



Open and Online Education

**Anka Mulder, Executive Board,
Delft University of Technology**

ECSS 2013

Cambridge Mass February 2013

Online and On Campus Higher Education



Clayton Christensen

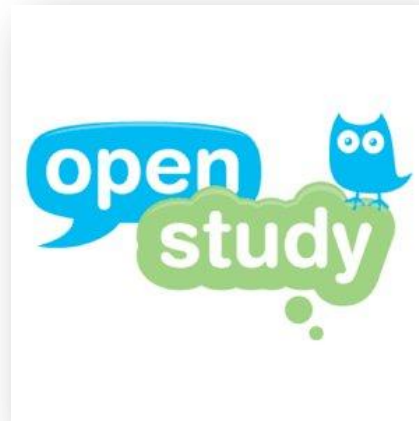
What happened to:

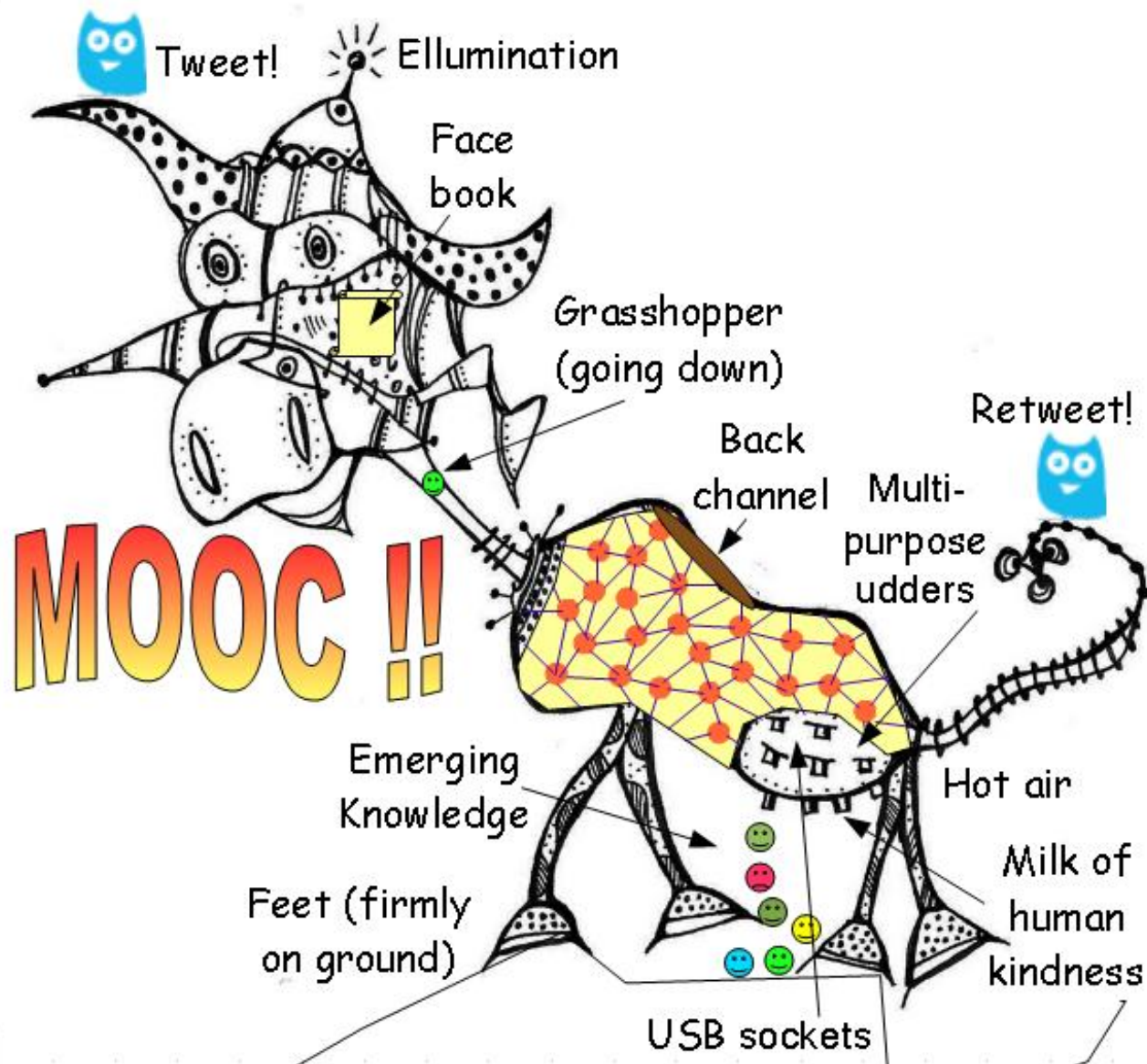
- Telephone companies?
- The music industry?
- Record shops?
- Or travel shops?

Internet is the Disruptive Technology for
Higher Education

*1. What are we afraid
of?*

Recent developments





MOOC platforms (USA)



Founded: January 2012
Founder: Sebastian Thrun
(ex Stanford professor)
Company: For profit
Funding: \$22 million
(Venture Capital)

Universities: none
Courses: 30
Topics: ICT

Students: 1 million

Certification: Yes

Proctored examination: Yes
(4000 CBT locations in 170 countries
via partnership with Pearson VUE)

Open Source: No (licenced)



Founded: April 2012
Founder: Koller & Ng
(Stanford professors)
Company: For profit
Funding: \$22 million
(Venture Capitalist)

Universities: 81
Courses: 442
Topics: All academic fields

Students: 4.5 million

Certification: Yes (most)

Proctored examination: Yes,
(5 accredited courses + partnership
with ProctorU)

Open Source: No (licenced)



Founded: May 2012
Founders: MIT & Harvard
Company: Not- for-profit
Funding: \$60 million
(Harvard / MIT: 30 each)

Universities: 29
Courses: 67
topics: All academic fields

#students: 1.2 million

Certification: Yes

Proctoree examination: Yes
(450 CBT locations in 110 countries
via partnership with Pearson VUE)

Open Source: Yes (platform and some
courses)

2. *Do we need change?*

A hand is holding a crystal ball that reflects a bright blue sky with scattered white clouds. The sun is visible as a bright, out-of-focus light source in the upper left corner of the reflection. The background of the slide is the same blue sky with clouds.

Our mission in education?

- Educate students
- Prepare students for tomorrow's world
- Spread knowlegde

European Higher Education in the World

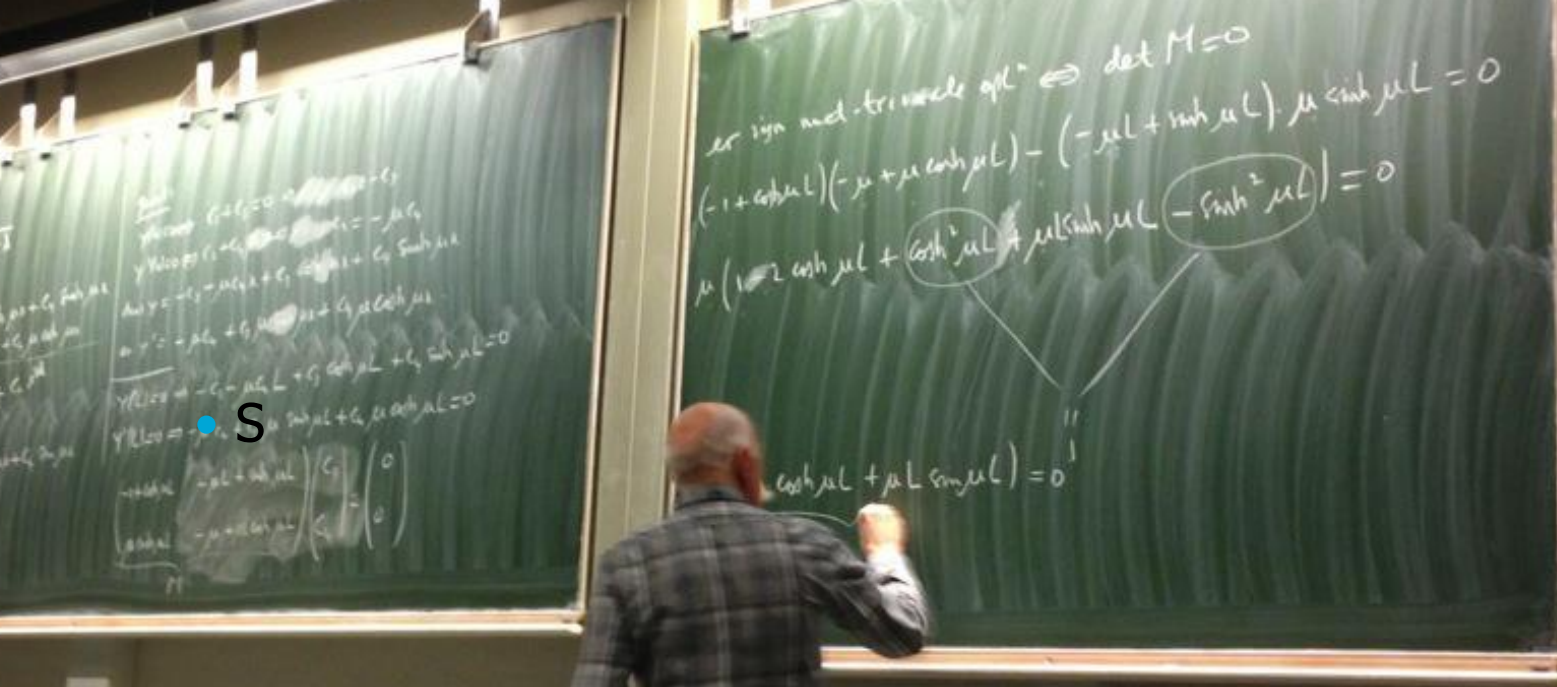
European Commission, July 2013

1. **Teaching methods have to change**: students expect to choose what they learn, how they learn and when they learn
2. HE **student numbers will increase**


1.

“Students expect to choose what they learn, how they learn and when they learn”





Yet, this is how we teach

A photograph of four children in a rural setting in India, gathered around a small red-framed computer monitor. A girl in the foreground is smiling and looking at the screen, while three other children look on with interest. The background shows a simple building with a yellow door.

2.

“The number of higher education students in the world is expected to quadruple, from around 100 million in 2000 to 400 million in 2030”



To accommodate them we need to build
15.000 universities of 20.000 students
in 30 years
= 500 per year
= 10 per week

Credit Outlook Higher Education Institutions USA

Moody's Investors Service, US Public Finance, September 2012

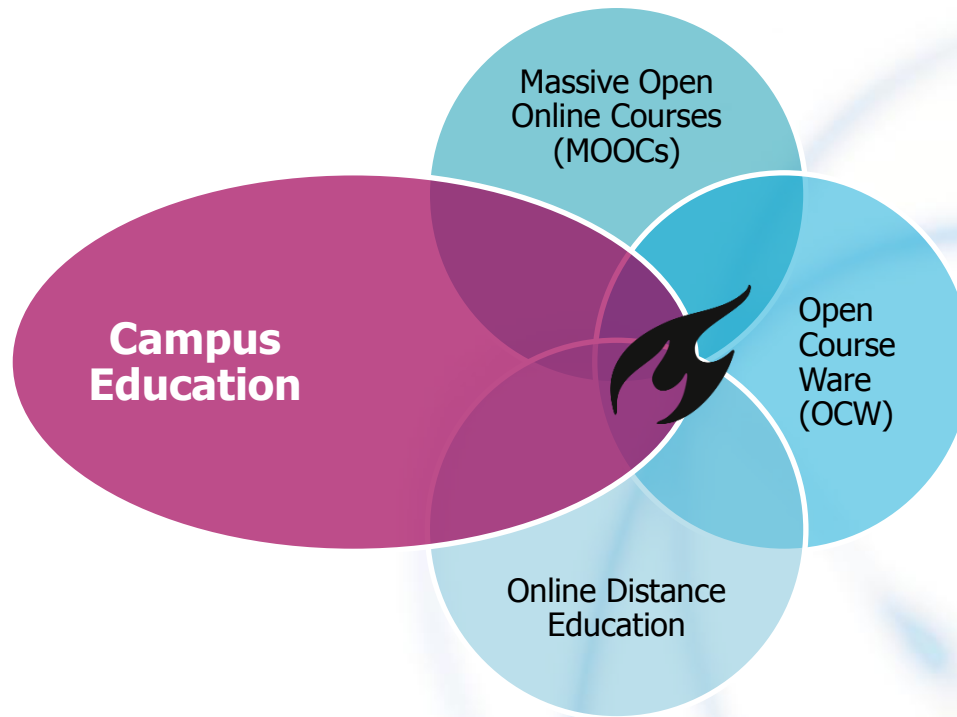
| Market Segment | Broad Credit Effect | Opportunities/Risks |
|--------------------------|---------------------|---|
| Global | Positive | <ul style="list-style-type: none"> » Superior brand reputation strengthens further » Free content offers opportunity for experimentation and supports tax-exempt mission; hedges regulatory risk » Greatest ability to monetize at later stage, but may require sharing of benefits with new technology partners |
| National | Highly Positive | <ul style="list-style-type: none"> » Align with global segment to build international presence/ join emerging networks » Leverage scale to keep up with industry trend and reduce operating costs |
| Regional/ Specialized | Mixed | <ul style="list-style-type: none"> » Broaden brand recognition through the use of new technology » Operational efficiencies through lower cost of delivery and ability to specialize » Increased competition could weaken market share » Potential need to create partnerships with other less well-known universities/for-profit provider could be a costly new investment |
| Local/ Commuter | Negative | <ul style="list-style-type: none"> » Technology dilutes some of the value of physical proximity to student & increases reputation premium » Small size, weak market reputation renders many unattractive partners for emerging networks, may be left out as industry consolidation increases |
| For-Profit | Highly Negative | <ul style="list-style-type: none"> » Short-term benefit of legitimizing preferred form of delivery » Long-term threat as more reputable universities enter the online market |

3. *Delft University of Technology*



- Good university, but no fat cat: so prioritise
- Engineers:
 - easy adapters of technology
 - open to innovation
- Demand for Higher Education growing

Online and Campus Education

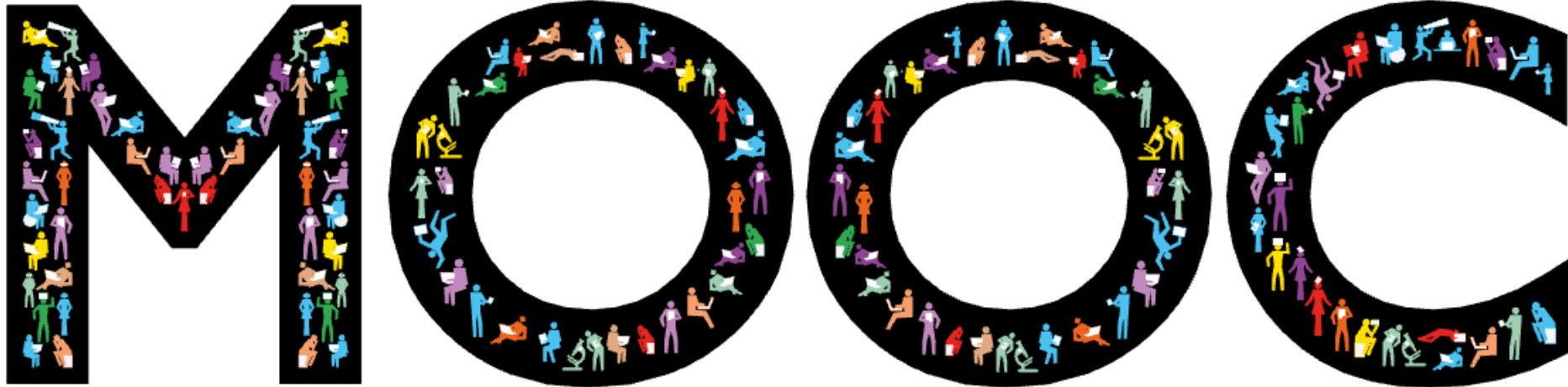


Delft open & online education: examples

- **Video Lectures** – 10 years - thousands
- **Grass Root Projects** – 8 years
- **OpenCourseWare** – 7 years (120)
- **EdX member** - 2013
- **MOOCs** – 2013 – 2 published
- **Online accredited programmes** - 2013
 - MSc Water Management
 - MSc modules 30 EC: TPM & Aerospace
- **Blended Learning** - 2013
 - BSc TPM



DelftX .. next step





NEW

ET3034TUx: Solar Energy

Discover the power of solar energy and design a complete photovoltaic system. [MORE](#)

STARTS: 16 Sep 2013 • INSTRUCTORS: Arno Smets • DelftX



NEW

CTB3365x: Introduction to Water Treatment

Learn about urban water services, focusing on basic drinking water and wastewater treatment technologies [MORE](#)

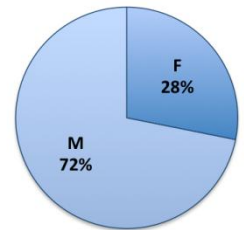
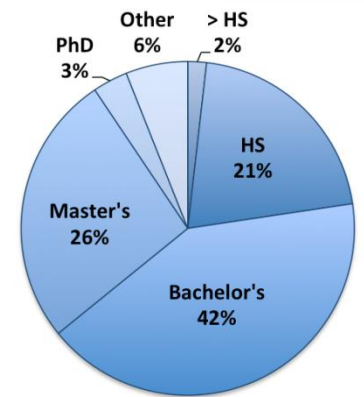
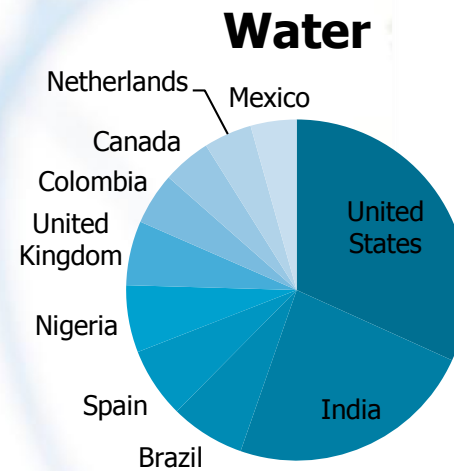
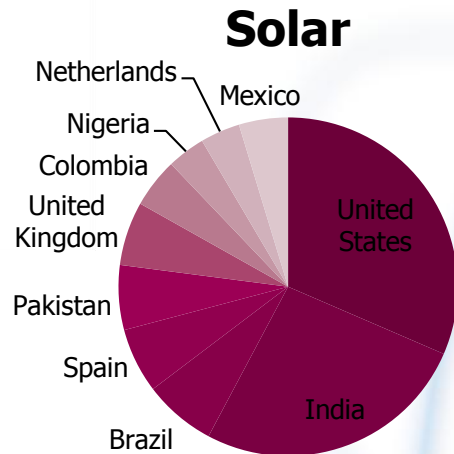
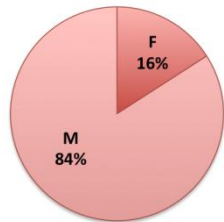
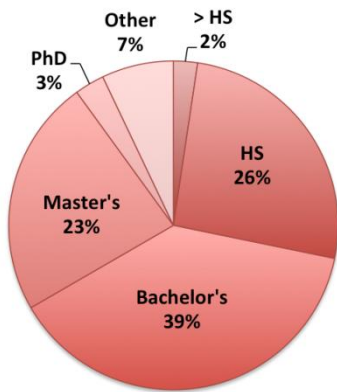
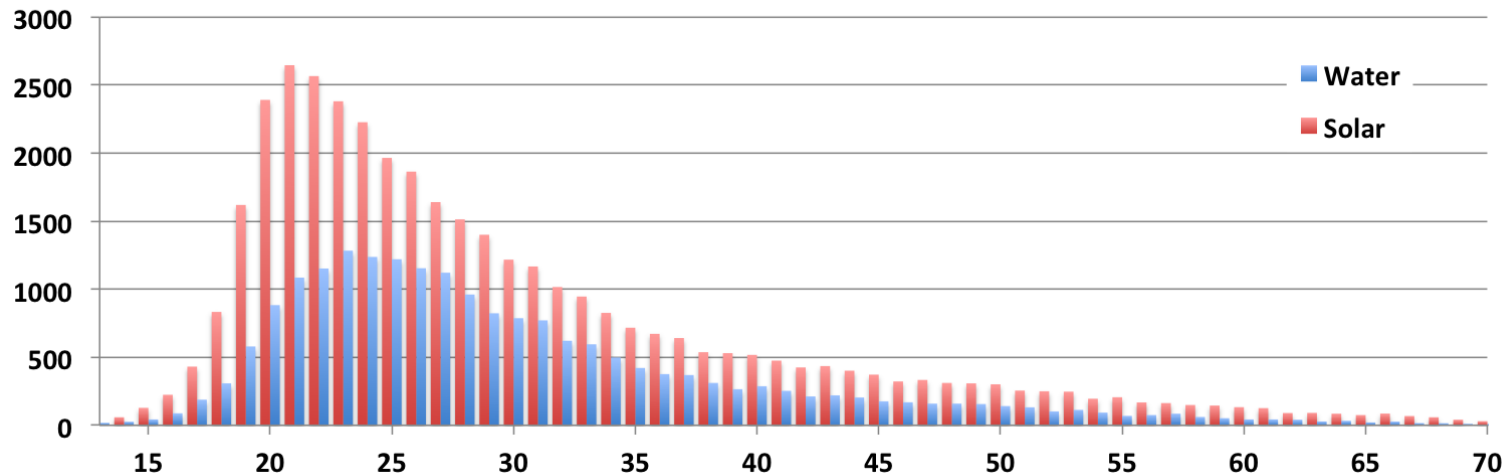
STARTS: 16 Sep 2013 • INSTRUCTORS: Jules van Lier • DelftX



• Spring 2014:

- Introduction to Aerospace Engineering
- Next Generation Infrastructures

Age Distribution of DelftX Registrants (self-reported, >80% reporting rate)



Open & Online Education Phase III

Ambition:

1. Maintain position in top 3 Europe
2. Expand & diversify online portfolio Masters, MOOCs, OCW, Modules
3. Maximize collaboration with partners in edX (MIT, Harvard, Stanford, ...) to boost international & academic reputation
4. Increase production & innovation capacity of teaching & support staff

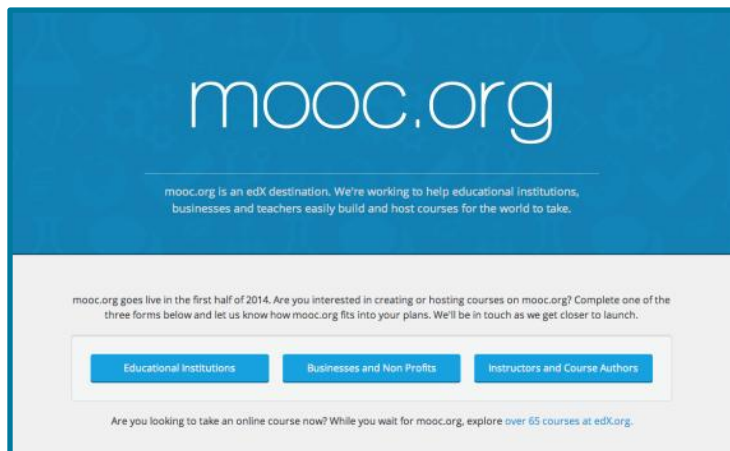
For whom?

- Campus students
- New Master students
- Life Long Learners

4. *The Future: business models*

Recent developments platforms

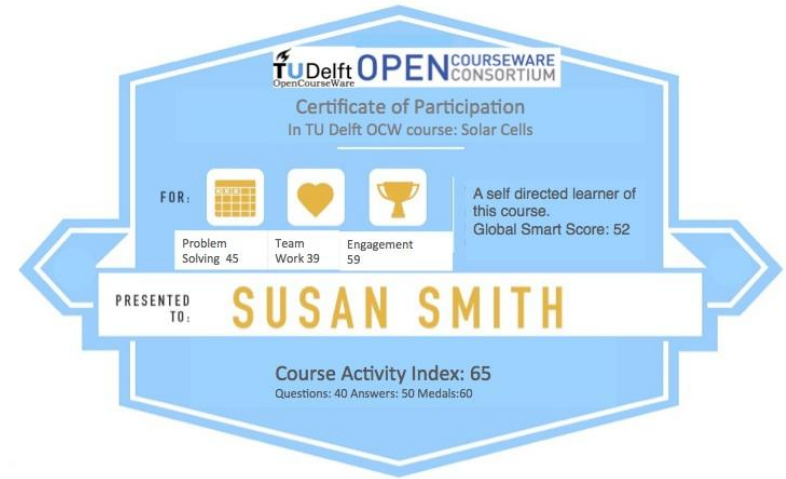
MILLION DOLLAR BABY: Coursera announced that its Signature Track program, which allows students to earn official certificates for courses, **has surpassed 25,000 signups and \$1 million in revenue**. The Palo Alto-based MOOC started the program in January, and **by April reported \$220K in earnings**. At the time of writing, Coursera has 94 courses that offer Signature Track certificates, which each cost \$39 to \$49.




EARN AN XSERIES CERTIFICATE FROM ONE OF THE TOP INSTITUTIONS IN THE WORLD

Some schools offer an XSeries Certificate when you complete and pass a series of courses in a specific subject. Earning an XSeries Certificate is a true achievement. It demonstrates a level of achievement that you can use to advance your career or simply impress yourself. The requirements vary for each institution, but generally you must take and receive a Verified Certificate of Achievement in each course as outlined by the school. Review the current list of active XSeries options below or read the [XSeries FAQs](#).

Business Models?



- Certification
- Online customised courses for companies
- Educational services: tutoring, study advice
- Diagnostics for education
- Sponsoring
- Recruiting services



I can see clearly now

Why Open & Online?

Reputation

Innovation

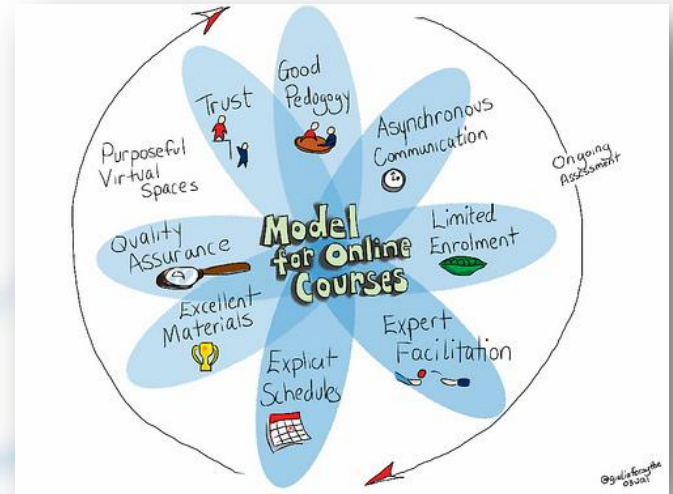
Increase university output

No way back

Quality

5. *Back to Boston*

Thomas Friedman: “The World is Flat”



*"When the outstanding becomes so easily accessible,
average is over."*