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**A theoretical model for Design in Management science according to the paradigm shift of the Design profession: from management as a constraint to management science as an opportunity**

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**Summary:**

Design Management has changed greatly since 1990 Peter Gorb definition .The purpose of this paper is to synthetize the various models of Design Management and to explain their limits in front of the paradigm shift of the design profession, changing “from an activity based profession to a knowledge based profession” professor Yjro Sotamaa- UIAH

The territory of design in Management science will be developed in detail with the limits of these diverging forces. The converging model of Design value management based not on practices but on management science models will be explained with its proactive force. Finally ,this value model will be applied enhancing its pertinence in the emerging “design leadership” trend and consequently the potential for a “design thinking “ input in front of the new challenges of contemporary managers : sense building, complexity , innovation , Socially Responsible Organizations .

**Key words: Management science. Design Management. Design control. Value management. Innovation management .User Centered design .Design education**

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**A theoretical model for Design in Management science: from management as a constraint to management science as an opportunity for the Design profession**

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In its august 8/15 2005 edition, the international magazine Business Week published a 20 pages special report “Get creative: how to build innovative companies “. This report insists on the emergence of the creativity economy where for managers the next big thing is to discover “Design Strategy” or “Design Thinking”. In addition, a BCG survey of 940 senior executives in the world of the TOP 20 innovative companies ranked Apple as Number 1 and Sony number 5 both icon companies of the design community. In this creativity economy , design is the new “buzz word “.Consequently ,highly reputed universities or Business schools are working together with design schools on new collaborative course all over the world.

This trend in favour of Design in Business has its risks .It is limiting design skills to creativity and “wow “products. On the other end, it has its advantages of promoting design as a qualified partner for innovation and management. But its main limitation is conveying the idea that collaborating with designers is enough, omitting that design management skills explains the success of these innovative companies.

The aim of this paper is to develop a complete model of Design Management starting with the present situation of design practice, then explaining the theoretical limits of the current models in management science and finally presenting the value model of Design.

While demonstrating the limits of the present design management territory in front of

- the paradigm shift of the design profession “from an activity profession “ to a ”knowledge based profession “
- the reality of what is management science , and the aim of management as the “art of collective action “

We shall try to see the problem the other way round.

Therefore, defining Design Management not from the designer’s perspective of a design project but from management science and knowledge management, from manager’s best practices and from the new challenges of contemporary managers.

Changing perspective , the value model of Design Management becomes an application of the value management model in management science .This converging model is pertinent for defining designers capabilities and knowledge in business terms ,for measuring design value and for generating new territory for design practitioners in the future.

Within this context, Management science and Design science become joining forces instead of diverging forces.

### **1.Changing from Design and Management as diverging forces**

Management and design have a constrained relationship : for the designer ,management is understood as “the constraint of administration and project management “ and for the manager design is understood as “the dictatorship of branding or the raising power of perception and emotion in purchase decisions“ .

#### *-Management as the constraint of Administration*

Practitioners both designers or managers think and act as design and management diverging domains.Observation in design schools ,design consultancies shows that Design Management has a limited “MBA” or A as “Administration” focus .

It is true that designers in order to do their jobs have :

- to enter an organization whether a design agency or a company as in house- designer
- to start their organization and act as entrepreneurs ,open their design consultancy ,work as free lance designer or editor or even launching their manufacturing or retail business.

Design -just like many other human activities such as medicine,architecture, etc..-has to admit that its activity cannot exist without a minimum of business knowledge .

Design is an industry that has to mix creative activity with business skills just like other creative industries such as film ,theater ...

Aware of the business side of their trade, design schools are forced to teach project management , entrepreneurship, marketing research , brand and a minimum of business administration.But being creative remains the more important issue.The power of management skills for design success is ignored.

On the other side of management,

#### *-Management as perception or perception management*

Just as designers are forced into administration ,are importing management concepts such as brand,strategy ,innovation and still tend to ignore management science ,managers are also forced into design through brand , innovation ,vision but they still ignore what is “design science”.

Managers in general would rather prefer to do their job without design decision ,to take only decisions in strategy , finances ,R&D .But CEOs have learnt branding as a key issue and the importance of building the firm’s reputation .They understand that management is perception management.

So designers are participating in COMEX meetings because of this diktat of aesthetic and perception economy, the "Aesthetics Economy" (Postrel 2003, Guillet de Monthoux 2004)

Designers will probably scream when reading this- Design is not Aesthetics we know - .

But the importance of perception management in management decisions gives design its pertinence in management knowledge. Design value is foremost perceived value or aesthetic value .

Perception value translated into management jargon is building a company competitive advantage through differentiated offering perceived on the market .

This "image driven" management penetrates also designers managing consultancies and free lance designers .They use brand to reinforce their positioning. Design consultancies or some star designers are brand driven and build brand strategy for their clients.

The expertise of designers is forgotten in these communication groups .Design is project driven not value or knowledge driven . Designers partner with communication groups, but they fail to exist in this highly competitive marketing territory .Concepts like brand ,consumer behavior research , sensorial marketing are protected by marketing gurus and marketing research laboratories where designers have no strategic and conceptual position. (Schmitt , Aaker, Kapferer ). Design "black box"and expertise does not exist in marketing .What exists is the domain of consumer attitudes and behavior and the impact of "forms " on purchasing behavior .

Let us take an example of taking a "knowledge based approach" instead of a " project based approach" .Designers have not invented the concept of brand but they have enriched it and are actors in the brand strategy .So in some companies ,positions such as brand design managers are created and research has developed a "Brand Aesthetics model " that integrates the marketing decisions and the design decisions in brand equity building .( Borja de Mozota 2003 )

So,we see that the territory of design in management science is unclear both for designers and managers . But this "practice based view" is about to change with the " research based view " of design .

## **2. The design profession paradigm shift : from project to knowledge**

The design profession tends to organize itself by design disciplines therefore reinforcing the idea that design is an output ,a form ,a shape ,not a process .So does based on studio teaching and projects:"hands on curriculum"

Design theories are also based on the design project .But the focus of the design project has changed in nature across history.

In order to explain this change in focus of the design theory, we can refer to the model developed by Alain Findeli (Figure 1) showing the three successive phases in the design project

-Phase one , focus on the object (l'objet) .

the knowledge designers bring for the project come from humanities , culture , aesthetics,emotion, art , semiology ...

-Phase 2 :focus on the process (le processus)

the knowledge designers bring into the project come from technology , Herbert Simon design science model , value analysis, function ...

-Phase 3 ,focus on the actors (les acteurs )

the knowledge designers bring to the creative process comes from social sciences ,sociology, anthropology , ethnology ,users observation,co-designing the experience ...

Alain Findeli demonstrates "the eclipse of the object" in the present ,third, phase of design project theory . (Findeli 2005 )

This highly valuable historical research on design project shows very well how the design process is getting more and more knowledge based ( based on science and methods ) and complex over the years .(figure 1)

Each phase involves for design educators and designers to take a priority in the way they do their job as designers .Therefore insisting on such knowledge area or on one dimension of the Peirce semiotics model of sign :structure and technology ,function and use ,symbolism and message .

But in this knowledge based approach of the design profession , designers tend to behave as “smugglers “ . They import concepts and models developed after long fundamental research by other sciences in order to improve their every day practices .

And designers in order to sell their activity import also concepts invented by management science such as brand, identity ,innovation , strategy.

Finally where is design value in this knowledge based exchange ?

So ,the only way to demonstrate design value is to explain how design knowledge transforms these sciences methods into knowledge useful for management science.

Let us take the example of design “smuggling “ ethnology as the “ IDEO “or User Oriented Design model . Designers use ethno -methodology to improve their observation skills and humanistic approach .They gather information on users in situation upstream in the design project and transform this users information into users scenarios or “personas” .So where is the specific design knowledge in the design project ?

It is both the ability to interpret the observations and the ability to transform these informations on users into ideas ,future users scenarios and concepts , processes, new products and services .And also the ability to force CEO’s to observe their consumers and organizations through these viewpoints.

So where is design knowledge in management science ?

It is the capacity to use concepts and methods in art, humanities,engineering science,social sciences and to embed these various scientific knowledge into valuable concepts and forms for brand , innovation ,strategy ,society system and management performance decisions. As in the example below of New Product Development using “User Oriented Design” approach.

A “User Oriented Design”(UOD) methodology improves the chances of success of the New Product Development and innovation management processes.(Veryzer & Borja de Mozota 2005) :

Proposition 1 : Greater emphasis on User-Oriented Design will induce a more collaborative New Product Development effort.

Proposition 2: Integration or inclusion of User-Oriented Design in New Product Development will have a positive effect on idea generation.

Proposition 3: Integration or inclusion of User-Oriented Design in the New Product Development process results in a superior product or service.

Proposition 4: Inclusion of User-Oriented Design leads to products that are more readily adopted by users due to better product appropriateness.

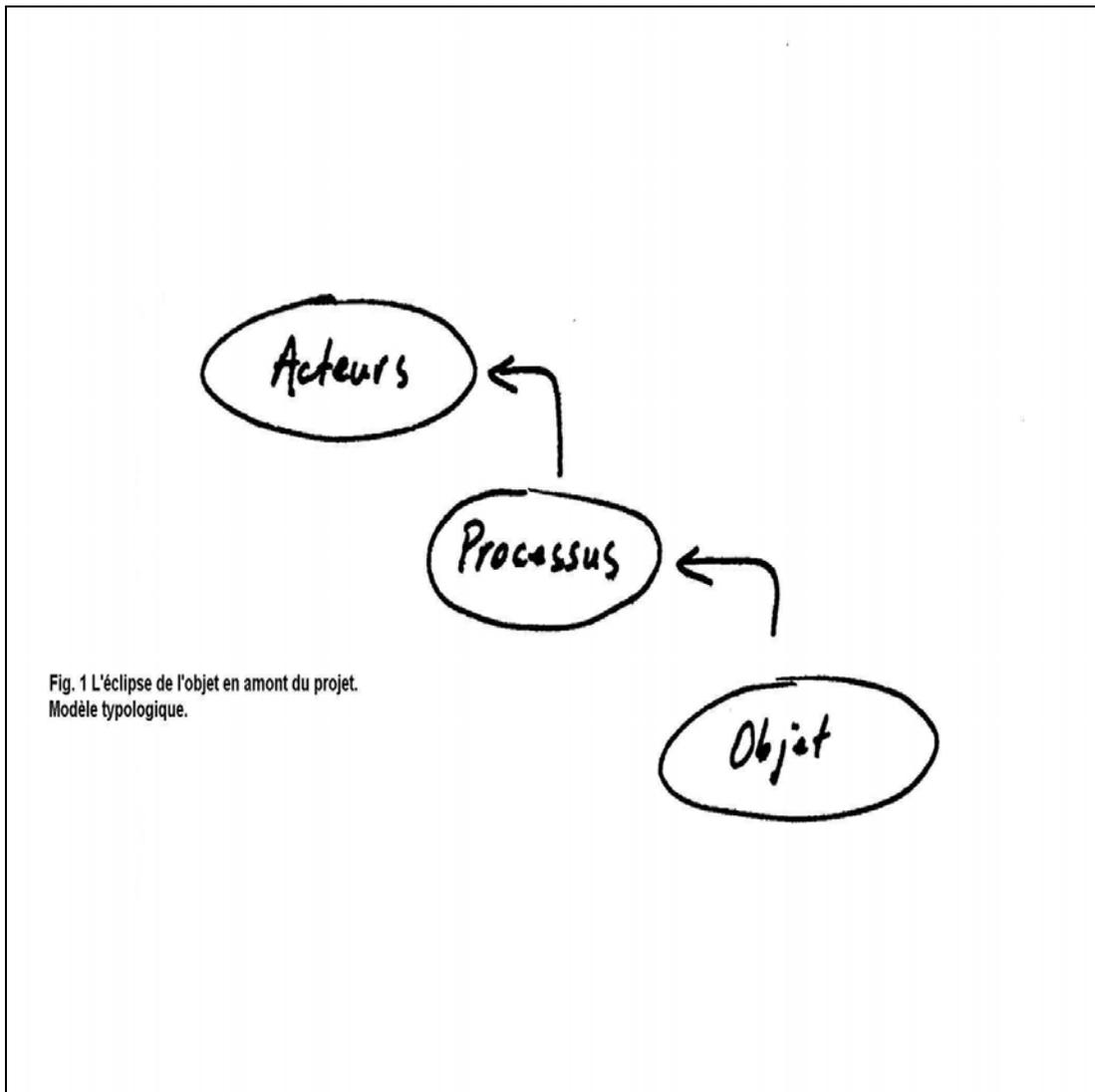


Figure 1 The Eclipse of the Artefact in the Design project Theories  
(Alain Findeli EAD6 conference 2005 keynote presentation )

It is specific design knowledge as UOD process that is creating value in the management of innovation.

**This example of a UOD / design approach versus NPD / management issue explains the paradigm shift of the design profession :from design as "project based" to design as "knowledge based " through design research input .**

With this example ,we can imagine also where the design profession is heading.

A profession organized not any more by design disciplines or design projects but developing transversal methods universal in any design project and capitalizing design knowledge across design projects and across design disciplines.

Therefore a design profession building a coherent "design science model" as some companies have coherent design strategy across varied supports of design projects and consumers touchpoints.

Just like marketing is divided into marketing research , marketing strategy,marketing mix,marketing audit , the design science territory will be divided into design research ,design strategy,design mix , design audit and will be more 'knowledge design" .

### 3.Design and Management as converging forces :the Design Value model

In the last 20 years design management has had a considerable development through institutions like the Design Management Institute (DMI) ,Corporate Design Foundation or through Design prizes competition such as Red Dot (Germany ) and IDEA (US) or through magazines such as Business Week .

<p><i>How should we appear through design to our customers in order to achieve our vision?</i></p> <p><b>1.Design as difference Design management as perception &amp; brand</b></p> <p>Market value .Customer value Brand . Consumer research .Competitive advantage .</p> <p style="text-align: center;"><b>VISION</b></p>	<p><i>To satisfy our stakeholders how can design help in the business processes we excel in?</i></p> <p><b>2.Design as performance Design Management as “A” as innovation process</b></p> <p>Innovation .Modular architecture. Time to market . TQM .R&amp;D.Technology</p> <p style="text-align: center;"><b>VISION</b></p>
<p style="text-align: center;"><b>VISION</b></p> <p><i>To succeed financially, how should design appear to our shareholders?</i></p> <p><b>4.“Good design is good business “ The historic DM economic model</b></p> <p>Financial &amp; Accounting Value . ROI . Value for the society .Stock market value. Socially Responsible Enterprise</p>	<p style="text-align: center;"><b>VISION</b></p> <p><i>How will we sustain, through design, our ability to change and improve?</i></p> <p><b>3.Design as vision Beyond “advanced design “ management</b></p> <p>Strategic value .Vision .Prospective Change management . Empowerment Knowledge learning process .Imagination .</p>

Figure 2: Designence : Design value for company performance : copyright Borja de Mozota 2005

The value model of Design Management Designence (figure 2) emerges as a consensus among researchers . Various researchers have confirmed the pertinence of this model in different business contexts (Borja de Mozota 1985,2000,Hetzel 1993,Rioche 2002) . This value model is based on the value management framework in management science .In management science , value for the firm is both substantial or financial .

1. The substantial value of a firm is to create customer, performance and strategic value: the zones numbered 1,2,3 in figure 2

2. The financial value of the firm is to create shareholder’s value:zone number 4 in figure 2

But most design researchers and educators focus only on the substantial value of design.And even more on the difference value of design :zone 1 in figure 2

Finally , the initial model of substantial value by design , should add the financial value of design that had been previously documented in GB. What was needed is a simple representation tool for easy application that represent also the design process as in Figure 1.

With “Designence” model ,we have a perfect tool both for representing the design process in its three phases(figure 1) and for turning design value into business jargon .A tool for converging forces between business and design.

The “Designence “ model help designers in asking the fundamental questions for each perspective (figure 2):

*How should we appear through design to our customers in order to achieve our vision?  
design knowledge applied to corporate difference building and strategic positioning (zone 1)*

*To satisfy our stakeholders how can design help in the business processes we excel in?  
design providing improvements in company performance and processes ,these innovations in processes being totally invisible for outsiders( zone 2)*

*How will we sustain, through design, our ability to change and improve?  
Design explicit knowledge applied to strategic focus and to improve the quality of staff ( zone 3 )*

*To succeed financially, how should design appear to our shareholders?  
Design explicit and measurable value for company reputation and stock market performance(zone 4)*

Referring the “Designence” value model to the Balanced Scorecard model (BSC) used in management auditing has many advantages for Design Management :

- 1.The BSC model is widely known in MBA’s and used by audit and strategy consultants
- 2.The BSC model is strategic and long term driven so it is in coherence with design objectives : in the center of the four zones of Designence model is the vision of the company mission
3. The BSC model provides a simple framework for organizing design input on each of its four axis that can be applied to any design decision and design policy
4. The BSC model includes the “missing link “ of the financial value in the design community .It emphasizes how design creates value for shareholders as well as for stakeholders .

Designence value model for design management has another advantage. (Borja de Mozota EAD 6 conference Bremen 2005) .It shows a system view and a visionary view of the values created by designers.It represents design as knowledge for many management and society decisions.

Designers are more than just problem solvers :they are actors of the dyanmics of knowledge building: “The activity of design consists in the transformation of an input representation into an output representation.”In an activity that functions by way of representations ,knowledge plays a central role. Designing is a cognitive activity .(W.Visser 2006).

With this “Designence” model, managers understand better that design is a continuing process similar to strategy formulation .And that design can be analyzed both through the resource based view (RBV) of the firm and through the Porter’s competitive advantage .

At the same time ,companies have acquired some knowledge of design (cf the “design ladder”Danish Design center ) and recruit designers to do a design manager job .These design managers in order to define the territory of design in business decisions and performance issues widen their expertise as designers and acquire new skills in management .

Mainly skills such as design competency in business words, ability to run a team and manage a budget , ability to place design in the organization chart and methods, ability to train the personnel into design, ability to train design champions , ability to communicate about design , ability to develop tools in order to work with marketing on brand ,abitlity to work with R&D and engineers on innovation management, ability to set up “advanced design “ workshop and forecasting, ability to hire designers and other experts for design research,to write mission statement for their personnel , and finally ability for “design leadership ” and participation in strategy formulation ,in order to accompany organizational change .

Designers are learning about the A” of MBA curriculum and inventing at the same time specific tools for design leadership in organizations .Referring to management science concepts such as the Michael Porter value chain , the Resource Based view of strategy ,value management model ,they participate with a “design thinking” input in these management science concepts.

Design knowledge is embedded through Knowledge Management model (KM):

-in order to create value for the market or for design competitive advantage ,

the capacity to create a perceived difference on the market is designers “explicit” knowledge

-in order to create value for the performance :

designers “implicit knowledge” comes from their creative process but also from their capacity to improve idea management ,staff creativity,NPD methods ,modular architecture, time to market

-in order to create value for the organization

designers “explicit knowledge” is their ability for reinventing the business and developing sense building community within the organization , advanced design , empowerment through brand equity , TQM , issues of change management .

-in order to create value for the society and all stakeholders :

designers “explicit” knowledge develops from information design applied to finances ,design projects analysed in ROI measures through their results on brand equity ,company stock market performance , on society at large through sustainable design and eco design . (figure 2)

#### 4. Exploring the future of Design Management science

By changing the vision from “project based” to ” knowledge based “ design ,new applications for design value emerge in management science.

The success of Apple , the examples of companies like Procter & Gamble,Décathlon changing their culture and integrating design in the company DNA mean that more CEO’s are thinking of design not from the standpoint of the design outcomes but from the standpoint of contemporary managers challenges that can turn to design thinking for solutions and for inventing new governance forms.

Suddenly design is “a must for companies performance”. CEO’s are going to design seminars or send their managers to design studio education in order to bring more creative thinking into their job.

Designers responsibility is high in creating this new market for “design thinking”.

Of course they can stick to what they do now , design from a design project bias and adding a prospective view to the design project .They are welcomed developing design research in order to reinvent any industry and society through advanced design projects ,user oriented design ,eco design , , inclusive design , and honestly it is a very sensible way to guarantee the chances of survival for businesses.

But designers can also go further .They can ask : what are the challenges of contemporary managers and society governors and can design knowledge help ?

So what are the challenges of contemporary managers and society ? complexity, globalization and innovation, sense making ,process oriented structures , Socially Responsible Enterprise:

- **managing complexity** : applying “design thinking” , holistic view and “information design “vizualization skills to simplify complex environments,to build scenarios for system change .
- **globalization and innovation** : companies have to be international :design teams are used to multicultural working environment and creation has no frontier.Designers can help changing to international scope to be both excellent in standardization and in personalization for “glocalization “
- **process oriented companies** :companies have to be more human centric,customer driven , process oriented ; new information systems have to be invented for Customer Experience Management. These managers challenges are a perfect application for the “User Oriented Design “ provided designers take a wider view of users as employees,shareholders,suppliers...
- **Socially Responsible Organizations** while this business model is spreading ,methods are needed in order to implement it as a collective action ,as “sense building “ (K.Weick ) Designers input can go beyond “advanced design” projects in eco design towards inventing and implementing standard process for change towards a SRE enterprise .

These new territories for designers will probably have an impact on changing design education and practices in four directions. A new market for continuing education for designers will develop

-Firstly, it is promising that managers and marketers share with designers the joy of entering the design studio creative space for innovation issues and for learning how to improve their creative skills as managers.

-Secondly, design schools have to enrich the design project by organizing “augmented design project” studio teaching. Design decisions based on facts and data will reassure managers, engineers and marketers. Design project teaching augmented by design research, means that they apply innovation theories -such as the CK theory of Armand Hatchuel ,(Concept versus Knowledge ).

-Thirdly, this new aura of research based design develops new positioning for design consultancies research both upstream in the design process and downstream in the design control phase.

A researched design project means more measures , more tests and more models .Also ,users databases and therefore partnership with computer science , Chief Information Officer and information systems experts ..

-Finally, designers will simultaneously act as responsible actors both for “good design “ but also “for building the frontiers of the design profession” .Design schools directors will understand that it is not sufficient to teach designers for their first job but that they have to educate them in their collective responsibility for the respect of the territory of their profession by other sciences and professions.

In conclusion,

Management science is discovering the high potential of “design thinking “ in our uncertain environment. Design may be a useful tool to solve business problems other than product strategy formulation and emotional branding .

The future of Design Management should be more and more research based and go beyond day-to-day design practices .The territory of design science would be easy to describe and to enlarge if explored from other perspectives than the output of the design process namely from the perspective of the designers capabilities .

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