



# Challenge Based Innovation (CBI)



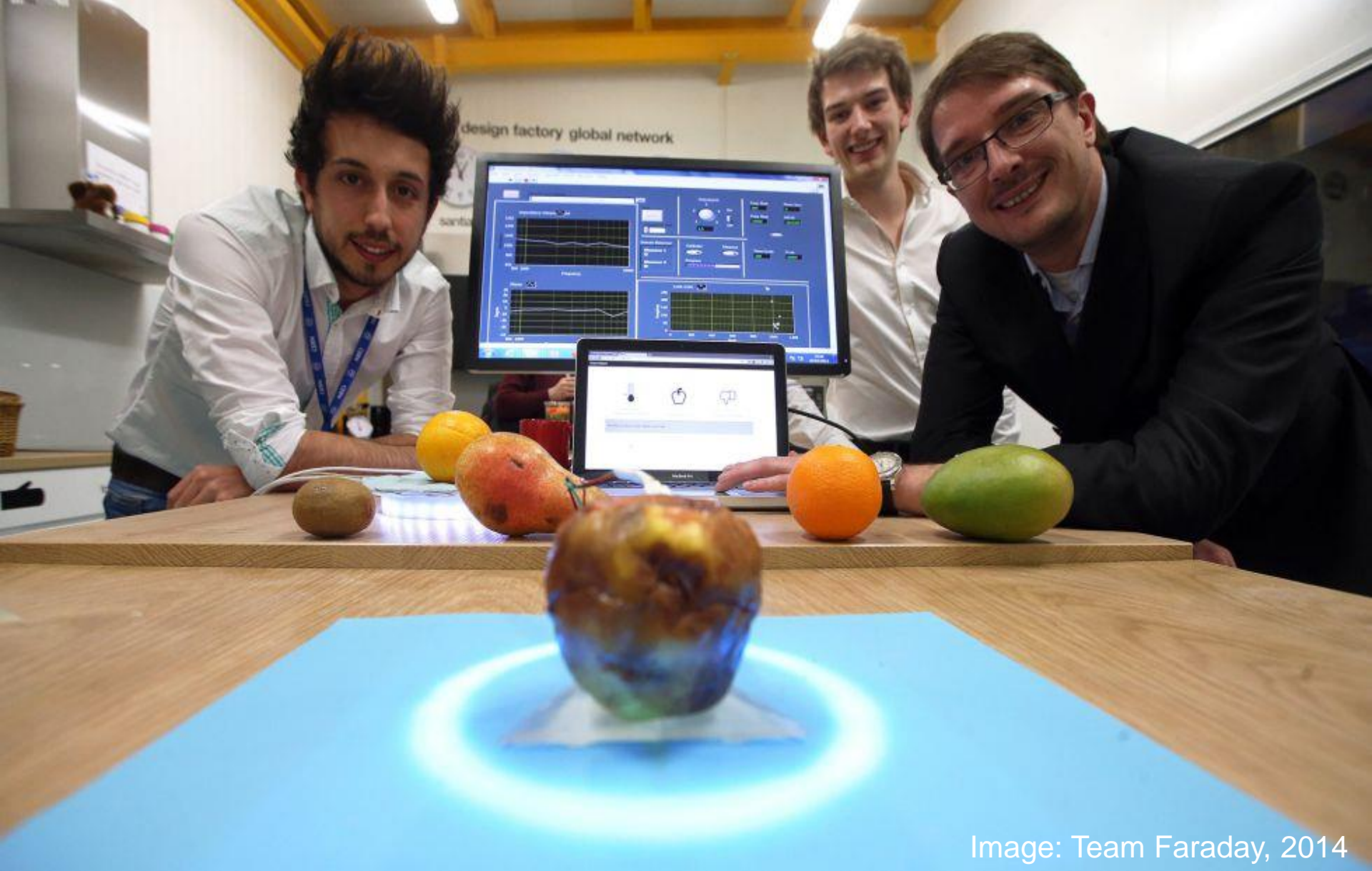
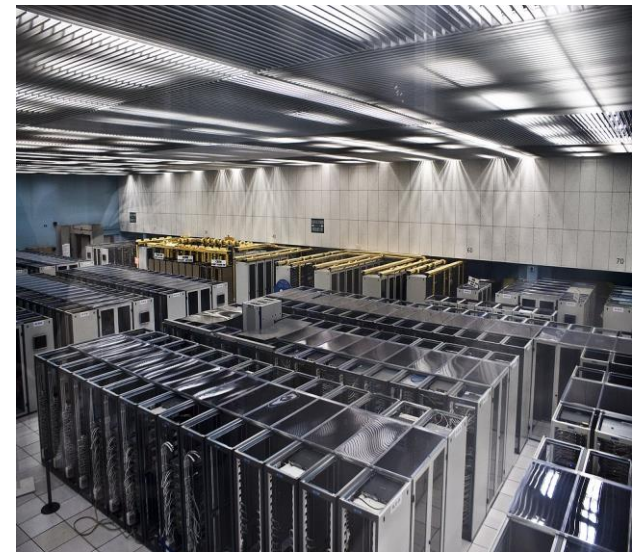
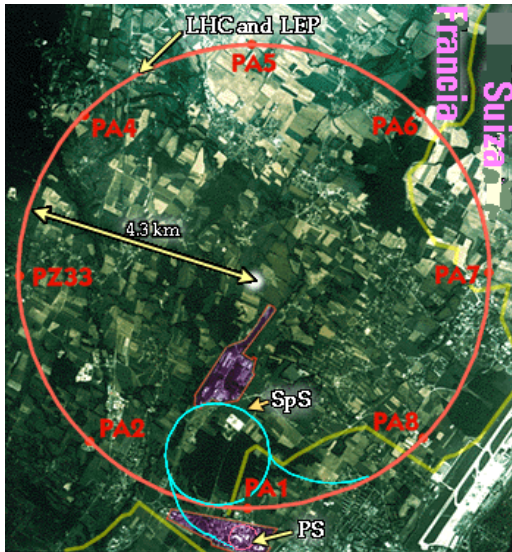


Image: Team Faraday, 2014

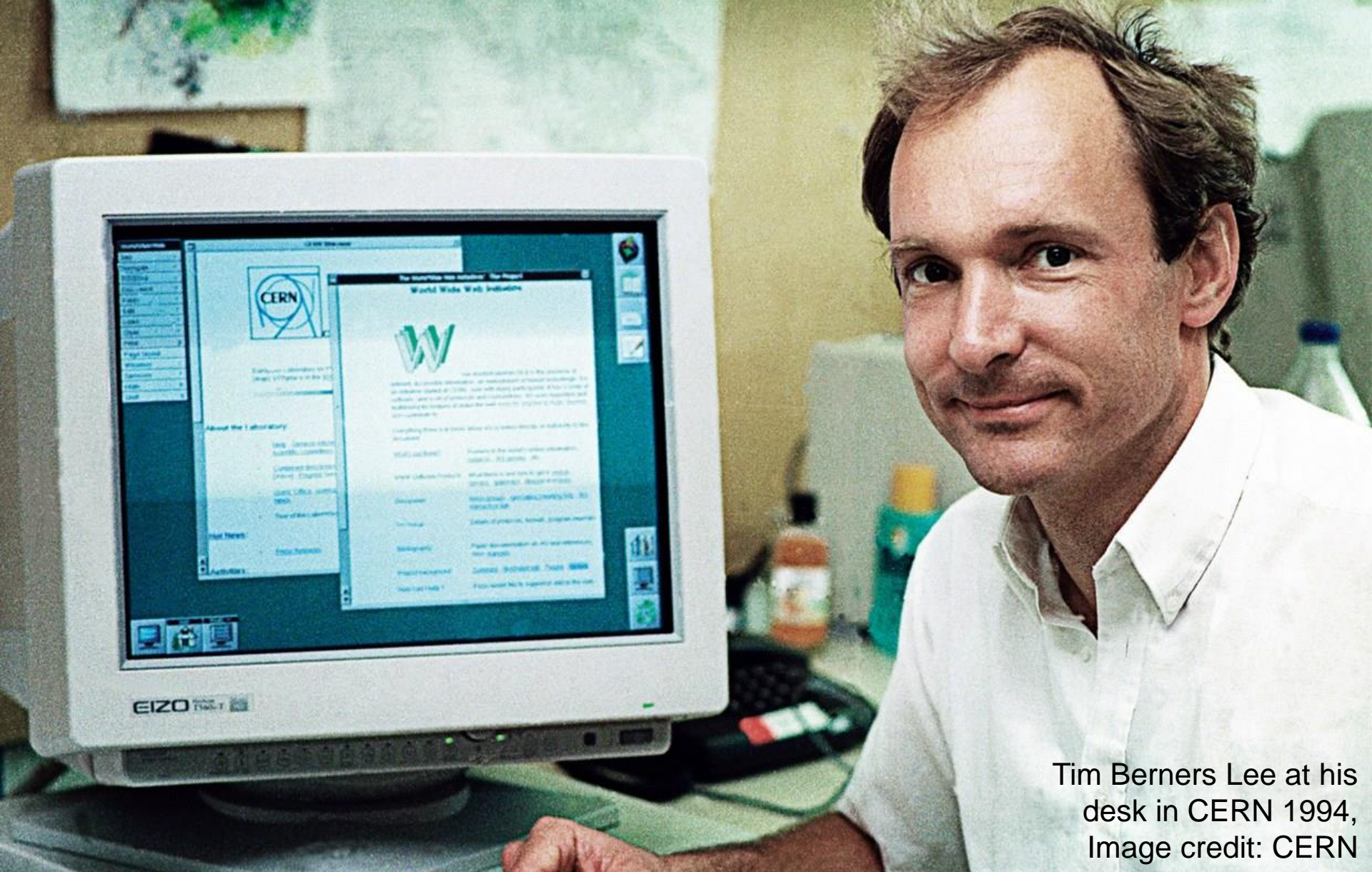
A project based course where multidisciplinary teams tackle challenges facing the society and search for novel applications for technologies developed at CERN.



# Challenge based innovation @ CERN







Tim Berners Lee at his  
desk in CERN 1994,  
Image credit: CERN

CERN spin-offs: www, medical imaging, high efficiency solar panels



# Challenge based innovation @ CERN IdeaSquare



Idea<sup>s</sup>

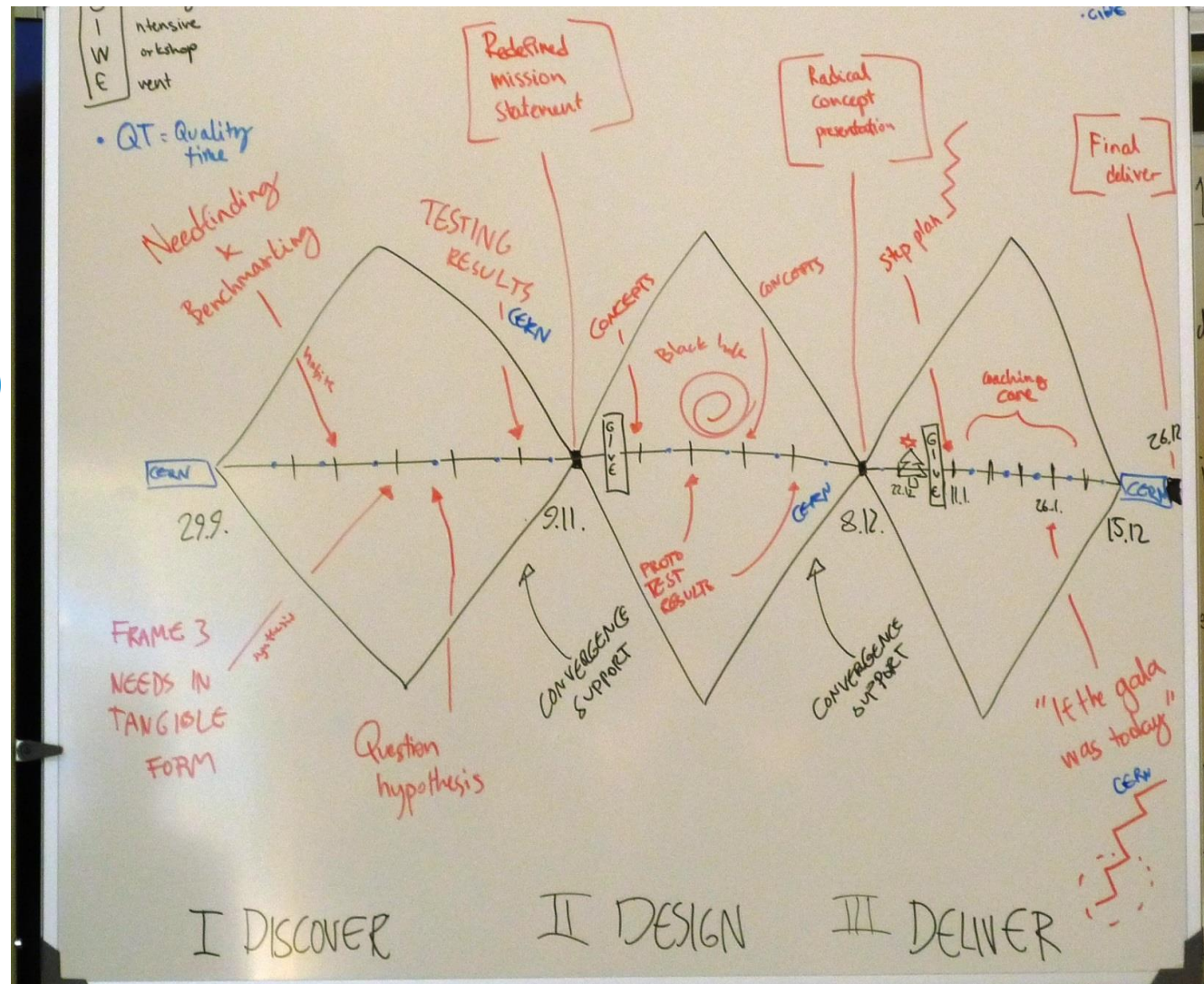


# Methodology: Design Thinking approach

1.- Needfinding  
(discover)

2.- Ideation  
(Solution design)

3.- Implementation,  
proof of concept  
(deliver)







**Aided movement** A skirt with a system that helps women with osteoporosis to reduce the hip's bones break in case of falling.

## Challenges / CBI 14-15

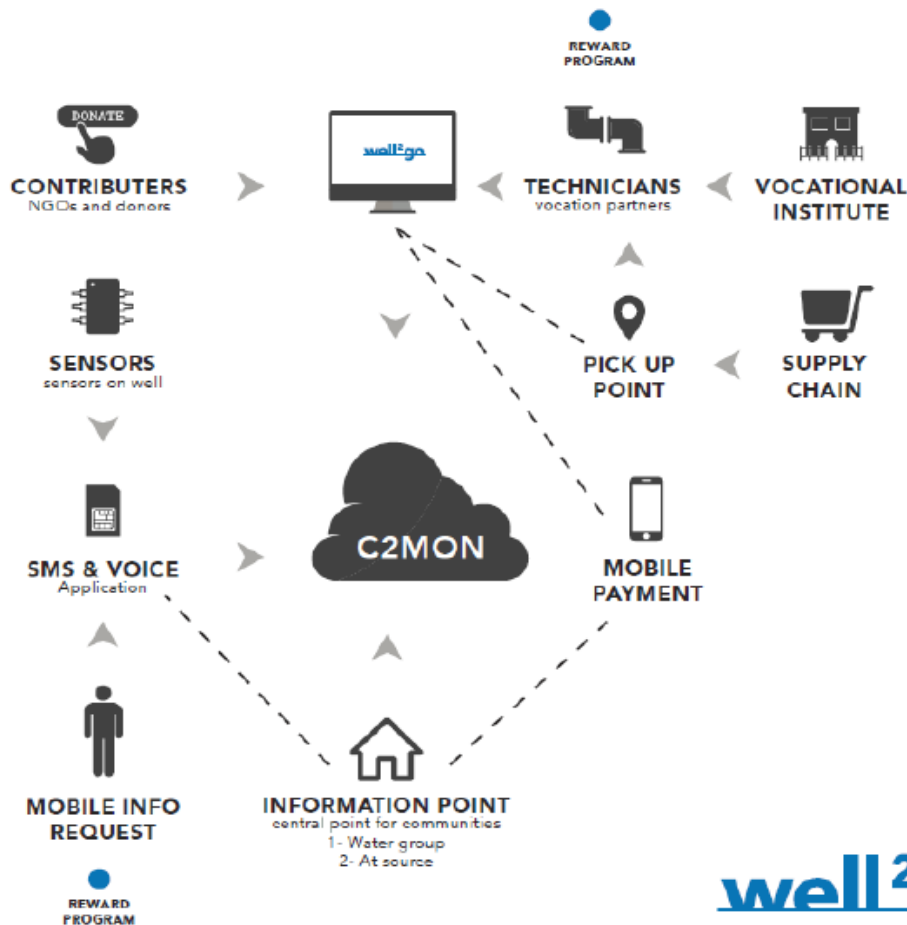
**See:** <http://2014.cbi-course.com>

## Challenges / CBI 15-16

- **Creating a literate world:** How might we significantly reduce child and youth illiteracy at scale in developing countries with the use of technology?
- **Water safety:** How might we improve public health by providing safe access to water?
- **European labour mobility:** How might we increase labour mobility within EU by supporting the workers with useful and actionable information, drawn from big data?
- **Food safety in home delivery:** How might we home deliver food in a new way that maintains the food at a selected temperature, ensuring its safety?



- **Water safety: Well2Go.**      **78% of wells not fully working**
  - **sensor + sms-based network to identify failing wells**
  - **platform to manage and finance wells repairing**



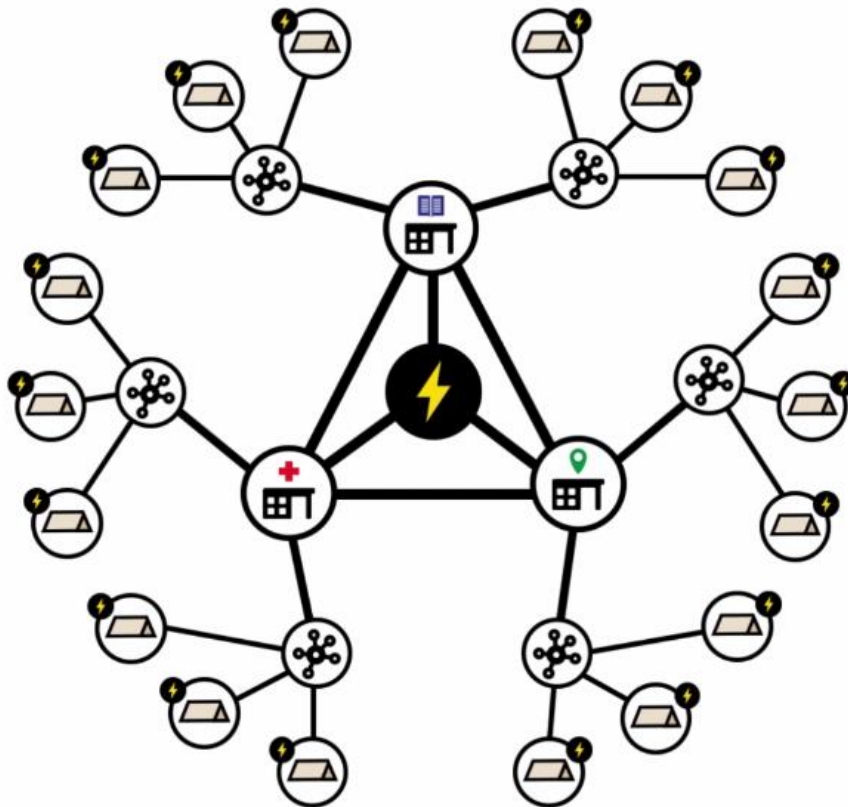
## Challenges / CBI 16-17

- **Return to Working Life After a Traffic Accident**
- **Learning Environment of the Future**
- **Integration of People with Intellectual and Developmental Disabilities into Society**
- **Better Shelter 2.0. Improvement of quality of life of people at refugee camps**
- **Smart Maintenance for Industry 4.0**
  - Disruptive solutions
  - Solutions biased towards ICT



## Challenges / CBI 16-17

- **Better Shelter 2.0. Improvement of quality of life of people at refugee camps:**
  - **ElecTree, smart energy distribution for shelters**



ELEC|TREE



## PROPOSAL FOR CBI 2017

# Challenge Based Innovation for the Sustainable Development Goals (SDGs)







Business  
(viability)

Design  
(usability,  
desirability)

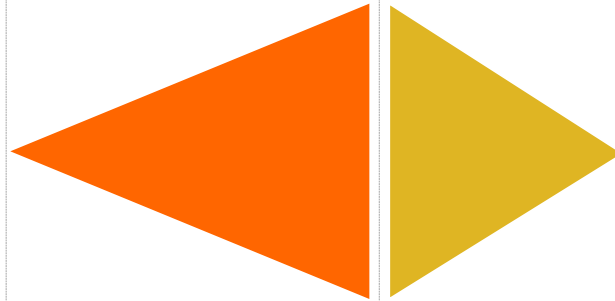
Technology  
(feasibility)

Image: Team Penrose, 2015

Multidisciplinary teams, students from ESADE, UPC, IED.

# Understand

*Understand ends in insights*

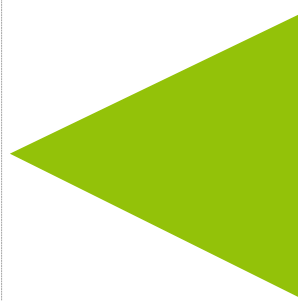


*Empathy*

*Define*

# Create

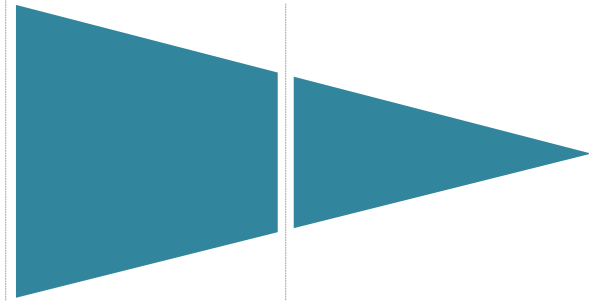
*Create ends in ideas*



*Ideate*

# Deliver

*Delivery ends in reality*



*Prototype*

*Test*

September

October

November

Dec.



Intensive  
kick-off week  
in BCN  
4.-7/9.

CERN  
intensive  
week  
11.-15.9.

CERN  
intensive  
week  
23.-27/10.

CERN  
intensive  
weeks  
06.-15/12.

Preliminary Schedule

4/9



Weekly teamwork & CBI-day



15/12





## KEY DETAILS

**Capacity** 10 participants from UPC (ETSETB (Degree + Master ) + FIB)

### **Credits**

12 ECTS Credits in the Degrees. Alternate of PAE

10 ECTS Credits in the Masters. Alternate of MTP + 1 elective

### **Costs covered by UPC**

- accommodation, academic materials, prototyping

### **Costs covered by students**

- Travel costs, meals

## Teaching

The home universities provide local teaching and weekly coaching sessions. During the periods developed at CERN, IdeaSquare will support the teaching team.

Local teaching & coaching includes sessions from three disciplines:

**Business:** ESADE

**Design:** IED

**Engineering:** UPC





## Students' profile

Distributed teams with students from

BARCELONA (~30 students)

- . ESADE Business School (10 students)
- . Istituto Europeo di Design (IED) (8-10 students)
- . Universitat Politècnica de Catalunya (UPC) (10 students)

**Thank you for your interest! We will be waiting for your applications!**

**E-mail to [fib.vd.iirr@upc.edu](mailto:fib.vd.iirr@upc.edu) before June 5, 2017**

