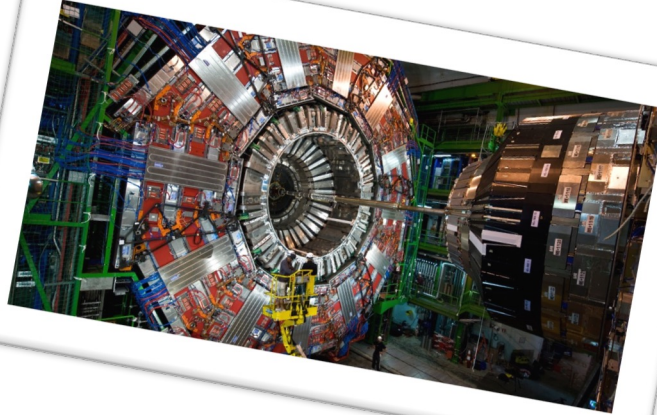# Interplanetary forecasting and backcasting
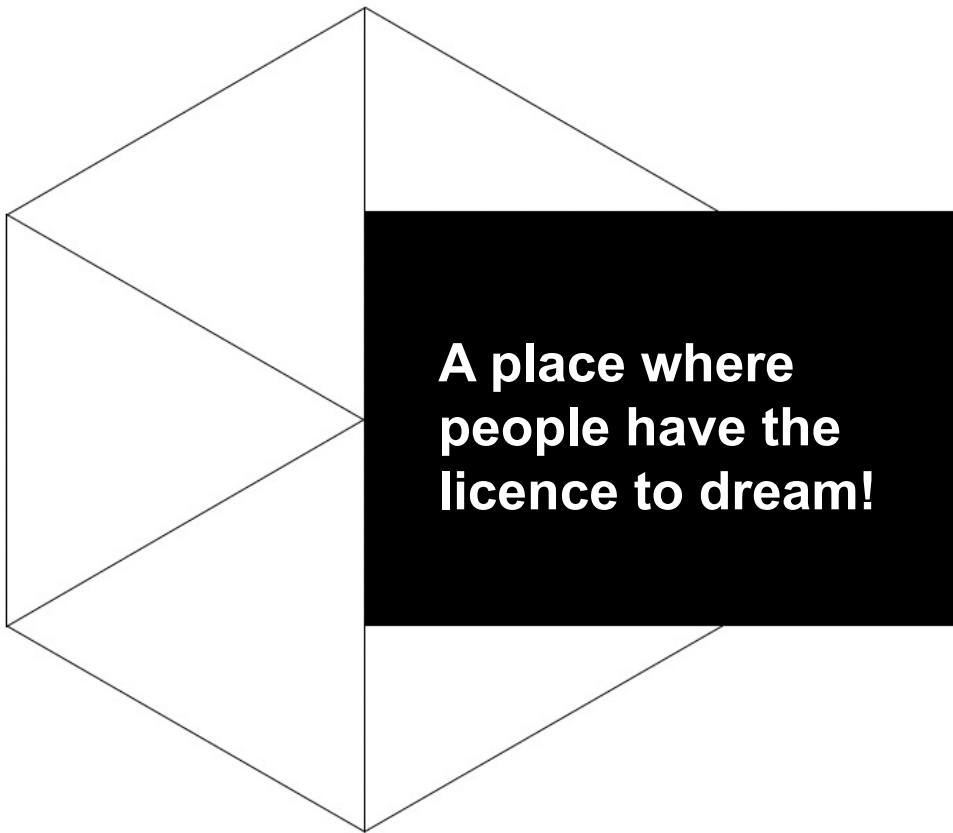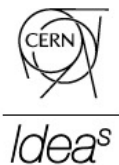
Laura Wirtavuori, Catarina Batista

CERN

Ideas

IdeaSquare way of working

Business as usual is not in our DNA...

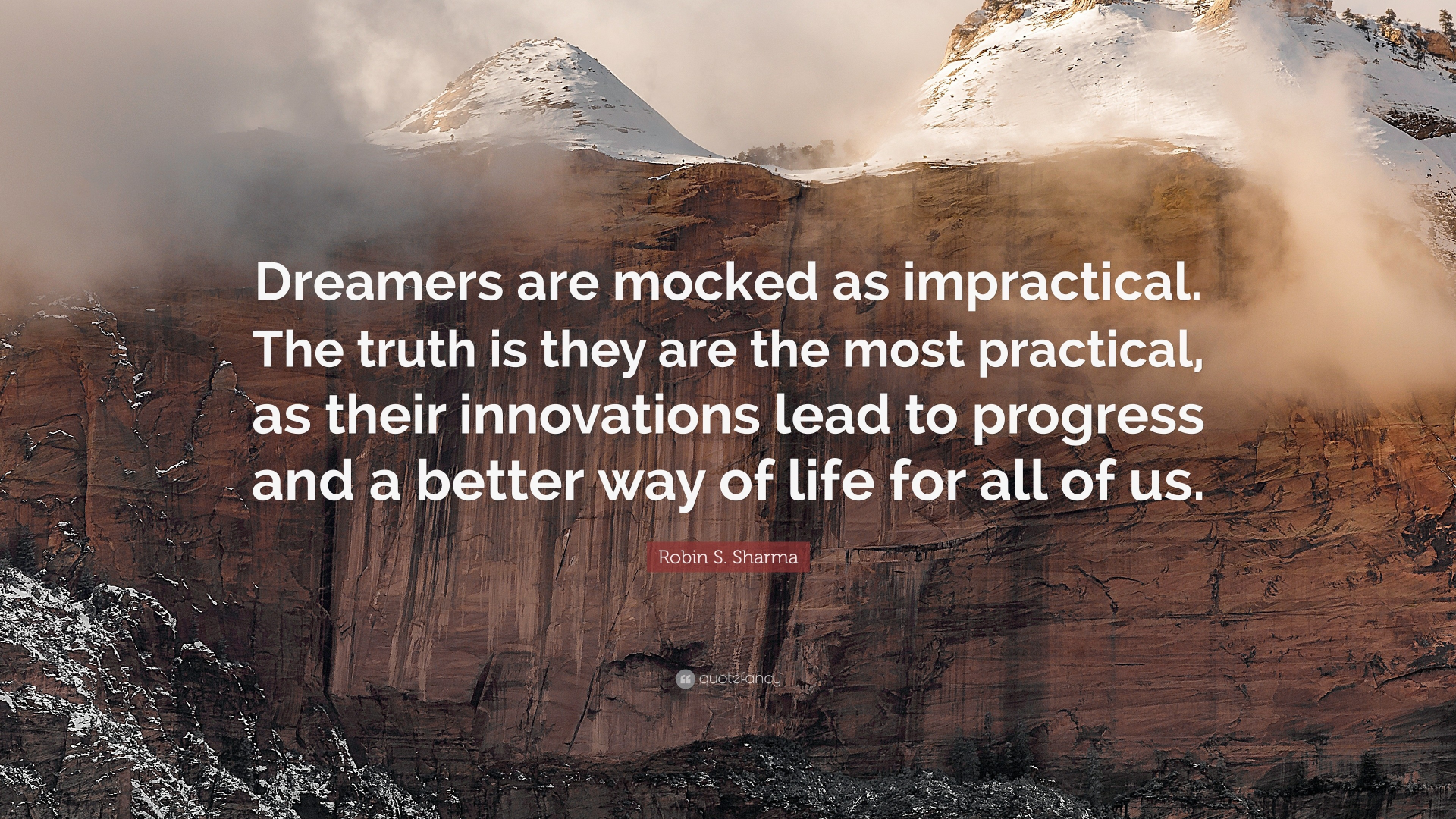A place where people have the licence to dream!

Why?

We believe that for fundamental change to be made, we need more than traditional innovation methods and mindsets.

What we are here to do is to help you imagine a future worth fighting for, and to give you the tools and confidence to start building that future.

"Dreamers are mocked as impractical. The truth is they are the most practical, as their innovations lead to progress and a better way of life for all of us."

Robin S. Sharma

quotefancy

Our way to help you dream

1. Beyond the Pale Blue Dot – ideating in a world without existing human made boundaries – the laws of physics still apply, but technologies can be assumed to have taken a leap (Now)
2. Back to the future – what if the same idea existed on planet Earth, but 50 years from now (Wednesday)
3. Back to the present – what would we need to do now in order to make that idea happen in 2073? (Thursday)

"There is no innovation and creativity without failure. Period."
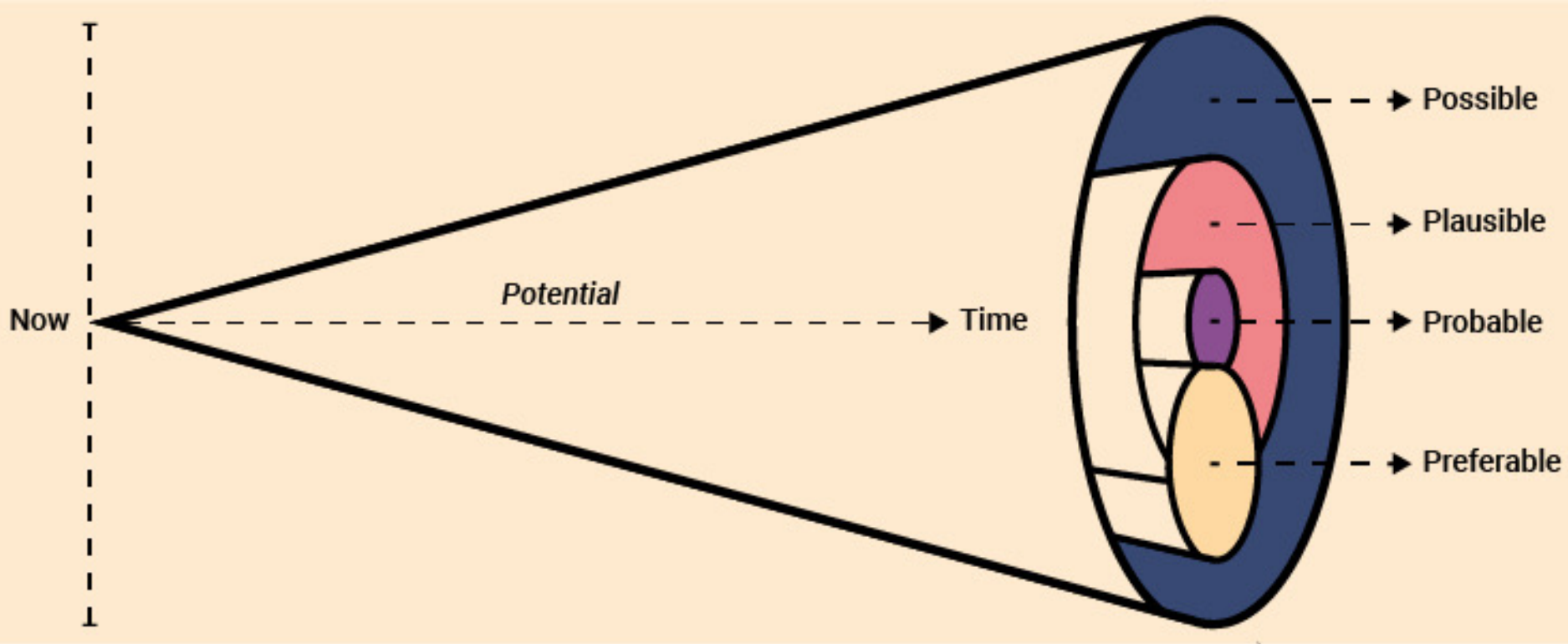*- Brené Brown*

Beyond the Pale Blue Dot

Prediction is very difficult, especially if it's about the future.

— *Niels Bohr* —

There are many possible futures…

What is the challenge you are solving?

Imagine

Imagine you are far away, on an Earth like exoplanet. The year is 2100.

- Think about the challenge you are wanting to solve– how has it been solved within the society on the exoplanet? Concider the following aspects
  - **technological,**
  - **social,**
  - **economical,**
  - **legal,**
  - **ethical,**
  - **political and**
  - **environmental aspects.**

No Harry Potter, but reasonable assumption about tech advancement, for e.g., are ok.

If you realise the challenge you have defined is maybe not the core challenge, you can modify.

Credit: NASA/JPL-Caltech/R. Hurt (IPAC)
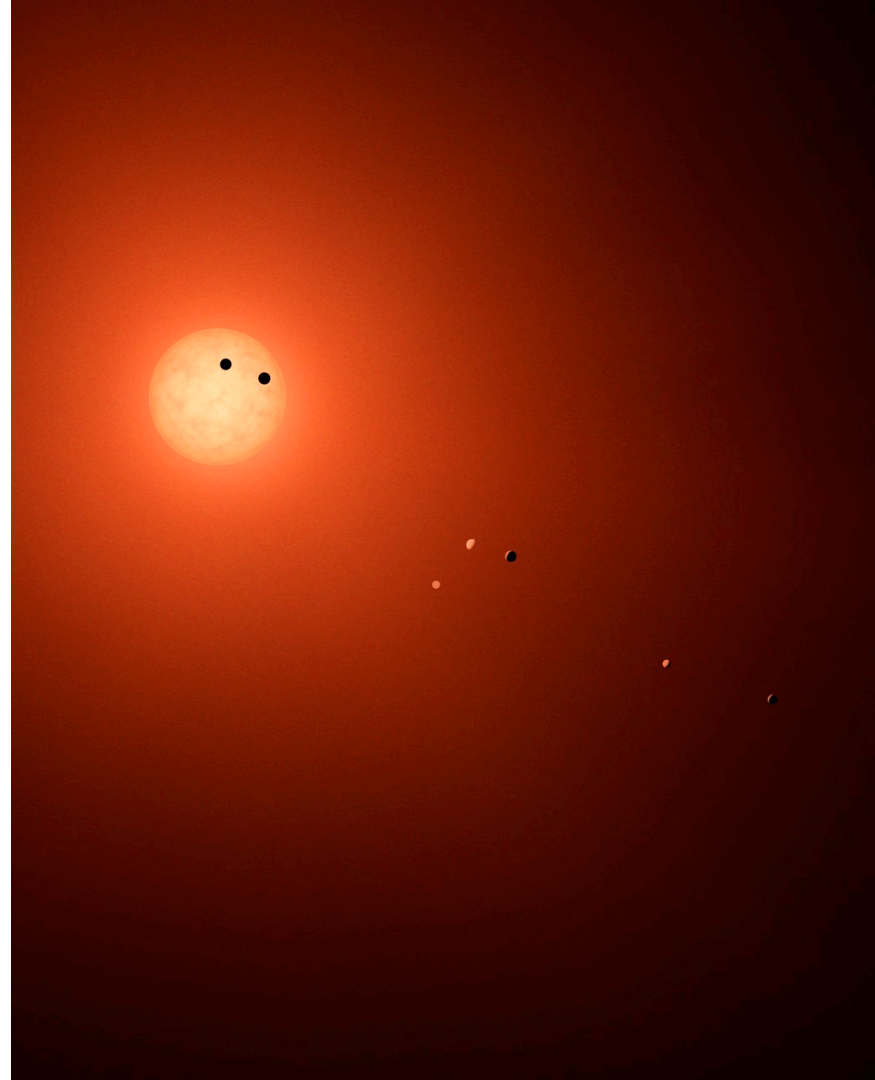
Some tips

- Think BIG
- What is the ideal endstate you would like to see? Not only directly linked to your solution
- If the challenge you are trying to solve / the company you are looking at is trying to solve doesn't excite you, think about it on a bigger scale – worldwide
- If you are looking into a company that does a bit of it all – think about one product / challenge they are solving

Back to the future

What future on a distant planet did you create yesterday?

Time to share

Yesterday the focus was on the challenge that you are solving,

now let's move to discover the relationship between what the world looks like when that challenge has been solved and how your solution could be playing a role in moving towards there.

Coming back to the future on Earth

Key difference to yesterday's dreaming task: There are existing systems that you cannot completely ignore.

Imagine you are on Earth, but it is the year 2050. How would your solution look like?

- Did you have ideas / thoughts / discussions yesterday that should influence your solution on Earth / the solution of the company you are researching 30 years from now?
- Are there any behavior change aspects you can incorporate?

In same teams as yesterday – if you were working together with the other university, continue.

Useful questions to ask yourselves

Did you come up with some ideas or concepts you think are worth exploring further / that exite you? What could you draw from those to inspire the on-Earth close future for your company / solution?

What would be the midpoint between your solution / your company's product and the future on an exoplanet that you imagined?

Until 12.30
Lunch
We start again at 14.00 with Pablo or
working on our projects, you choose

Back to the present

Insights from yesterday?

Time to share

Be the change that you wish to see in the world.
- Mahatma Gandhi

Back to the present

Your vision informed your future on Earth

now it's time for your future on Earth to inform the choices you should make today in order to arrive to that desired and / or expected future

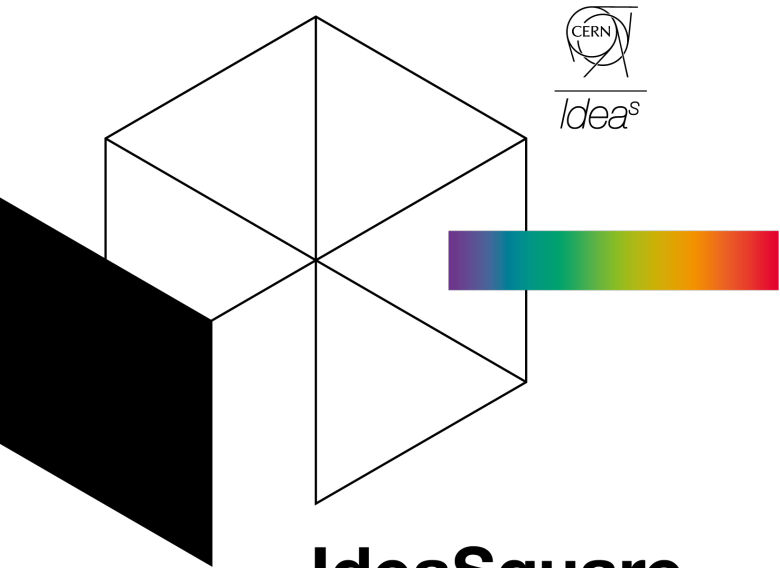With a focus on your company / solution.

Be prepared to share!

At 10.15, please share, as a team,

- what thoughts that will change the solution you are working on / the view you have of the company you are working on, if any, did you get from this experience

- what interesting discussions did you have (I'm sure all groups had some!)

Max 3 min and 1 question per team

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Time for teamwork
Some tools that you might find helpful

Drawing

Making visible different parts of your solution / company

So many things you can draw!

What is the system around your solution?
- Competitors, legislations, information flows….
- Stakeholder map: who affects / is affected by your solution?
- Money flows, information flows….

Different interactions:
- What is the customer journey?
- What is the product life cycle?

Do orders of magnitude calculations

Does your solution actually make sense?

- **how many people are you gonna reach?**
- **how big of an impact is your solution going to have on these people?**
- **how much is it going to cost?**
- **Is the benefit worth the cost?**

Don't be afraid of finding answers that you don't want to find, it's just a step forward.

Volume of all beaches on Earth

length ~ 10^5 km
avg. width ~ 10^2 m
avg. depth ~ 10 m

"beaches" ~ 10^{11} m^3

Volume of a grain of sand

l ~ 0.5 mm
w ~ 0.5 mm
h ~ 0.5 mm

"sand" ~ 10^{-10} m^3

⇒ to fill all beaches requires about 10^{21} grains of sand

Prototyping!

Roleplaying

Paper and cardboard prototypes

Both can help you explain your solution and understand it better yourself!

Asking questions

You are unsure if something is technically feasible now / might be in the future?

- ask Pablo

You feel stuck?

- Ask Laura, or your teachers

You have no idea what to do next?

- same as above

You want to give up?

- Again, same

You wonder what the purpose of life is?

- Great question, ask anyone or everyone, you'll get plenty of answers!

Today's presentations (1/2)

Why are we doing this?

- We want to see the change that happened from when you first shared on Tuesday morning to now
- We want to hear what you learned
- It is a good time for you to practive presenting, have fun with it!

Presenting in your initial teams from your own university.

Your goal in your presentation is to get the audience (IdeaSquare, your teachers, possibly someone from CERN) excited about your solution / the company's solution

Today's presentations (2/2)

Please include

- what your solution / company is
- your vision for the solution / company in the long term
- the open questions you still need to answer
- an example of how the exercises this week influenced your thinking of the company / solution

Each team will have a maximum of **5 minutes** to present, with 5 minutes for questions. We will cut you off if you run overtime.
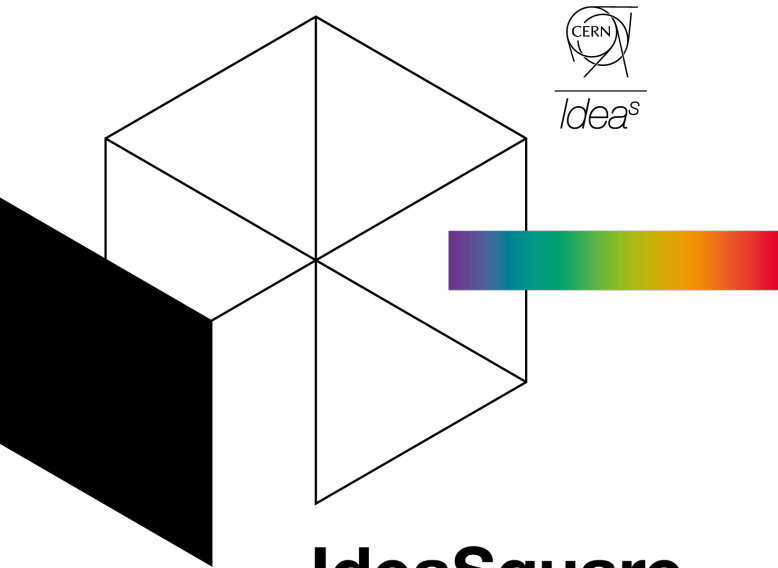
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Thank you!