UNIVERSITÉ DE TECHNOLOGIE COMPIÈGNE

COSTECH
Connaissance, organisation et systèmes techniques

**Vers une innovation sociotechnique éco-conçue :
cadre théorique et cas de recherche**

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Plan

- Introduction : quelle innovation, pour quel développement ?
- 1 - Un processus de production de valeur (dont la conception) en mutation
  - L'innovation socio-technique … éco-conçue
- 2 - Trois cas de projets de recherches (an overview)
  - *From* Electronic Signature (SES, National Project);
  - *To* managing change in learning sustainable organizations (Pat-DD, Regional Project) ;
  - *And* valuation and acceptability of bio-decontamination of soil (SnowMan, European Project).
- Conclusion : l'éthique est-elle rentable ?

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Introduction : quelle innovation, pour quel développement ?

- Questionnement des liens entre :
  - Progrès technique & progrès social (course armement)
  - Progrès économique & progrès social (PIB/IDH)
  - Progrès économique et progrès environnemental (Erika):
    - La catastrophe écologique fait croitre le PIB.
    - « Le PIB, le thermomètre qui rend malade » (idem pour la comptabilité privée RSFP ?)
- En quoi l'innovation contribue-t-elle (ou pas) à la *finalité* que l'on se donne en terme de développement (économique, social, humain, …)

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1)Des processus de production de valeur (dont la conception) en mutation

- Socio-technical innovation ?

  - Usual : Innovation as *technical* engineering.
  - Alternative : Innovation as organisational, *social* and political *arrangement* (Deleuze).
  - Synthetic : Interdependence of dimensions : need of *socio-technical* innovation approach (Latour)
  - Ex. : the Secured Electronic Signature = algorithmic & politics

- Toward socio-technical *eco-conceived* innovations
  - Ex. : "engineering" social acceptability of technology uphill at the *conception level* of the innovation process (bio-decontamination of soil and valuation of bio-resources by local population)

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Toward socio-technical *eco-conceived* innovations

An approach meant to cross :
- global performance (S. Shiba, 2007) & wealth indicators (A. Sen,1999)
- life cycle thinking (O. Jolliet, 2005)
- sciences of complexity (E. Morin) for management change
    … in order to integrate environmental, social and economic dimensions

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2) Overview of research projects (1) : Secured Electronic Signature (SES)

- SES in the ICare project (Nat.) : *conceiving*/developing/diffusing …
    techno-political devices/arrangements …
        for establishing & *guarantying trust* in organizations and society.

- SES   = Algorithmic + Politics

  - Algorithmic : asymmetric double-key RSA cryptology algorithm relies on mathematics of long prime numbers decomposition. It can not be broken with today's technological capacities

  - Politics (institutional and social engineering/arrangements) :
    - Responsibility, Proof and Culpability : "*can you prove to me that my director will not be able to use my private key (for the use of which I'm legally responsible) ?*"
    - The "engineering" of the internal institution of "third body of trust": "Who keeps the private keys ?"
      - From : a required participation of Union delegates ?
      - To : the 3 among 5 rule/governance of the access to private keys.

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3 research projects (2): Pat-DD

- Pat-DD (Reg.) : Managing change in learning sustainable organizations
  - ◆ Pb. : promoting creativity & involvement in organization requires <u>participative</u> decision making processes that are very difficult to manage
  - ◆ Sol. : "Tools and methods for *participative* eco-conceived innovations and change management"
  - ◆ Ex. : Sustainable Hospital via technical waste prevention and treatment
    - ♦ Association of patients included in the conception team;
    - ♦ Sofware engineering for assisting the management of *participative* diagnosis and implementation

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3 research projects (3):SnowMan

- SnowMan (Eu): Valuation & acceptability of bio-decontamination of soil
  - ◆ Pb. : lack of trust by local population in technological programs for decontamination. Problem of *social acceptability*.
  - ◆ Sol. : a socio-technical eco-conceveid innovation approach
  - ◆ *From* acceptability as "marketing" of already developed technological innovation …
  - ◆ *To* a *socio-technical* eco-conception & project management : acceptability via economic motivation/interessment of people (local business models for bio-mass valuation as energy)

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Conclusion

- Quelles motivations des entreprises pour développer des innovations socio-techniques éco-conçues ?
  - ♦ Compétition par l'innovation : innover (de façon systémique) ou disparaitre;
  - ♦ Compétition par les « publics » : du « risque d'image » à la valorisation des intangibles (40% de val. du CAC 40) (l'éthique est elle rentable ?)
- Tendance macro : vers une écologie de la matière et une économie de l'esprit …

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