Chaire d'innovation technologique
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Apprendre des succès et des échecs de l'innovation

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Converging Principles

- Separate funding from operating or executing science and innovation programs
- Keep accountability by independent and credible systems of evaluation
- Allow full autonomy with least administrative burden but for periods of time with full review
- Focus resources on scientists during « creative » period bt provide alternate career pathways
- Avoid rigid employment system
- Encourage interactions with educational and business sectors

Modeles institutionels des sciences et de l'innovation

- MIT – 1861 founder and first president, William Barton Rogers, designed MIT as a powerful mechanism for discovery and innovation. By teaching science and engineering as hands-on activities, Rogers helped gave the world a compelling model of an "innovation machine."
- Allowed professors to work with industry

L’impact du MIT

- 1930’s Stanford University recruited Fred Terman from MIT.
- He replicated the MIT model
- He helped establish Fairchild industries and Hewlett-Packard by young assistant professors which seeded the creation of the Silicon Valley Cluster
- Started the tradition of « Garage enterprises »

L’impact du MIT

- World War II saw the beginning of academia-Governement partnerships led by presidents of major universities including Carl Compton and Vannevar Bush from MIT who led the creation of NSF and NIH
- Dr Compton convinces Boston bankers to create the first ever venture capital fund
- One of the first start up is Digital Eqipment Corporation seeding the technology cluster in Boston and leading to the development of venture capital firms for early stage ventures
- 61 Nobel Laureates

L’institut Pasteur

- Created by Pasteur with philanthropic donations
- First institute to promote the concept of research and education directly linked to innovation on an international basis.
- With Merieux creates the first base of the Vaccine industry
- 10 Nobel Prizes

Johns Hopkins University
First US graduate research university

- Created through a gift of Johns Hopkins a merchant in Baltimore on the concept of the research University inspired by the German model of intertwined Education; research and its applications
- First dean of the Medical School Henry Welch recruits worldwide leading scholars Osler, Kelly, Flexner
- They create the HOPKINS MODEL of side by side Research, Practice and Education which became the US model of medical research and training- 35 Nobel Prizes trained at Hopkins
- Inspired the creation of the Rockefeller University including the Peking Union Medical College

Essential characteristics

- A passionate visionary founder or group of founders
- Passion for excellence at the junction of research, education and practice
- Unconventional approach at the time
- Creation of an ecosystem of innovation through social influencing
- Highly selective institutions recruiting the best and brightest at all levels
- Providing high degree of freedom and autonomy
- They train the next generation of leaders

FY 2005 NIH Extramural Grants by Research Institution

3,114 New Technologies Brought to Market

By 185 US Research Institutions (1998-2004)

Funding to Develop Technologies Provided by Both US Government and Private Industry

4,543 New Companies Formed

Around Technologies from US Research Institutions (1980-2004)

2,671 Companies Still in Operation as of 12/2004

Data: Assoc of University Technology Managers (AUTM) Survey 2004

The concept of innovation cluster

- Innovation occurs in geographic clusters
  - Chemical cluster in Lyon and Basel
  - Device alley in Minnesota
  - Automobile cluster Detroit, Turin
  - Wine clusters France, California
- A concentration of all the critical elements in one region to accomplish the highly complex integration needed for breakthrough innovations
- A supportive financial, legal and cultural environment
- A set of core institutions of research that enrich the mix by attracting and selecting the best students and faculty