Higher Education in a fast changing world: How do we maintain relevance?

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The Key Features of the 21st Century Landscape

1. VUCA landscape
2. Fast technological advancement
3. Knowledge explosion
4. Transformation in social media
5. Changing profiles of learners - EPIC
6. Increase in life expectancy

Top 10 skills

in 2020	in 2015
1. Complex Problem Solving	1. Complex Problem Solving
2. Critical Thinking	2. Coordinating with Others
3. Creativity	3. People Management
4. People Management	4. Critical Thinking
5. Coordinating with Others	5. Negotiation
6. Emotional Intelligence	6. Quality Control
7. Judgment and Decision Making	7. Service Orientation
8. Service Orientation	8. Judgment and Decision Making
9. Negotiation	9. Active Listening
10. Cognitive Flexibility	10. Creativity

Source: Future of Jobs Report, World Economic Forum (2016)

Disappearing jobs and new jobs appearing

Bring on the personal trainers

Probability that computerisation will lead to job losses within the next two decades, 2013 (1=certain)

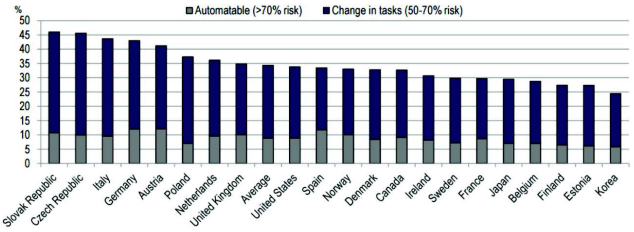
Job	Probability
Recreational therapists	0.003
Dentists	0.004
Athletic trainers	0.007
Clergy	0.008
Chemical engineers	0.02
Editors	0.06
Firefighters	0.17
Actors	0.37
Health technologists	0.40
Economists	0.43
Commercial pilots	0.55
Machinists	0.65
Word processors and typists	0.81
Real estate sales agents	0.86
Technical writers	0.89
Retail salespersons	0.92
Accountants and auditors	0.94
Telemarketers	0.99

Source: "The Future of Employment: How Susceptible are Jobs to Computerisation?" by C.Frey and M.Osborne (2013)

Impact of fast technological advancements

Figure 2. The risk of job loss because of automation is less substantial than sometimes claimed but many jobs will see radical change

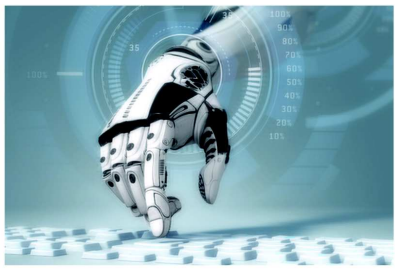
Percentage of workers in jobs at high and medium risk of automation



Note: Data for the United Kingdom corresponds to England and Northern Ireland. Data for Belgium corresponds to the Flemish Community.

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012) and Arntz, M. T. Gregory and U. Zierahn (2016), "The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis", *OECD Social, Employment and Migration Working Papers*, No. 189, OECD Publishing, Paris.

Industries threatened by tech disruption



- Accounting
- Newspaper
- Language translation
- Financial professionals
- Job recruiters
- Libraries
- Farming

Source: http://www.investopedia.com/articles/investing/020615/20-industries-threatened-tech-disruption.asp

Knowledge Explosion

In his 1982 book Critical Path, futurist and inventor R. Buckminster Fuller estimated that if we took all the knowledge that mankind had accumulated and transmitted by the year One CE as equal to one unit of information, it probably took about 1500 years or until the sixteenth century for that amount of knowledge to double. The next doubling of knowledge from two to four 'knowledge units' took only 250 years, till about 1750 CE. By 1900, one hundred and fifty years later, knowledge had doubled again to 8 units. The speed at which information doubled was getting faster and faster. The doubling speed is now between one and two years.

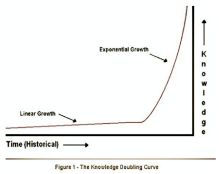


Figure 1 - The Knowledge Doubling Curve

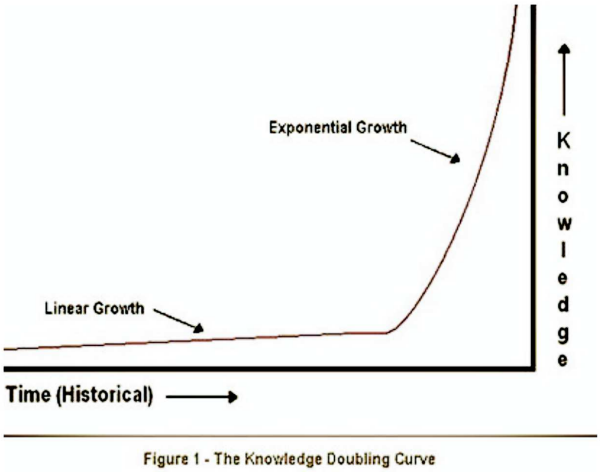


Figure 1 - The Knowledge Doubling Curve

Transformation in the social media

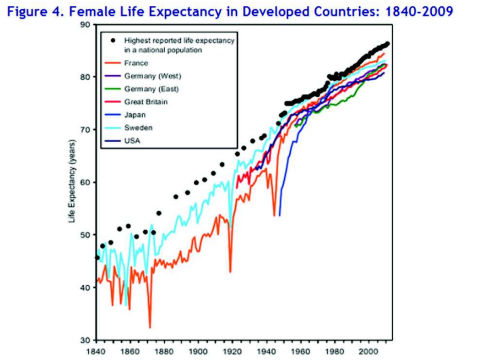
- Instantaneous
- Anonymity
- Wide reach

Responsibility in the midst of freedom?

Profiles of Learners

E xperiential
P articipatory
I mage-driven
C onnectedness

Increase in Life Expectancy



Source: Highest reported life expectancy for the years 1840 to 2000 from online supplementary material to Oeppen J, Vaupel JW. Broken limits to life expectancy. *Science* 2002; 296:1029-1031. All other data points from the Human Mortality Database (http://www.mortality.org/) provided by Roland Rau (University of Rostock). Additional discussion can be found in Christensen K, Doblhammer G, Rau R, Vaupel JW. Aging populations: The challenges ahead. *The Lancet 2009*; 374/9696:1196-1208.

Employers' Selection Criteria are changing

1. Ernst & Young (UK) dispenses with the use of Honours system to select candidates for employment.

   Source: http://www.huffingtonpost.co.uk/2016/01/07/ernst-and-young-removes-degree-classification-entry-criteria_n_7932590.html

2. Google concluded that the paper qualifications and interviews are not more effective in selecting the right candidates.

   Source: http://www.businessinsider.com/how-google-hires-people-2013-6

3. Employers' involvement in training

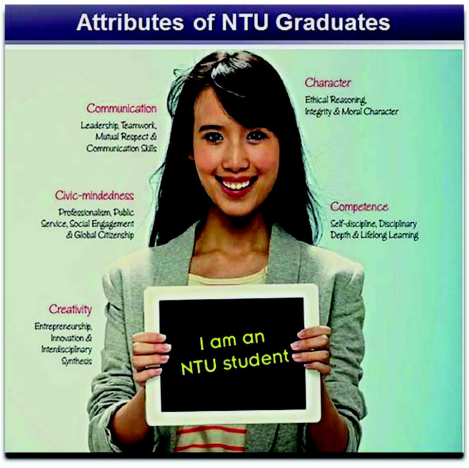
   The Alibaba Global Leadership Development Program (AGLD) will give MBAs the chance to rotate through core Alibaba business units in six to eight-month stints, in areas such as e-commerce operations, cross-border logistics, and business development.

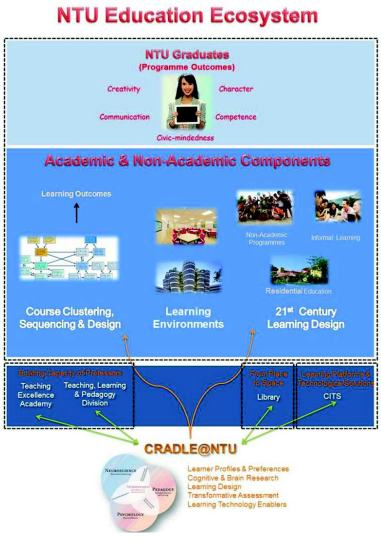
   Source: http://www2.alizila.com/alibaba-group-looking-few-good-mbas

How can Higher Education respond?

1. What should be the outcomes of higher education that graduates need to be relevant to this new world?
2. How can the curricula be designed and structured to achieve such outcomes?
3. How can the curricula be delivered to meet the needs of 21st Century learners to achieve the outcomes?
4. What roles does technology play in higher education?
5. How can the Learning Environment be transformed to be relevant for the 21st Century higher education?
6. Is the current mode of certification still relevant?
7. Should there be a shift in research policy? Is the notion of Publish or Perish still stand?
8. What about administrative policies? How should they evolve?

NTU Education





Life-long Learning

College of Professional and Continuing Education

- Support alumni in acquiring additional skills and knowledge
- re-tooling and skilling for adults to equip them for new jobs

http://copace.ntu.edu.sg/Pages/Home.aspx

Thank you