CERN Ideasquare

STUDENT PROGRAMS INTRO

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IDEASQUARE IS

- Project with a dedicated building (B3179), hosting:
  - Detector development/upgrade R&D projects
  - Multidisciplinary master level student programs
  - Innovation events, workshops, hackathons
- ...to prototype, test and iterate new forms of collaboration and co-creation in the areas or Research, Education and Technology - RET

Challenge Based Innovation

EXAMPLE: STUDENT PROGRAM

- Challenge Based Innovation (CBI) is 4-6 month MSc-level specialization course for product and service development, run by participating universities from (currently) 8 countries around the world
- In the course, multidisciplinary student teams learn how to apply Design Thinking – process for new product/service development; CERN researchers act as technological coaches in the process
- “Work extremely hard, learn and have fun!”
- “Fail fast and often to succeed sooner”

EXAMPLE: STUDENT PROJECT PROTOTYPE

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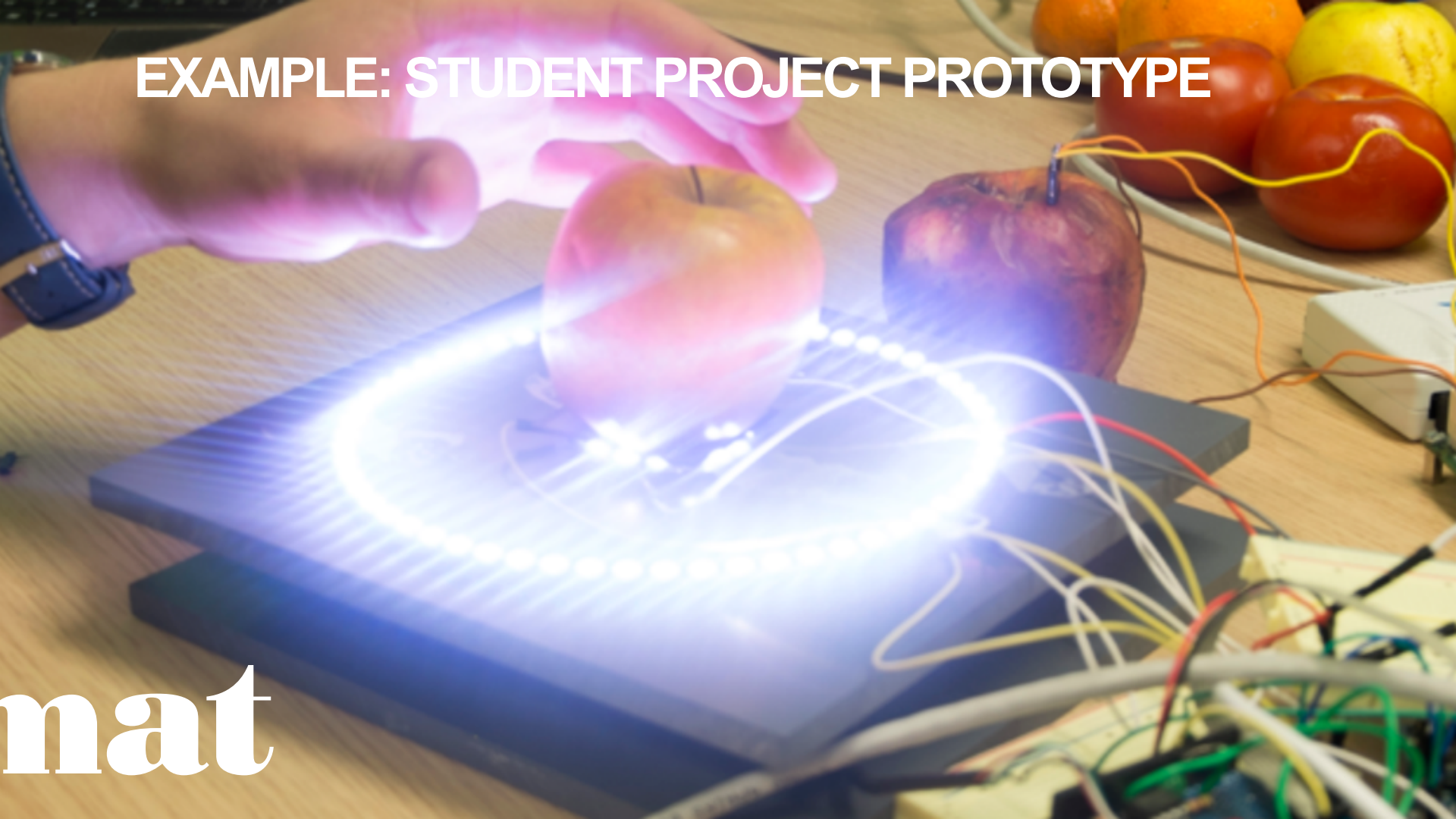

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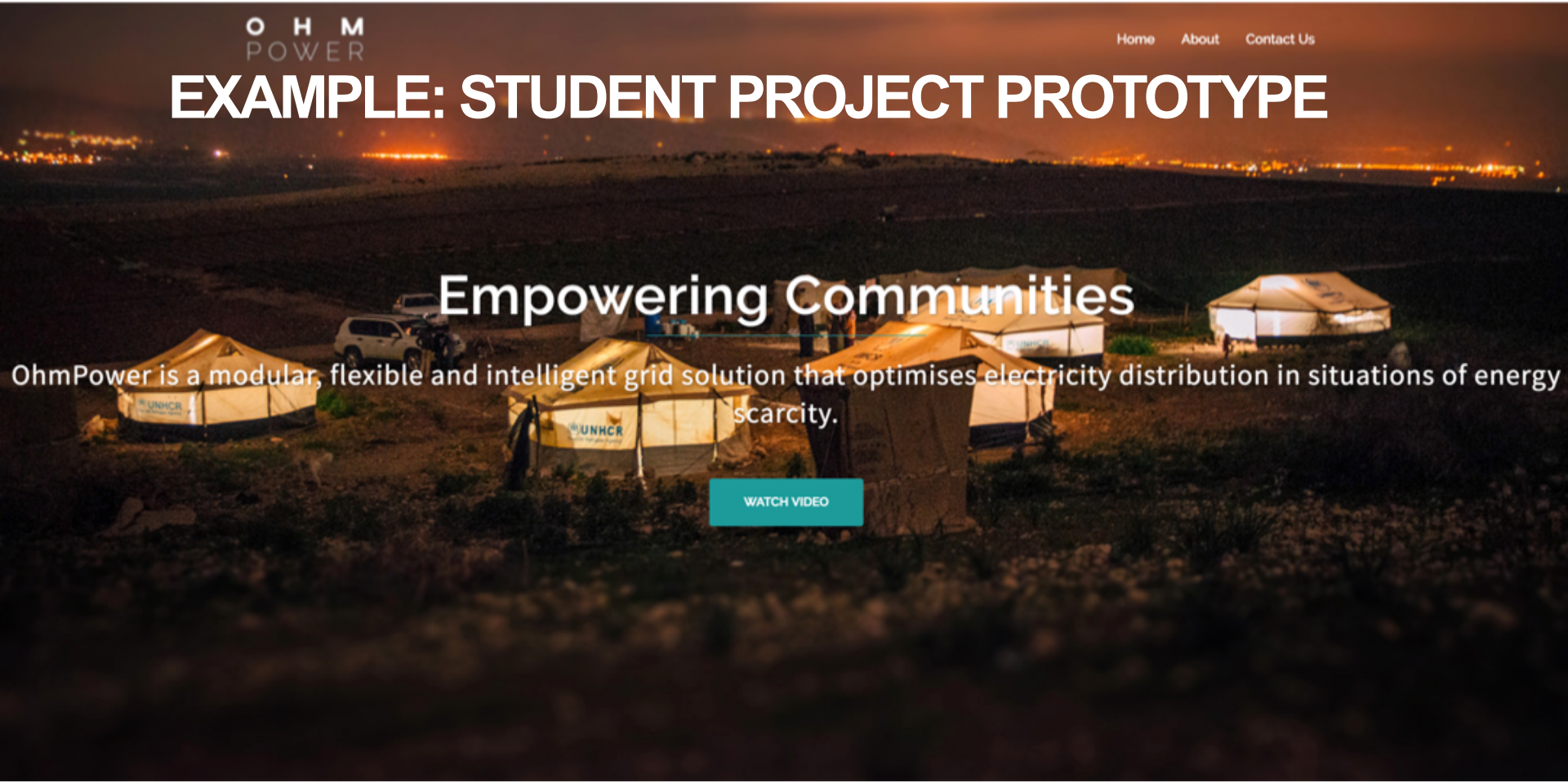


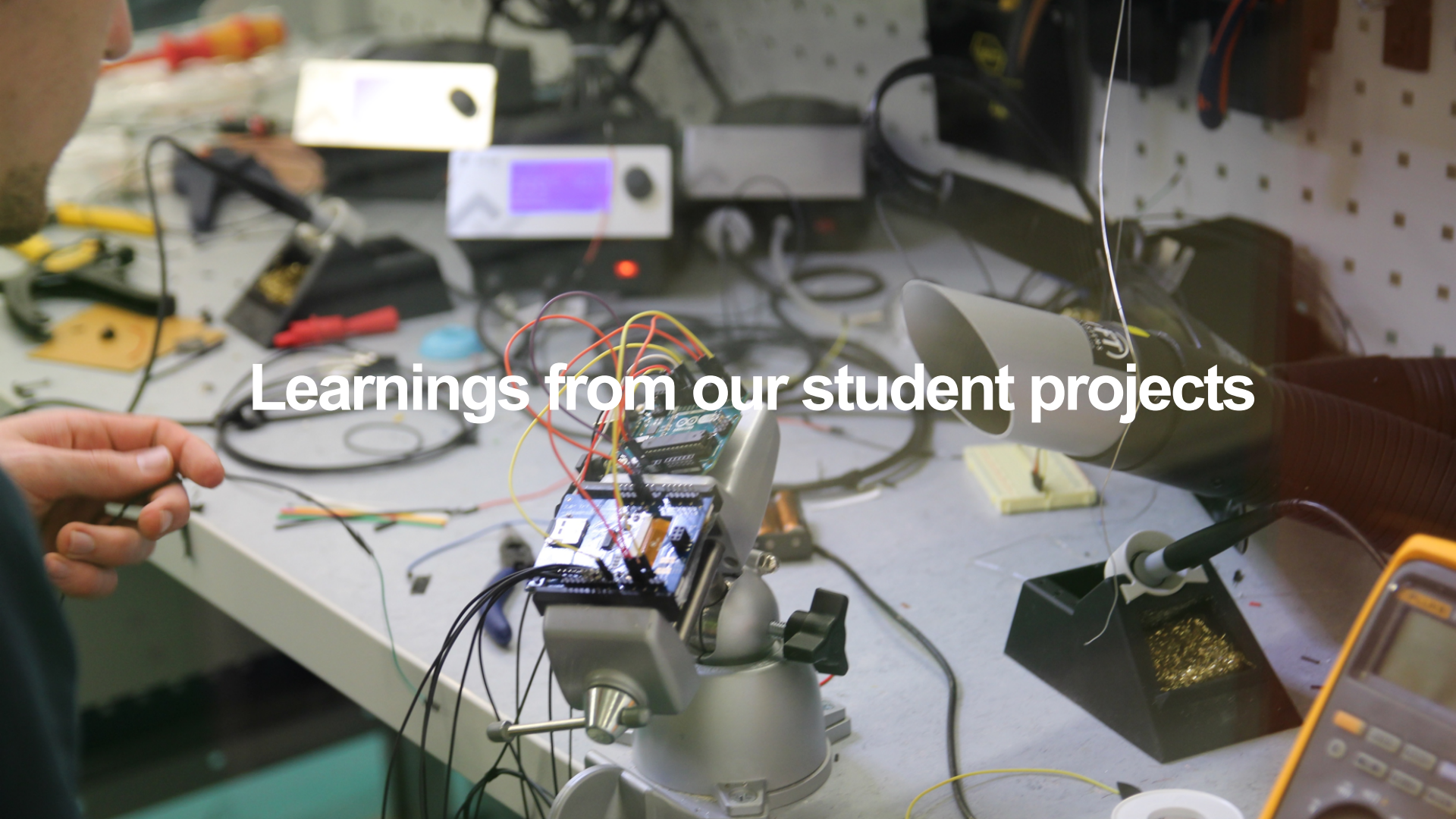
EXAMPLE: STUDENT PROJECT PROTOTYPE

EXAMPLE: HACKATHON

- Organised by THE Port Association, hosted by CERN IdeaSquare and with partners from other non-governmental organisations, a three-day problem solving workshop hackathon with the theme “Science for Humanitarian Purposes”
- Example prototypes produced included: open-source cosmic ray detector, an assistive electronics suit to help mine detection dogs, a new type of body bag, a terrain-mapping tool for refugee camps, etc.
- Four runs completed with approx. 60 participants at CERN in October 2014-2017, next one scheduled for Spring 2018

IDEASQUARE IPR APPROACH

- Collaboration is conducted in an Open Innovation-spirit, meaning:
- All research papers and publications will be made publicly available (can be delayed if deemed necessary)
- Students, both master and PhD-level can use/refer to the results of their assigned projects (e.g. as an example in their CV portfolio)
- CERN will not patent foreground coming out of EC-funded projects (within IdeaSquare framework)
- Ideasquare will not sign any NDA's for projects
- The related HEP institutes that have signed a MoU with CERN (e.g. ATLAS, CMS) adhere to the above CERN policies


Learnings from our student projects

Forming, storming, norming - learnings

- In most innovative project teams:
  - People strive for diversity
  - „If you can laugh together, you can work together“
  - Anticipate and welcome creative conflicts, communication challenges
  - One can practise how turn those challenges into strenghts, encourage teams develop their own language, find their own working methods (storming, norming)
  - „Yes, and…“ mindset
  - Giving room - humility

Identifying key stakeholders, learnings

- For projects, it is helpful to identify few key groups of people to start with:
  - i.e. Who is the challenge owner/beneficiary? Who is the (perceived) user? Who is/are the drivers to push forward?
  - How accessible is the user? What do you need to do / who do you need to contact to access the user?
  - Are there potential technologies available? Who do you need to contact to access proprietary information?
  - These do not have to be fixed, only an initial status to get started with.
  - Projects and teams are „hairy creatures“ on their own – and should evolve over time

Motivations & aspirations, learnings

- At CERN
  - People are motivated in driving the specific scientific field forward
  - They are (slightly) allergic to commercially driven projects
  - They are happy to contribute towards societally beneficial topics, e.g. education, healthcare, children, senior citizens, humanitarian issues
- On personal level
  - Try to identify and be aware of your own personal motivations (what are you intrinsically interested/invested in learning), biases (people tend to choose comfort over discomfort)
- Identifying motivations and aspirations of yourself and your key stakeholders and stating them upfront will help in expectation management
- i.e. What are the desired outcomes? What are the possible hurdles preventing from reaching those outcomes? How might we overcome those hurdles? What are you and your team passionate in learning about?


SUSTAINABLE DEVELOPMENT GOALS
1 NO POVERTY
2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE, JUSTICE AND STRONG INSTITUTIONS
17 PARTNERSHIPS FOR THE GOALS
SUSTAINABLE DEVELOPMENT GOALS

2017/2018 STUDENT PROGRAMS

- CBI A3
  - Students from Politecnico do Porto, Swinburne University of Technology
  - Started in November 2017, final presentations mid April 2018
- CBI-X
  - Students from University of Modena and Reggio Emilia, University of Ferrara
  - Started in November 2017, final presentations February 13th, 2018
- RCA at CERN
  - Students from Royal College of Arts
  - Started in October 2017, interim presentations at CERN December 5th, 2018, final presentations in London January 18th, 2018
- CBI Mediterranean
  - Students from ESADE Business School, Istituto Europeo Design (IED) and Universitat Politècnica de Catalunya (UPC)
  - Started in September 2017, final presentations at CERN December 14th, 2018

- Common to all student programs this autumn = all projects connected to UN Sustainable Development Goals

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STUDENT PROGRAM TOPICS RELATED TO SDGs

- CBI A3
  - Match CERN Technology with a societal challenge/problem, related to SDG 12

- CBI-X
  - Two projects:
    - Surgical kits development for extreme working conditions, SDG 3
    - Personalised, context relevant communication/education, SDG 11

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Existing CERN connections to UN & Sustainable Development Goals

IPU

ITU

UN

UNITAR

UNOG

UNOSAT

WHO

WIPO

WMO

Sustainable Development Goals

CERN contributes de facto to some of the Sustainable Development Goals, the UN roadmap for development for the years 2015-2030. These goals are of particular relevance in CERN action and impact on society.

Connections to other interesting local/global innovation actors

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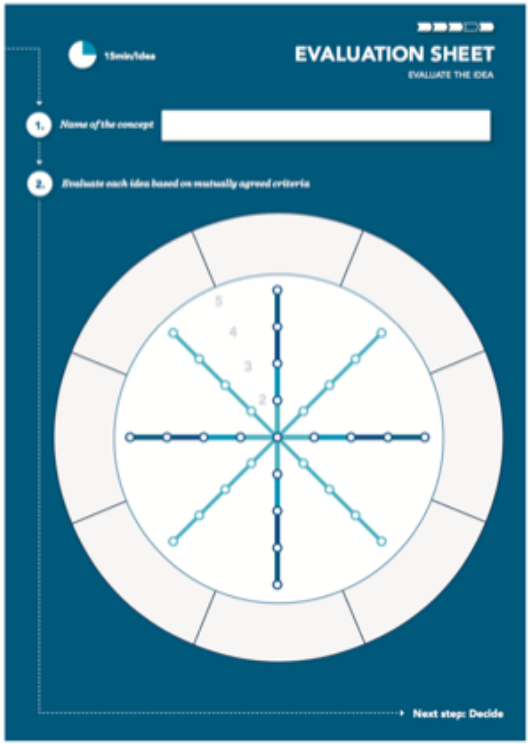
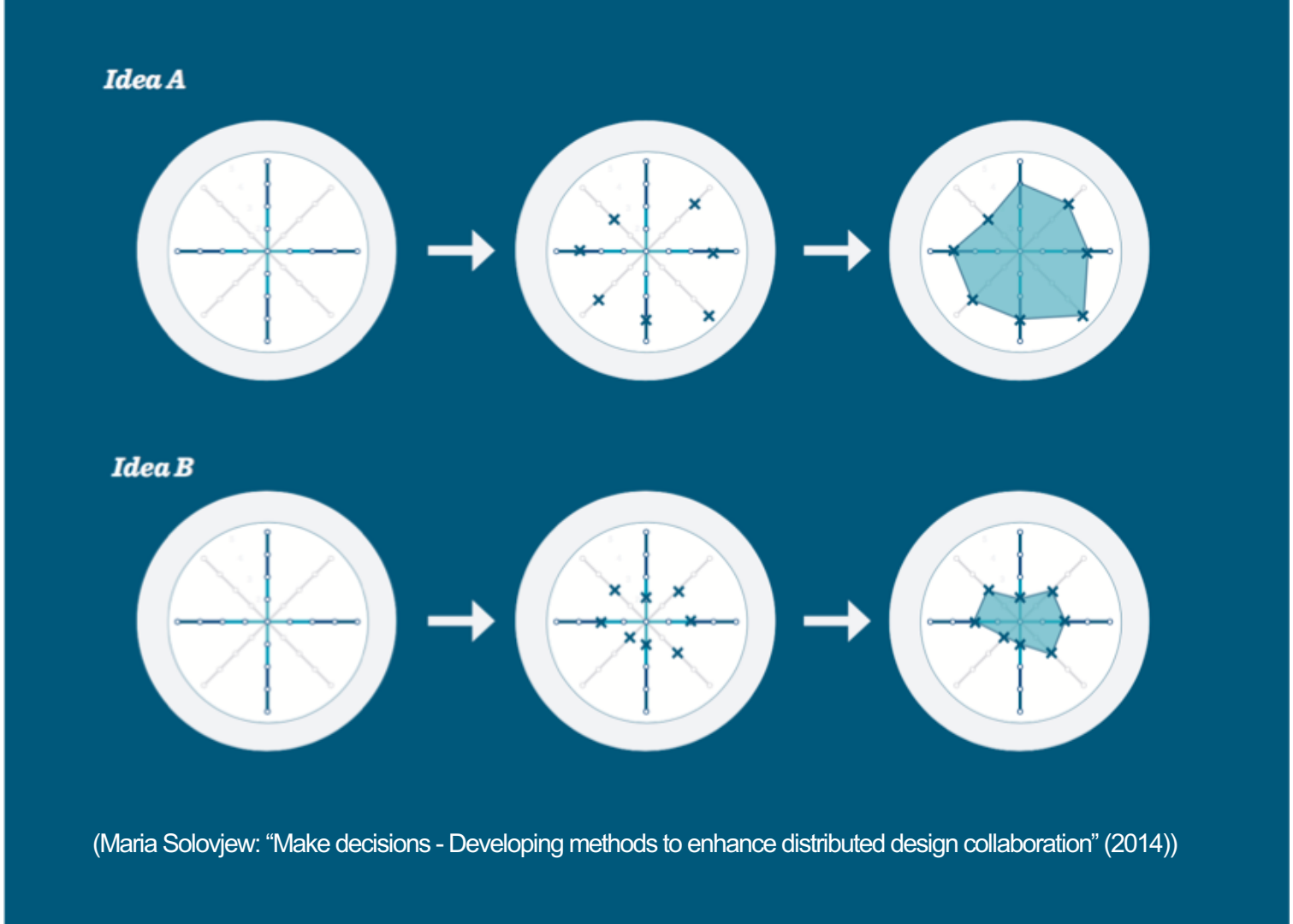
Few tools for next teamwork session(s)



Adapted from Maria Solovjew: “Make decisions - Developing methods to enhance distributed design collaboration” (2014)



(Maria Solovjew: “Make decisions - Developing methods to enhance distributed design collaboration” (2014))

LINKS FOR INSPIRATION

- http://www.un.org/sustainabledevelopment/sustainable-development-goals/
- https://sdginprogress.com/
- http://www.cbi-course.com/#06
- http://me310.aalto.fi/projects/
- https://openideo.com/

Interested in learning more?

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