

Sm4rt Lab

*Internet of Things Meets
Augmented Reality in
Laboratories*

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23.2.2017 Delft Innovation Room



UNIVERSITY OF
EASTERN FINLAND

UEF//

3 *campuses*
JOENSUU
KUOPIO
SAVONLINNA

4 *faculties*

Philosophical Faculty
JOENSUU | SAVONLINNA

*Faculty of Science
and Forestry*
JOENSUU | KUOPIO

Faculty of Health Sciences
KUOPIO

*Faculty of Social Sciences
and Business Studies*
JOENSUU | KUOPIO | SAVONLINNA

15,000

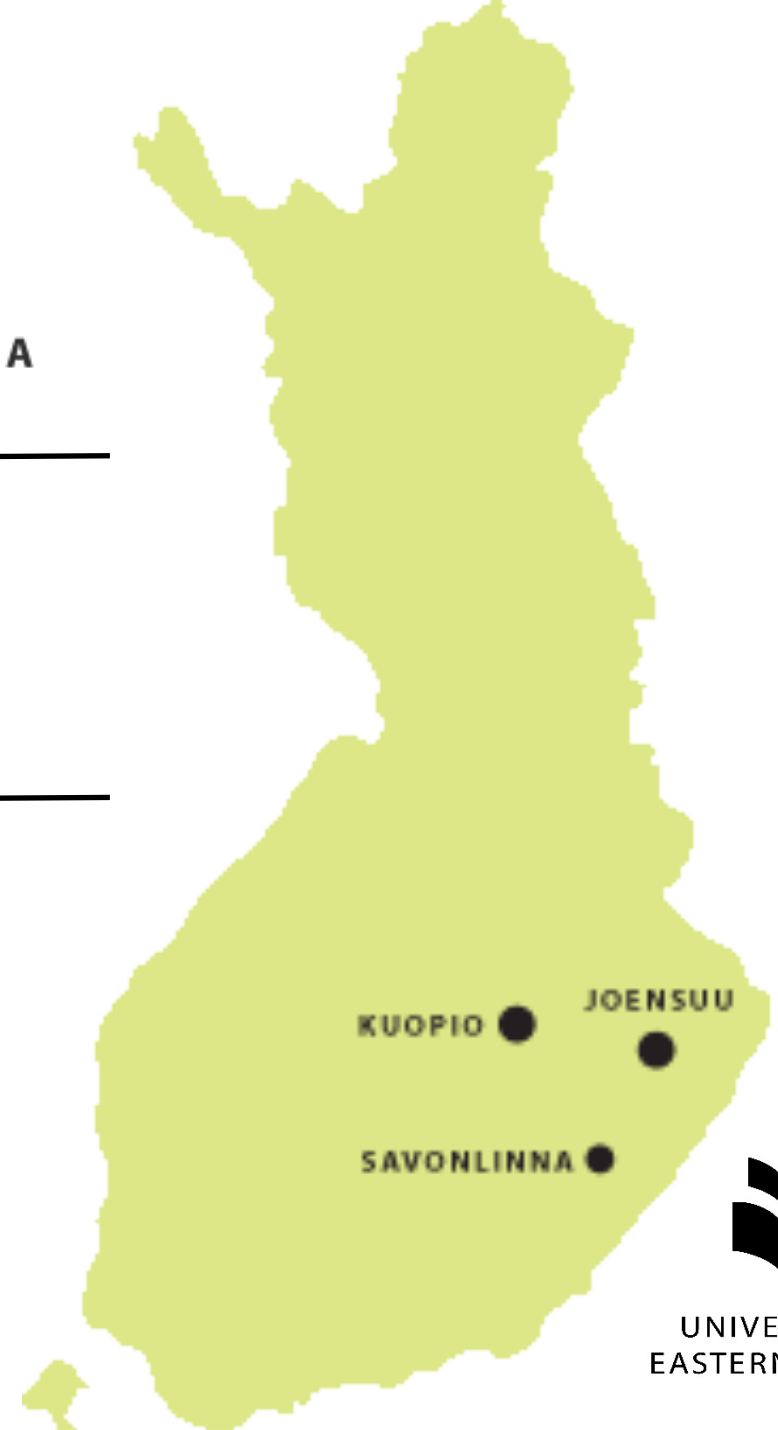
DEGREE STUDENTS

20,000

ADULT EDUCATION STUDENTS

2,700

STAFF MEMBERS



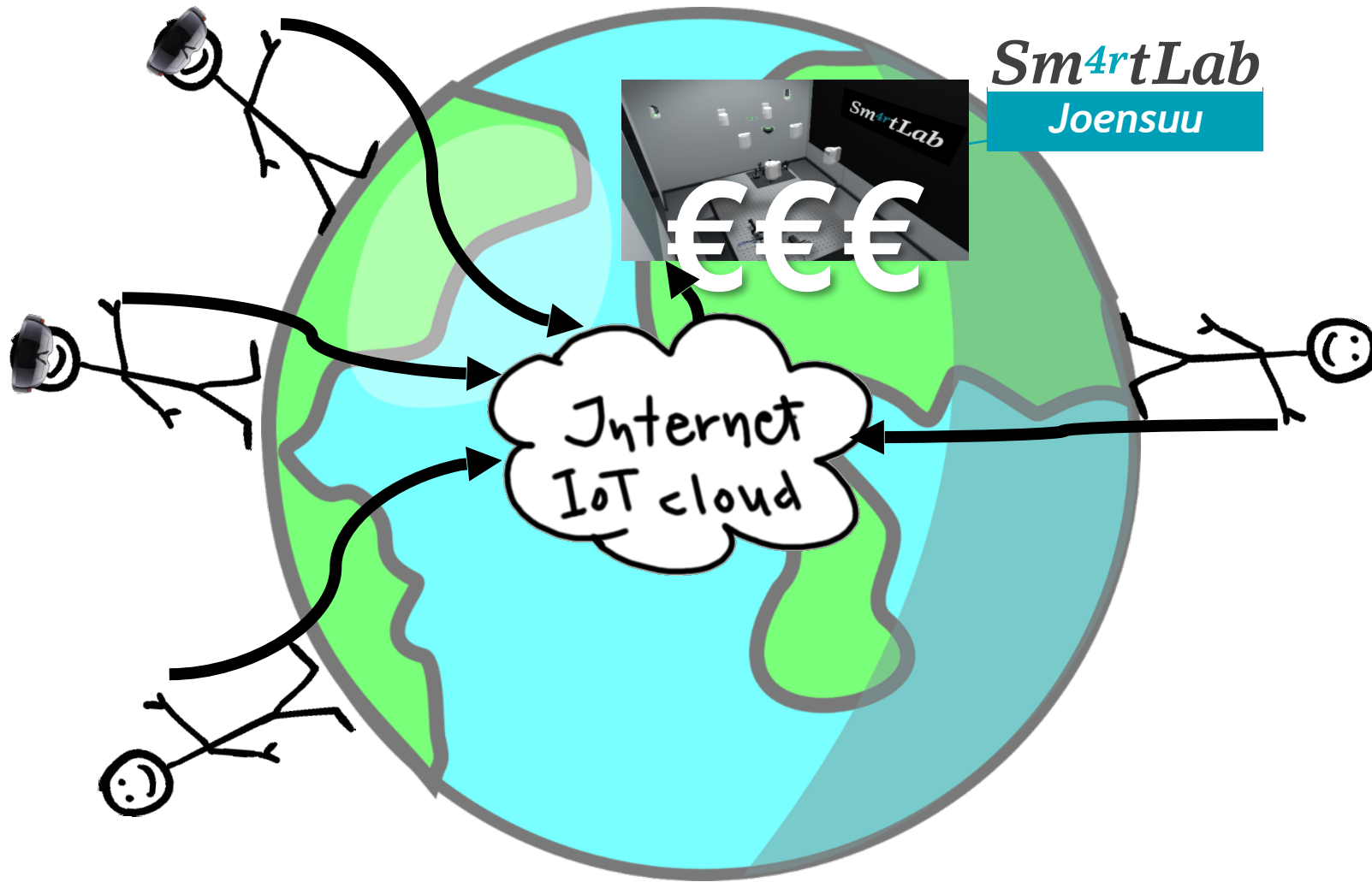
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Sm⁴rtLab - *The Idea & Concept*

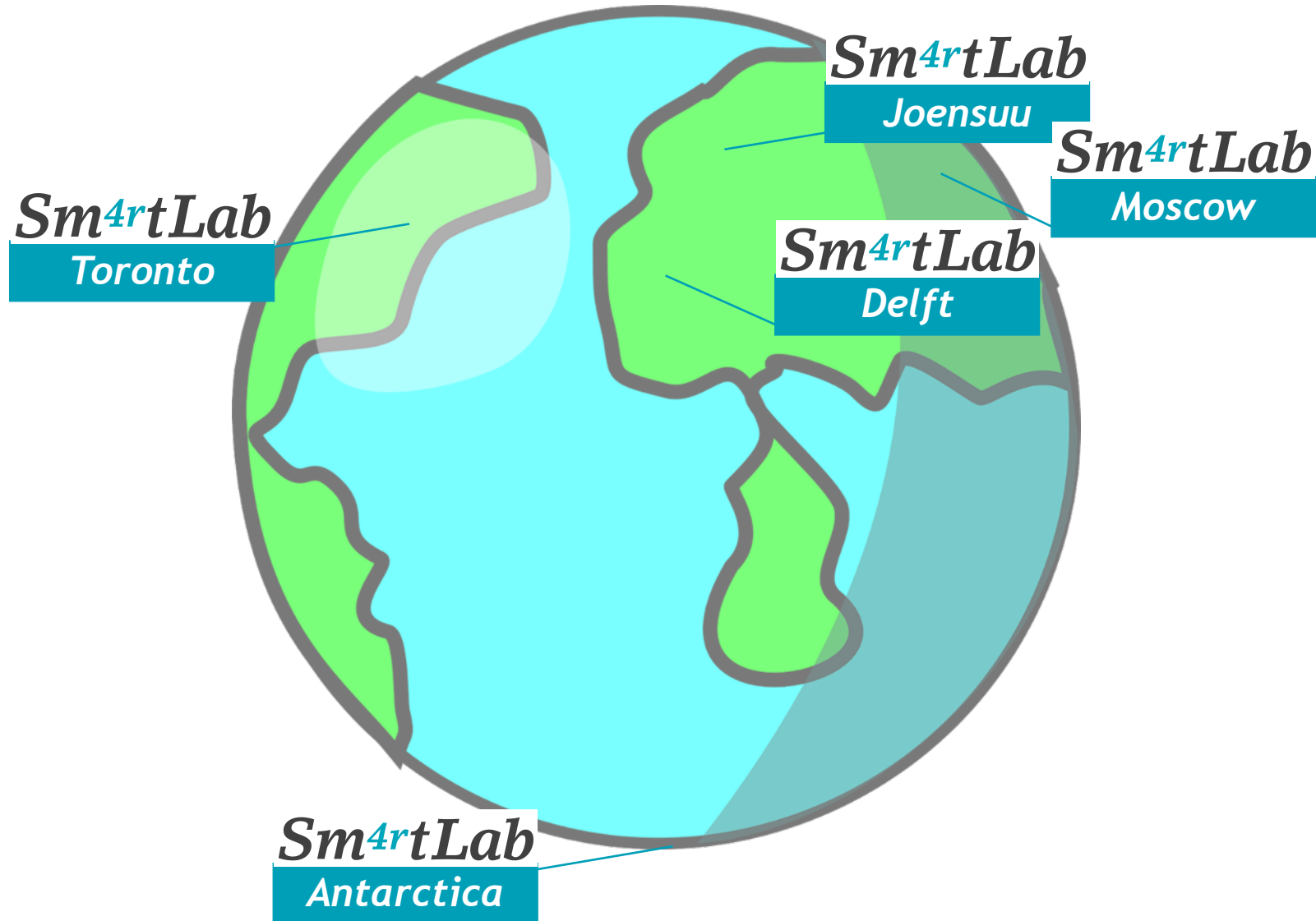
- Scientific infrastructures are very expensive and utilization rates are low, funding is decreasing
- How to maximize the utilization of the existing laboratories and infrastructures?
- Idea = Remotely controllable laboratories, open 24/7, connected to an IoT cloud



Sm⁴rtLab Maximizing the usage



Sm⁴rtLab 24/7 around the globe



Sm^{4r}tLab - What is it?

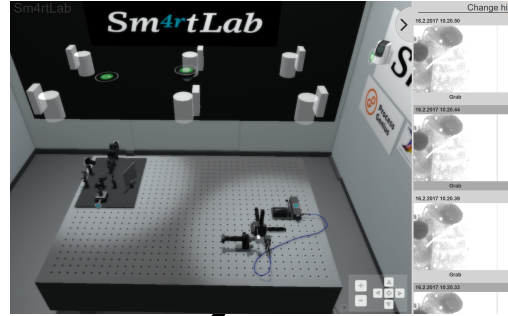
- *Sm^{4r}tLab* is a remote controlled virtual and real laboratory
- *Sm^{4r}tLab* can be controlled by a web browser or Hololens
- *Sm^{4r}tLab* data can be uploaded to an IoT cloud for storage and analysis
- *Sm^{4r}tLab* concept can be extended basically to any type of laboratory



Sm⁴rtLab - Components



OR



Sm⁴rtLab WebGL application



MS HoloLens native app

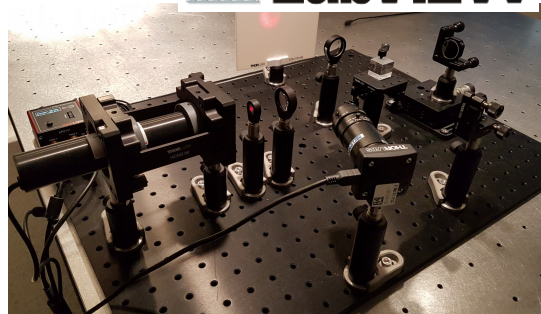


Data analysis



IoT platform

data ↗
↓ control



Sm⁴rtLab "things"
(instruments, lasers, lights, cameras etc)



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**// ARE YOU
READY FOR
THE 4TH
REALITY
OF SCIENCE?**

Sm⁴rtLab - Demonstration

