ROYAL ACADEMY OF ENGINEERING

Aligning Universities with the 4th Industrial Revolution

Sir William Wakeham FREng

FICCI Higher Education Summit 2018

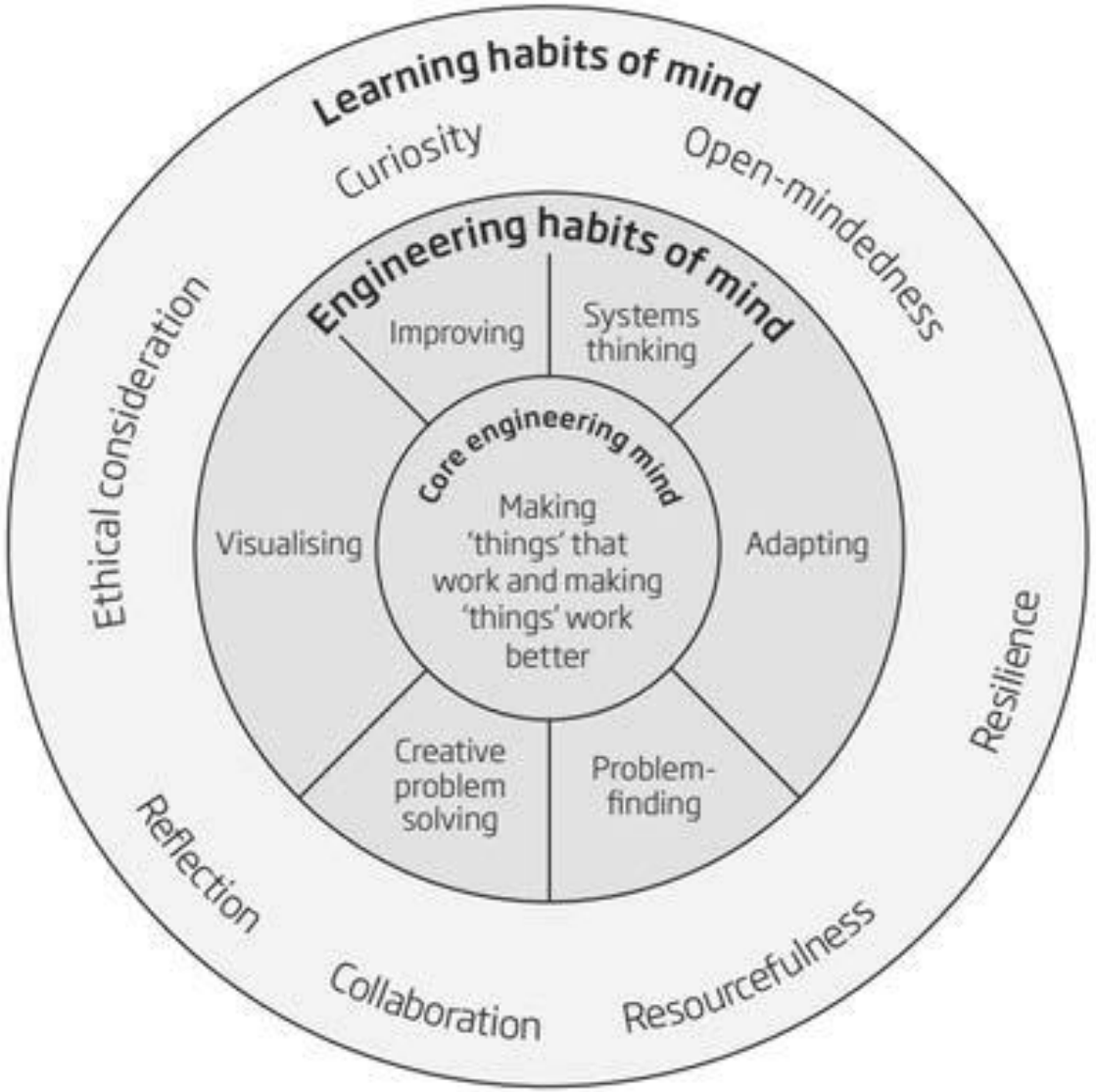
30 October 2018

Professor Jonathan Seville FREng

Chair of Education Skills Committee
Royal Academy of Engineering

Learning to Learn: The Future Proof Skills - 2018

- Key engineering 'habits of mind' comprise problem finding, creative problem-solving, systems thinking, adapting, improving and visualising.
- Engineering ways of thinking encompass exactly the attributes that are necessary to create a self-adapting workforce comprised of individuals that thrive in a fast-changing world of work.
- Increasing participation in well-designed project- based and problem-based learning
- Professional education will increasingly need to prioritise the development of those who can lead or be part of cross-disciplinary teams.



2017 IET Skills Survey

46% of businesses report difficulties in recruiting staff with the right skills

30% of all employers acknowledge the responsibility to invest in the necessary training to meet the skills challenges posed by increased digitalisation and automation

61% of UK engineering firms consider recruitment of staff with the right skills as the main barrier to achieving their business objectives over the next 3 years

Dame Wendy Hall FRS FREng
2017 Review of Artificial Intelligence Industry

- Skilled experts are needed to develop AI, and they are in short supply. To develop more AI, will need a larger workforce with deep AI expertise, and more development of lower level skills to work with AI.
- An industry-funded Masters programme in AI
- Market research to develop conversion courses in AI that meet employers' needs
- 200 more PhD places in AI at leading universities, attracting candidates from diverse backgrounds and from around the world.
- Credit-bearing AI online courses and continuing professional development leading to MScs

Research, Development Innovation

Problem-led research as well as curiosity-driven research.

Multi-disciplinary

Collaborative with industry and others

Adjust measures of academic performance in research

Recognise development as well as research

Training of researchers for future employment

IP ownership secondary to exploitation
Recognize ideas develop value

Recognize staff for innovation

The Science Park Model *

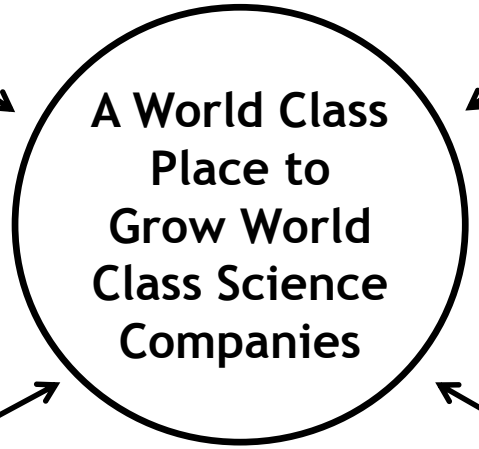
EXETER SCIENCE PARK

Location Drivers

- Cost of labour
- Quality of life
- Destination attractiveness
- Total operating costs

Supporting Infrastructure

- True access to academic excellence
- A place to grow a business
- Physical environment and good logistics
- Quality robust IT support



Property Ladder

- Turnkey solutions
- From acorn to oak tree
- Flexible terms/leases
- Growth 'no problem'

Growing Business Support

- Friendly economic development conditions
- Support to apply for public sector funding
- Professional services
- Seed funding, Angels and VC

* *Taken from 'A Home for Life Sciences' Presentation to the UK Science Park Association, Rhona Allison Senior Director Life Sciences Scottish Enterprise,Pentlands Science Park May 14th 2010*