



UNION NATIONALE DES PRÉSIDENTS D'INSTITUT UNIVERSITAIRE DE TECHNOLOGIE

HAPHE project

«The importance of high education in technologies on Development and Innovation»

Focus on the "Institut Universitaire de Technologie"



Summary

- **The R&D&I environment.**
- **Importance of a middle cadre in various economic sectors.**
- **Why the IUT technological training and the economical world fit well, a user point of view?**
- **Some successful examples.**
- **Lessons for the future.**



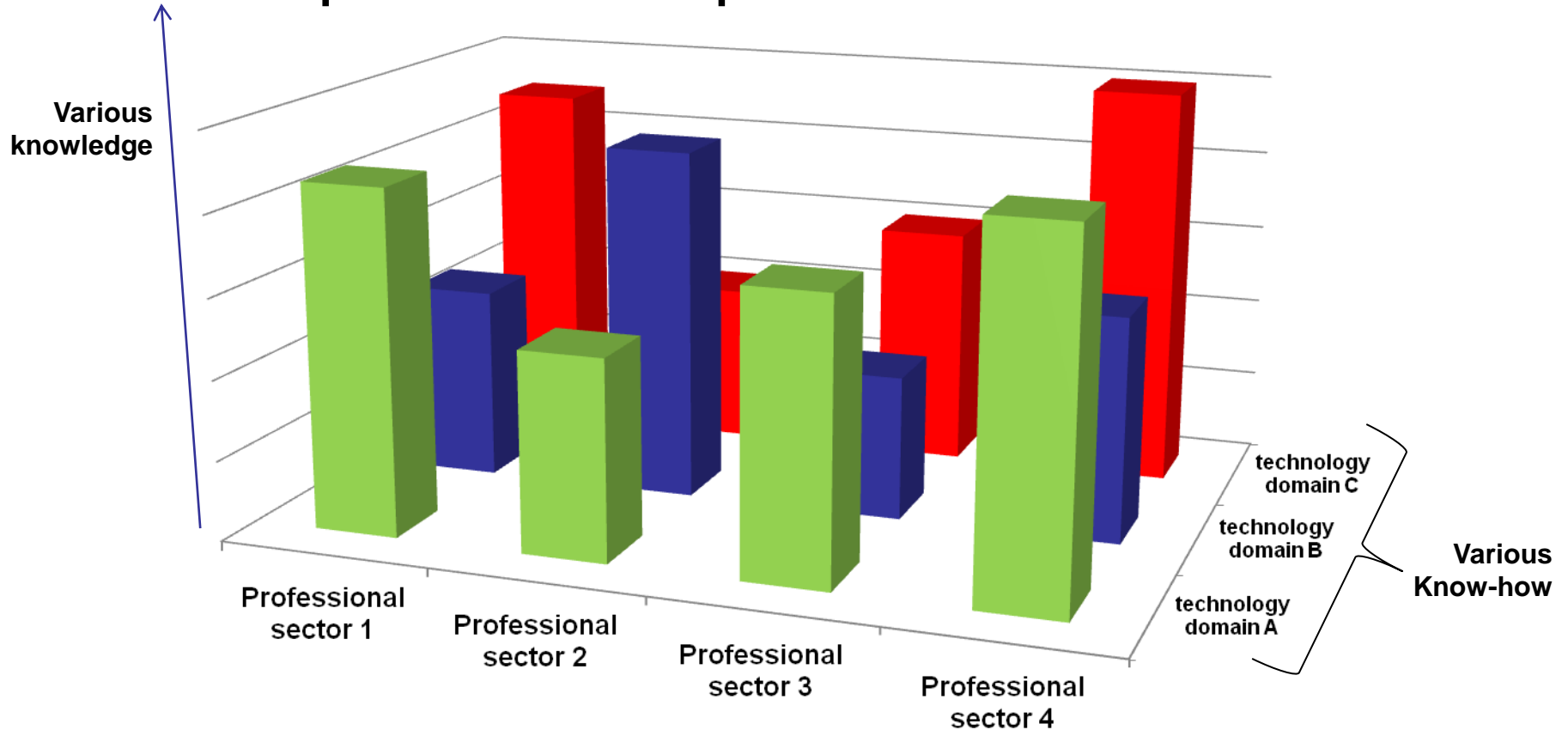
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Knowledge and technology paradox R&D & I (innovation)

The professional view point



The average level of knowledge and know-how must always increase

Innovation process

How it works today



Non-linear innovation process with interaction and feedback between all research stages including user involvement



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For SME's

- They are key for the future :
 - Huge number of companies from start-up to long experience
 - From high-tech to low-tech including artisans
 - Huge potential for employment especially middle cadre who have been trained to innovation
 - Huge dynamism and reactivity
 - Widely spread over France
- But...
 - A 3-7 years syndrome
 - Contributes more and more to networks, Pôles, Eureka, FP7....
 - Mostly unable to lead large projects (high administrative constraints)
 - Should be lean to larger organization
 - Could work more closely to public research organization

Middle cadre must be trained to innovate



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Why French “IUT” can contribute

- IUT is by law a component of the university with specific rules and regulation (e.g. specific governance). Like university IUT has two pillars, training and research.
- IUT is a vocational training courses which delivers a national diploma well recognized by employers over the country.
- IUT is one of the actors which contributes to land development. The 115 IUT’s are spread over more than 200 cities in France.
 - Well prepared to technology transfers.
- IUT students during his scholar cursus and correlated with his personal project, must spend, at least, one long training period inside the professional world and for that, SME are major partners:
 - This training period is under the IUT training team control;
 - This period gives training IUT team useful contacts with companies and opportunities to identify problems and propose actions;
 - The IUT networks with its thousands “enseignant-chercheur” from all specialties can help to contribute.



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Four types of partnership with IUT's

- **Contracts for studies or technical assistance.**
- **Technological platforms that combine in general:**
 - public organizations universities and research centers;
 - Local administrations, department, region ; and
 - private companies, large group, but also SME's, VSE's.
- **Collaborative but pre-competitives projects such as those from ANR, Clusters, Framework Program, Eureka etc**
- **Technology transfer.**



Platforms (1)

Technology platform, scientific and social: The Smart House of Blagnac (IUT Toulouse-Blagnac et al).

➤ **Strengthen the links between research, training and economic actors to promote Home Care and Support for vulnerable people. Focus on:**

- *home automation and usages ;*
- *needs of the elderly ;*
- *hardware design (ergonomics, interfaces, furniture ...) in parallel to the technologies to address them ; and*
- *Ownership by users as well as by the medical assistance.*



Platforms (2)

**The PRODIABIO platform PRO-cédés DIA-gnostic environnemental
BIO-ressources Process-environmental Diagnostic-Bio-ressources
(IUT Lorient et al)**

- **support for business modernization, through a network of educational institutions for:**
 - *economic development for the region, the department ;*
 - *technological and regulatory intelligence ;*
 - *technological advice and support to the technology transfer;*
 - *awareness of innovation among companies and students in 2011: 7 projects over 20 students ; and*
 - *collaboration with the research labs , an example of biogas production by the farmers.*



Cooperation example (1) "hard sciences" specialties

**Bilateral system architectures for tele-echography robot with force feedback
IUT DE BOURGES - PRISME laboratory**

- **Since 1995, PRISME Robotics Laboratory (Orléans) researches and develops various systems for robotic tele-ultrasound**
- **In 2009, a local SME AdEchoTech, develops and markets a tele-echography robot called Melody.**
- **Protech is the result of their cooperation for the implementation of an haptic force feedback which is key for the remote expert.**



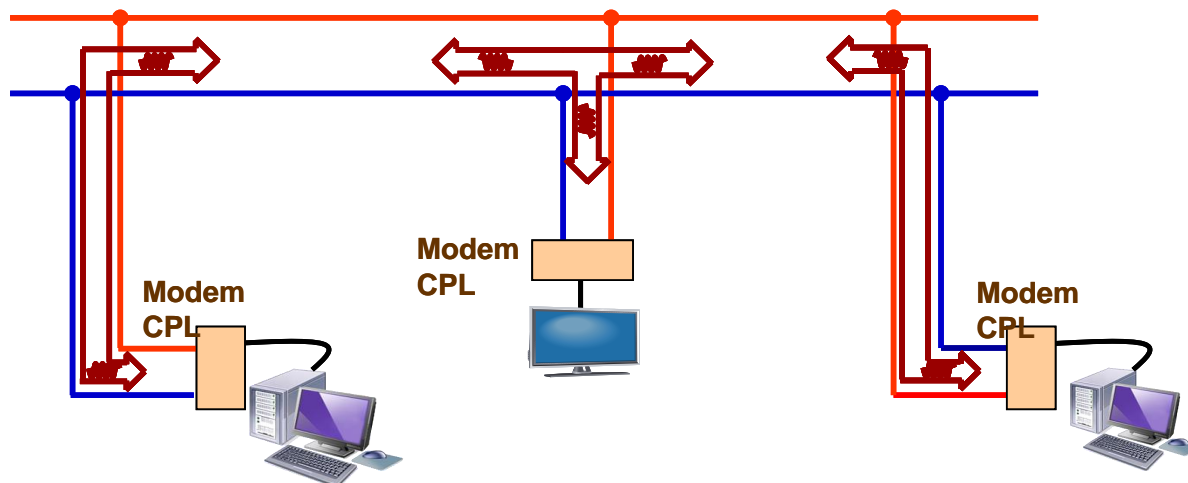
Robot Melody (left) et Protech (right)

Cooperation example (2) "hard sciences" specialties

Digital convergence in the home:

characterization of the domestic power supply network with respect to the transmission Power Line Carrier. IUT de Tours, Greman Laboratory.

- This work was initiated as part of a thesis CIFRE funding, together with the company Digital Applications Laboratory (LAN) an HF-Company subsidiary in charge of independent certification (ADSL modems, GPON fiber and Power Line Carrier, HomePlug AV products).





Cooperation example (3) "economic and social" specialties

**"When the hotels in Alsace introduce themselves on the web"
University of Strasbourg, IUT R. Schuman**

- **Education : Department of Information-Communication of the IUT offers several degrees that combine semiotics, multimedia, publishing, desktop publishing and communication tools.**
- **Students : to explore the professional world through communication actions or tutored projects. Improving web presence for many professionals, especially those who are highly dependent on communication such as the Hotels d'Alsace Tourism Federation (600 members).**
- **Understanding the choice of user when searching on fora, social networks, or "helping" a random chance or using powerful referencing system based upon effective geo-location etc**



Other examples of co-operations

- 1998 creation of a public / private laboratory at IUT Tours with ST Microelectronics, located partly in the company.
- Knowledge transfer from IUT de Valenciennes to Company X for a solar tracker (Robert F., JP Bracard et al.)
- Company Y sells a new building material that has received an innovation award with the IUT Bordeaux 1. This material is a mixture of lime, pine needles and a binder that offers interesting and proven insulating property. Pine needles produced in the huge pine forest in the south west of France and were not collected. The problem is, for the enterprise its supply and IUT has proposed solutions.
- Thermodynamic conversion of solar energy: the experimental platform IUT de Pau (Mr. Alaphilippe IUT de Pau et al)
- Development and transfer of a molecular diagnostic tool for fungal contaminants habitat (C. Marin-Laot et al IUT de Brest)



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Some of key issues for SME & IUT's

- **Intellectual Property Rights, the rules between parties must be clearly identified and resolved.**
- **Contributions to standardization is important to secure innovation**
- **Tax reduction, le crédit “Impôts-Recherche”; in addition to several other items it includes**
 - **R&D&I staff costs;**
 - **R&D&I cost of certified French as well as EU public organizations sub-contractors;**
 - **patents expenses, patenting, maintenance and infringement litigation**
 - **Standardization expenses for internal company products**



Importance of middle cadre position graduated from the IUT's in our economical world

- **IUT is by law a component of the university with specific rules and regulation.**
- **Like university IUT has two pillars, training and research.**
- **IUT students are well prepared to contribute to innovations in all useful domains for their employer.**
- **IUT students are positioned in the hierarchy between graduate engineer and workers.**
- **Middle cadre as others must be prepared to change of work few times in his life.**



Thank you for your attention