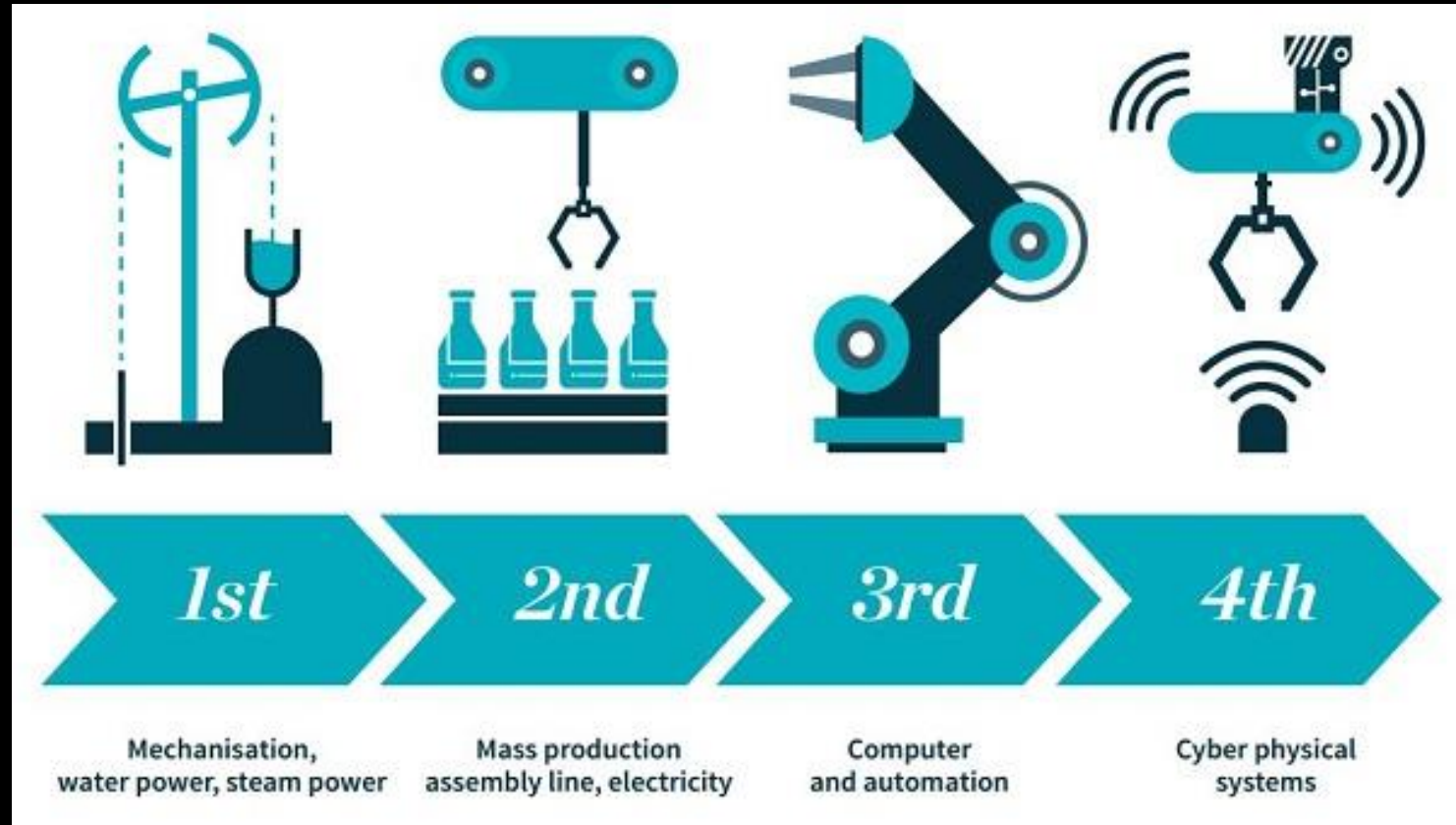




How academia can equip the students with the necessary skills to adapt to the industries' needs

Dimitris Kaliampakos
Dean, School of Mining
Engineering and Metallurgy

The evolution of engineering studies



3R

- Reading
- wRiting
- aRithmetic

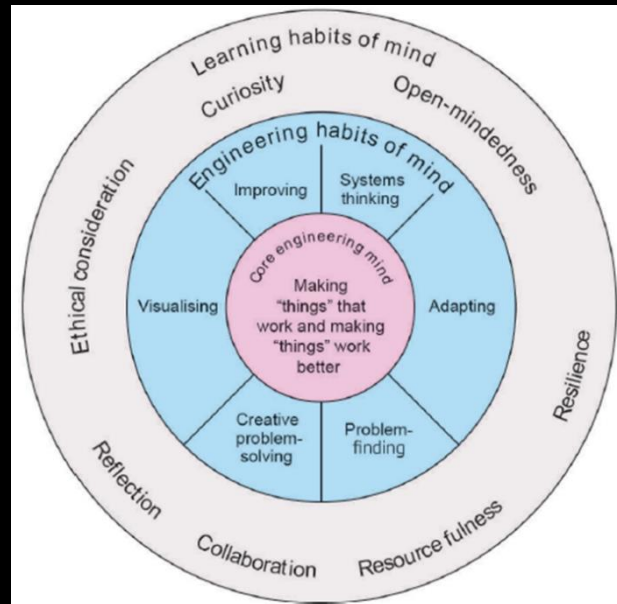
3S

- Searching
- Sharing
- Simulation

4C

- Critical thinking
- Creativity
- Collaboration
- Communication

What is an engineer? How does it change today?



An engineer still is and always will be a problem solver

How can someone convey a rapidly increasing and evolving knowledge?

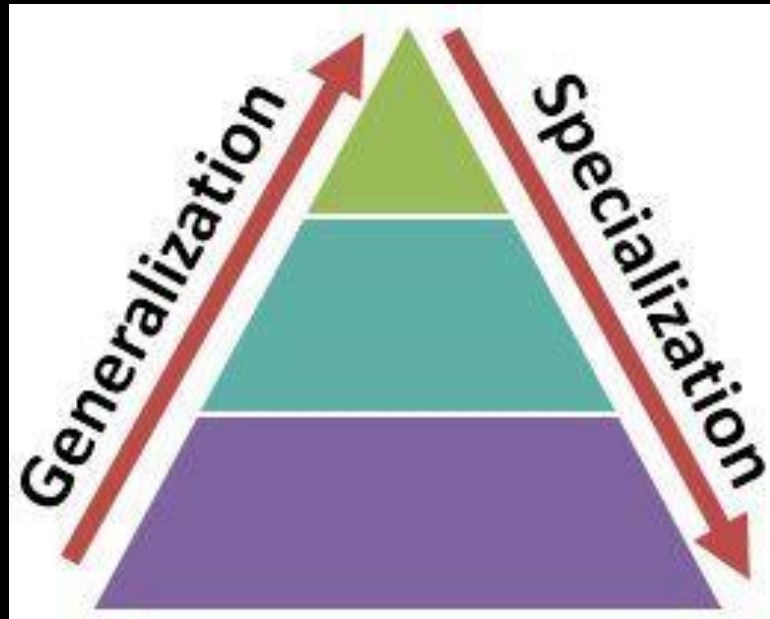
- Do not panic! After all, the world's knowledge is only a click away
- The question of credibility
- From just in case to just in time knowledge

"If you stacked the new books being published next to each other, at the present rate of production you would have to move at ninety miles an hour just to keep up with the end of the line"

S. Hawking, Brief Answers to the Big Questions, 2018



Generalization vs. specialization



- Generalization results in forming a single entity from multiple entities.
- Specialization results in forming the multiple entity from a single entity.

Multidisciplinarity: It's a "must"

- The major breakthroughs in the future are going to happen at the interface between scientific fields.
- We are all children of an education system that fosters over-specialization. This is the main problem, since deep rooted beliefs are hard to change.



Can our planet sustain
that level of mining production?

Environmental protection



We can't make an omelette without breaking eggs!



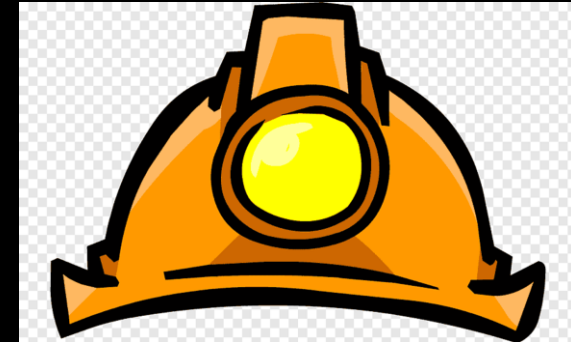
A radical change of mindset is needed

- We should add environmental protection to the classic dipole of safety and financial viability.
- This in turn would change our methods, our tools even the way we measure the results of our work.



The mining engineer in the 21st century should be able:

- to navigate through a sea of information to reach real knowledge
- to operate extremely powerful (and expensive) equipment, most of the times remotely in extreme environments
- to incorporate sophisticated tools like AI technologies but only to enhance her/his ability of judgment
- to protect the planet's environment not as an enforced requirement but as her/his first personal priority together with safety and efficiency.



The foundation

- Solid theoretical background
- Continuous updating
- Hands-on experience

Setting the personal example



Dan Martin, MYKOBAR

Thank you very much!