ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE
Ecole polytechnique fédérale de Lausanne
The Role Of Universities in the Digital Transformation of Society
Prof. Pierre Vandergheynst, VPE

A Bit of Context about Higher Education

(The times they are a changin’. Fast.)

ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

A Modern Tragedy

Universities and curricula are designed along the rules of …
the classical theater !!!

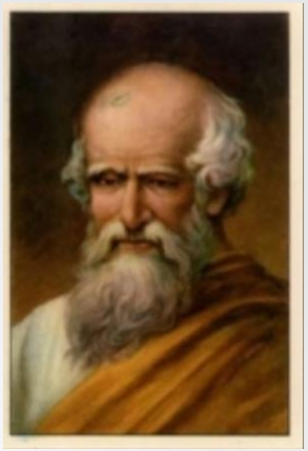
Place

Action

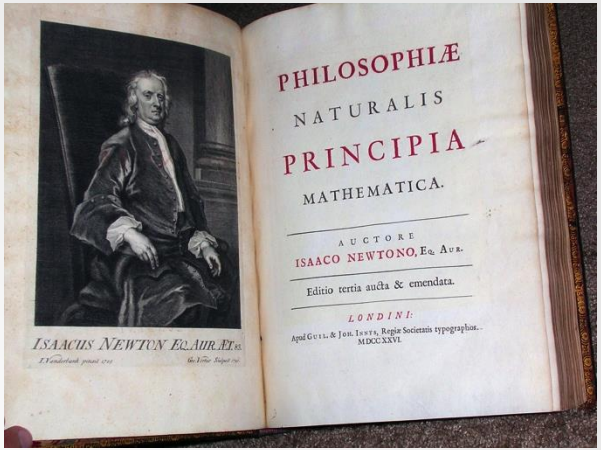
Time

18-25 y. old

The Three Paradigms



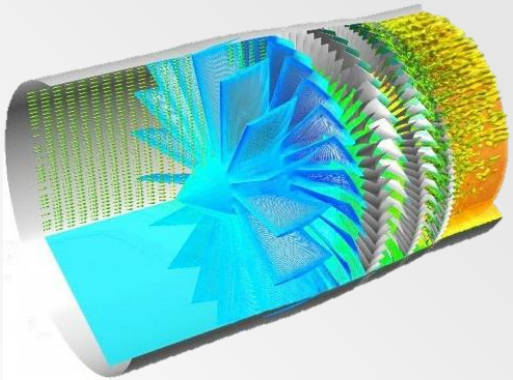
Experimental Science
Archimedes, 3rd century BC

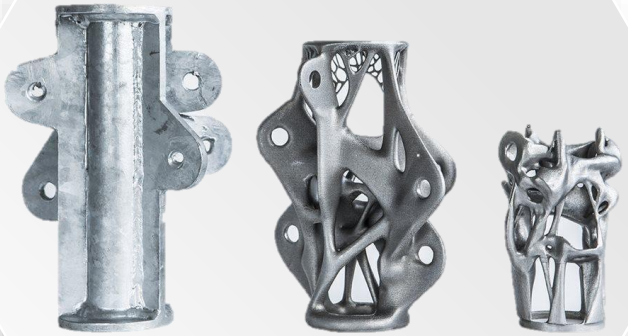


Theoretical Science
Newton, 17th century

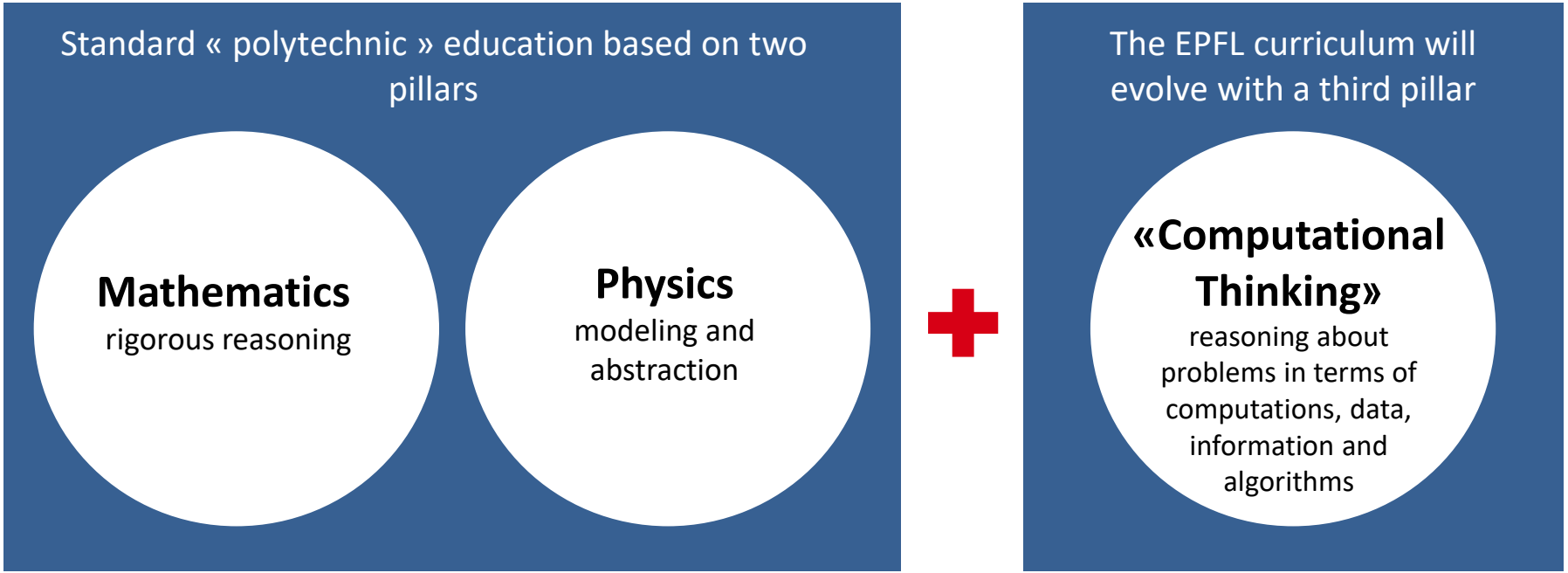
Computational Science
Von Neuman, 1950s

From Computational Methods to Computational Thinking





Computational Thinking



MOOCs: Massive Open Online Courses

Septembre 2012 – February 2018:

>100 MOOCs on line

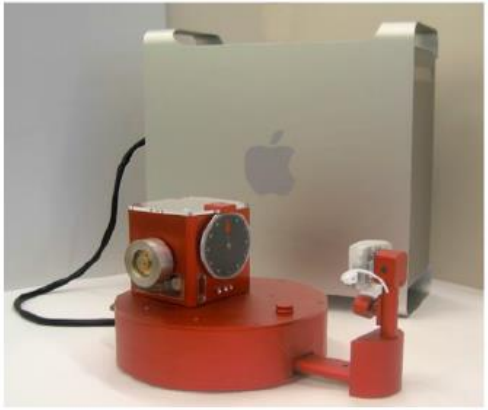
> 2,268,985 registered participants

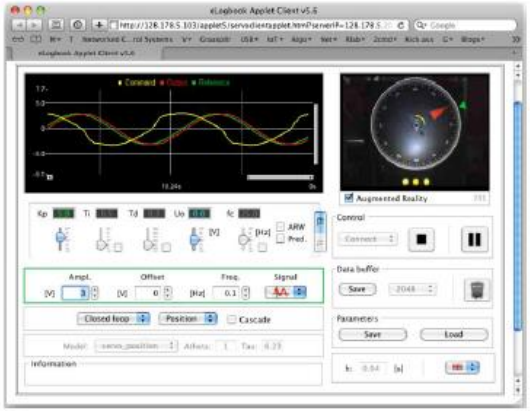
66% not students, among which **90%** have a job

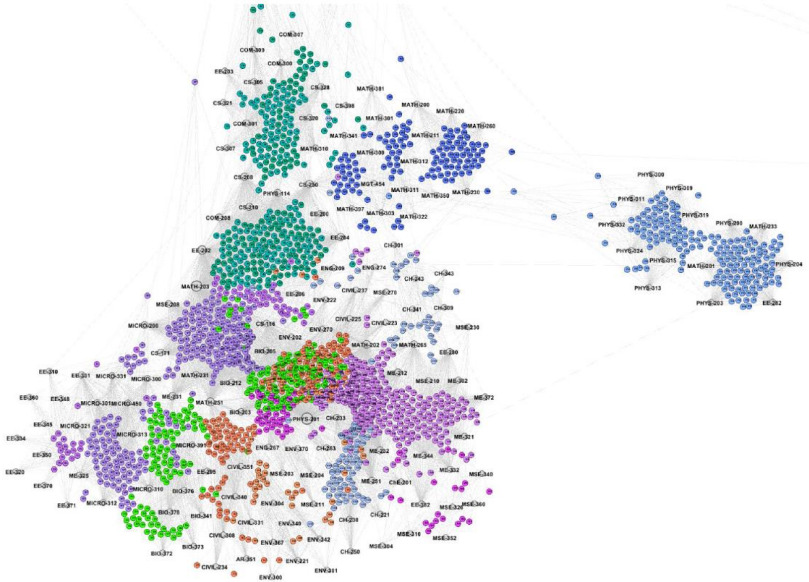
Lessons learned:

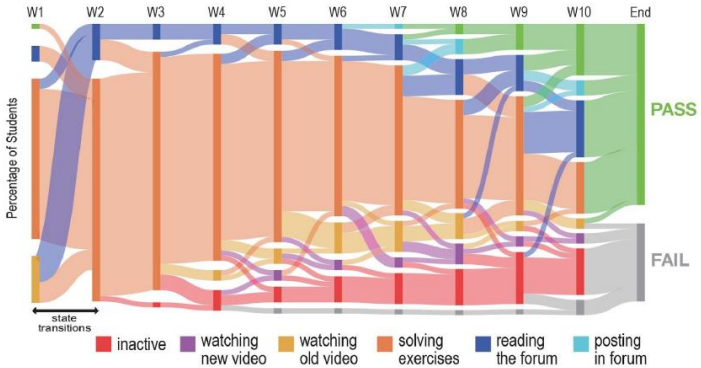
1. Importance of continuing education, in particular for digital skills (fast changes, strong demand)
2. Huge dataset of “how people learn”: leads to personalized learning

ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

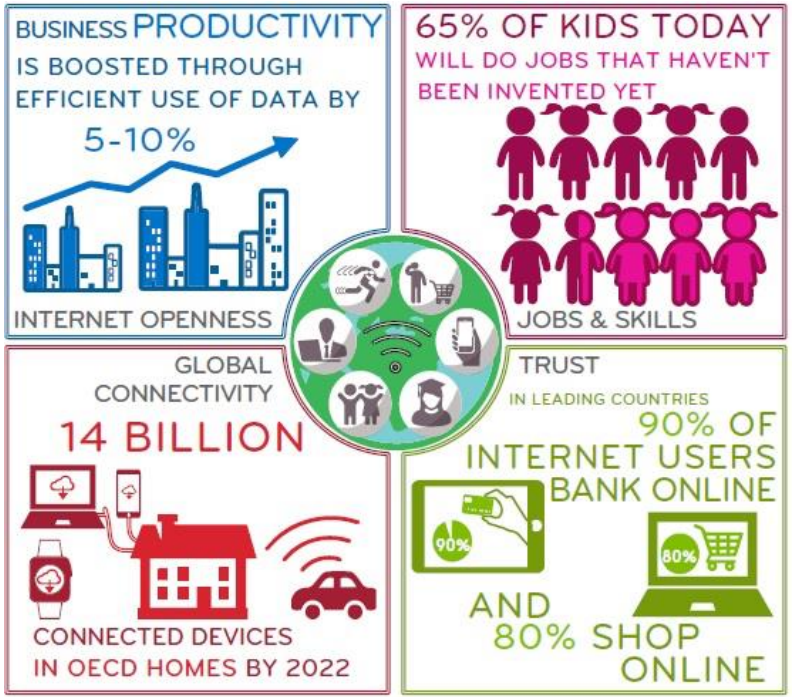



eLogbook Applet Client v5.6
Augmented Reality
Control
Data buffer
Parameters
Save
Load
Closed loop
Position
Cascade
Information



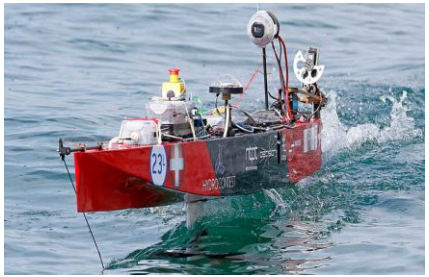

W1
W2
W3
W4
W5
W6
W7
W8
W9
W10
End
Percentage of Students
PASS
FAIL
state transitions
inactive
watching new video
watching old video
solving exercises
reading the forum
posting in forum

Be a Driver of Change for the Whole Educational System

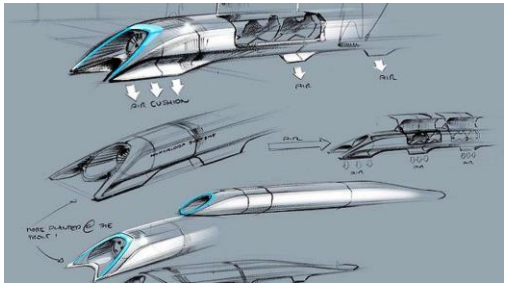


Education must be put in context

Solardecathlon



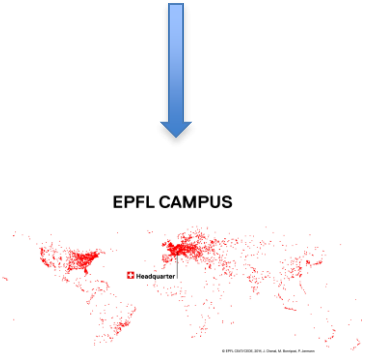
Hydrocontest



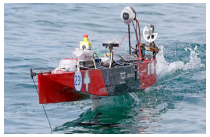
EPFLoop

The End of a Modern Tragedy ?

Place



Action



Time

18-25 y. old

ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

The Tectonic Lines of Education for the Next 10 years

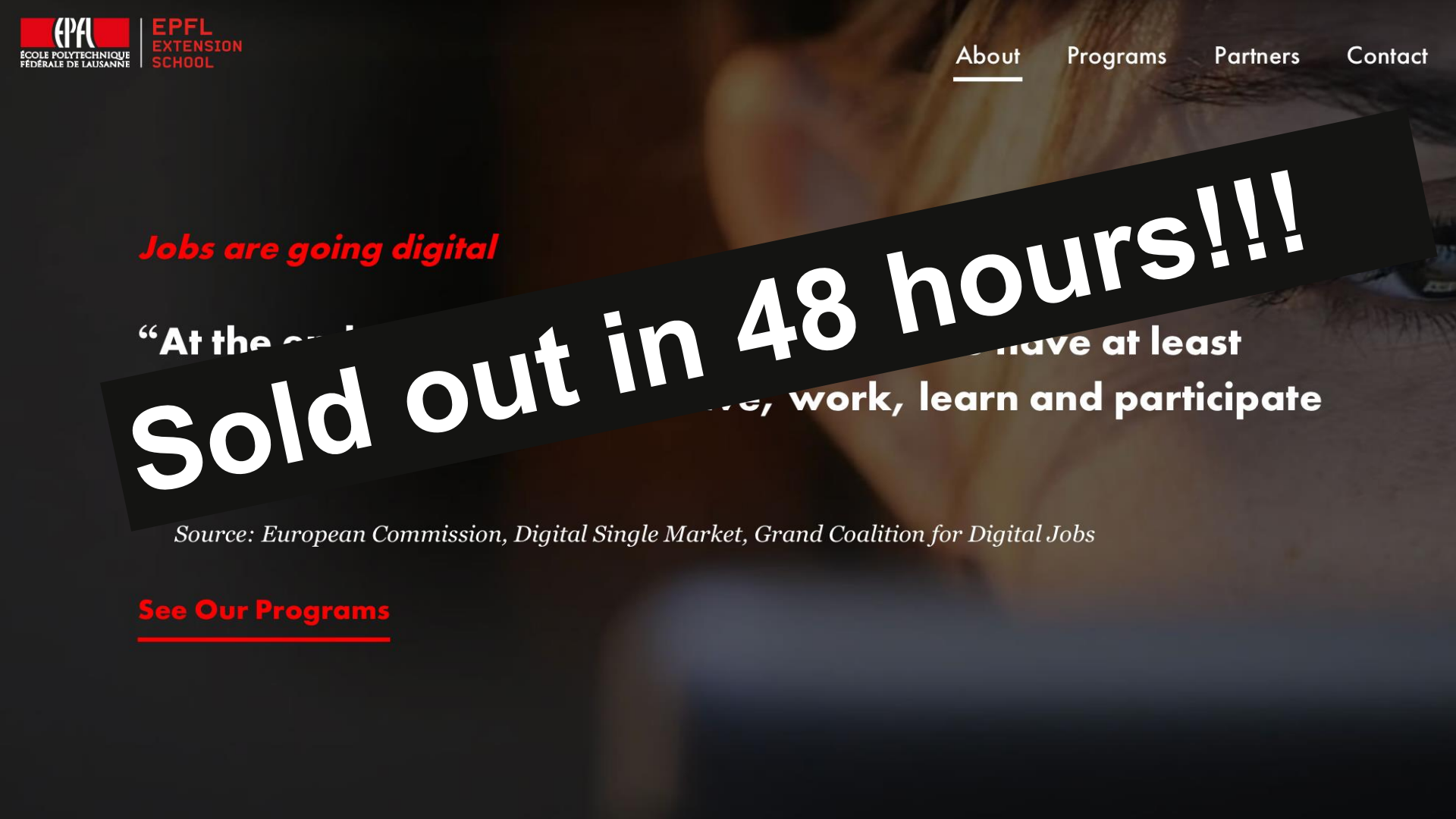
Fifty/Fifty Programs

- 50% learning core competences
  - Online, flipped, personalized
- 50% USP of being human
  - Creativity, innovation
  - Ethics, policy (public & private)
  - Identifying problems

The End of the Diploma ?

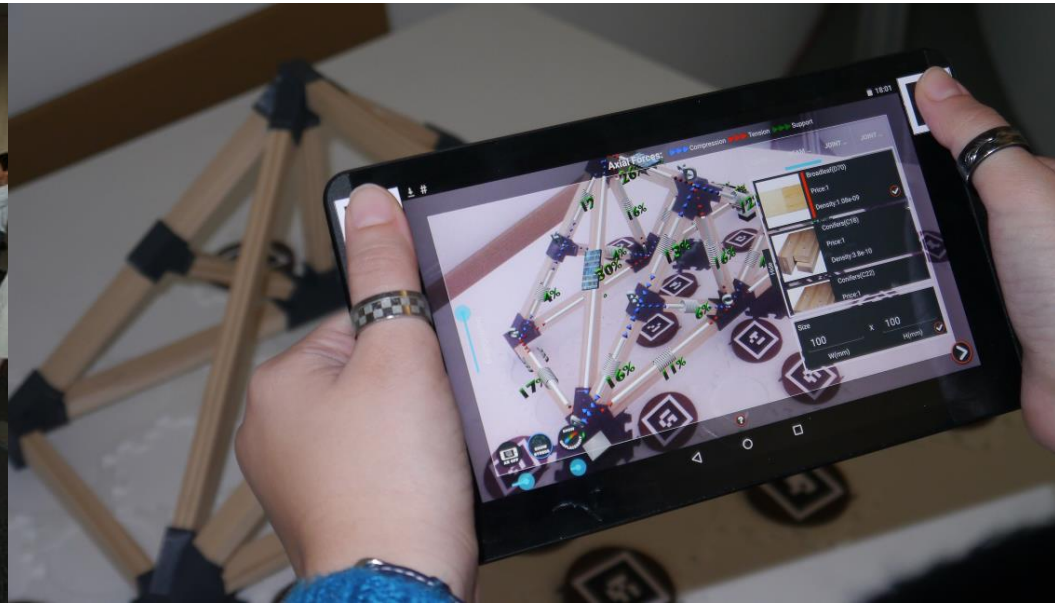
- Universities will provide continuously updated portfolios of competences and projects
- Education and campuses will be accessible lifelong

Actively Prepare Lifelong Learning



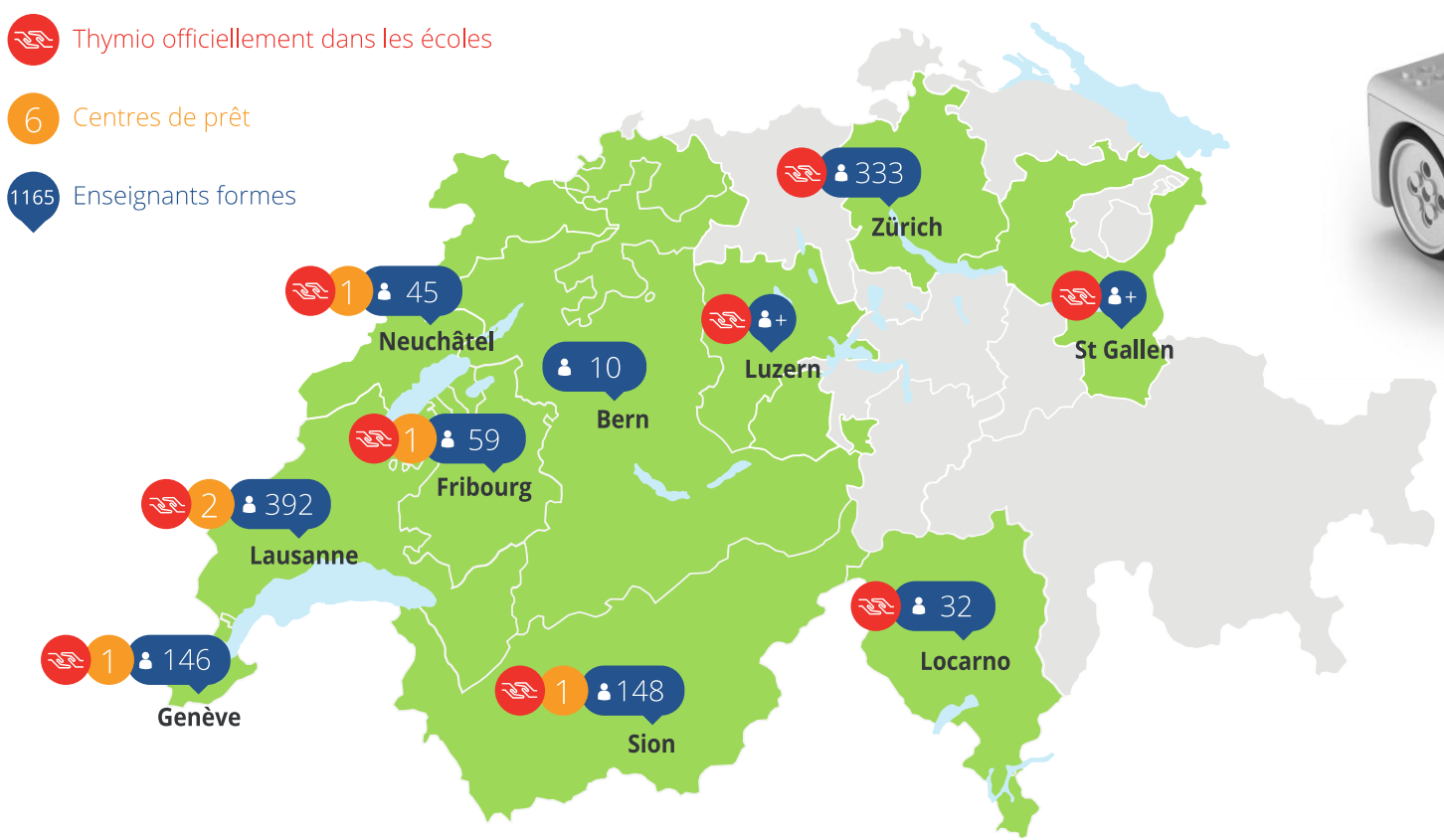
Sold out in 48 hours!!!

Helping the whole educational system to adapt



Ex: translational research in digital education at EPFL's LEARN Center in collaboration with HES, cantonal public education, federal vocational training institute

Educational robotics at the scale of a country



Keep fueling the innovation conveyor belt

EdTech Collider

Switzerland’s first collaborative space dedicated to ambitious entrepreneurs transforming education and learning through technology

> 65 education startups!

ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE