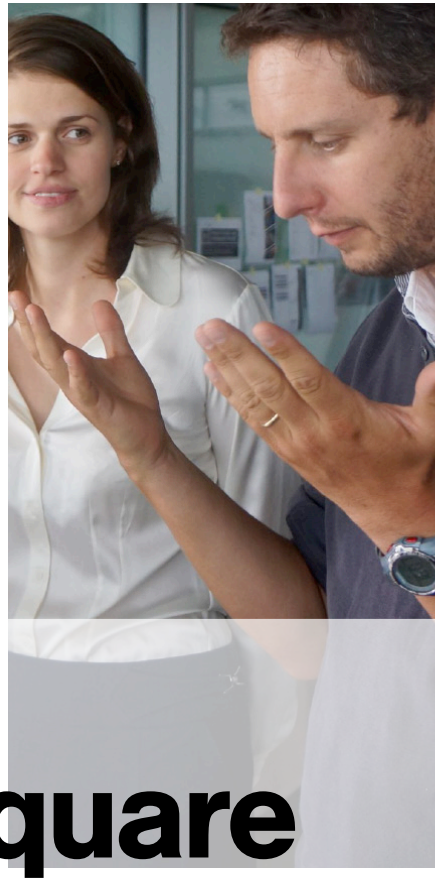
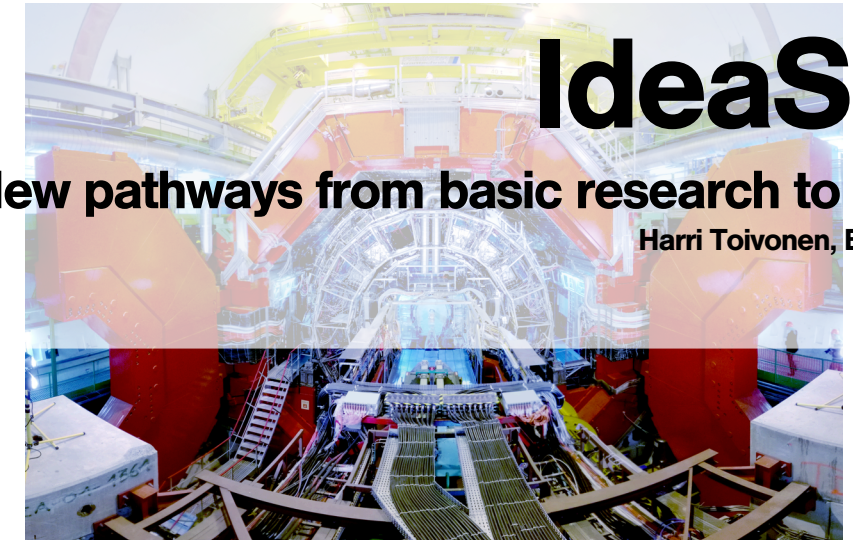




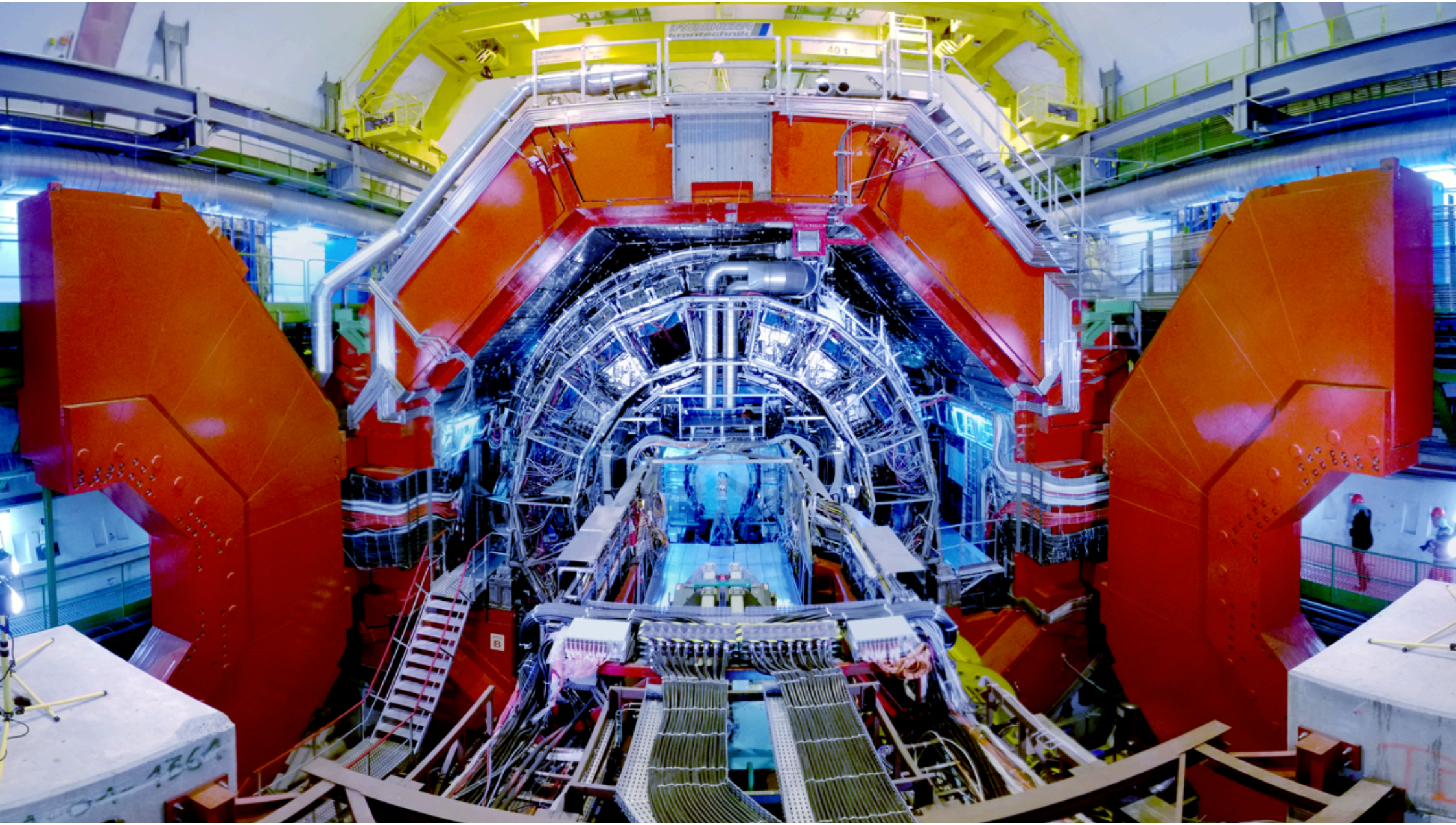
IdeaSquare

New pathways from basic research to societal value

Harri Toivonen, Brussels June 19th, 2014

Aalto University
Design Factory

CERN
Ideas



ERI challenges

- The ERI´s, CERN included, deal with engineering and innovation challenges stemming from scientific progress
- Accumulated knowledge, capabilities and infrastructure aligned to drive advanced science projects forward -> societal value and benefits are challenging to measure as the time from invention to application is long
- How might we accelerate societal value creation (new technology, products, services, startups, jobs) from basic research?

What can we improve?

- Development work (at ERI´s, CERN, universities, companies..) is shifting from traditional researcher-developer-manufacturer relationships to collaboration to co-creation
- In order to make order-of-magnitude leaps in technology and its applications, we need to try and find new and improved ways of working
  - with people, processes, spaces, funding..
- Ideas need an experimentation place (physical/mental) to be developed further
- Hypothesis: Value on ideas from basic research is easier to build upon when they are realized in tangible format (prototypes)

IdeaSquare in brief

“IdeaSquare@CERN is a pilot project that brings together physicists, engineers, industrial partners, early-stage researchers and cross-disciplinary teams of students to work together on detector upgrade R&D technologies. The purpose is to co-develop new technologies for research purposes, and at the same time, create a fruitful environment for socially and globally relevant new product ideas and innovation.”

Process

From Ideas to Products

"Crazy idea" - Take it forward - Reality check - Proof-of-concept - Product Dev

IdeaSquare

Universities, Research institutions

Student teams, companies, startups

Student teams as catalysts

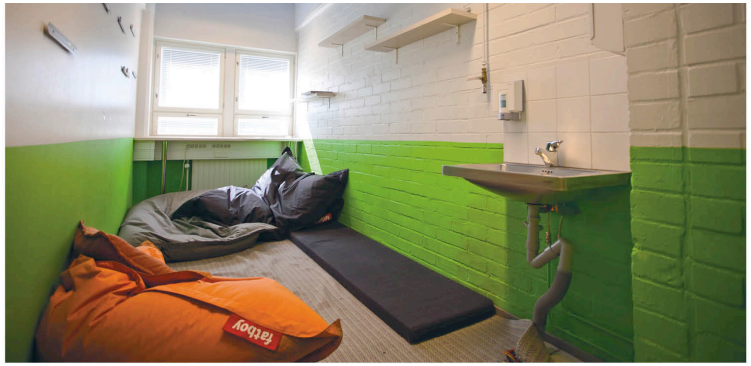
Challenge Based Innovation - CBI

- 6 month MSc level specialization course
- First small scale pilot ran last winter, #2 starting this September

- User Centric Product Development
- PBL
- Design Thinking - process

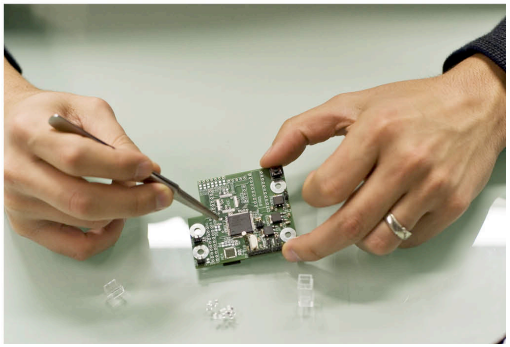
- “Work extremely hard, learn and have fun!”
- “Fail fast and often to succeed sooner”

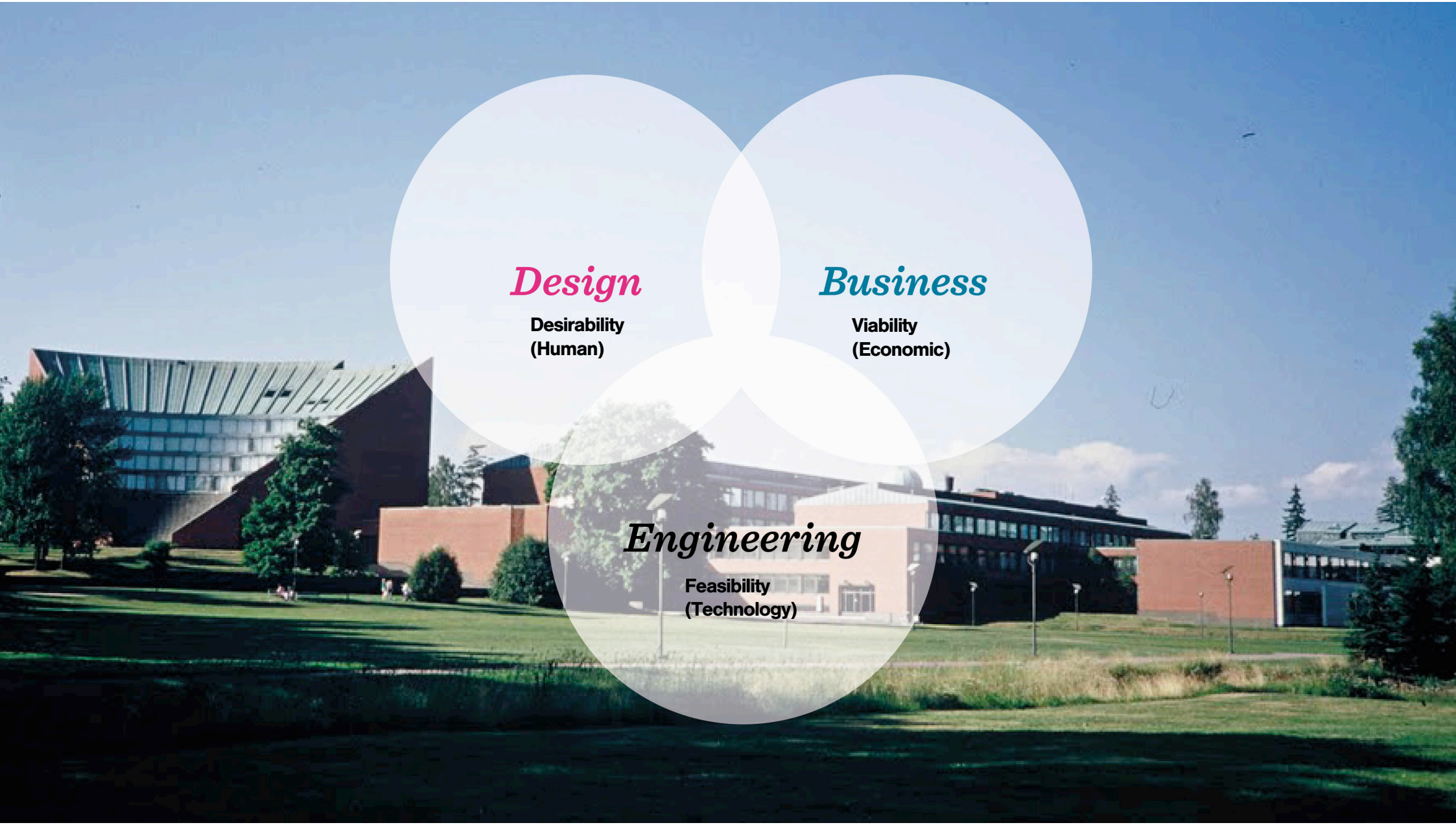
A!
Aalto University
Design Factory


fatboy

THANK YOU!
THANK YOU!
THANK YOU!

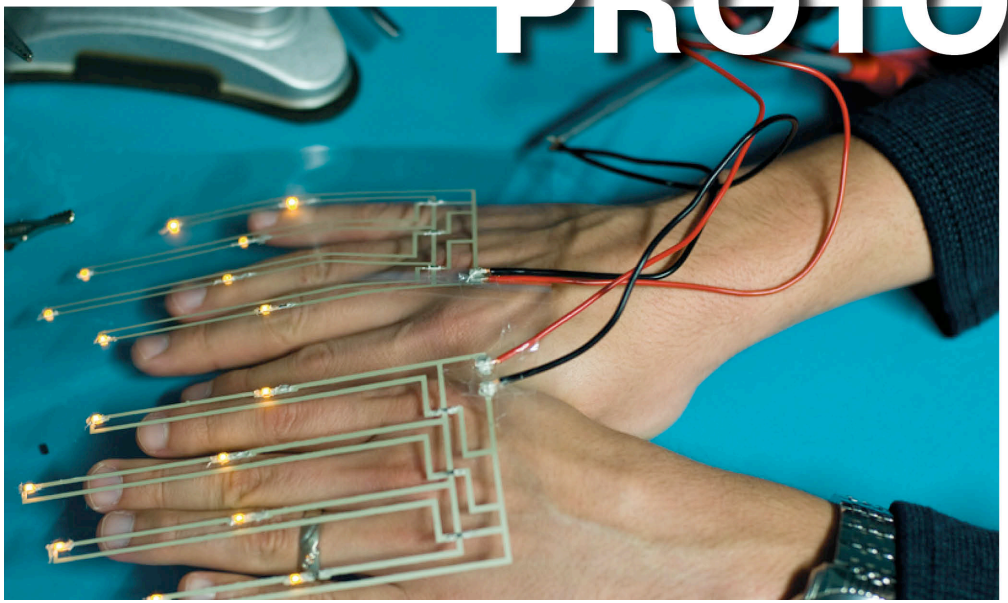
GLOBAL DESIGN FACTORY NETWORK
MELBOURNE
SHANGHAI
SANTIAGO
NEW YORK
GENEVA




Design
Desirability
(Human)
Business
Viability
(Economic)
Engineering
Feasibility
(Technology)

Expertise value = hard x (soft)2
Teamworking
Communication
Passion and love
Project working
Curiosity & hunger for learning
Language & cultural
Managerial & leadership

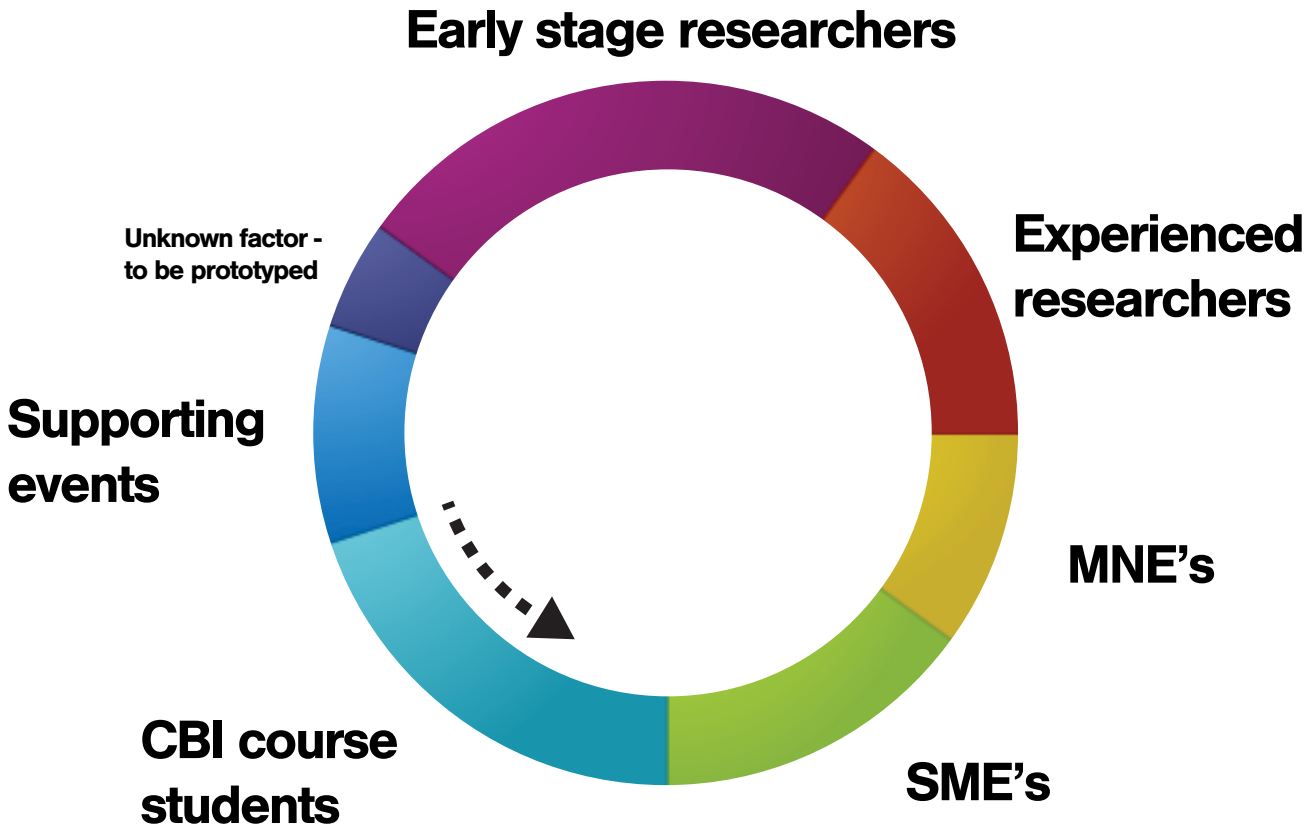
PROTOTYPING



USER TESTING

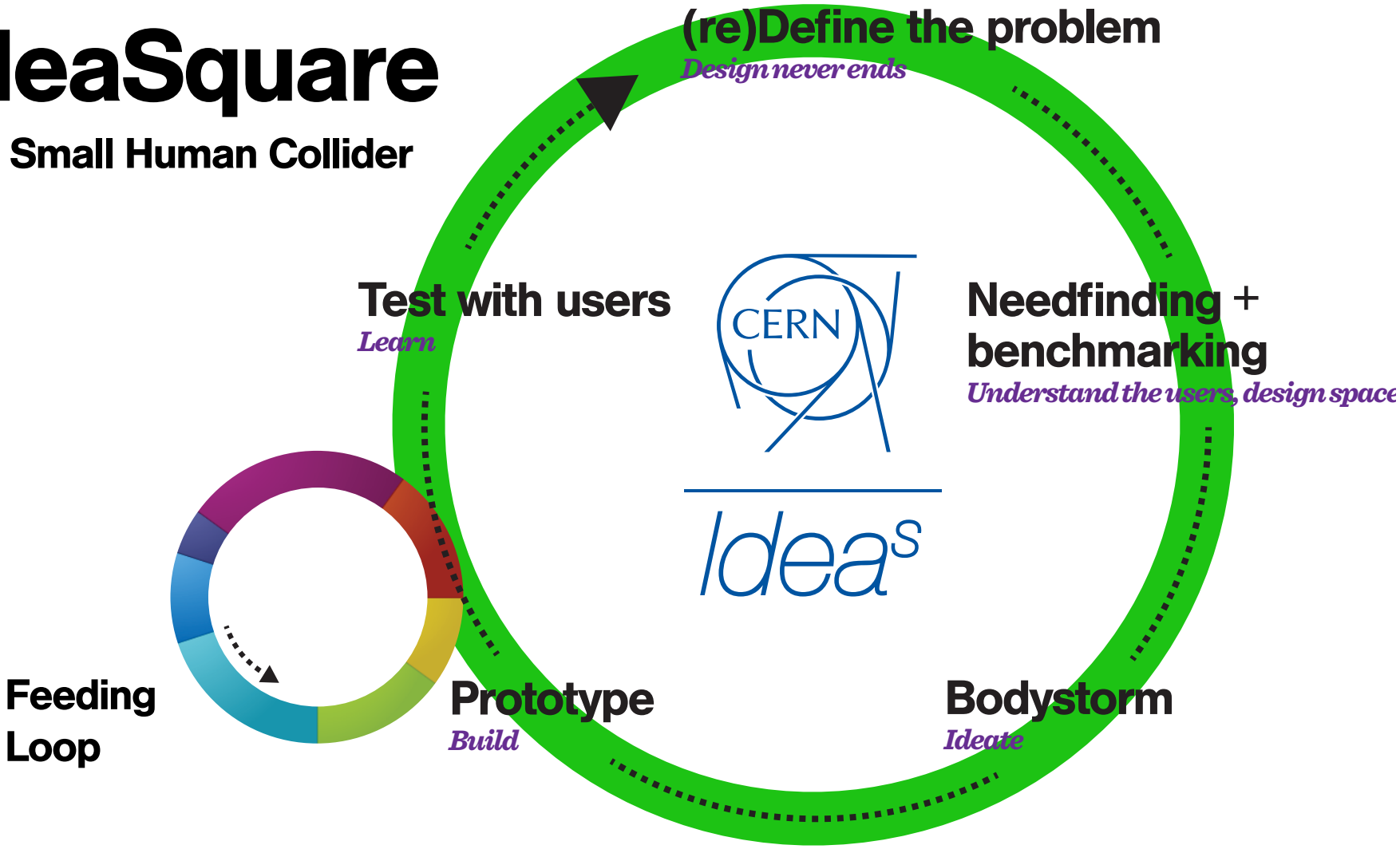
Feeding Loop

Ingredients for Creative Collaboration



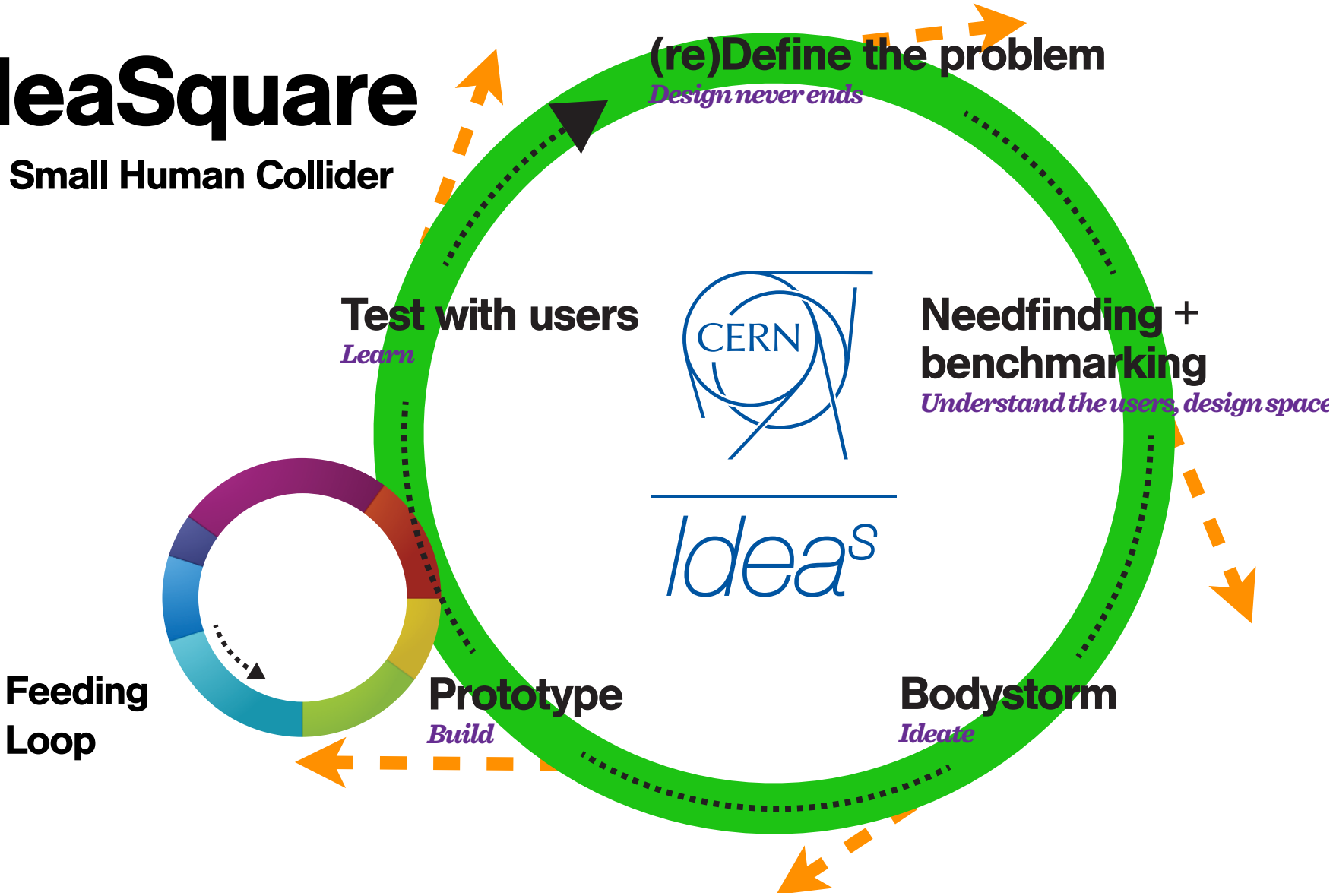
IdeaSquare

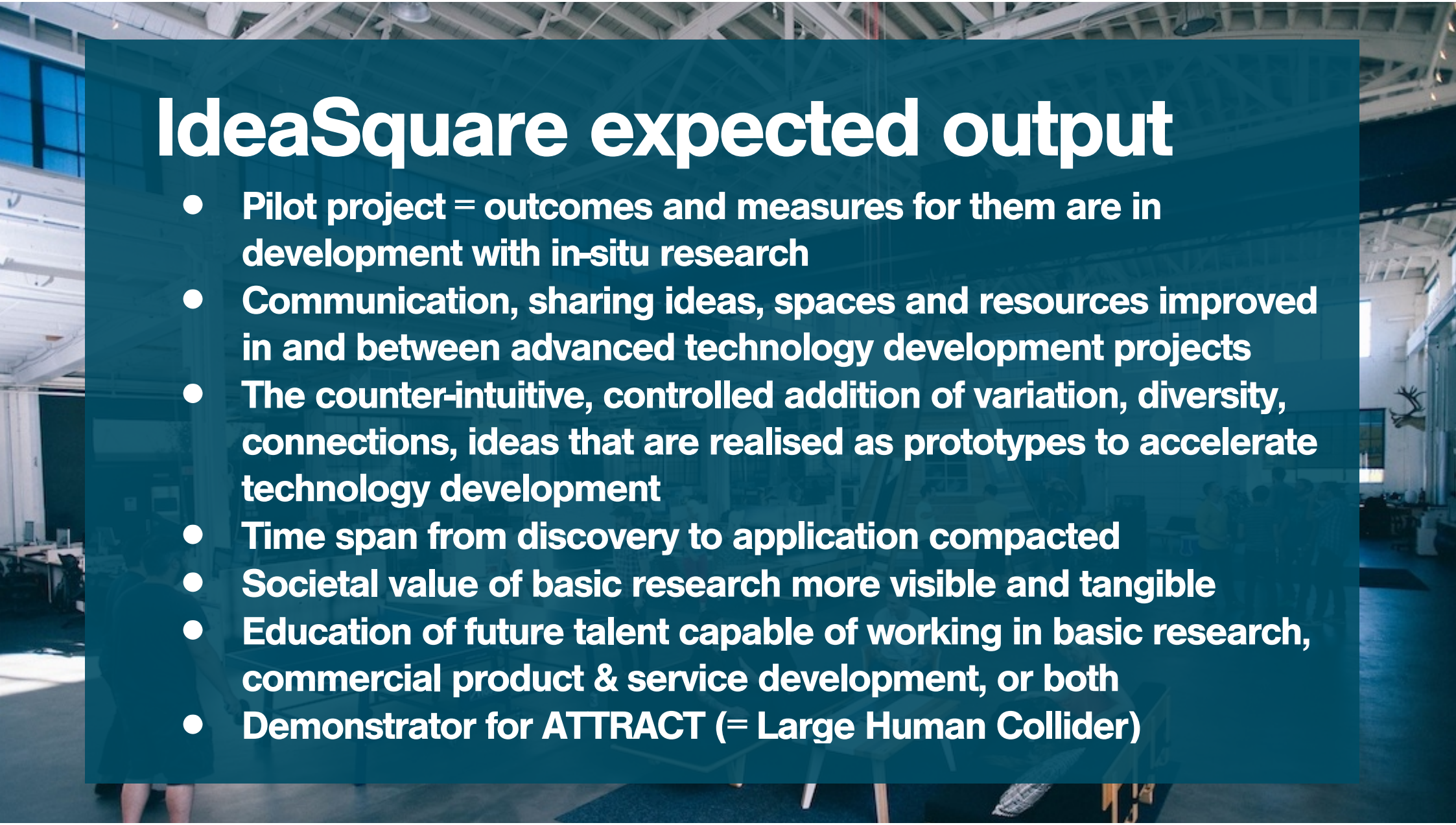
The Small Human Collider



IdeaSquare

The Small Human Collider





IdeaSquare expected output

- Pilot project = outcomes and measures for them are in development with in-situ research
- Communication, sharing ideas, spaces and resources improved in and between advanced technology development projects
- The counter-intuitive, controlled addition of variation, diversity, connections, ideas that are realised as prototypes to accelerate technology development
- Time span from discovery to application compacted
- Societal value of basic research more visible and tangible
- Education of future talent capable of working in basic research, commercial product & service development, or both
- Demonstrator for ATTRACT (= Large Human Collider)

Tough questions? Ideas?

harri.toivonen@cern.ch