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The future of Industrial Engineering

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INTRODUCTION FOR J. ORDIERES

- Bsc, Msc in Industrial Engineering by University of Oviedo, Spain. 1986.
- Research stage at INRIA (Fr) (1986)
- PhD in Industrial Engineering with topics for “shape optimization” under constraints by UNED. Madrid, Spain (1988)
- Assistant professor in several department’ sections “Applied Mathematics” (1988-1989), “Structural Mechanics” (1989-1992), and “Project Management”. (1992-1997).
- Full professor of Project Management at University of la Rioja, Spain (1997-2008).
- Full professor of Project Management at Polytechnical University of Madrid (2008-)

Modelling techniques and KM for process optimization

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- *Some Facts:*
  - Global Economy and Crisis.
  - Environmental challenges.
  - Faster Technological Development.
  - Continuous requirements for Better Products / Services.

Requirements for New Business Organization

- *Constraints*
  - Reduction for product development cycle as its life cycle becomes shortened => *R+D strategy becomes more and more an issue to manage.*
  - Reduction of lead time, even with shorter product series due to product personalization => *Increasing pressure for more flexible organizations (f.i. Project oriented ones) & logistic systems.*
  - Demand for higher performance in products / services => *Business cooperation through flexible structures like clusters or networking (machine to machine applications over mobile networks).*

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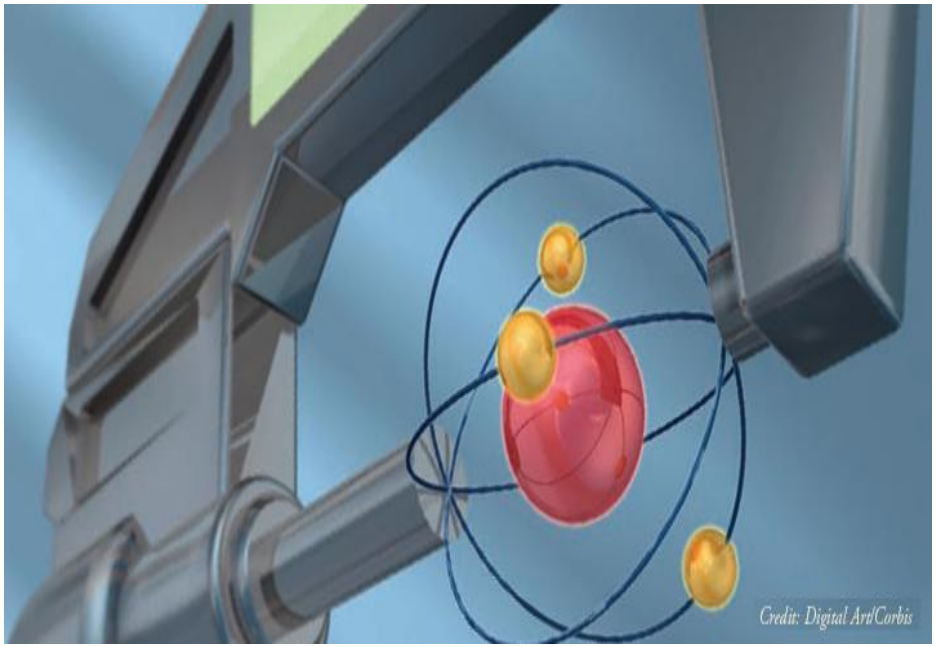
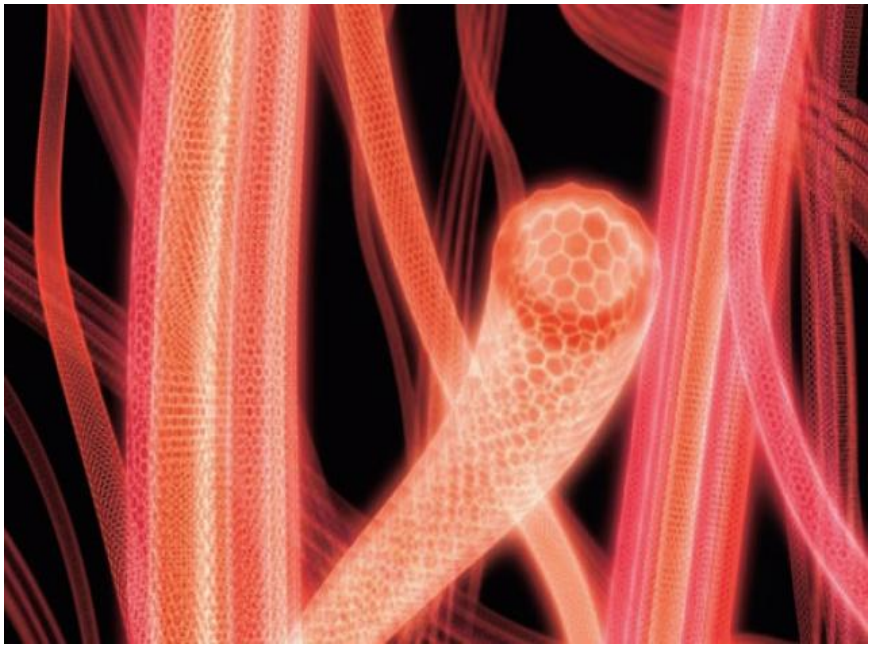
- ***Nanotechnology opportunities***

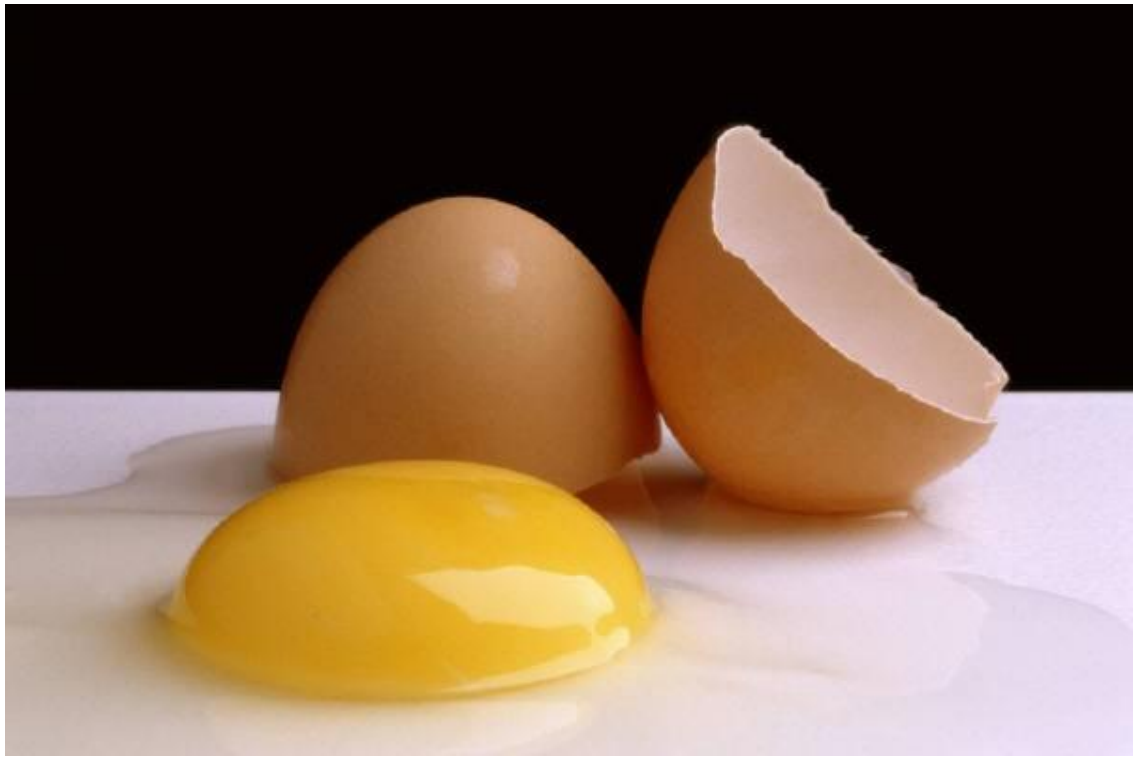




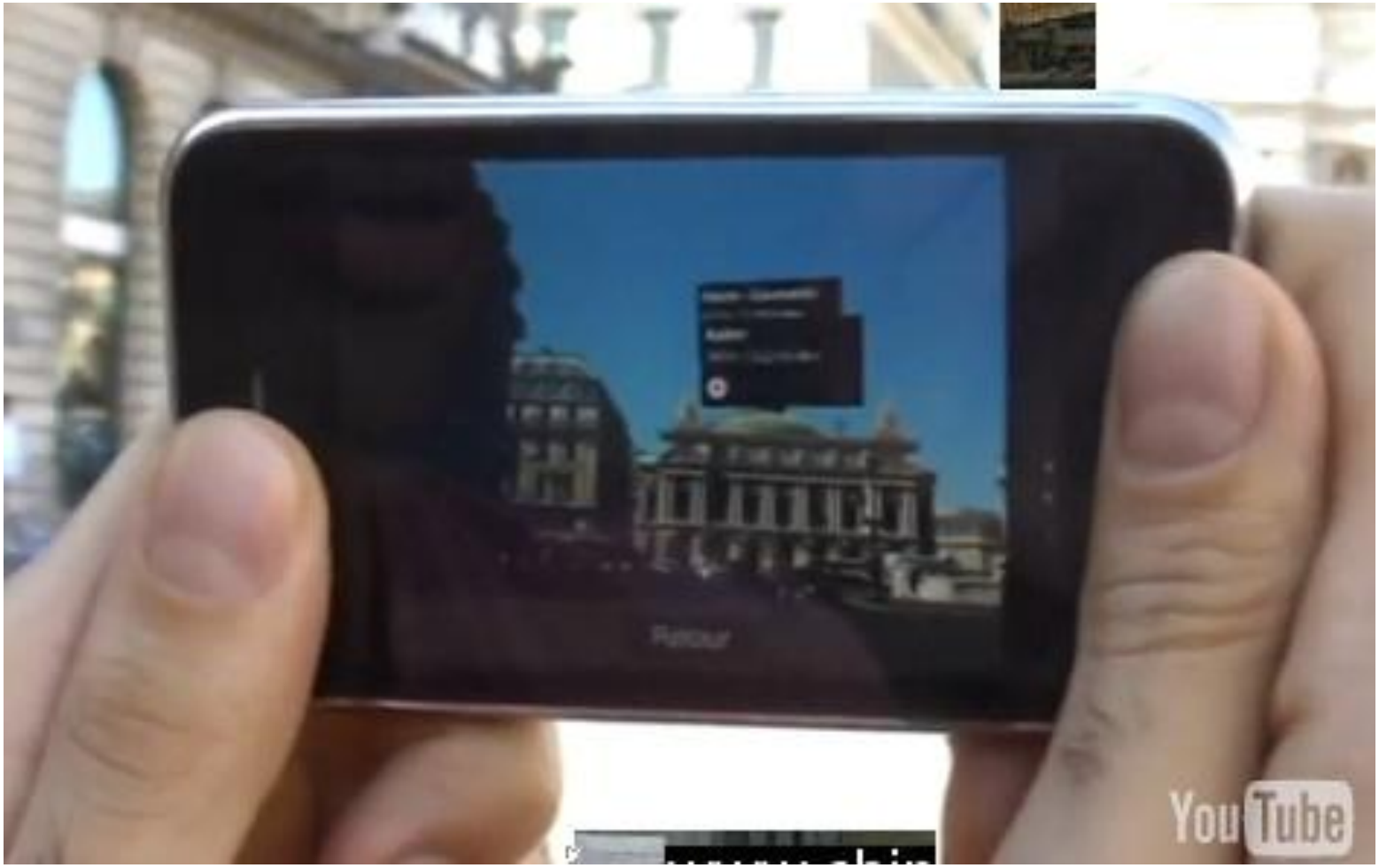
Until now, the "global" aspect of manufacturing has primarily been focused on actual mass production in factories located in developing countries. iPod => "Designed in California. Made in China.“

Producing industriallization of these tecnologies will require to change the management paradigm in accordance

- ***Bioengineering opportunities***



- ***Artificial markets***



- ***Artificial markets***

Securizing flight passengers looks like a bussiness requiring huge improvements from industrial management .

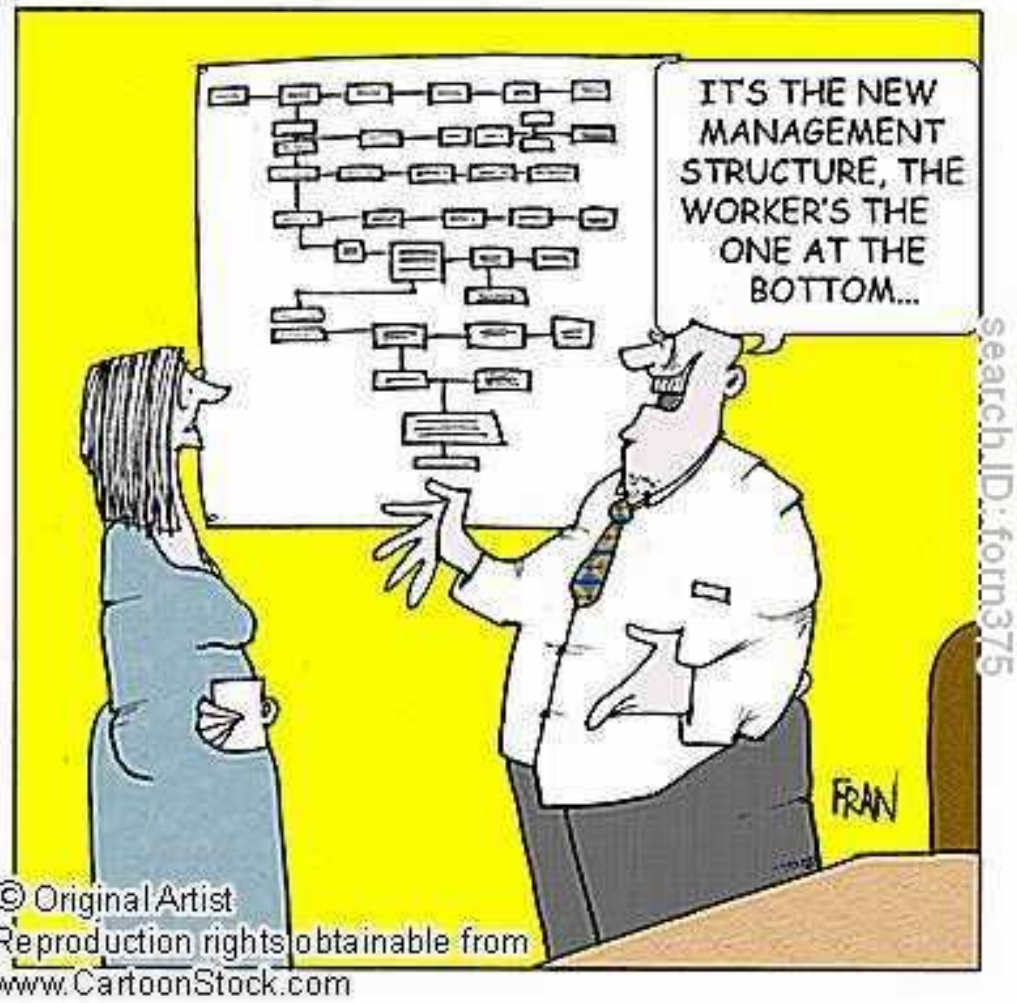
- ***Innovative business structures***

Quasi-markets: (HP):

Promising ideas are announced internally and anyone can apply for working on this project.

Team configuration is a responsibility of the project leader.

This is a way for having skills recombination without restructuring the organization as a whole.



It is just an example of dynamic organizations focused on competitiveness

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REQUESTED CAPABILITIES

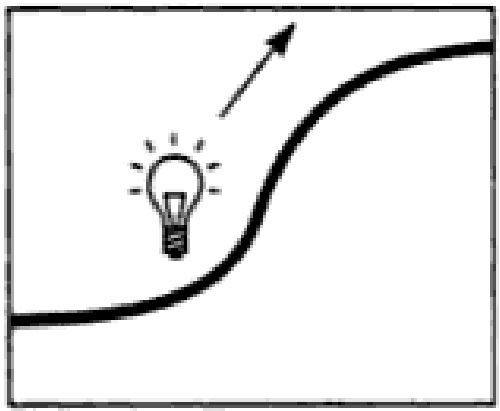
- ***Managing new ways for market identification***
  - HP with Caltech sited up an internal market for information: Predict future sales for HP printers.

- ***Enterprise Mashups management***
  - Managing production systems more and more dependent on individual decentralized actions, instead those hierarchically assigned.

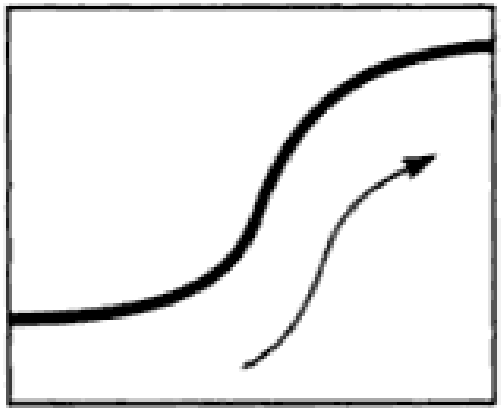
REQUESTED CAPABILITIES

- ***Develop strategies under uncertainty***

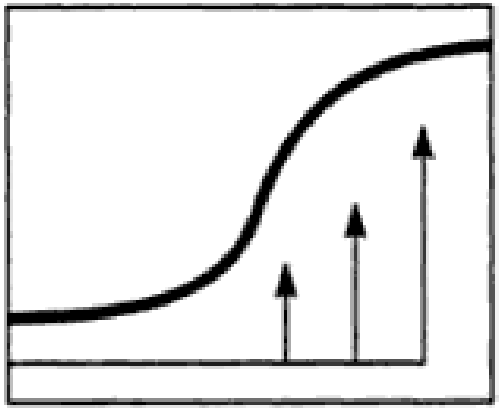
Instead of …



Shape the future
Play a leadership role in establishing how the industry operates, for example:
- –setting standards
- –creating demand



Adapt to the future
Win through speed, agility, and flexibility in recognizing and capturing opportunities in existing markets



Reserve the right to play
Invest sufficiently to stay in the game but avoid premature commitments

Source: J. Magretta, "Managing the new economy".

REQUESTED CAPABILITIES

- ***Develop strategies under uncertainty***

Try to …

Have more global thinking
Look for global coo-petition

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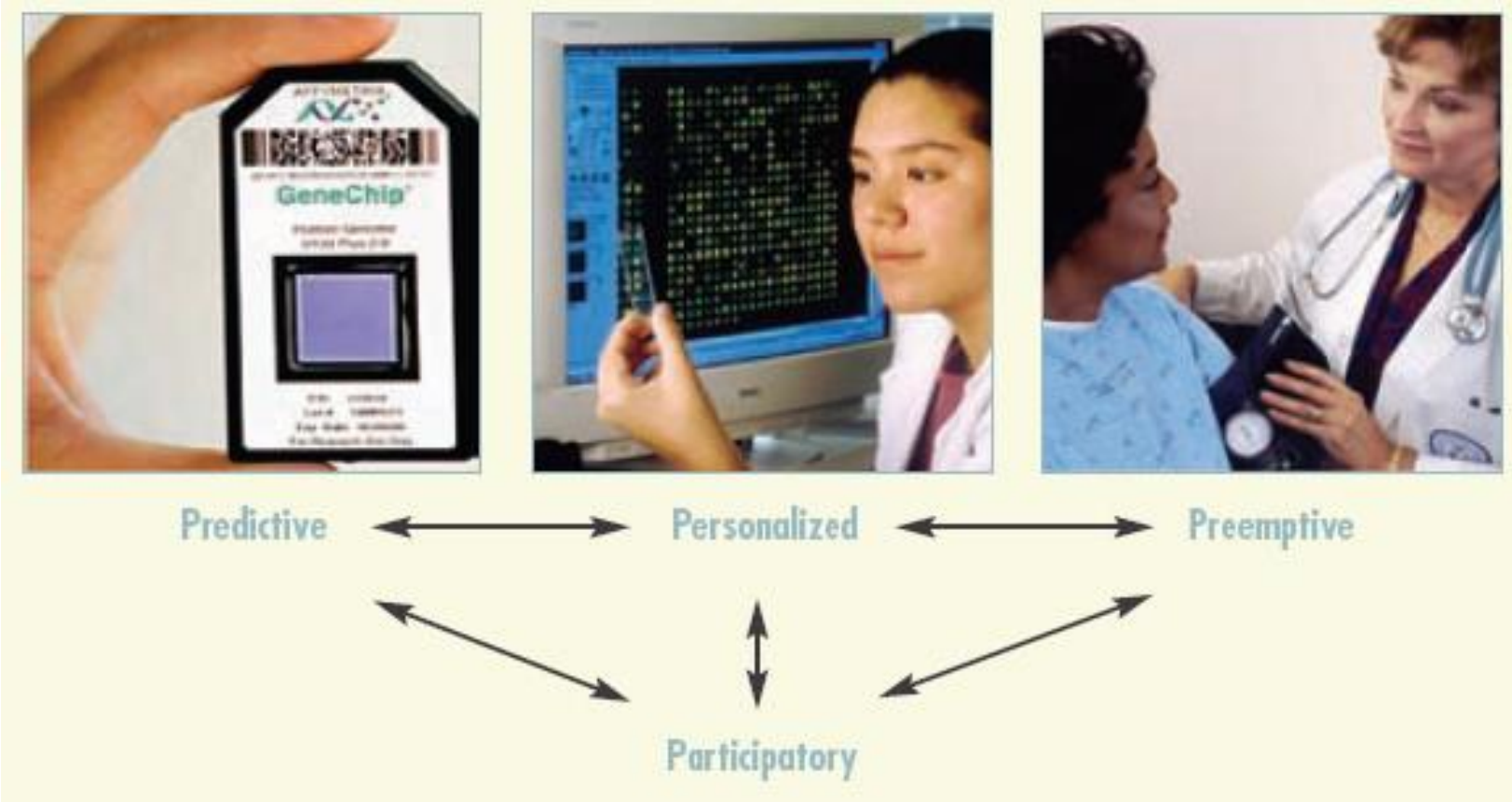
- ***Creating and exploiting Virtual Value Chains.***

  Every business runs two different dimensions (a real one, with resources, managers and products or services and a virtual one made from information).

To manage the TALENT POOL ⟷ **To manage the PROCESS DATA**

- ***Creating services from integration of different fields.***

  Technology and services mixed for higher added value 'products'



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CONCLUSION

- An excitating future is coming with lots of challenges and opportunities => Industrial Engineering pays attention to managing people, projects and organizations.

- The very first step for accomplish these transformations is to improve the education. => Bologna agreement is a step (fostering the shared education between different centers with different visions and targets).

- It is our responsibility to make possible going forward …

The End

Many thanks for paying attention (and without TV !!!)