HELMHOLTZ

RESEARCH FOR
GRAND CHALLENGES

Topic 8 ECR Event
“Shaping the future of georesources”

Hackathon “Geofuture”

Orga-Team:

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Ground rules

- Be creative and do something new
- Spend more time building, less debating
- Be constructive and positive
- Be respectful, everybody´s input is valuable
- Share your ideas
- Talk to strangers
- Have fun!

Hackathon

What we plan for the „Geofuture“ Hackathon:

- Rapid and collaborative idea finding
- Develop project ideas
- Interdisciplinary
- Short time frame (couple of hours)
- Specific focus on one topic (8)
- Goal: create a practical project idea

Goal

Task for Hackathon Workshop

Goal: “Develop a practical project idea on georesources that contributes to a sustainable future”

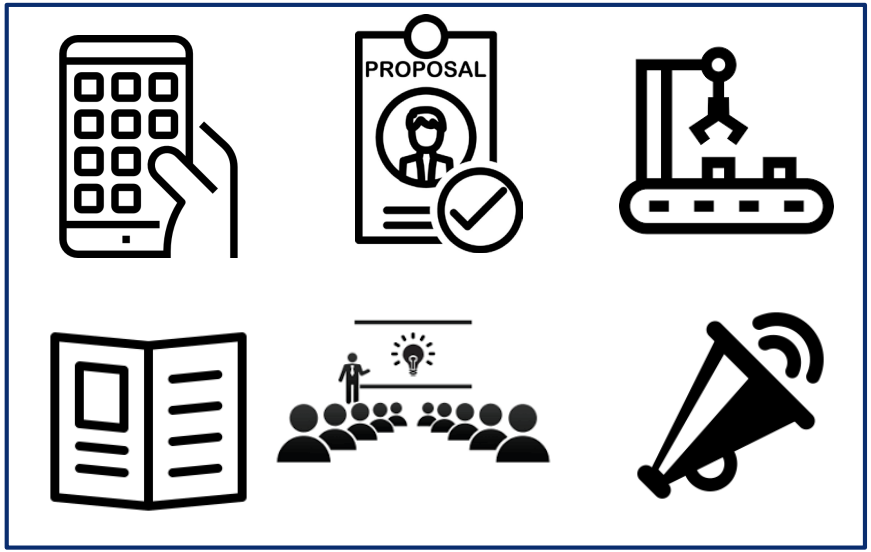
- Project ideas should:

  a) tackle a challenge of Topic 8 Themes
  b) focus on one concrete idea
  c) be doable in the foreseeable future

- Project ideas can be:

  d) Whatever, you can imagine. Be creative!

- Project ideas will be presented in a 2-Minute Pitch!



Prize

Winner:

- will be invited to the General Assembly of the Program “Changing Earth” (15./16.05.2023 in Karlsruhe) to represent Topic 8
- Individual support from Topic 8 (e.g. experts, logistics, network, …) to further develop the project idea

Program overview

T8: Georesources

Day 1 – 14 February 2023

13:00	Registration / Welcome
13:15	Introduction Topic 8
13:45	Introduction Hackathon „Geofuture“ ←
14:15	Ideation sessions
16:15	Idea Gallery / Idea voting
16:45	Team kick off / Idea Refinement
18:00	Team Building (Dinner, Beverages, Chats)

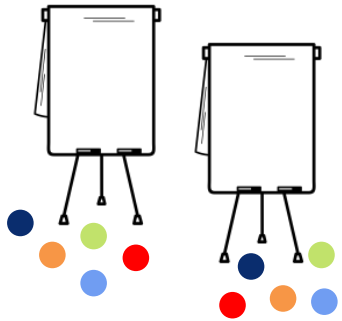
Ideation – finding a project idea (14:15-16:15)

Logistics

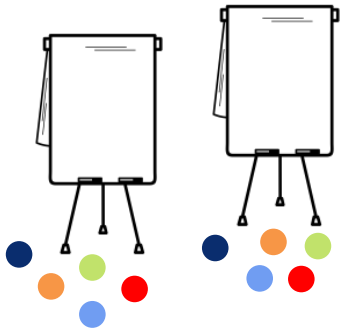
- 8 flip charts
- 4 themes (Geothermal Energy, Geological Storage, Raw Materials & Carbon, New Tools applicable for all georesources)
- 4 sessions
- 25 min time per session
- Rules:

- 4-6 team members
- mix it up (>4 different stickers per team)
- everyone works on all themes

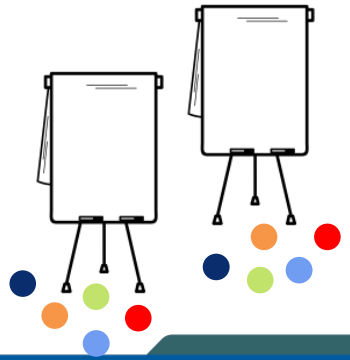
Geothemal Energy



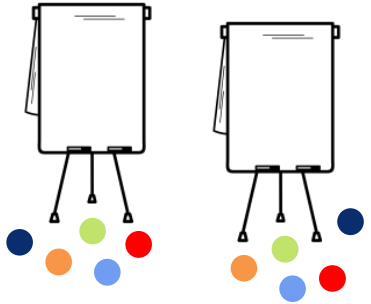
Raw Materials



Geological Storage



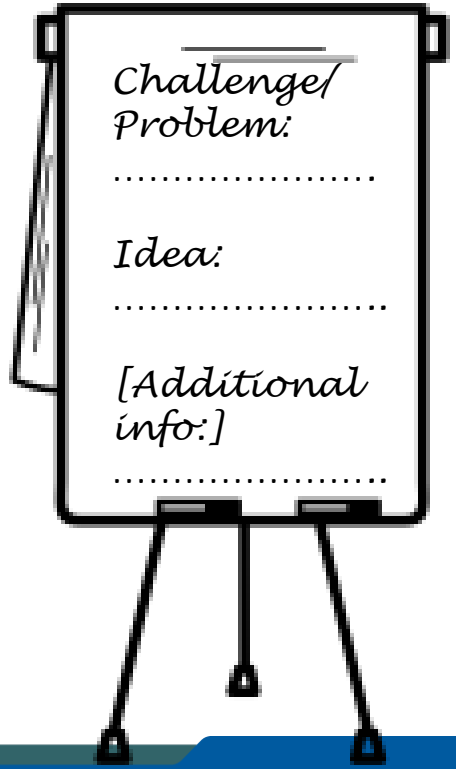
New Tools



Ideation – finding a project idea (14:15-16:15)

How to …

- Step 1: Find a challenge
- Step 2: Pick a specific problem
- Step 3: Find an idea that helps to solve the problem and tackle the challenge! (Be creative)
- Step 4: Write on the flip chart: Challenge/Problem, Idea, [additional info]



Ideation – finding a project idea (14:15-16:15)

How to … Example

Geothermal energy:

- Step 1: Challenge: - provide geothermal heat to all communities in Germany
- Step 2: Problems: - induced seismicity
  - risk of failed drilling
  - cost of drilling ←
  - unknown or unfavorable geology
  - public acceptance
  - ….
- Step 3: Idea: → invent a cheap drilling technique

- Don´t need to be an expert to have an opinion and ideas. Validating assumptions is for later!

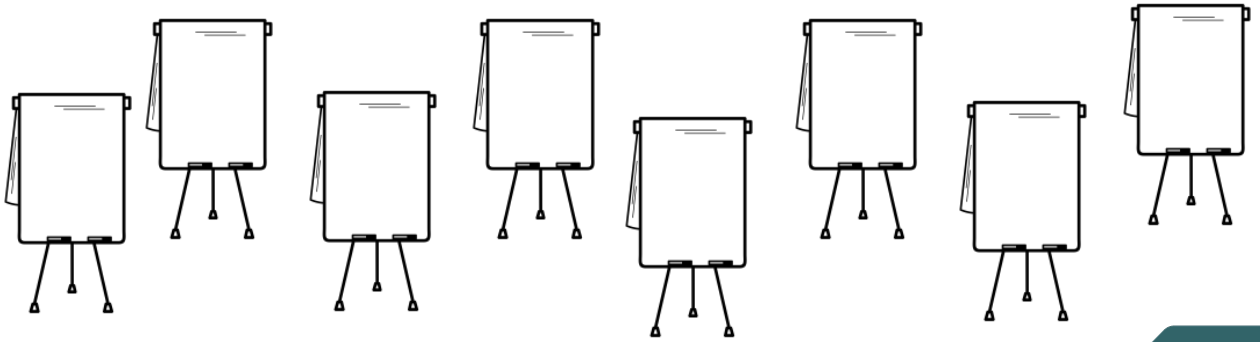
Idea Gallery + Idea voting

(16:15-16:40)

T8: Georesources

Explore the ideas and decide!

- All Ideas are displayed on poster walls in the Foyer.
- Online Vote
  - You decide which projects will be developed in the Workshop!
  - You have 3 votes. Please, chose which project ideas you would like to work on. (Keep in mind how easy the idea is to implement, how valuable it is, how much fun, how useful, how new, etc.)



Online poll

T8: Georesources

or via the workshop webpage:

https://events.hifis.net/e/T8ECR

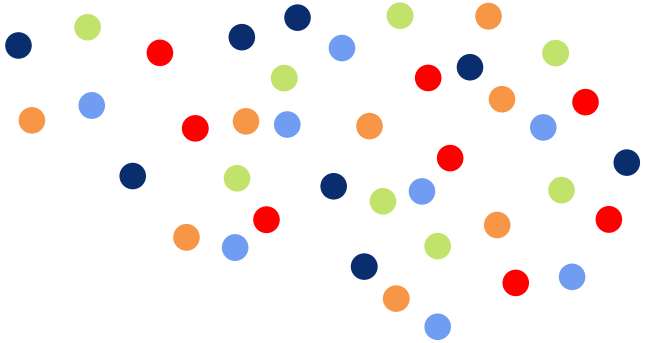
Idea Gallery + Idea voting

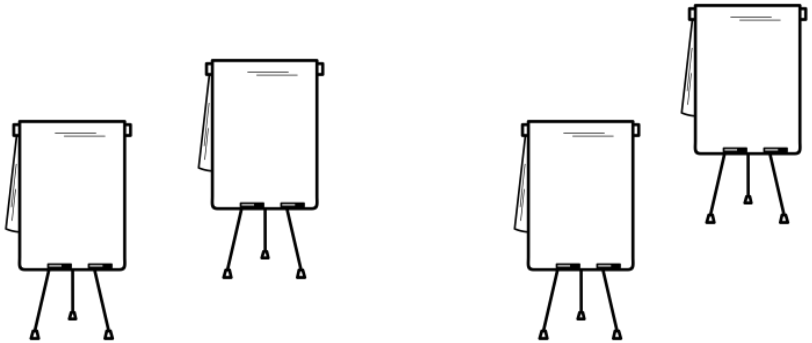
(16:15-16:40)

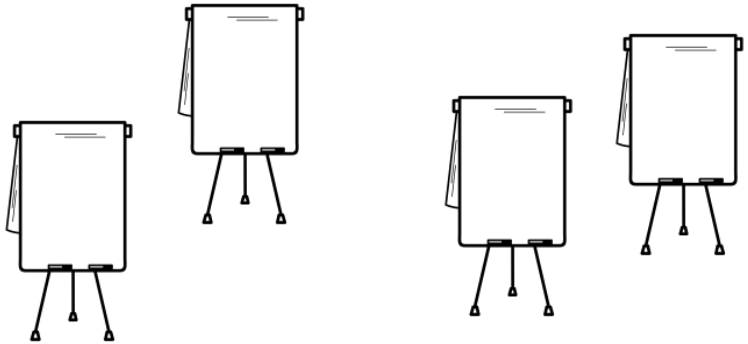
T8: Georesources

Explore the ideas and decide!

- Only the 8 best ideas will be developed
- After results: Go to the Project poster, you would like to work on. You are free to chose.
- Each Team should have 4-6 members, and be as diverse as possible.







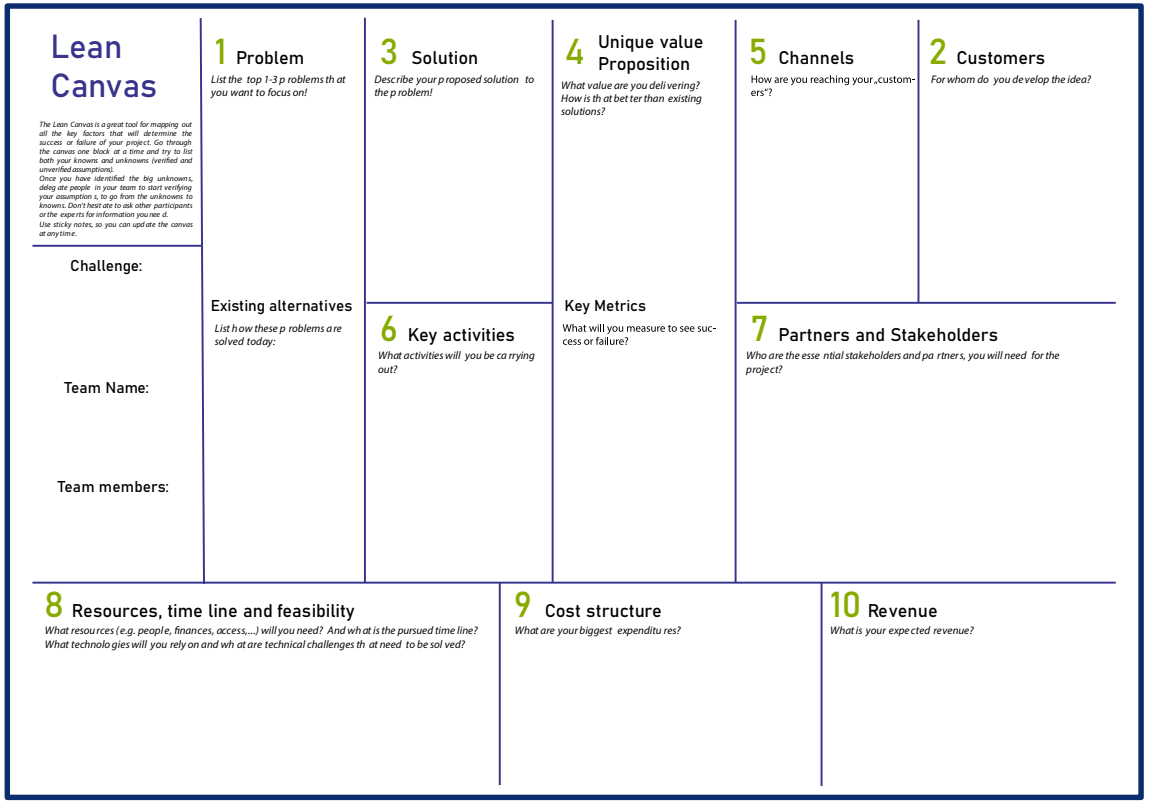
Team Kick off / Idea refining

(16:45-18:00)

T8: Georesources

Tool: The Lean Canvas

- Get to know the team members. You might want to define a team goal.
- Mapping out the key factors with a Lean Canvas (go through the blocks and list knowns and unknowns).



Program overview

T8: Georesources

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13:15 Introduction Topic 8

13:45 Introduction Hackathon „Geofuture“

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16:15 Idea Gallery / Idea voting

16:45 Team kick off / Idea Refinement

18:00 Team Building (Food, Beverages, Chats) ←

Program overview

T8: Georesources

Day 2 – 15 February 2023

9:00	“How to give a good pitch?”	←	Martin Otto (GFZ Transfer and Innovation)
9:30	Idea Development		
12:30	Lunch		
13:00	2 minute pitches + discussion + voting		
14:30	Final discussion, feedback		
15:00	End		

Developing and validating your Idea (9:30-12:30)

T8: Georesources

Develop your idea in more detail – focus on a single aspect

3 hours time to develop your idea:

- Use your Lean Canvas (unknows → knowns)
- Try to sketch out one small but important aspect of the solution
- Don´t know what to focus on? Try tool: “User Journey map and Prototyping target”
- “Prototyping”: Try to create a mockup or sketch of your solution.
- → Check-in with the experts! Get some feedback and help from the Topic 8 Board members.
- Safe some time to prepare your 2-Minute Pitch!

Pitch Preparation

(9:30-12:30)

T8: Georesources

For the presentation, think about the following:

- Problem: show you understand the problem and refer to any research you did.
- Solution: present your solution and how it differs from existing solutions.
- Impact & vision: explain the impact of your solution and vision for the project.
- Research: summarize all the expert and stakeholder research you did. Explain what else needs to be researched.
- Sustainability & next steps: how will you generate revenue and sustain your work?
- Team: who are the people & partners behind this project and how will they make it work?

- → Have a look on the workshop website for the slides of Martin

Pitch presentation / Discussion / Voting (13:00-14:30)

- Each team presents their project idea in a 2-Minute pitch in front of experts and other participants
- Additional 5 min time for questions and discussion
- Voting: Eurovision Song Contest style
  - Participants vote
  - Jury vote

} Team with most points = winner

- Vote for the overall best project (keep in mind: novelty, practicality, usefulness, presentation of the group, potential for realisation and implementation, budget, time, human resources, etc.)

Program overview

T8: Georesources

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Results Registration Poll

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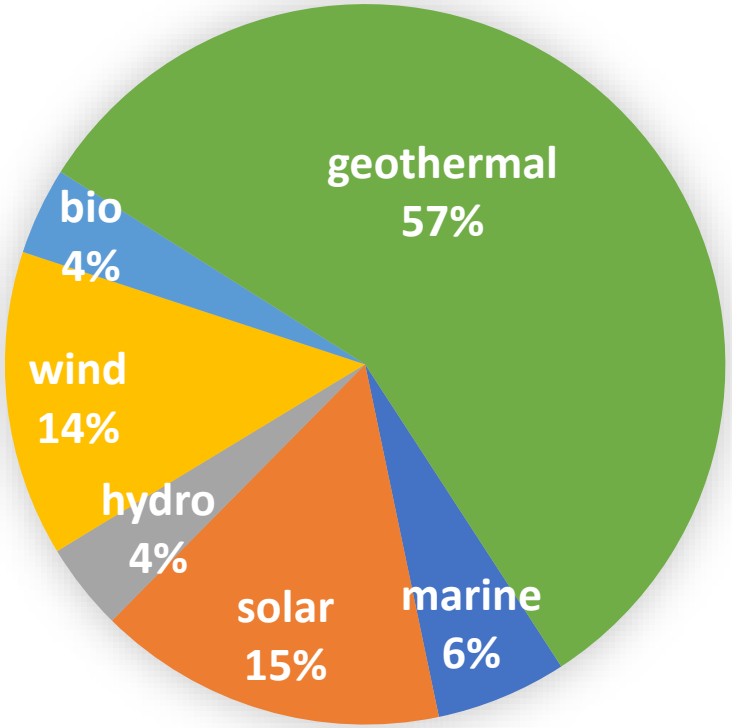
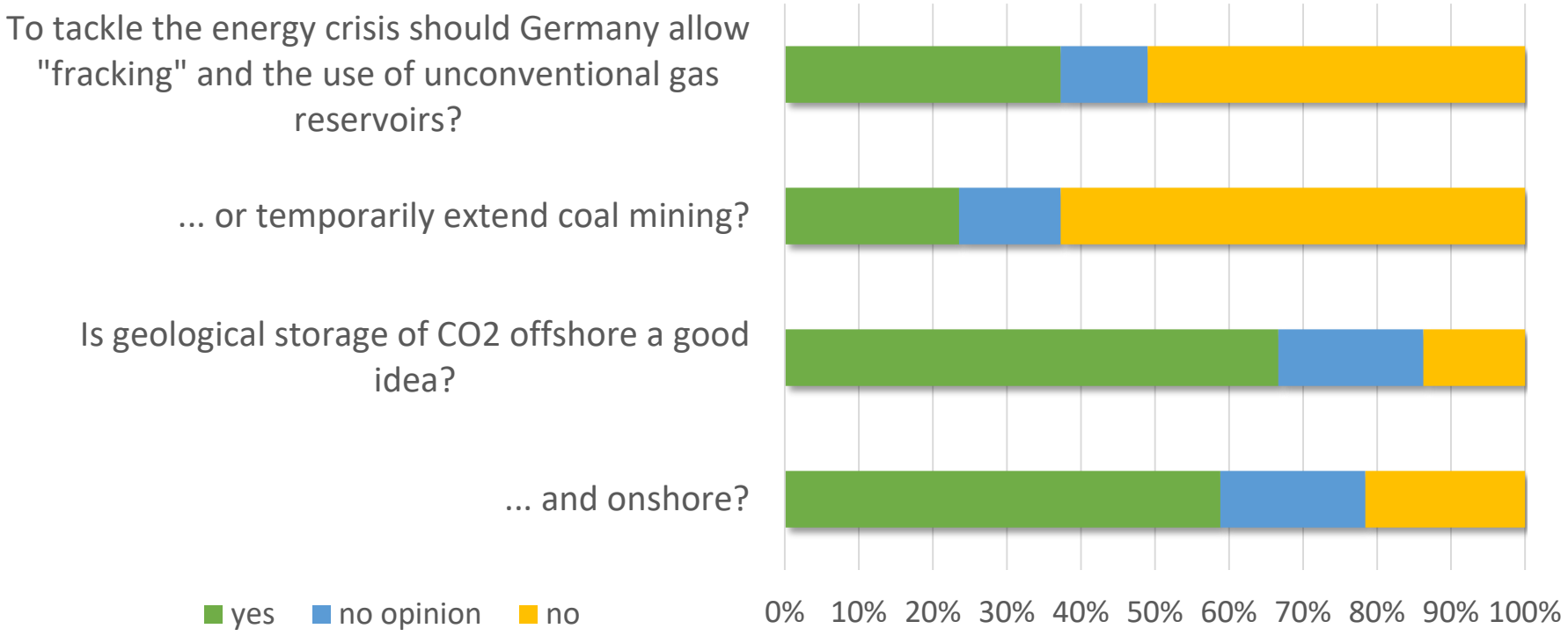
Renewable Energy: What is your preferred renewable energy source?



Results Registration Poll



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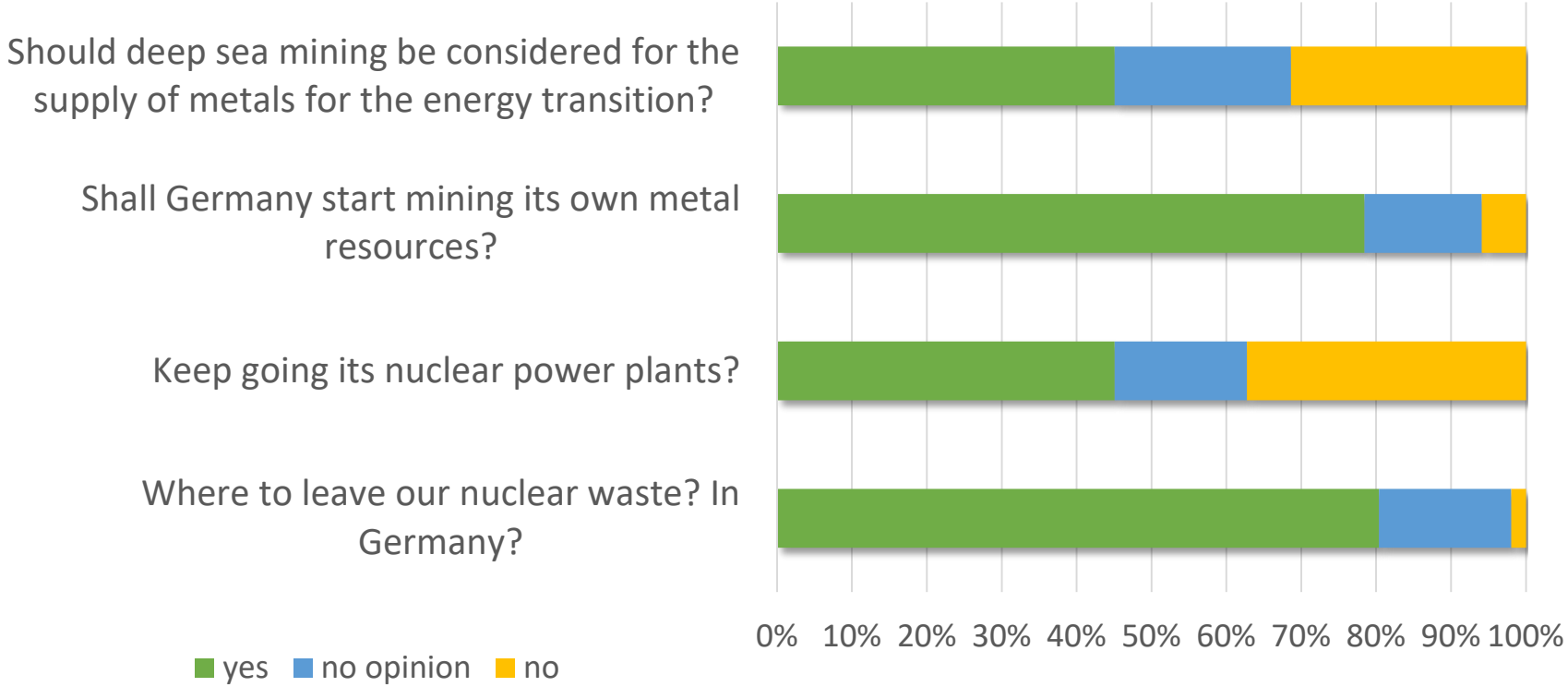

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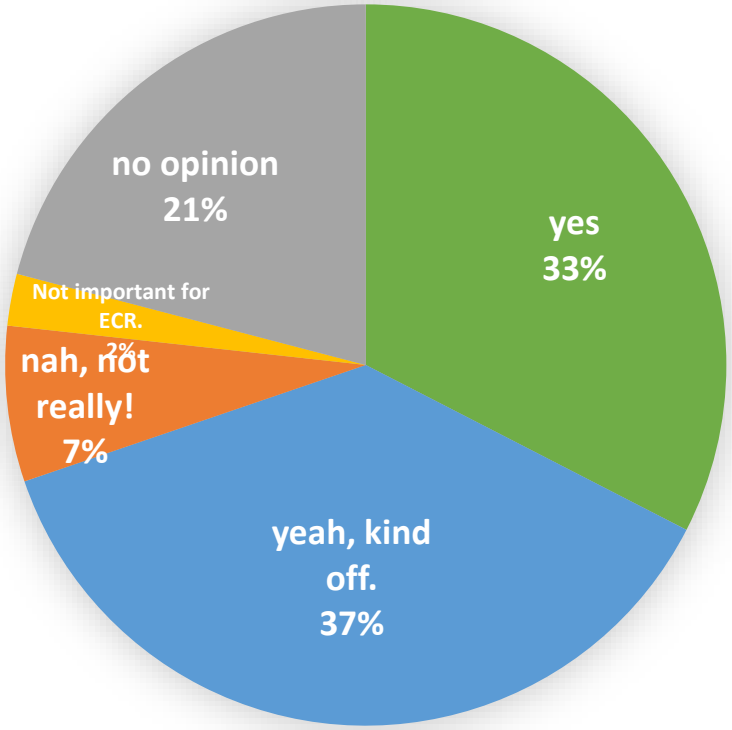

Do you feel integrated in Topic 8?

Challenges

How do we enable the geothermal revolution in urban areas?

How do we exploit high-enthalpy geothermal systems?

How can we facilitate the safe and reliable underground storage of gases (CO_2, H_2) on land and in the oceans?

What can geoscientists do to guarantee the safe storage of nuclear waste in a long term repository?

Where do we find the metals we need for a carbon neutral future?

How do we integrate the fundamental processes (e.g. thermal-hydro-mechanical-chemical-biological interactions) in our future research?

How do we quantify and minimize the environmental impacts of resource use?

How do we address the Social and Governance issues around Georesources?

Challenges

How to develop drilling technology that allows tapping ultradeep reservoirs and higher temperatures?

How to reduce geological risks and narrow ranges of uncertainty while exploring deep geothermal reservoirs?

How to support geothermal energy production in Berlin?

How to mitigate induced seismicity in EGS operations?

How to enable local sourcing of metals?

How to protect the ocean bottom ecosystem during deep sea mining?

How to restrict human access to underground nuclear storage sites on a 100ka timescale?

How to develop cost-effective methods for monitoring containment of the sequestered CO2?

How to address societal concerns on subsurface use (e.g. potential CO2 leakage, mining)?

Climate engineering / geological engineering – what research should be done to test various options?

How (and where) to intergrate Geothermal and Raw Material research?

Final Voting

(1) **Team:**
Idea:

(2) **Team:**
Idea:

(3) **Team:**
Idea:

(4) **Team:**
Idea:

(5) **Team:**
Idea:

(6) **Team:**
Idea:

(7) **Team:**
Idea:

(8) **Team:**
Idea:

Ideation Voting

(1) **Challenge:**
Idea:

(2) **Challenge:**
Idea:

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(5) **Challenge:**
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Ideation Voting

9) **Challenge:**
   Idea:
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Ideation Voting

17) **Challenge:**
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Ideation Voting

25) **Challenge:**
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