

Idea Generation

for Product Development

cheat sheet

Objective: To generate as many good ideas as possible to reduce the odds of

- Finding a good concept late in the product development process ;
- A competitor introducing a product with significantly better performance.

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Get ideas by internal brainstorming

Individually. Unless you're a lead user it's unlikely that you'll innovate something useful. Become one or use external methods.

As a team. Unless under *specific* conditions, teams produce less and worse ideas than individuals. Read "Group Brainstorming Tips".

Wishes and If's. "If only we could..." What do you wish it did? *Ideally*, what would it do?

Analogies. Are there similar mechanisms / functions in other domains (nature, other industries)? To solve other problems? What are other ways to use it?

Think by First Principles. Reason from the *fundamental* truths up. *Question assumptions* and *lose the baggage*. Industries have unspoken but deeply-held beliefs, failing to realize that by questioning them they could enable fresh ideas to emerge. List 20-30 assumptions then question them and use them for inspiration. Or just forget the current ways of doing things. What do you want and what do the laws of physics allow?

Get help to form new connections. There are websites and apps that provide word and image associations. Watch videos or images of unrelated machines and products. Change the working environment. Visual stimuli trigger new idea associations related to that stimuli.

Visualize. Visually imagine the problem and your solutions. This can help

TRIZ. Use the 40 inventive principles to brute-force your creativity into high speed.

Separation. Separate the problem into sub problems. Come up with solutions for each as if the others weren't an issue. Then merge.

Extremism. Pico and Peta. Take things to the extreme. Use the words *maximum*, *minimum*, *as possible*.

The Opposite. How could we make it as bad as possible? What would make this car as slow as possible? At the end, reverse the solution.

Limit. Budget of 50€, 2 days to completion, weight of 100kg, no steel, only bamboo, fully automated, fully recyclable, 0.1 drag coefficient.

Limitless. Unlimited budget, time and resources.

Group Brainstorming Tips

Mix smart knowledgeable people from different useful backgrounds. They are able to bring new perspectives to the team and have ideas that others wouldn't get to as easily due to their distinct field of expertise.

Mix individual and group production. Start with individual to avoid influencing others into maintaining someone else's line of thinking and of getting fixated on someone else's idea, but mix group production to allow people to get inspiration from others' ideas.

Play. Stand/walk to stimulate brain circulation. Use post-it notes. Create an informal environment where speaking out is encouraged.

Use opposites, limits and extremes. Make them mandatory for a certain time. Even if just for a while, this protects people's ego from voicing bad ideas. This way all ideas are effectively uncommon or ridiculous and participants won't feel afraid of looking silly in front of the others. This is critical for participants who are not experts on a subject, among others who are.

Avoid production blocking. When a participant talks, the others are listening, meaning they aren't focused on developing ideas (not producing). Methods that involve writing tend to be better, as people can write simultaneously and at their own pace. For example, write/draw notes and pass them round-robin style where each member reads previous ideas and adds more of their own, use post-it notes and a computer app or online chat.

Have a skilled facilitator. The more skilled the better. A facilitator will plan the session, enforce guidelines, register the ideas quickly and effectively, maintain a similar level of participation for everyone, clearly present the objectives and guide the session.

20 Establish a fixed number of ideas to generate per member. This reduces free-riding where some participants rely on high performance individuals to carry the team, reduces loss of motivation for the ones that are contributing the most, and minimizes illusions of productivity.

General Principles for a Great Idea Generation Session

Focus on getting a big number of ideas. Establish a hard but achievable target number of ideas. Getting more ideas usually correlates with getting more *good* ideas (innovative, feasible, useful and viable).

Postpone criticism and allow yourself to think like you were crazy. If you're having trouble thinking bigger, just think stranger. By focusing on crazy ideas we force ourselves to think out of the ordinary. The ordinary is what *already* is. Later the craziness can be toned down, if needed. But great ideas often seem crazy or weird at first. Trust things that are alien and alienate things that are trusted. During this stage never say "we tried that already" "that won't work because X". Do note your criticisms, just voice them later. Delaying criticism is one of the best ways to allow ideas to flow freely from one's mind.

Remix. Remix the idea by itself - change a detail of the idea, make it more complex or simplify it. Remix it with others - blend, mix or unite different ideas.

Use plenty of visual and physical elements. Create quick prototypes out of cardboard, foam and other quick to handle materials. Draw doodles, diagrams, mindmaps or analogies. Our brains understand and recall information the best when actively doing things and using physical objects, pictures and relationships.

Know the measures of creativity. (1) Number (of ideas), (2) Breadth (the ideas span from various domains/are very different from each other), (3) Originality (no one else had thought of it) and (4) Elaboration (they are complex and/or resulted from remixing other ideas).

Use the diffuse thinking mode. Have the problem present in the back of your mind by thinking about it at different times of the day. This stimulates the diffuse thinking mode where your brain works on a subject in the background by creating new synapses between bits of information.

References

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Get ideas from external sources

Interview. Mix individual sessions and a focus group. ~30 customers identify 90% of the needs. Or just go out and ask to-be user questions.

Observe. Go *watch* the to-be users and look for problems and improvement possibilities. Talk to them and listen to their complaints.

Be part of communities. Know their motivations, their complaints, their suggestions. Immerse yourself in their world.

Read reviews. Find what customers value and what the current solutions don't provide.

Attend industry specific events. For example, manufacturers and producers' fairs and seminars.

Know the stuff. Read books, magazines, catalogs, watch documentaries and videos about the topic.

Search patents.

Identify and Connect With the Stakeholders

Product-specific **Marketers**

Engineers, designers **Retailers**

Manufacturers **Lead Customers/Users**

Transporters **Customers/Users**

Lead Customers/Users

- Someone that has a strong need beyond what is currently available and which led them to change existing products by improvising a workaround is a lead user ;
- They would gladly help someone solve them the problem ;
- They are responsible for the majority of revolutionary innovations ;
- Products that result from the contact with these people have much more chances of having success because they resulted of solving real needs of which most people haven't yet realized (later on, it becomes common sense).