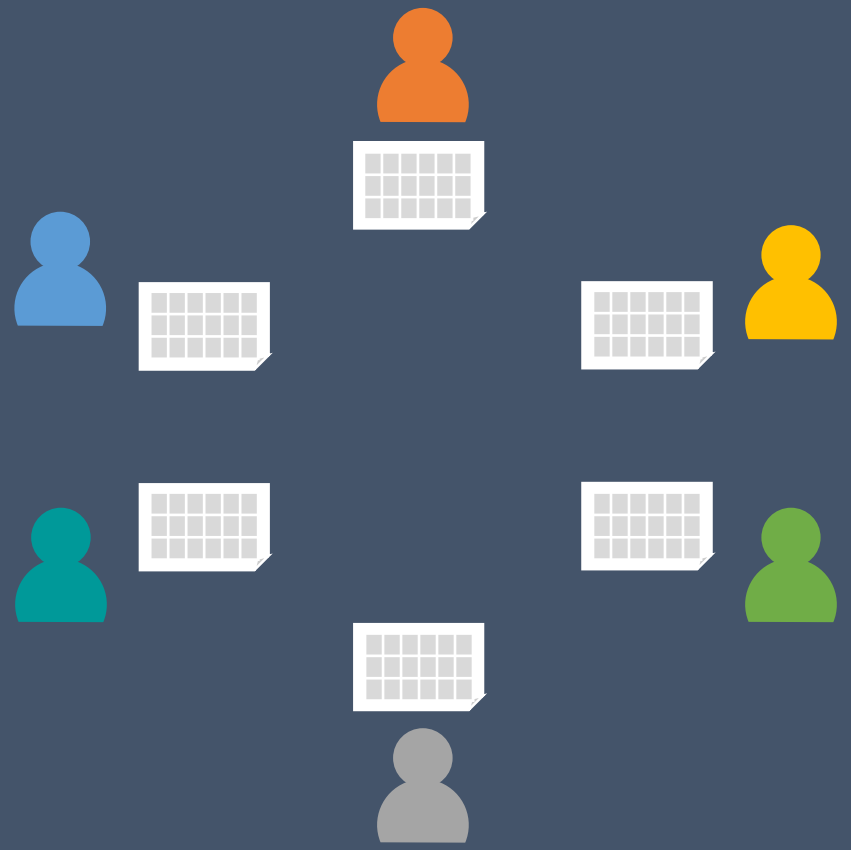
Alternatives to Brainstorming for Divergent Thinking

6-3-5 Method

or any other creativity technique that leverages individual vs. collective phases...

6-3-5 Method

Up to 108 ideas in 30 minutes



6-3-5 Method

How might we increase employee safety?

6-3-5 Method

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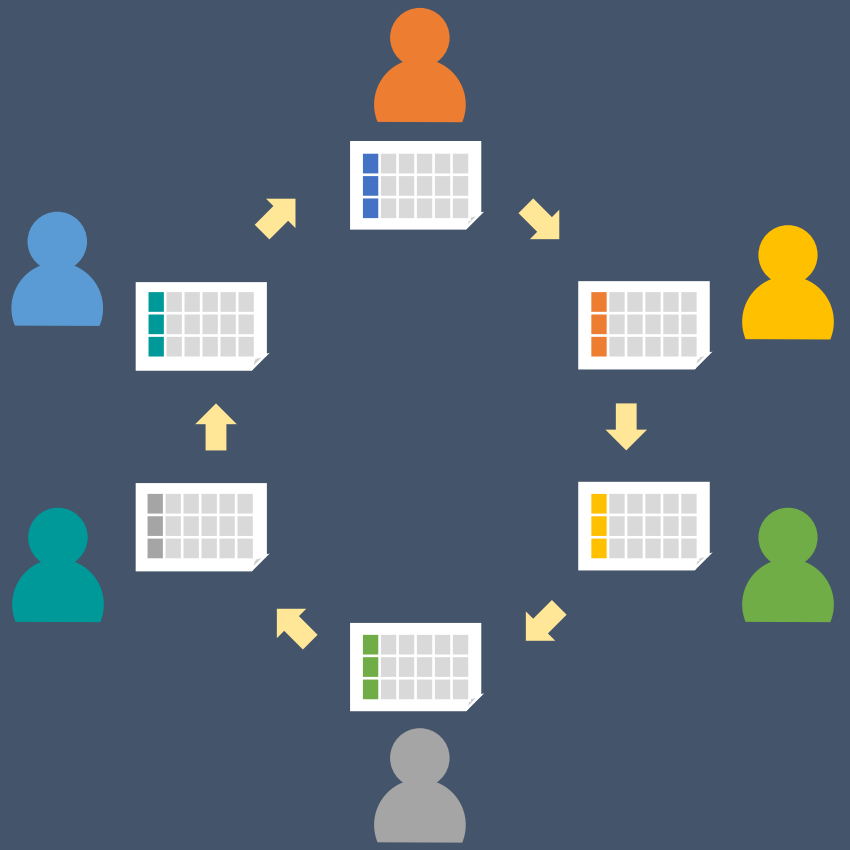

Analogies
Transfer solutions from other fields

- Input
  - A concise but open problem statement
    (e.g. How might we increase employee safety?)

- Process
  - The team generates a list of (structurally) similar areas and how the analogous problem is solved in that area

  - For each identified analogy, the team generates ideas by mapping solutions in the similar area to the situation at hand

- Output
  - A list of solution ideas that are analogous to successful approaches in other areas

Analogies

How might we increase employee safety?

Similar Area	Solution	Analogous Solution
Traffic	Police Traffic lights Airbags	Security officer Warning lights Cushion on machines
Mountains	Safety ropes Route ratings	…
Skiing	Avalanche warnings	…
Paragliding	Training Safety parachute	…
…	…	…

SCAMPER

- Input
  - An initial idea or product or benchmark product/process
    (e.g. How could a new type of chair look like?)
- Process
  - **S** ubstitute: Which parts could be replaced/substituted?
  - **C** ombine: May parts or the whole be combined with other things?
  - **A** dapt: How could ideas from other domains be adapted?
  - **M** agnify: What could be enlarged or emphasized?
  - **P** ut to another use: What are other uses for the idea?
  - **E** liminate: What could be reduced or removed?
  - **R** earrange/Reverse: How could we rearrange parts or change the order of steps?
- Output
  - A variation of the initial idea

SCAMPER

How could a new type of chair look like?

- Substitute: We could replace the chair legs with wires a fixed to the ceiling
- Combine: We could attach a coffee cup holder to one one of the armrests or mount a parasol
- Adapt: We could build in an electric engine to allow the customer to adjust the backrest as comfortably as possible
- Magnify: We could increase the seating surface such that two persons or obese persons could sit on the chair
- Put (to another use): We could add hinges such that the customer can turn it into a coffee table
- Eliminate: We could remove the armchairs to achieve a minimalistic design.
- Rearrange/Reverse: We could attach the chair legs at the middle of each side of the seating surface instead of the corners

Reverse Assumptions

- Input
  - An initial idea or product or benchmark product/process
    (e.g. How could a new type of restaurant look like?)

- Process
  - Generate a list of assumptions about the idea
  - For each assumption, ask what is the reverse of the assumption and list new insights

- Output
  - Novel and breakthrough ideas

Reverse Assumptions

How could a new type of restaurant look like?

Assumption	Reverse Assumption
Food is cooked for you	You cook the food
Order food from a menu	Order attributes (indulgence, adventure)
Sit at a table in a chair	Living room furniture in eating areas
Food comes on a plate	Serve food on a Frisbee
Go there with a group	Singles dining

Convergent Thinking

Clustering & Affinity Diagrams

Depending on the number and diversity of your ideas, you might start with Clustering and Affinity Diagrams to map the idea space

Procedure

1. Record each idea on a card or note
2. Look for related ideas
3. Group them together
4. Go to step 1 until all ideas have been sorted

COCD Box (How-Wow-Now-Matrix)

	Common Ideas	Original Ideas
Not (yet) feasible		**Yellow Ideas** ▪ Future ideas ▪ Dreams ▪ Challenges ▪ Visionary ▪ Red ideas for tomorrow **HOW?**
Feasible	**Blue Ideas** ▪ Easy to implement ▪ Previous examples ▪ High acceptability ▪ Low risk ▪ Quick wins **NOW!**	**Red Ideas** ▪ Innovative ideas ▪ Potential Breakthroughs ▪ Exciting Ideas ▪ Make a distinction ▪ Can be implemented **WOW!**

Dotmocracy

Participants vote on their favorite ideas using stickers or marks with pens

Procedure

1. Each participant is given a limited number of dot stickers (or pen) (e.g. 3)
2. Each participant silently decides on her/his voting
3. Participants place dot stickers (or their mark) simultaneously next to the ideas they like
4. Ideas with the most dots at the end win

Recommendation

- Restrict the allowed number of dots per idea to prevent individual bias (e.g. 2)

POINT

Pluses – Opportunities – Issues – New Thinking

Effective and constructive feedback

Procedure

- Pluses: list as many things that you like about the idea as possible
- Opportunities: list the potentials of the idea using the keyword “might”
- Issues: list concerns as creative challenges using opening statements such as “How might we ….?”
- New Thinking: find the most prevalent concerns and begin to generate new ideas on how to overcome them

POINT

Pluses – Opportunities – Issues – New Thinking

Exercise

Provide a POINT for the product pictured below

A highlighter that uploads text you go over to your computer

Idea Refinement

Six Thinking Hats

- Combination of intuitive and discursive elements
- Key characteristic: „parallel thinking“
  All participants wear the same hat (thinking style) at the same time
- Promotes change of perspective

Six Thinking Hats

	**PROZESS**	Der blaue Hut steht für Prozessmoderation. Er dient dazu, die Gedanken zu ordnen und zu strukturieren. Der blaue Hut strebt nach Zusammenfassungen, Schlussfolgerungen und Entscheidungen.
	**GEFÜHLE**	Der rote Hut ist mit Gefühlen, Intuition und Emotion verknüpft. Der rote Hut ermöglicht Menschen, Gefühle ohne Rechtfertigung und Vorurteile vorzubringen.
	**VORTEILE**	Der gelbe Hut steht für eine positive Sicht auf die Dinge. Er sucht nach Vorteilen einer Situation. Der gelbe Hut ist optimistisch.
	**KREATIVITÄT**	Der grüne Hut ist wild und strebt nach kreativem Denken und dem Generieren von neuen Ideen.
	**FAKTEN**	Der weiße Hut fokussiert sich auf **Daten und Informationen**. Er sichert einerseits Informationen, die verfügbar sind, und identifiziert andererseits Informationen, die noch beschafft werden müssen.
	**VORBEHALTE**	Der schwarze Hut steht für Vorsicht. Er wirft einen **kritischen Blick** auf das Thema. Achtung: Dieser Hut wird oft überstrapaziert.

Six Thinking Hats

- **Input**
  - A rough idea
  - 1 participant who facilitates the process (i.e. wears the blue hat throughout the session)

- **Process**
  1. The facilitator presents and describes the rough idea
  2. At the same time, all group members put on the currently announced imaginary hat and discuss the idea from the respective point of view. The aim is to clearly separate the different perspectives and to deal with only one point of view per hat colour. The participants write their thoughts on cards or sticky notes.
  3. Each hat should be played used for a few minutes (except the red one)
  4. Order can be chosen arbitrarily (for the most part)
     1. Blue hat at the beginning and at the end
     2. Direkt nach dem grünen Hut sollte nicht der schwarze sondern lieber der gelbe Hut gewählt werden
- **Output**
  - A nuanced, elaborated idea

Wrap-up & Outlook

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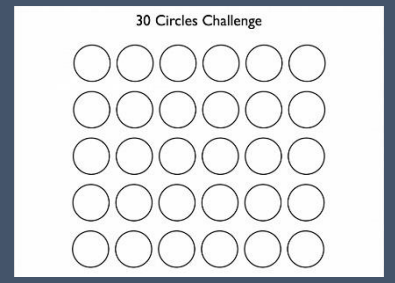

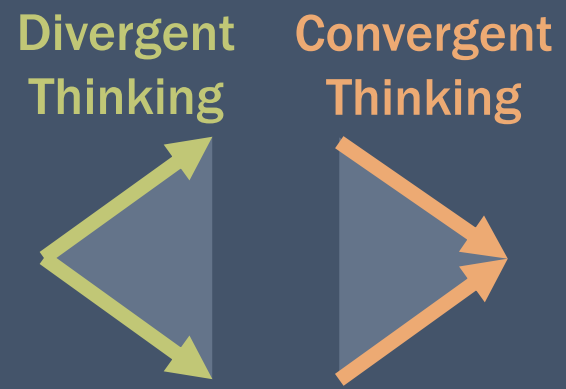

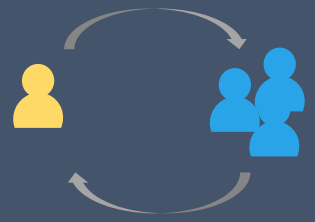

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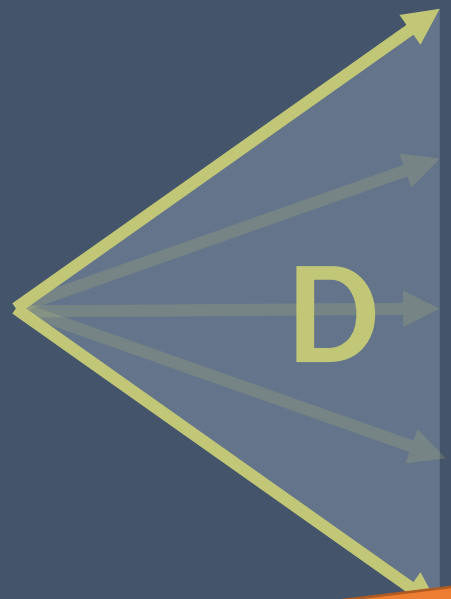

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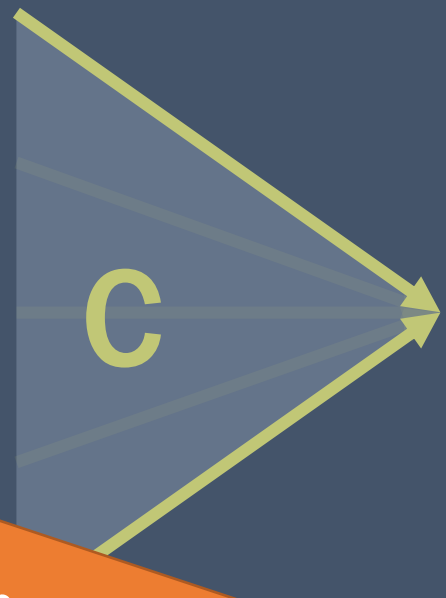

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Thank you.

Let me know your POINTs via feedback@marinzec.de

Emergency tool to overcome creative block: Forced Fit using Wikipedia