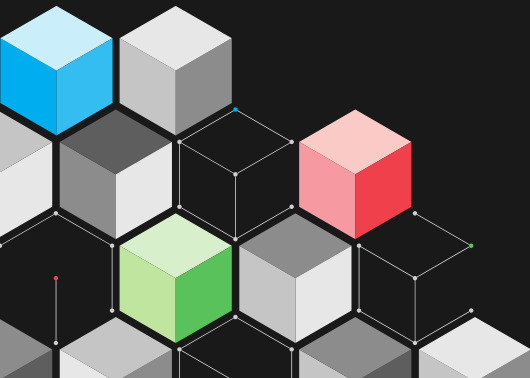


Some thoughts on Prototyping

Hans Hagenes Bøe



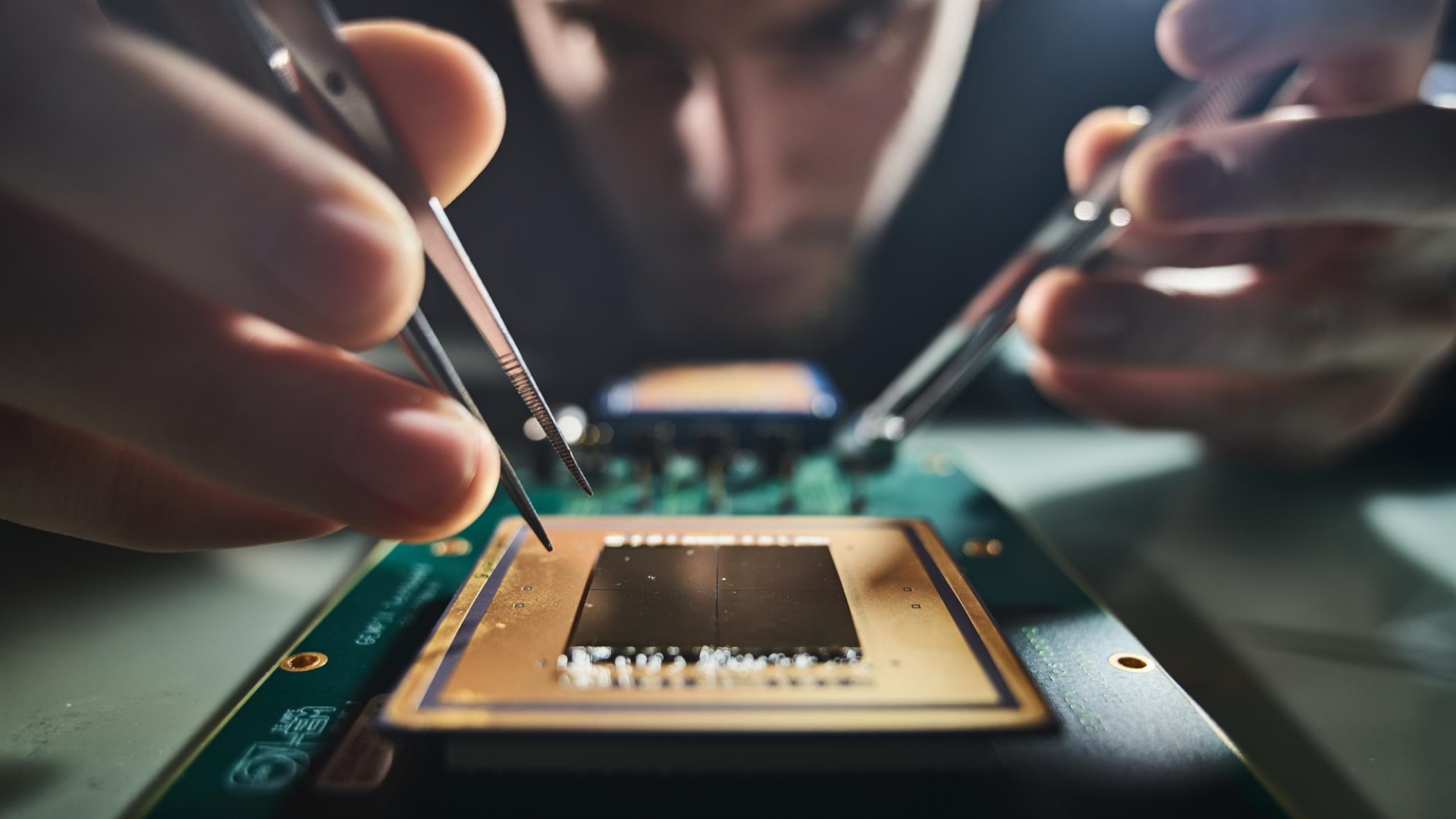


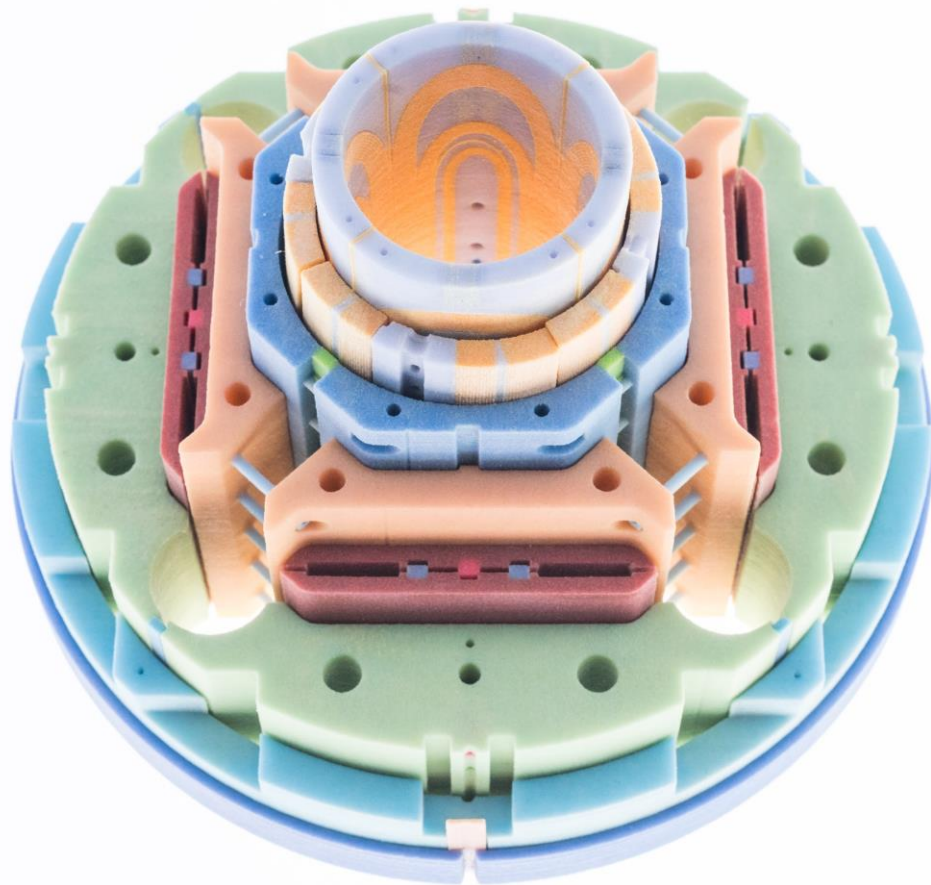
What is a prototype?



NASA Thermal Model Cell 00

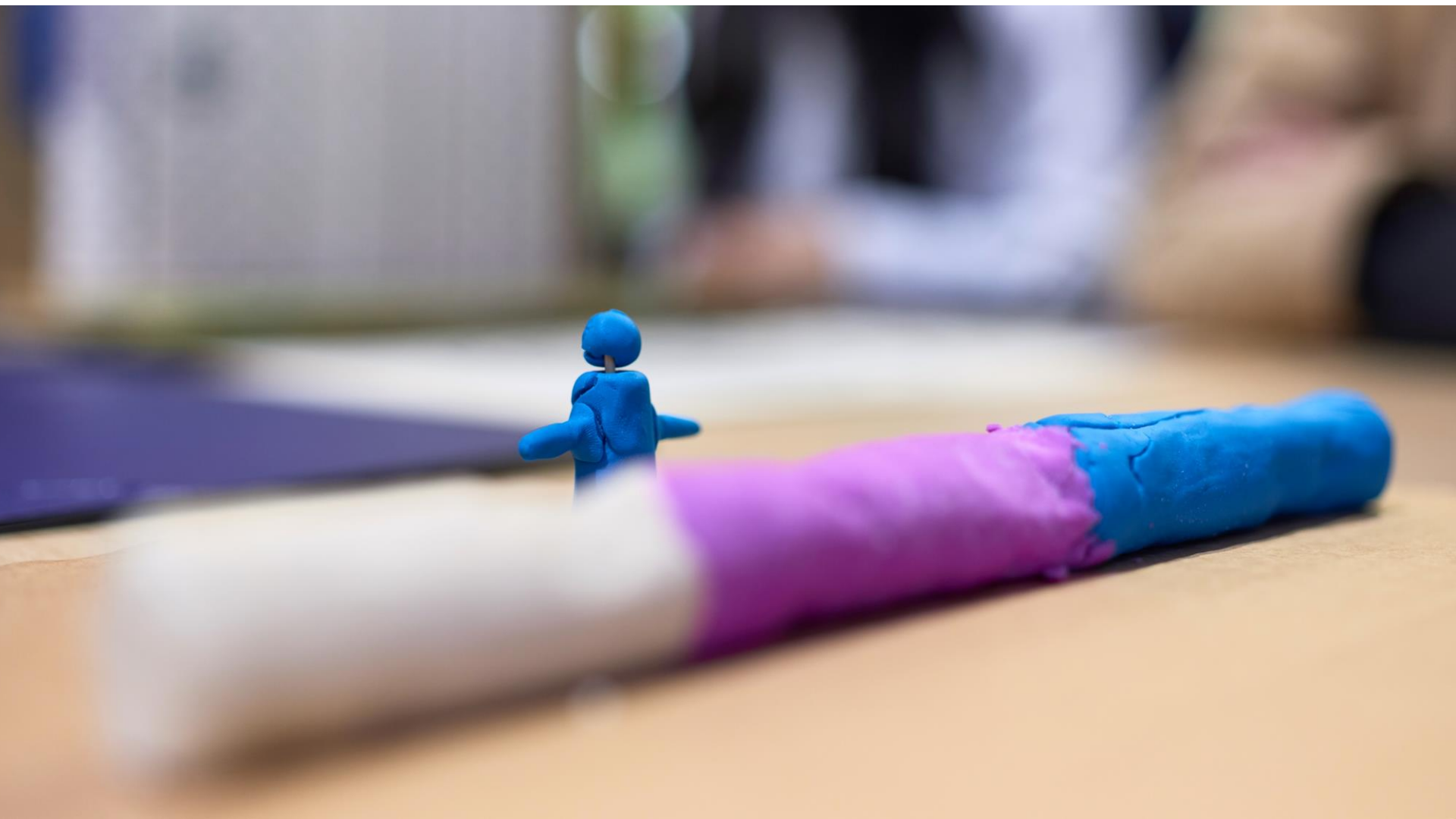
Thermal Model Cell 00 is a large, cylindrical, metallic structure used for testing thermal models in space. It is composed of several segments and is supported by two white blocks. The structure is shown in a photograph and a diagram. The diagram shows the structure in a cross-section, highlighting the internal components and the thermal model. The photograph shows the structure in a real-world setting, supported by two white blocks. The structure is made of a highly reflective material, likely aluminum, and has several ports and openings. The sign also includes a small image of the structure in a space environment.

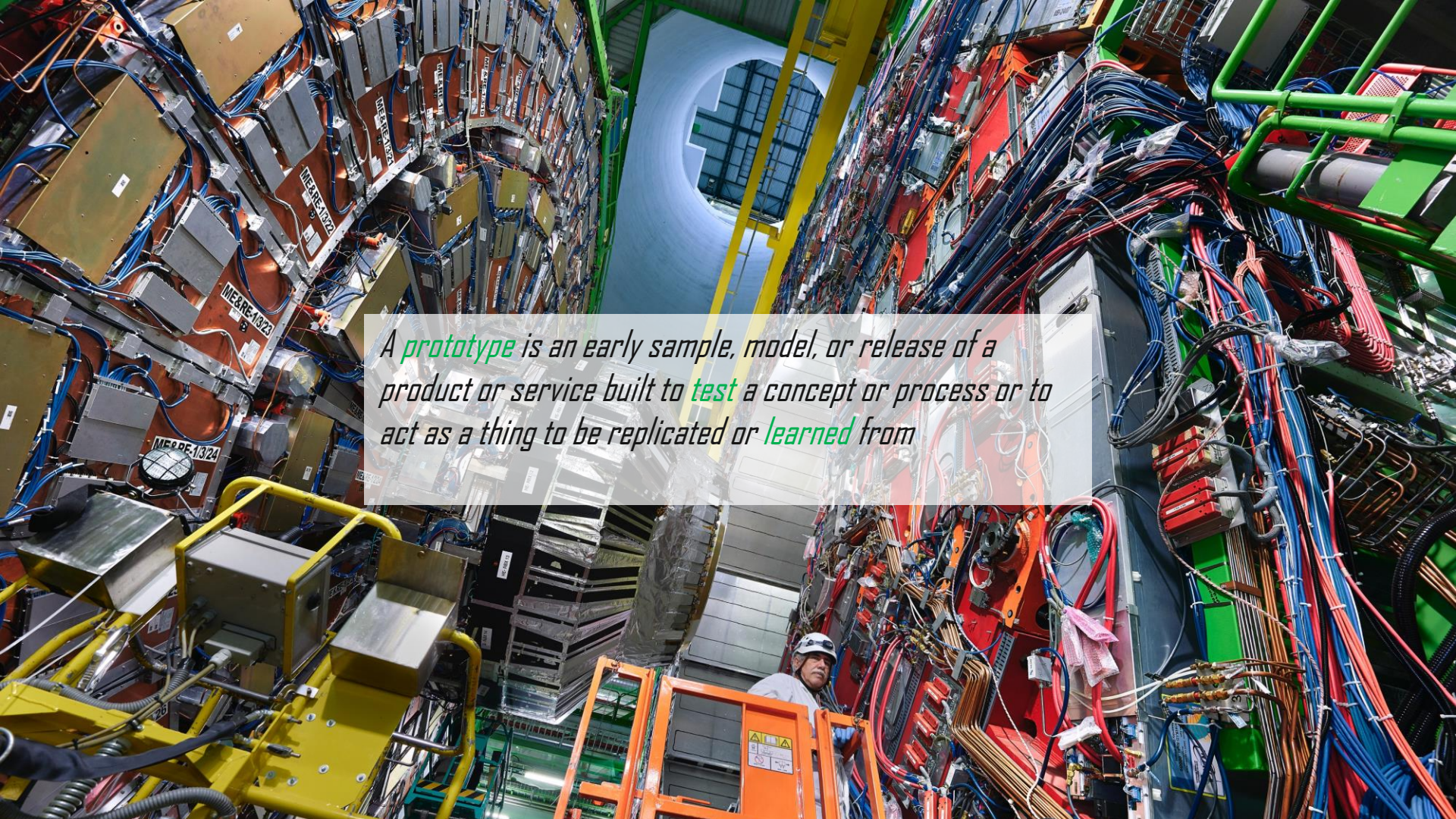










A wide-angle, low-angle shot of a massive industrial or scientific facility. The scene is filled with complex machinery, including large metal structures, numerous cables (blue, red, green), and various components. A worker wearing a white hard hat and safety glasses is visible on an orange scissor lift in the lower center. The background features a large, circular opening in a white wall, possibly a tunnel or a large window. The overall atmosphere is one of a highly technical and complex environment.

*A **prototype** is an early sample, model, or release of a product or service built to **test** a concept or process or to act as a thing to be replicated or **learned** from*



HAR DU NOEN
KRONER Å AVSE?



SORGENFRI
#38
100
100

SORGENFRI
#39
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SORGENFRI
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SORGENFRI
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SORGENFRI
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SORGENFRI
#58 JUNI / 2014
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Gatemagasinet
SORGENFRI
#59 JULI / 2014
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Gatemagasinet
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#68 MAI / 2015
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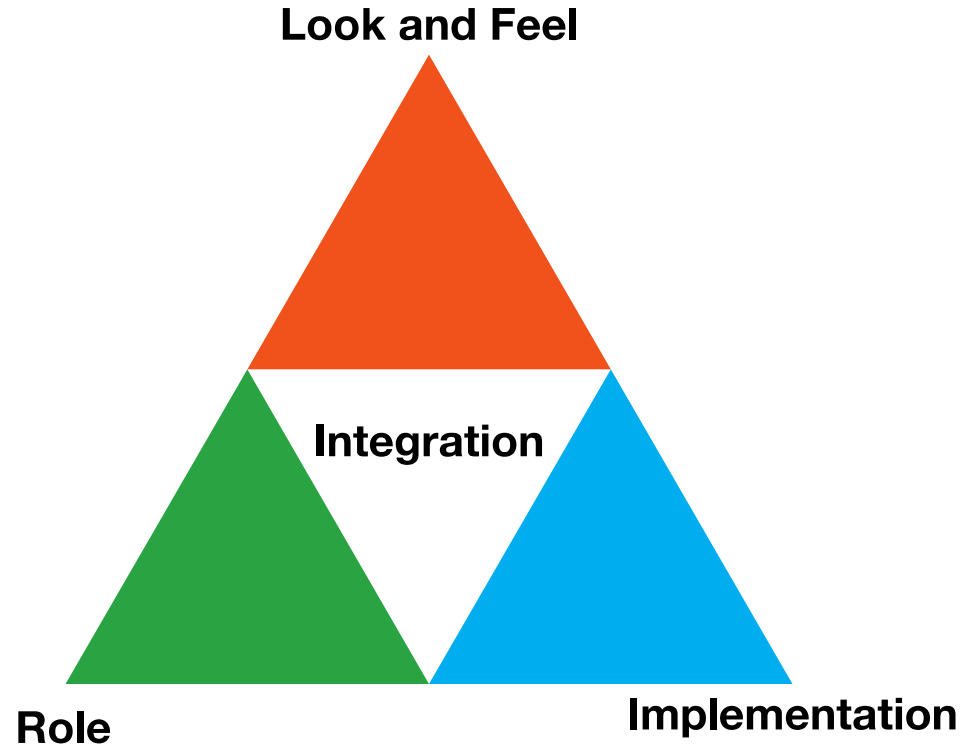


ØSTLUND SKRÆDDERFORRETNING

ØSTLUND SKRÆDDERFORRETNING
HÅNDVÆRKS
KLEDE
ALM. TÆT

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SORGENFRI
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HÅNDVÆRKS



Idea^s

Guidelines for Prototyping

1. Just start building

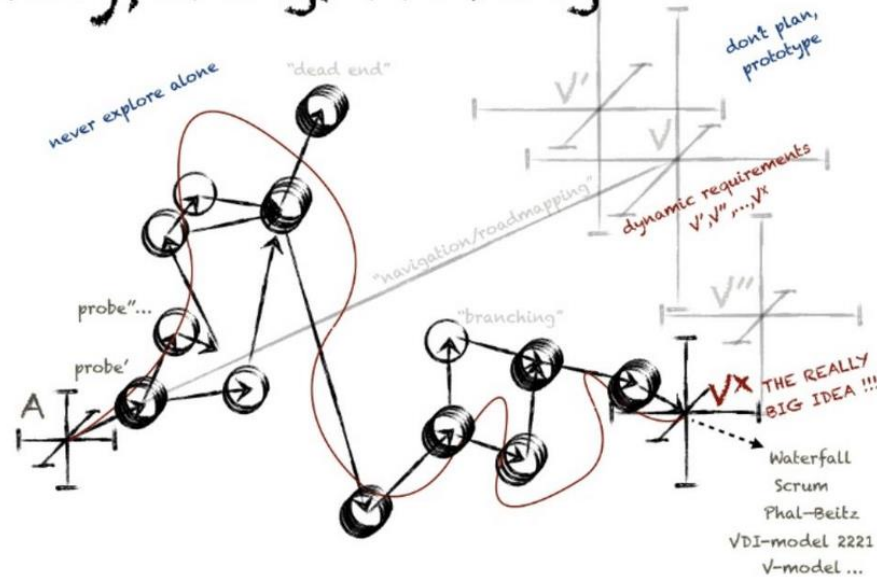
Work with a bias towards action: that means if you have any uncertainties about what you are trying to achieve, your best bet is to make something. Creating a prototype will help you to think about your idea in a explicit manner, and potentially allow you to gain insights into ways you can improve your idea and bridge knowledge gaps.



Idea^s

1. Just start **building**

Wayfaring/Probing



Guidelines for Prototyping

2. Don't spend too much time

Prototyping is all about speed; the longer you spend building your prototype, the more emotionally attached you can get with your idea, thus hampering your ability to judge its merits objectively. Don't be afraid to let go of your babies.



Idea^s

**FALL IN LOVE WITH THE PROBLEM AND NOT THE
PROTOTYPE**



Idea^s

Guidelines for Prototyping

3. Remember what you're testing for

All prototypes should have a central testing issue. Do not lose sight of that issue, but at the same time, do not get so bound to it that you lose sight of other lessons you could learn.



Idea^s

Critical Function



Idea^s

What is your **critical** function?

- Split up the team in two groups.
- Ideate on what the critical function of your product is. 10min
- Present to the other group what you figured out. 5min.
- Ideate on ways to test the critical function and get feedback from users. 10min
- Present to the other group what you figured out. 5min.



Guidelines for Prototyping

4. Remember who you are building the prototype for

The prototype you use for internal communication is not always the best prototype to use for external communication.



Idea^s

Guidelines for Prototyping

5. Break the boundaries of assumptions

Your imagination merely limits the use of different materials and tools in prototyping. Learn how to see things through their potential instead of their limitations and definitions.



Idea^s

HOW to prototype?

A person is working at a desk in a prototyping workshop. The desk is cluttered with various tools and materials, including a mouse, a pair of scissors, a yellow cable, and a clear plastic tray containing small components. The person's hands are visible, and they appear to be focused on their work. In the background, there are shelves with various items, including a red container and a green box. The overall scene is a busy, creative workspace.

FIDELITY

RESOLUTION

“Kjært barn har mange navn”

Sketching

Role-Play

Storyboard

Cardboard Mock up

Wizard of Oz

Wireframing

Functional Prototype

Critical Function prototype

Virtual Prototype

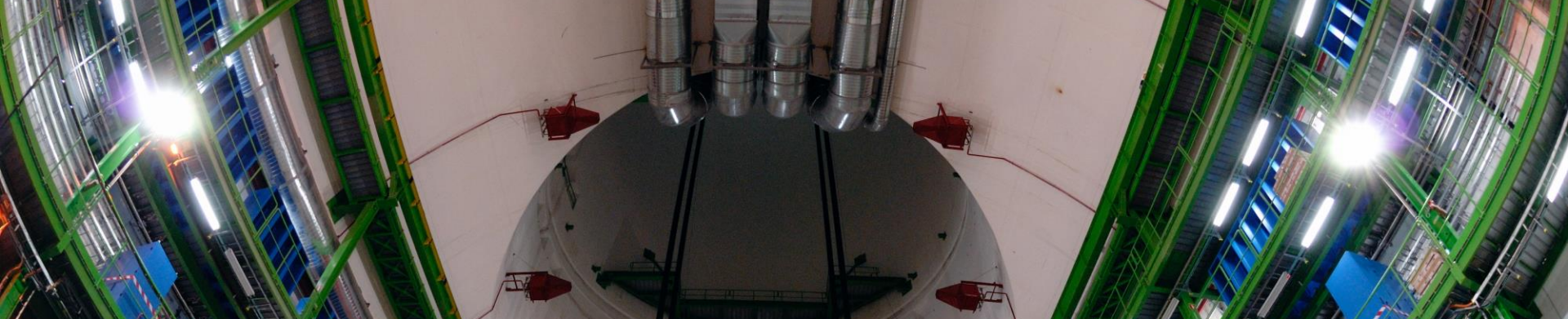
Proof of Concept

Minimum Viable Product

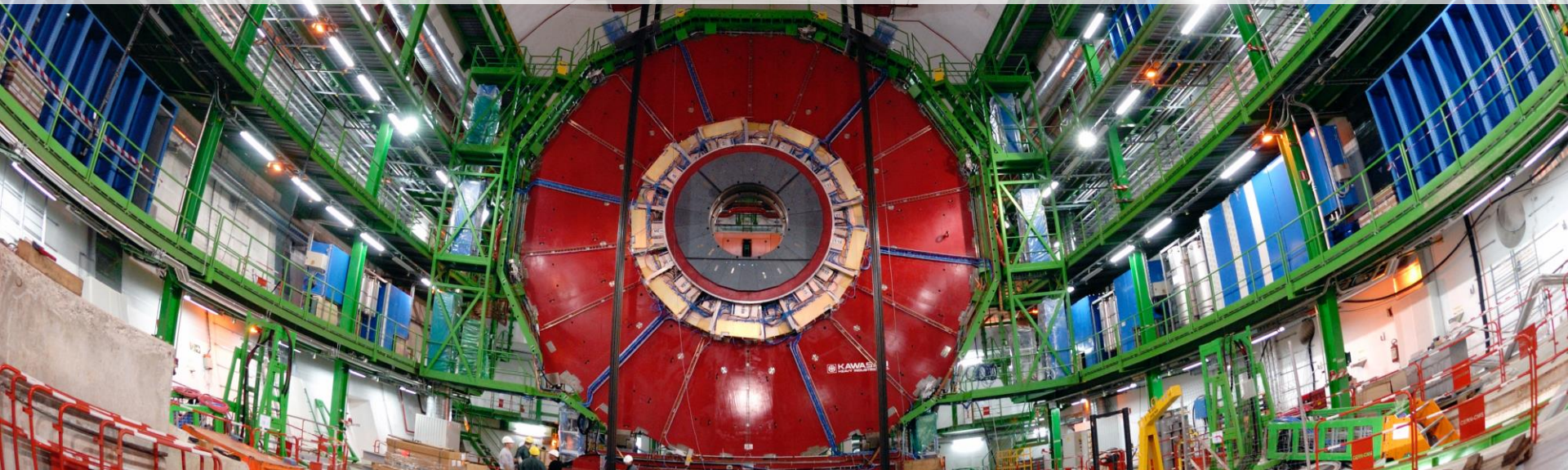
Pre-Production Prototype



Idea^s



Stuff @ IdeaSquare



MAKE A VIDEO OF YOUR
PROTOTYPE IF IT IS SUPPOSED TO
FUNCTION



Idea^s

GOLDEN rules of prototyping

1. When in doubt: **Prototype**
2. It is never too early or too late to **Prototype**
3. Often the fastest way to learn is to **Prototype**



Ping Pong Launcher

- Design a device that can launch a ping pong ball using simple prototyping materials.
- Each group will be given the same set of materials
- You will be given 30 minutes to build and test your prototype(s)
- Final and counting test will be done after the 30 minutes is finished.
- The device needs to be placed at the launch table and operated by one person only

FINAL TEST : 5 shots at the target

- 2 pt – Launching a ping pong ball**
- 2 pt – Knocking down 5 or more cups**
- 1 pt – Bonus for the prototype that launches the farthest**
- 1 pt – Each new test done before the Final Test gives one point**

Interesting Papers on Prototyping

Classification Framework for Prototypes

What does prototypes prototype?

http://blogs.ischool.berkeley.edu/ict4se/files/2010/09/Prototypes_prototype.pdf

Prototype Driven Development

Finding One's Way: Re-Discovering a Hunter-Gatherer Model based on Wayfaring

https://www.researchgate.net/publication/295644059_Finding_One's_Way_Re-Discovering_a_Hunter-Gatherer_Model_based_on_Wayfaring

A Simultaneous, Multidisciplinary Development and Design Journey - Reflections on Prototyping

https://www.researchgate.net/publication/282655334_A_Simultaneous_Multidisciplinary_Development_and_Design_Journey_-_Reflections_on_Prototyping

Exemplifying Prototype-Driven Development through Concepts for Medical Training Simulators

https://www.researchgate.net/publication/335630351_Exemplifying_Prototype-Driven_Development_through_Concepts_for_Medical_Training_Simulators

Creating Dynamic Requirements through Iteratively Prototyping Critical Functionalities

https://www.researchgate.net/publication/306024324_Creating_Dynamic_Requirements_through_Iteratively_Prototyping_Critical_Functionalities

Design Fixation

Fixation on premature concept choices - a pitfall of early prototyping?

https://www.researchgate.net/publication/335631093_Fixation_on_premature_concept_choices_-_a_pitfall_of_early_prototyping

Design and other types of fixation

<https://www.sciencedirect.com/science/article/pii/S04269496000233>



Idea^s

All you need is

..Love

Physics

..Design

..Business

..and Engineering.

Questions? Comments?

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@ideasCERN

#Ideasquare #ThinkDoCollaborate #CERN

Let's have a cup of coffee and make it happen!



Idea^s