The design of Innovation, two challenges for the design profession

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The design of Innovation, two challenges for the design profession: the challenge of a design based on research and the challenge of the dynamic of transition from the model of «industrial economy» to model of the « individual economy ». Innovation is an organisational competence and not an individual affair. The key factors to the success of innovations must be learnt by heart and it must be studied how to make companies more innovating.

Introduction: Remembering fundamentals

It is time for reflection on innovation and research around the world. What will be the place of designers in all of these devices? In fact, it would seem that innovation is a problem for designers that only concerns product design. In other words, innovation has changed its nature, it is no longer technological. Therefore, to restrict the links between design and innovation to only product design or industrial design is a sign of ignorance on the part of designers of the reality of innovation today.

On the other hand, we satisfactorily see that design has gained recognition as an actor of innovation. Examples such as the European programme *Design for Future Needs* have proven the relevance of the design development in prospective.

Several pedagogical projects seek to approach engineering design colleges in courses of innovation. Design is beginning to be recognised in the sciences of conception. Engineers have opened the doors of their schools to designers, but not the doors to their laboratories. It is the engineering sciences that reap the fruit of this collaboration between designers and engineers. In fact, design is no longer a recognised actor in research programmes. Innovation is related to basic research and this link seems still to be ignored by designers and design schools.

Furthermore, a new concept, a prototype not yet commercialised is still an invention, not an innovation. Creation cannot be dissociated from the dynamic of setting up this creation within the social tissue.

Two points are fundamental for design today. First of all, innovation concerns all designers and not only product designers; next, the place of design in innovation depends on the force of the perception in the contemporary economy.

Designers of any discipline

A *Quiz* to help you place design in innovation.

	True	False
Innovation is only technological		•
Innovation may be organisational	•	
Innovation is a strategy reserved for leaders		•
Innovation is linked to the culture of the organisation	•	
Innovation is managed in a multidisciplinary project team	•	

Innovation is therefore not reserved for an elite in large companies, but is rather linked to the culture of innovation, to a strategic will and specific management competences. The capacity of design to change the organisational culture is therefore as important as conceiving new concepts.

The relationship between design and innovation must also be seen from « design thinking ». Design lies within innovation through its capacity to imagine future scenarios, but also through its capacity to accompany and cause change in line with changes in the environment.

Innovation concerns all disciplines of design. For example, the creativity of a company can be developed by calling on product designers, but this collective creativity can also be developed by resorting to environment designers who conceive work spaces facilitating project groups, the circulation of ideas and reduce the time for market entry through space design.

Innovation is what is perceived as new by an adoption unit

In innovation, what is new is what is « perceived as new ». A new development may be new for a market or for a company without being new for the world. The context of an innovation project must therefore never be ignored.

For example, this means that a company working with a designer for the first time perceives this first collaboration as an innovation, an apprenticeship in managing innovation before becoming a product or packaging innovation. This means, for instance, that a company can perceive collaboration with a star designer as an innovation to allow it to enter a new market, when this form of collaboration is daily on another, more fashion-oriented market.

This perceived dimension of innovation explains the importance of design disciplines other than industrial product design. For example, expertise in graphic design, interface design and experience design change the perception of products on markets. These designs enable innovation in the "CRM customer relationship management" without necessarily inducing product innovations.

It must also be remembered that perceived quality has become the leitmotiv to test the basis of an innovation. Our post-modern economy is an economy of perception, an economy of reputation or a society of aesthetics.

After this reminder of the fundamental, how might we sum up the place of design in innovation today? In the following, we will see new models of the research-based or knowledge-based design process and their place in the theoretical models of innovation. We will then seek to present their advantages and limitations.

1 Design research and design project theories

1.1 New models of design research and design theories

Design is a conception process that is also an innovation process based on theories: « Theory matters ». What are the relationships between design theories and innovation models? Or between design theories and the theories of conception sciences?

C.Peirce's semiotic model, is an interesting framework. For Peirce, all signs or artefacts are three-dimensional systems: the structural or cognitive dimension, the pragmatic or functional dimension, the symbolic or relational/sense dimension. In this three-dimensional space of the sign and therefore the design product, the creative process tends to enhance a dimension of sign in the theory of the design project.

Let's take the theories of the design project as they are presented by Alain Findeli in his work as a design historian. He classifies the design project theories according to three historical stages (figure 1):

Stage 1: object-focused design project
  This brings together the object-based theories and the product of the design project

Stage 2: process-based design project
  This brings together the theories based on the process, the direction or the logical structure to be adopted throughout the project

Stage 3: actor-based design project
  Developed from theories based on the actors, the agents or the parties taking part in the design project

Alain Findeli talks of our time as a time of « the eclipse of the object » in the design project. At the current time,

the designers are giving priority to the actors in place, the users, and import knowledge and concepts from social sciences to observe and invent new scenarios of use. We also even talk about co-conception with the user or « experience design ».

We might also make a summary table (Figure 2) to show that in time, the triadic dimension has caused a parallel phenomenon of bringing in related sciences to feed the creative process and justify the belonging of design:
In phase 1, creation is focused on the object and therefore the form and art sciences: formal innovation
In phase 2, creation is focused on the process and therefore on the conception sciences arising from engineer sciences
In the current phase 3, creation is focused on the actors and therefore on the social sciences, and particularly on ethnology and anthropology

This framework is useful for analysing innovation as it is seen by the designers. By simplifying to an extreme, we could say that depending on the time, designers have had a tendency to give more importance in the development of creation to one or another of the three dimensions of the sign that is all forms, and the related scientific field.

In each period of the design project, the project theories approach one or another scientific field that appears as more relevant in feeding creation. Therefore, at the present time, it is « user oriented design » or the field of social sciences that is in fashion.

As the design project is fed by upstream research methods from other scientific fields, design education and practices become more and more research-based

This strengthening of the phase upstream of the design project and research accompanies the designer-based profession that is changing paradigm. From a project-based profession, it becomes a knowledge-based profession. This leads to the knowledge design, as summed up in the
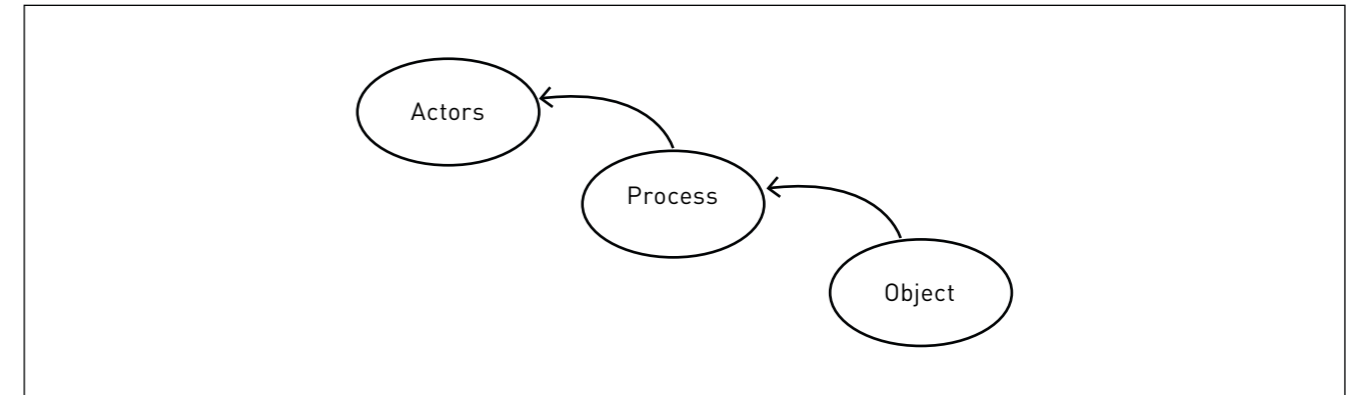
Figure 1: The design project theories according to Alain Findeli's historical analysis

following table, which recaps the three design project phases with the scientific knowledge and design project methods associated with each phase.

This rising power of design research is important proof of the maturing of the design profession; we know that research is one of the founding pillars of a profession's organisation.

1.2 Design driven innovation methods

What about the design project theories of our times? We might sum up by saying that design innovation is currently based on three currents, one of which is dominant.

A. *"User Oriented innovation"*
or the dominant design project current .

This current is similar to several innovation methods through the observation of the users. It lies in the techni-

	Phase 1	Phase 2	Current Phase 3
Focus on the design project theory	Object-based design project	Process-based design project	Actor-based design project
Semiotic model by C.Peirce	Semantic dimension	Structural dimension	Pragmatic dimension
Innovation	Brand driven	Technology driven « design science » Herbert	People driven « User oriented design »
Design research	Theories of form. Metaphor narration. Gelstalt theory.	Simon Model Pahl& Beitz engineering design	Fuzzy front end "Person". Scenarios
Annexed sciences	Plastic arts Applied arts	Engineer sciences	Social sciences

Figure 2: The three phases of the design project and their associated knowledge

ques developed by the professionals gathered under the term *"User centred design"*, often under the banner of the IDEO design agency or a design school such as the Institute of Design in Chicago.

On the scientific plain, this means that the project additionally includes the behaviour observation knowledge taken from ethnology and anthropology. Collaborations between specialists of "human factors" and more and more sophisticated observation methods through the use of technologies: cameras, "digital ethnography" videos.

According to Philips Design, our time would be that of a *"people driven"* innovation.

And also that of joint creation with the user or the "pro – sumer", an abbreviation used to talk about a user that is a joint producer of the offer. A methodology taken from the "Design for all" current.

B. *"Fuzzy front end"*
The raw material of innovation comes from prospective studies. It is no longer necessary to know what consumers want, but how they live in a dynamic way and what they are seeking.

This current lies within the models of innovation of which the content is modified (Vogel & al). Research in project management on the *"pre-project"* and design research based on the *"fuzzy front end"* evolve in the same direction.

We seek to enrich the innovation model by phases of the upstream phase and the pre-project itself divided into phases:

Phase 1:Understanding the product opportunities.
Understanding the changing trends in social, economic, technological factors (SET) leads to finding opportunities that must then be translated into value and converted into product attributes.

Phase 2: Identify the product opportunity .
Finding actionable insights that stem for a clear understanding of the stakeholders and on the emerging needs of the end user, thinking of the market as a scenario and inventing archetypal persons after user observation.

Phase 3: Search the value opportunity and the user experience value .
Get the value right for the end user. Think in terms of emotion, ergonomics, aesthetics, identity, experience, society influence, core technology and sustainability.

Phase 4: Conceptualizing the product opportunity .
Innovation begins with understanding how these aspects of value connect customers to market opportunities.

C. *"Sensorial design"*
"Experience design" or Sensorial design. Emotion design based on the Bernd Schmitt model *"Think, Feel, Act"* or sensorial design is common to the designers and the marketers. It is intended to optimise the customer experience, to develop the brand values by sensorial quality. We think of the relationship between the customer and the brand on the level of all senses and we seek the coherence of the brand message on all meeting points with the customer. This current is related to the *"brand driven"* design or, according to Marc Gobé's expression of *"emotional design"*. Products must be created that are at once *"function and fun"*.

We require design to have the imaginary quality of alliance. Innovation must be both performing and fun, global and local, industrial and personalised, technological and poetic.

Design has a motor role to play in the construction of holistic imagination: brand identity or narrative diagram of innovation. The motor role of design in mutations of innovation management are found in the double competence of "user" and "holistic".

D. Formal innovation
This current is divided into two: that of the originality of the forms and that of *co-branding*.

The combination of the designer's imagination and the miniaturisation of technologies allows new proliferation in the originality of forms. The designer's imagination breaks the frontiers between kinds of objects. The proliferation of forms in lighting is an example to such an extent that we wonder whether the object should still be classified as a lighting object. Through the metaphorical transposition of forms, crossed fertilisation, designers already appreciated as *"technology brokers"* become courtiers in shape or *"shape brokers"*, inventors of hybrid shapes not necessarily related to a function or a technology. Example: the "saddle bag" by Dior.

Furthermore, we see the increased resources of star designers in the launch of new products and the development of interesting *co-branding* projects between a renowned designer and a brand, the marriage between an aesthetic style and a brand. Certain designers become brands themselves, which complicates the mechanisms for protecting the innovation.

2. The territory of design in innovation in the 21st century economy
An innovation project will be different depending on whether there is creation, improvement, imitation or still formal transposition. This type of innovation is easily learnt by a designer. It is furthermore specified in the structure of the design department: advanced design, range design.

Designers also have a tendency to classify design projects according to the newness of the shape in the project:
– A design project that deals with the structure and the architecture of the product and its technology.
– A design project that does not deal with the technology or structure, but which is an improvement of the materials or the functionality.
– A design project that does not modify the technology or the function, but lies only in the style or exterior appearance, the colour, the sensoriality: often called fashion, style or re-design.

As a result, in order that design might take its place in innovation, it is necessary to "name" the design innovation and give the design the chance to have its own terrain. Seekers talk about formal innovation for design innovation.

This concept of formal innovation has the advantage of applying to all design disciplines. On the other hand, this concept of formal innovation places design in the shape. There is therefore the risk that the process and knowledge of design that are behind the conception of an innovating form might not be explained, and that design will therefore be limited to appearance.

However, the concept of formal innovation has one sure advantage: that of giving design a place in innovation. If designers innovate in technology, in function, in the experience of consumption, the result of the conception process will be seen in the shape. The shape is what "we see and experience of design".

Innovation is traditionally conceived in a product/market pair, in an industry. However, the 21st century economy is an economy of breakage that is undergoing a change of paradigm. In fact, we pass from the industrial economy to an individual economy, from a macro economy based on industry to a macro economy market based on market niches, on "users". An "economy of person" which is a

broader field than a service economy for the person, while encompassing it.

Innovation today involves being freed of the constraints of competition on the product/market pair, breaking the barriers between industries and opening other product/market pairs, other niches, other ways of segmenting markets, and therefore inventing other shapes.

Design innovation therefore anticipates and accompanies a change of background in economic science. A change in which the artistic-humanistic side of conception as practised by designers is a force.

Innovation is ever more focused on uses, on a "pro-sumer" individual pretending to be a joint conceiver of the innovation and therefore on the trail of new product/market pairs through a life scenario for a person (fig. 2).

Against this new model of the economy of the person, the traditional tools of innovation, which are technology and market, are disturbed. R&D thinks of technology and seeks applications; marketing thinks of competition in a given market.

So what has now to be discovered are the new emerging needs that are found between the lines, between the markets, in the "holes" of new user niches. The market opportunities are new views of the world often arising from the dissemination of IT and Internet and their potential to

personalise the relationship with the customer (Figure 3 square 4).

Innovation is analysed classically on the strategic plain according to models such as the Ansoff matrix below. Each design project may therefore be placed in a square of the product/market matrix:
- A current market in a current product (1): new through "re-styling" and market penetration or increased market share.
- A new market for an existing product (2): the new development will be the diversification of the offer for the company.
- A new product for an existing market (3): here the company stays in its market and changes the perceived quality and the preferences of consumers.
- A new market and a new product (4): it is in this square where we will put advanced design or prospective design: here the company seeks new product/market combinations.

The new emerging economic model of "economy of the person" or "individual economy" can not be found in existing products and markets (figure 3 square 1, 2, 3). It emerges in square 4 (figure 3) of the pairs to be invented between new market and new product.

What design traditionally calls advanced or prospective design is now becoming the dominant model. This means that what was the base activity of the design schools will

	Current product	New product
Current market	Market penetration (1)	Product development (3)
	Re-styling	*Brand design*
New market	Market development (2)	Strategic diversification (4)
	Global design	*"people driven" Advanced design*

Figure 3: Innovation strategies: to reinvent the product/market pair

now become a mass phenomenon in the activity of the designer. Furthermore, certain design schools already have research centres.

What was on the fringe is becoming the dominant model and accompanies the change of model of an economy of knowledge. The design of experience that was rather applied in innovation in services and environment design and "retail design" becomes the reference framework of innovation. In this emerging model, the designers have an head start over the other partners of innovation which are the engineers and the marketers.

Considered a determining element in all strategy, innovation is therefore an essential competence for the development of all organisations, local groups and states. This means that this innovation imperatively also applies to the actors of the design stream: from the freelance designer to the design agency, to the integrated design office, to the design promotion agency or the design school: they must all innovate and move towards a proactive role. It is a question of innovating for others, but also of innovating in the way of conceiving the job of a designer.

If tomorrow's innovation is focused on innovation in uses, this means that the actors of the design stream will be interested in turning more towards research laboratories in social sciences, in ethnology, sociology within a durable logic of joint construction with users and university research.

Finally, the designers do not escape from the need to innovate to survive, but they must enter the management models of innovation and the theories of conception sciences by bringing in their expertise and by agreeing to fill their gaps in management science with multidisciplinary team work.

3. Design strengths in innovation management

Let's rapidly review the design knowledge useful in managing innovation. These trumps are: design thinking, the triadic dimension of all signs, market orientation, network logic.

3. 1 Design thinking

Research belongs to scientists. Innovation belongs to entrepreneurs.
We first of all innovate through new products and services to ensure the survival of the enterprise, to improve profitability, to increase market share, to develop on new markets, to improve one's brand image.

But we also innovate through process innovations to increase productivity, to economise in raw materials and energy, to improve safety, to improve quality, to protect the environment.

Design is therefore concerned at once with product innovation and process innovation. Thinking of "eco-design", we only innovate in processes. Thinking of "consumption experience", we innovate in information systems.
In design thought, we think of the innovation problem in a holistic manner.

The close association between technological innovation and organisational innovation is accompanied by a modification in the management mode: releasing, opening outwards, co-operation and partnership, externalisation. Innovation today has a multitude of forms and concerns all the functions of the enterprise. It has become global.

Design must also see innovation in a global manner. Its holistic way of thinking is useful for this opening up between functions, geographical area, cultures, as long as the designers become design managers who sell not

artefacts but design thought, customer experience. That these design managers should stop thinking of the design "project" as anchored in a design discipline, to rather think in terms of global value and "perception coherence".

3.2 From design as sign to project management
Innovation is linked to the notion of project. However, innovation projects are plural in nature and vary along with the degree of novelty, the type of innovation, the source of the innovation and the relationship between project and strategy (Figure 4).

Furthermore, whatever the type of innovation project, it must be integrated in the structure of the organisation and therefore the innovation management methods must be put into place. These methods are based on project management project management knowledge and on the constitution of a multidisciplinary team. Contrary to the simplification of an innovation management by a multifunctional team, design thought is a tool to help to build consensus between the project experts: engineers, marketers, and financiers.

In summary, when a new product or service is launched, it is certainly the situation where interfunctional co-ordination in a project team takes on full importance. The generalisation of the problem of innovation has caused the parallel development of management by projects. The NTIC, computers have revolutionised conception through the generalisation of the CAO and have also revolutionised all of the organisational processes in all economic sectors.

3.3 Design or project customer orientation
In his research, Robert Cooper noted many innovation projects over more than twenty years. He deduced a "check list" or golden rules for increasing the chance of success in any innovation project (fig. 5):

1. A better product than that of the competition.
2. A strong market-orientation of the development process.
3. A global product concept conceived for the international market.
4. An intensive preliminary analysis and an in-depth feasibility analysis with managerial and financial resources upstream of the development phase.
5. Precise definition of the concept with specifications: target, promise, pool of attributes and positioning.
6. A structured launch plan that translates the researched positioning into an operational marketing plan.
7. Interfunctional co-ordination: to organise the R&D, production, marketing interface.
8. Support of the general management: establishment of a structure and a view of the things that facilitate the innovation process.
9. Use of synergies: to build from one's strengths.

Radical or rupture innovation	Incremental innovation	"User driven" innovation
"Product or service" 3/4 innovation of innovations	"Process" 1/4 innovation of innovations are organisational (financial, NTIC, commer-	"System", product, process and service innovation
"Push" innovation from technology	cial) "Pull"	"Pull" innovation from a user niche
Strategy-induced innovation	innovation from the market Autonomous innovation	Innovation induced by research into uses

Figure 4: Type of innovation projects

10. Market appeal.
11. Project preselection.
12. Quality of launch follow-up.

Figure 5: The golden rules of success in innovation

Designers should know these rules by heart before launching in any project, because innovation is always a risky business. However, the more innovation is aimed at customer quality, the more this risk is diminished. As a result, design is interested in being sold as a quality that limits the chance of failure of an innovation project .

The strengths of design in increasing the chances of success of innovation are:
– process market orientation
– the fact of conceiving a better product
– the fact of thinking internationally or multiculturally
– the ability to co-ordinate between R&D and marketing

The weaknesses of design in innovation are the lack :
– of strategic marketing competences
– of innovation management competences
– of risk management competences

3.4 Design & network innovation
Design naturally lies in the participative management of a multishape network project team. The more open the innovation project is to foreign markets and the more it is managed in a network, the better the chance of success.

The co-operation started by design in an innovation project often goes in two directions:
- internal co-operation particularly with upstream strategic marketing and research and studies of the market, joint conception with the end user
- external co-operation with research centres for observation studies of consumers or partner companies or subcontractors and suppliers for researching into innovating materials or processes. Development of concept products that are future visions, but also new associations of technologies, suppliers and uses.

Design helps to open the innovation project to the environment outside the company. It creates value through a teaching logic between internal competence and specialised external partners that increases the chance of success, as it takes part in the appropriation of innovation by the company and by society in a general sense.

4. Design weaknesses in innovation management
The function of the design manager is intended to fill gaps in innovation management.

4.1 Design and management of organisational change
Innovation is not only the construction of a competitive edge on the market, it is also a competence of the organisation. It is fundamental for a company to build internal intangible resources or innovation *know-how*. Amongst this *know-how*, there is the dynamic of change acquired by the organisation.

This dynamic is the managerial ability to constantly improve the efficiency of the firm and create new processes. Five capacities are essential in this organisational dynamic:
    – the ability to reduce reply time
    – sharpness (a view of one's environment as it is and not as one would like it to be)
    – the quality that increases customer satisfaction
    – polyvalence or the ability of a company to manage teams and develop on a market with different sensitivities and cultures
    – the ability to innovate to create new values through the convergence of existing elements or by discovering new ones

All the design disciplines can take part in this organisational dynamic.

For example, the "science of design" as systematic thought applied to the modular architecture of products to create ranges that can be "personalised" in a single platform on the model of the car industry.

For example, information designs competences to help to decide in a complex universe thanks to the force of visualisation.

These two examples are clues for conceiving links between key competence design and "organisational design".

4.2 Design & project management
Innovation management lies on a flexible organisation allowing fast adaptation to the disturbance caused by innovation. In an innovating organisation, we note a fall in the number of hierarchical levels, the sharing of competences and management by project

Management by project has become standard for managing innovation (Figure 6). The designer has a project competence that he can present in the same way as creation competence. The designer can also put forward a competence in "preliminary project", his ability to decide on research methods upstream of the project definition.

However, to be effective, this design project competence must be completed by the management competences of a pluridisciplinary team and the standardisation of a complex financial and commercial feasibility decision-taking system, defining "deliverables" for each stage, retroactive decision logics following confirmation by tests. It is now essential to acquire certified management competence.

The table above shows the similarity between the stages of a design project and the stages of an innovation project as defined by the methods office. It also shows that the stages of the project are enriched upstream with the phase of the preliminary project. The contemporary design currents are found, but they have to be inserted in the management models of the new product launch.

4.3 Design & knowledge management (KM)
All innovation projects involve learning. An innovation is a new idea that can be a combination of old, a diagram that modifies the present order, a single formula perceived as new by the individuals concerned. It is the perception of the customer more than the state of technologies at a given time that defines the degree of innovation.

This perception by a customer or an employee of a new technology or modified functions will disturb customers' consumption or working habits. Learning is therefore required. The company and society as a whole must take on the innovation, and in this appropriation process, the perception of the risk and understanding of the innovation are as basic as the innovation itself.

Contemporary reality, the society of aesthetics, only reinforces the relevance of the sociological model of innovation. The need to reduce the perception of the risk of the innovation by society is the important point that extends the design field in the innovation to all its disciplines.

Design competence in innovation is therefore no longer only competence in conception sciences. The design can help all the parties to learn and understand the innovation. This will be done all the better if these parties or "users" are associated with the conception project (see above).

Phases/ Gates	MNPD model Cooper R. Model Stage /gate	Role of the project team	Design and new product (Ulrich & Eppinger model)	New innovation model 2005
-1		Preliminary Project Planning management Research Monitoring		*"Fuzzy front end"* Monitoring technological, economic, society. Searching for new opportunity
0		Project management decision Person Scenario		Understand the product opportunity User observation Person Scenario
1 Stop/ Go	Idea development	Feasibility study Risk management	Exploration	Value Phase Develop a end user value model "experience design"
2 Stop/ Go	Preliminary research	Concept test Financing analysis	Concept development	Concept
3 Stop / Go	Detailed research	Positioning and marketing studies Competition analysis Detailed technical feasibility Production approval Financing analysis Innovation protection	System design	Performance idem
4 Stop / Go	Development	Development Cost management	Detailed design	Idem
5 Stop / Go	Test and confirmation	Test in situation of use Market test	Test	Idem
6 Stop / Go	Launch	Production test Pre -commercialisation Marketing plan Launch	Launch Production	Idem

Figure 6: Models in innovation: the new model emerging with the "preliminary project"

In short, it must be remembered that all innovation projects represent new knowledge for the company and that organisation will be needed to capitalise on this knowledge at the end of the project by creating data banks. These data may also be transferred from one innovation project to another. The great weakness of the design is to reason by single project when an efficiency logic implies reasoning capitalisation of inter-project knowledge and line management, a portfolio of projects ; and therefore managing together the conception and creation of knowledge (CK theory by Armand Hatchuel).

KM is a challenge for the future of design. Design is now capable of "research based" reasoning upstream of the project, but has not yet understood that "research based" reasoning is also necessary downstream. Links must be created between the design managers and those responsible for Knowledge Management in the organisation.

4.4 Company design and culture

No innovation succeeds without a culture in the organisation that is favourable to innovation. This might be achieved through three kinds of action that bring together idea management design, knowledge management and change management.

Integration of design in idea management

The will to systematically develop innovation is based on two steps: mobilising the personnel to develop the creativity of one and all and managing knowledge. To mobilise their personnel, all performing companies have systems for suggestions, idea selection and creativity-associated remuneration.

Design is a key skill for creating new ideas; it might even be its fundamental characteristic. However, it is also a skill that helps all personnel to become more creative.

Design monitoring

The management of knowledge through the accumulation of past experience, the data banks and the knowledge bases on the tendencies and changes in society considerably reduce the times for putting the innovation into practice. They are also a tool for developing new ideas.

Moreover, to succeed it is also necessary to be aware of the market. This means making a selection from the information and knowledge to make the ideas from the environment enter the company, to change them to its advantage and take the lead.

The design must organise a design monitor and insert it in the other systems used to monitor the organisation.

4.5 Design protection and intangible value

Innovation generates intangible assets that give the company overall value. The design function has great responsibility in managing rights on patents, trademarks and designs and models.

If even it is the jurists who lodge, the raising of the awareness of industrial property as a tool to measure the performance of design must be real.

The innovation is given value by protecting it and generating income from licences.

The construction of a competitive edge through innovation often means the choice for the company of a leadership that may also be a leadership in design: protection of its designs, models and trademarks and visibility of the company in the design community through tenders, calls for ideas, "carte blanche creator" projects…

In conclusion, we will sum up the key points of innovation in design:

– Innovating for survival is also valid for the design profession
– Design research is developed upstream of the design project
– The design territory in innovation is made tangible by formal innovation
– The "user centred design" current sets up the society of the 21st century
– "Design thought" may allow innovation in processes and artefacts
– The design project must be completed by innovation management competences

Bibliografia
BORJA DE MOZOTA, Brigitte, (2003). Design Management, New York: Allworth Press. In French: (2002) Editions d'organisation, in Turkish 2005, in 2006 Spanish and Chinese version in process.

COOPER, R, (2001). Winning at New products: accelerating the process from Idea to launch. Cambridge: Perseus publishing.

FINDELI, Alain i Rabah Bousbaci, (2005). "L'éclipse de l'objet dans les théories du projet en design" (The eclipse of the object in design project theories), The Design Journal, Volume 8, issue 3, pages 35- 49.

KELLEY, Tom (2001). The art of Innovation. New York: Doubleday.

PINE, B i GILMORE, J. (1999).

The experience economy, Boston Harvard Business School Press.

SCHMITT, Bernd (2003). Customer experience management, John Wiley,

USA (also Experiential Màrqueting 1999).

VOGEL, Craig; CAGAN, Jonathan; BOATWRIGHT, Peter (2005). The design of things

to come: How ordinary people create extraordinary products, Wharton school publishing, Pearson education.