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Développements de la théorie des organisations: organisations créatives

Jean-Alain Héraud

Professor of Economics
Université de Strasbourg
Researcher at BETA



Organisations

What are organizations?

- Private hierarchies like firms or NGOs
- Public institutions
- Sociological institutions, communities....
- Markets?

Interesting issue for management science but also industrial economics

- Structure of the firm
 - hierachical power,
 - information system,...)
- Organizations of organizations
 - Branch organizations
 - Partnerships (strategic alliances)
 - Subcontractors
 - Illegal agreements like cartels, price fixing...
- Other sorts of economic organizations like trade unions

What is the general functions of organizations (and markets)?

Coordination of individual actions

Hypothesis: several coordinated actors are more efficient than one actor in isolation

Why?: division of labor, economies of scale and scope,...

Modalities: hierarchical power? psycho-sociological control?

Distribution of means of production and revenues

Is it more efficient in organizations (hierachies) than in markets (invisible hand)?

Learning effects

Individual and collective training (formal and unformal)

Decision in organizations

(another *raison d'être* for organizations)

- **How to decide collectively?**
- **Is it more efficient than individually?**
 - **If yes, decision making could be one explanation for the existence of organizations**
 - **If not, is it more difficult? Is it just different? Is it impossible? (we need the boss for that)**

An old issue

1785

ESSAI
SUR L'APPLICATION
DE L'ANALYSE
À LA
PROBABILITÉ
DES DÉCISIONS
Rendues à la pluralité des voix.

*Par M. LE MARQUIS DE CONDORCET, Secrétaire perpétuel
de l'Académie des Sciences, de l'Académie Française, de
l'Institut de Bologne, des Académies de Pétersbourg, de
Turin, de Philadelphie & de Padoue.*

Quòd si deficiant vires audacia certè
Laus erit, in magnis & voluisse fat est.



A PARIS,
DE L'IMPRIMERIE ROYALE.

M. DCCLXXXV.

Collective rationality?

- **Condorcet paradox**

Nicolas de Condorcet (1785)

Example of impossibility in some public votes following usual democratic rules (majority vote), to find a coherent collective decision

- **Kenneth Arrow**

Impossibility theorem: it is not possible to make the aggregation of individual preferences into a collective utility function (welfare) without some dictatorial decision

- Arrow K. J, Social Choice and Individual Values, London, 1951
- Sen A. K., Collective Choice and Social Welfare, London, 1970

Political implication for modern democracies and management structures

- A democracy based on systematic referendum processes is either not possible, or would lead to incoherent policy
- Representative democracy is a possible solution (better than dictatorial)
- Theoretical conclusion: collective rationality cannot be absolute (in the sense of classical economic rationality which is individual): it is **procedural** (procedure's bias)
 - Herbert Simon, James March.

Innovation

What is innovation?

- Learning by doing?
- Organized R&D?
- Learning by interacting?
- Serendipity?
- Breakthrough creativity?

- *Is it all about knowledge?*

Information, knowledge, competencies, wisdom...

Paradigmatic issues

- Mainstream (neoclassical) economic models: OK for short term description, and « business as usual » issues:
 - We can more or less rely on individual optimization attitudes and global market mechanisms.
- But not for long term qualitative change:
 - Here the model is an evolutionary one, based on relatively erratic creative attitudes plus some selection process.

Traditions in economic thought

- Neoclassical school: Marshall vs Walras
 - Economics of exchange or production?
 - Economics « out of equilibrium »
- Marx and Schumpeter: dynamics of systems in history (towards a theory of evolution)
- Knowledge and creativity: What is the source of evolution? The mechanisms? The actors?

Evolution of focus in innovation studies

- Economics of technology (1970s)
- Economics of innovation (1980s)
- Economics of knowledge (1990s)
- Economics of creativity (2000s)



Joseph A. Schumpeter (1883-1950) the father of innovation theories and evolutionary economics

- Principle of “**creative destruction**” (*schöpferische Zerstörung*)
- Main works: *Business Cycles: A theoretical, historical and statistical analysis of the Capitalist process* (1939); *Capitalism, Socialism and Democracy* (1942)
- Innovations according to Schumpeter:
 - New markets or products
 - New equipment
 - New sources of labor and raw materials
 - New methods of organization or management
 - New methods of transportation or communication
 - New methods of advertising and marketing
 - ...

Models of innovation

- **Schumpeter.1** Exogenous source: the *entrepreneur*
 - the emergence of creative actors is not explained within the economic system
 - "an outsider who enters the economic system guided by animal spirit" (Antonelli, 2015, p.111)
- **Schumpeter.2** Endogenous mechanism
 - The creative manager: R&D and routinized innovation
 - Product innovation is the result of the strategies of incumbent corporations, no more the exogenous creation of new entrepreneurs.

Schumpeter 1 + 2

Antonelli, C. (2015) “Innovation as a creative response. A reappraisal of the Schumpeterian legacy”, *History of Economic Ideas*, 23(2): 99-116.

Schumpeter J.A. (1947) “The creative response in economic history”, *Journal of Economic History*, 7(2): 149-159.

Other traditions

- Romer etc. theory of *endogenous growth*
 - a pure «economics of knowledge» approach
- *Evolutionary school* (Rosenberg, Freeman, Winter, Dosi, etc.)
 - Initial **Darwinian model**: explains selection, not creation; no intentionality
 - More relevant models of routine selection within organizations
 - The quest of a more systemic and relevant approach: creation and selection of ideas intra and inter organizations

A managerial approach: James March (1991)

- « Exploration and exploitation in organizational learning », *Organization Science*, 2(1) 1991 (71-87).
- Static vs dynamic optimization:
- « Both exploration and exploitation are essential for organizations, but they compete for scarce resources... They make implicit and explicit choices between the two »
- « The trade-off between exploration and exploitation in mutual learning involves conflicts between short-run and long-run concerns and between gains to individual knowledge and gains to collective knowledge »

Creativity

Richard Florida

popularized the term *creativity*

Since then many cities and other territories have tried to develop *creativity* policies in order to boost local economic development, sometimes to reinvent a collective vision after a crisis



- Richard Florida (2002): *The rise of the creative class*
- To sum up:
 - in the knowledge-based, innovative world – contextual situation of the developed countries -, creative people are the most important asset.
 - Jobs follow creative people: economic development crucially depend on them, for designing, producing and even consuming innovative products or services.
 - If you have not enough of them, try to attract them!
 - People's climate: they need many sorts of urban amenities, but - most important - they like cultural variety and places where their talents can develop with few constraints. Be tolerant!

Measuring creativity

People to be included in the « creative class »

- Scientists
- Entrepreneurs
- Managers
- Consultants
- Designers
- Writers
- Artists
- etc.

Creative class typology

Source: S. Chantelot

Creative Core	Directly involved in creative and innovation processes créatifs	R&D Intellectual Supply
Creative Pro	Manage and foster change and innovation	Entrepreneurs B to B Management
Bohemians	Directly involved in artistic productions	Arts, Culture Design Medias

A very basic and widely accepted definition of creativity

- Creativity corresponds to a positive mental attitude towards anything that is new.
- "*Creativity is the ability to produce work that is both :*
 - *novel (i.e., original, unexpected)*
 - *and appropriate (i.e., useful, adaptive concerning task constraints).*" (*)

(*) Sternberg & Lubart: *Handbook of Creativity* (1999, 2008)

« *Novel and appropriate* » ?

« Before you build a better mousetrap, it helps to know if there are any mice out there »

Mortimer B. Zuckerman, quoted by Williams&Yang in Sternberg *et al.* (2008) in the chapter on *organizational creativity*

Comments:

- If you invent a better mousetrap, you can patent it (this is *technological creativity*)
- But if there is little or no use of it, you will never get an innovation in the sense of Schumpeter (*economic creativity*)

From idea to innovation (or not)

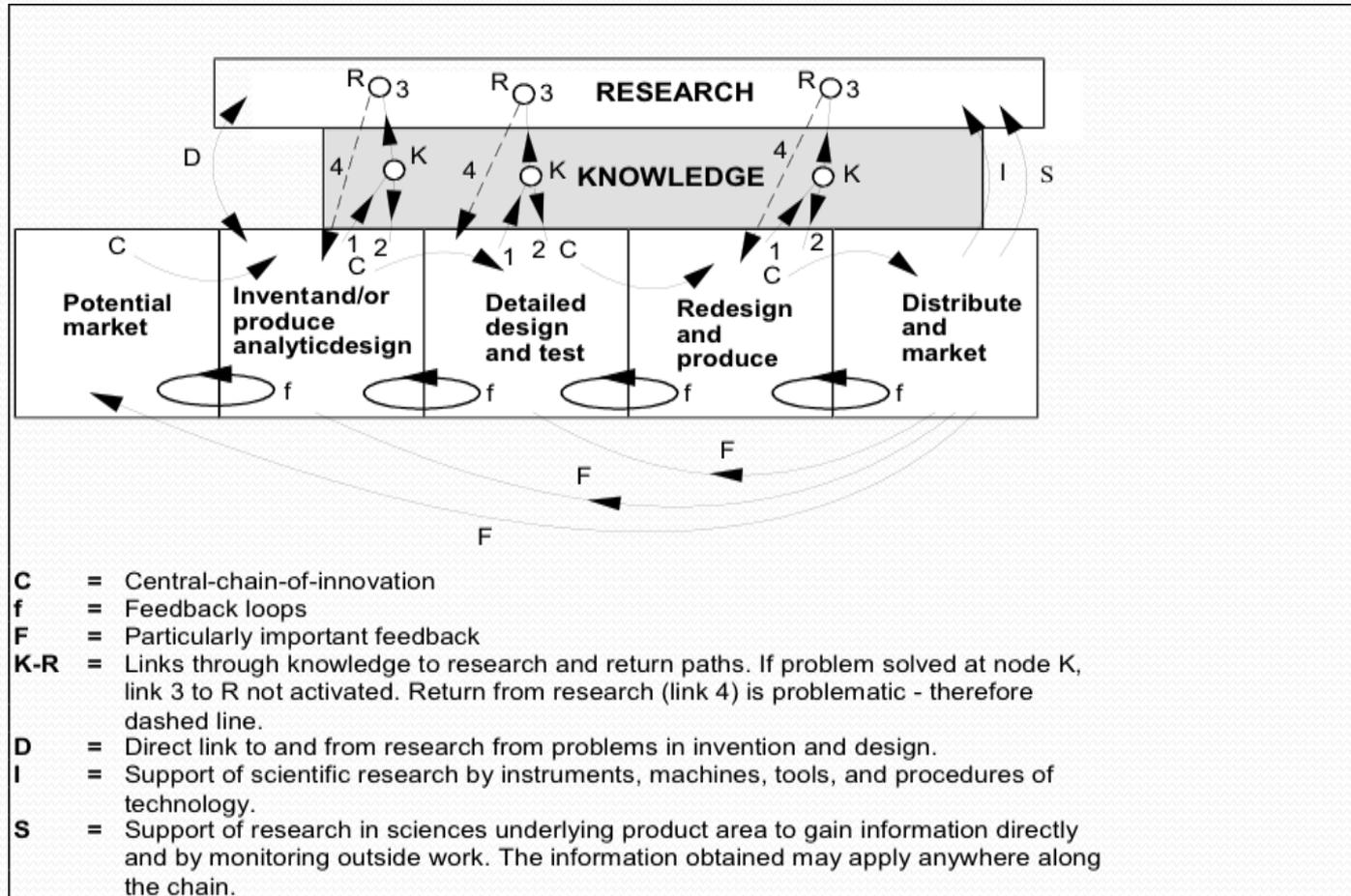
<i>Idea</i>	Not relevant for anything known	Relevant for something known
Not new	/	Business as usual Nothing to be ashamed of: you can earn money and/or help people!
New	Not interesting (yet) for economy and society Can be interesting for science, philosophy, arts...	Creative idea Could lead to innovation if « allies » can be found

Exemples de créativité in different domains

Domain	Activity	Results <i>measurement</i>
Science	Research (basic, possibly finalized)	Discovery <i>publication</i>
Technology	Applied research	Invention <i>Patent</i> <i>(Not systematically)</i>
Economy/ society	Industrial and commercial development	Innovation <i>Sales, profits, employment...</i>

“Chain-linked model”

(Kline & Rosenberg, 1986)



Conclusion on knowledge and innovation

- Knowledge creation and knowledge circulation are at the core of innovation processes, but not only, not necessarily, at the upstream end (R&D)
- Knowledge is not enough; an engine is necessary to move it, translate it, recombine it... This is the role of organizations : firms, institutions, cities...
- Every sort of knowledge can reveal useful, formal knowledge (*know what*) as well as tacit knowledge (*know-how*).

And something more than knowledge is required

Project management and collective creation

Innovation needs knowledge *and* vision

- A vision is a representation of a possible future
- Without knowledge, it is impossible to realize any plan leading to any desired future
- But planning with existing knowledge leads to nothing really new
- Knowledge is precious but not enough; in certain cases focusing on knowledge is the best way to kill creativity

A « creative » approach of management: Saras Sarasvathy's model of entrepreneurship

The opposition of two principles of project management

- **Causation** : selecting the right means in order to achieve a given aim.
- **Effectuation**: selecting possible desirable aims given the means we have

The first is focused on optimization processes using the knowledge we have. The second takes into consideration what we have and what we know, but focuses on possible futures:

- preparing for future information (*foresight*)
- seizing opportunities (*serendipity*)
- changing the environment rather than fitting to it (*proactivity* instead of reactivity)

Exemple: creating a new market rather than fighting for a share in the existing market.

Some examples

Causation	Effectuation
Reach clients Exploit the market	Design clients Create the market
Analysis of competitive situation	Looking for partners and allies
Estimated yield	Acceptable costs and risks
<i>Exploitation of old certainties</i>	<i>Exploration of new possibilities</i>

Some characteristics of the world of optimization rationality and of the world of breakthrough creativity

Optimization rationality:

Exploitation, relevance, causation

Breakthrough creativity:

Exploration, novelty, effectuation

realization

imagination

implementation

design

efficiency

curiosity

planification

serendipity

selection

variation

Individual or collective creativity?

- **Innovation** is not an individual achievement
- **Creativity** *in the upstream part of innovation* process can be individual but is also often a collective phenomenon
- The role of *knowledge communities* is central, at least for preparing the ground to radically new ideas
- *Communities of practice ; epistemic communities*

Communities of knowledge

- Knowledge is produced in communities: scientific communities but also "communities of practice" (Wenger), "knowing communities" (Boland, Tenkasi), "epistemic communities" (David, Cowan, Foray, Cohendet...
- Nonaka & Takeuchi have proposed an interesting cycle of knowledge translation and production (codified-tacit-codified...) within organizations.
- Communities overlap institutionnal borders.
- Individuals can therefore work as "boundary spanners" of their organization or "knowledge brokers" between organizations, with the help of the communities they belong to.



Epistemic communities



Cowan, David et Foray [2000] define epistemic communities as *« small groups of agents working on a commonly acknowledged subset of knowledge issues and who at the very least accept a commonly understood procedural authority as essential to the success of their knowledge activities »*.

An epistemic community deliberately aims at creating new knowledge.

Epistemic communities can be found in scientific, industrial (designers for instance) and artistic milieu (*« schools »* of painting, music, schools of cooking, fashion, etc...)

Management issues

Quiz

When you hire a CEO, will you mainly look for:

- 1) A pleasant person?
- 2) A learned person?
- 3) A creative person?

Answers

(quoting Sternberg & Lubart)

- 1) « it's hard to be perceived as pleasant when you may have to fire 20% of the company »
- 2) « they use computers or subordinates to remember the details for them »
- 3) Please hire them « for their creative vision* of how to turn a company around »

* Schumpeter insisted on the difference between a *manager* and an *entrepreneur*. The latter has a vision; he wants to change the world.

How to "think out of the box" when you are in a box or when you manage a box...

- Is it enough to have a creative boss?
- Now to make an organization creative if the definition of "organization" is "set of routines"?



Now the point is:

Creative boss does not automatically mean creative organization

- The main thing he/she should be creative at is innovative management: *organizational creativity*
- The boss is not the only one who can have ideas, but he/she is the one who makes the “go-no go” decision at the end of any creative project
- The principle is to be *tolerant* with any new idea (internal/external) as long as it is not lethal for the organization
- Many ideas come from **outside the hierarchical system**: to let them cross the boundaries, “knowledge brokers”, “*passeurs*” (smugglers), “knowledge angels” (*) are needed

(*) Muller, Héraud, Zenker (2013, 2015)

The importance of translation mechanisms

- Impossible to create out of nothing
- New ideas – even breakthrough novelties– come from somewhere
- Imagination is the result of an abstraction mechanism: coming from an experience in a given domain, then applied to another context where it didn't exist before
- Hence the analogy with *translation* (which is never pure copy-paste); value is added by adapting; it sometimes leads to brand new representation
- Knowledge brokers are smugglers

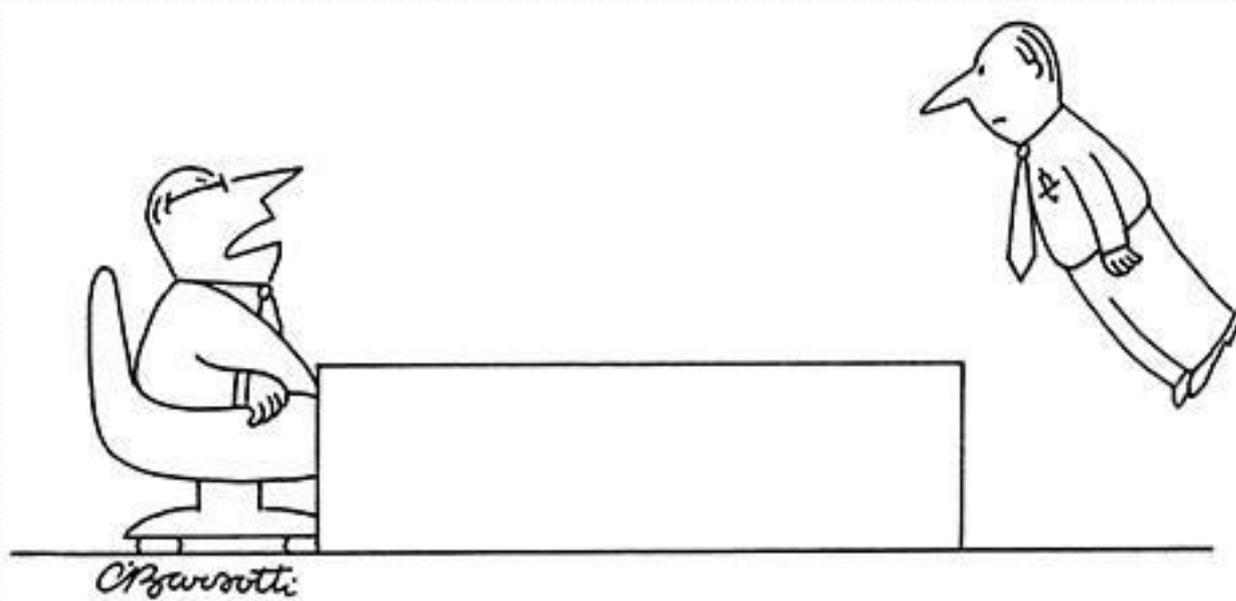
Looking for creative smugglers

- Are there individuals and organizations who are particularly gifted for knowledge import-export, excelling at designing relevant translations.
- Consulting firms are used of developing multiple experiences with varied clients and therefore can accumulate a consistant knowledge capital. Studies (e.g. Strambach, Muller, Zenker...) have showed their role in regional innovation systems
- Are there individuals playing an important creative role within such firms?

Knowledge Angels



Knowledge Angels?



"This is a business, Harris, no place for magical thinking."

References on Knowledge Angels

E. Muller, A. Zenker, J-A Héraud

Knowledge Angels: fostering innovation in knowledge-intensive business services through creative individuals

Observations from Canada, China, France, Germany and Spain

Accenture award for research papers in economics and management of innovation, March 2013

Published in *International Management* 2015 (N°19, 201-218)

BETA (University of Strasbourg, France)

ISI (Fraunhofer Institute ISI, Karlsruhe, Germany)

Business services as central actors of innovation

- We can consider here all sorts of business services (BtoB), but we tend to focus on the ones that are particularly “Knowledge-intensive” (KIBS, following the definition of Miles)
- Nevertheless it is not necessary to be an R&D firm to contribute to innovation. Every sort of knowledge, even unformal, can be *creative*
- *Knowledge transfer* is the role of KIBS, but innovation is triggered by more complex processes. KIBS are more than pure knowledge transmitters. The cognitive process is not linear, but *systemic*.

Knowledge Angels

as central actors of KIBS activity

- We will see how KIBS foster innovation by a series of *knowledge transformations*: this is fundamentally a *creative* activity.
- The knowledge transformation occurs through *translation* processes, involving a heterogeneous set of actors and contexts, outside and inside KIBS.
- Certain individuals have, more than others, the capacity to bridge knowledge systems: they can *translate*. Since translation always involves a form of transformation (adaptation to another context), it is potentially creative.
- Such a cognitive role cannot be performed by machines or organizations (the organization is a set of formal procedures or implicate routines). We need gifted individuals: KA.

How can KIBS be creative in problem solving activities?

They do not necessarily invent new solutions for *generic problems* (leading to patents, copyrights...) but:

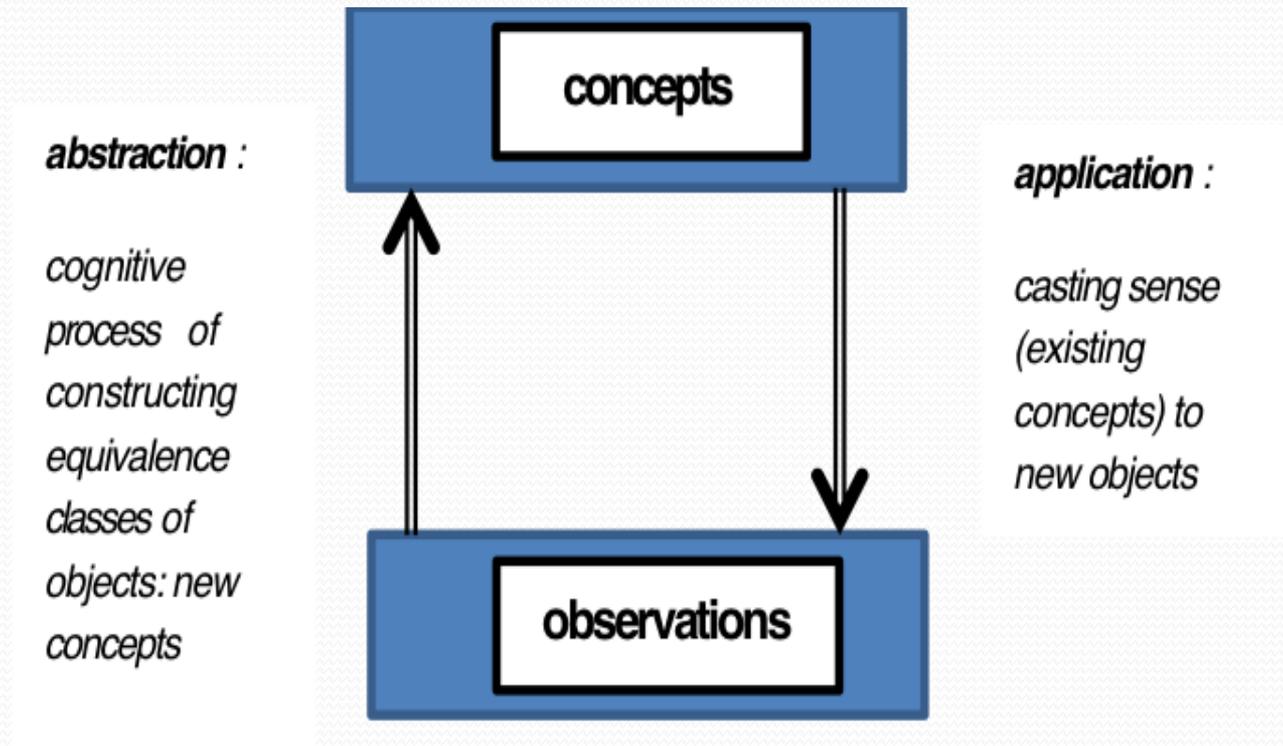
- If a consultant applies a good solution observed in a context to another context, it is a form of *novelty*.
- Furthermore, if the consultant is a good professional, the application will be *adapted* to the new client's context: the solution is *appropriate*.
- This is not simple knowledge transfer (ordinary problem solving), but *creative adaptation that could lead to innovation at the client's level*.

Are consultants simple knowledge brokers or knowledge translators?

- Metaphore of the **language**
 - To translate is not to copy-paste in another language
 - In translating you learn : because the process raises questions about the subject, defies your own language; can lead to errors (and there is always something to learn from errors); etc.
- Translation is also creative because it forces to abstract from a context before applying to another. You get closer to the essence of things.

Cognitive scheme

Observations are not purely recycled, they must be conceptualized



How can some individuals be vectors of creativity in the KIBS business?

- Some individuals have to a high degree the capability to recognize that a particular problem or a particular solution belongs to a **general pattern**. This pattern is the link between different concrete situations. A process of translation is now possible.
- Such a **wisdom** (it is more than pure knowledge) allow them to propose the **translation from one context to another**:
 - Problem A is perceived as similar to problem B in a certain way; therefore an existing solution for A could maybe be adapted to B.
 - Solution X seems to have general properties; why not adapting it to other contexts?
- This is the specific way in which **KIBS can be very "innovative"**. (Of course, the final innovation will be at the level of the client firm, as well as its implementation and the economic risk).

Typical profile of KA

- Observations not very surprising : relatively conform to expectations from the theory
- Individuals with strong implication and devoted to the KIBS, but very *autonomous* and belonging to multiple *communities* within and outside the firm (sometimes multiple competencies like engineering and management)
- They have a close relationship with strategic management of the KIBS but want to be often on the field (visiting client firms, research centers, policymakers, etc.) and like do the work (projects) by themselves
- Other key words:
 - Freaks, vision
 - Freedom at work; trust co-workers
 - Multi-tasking
 - Acceptance of risk and potential failure
 - Relying (also) on intuitive decision

National bias

KA profiles revealed relatively similar in every region, but slightly biased towards certain aspects of the theoretical profile:

- China: “solution provider”
- France: “idea giver”
- Germany: “knowledge broker”
- Spain: “facilitator”
- Canada: “business pusher”

Thank you for your attention

heraud@unistra.fr

jaheraud.eu