THE INFU PROJECT

ABOUT THIS DOCUMENT

- Feedback from talk Session with:
Systhesis fromISTIA Workshop– v1.0.
To be contributed to INFU Project Workpackage N°3, Task n°3.1.

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I – ABOUT THE INFU/ISTIA WORKSHOP

The rationale behind the exercise

The ISTIA Workshop directly follows the series of interviews tasked by the "Automatising Innovation" mini-panel of the INFU Project.

There was a basic underlying assumption in the collection of the seven interviews, namely that the seven interviewees would together a priori cover the three Visions put forward by the INFU project as per "automatising innovation" and also that each expert would carry a specific dimension, a technological or cultural factor that is a priori not nominally carried by any of the the others.

In so planning, we meant to explore the maximum spaces for the aim at hand while ensuring that the methods and approaches provided by interviewees did not collide from an a priori redundancy. However, we did not at this stage prune out any opinion that could lead to a possible contradictory or redundant position nor did we add "side" issues of relatively less importance. Such "second level" appreciation would in fact be left to the Workshop experts themselves by assuming they would take a neutral approach with respect to the individual inputs.

The objective of the ISTIA workshop was threefold:

- To skim through the full content of the seven raw interviews and to extract the salient ideas, signals and other elements that either denote a clue for automatising innovation or present a pre or post-condition for same purpose.
- To evidence the possible overlaps between interviews and stress their cross importance as par the automatising of innovation.
- To secure, explain and carry forward any individual point that seemed of paramount importance, even in the case it was never echoed by any of the interviewees. The assumption behind is that innovation is still craft - even if a number of established theories and reference practices backs portions of the discipline. Hence the cultural dimension, although still much intractable by automated means, remains overwhelming and no aspect that appears plain shall be dismissed without a collaborative discussion about it.

Logistical points and the animation

A physical workshop was held on Wednesday 10 November at ISTIA, Angers (FR), from 14:00 to 19:10 on behalf of the INFU Project with a view to harness the sum total of the input basket of the seven interviews held over Round 1.

The mini-panel responsible was Patrick Corsi who served as:

- the animator of the entire workshop process, whereby each participant obtained a paper copy of the full seven interviews content beforehand. An email version was sent to each early morning for the individual preparations before any discussion.

- the workshop secretary.

The workshop participants

ISTIA Innovation – Institut des Sciences et des Techniques de l'Innovation d'Angers

- Dr. Hervé Christofol: a specialist in innovation design, systemic approaches and methods and creativity processes,
- Dr. Cécile Gros, a researcher in convergent technologies for innovation,
- Dr. Laurent Saintis, an engineer and researcher in quality processes,
- and interviewee Pr. Dr. Henry SAMIER, Director of ISTIA Innovation and a long time international expert on Web 2.0 intelligence and Internet search methodologies, techniques and tools.

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Nota Bene. Two other team members were absent and were included in the loop a few days later by commenting back this report. Their names are :

- Dr. Pascal Crubleau, a national expert on TRIZ innovation methodologies,
- Dr. Antony Delamarre, a specialist of creativity methods in innovation /

All the above team members are full tenure academics, yet have developed intensive R&D programs with industry for innovation purposes from their University positions.

I –WORKSHOP'S OVERALL FINDINGS

The workshop collected and enhanced the following top level keywords as the ones that together best characterise the ensemble of the interviews contents:

- Culture
- Process - Technologies
- Organisation - Structure
- Links – Openness
- User (game, emotion) – Needs
- Multilevels (in automatising)

The workshop was able to pick up a number of salient points that overshadow others and this is related below in this document.

II –EXPERTS HIGHLIGHTS

We tabulate below each respective expertise from the experts who were contributively interviewed.

Expert code	Expert name	Key a priori contribution for A.I. mini-panel
A	Armand Hatchuel	Formal approaches and methods, systematisation
B	Hervé Mathe	SMEs, start-ups and economy
C	Marc Gruber	Large corporations, structured models
D	Mats Magnusson	Services, large stakeholder models, global issues
E	Simon Richir	Virtual reality and virtual environments

F	David Gann	Technology convergence, automation technology
G	Henry Samier	Web-based methods, techniques and tools

The ISTIA Workshop highlighted the following highlights for each interviewed expert.

1. Expert A

Overall positioning of the contributions.

The CK Theory amounts to an excellent theory that brings about an illustration of the well-known TRIZ methodology, which is based on logic and data for accelerating a team's ability to solve problems creatively. It's a constructive approach that builds solutions by confrontation to a problem.

Major unique contributions

1. Evidences the Knowledge Traceability Principle (KTP).
    - This becomes a tool for explicating, argumenting and can be used for simulation. Whenever a variety of possibilities are generated, this principle enables a capacity for their explicitation that is often not sufficiently done when justifying the choices.
    - In the "linear" chaining *Implicit ←→ Explicit,* the KTP supports backtracking, that is a smoothing out of ruptures.
2. Systematises and channels creativity and forges a "discovery matrix."
3. It deepens the notion of space.

Issues to consider

- While the approach has been perceived by ISTIA experts to be centred on artefacts and to remain anchored on linear functions, thus presumably belonging to the category of problem-setting and problem-solving approaches,

  Expert A provided complementary information afterwards as to redress the above perception:

    - *"This is a misinterpretation! The C-K theory does not belong to a problem setting approach (see paper from Simon). All "problem-based" approaches ignore the notion of "concept" and its undecidability, which is key to the possibility to break a code! The notion of "linear function" for the C-K theory is also due to a lack of information about the theory: the C-K theory cannot be linear as it [PC: explicitly] describes the generation of unknown objects that cannot be deduced from initial knowledge!"*

- While the C and the K spaces are well identified, this seems insufficient. There lacks a third "activating" point, which can be phrased as the societal aim, the user need, the end goal, etc.

  Expert A provided complementary information as to redress this perception:

    - *" "societal aims, end goals or user needs" only exist through the knowledge that designers, decision makers or even consumers have about them. And such knowledge has no reason to be clear or non contradictory and may often take the form of an undecidable myth (for example: "to develop nanotechs"). The C-K theory precisely explains why this is not an obstacle to the innovation process and is in most cases a good driver for the formation of concepts. Thus the theory acknowledges the largest variety and the historical change of "activating" points for the innovation process. This implies to renew the standard history of innovation processes."*

- The putting into use of the method seems at the moment a bit uneasy. Ways of animating a multi-disciplinary team of designers remains unclear.

  Expert A provided complementary information afterwards as to redress the above perception:

- "*It would be more accurate to say that the putting into use of the method needs an appropriate training (a two days course at minimum, one week is a good introduction, to become a confirmed user requires several experiences). The animation of a multidisciplinary team is well-routinized for the KCP methodology which has a precise logic. And we clearly think that there is no universal way for "animating" and that we have to animate consistently with the specific logic of a process. It is nonsense to animate a KCP workshop in the same way as a "brainstorming" seminar, as their two logics are built on very different social and cognitive hypotheses. A common mistake is to use the same animation technique whatever the socio-cognitive aims of the group may be.*"

- The notion of *value* remains vague.

Expert A provided complementary information afterwards as to redress the above perception:

- *"And it has to remain such! Otherwise most breakthrough innovations would not exist, as they always convey the generation of new values! Yes, we often assert in our societies some fundamental values, but this does not mean at all that we can close for ever the meaning of these values: freedom, or quality of life, for example, are always redesigned!"*

- *"I hope these elements will help to clarify the specificities of our approach that may be disturbing when examined with the lenses of classic Simonian, social or economic views about innovation processes. And I indicate that a recent 2010 special issue of the "Entreprises et Histoire" Journal confirmed that our approach enhances the analytical capacity to understand the history of innovation processes."*

(End of additions from Expert A.)

Further interesting point

We recall SEB Company used the CK theory for designing an ironing system that resembles a mouse.

2. Expert B

Overall positioning of the contributions.

The expert emphasises the Pull approach by coring on needs, usages and the motivations behind.

Major unique contributions

1. Given the decisive pull orientation, expert reverses an often-practiced innovation game from a technology discourse to a user-centric view and even further to a distributed-user view. Innovation becomes a collective learning and intelligence endeavour that is rooted by networks.
2. The "Champions" of the enterprise is an irreducible notion. Both as e.g. a trouble maker and a leader. (NB. The notion exemplifies the necessity for just any team to include "a prime minister (i.e. the Champion), an internal affairs minister (the project manager) and a foreign affairs minister (the usage side).")

Issue to consider

1. The solution orientation evidently calls for Open Innovation schemes. Why not then, opening innovation schemes straight and in full? For instance, ALESSI's 200 researchers are/must be 200 merely finders…

Further interesting point

Expert has nicely put into perspective a way to align policy makers with innovation strategies. Fact is that, in a democracy, voters are chiefly concerned with usages!

It seems useful to couple the Pull orientation with the traceability principle of Expert A.

3. Expert C

Overall positioning of the contributions.

Expert follows very much an inductive approach.

Major unique contributions

1. Process is much enhanced, with an information flow representation. To innovate is to link up.
2. Detecting weak signals leads to organising the perception of weak signals. And this remains outside the work of imagination.
3. Culture is what brings *meaning* to the fore. This re-valuation repositions the entrepreneur in the man-technology-markets triptych where man is better placed at the centre. Changes are not automatic and only your culture can enable their interpretation. It is organisations, and their structures, that will give meaning.

Further interesting point

Expert comes close to expert B with the overlapping notion of collective intelligence.

4. Expert D

Overall positioning of the contributions.

The two ends of the "innovation chain" (upstream: terminology; downstream: a clearer interface) are emphasised.

Major unique contributions

1. Terminology is a key issue that is not clarified yet. It should be a good thing to search for classes or neighbours. More generally, the word innovation isn't suitable.
2. There's value in standardisation. Modularity implies that a development is possible from terms and references. When a standard is available upstream, the component is automatisable.

Further interesting point

Expert indirectly and implicitly stresses the fact that we can only innovate in our mother tongue. Languages differences create different linguistic spaces while creativity is based on language. Creativity is born from a non-understanding, a gap in "linguistic potentials". As an example, an "Alfa Romeo innovation" and a "Porsche innovation" are two different innovations.

5. Expert E

Overall positioning of the contributions.

Coring all on virtual environments. Virtual reality is a medium linking up stakeholders from designers and developers to users.

Major unique contributions

1. A virtual environment enables the picking of applications. This provides a metaphoric approach enabling applications through a virtual library that goes through three steps:
    a. to think and create from imaginary spaces,
    b. to mentally visualise,
    c. to virtualise.
2. Automation comes through visualisation within a common collaborative space. Any innovation is then born from vision and sharing. Innovation should be "felt" but not through simulation. Which means that decision levels aren't the same when going virtual. There's going to be a resistance to innovating that is structural and managerial.
3. This is automation through properties. There exists underpinning links among the virtual elements. Hence automation is seen at a high level.

Issue to consider

1. Technological barriers exist. SMES present an appropriation barrier.

Further interesting points

Automation has been here envisaged at a level higher than from the other experts. The Windows Office companion represented a "Japanese style" of automation, i.e. anthropomorphic. A traditional western view of automation would be the automaton prototype that becomes diffuse and ubiquitous (i.e. HAL, the sci-fi ubiquitous computer).

Dassault's 3DVIA free of charge virtual platform is a good example enabling the development of applications from virtual spaces.

6. Expert F

Overall positioning of the contributions.

The only expert to introduce "play" in the innovation realm.

Major unique contributions

1. Play is introducing both pleasure and the risk taking, two notions that compensate each other. Un-inhibiting innovation through Play opens up a behavioural space that leads to creativity.
2. Innovation isn't a binary affair, it's about measuring an innovation degree.
3. Evaluation is a powerful mean to build links between a working hypothesis and a tester's (or validation) appreciation. The link to build resonates with needs, input information sources, disciplines, crafts and people.

Further interesting point

The last four elements are an oxymoron.

7. Expert G

Overall positioning of the contributions.

The only expert that decisively considers the web at the centre of an innovation process.

Major unique contributions

1. "The web looks at you, you should adapt to the web." Which means that it is the customer who makes happen what he wants or desires. Customer co-produces.
2. We go beyond a guiding method: the "web-way" is opportunistic, reactive and creative. The innovation path is therefore not predictable but it is instead built while doing it.
3. The web becomes a formidable acceleration factor. There's a fractal behaviour in its dynamics. The method reflects the Knowledge Society and its practice is common reality. It is a configurable method.

Further interesting point

Again, value resides in linking within the Web.

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