

Brainstorming

Running a
successful
brainstorming
session

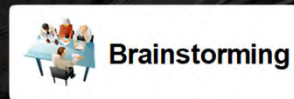
Kostas Tzanakakis
November 2019



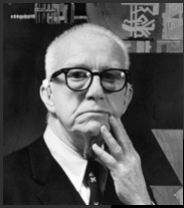
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Presentation Structure

- 1 Introduction to the Brainstorming
- 2 Let us start with a Case Study
- 3 The key rules of Brainstorming
- 4 The Brainstorming Stages
- 5 Mistakes to be avoided
- 6 Putting all together ...
- 7 Let us brainstorm....



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If you want to teach people a **new way of thinking**, don't bother trying to teach them. Instead, give them a **tool**, the use of which will lead to new ways of thinking. (R. Buckminster Fuller)



I sometimes compare my brainstorming on paper to the drilling of oil wells. The only way to strike oil is to drill a lot of wells. (Tom Monaghan)

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1. Introduction to the Brainstorming

*„The best way how to have a **good idea** is to have **many ideas**“*

- Brainstorming developed by Alex F. Osborne, 1939:
 - **method of thinking** up solutions, concepts, ideas in **problem solving**
 - using the **brain to storm** new ideas in **groups**
- Brainstorming is a means of generating ideas.
- There are a variety of brainstorming techniques (today we will present some of them).

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- How often have you used brainstorming in your daily life to solve a problem? Most likely, you've used it at least once, even if you didn't realize it.
- For decades, people have used brainstorming to generate ideas, and to come up with creative solutions to problems.
- However, **you need to use brainstorming correctly for it to be fully effective.**

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When to use brainstorming?

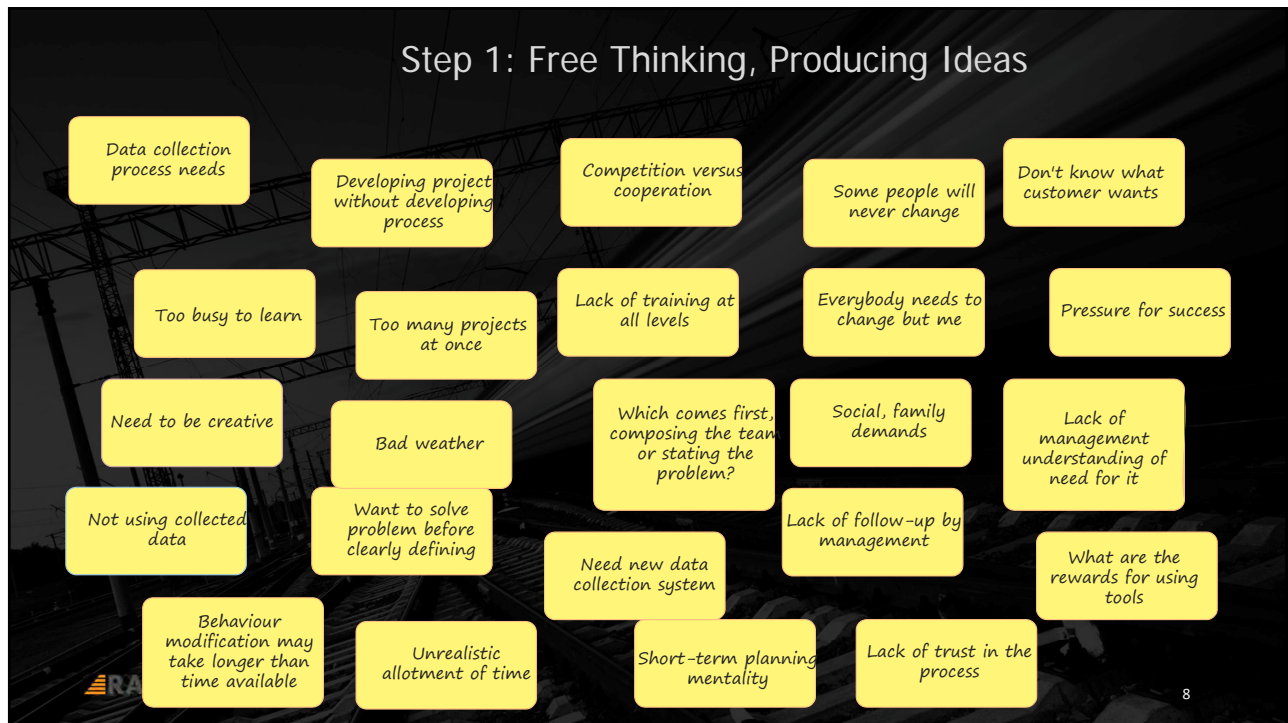
- You can use brainstorming in a project when:
 - Developing the solution definition, particularly in **identifying alternative solutions**.
Example: We need to reorganize the rail/road maintenance sector. What are the various solutions?
 - Identifying all **potential risks on a project**.
Example: a road to be constructed in a mountainous region. What are the risks?
 - Developing the **Work Breakdown Structure** – WBS (identifying all the deliverables and work items).
Example: A tender to be floated for technical assistance. What kind of staff to ask , what experience, for how long?
 - **Dealing with difficult problems** that arise during the course of the project.
Example: During the construction of a project, we phased a problem. How to deal with this problem?

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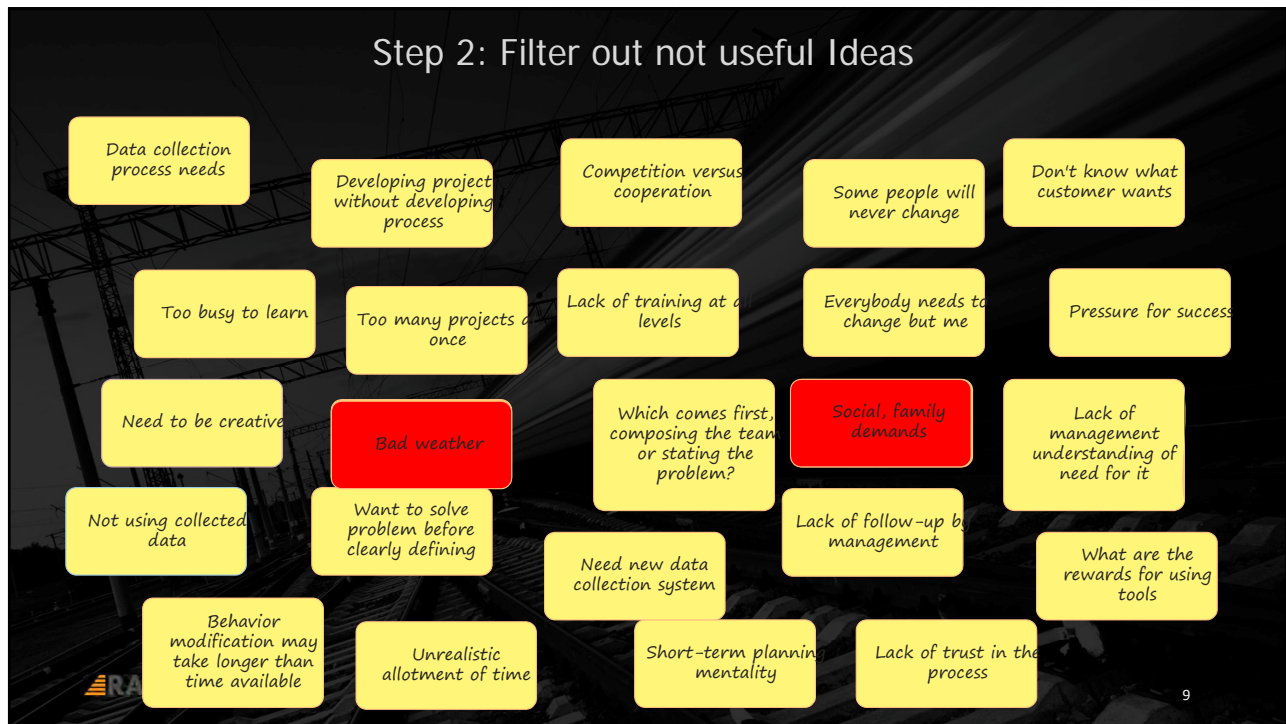
2. CASE STUDY: “Issues in Implementing Continuous Process Improvement”

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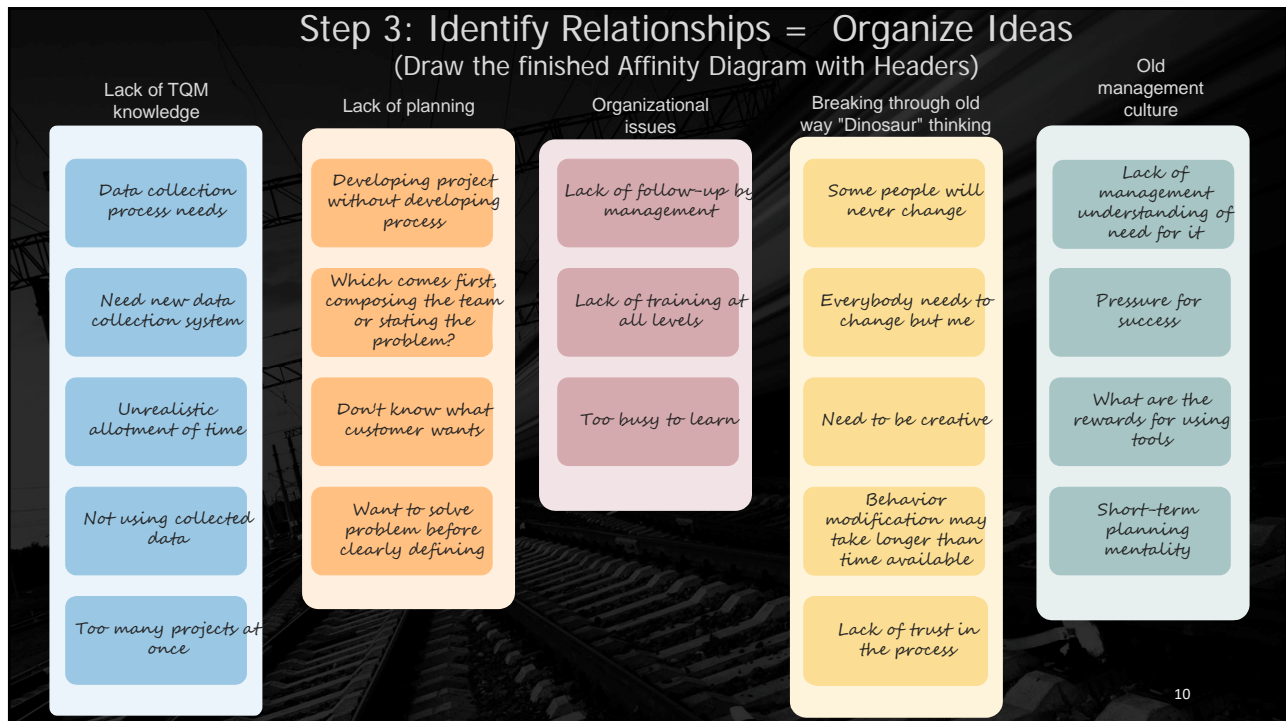
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Step 2: Filter out not useful Ideas

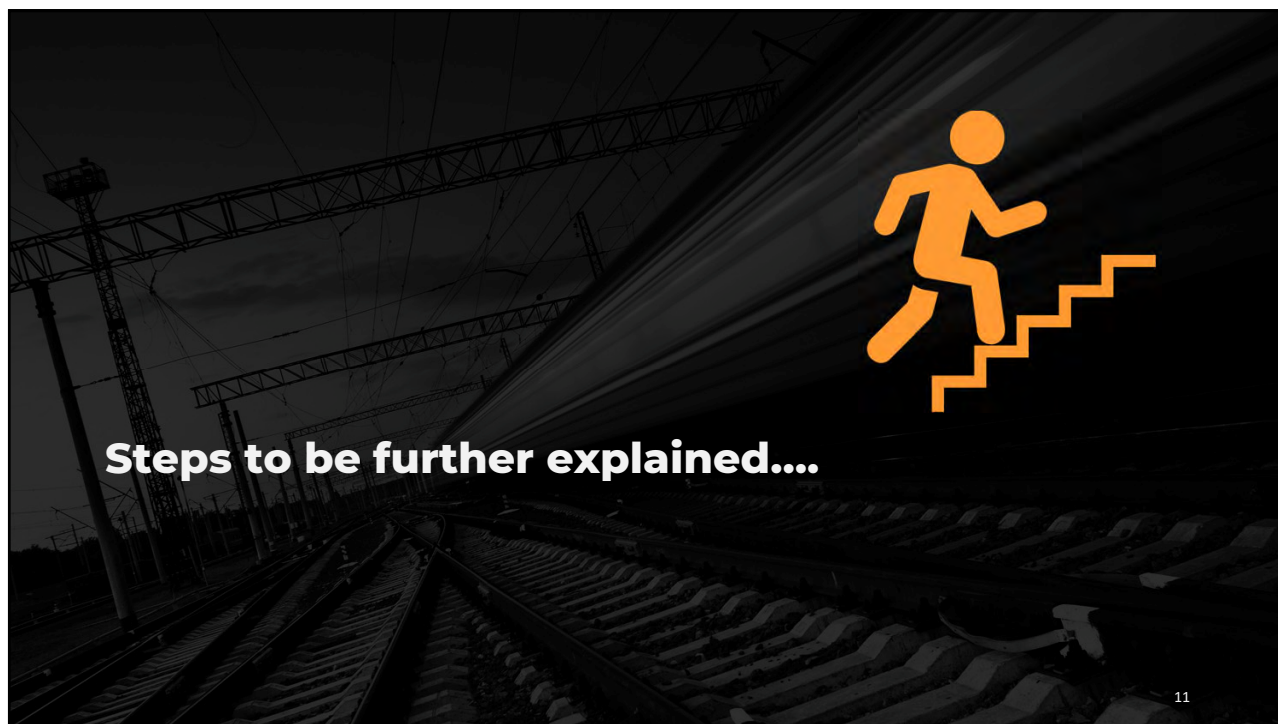


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Step 3: Identify Relationships = Organize Ideas (Draw the finished Affinity Diagram with Headers)



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Steps to be further explained...

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Step 1: Free Thinking, Producing Ideas

- **Write your topic** or subject on a large piece of paper
- **Quickly write down** anything that comes to your mind. Work freely. Try not to categorize at this stage
- **Keep writing** until you can't think of anything else.

Issues in Implementing Continuous Process Improvement

Data collection process needs	Developing project without developing process	Competition versus cooperation	Some people will never change	Don't know what customer wants
Too busy to learn	Too many projects once	Lack of training at levels	Everybody needs to change but we	Pressure for success
Need to be creative	Bad weather	Which comes first: composing the text or stating the problem?	Social, family demands	Lack of management understanding of need for it
Not using collected data	Want to solve problem before clearly defining	Need new data collection system	Lack of follow-up by management	What are the rewards for using tools
Behavior modification may take longer than time available	Unrealistic allotment of time	Short-term planning mentality	Lack of trust in the process	

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Step 2: Filter out not useful Ideas

- Go through all ideas, crossing out those that are not useful
- Look at each item and consider, "How does this idea relate to other ideas, and to the topic as a whole?"



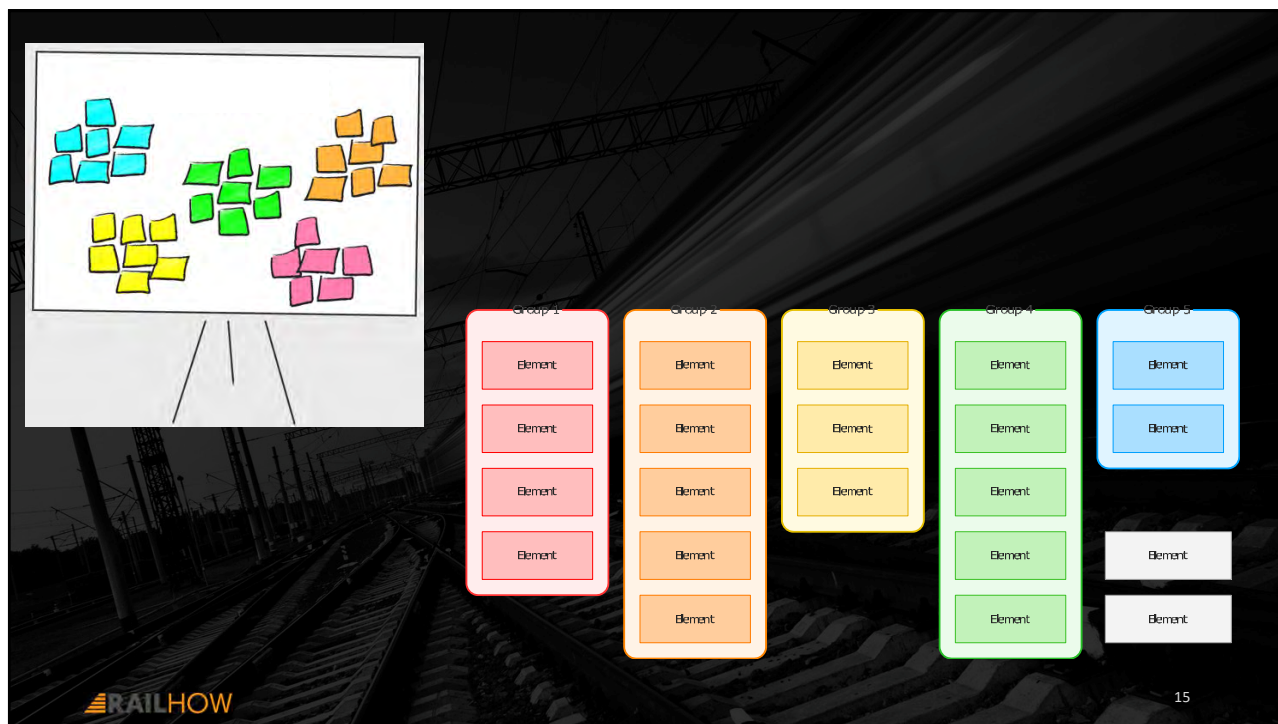
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Step 3: Identify Relationships = Organize Ideas (Draw the finished Affinity Diagram with Headers)

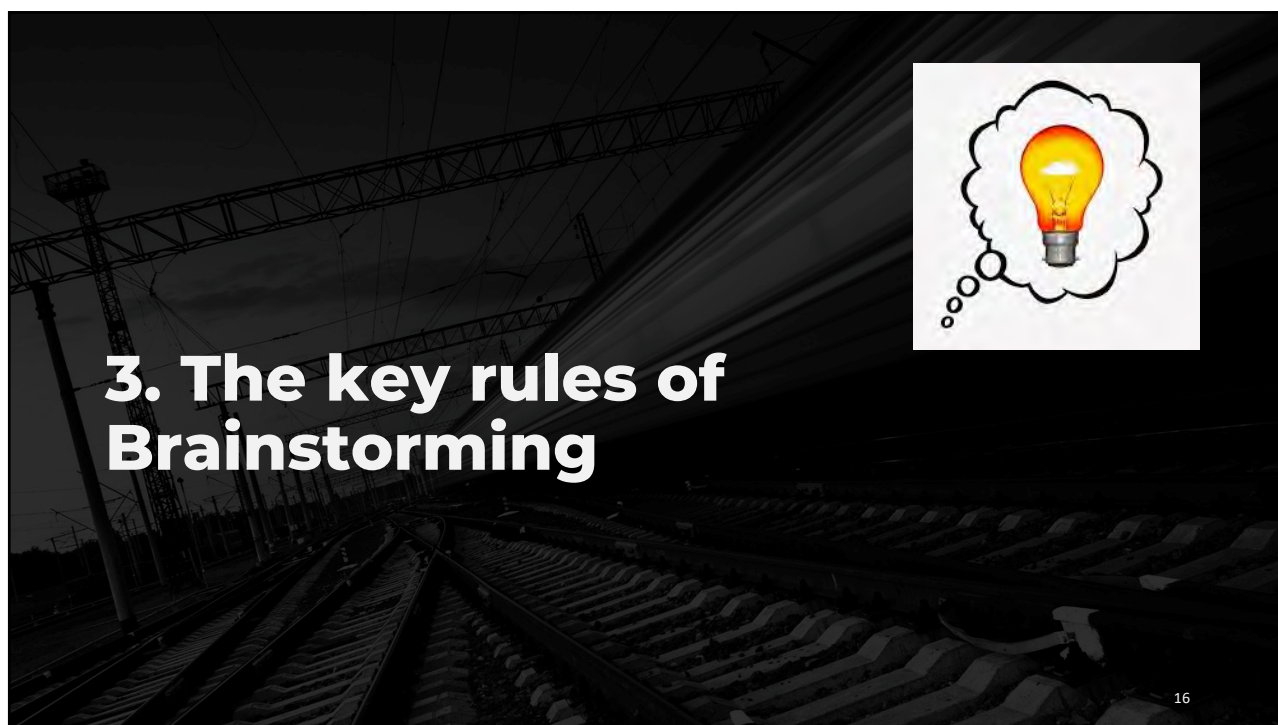
- **Group unorganized ideas** into meaningful themes. You can then see the connections between them.
- Use the following process:
 1. Start by looking for two ideas that seem related in some way. Place them together in a column off to one side.
 2. Look for ideas that are related to those you've already set aside and add them to that group.
 3. Look for other ideas that are related to each other and establish new groups.
 4. This process is repeated until the team has placed all of the ideas in groups.



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There are four basic rules in brainstorming.

1. **All ideas are welcomed / any idea is valid.** To get a good and long list of ideas, **unusual ideas** are welcomed. **Crazy ideas** are welcomed (many times the craziest ideas turn out to be the best ones).
2. **Quantity is important.** The more ideas the better..
3. **No judgement or criticism allowed:** Don't comment on any ideas. First accept all, evaluation at a later stage judge.
4. **Combine and improve ideas:** Combining other ideas and taking another person's ideas a step further or using them for yet another idea is good.

Other rules:

1. Mobile phones to be switched off.
2. Participants cannot leave the room during the brainstorming session



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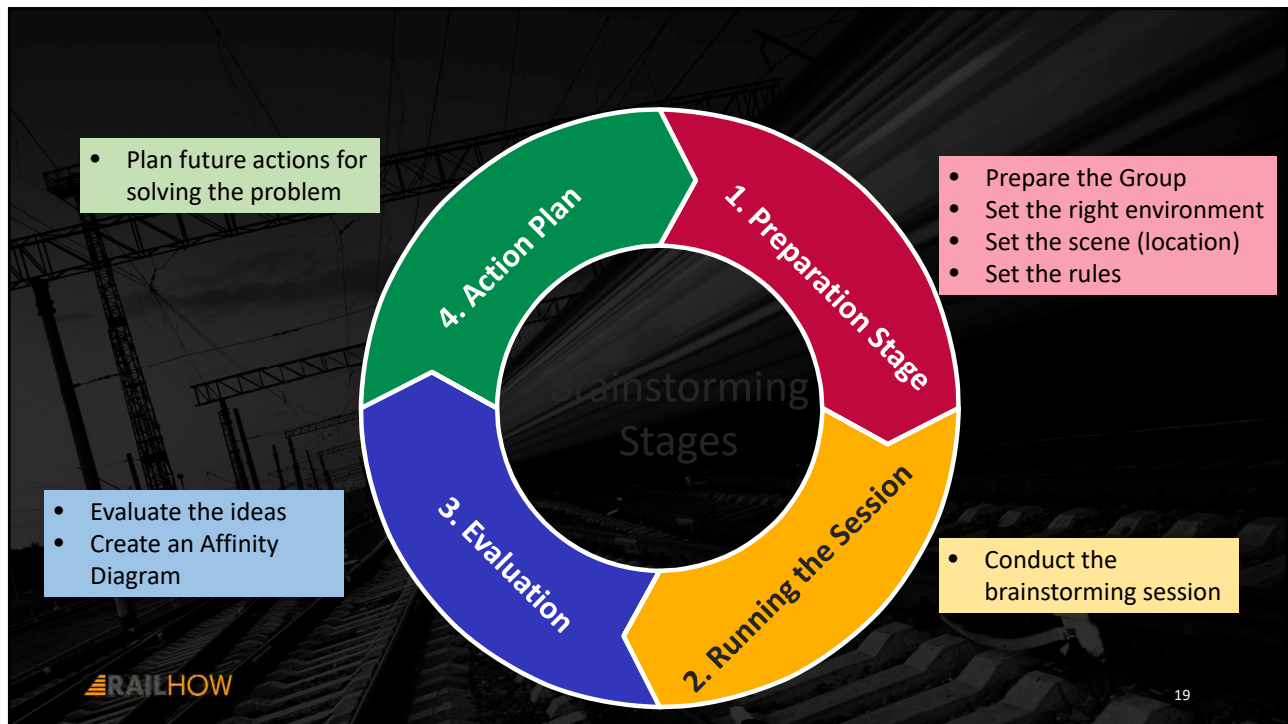


The diagram illustrates the four stages of brainstorming as a sequence of four colored arrows pointing right: a blue arrow labeled '1', a green arrow labeled '2', a yellow arrow labeled '3', and a red arrow labeled '...'. Small icons of people and gears are placed around the arrows to represent participants and ideas.

4. The Brainstorming Stages

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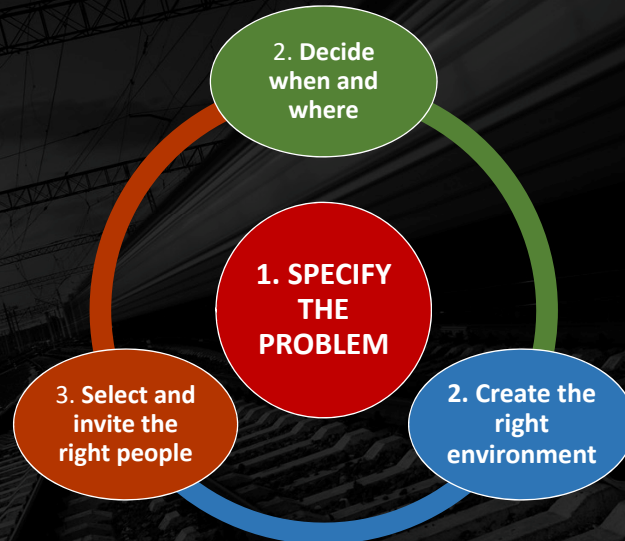


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Prepare the Group



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1. Present the Problem

- **Clearly define the problem** that you want to solve, and lay out any criteria that you must meet.
- Make it clear that the **meeting's objective is to generate as many ideas as possible.**
- **The problem is expressed as a question** (this can be done before the meeting, or as first step in the meeting). The problem is explained in a way that all group members understand its essence.
- **Some facts/details about the problem are provided before we start brainstorming.** A field trip or visit to the place where the problem occurs can help the group members to see and understand the nature of the problem.
- **Give people plenty of quiet time** at the start of the session to write down as many of their own ideas as they can. Then, ask them to share their ideas, while giving everyone a fair opportunity to contribute.

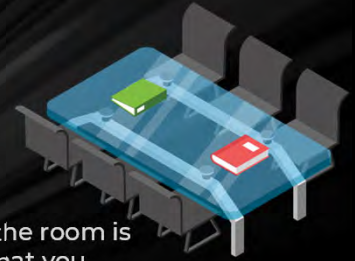
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2. The right environment

- First, set up a **comfortable meeting environment**. Make sure that the room is well-lit and that you have the tools, resources, and refreshments that you need.
- **Location**: preferable to be held away from normal place of work
- **Materials**: whiteboard and pens. Provide a pack of post-it notes and pen for each attendee
- How much **information or preparation** does your team need in order to brainstorm solutions to your problem? Remember that preparation is important, but too much can limit – or even destroy – the freewheeling nature of a brainstorming session.



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3. Select and invite the right people

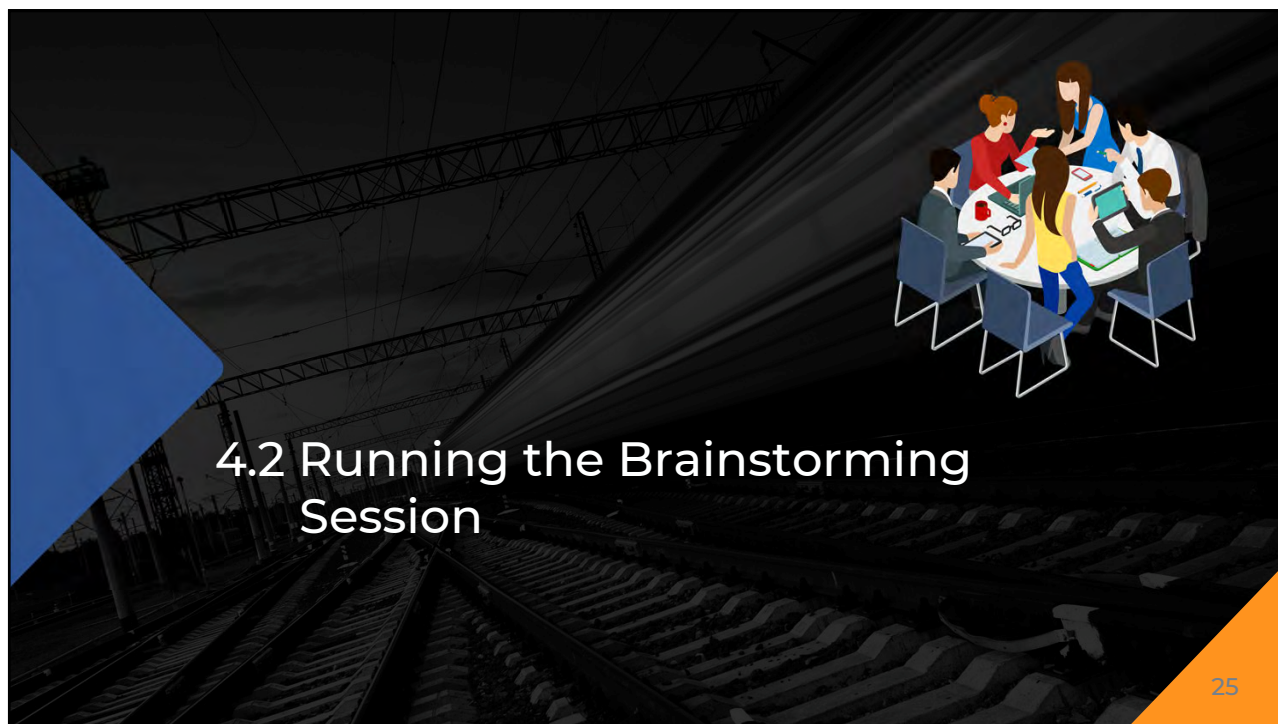
- Consider who will attend the meeting. A room full of like-minded people won't generate as many creative ideas as a diverse group, so **try to include people from a wide range of disciplines, and include people who have a variety of different thinking styles**.
- **5 to 10 people from different positions** to be invited.
- make sure **they have time**.



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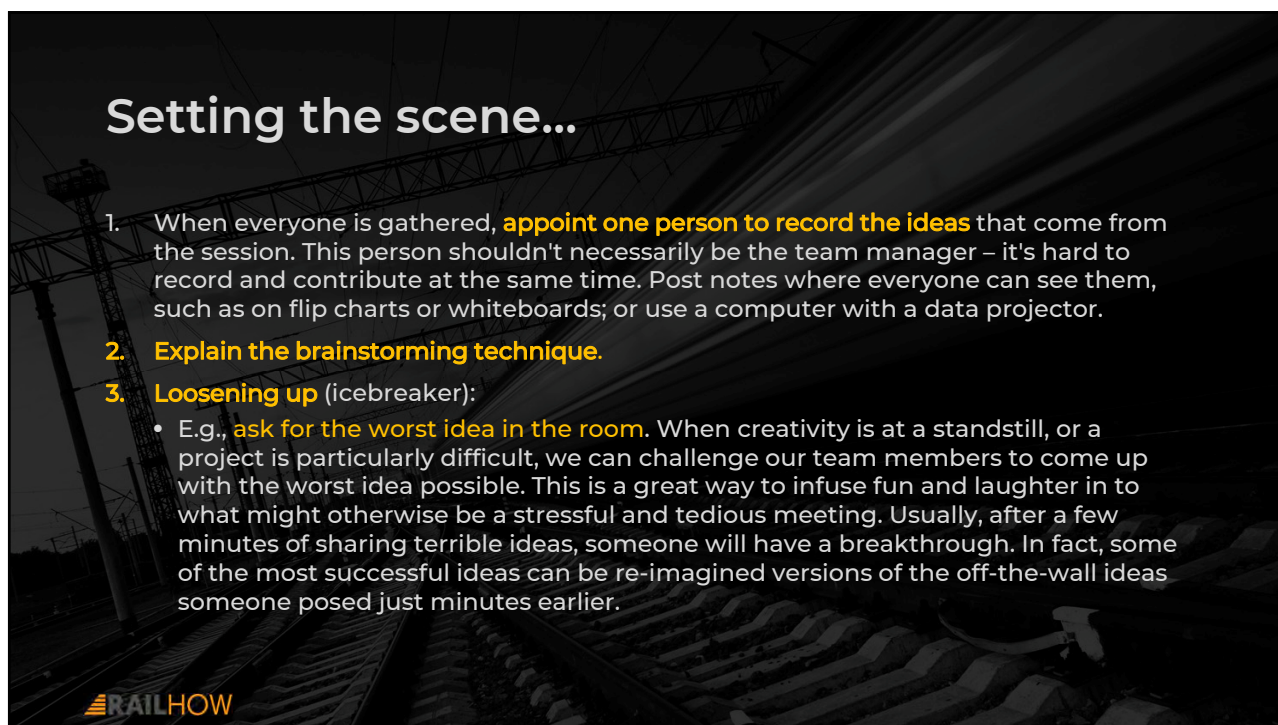
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4.2 Running the Brainstorming Session

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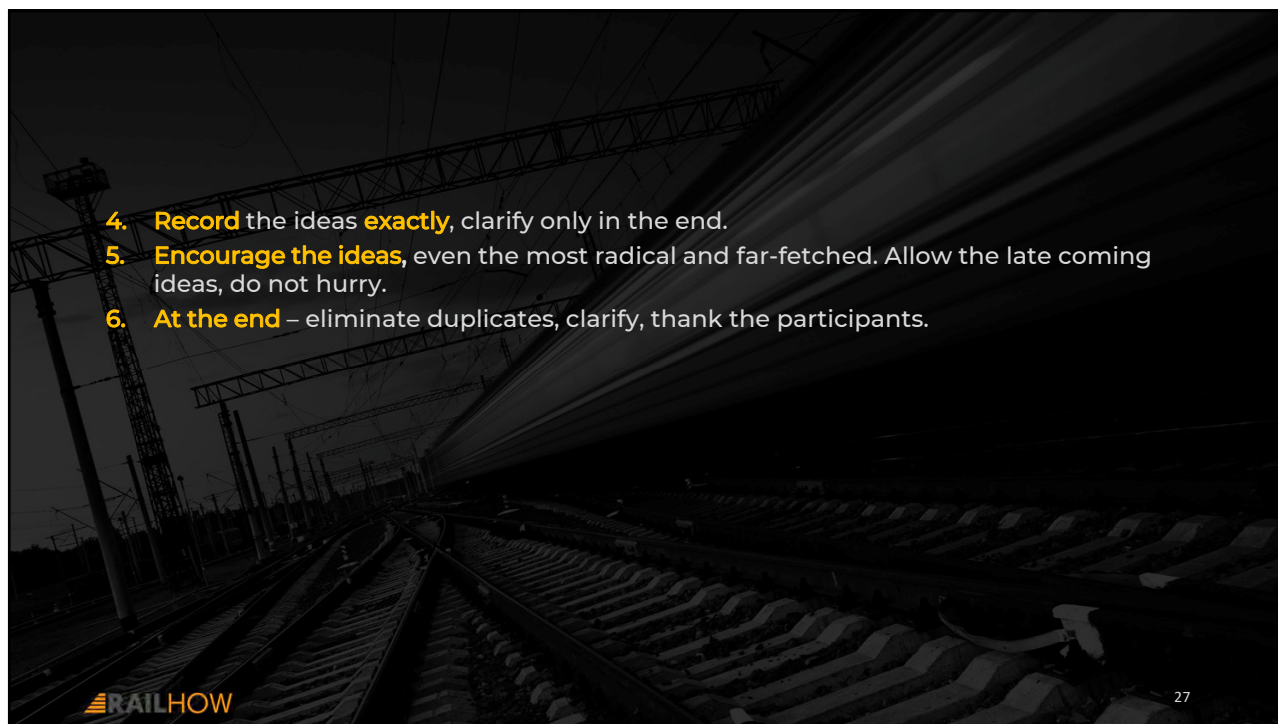


Setting the scene...

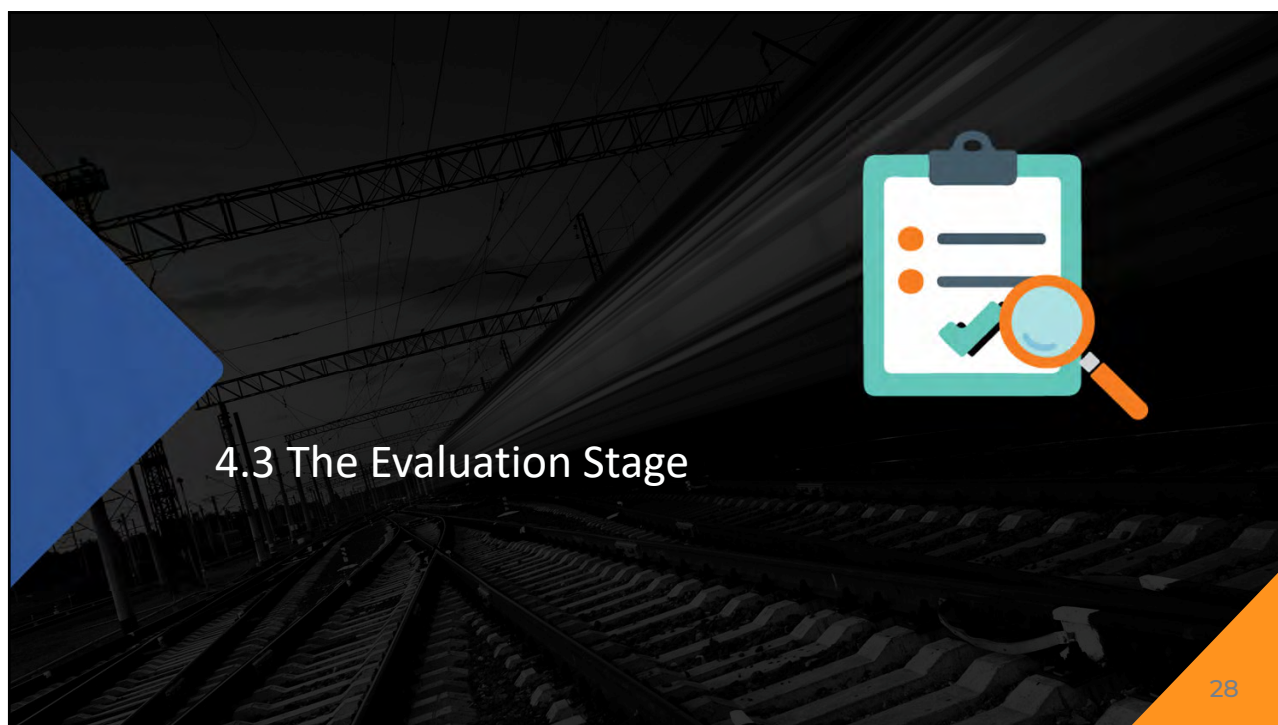
1. When everyone is gathered, **appoint one person to record the ideas** that come from the session. This person shouldn't necessarily be the team manager – it's hard to record and contribute at the same time. Post notes where everyone can see them, such as on flip charts or whiteboards; or use a computer with a data projector.
2. **Explain the brainstorming technique.**
3. **Loosening up** (icebreaker):
 - E.g., **ask for the worst idea in the room.** When creativity is at a standstill, or a project is particularly difficult, we can challenge our team members to come up with the worst idea possible. This is a great way to infuse fun and laughter in to what might otherwise be a stressful and tedious meeting. Usually, after a few minutes of sharing terrible ideas, someone will have a breakthrough. In fact, some of the most successful ideas can be re-imagined versions of the off-the-wall ideas someone posed just minutes earlier.

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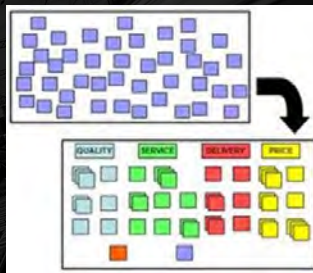
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Organize and evaluate the ideas collected

- After your individual or group brainstorming session, you'll have **a lot of ideas**. Although it might seem hard to sort through these ideas to find the best ones, **analyzing these ideas** is an important next step, and you can use several tools to do this.
- Use **Affinity Diagrams to organize ideas** and find common themes.



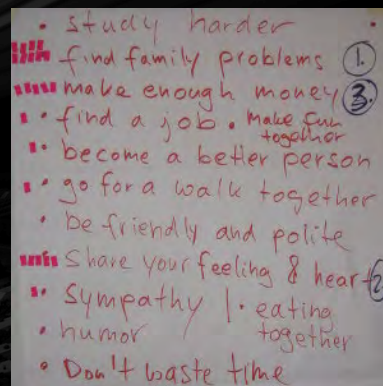
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Multipoint Voting

- We can use Multipoint Voting to decide on our (four or five) favourite ideas.
- Each member gets a packet of five sticky dots and places the dots on the ideas he/she likes the most. You can place all dots on one idea, on five different ideas, or on any other combination.



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The Decision Matrix

- Multipoint Voting is straightforward and fast, but does not explicitly compare ideas with respect to different criteria.
- The Decision Matrix is a more analytical yet still easy-to-implement approach. You can use it by itself or as a second step after narrowing down your ideas with Multipoint Voting.

Decision Matrix

	Criterion A	Criterion B	Criterion C	Criterion D	Total Benefit
Solution 1					
Solution 2					
Solution 3					
	Criteria Weights				

Decision Matrix Template:

Criteria	Idea 1	Idea 2	Idea 3
How fast?			
Benefits?			
Easy?			
Cheap?			
Riskfree?			
Feeling			
Sum			

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- Don't make a decision in your first brainstorming session
 - Brainstorming requires our **creative mind**; that is, we want to get as many ideas as possible and withhold all criticism.
 - But now we need to switch on our **critical mind**. What's more, having spent time to come up with ideas as a team, we need a method that is acceptable to everyone to decide on "**what's next?**"
 - To clearly separate **idea generation from idea evaluation**, it is suggested to have two different sessions, preferably a few days apart. We want our ideas to leave an impression and trigger further thoughts in the team (here our family) before proceeding.

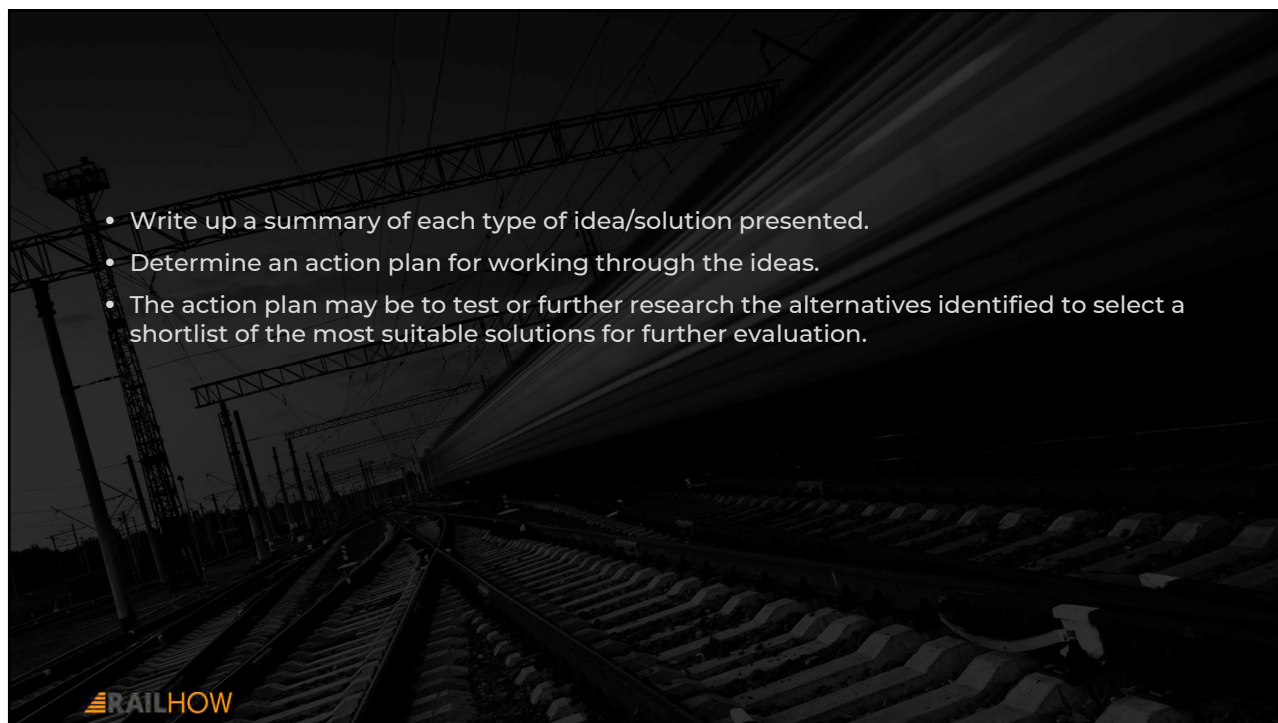
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4.4 Take actions

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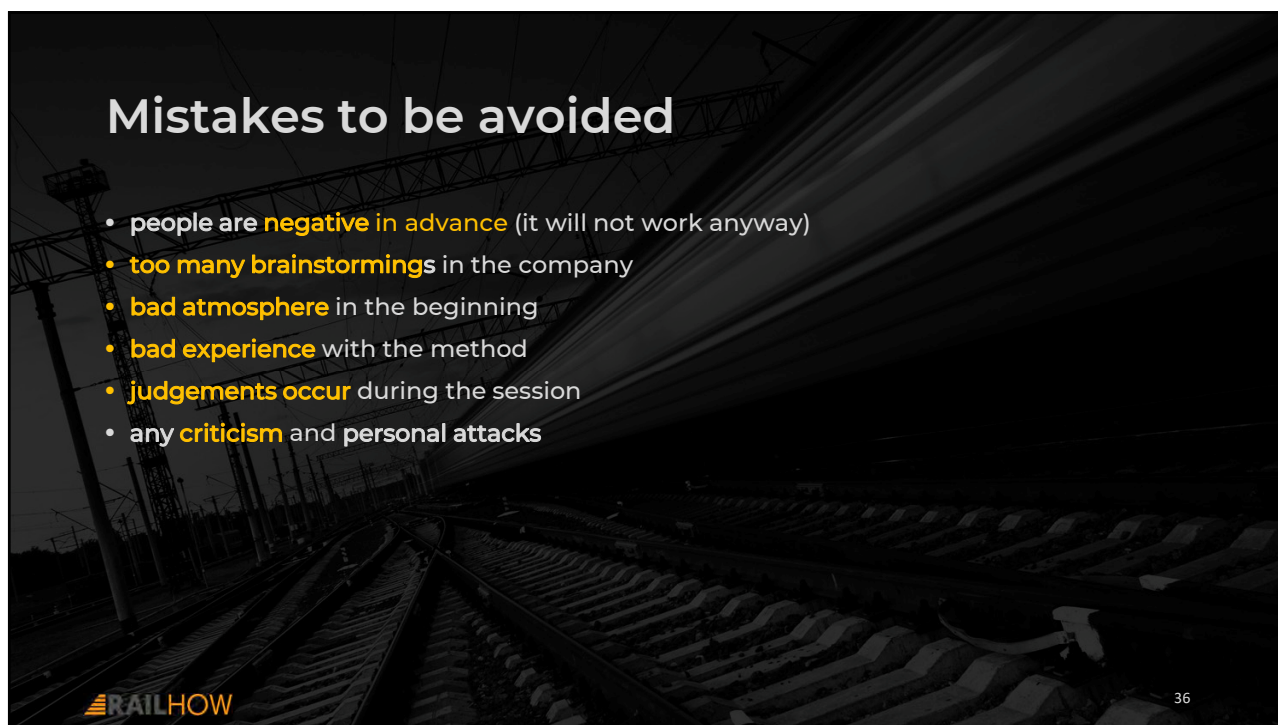


- Write up a summary of each type of idea/solution presented.
- Determine an action plan for working through the ideas.
- The action plan may be to test or further research the alternatives identified to select a shortlist of the most suitable solutions for further evaluation.

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6. Putting all together



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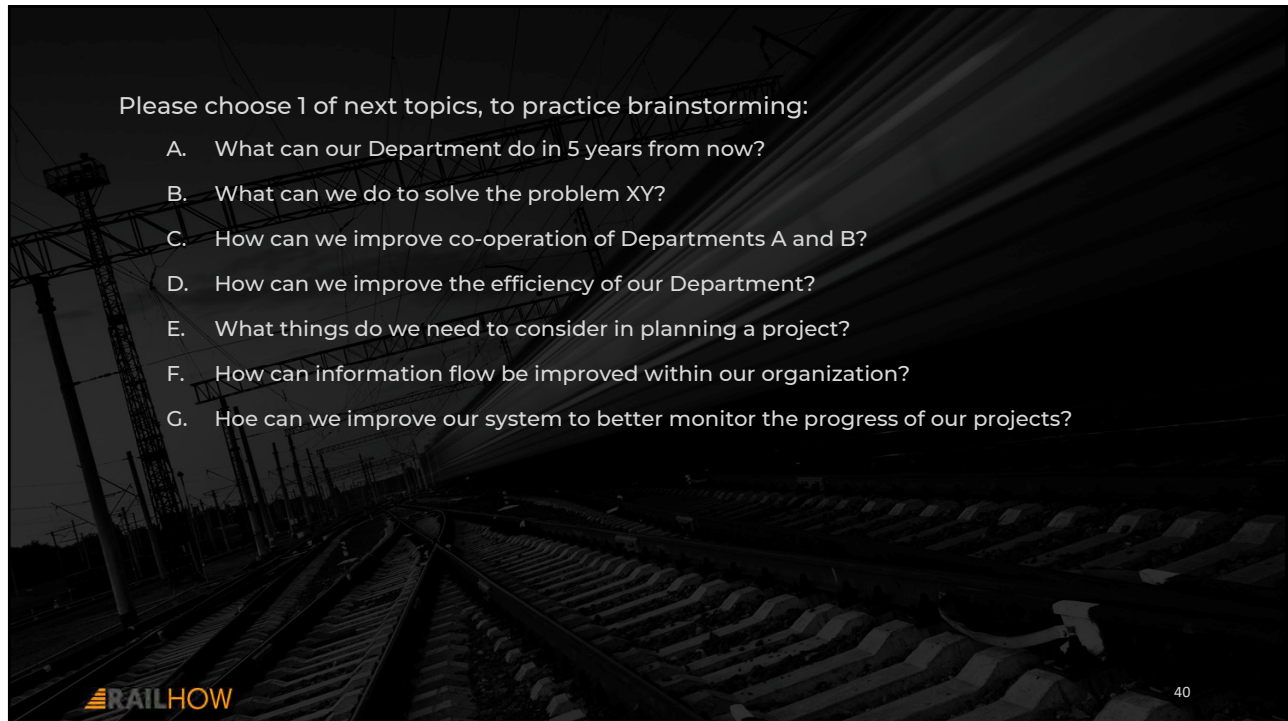
- Brainstorming can:
 - break through traditional thinking about a problem.
 - generate new ways of thinking.
 - provide an environment for building on new ideas.
 - reduce the tendency to prematurely discard new ideas.
 - facilitate team building.
 - encourage team problem solving.

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A few words about me...



- Civil Engineer (MSc.) - University of Hannover in Germany
- Master Executive MBA degree - Athens University of Economics & Business
- Over 30 years of experience in the railway sector, including eight years in Director positions at Greek Railways Organization
- 2006 - 2013 the Head of the Railway Systems Directorate
- 2013, 2014 development of the Omani National Railway Network
- Senior Railway Expert at the Ministry of Transport and Communications in Oman
- On 14/2/2019 launched website www.railhow.com, aiming to be the touchstone for people who are working within the engineering sector by offering practical, yet impactful knowledge and learning experiences



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Leading a dynamic railway learning experience!



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