



New Curricula in engineering schools for e-Leadership

Delivering Skills for an Innovative and Competitive Europe

UNESCO, Paris
6 November 2014

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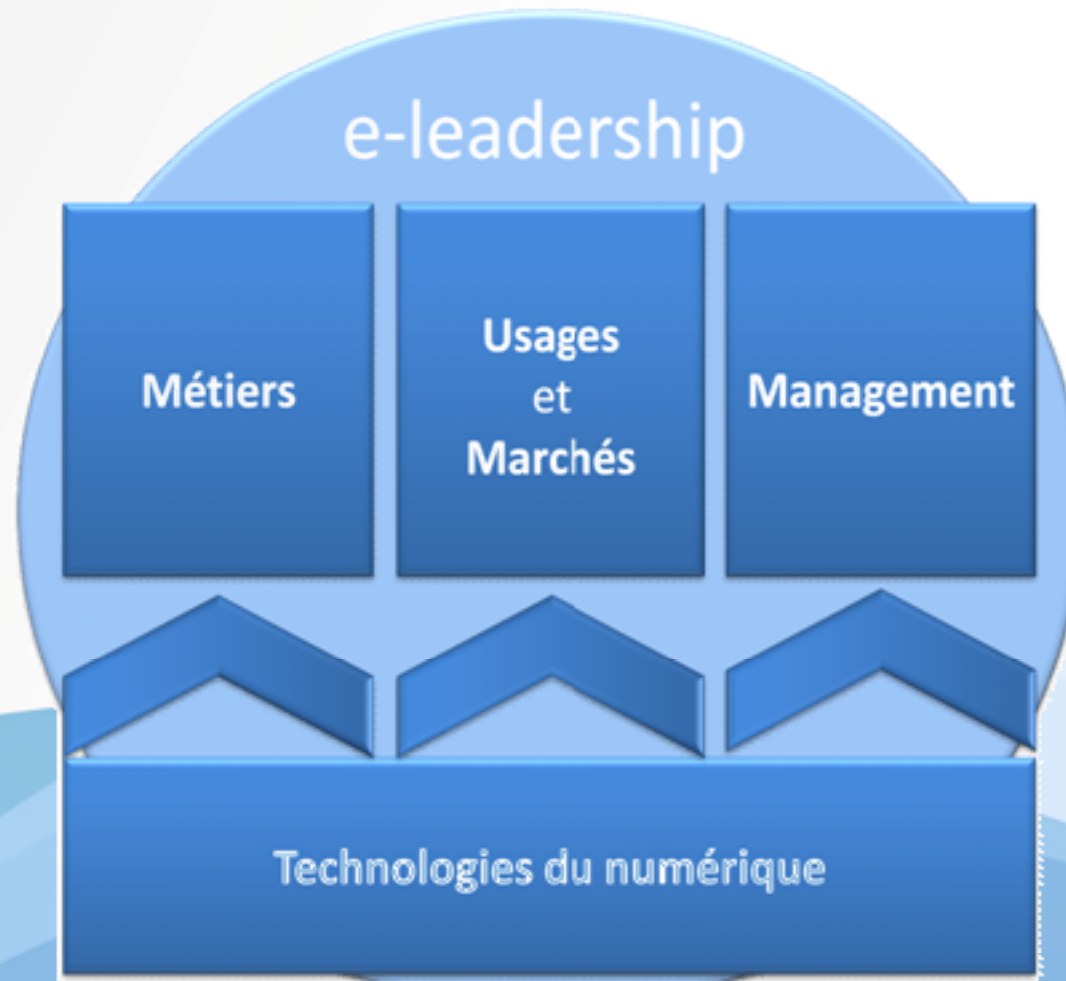
Pasc@line and Telecom ParisTech : promoting digital engineering education

- Pasc@line, a 8 year old « Joint Venture » :
 - between 60+ ICT engineering institutions and professional associations in the field of Digital (Syntec numérique and CINOV-IT, in cooperation with CIGREF on specific topics).
 - Its objectives : 1) to promote education in ICT engineering auprès high school students 2) to adjust education in ICT engineering institutions to the needs of the market
- Telecom ParisTech :
 - Oldest and best French ICT engineering school (Grande Ecole d'Ingénieur)
 - Graduating 600 M.Sc, M.Eng and PhD/year
- The driver of our actions :
 - France lacks engineers to meet the challenges of the digital revolution and contribute to France industrial development

Why issuing a Report on « E-leadership : what are the needs of skills for tomorrow e-leaders »?

- Pasc@line covers only part of the educational field:
 - Engineering education: Engineers should play a greater role in today's economy at top level positions (in competition with graduates from business schools and self made men)
 - Initial higher education: Good education in the 5 years following the « baccalauréat » is still very important in a leader's career (even if continuing education is more and more needed)
- Digital revolution impacts what we need to teach :
 - Technical knowledge: What are the scientific and technological drivers of the digital revolution engineers should master ?
 - Economics, Marketing, Organisation and Management knowledge : how digital impacts theories and paradigms in these fields ? What engineers should understand and use ?
 - Personal/soft skills : How digital is revolutionalizing the way leaders must manage their staff and employees ?
- The report to be used as an auto-assessment tool for our higher education members

A four dimension framework to (re?)think Engineering Grandes Ecoles curricula



What are the 10 Key Digital Technologies ? Future engineers must have basic knowledge of all

- Mobile and heterogeneous devices
- Big Data
- Cloud computing
- Connected objects
- Semantic web
- Very high speed and Software Defined Networks
- Security

- 3D Printing
- Augmented reality

In which ways corporate functions (« métiers ») are impacted ? Keywords...

- Research and Innovation :
 - Crowdsourcing, cooperative work, time to market, open innovation
- Marketing and Sales :
 - Online and crosschannel, social networks, mobile customer relation, big data...
- Legal, Finance and Controlling :
 - « Trans-nationality », expertise vs common knowledge, Big data analytics, reactivity,
- Human Ressources :
 - Work organisation, definition of working time, skills management frame, continuing education (increase in needs, use of e-learning), stress management,
- Production and Logistics :
 - Robotics, interconnected machines, big data applied to maintenance, security, tracking, optimization...Thinking logistics as the Internet ?

How much markets are transformed by the digital revolution ?

- Welcome to contribution and collaborative economy (« l'âge de la multitude » Colin, Verdier)
- Access to a service becomes more important than owning the object (carsharing, community accomodation)
- No business will escape from digital revolution, no company will live forever on acquired advantages (Schumpeter 's « creative destruction »)
- Restlessly innovating, testing new uses, failing and learning from failures is the winning strategy
- Services «agglomerate» around platforms that are stronger than applications: Itunes, Android, Internet Explorer, Amazon Web Services... (many platforms are still to be created : car, home, man...)

What are the new forms of management in a digital world ?

- Delivering a vision, stimulating involvement, ensuring strategic alignment have become more important than organizing and distributing tasks and roles
- Contribution and outputs are more important than effective presence (what « presence » means, by the way, with modern communication tools ?)
- Carefully selecting the information to share is a better strategy than withholding information
- Collaborative and interdisciplinary work is compulsory (putting engineers, marketers, designers, customers together)

A few e-leaders, Telecom ParisTech graduates

- CEOs :
 - Jean-Bernard Levy (former Thales et soon EDF CEO)
 - Michel Combes (Alcatel Lucent CEO)
 - Eric Labaye (Mc Kinsey Europe CEO)
 - Jean Beunardeau (HSBC Europe CEO)
 - Patrick Drahi (SFR-Numericable Owner)
- Digital transformers :
 - Barbara Dalibard (CEO SNCF Voyageurs)
 - Yves Tyrode (CDO SNCF)
 - Jean-Christophe Lalanne (CIO Air France/KLM)
 - Vivek Badrinath (CDO Accor)
 - Elodie Perthuisot (CDO FNAC)
 - Xavier Terrasse (« Internal » CDO BNP Paribas)
 - François Marion (CSO Valeo)
- Digital entrepreneurs :
 - JL Vaillant and Y Pujante (LinkedIn co-founders)
 - Luc Julia (SIRI inventor)
 - Tariq Krim (Netvibes creator)
 - Fred Potter (Netatmo founder)
 - Diaa Elyaacoubi (Serial entrepreneur, Streamcore founder)

e-Leadership for the Digital Economy

THANK YOU