UNIVERSITÉ DE TECHNOLOGIE
COMPIÈGNE


**COSTECH**

**Connaissance, organisation et systèmes techniques**

# Une approche du développement soutenable : l'innovation sociotechnique éco-conçue

**cadre théorique et cas de recherche**

**Pascal Jollivet**

***Coordinator of the CRI group in COSTECH***

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***jollivet@utc.fr***

# Plan

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

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# Introduction : quelle innovation, pour quel développement ?

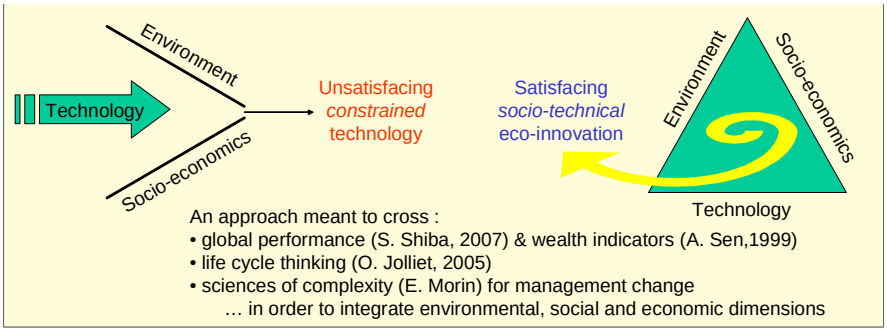
- Questionnement des liens entre :
  - Progrès technique & progrès social (course armement)
  - Progrès économique & progrès social (PIB/IDH)
  - Progrès économique et progrès environnemental (Erika):
    - La catastrophe écologique fait croitre le PIB.
    - « Le PIB, le thermomètre qui rend malade » (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, …)



# 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)

# 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



# 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.

# 3 research projects (2):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)



# 3 research projects (3): Pat-DD

- Pat-DD (Reg.) : Managing change in learning sustainable organizations
  - Pb. : promoting creativity & involvement in organization requires participative 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

# 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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