

The Future of Engineering Education

New engineer's profiles for the start-up "Market"

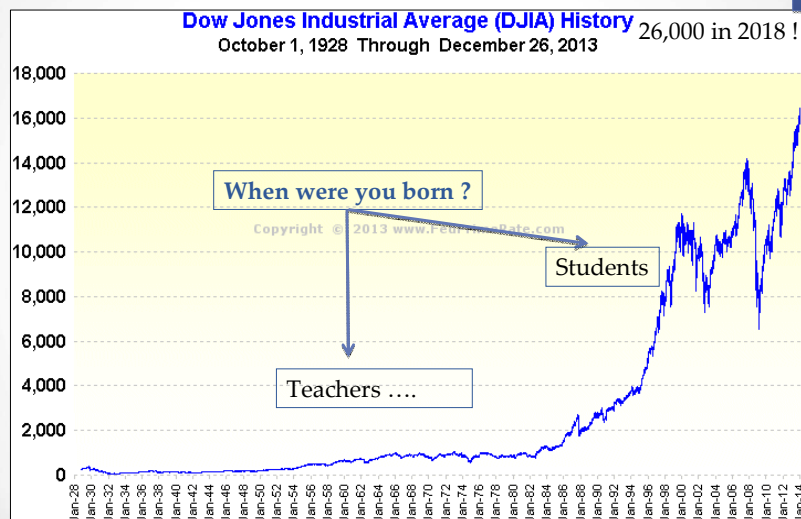
*"Scientists discover the world as it is,
Engineers shape the world as it never was
before" (Th. von Karman)*

SEII – RTC – Brussels October 8th 2018

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TechBridgeOne sprl

Technology put the world upside down, did the education system follow ? The economy did !



Dow Jones Industrial index evolution

26.000 in 2018 ..

Ready for New Work Standards ?

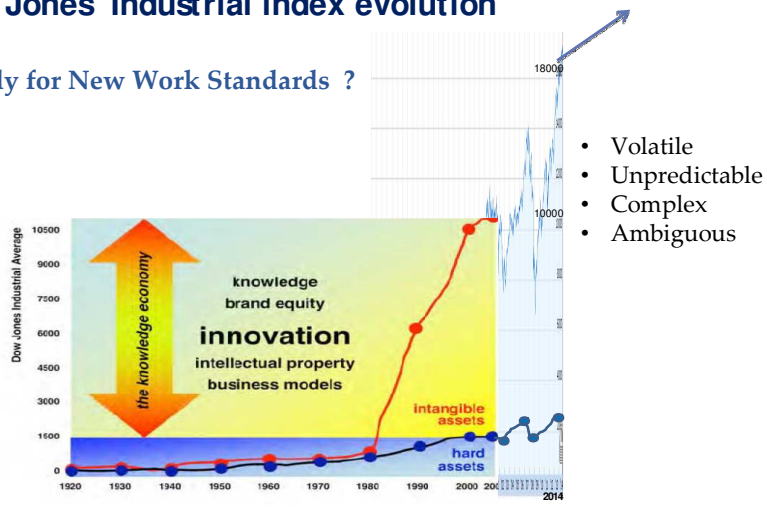


Figure 4.
The Knowledge Economy, 1920 - 2005
 Beginning in 1980, investors recognized knowledge assets as r
 more important than hard assets.

Yet... fertile ground for real technology breakthrough's

2014

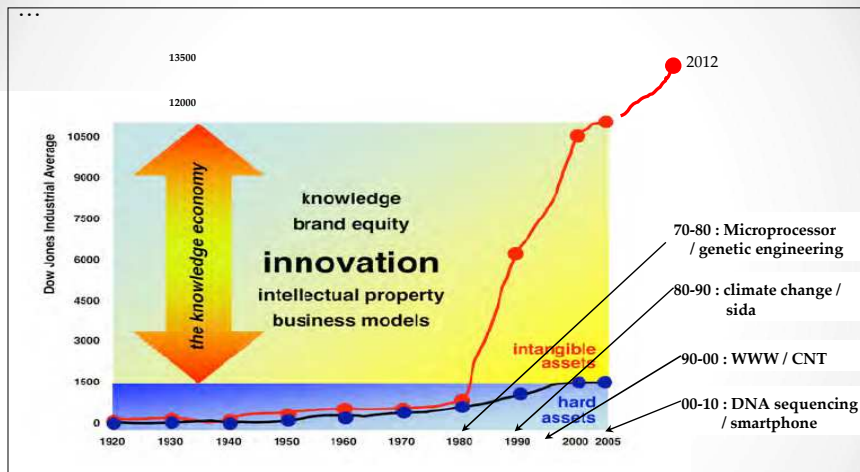
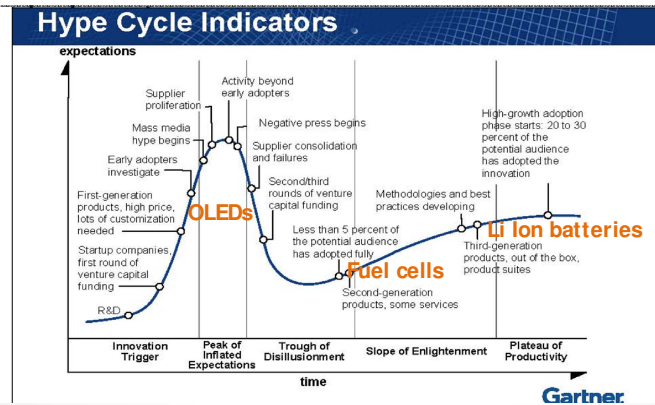


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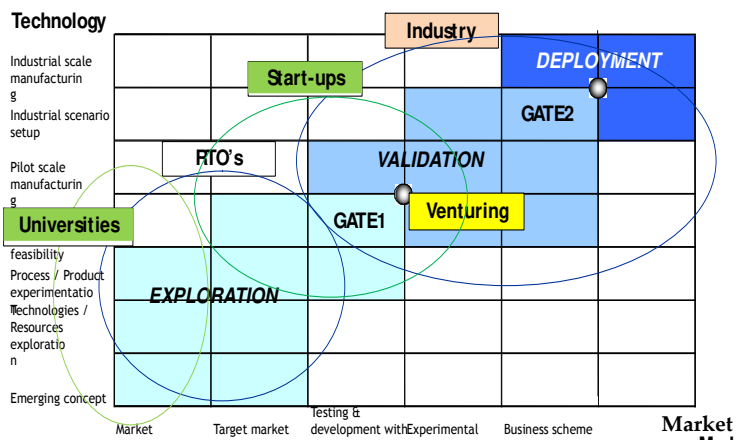
An incredible quest for value is going on !

Opportunities are open to whom dares...



From Idea to Business :

A complex ecosystem, not completely wired yet...



New profiles of engineers are needed all along this

“value chain” !

- Current education provides a strong scientific and technical knowledge, this is the evergreen cornerstone for efficiency and success. **Never compromise this one !**
- *BUT...this is not enough anymore*

Companies are usually in trouble defining the ideal profile
for the engineer to be hired in this “VUCA” world ..

Risk
vs Discipline

Low Risk/ Low Discipline :
No future engineer

High Risk/ Low Discipline :
The crazy game changer

Low Risk/High Discipline :
The gate keeper

High Risk / High Discipline :
The Holy Graal Engineer

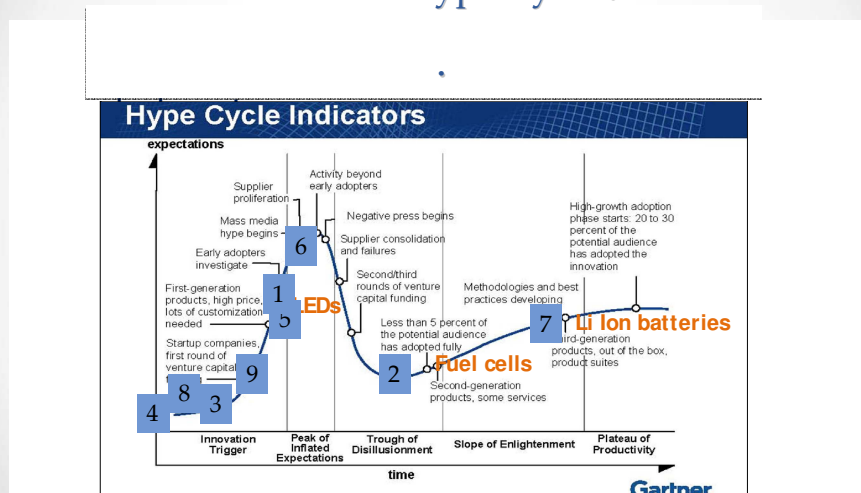
Let's focus on Engineers at work in start-up's

The sample :

1. N. Energy (USA, India, KR)) / Cheap high power batteries
2. M. Energy (F, I, D) / H2 production and storage
3. E. Energy (F) / H2 & Energy storage
4. E. Bio (F) / GM yeast for chemicals production
5. H. Energy efficiency (F) / Low temperature heat conversion in electricity.
6. A. Chem (F) / liquid-liquid metals extraction process
7. R. Tech (F, MEA) / Water discovery by satellite imaging
8. A. Tech (F,I) / Optical detection of ions in water.
9. G. Tech (B, NL) / Gold nano-particles bio-sensors
- 10....

Each start-up has at different maturity level in the

Gartner Hype Cycle .



Critical dimensions that are usually missing or underdeveloped in the standard profiles :

- **HR management skills** : hiring/firing, training, pay schemes, **attitude** ...
- **Financial Resources Management** : fund raising, loans, cash flows management, ...
- **Strategic thinking** : including all dimensions of a small business
- **Business planning and budgeting**
- **Legal frame awareness** : Regulations, IP, Agreements,
- **Stakeholders relationships** : shareholders, public authorities, customers, financial institutions, **Board** ...
- **Communication** : in and out
- **Negotiation strategies and techniques** : with suppliers and customers
- **Leadership** : inclusive leadership
- **Organisation design**
- **HSE standards**
- **Quality standards**
- **Ethics**
- ...

How to get all this right ?

- **Help students to know themselves and make them define their personal risk acceptance level**
How ? Myers-Briggs, Mentoring, Coaching ...

How to get all this right ?

- **Make them understand the overall context** : business, social, environmental, economical, legislative, ethical,

How ? : By teaching modules and workshops based on current case studies and companies watch (PR's, Stock, ..) ... There is something to tell every single day

How to get all this right ?

- **Involve Venture Funds and CVC professionals in the teaching early in their studies track , don't wait for the last year**

How ? Pitches of VF and Start-Ups. Make use of "silver brains" of companies

How to get all this right ?

- **Use the alumni network and online social tools:**
successful voices from outside are critical for shaping their minds

How to get all this right ?

- **Build teaching programmes across schools , departments and faculties :** *Economics, Social Science, Medecine, Legal ,...*

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Be creative ..add more !!!

Thank You !