

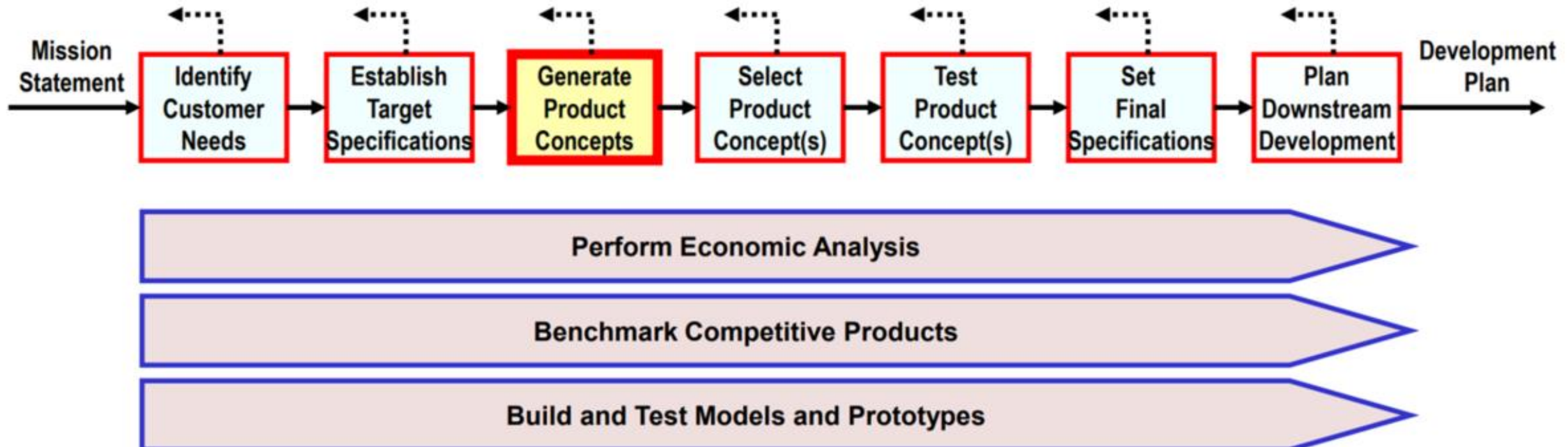
Phase 3: IDeate

Applied Creativity/Product concept generation



IDEO: Brainstorming and Other Ideation Techniques

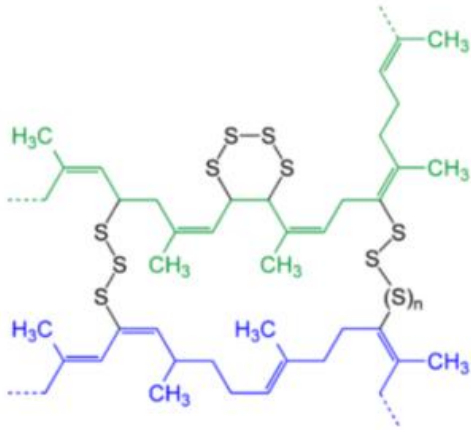
Concept Development Process



Invention, innovation, and creativity

Invention

Creation of something that didn't exist before



Innovation

Useful application of an invention or combining existing ideas in a new and useful way



Creativity

Application of imagination to a problem (although not always practical)



VOLVO

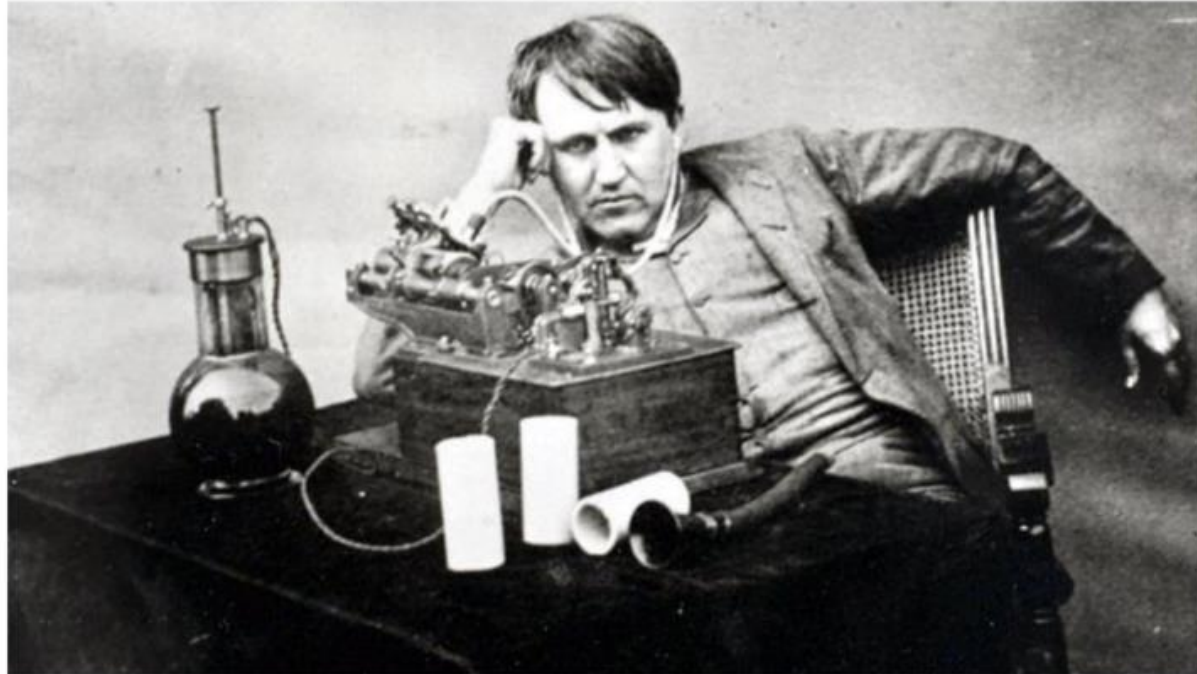


YCC Concept Car

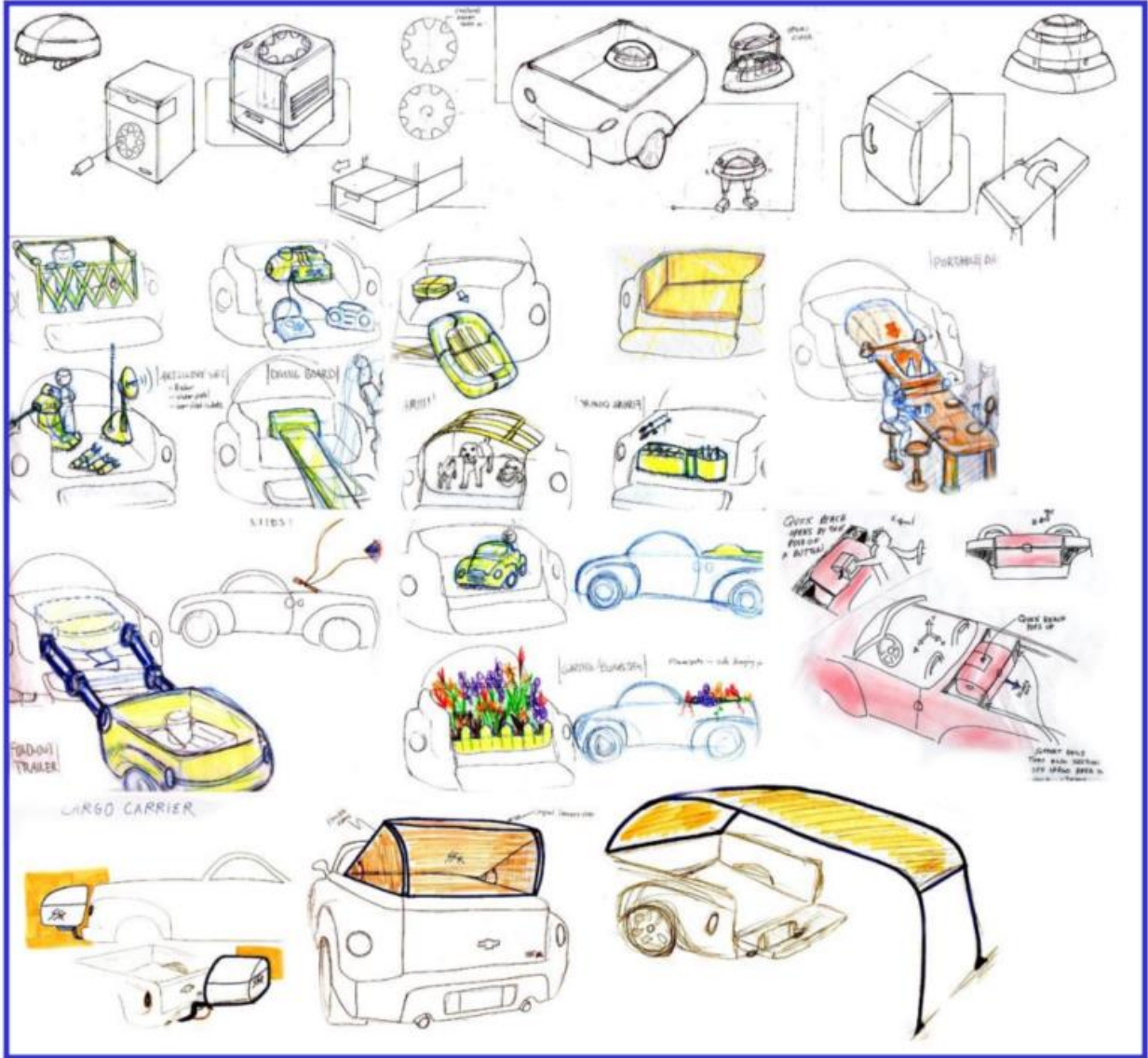
Great Ideas

“To have a great idea ... have a lot of them.”

Thomas Edison



How do some people generate lots of ideas?



Sources of Innovation

"Creativity is just having enough dots to connect ...

... to connect experiences and synthesize new things. The reason creative people are able to do that is that they've had more experiences or have thought more about their experiences than other people."

Steve Jobs



Group Creativity (Brainstorming)

Some Common Rules

- Defer judgment of ideas
- Build on the ideas of others
- Encourage wild ideas
- Express ideas visually
- Stay focused on the topic
- One conversation at a time
- Use stimuli related to the topic

Setting It Up

- Advance prep
- Comfortable room
- 4 to 8 people
- Paper or Post-Its
- Color markers
- White boards
- Coffee and snacks

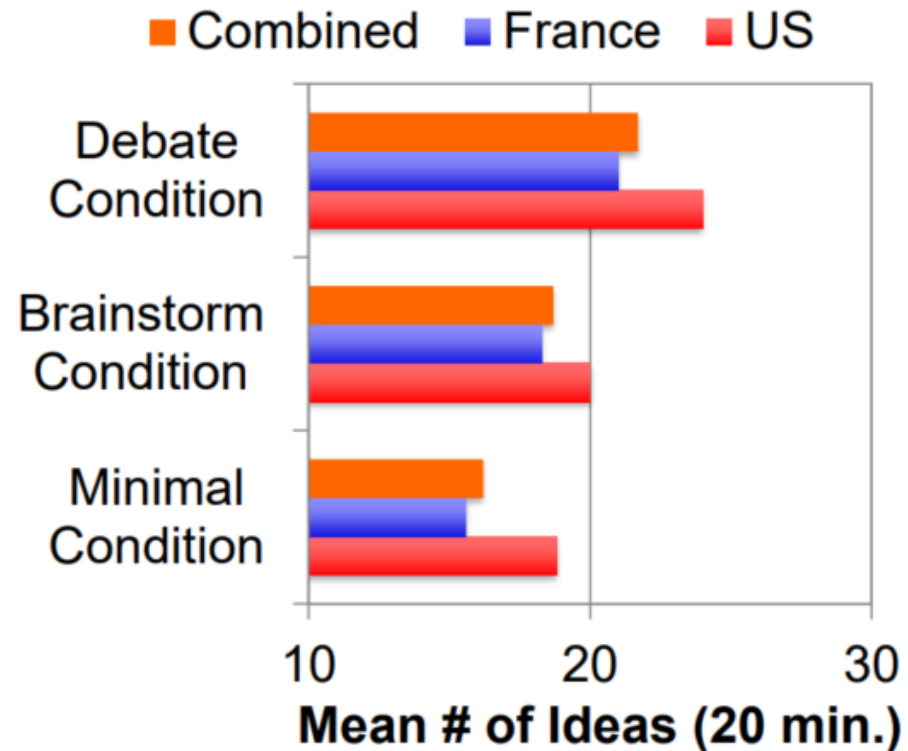
Research on Brainstorming and Creativity

Generating Ideas and Group Creativity

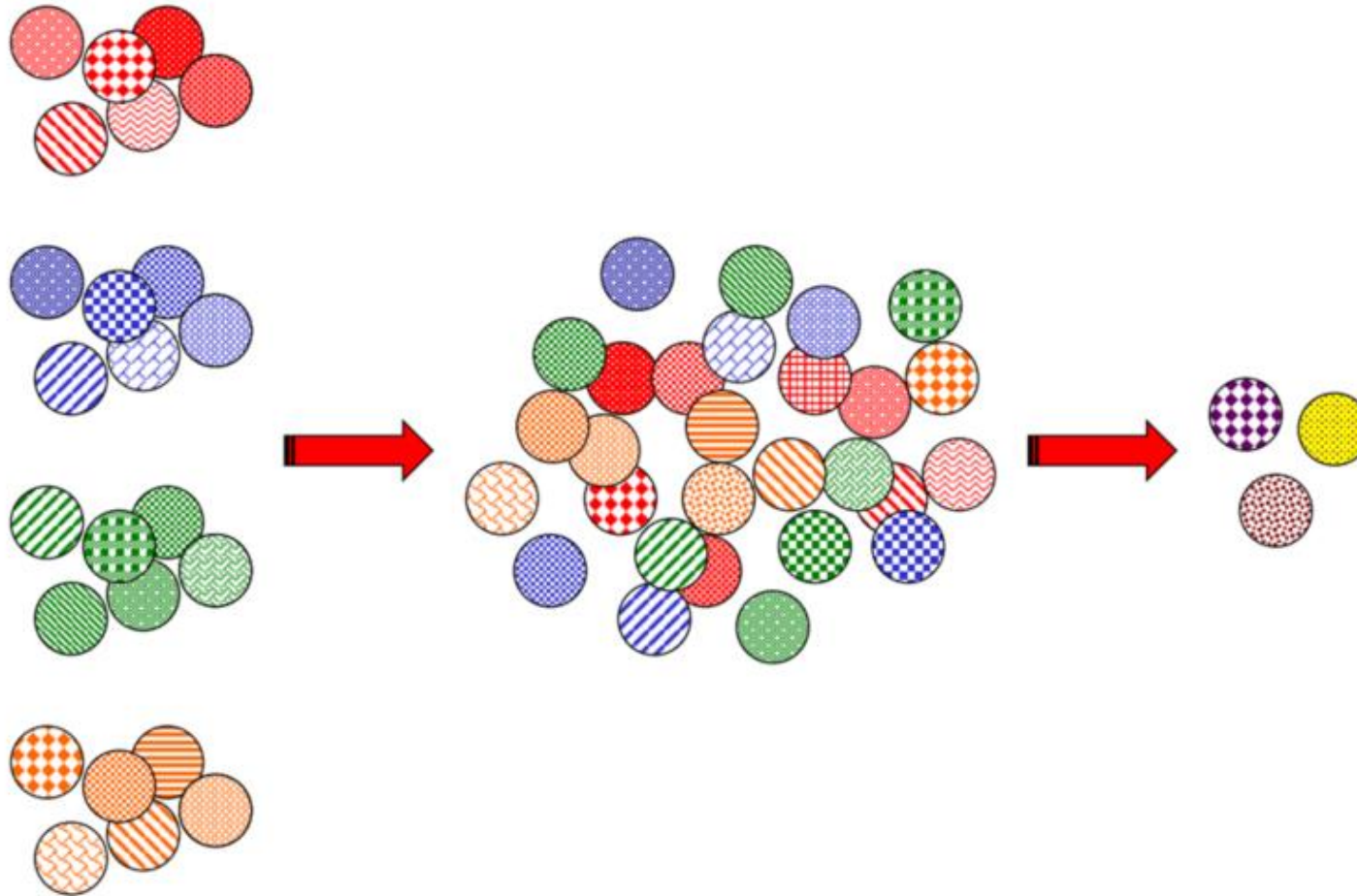


Brainstorm = “using the brain to storm a creative problem—and doing so in commando fashion, with each stormer attacking the same objective.”

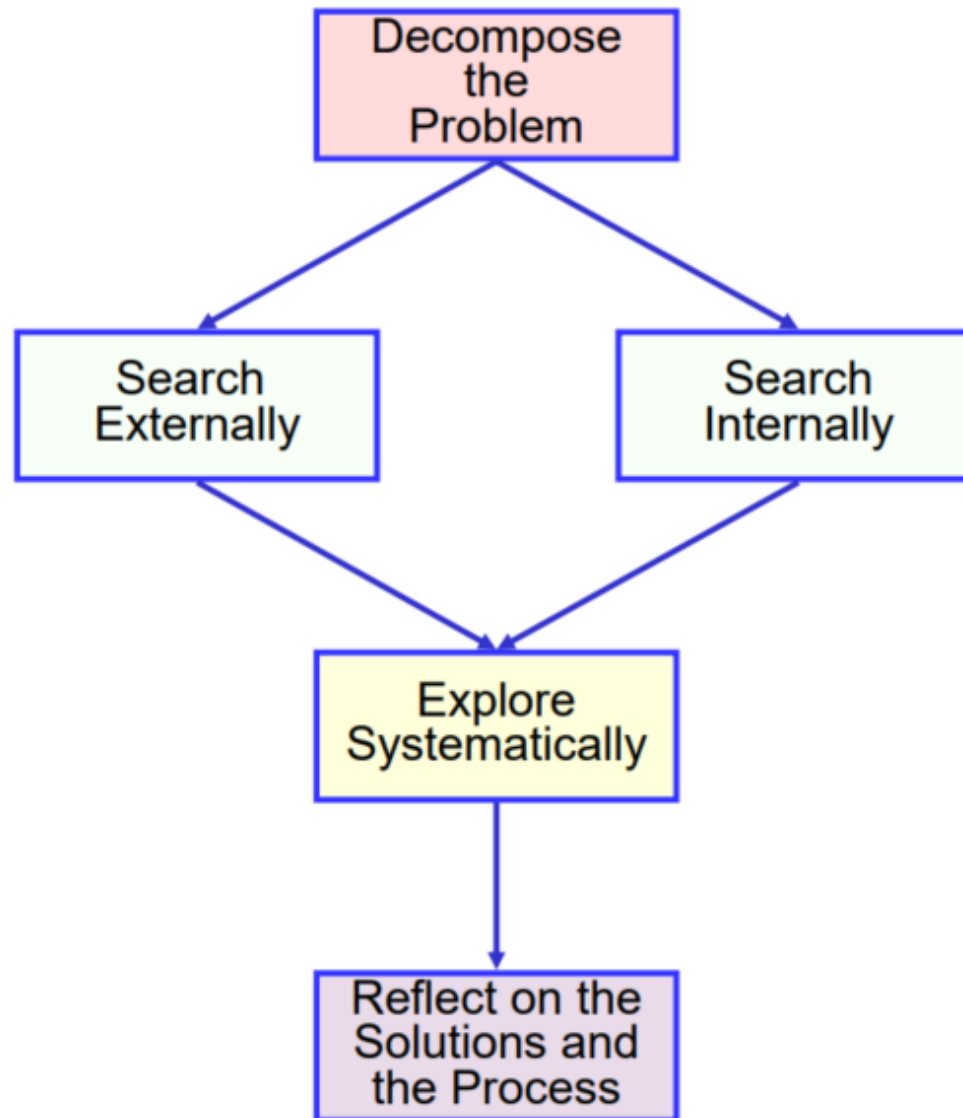
Value of Dissent and Debate in Group Creativity



Individual + Group Creativity



Concept Generation Process



External Search:

Finding Existing and Related Solutions

Existing technology

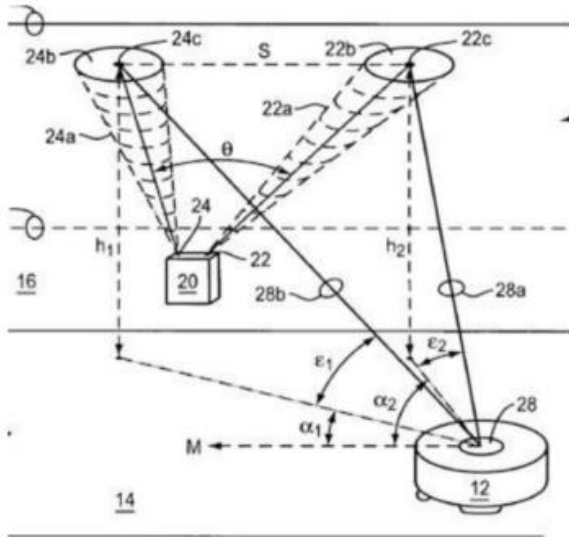
- Patents
- Licensing

Market

- Benchmarking
- Competition

Users

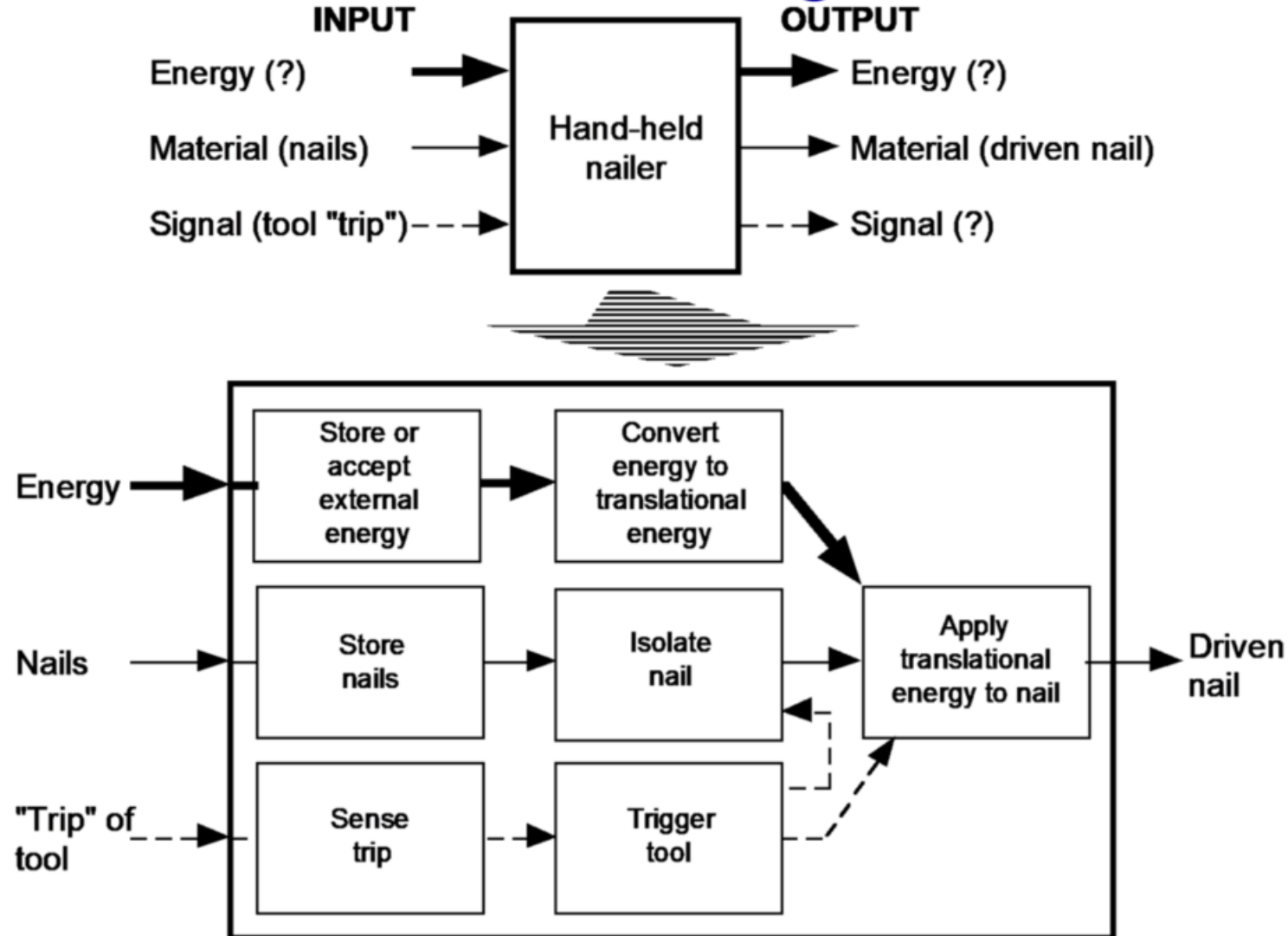
- Lead users
- Extreme users



Concept Generation Example: Power Nailer



Problem Decomposition: Function Diagram



Internal Search: Brainstorming

Tips for Creativity:

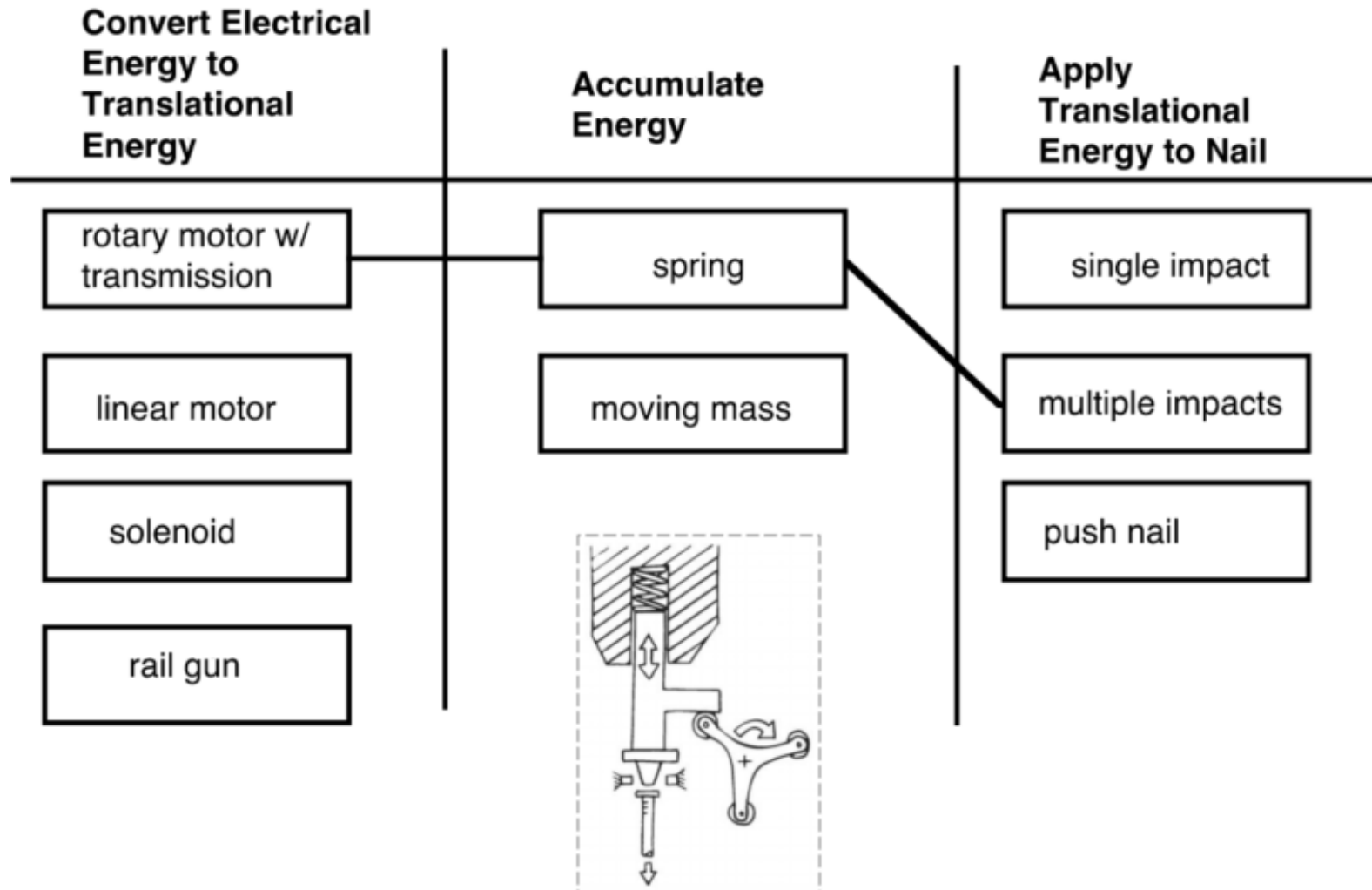
- Suspend judgment
- Generate a lot of ideas
- Welcome infeasible ideas
- Express ideas in sketches
- Use physical media
- Make analogies
- Wish and wonder
- Solve the conflict
- Use related stimuli
- Use unrelated stimuli
- Set quantitative goals
- Use the gallery method
- Trade ideas in a group



SCAMPER Method:

- Substitute
- Combine
- Adapt
- Modify / Magnify / Minimize
- Put to Other Uses
- Eliminate
- Reverse / Rearrange

Systematic Exploration: Concept Combination Table



| Activity | Capture | Store | Use |
|-------------|---------------------|------------------|----------------|
| Bicycling | Generator | Capacitor-solid | Charge device |
| Running | Crank | Battery-chemical | Heat/AC |
| Walking | Wind spring | Heated fluid | Cooking |
| Cleaning | Compress gas | Combustible fuel | Entertainment |
| Speaking | Composting | Food | Lighting |
| Human waste | Heating | Body fat | Security |
| Biogas | Solar photo voltaic | Hydrocarbons | Transportation |
| Typing | Solar thermal | Compress spring | Pacemaker |
| Cooking | Turbine | Compress fluid | Electric fence |
| Breathing | Photosynthesis | Raise mass | Sensors |
| Eating | Piezo-electric | Flywheel | Printing |
| Chewing | Static electricity | | Inflating |
| Sleeping | | | Space travel |
| Showering | | | Brush teeth |
| Dancing | | | Growing food |

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Concept Generation Exercise: Personal Power Generation

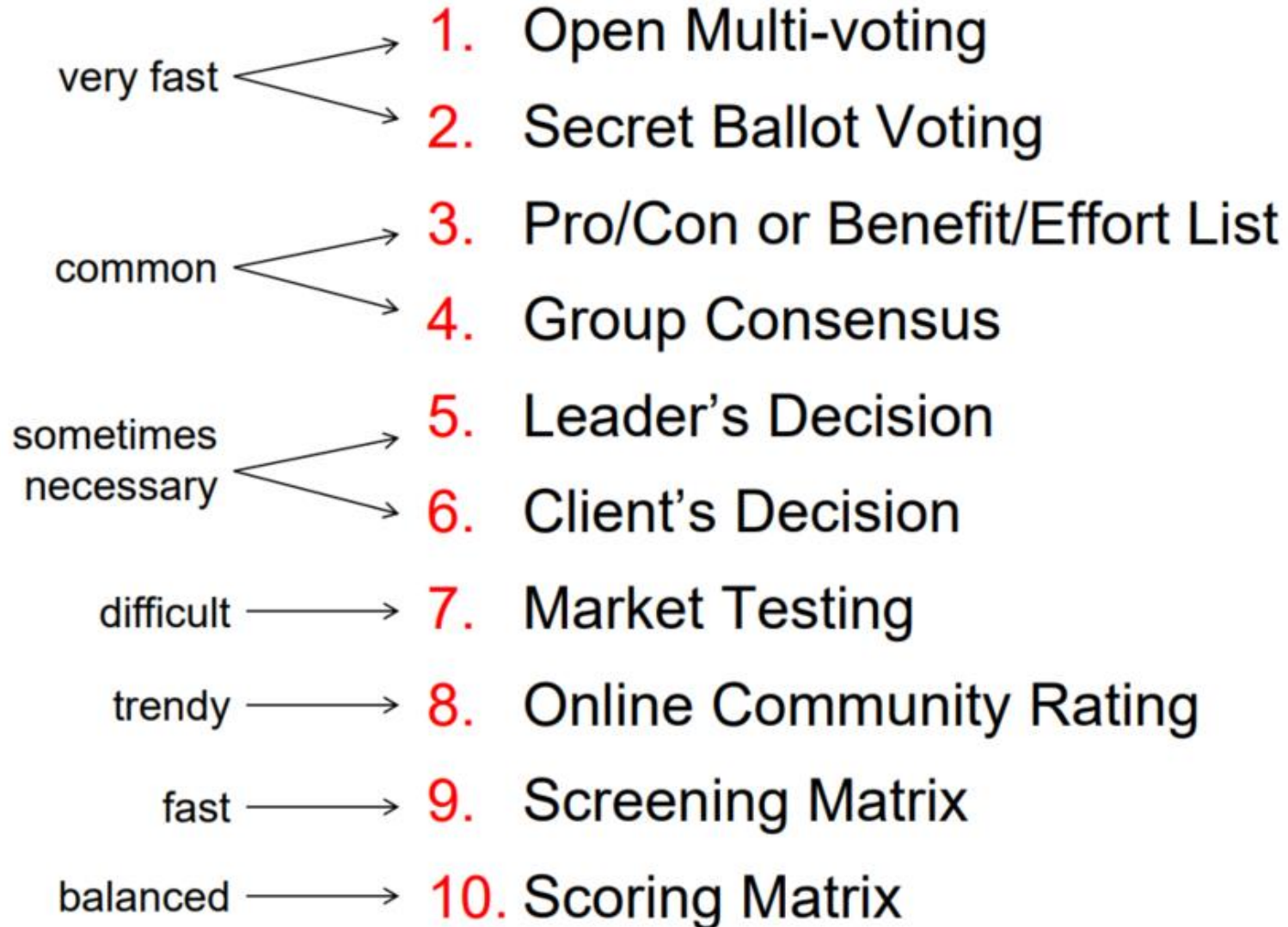
Process Steps

1. Decomposition into sub-problems
2. Generate ideas for each sub-problem
3. Combine ideas into concepts

Concept Selection Methods

1. Open Multi-voting
2. Secret Ballot Voting
3. Pro/Con or Benefit/Effort List
4. Group Consensus
5. Leader's Decision
6. Client's Decision
7. Market Testing
8. Online Community Rating
9. Screening Matrix
10. Scoring Matrix

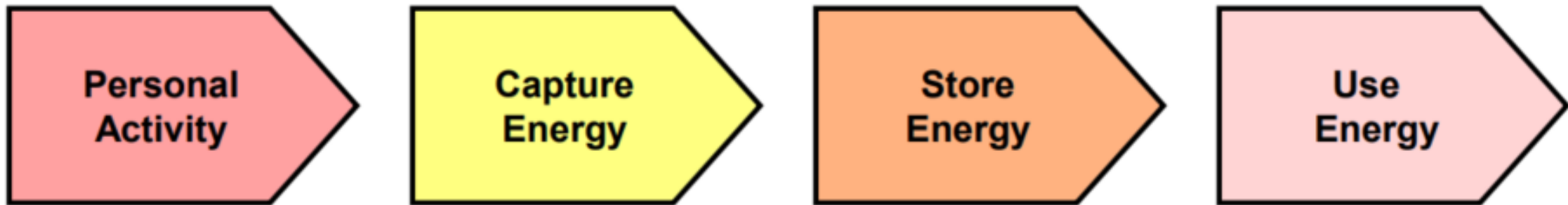
Concept Selection Methods



Concept Generation Exercise: Personal Power Generation



Decomposition: Personal Power Generation



Project Assignment 3

Your team will develop a draft solution concept and submit it on Microsoft White board.

1. divide the group assignment into individual and team activities.
2. For example, each team member could take one sub-problem and individually brainstorm
3. and research solutions, then the team could work together to choose the best of those solutions and to combine them into a solution concept.
4. You can use the discussion board for your team on Microsoft Whiteboard. to capture your ideas.
5. Or you may use any other channel of your team's choice.

Thank You :)