EURIE
EURASIA HIGHER EDUCATION SUMMIT

Istanbul
19 - 21 February 2020

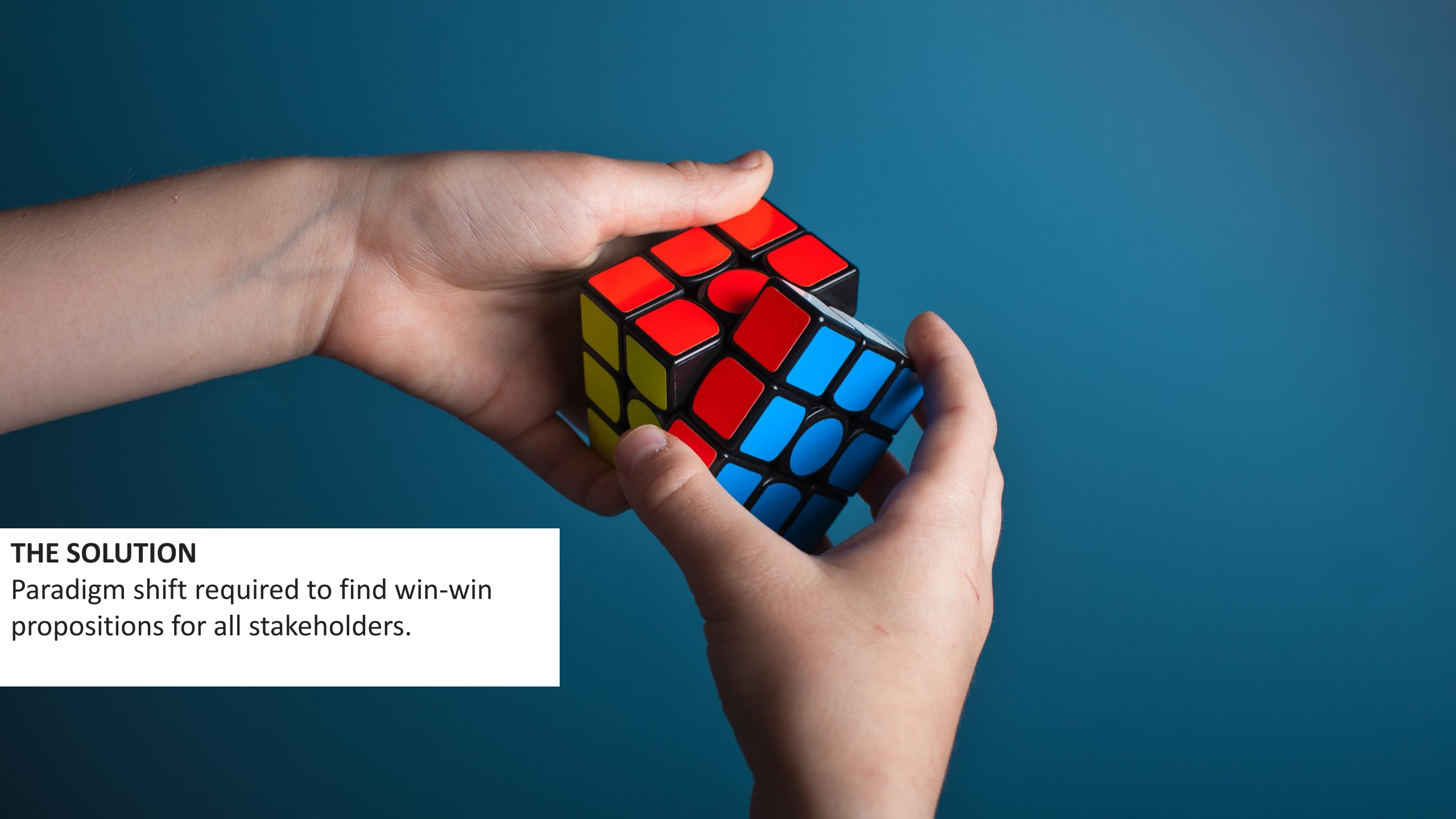
Dr Claudia Peverini
Campus Bio-Medico University of Rome
(Italy)

“Can small HE institutions compete with the big players in international arenas?
A case study in STEM education”

THE PROBLEM

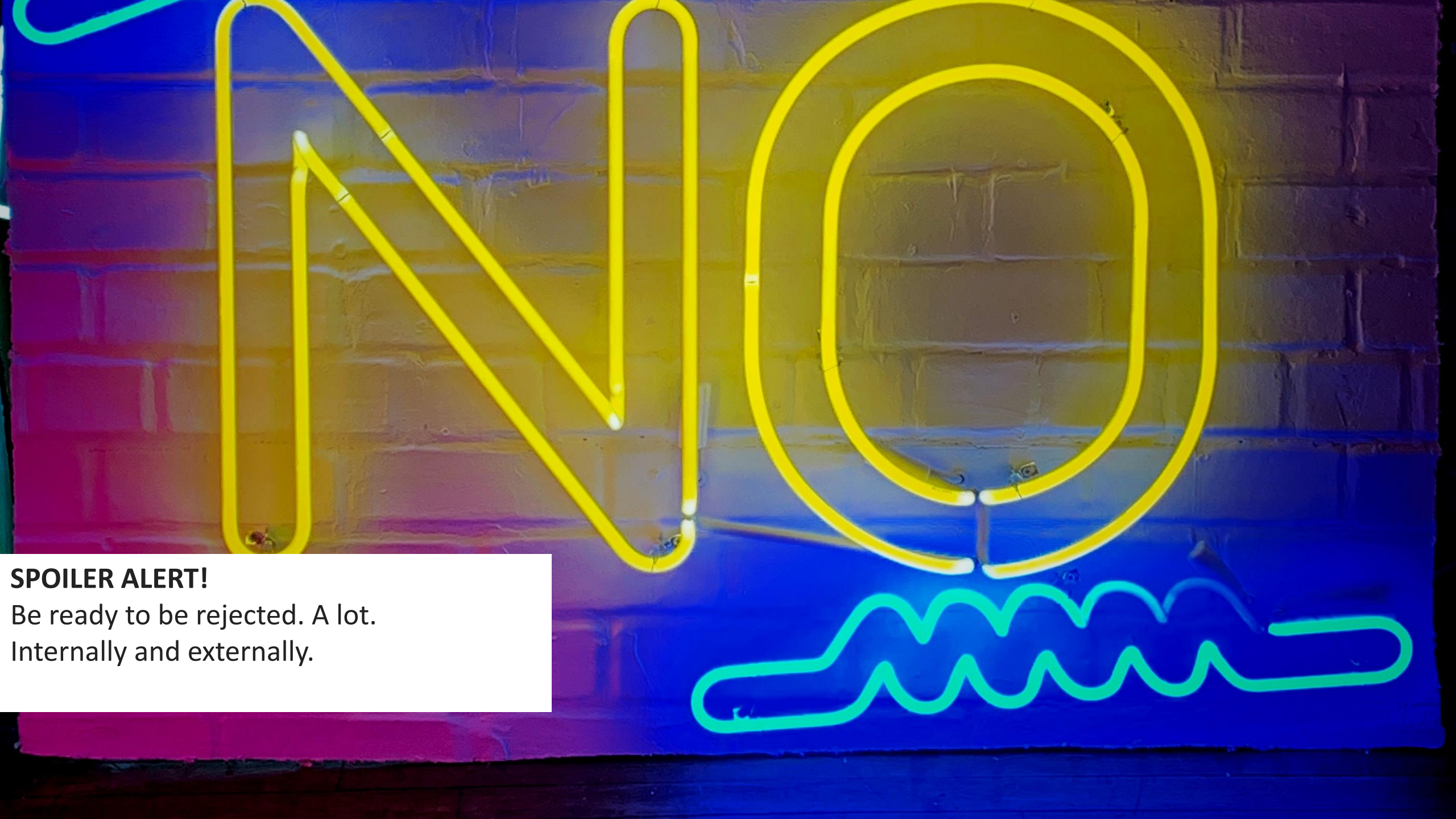
We are small and they are big

A “David vs. Goliath” issue



THE SOLUTION

Paradigm shift required to find win-win propositions for all stakeholders.



SPOILER ALERT!
Be ready to be rejected. A lot.
Internally and externally.


IoT & Data Science Bootcamp
19th August - 6th September 2019
Hughes Hall College
Cambridge, UK
Location
> intensive 120-hour residential programme
> open to students and professionals
> professors and tutors from the University of Cambridge
> hands-on project work
> group presentations
> industry partners
> final award cerimony
> internships for the top participants
WEEK 1
IoT and rapid prototyping
WEEK 2
Data visualisation, machine learning and big data
WEEK 3
Hackathon industry real-case studies
WEEK 1, 2, 3
Core-skills training
Università Campus Bio-Medico di Roma
Organizer
unicampus.it/eng/bootcamp
For further information: bootcamp@unicampus.it


IoT & Data Science Bootcamp

INTERNATIONAL SUMMER PROGRAMME

Innovative & ad-hoc
intensive, short and effective
hands-on
technical skills + soft skills

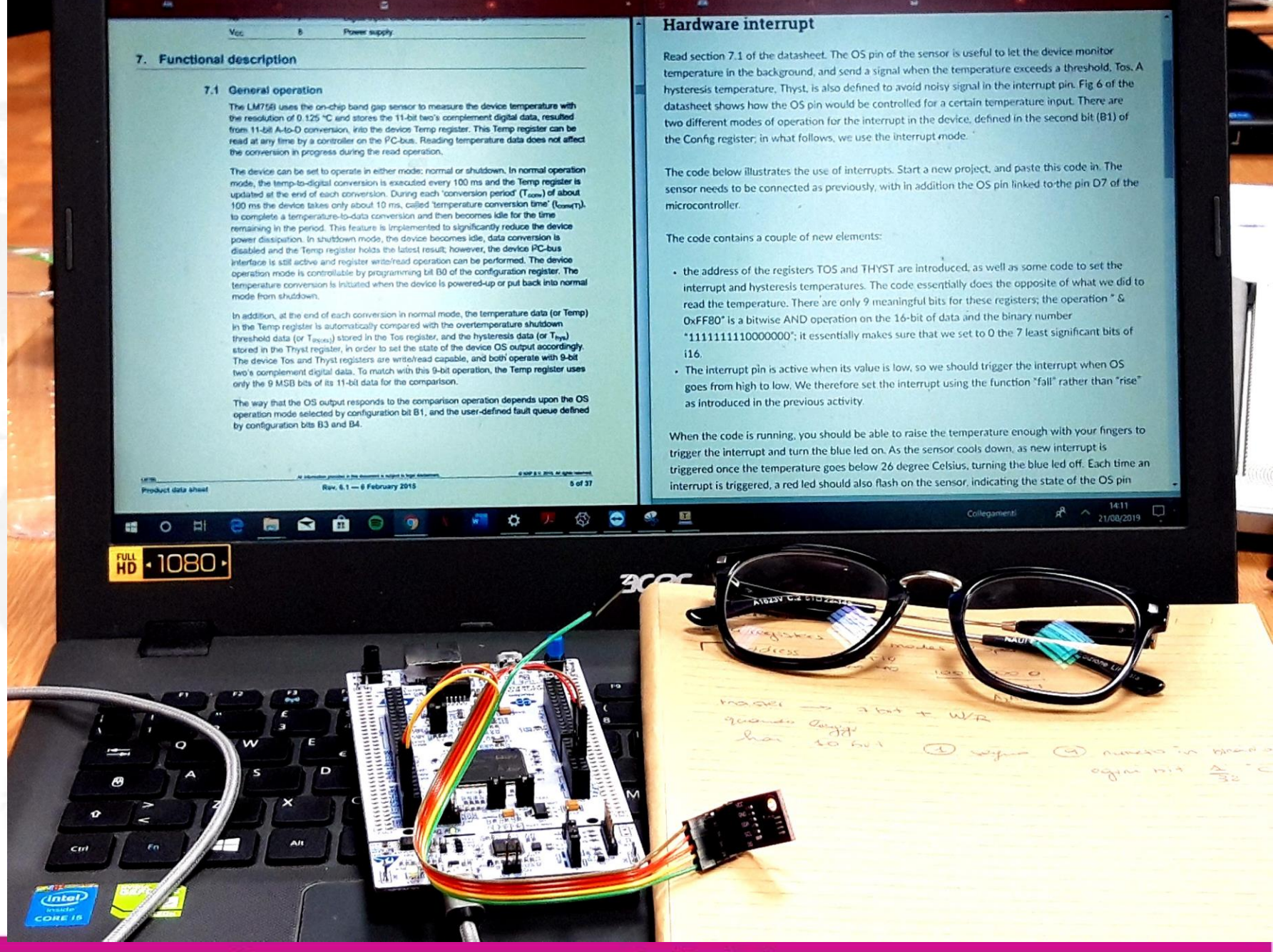
University of Cambridge
lecturers and tutors
full-immersion experience
held in a College

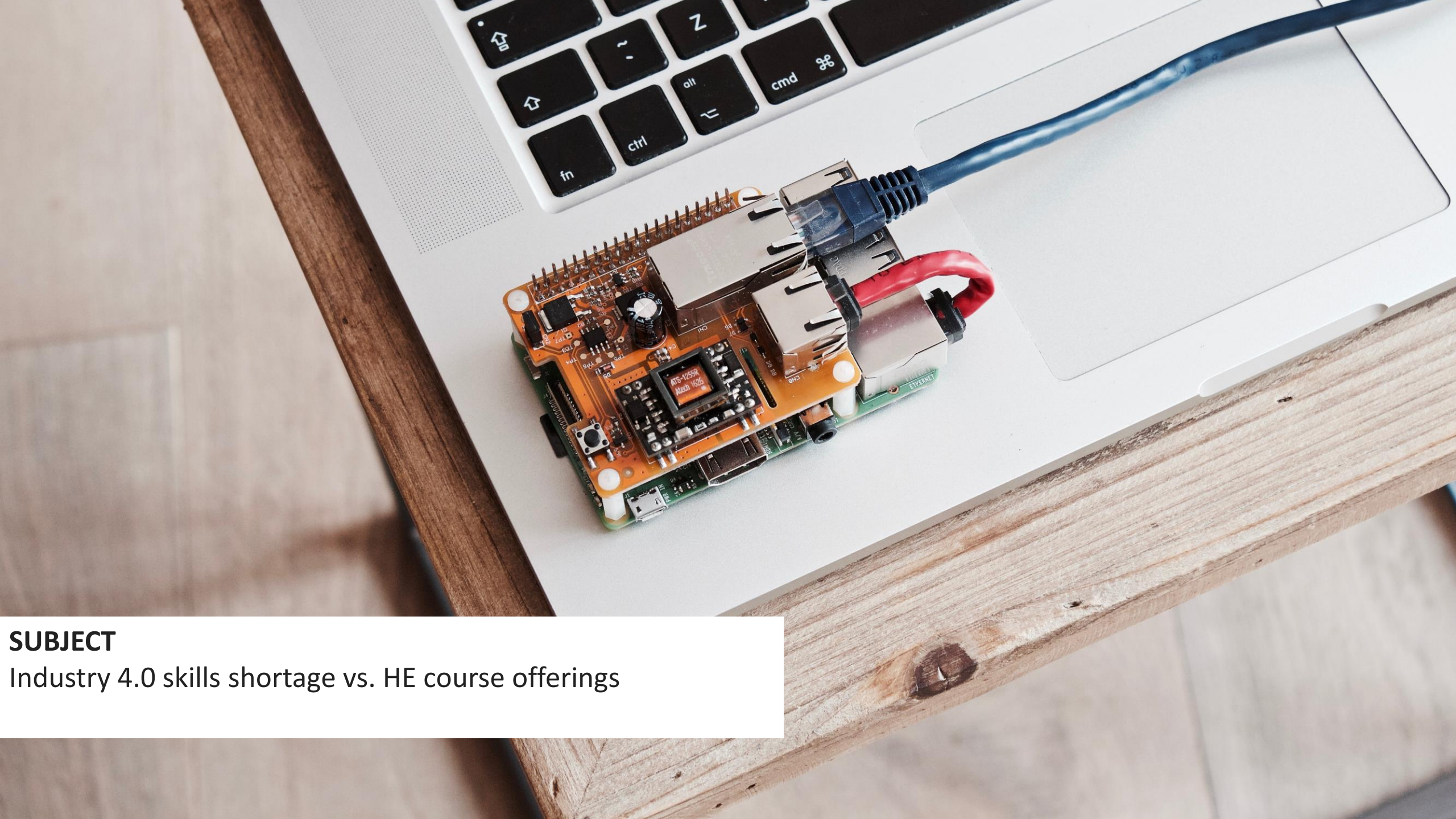
Industry partners
case-studies
hackathon
internships

TWO COMPONENTS:

1. **SUBJECT**: Find a gap. We capitalised on the STEM skills shortage. Do the research.

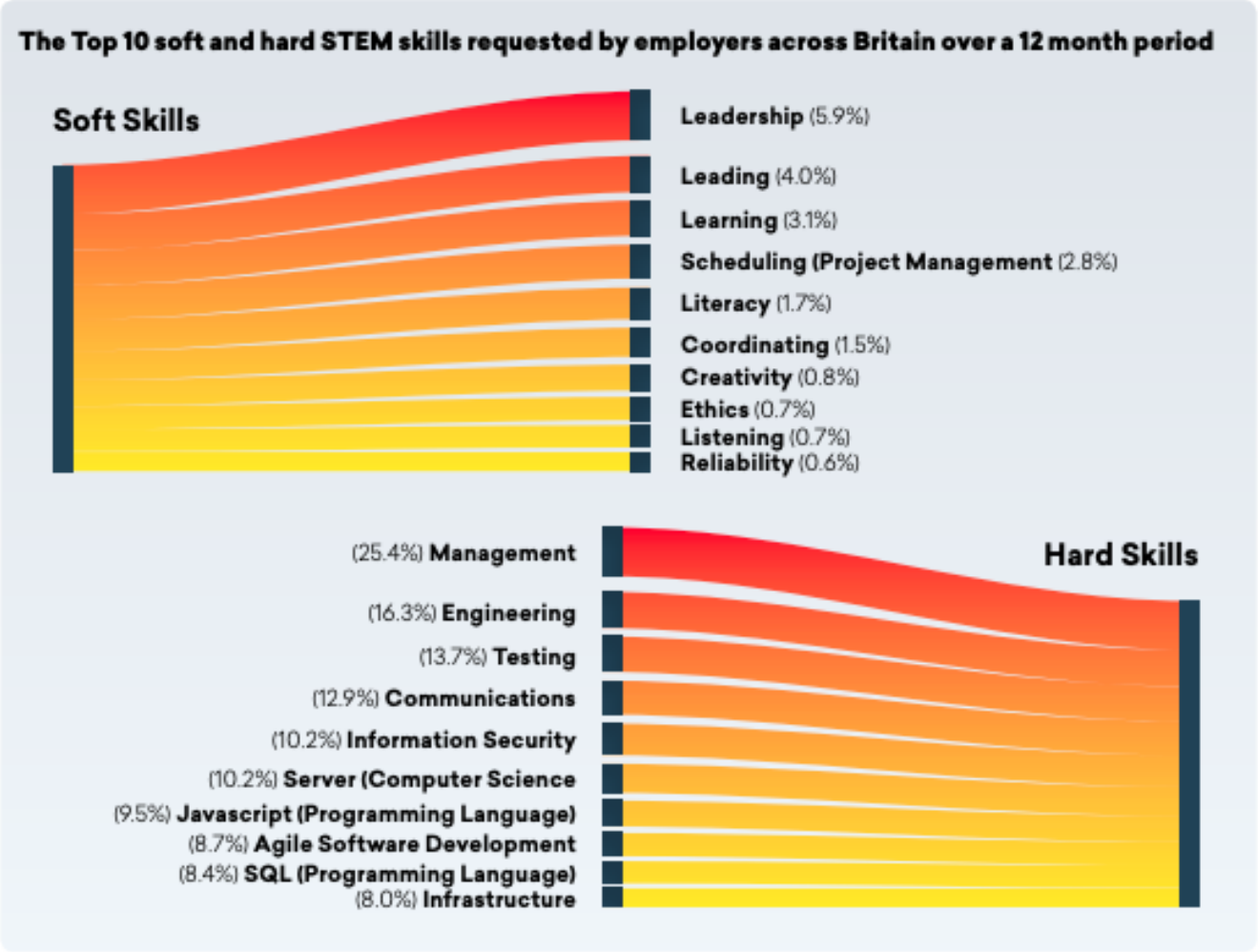
2. **STRATEGIC LOCATION & INDUSTRY PARTNERS**: Build programmes in specific locations + meet the demands of industry partners. Do the research.

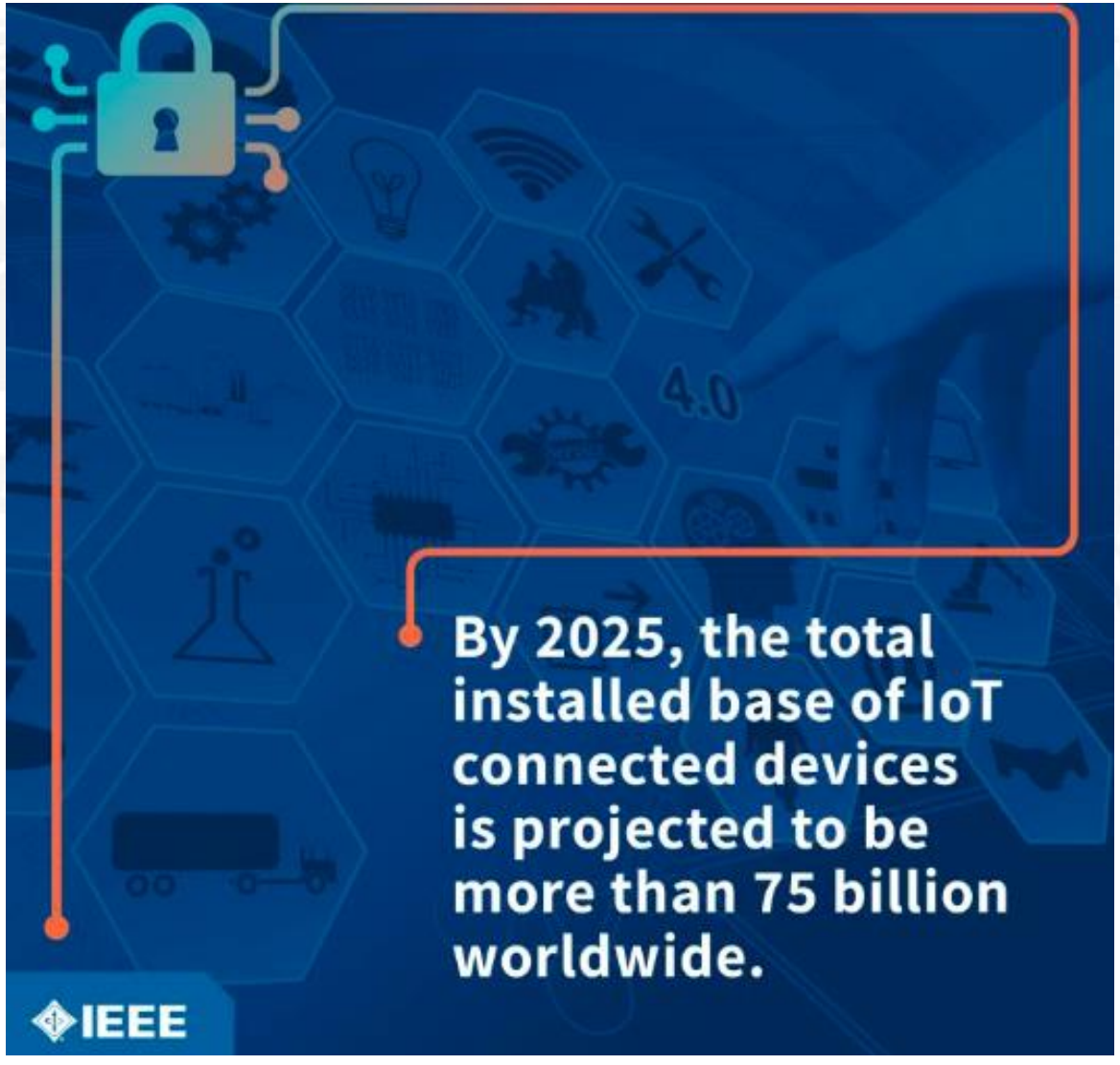




SUBJECT

Industry 4.0 skills shortage vs. HE course offerings


The Top 10 soft and hard STEM skills requested by employers across Britain over a 12 month period
Soft Skills
Leadership (5.9%)
Leading (4.0%)
Learning (3.1%)
Scheduling (Project Management (2.8%)
Literacy (1.7%)
Coordinating (1.5%)
Creativity (0.8%)
Ethics (0.7%)
Listening (0.7%)
Reliability (0.6%)
Hard Skills
(25.4%) Management
(16.3%) Engineering
(13.7%) Testing
(12.9%) Communications
(10.2%) Information Security
(10.2%) Server (Computer Science
(9.5%) Javascript (Programming Language)
(8.7%) Agile Software Development
(8.4%) SQL (Programming Language)
(8.0%) Infrastructure


4.0
By 2025, the total installed base of IoT connected devices is projected to be more than 75 billion worldwide.
IEEE

INDUSTRY 4.0 SKILLS GAP

Major New Report on the STEM Skills Shortage

(January 2019)

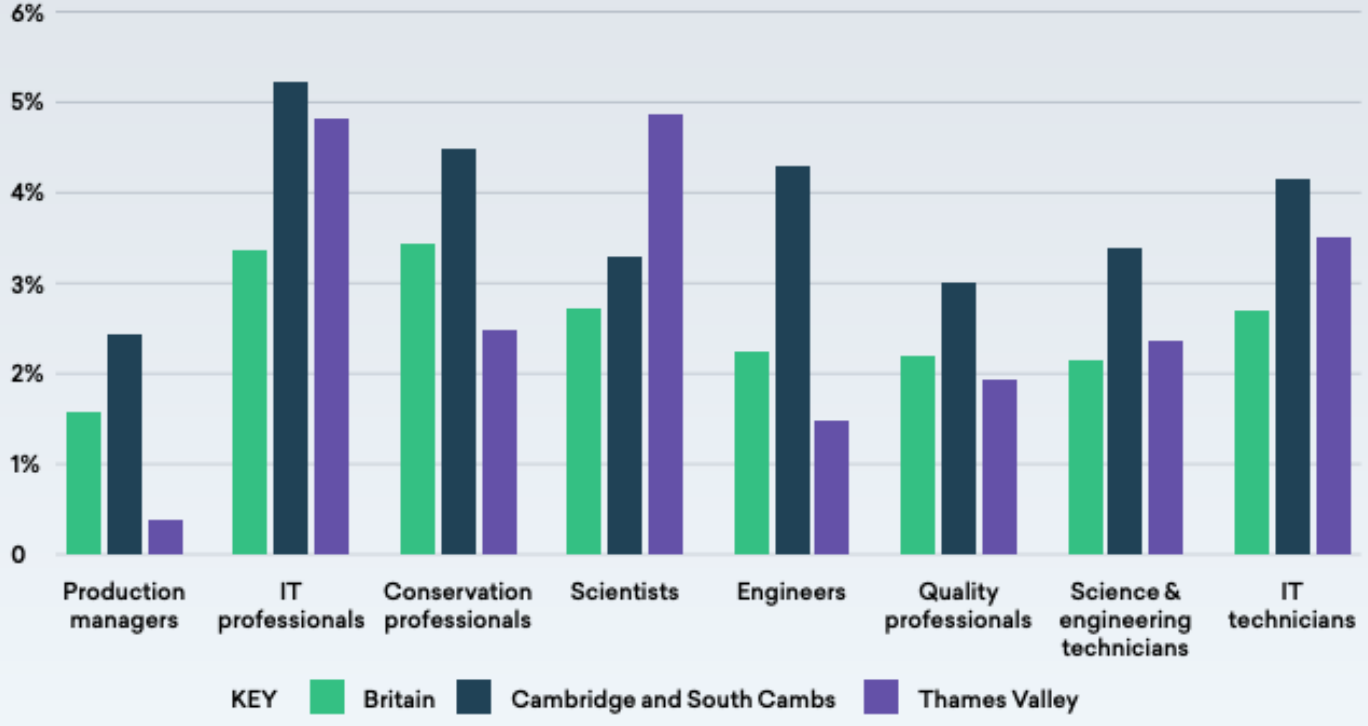
- 7 out of 10 said they had found it difficult to hire staff with the required skills in the last year.
- 9 out of 10 said that their recruitment of such positions is taking longer, with the process taking an average of 31 days longer than expected.
- 48% are looking abroad to find the right skills.

In the UK the issue is costing businesses £1.5 billion a year

STRATEGIC LOCATION & INDUSTRY PARTNERS

Ride big names and big brands

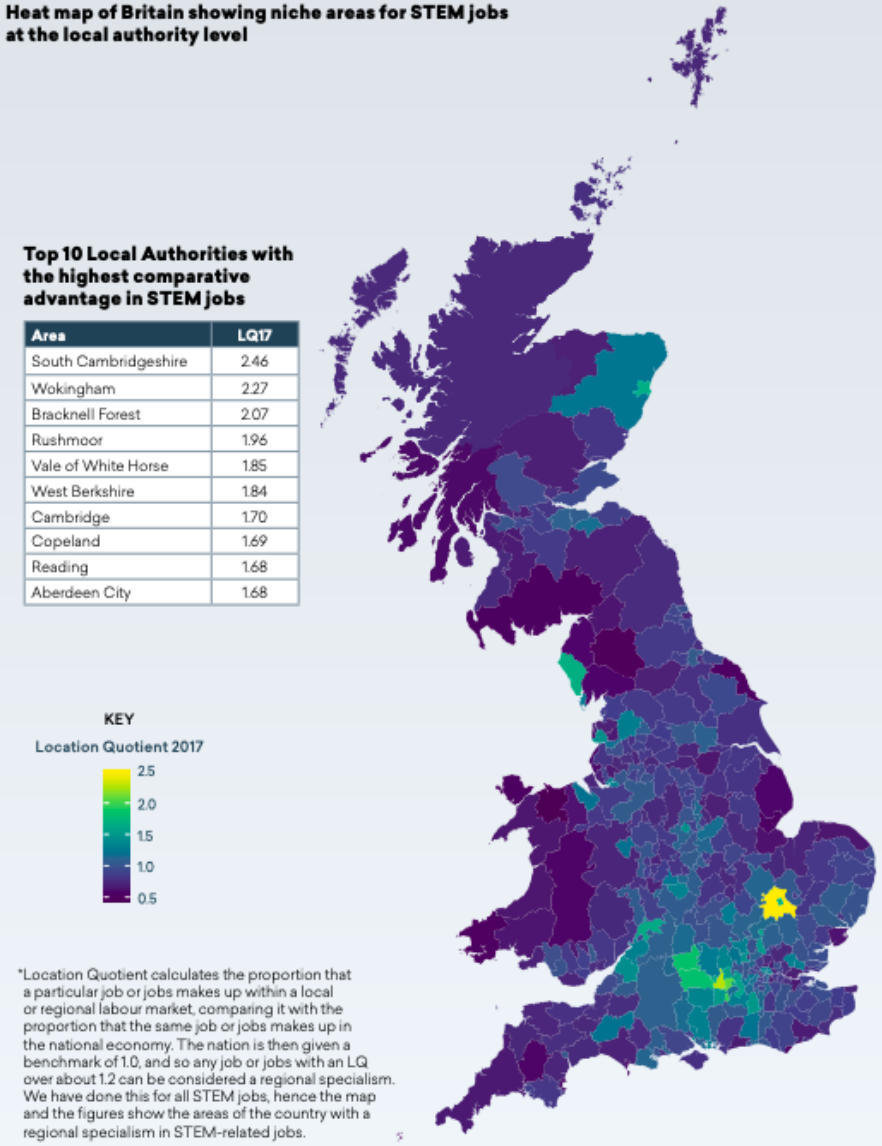
A comparison of projected growth in the eight STEM occupation clusters across three areas from 2018-2023



Heat map of Britain showing niche areas for STEM jobs at the local authority level

Top 10 Local Authorities with the highest comparative advantage in STEM jobs

Area	LQ17
South Cambridgeshire	2.46
Wokingham	2.27
Bracknell Forest	2.07
Rushmoor	1.96
Vale of White Horse	1.85
West Berkshire	1.84
Cambridge	1.70
Copeland	1.69
Reading	1.68
Aberdeen City	1.68



*Location Quotient calculates the proportion that a particular job or jobs makes up within a local or regional labour market, comparing it with the proportion that the same job or jobs makes up in the national economy. The nation is then given a benchmark of 1.0, and so any job or jobs with an LQ over about 1.2 can be considered a regional specialism. We have done this for all STEM jobs, hence the map and the figures show the areas of the country with a regional specialism in STEM-related jobs.

CAMBRIDGE CLUSTER

1,500+
technology-based firms

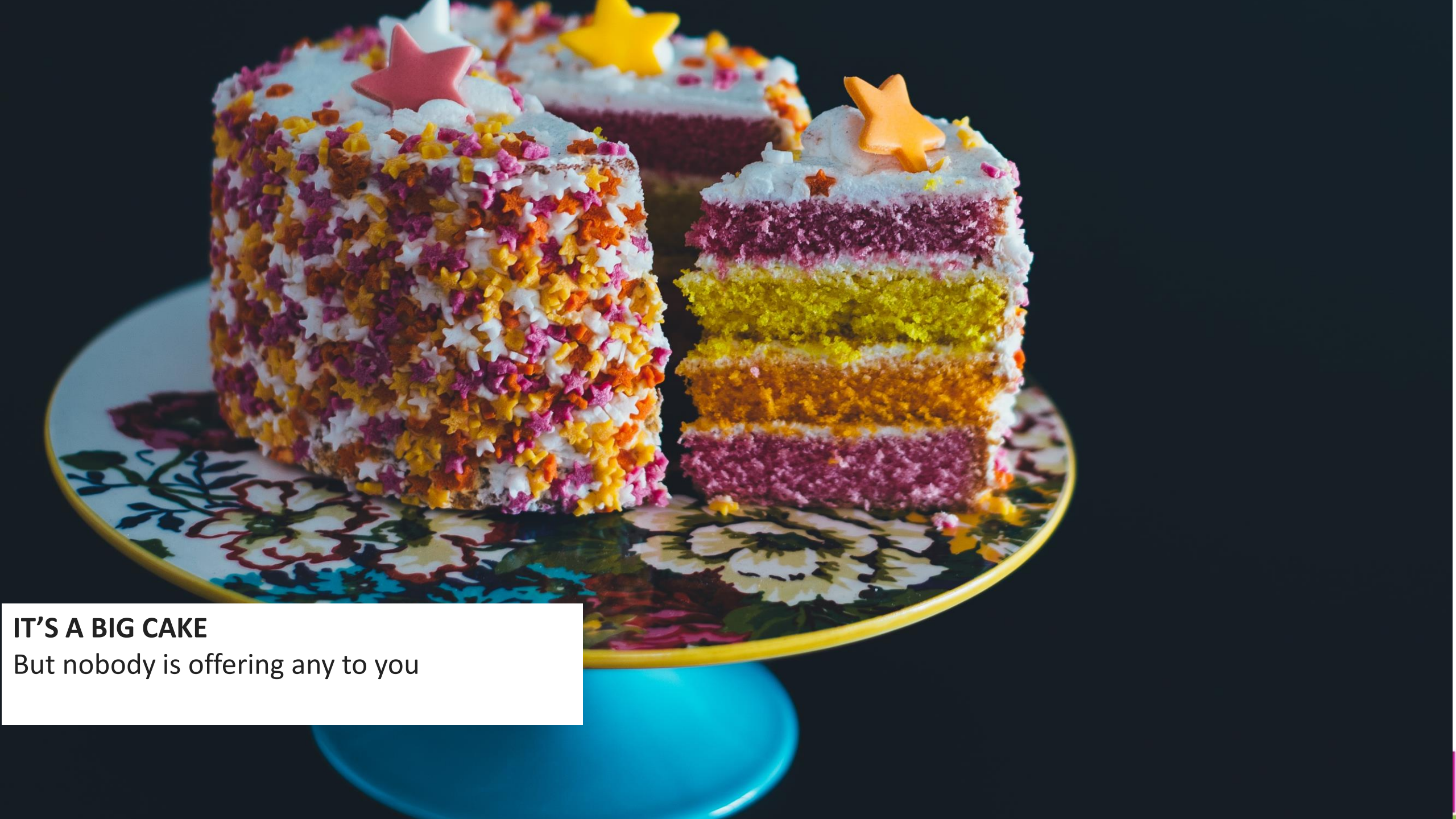
Top 50 companies hired
5901
people last year

3rd
most successful University innovation ecosystem in the world

57,000
people employed by the Cambridge cluster

£13bn+
in total revenue from the Cambridge cluster

14 x $1bn
companies have come from the Cambridge Cluster



IT’S A BIG CAKE

But nobody is offering any to you

INDUSTRY 4.0 SKILLS GAP
What is Big Industry doing?

Big industry players are investing heavily into **funding educational programmes to support their ecosystems** in order to provide the right skills to feed a job market where demand is considerably higher than supply in certain sectors such as IoT, AI and data science.

For example, in 2017 industry giants **Google, Amazon, Microsoft, Salesforce** and **Facebook** each pledged $50 million to a five-year STEM programme.

A recent report revealed that **six major international corporations** (Google, Amazon, Cisco, Intel, Microsoft, and Verizon) “are going beyond just providing funding to the STEM space, but also building STEM into their social responsibility statements and making it a prominent part of their corporate agenda”.

Putting the Youth First: What 6 Companies Are Doing for STEM (July 2018)

IBM Global University Programs

Building holistic relationships with academic institutions. We are the intersection of academia and IBM providing technology, supporting research and creating assets to advance relevant skills for today's workforce.

334	900,000+	10,000	1M
Courses	Students	Universities	Badges Earned

This trend is well-established

THE CAKE IS BIG, BUT…

small HE institutions struggle to get a slice of it

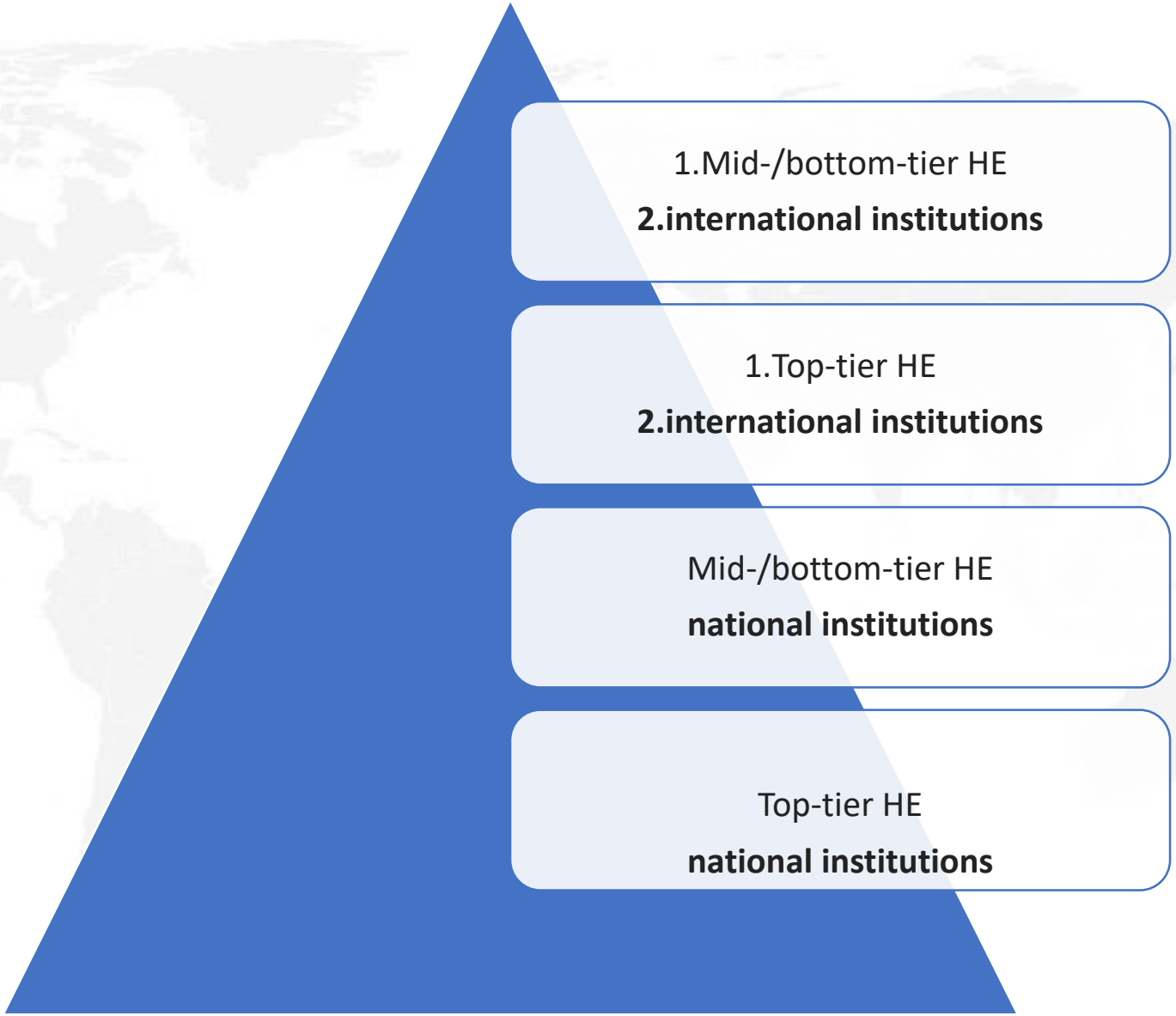
FACT 1

The main bulk of funding goes to top-tier institutions

FACT 2

Big corporations do not actively seek out partnerships neither with small education players nor with international players

Big corporations tend to adopt a strict hierarchy for partnerships

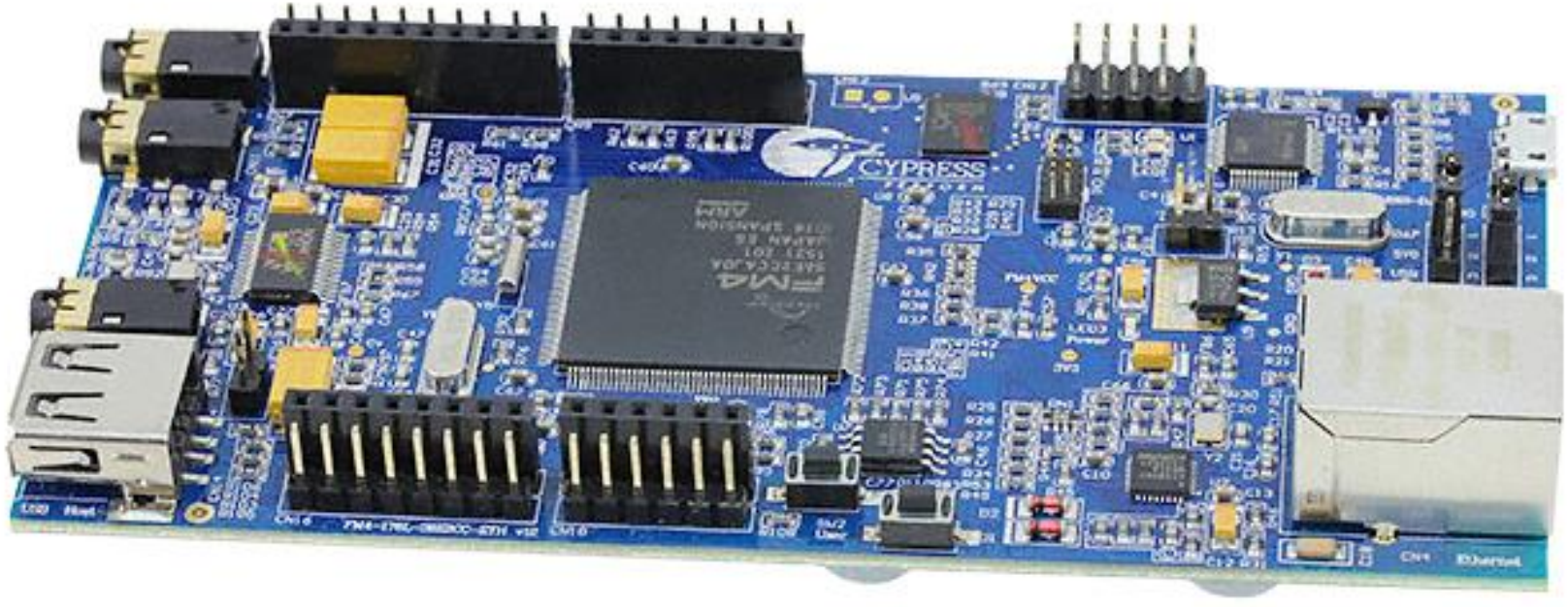


BE DISRUPTIVE, ENTER THE CYCLE

Tap indirectly into the funding that big industry is funnelling into education

ARM® University

Worldwide Education Program



OUR WIN-WIN SCENARIO

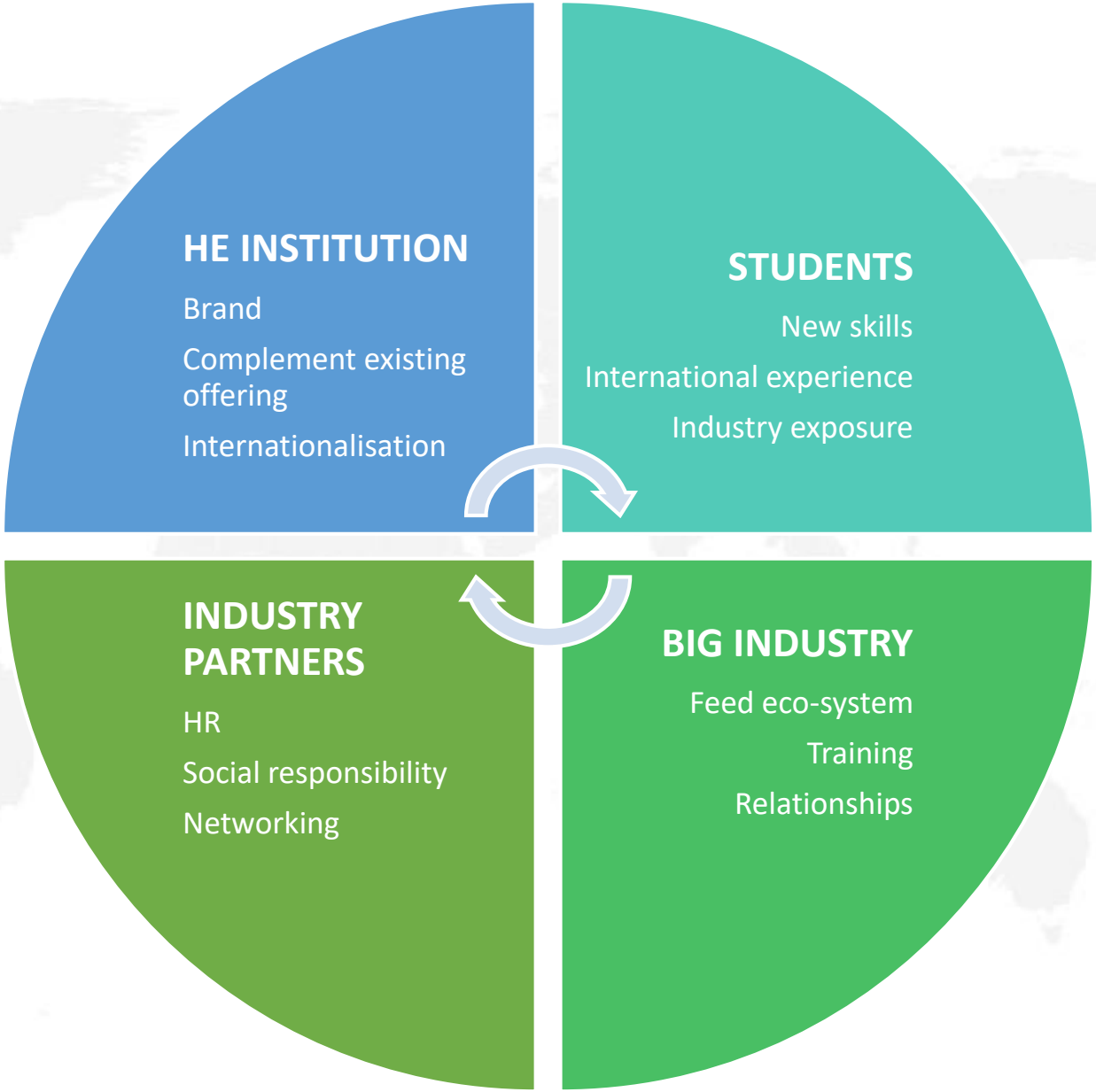
What does each stakeholder gain from the Bootcamp?

OUR INSTITUTION wins by complementing the existing course curriculum in a prestigious international environment with big industry partners

OUR INDUSTRY PARTNERS win by being involved in a collaboration which would have not normally taken place and brings them new connections plus it is a talent acquisition shortcut

ARM wins by developing an educational programme supporting their ecosystem at no additional cost and is therefore a return on a previous investment

MODEL
Who gains what and why?
Create positive cycle.

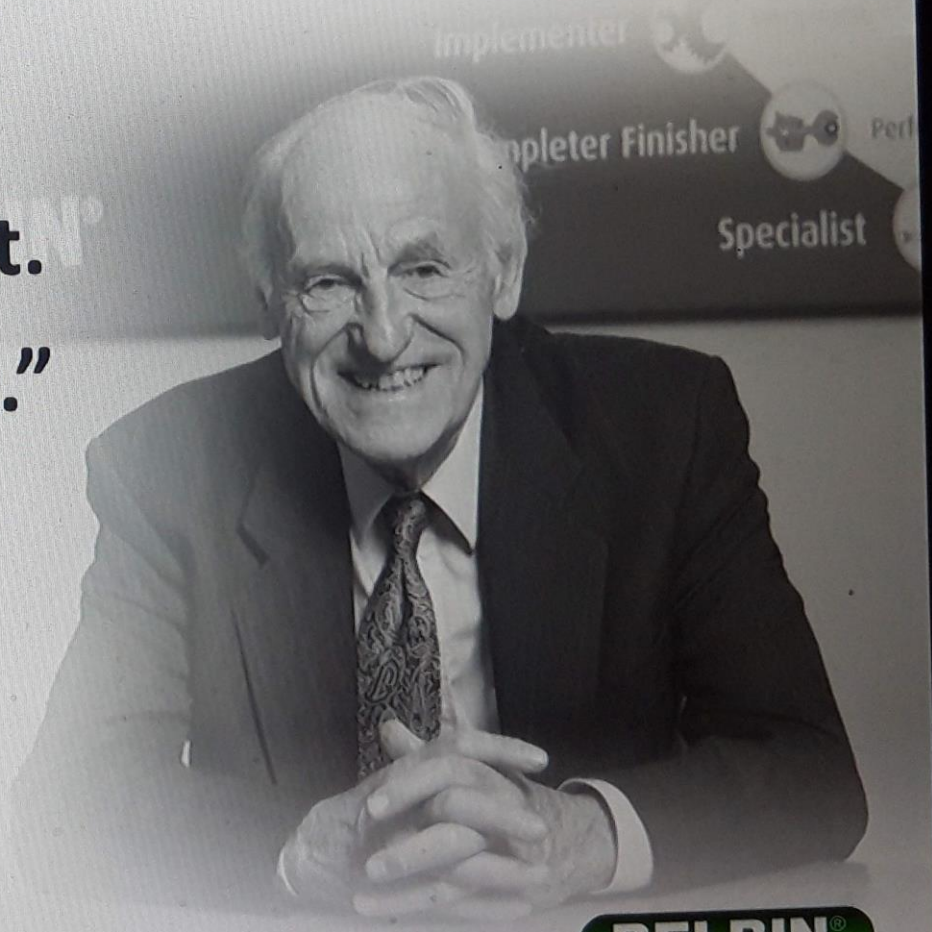



But we've always done it this way!

Meredith Belbin:

"Nobody is perfect.

But a team can be."



BELBIN®

Accreditation Slides

IoT & Data Science Bootcamp

UNIVERSITÀ CAMPUS BIO-MEDICO DI ROMA

UNIMPIEGO CONFINDUSTRIA

Cambridge Consultants

EDISON

FERROVIE DELLO STATO ITALIANE

BPCOmedia
IT Research for My Health

RDS lab
data retention systems

TCCLS
Technical Committee on Computational Life Sciences

IEEE Sensors Council
ITALY CHAPTER

IBM

THANK YOU!

Dr Claudia Peverini
peverini.c@gmail.com