Design Strategies in Different Narrative Frames

Francesco Zurlo, Cabirio Cautela

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3   Roger Martin, *The Design of Business* (Boston: Harvard Business School Press, 2009); Tim Brown, *Change by Design. How Design Thinking Transforms Organizations and Inspires Innovation* (New York: Harper Collins, 2009).
4   Donald Norman, "Human-Centered Design Considered Harmful," *Interaction* 12 (2005): 14-19; Donald Norman, *The Psychology of Everyday Things* (New York: Basic Books, 2002); Jodi Forlizzi, John Zimmerman, and Shelley Evenson, "Interaction Design Research in HCI, a Research Through Design Approach,"

Introduction

During its evolution, design—both as a discipline and as a practice—has expanded its sphere of influence and its typical object of intervention, acknowledged until 20 years ago above all as the industrial product. In recent years, because of causes linked to the evolution of organized production systems and social and cultural consumption market dynamics, the design core moved progressively from tangible objects—where design was responsible for the technological aspects of the product to fix the use value—to intangible offerings—where the value for users became a variable of other additional factors. These intangible offerings not only included the use of the product but also aspects linked to the purchase experience, product access dynamics, product availability, and connections with other services and offerings. The product-service system became a consolidated approach in science and project practice, where integration between tangible and intangible components of the offering is becoming an important area for design.[1] In designing a product-service system, design includes not only the identification and organization of each component but also the links and connections between the tangible and intangible parts that create value for users.[2]

The broadening of the design spectrum went beyond the systemic composite concept of offering. Accordingly, design became a thinking form—design thinking[3]—an approach and a series of tools serving changes in different systems, including economic, social, and environmental systems.

For many decades, the discipline of design considered the user to be the primary reference of its action. A rich literature linking user-centered design and ergonomics emphasized user centrality for design action,[4] until more recent theories started regarding user involvement in the various design phases.[5] The basic concept of the user-centered design paradigm seems to be sound when design creates products and product-service systems for existing markets and known consumers, which take into account, a priori, defined cognitive and cultural patterns and needs, purchase models, logics, and use contexts. However, this favorable condition of

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5   Eric von Hippel, "Lead Users: A Source of Novel Product Concepts," *Management Science* 32 (1986): 791-805; Eric von Hippel, *The Sources of Innovation* (New York: Oxford University Press, 1988); Lars Bo Jeppesen, "User Toolkits for Innovation: Consumers Support Each Other," *Journal of Product Innovation Management* 22 (2005): 347-62; and Elizabeth B. N. Sanders and Pieter J. Stappers, "Co-creation and the New Landscapes of Design," *Codesign* 4 (2008): 5-18.

6   Mark Prigg, "Sir Jonathan Ive: Knighted for Services to Ideas and Innovation," *The Independent,* (March 13, 2012). http://www.independent.co.uk/news/people/profiles/sir-jonathan-ive-knighted-for-services-to-ideas-and-innovation-7563373.html (Accessed April 17, 2012).

7   Barbara Czarniawska, *Narrating the Organization. Dramas of Institutional Identity* (Chicago:The University of Chicago Press, 1997).

8   Walter R. Fisher, "The Narrative Paradigm: in the Beginning," *Journal of Communication* 35 (1985): 74-88; Walter R. Fisher, "The Narrative Paradigm: an Elaboration," *Communication Monographs* 52 (1985): 347-67; and William O. Hendricks, "Methodology of Narrative Structural Analysis," *Semiotica* 7 (1973): 163-84.

9   David M. Boje, "The Storytelling Organization: A Study of Story Performance in an Office-Supply Firm," *Administrative Science Quarterly* 36 (1991): 106-26; Andrew D. Brown, "A Narrative Approach to Collective Identities," *Journal of Management Studies* 43 (2006): 731-53; and Carl Rhodes and Andrew D. Brown, "Narrative, Organizations and Research," *International Journal of Management Reviews* 7 (2005): 167-88.

informative symmetry with respect to the market does not always exist. In fact, it does not exist when the innovative effort is oriented toward creating radical innovations, when discontinuous technological shifts occur, when designers create start-ups that want to affirm a new business model, when existing organizations change their business models, or when organizations try to affirm new product categories in the market. These conditions are not at all unusual.

As highlighted by Jonathan Ive, Apple Senior Vice President of Industrial Design, a double approach to design is progressively emerging: The first approach is linked to specific problem solving whereas the second is more focused to tap wider opportunities. According to his word:

> There are different approaches—sometimes things can irritate you so that you become aware of a problem—which is a very pragmatic approach and the least challenging. What is more difficult is when you are intrigued by an opportunity. That, I think, really exercises the skills of a designer. It's not a problem you're aware of, nobody has articulated a need. But you start asking questions, what if we do this, combine it with that, would that be useful? This creates opportunities that could replace entire categories of device. That's the real challenge, and that's what is exciting.[6]

With respect to the approach led by opportunities, designers seem to lose the coordinates and the typical references of their change action. Because they do not have a typical user or sophisticated analytic tools to rely on, they can no longer refer to consolidated object archetype use contexts.

This article aims to understand how design changes according to the different organizational contexts. For example, some design changes are strongly delimited and led by existing forces, such as technology or the knowledge of a specific market-user; other changes are linked to specific situations where design itself must establish project boundaries and the creative orientation.

This article proposes a conceptual framework for strategies and specificities of the design process—a process that changes according to the various productive contexts. Specifically, it considers the business narratives that companies create as the tools they use in their relationship with designers,[7] and it seeks to articulate how different strategies and innovation processes led by design correspond to various narrative frameworks.

The article consists of four main sections: The theoretical background—which is explored though an analysis of the extant literature—defines the function of the narrative frameworks as the function relates to the companies, the innovation processes, and

the relationships with the designers. The article then describes a conceptual framework in which four innovative and organizational contexts are distinguished according to the various narrative frames. The third section identifies the design process specificities and strategies associated with the four narrative frames. Finally, the conclusion identifies the orientation for new research avenues and deeper analyses.

Theoretical Background

The broad definition of narrative—as a plot of sequential and interconnected events with a beginning, a conclusion, and a basic structure[8]—allows for the use of narratives in many disciplinary contexts.

Especially with respect to the studies on organization management, narratives have a strong tradition of being used as a methodological tool,[9] such as a metaphor for reflection and strategy process construction. For example, concepts, such as "strategy as narrative"[10] or as "storytelling,"[11] are widely consolidated and accepted.

In other cases, narratives have been used to interpret sense-making processes for organizations.[12] As Boje said, "In organizations, storytelling is the preferred sense-making currency of human relationships among internal and external stakeholders."[13]

During the past ten years, the growth in the importance of the innovation processes in the construction of the competitive advantages of companies and, at the same time, the importance of new entrepreneurship processes has resulted in a specific focus on the relationships between narratives and entrepreneurship and between narratives and innovation.[14]

With reference to the former relationship, Lounsbury and Glynn posit that narratives, especially during the start up phases of new companies, play a crucial role. They state, "[s]ince many entrepreneurial ventures are unknown to external audiences, the creation of an appealing and coherent story may be one of the most crucial assets for a nascent enterprise."[15] Aldrich and Fiol further contend that "[g]iven the lack of externally validated arguments, [entrepreneurs] must draw on alternative forms of communication, such as narratives, to make a case that their ventures are compatible with more widely established sets of activities …. [N]arration works by suggestion and identification…, express[ing] reasons to believe."[16] Thus, the narrative is given the task of "making the unfamiliar new enterprise more familiar."[17]

Navis and Glynn,[18] analyzing firm narratives in emerging business fields (e.g., satellite radio in the 1990s), emphasize that "firm distinctiveness" concepts, "metaphors," and "prominent affiliations" are used with different intensities during the phases of the initial construction of the sector, in comparison with the

10 David Barry and Michael Elmes, "Strategy Retold: Toward a Narrative View of Strategic Discourse," *The Academy of Management Review* 22 (1997): 429-52; and Gordon Shaw, Robert Brown, and Philip Bromiley, "Strategic Stories: How 3M is Rewriting Business Planning," *Harvard Business Review* (May-June 1998): 41-54.

11 Czarniawska, *Narrating the Organization;* Stephen Denning, *The Springboard: How Storytelling Ignites Action in Knowledge-Era Organizations* (Woburn, MA: Butterworth-Heinemann, 2000).

12 Karl E. Weick, *Sensemaking in Organizations* (London: Sage Publications, 1995).

13 Boje, "The Storytelling Organization," 106.

14 Michael Lounsbury and Mary Ann Glynn, "Cultural Entrepreneurship: Stories, Legitimacy and the Acquisition of Resources," *Strategic Management Journal* 22 (2001): 545-64; Caroline A. Bartel and Raghu Garud, "The Role of Narratives in Sustaining Organizational Innovation," *Organization Science* 20 (2009): 107-17; Liliana Doganova and Marie Eyquem-Renault, "What do Business Models Do? Innovation Devices in Technology Entrepreneurship," *Research Policy* 38 (2009):1559-70; and Chad Navis and Mary Ann Glynn, "How New Market Categories Emerge: Temporal Dynamics of Legitimacy, Identity, and Entrepreneurship in Satellite Radio 1990–2005," *Administrative Science Quarterly* 55 (2010): 439-71.

15 Lounsbury and Glynn, "Cultural Entrepreneurship: Stories, Legitimacy and the Acquisition of Resources," 549.

16 Howard E. Aldrich and C. Marlene Fiol, "Fools Rush In? The Institutional Context of Industry Creation," *The Academy of Management Review* 19 (1994): 652.

17 Lounsbury and Glynn, "Cultural Entrepreneurship: Stories, Legitimacy and the Acquisition of Resources," 550.

18 Navis and Glynn, "How New Market Categories Emerge."

following phases of sector consolidation. Finally, Clark and Holt establish a reflective function of narratives when they say that "…entrepreneurs select and frame their individual stories, both reveal[ing] and creat[ing] the entrepreneurial self; therefore, entrepreneurs are constituted by their narratives of experience."[19]

On the other hand in their studies on the relationship between innovation and narratives, Bartel and Garud propose the narrative as a "cultural mechanism" that recombines ideas scattered throughout the organization to generate novelty, to problem solve in real-time, and to link present innovation efforts with past experiences and future aspirations.[20] They identify what the narratives accomplish in these terms:

> [I]nnovation narratives can address several coordination challenges that are central to innovation. First, narratives enable people to translate ideas across different parts of the organization in a manner that allows them to generate new inferences and applications for their own work. Second, narratives enable people to translate emergent situations that are ambiguous or equivocal so as to promote real-time problem solving. Third, narratives enable people to translate ideas accumulated from particular instances of past innovation to inform current and future efforts throughout the organization.[21]

However, in management studies narratives are mainly presented according to the company perspective, where the narrative function (the purpose of narrative) and the structure (how to build a narrative) are explored and deepened. In this frame, instead, the narratee role, the counterpart, is completely neglected.

Narratives are not "closed objects" subject to univocal, unambiguous interpretations.[22] Instead, as Eco states, "The text is a lazy machine demanding to the reader a sharp cooperative work to fill the space of what is not said or already said left blank, so the text is only an assumption machine."[23] In Eco's opinion, each text is "weaved with what is not said" or contains meanings that do not reveal themselves on the surface, but rather demand "cooperative movements" and "actualizations by the reader." In this sense, then, narratives are the elements that put dialogue into action—sometimes in real time and at other times deferring the dialogue to some future point—between the productive subjects (e.g., the innovating organization) and the various interlocutors.

The fact that each narrative is rich of assumptions to be disambiguated implies that the narrative can be shared, interpreted, and adopted with different "levels of permission" by the narratee.[24] But not all narratees have the ability and potentiality to amplify, multiply, translate, or change a narration. This potentiality is linked both to the characteristics of the narration—as being more or less open—and to the richness of the "semantic heritage" of the

19   Jean Clarke and Robin Holt, "The Mature Entrepreneur: A Narrative Approach to Entrepreneurial Goals," *Journal of Management Inquiry* 19 (2010): 69-83.
20   Bartel and Garud, "The Role of Narratives in Sustaining Organizational Innovation."
21   Ibid 110.
22   Umberto Eco, *The Open Work* (Boston: Harvard University Press, 1989); Umberto Eco, *Lector in Fabula* (Milano, Bompiani, 1979).
23   Eco, *Lector in Fabula:* 52.
24   Mark Breitenberg, "Education by Design: The Power of Stories," www.icsid.org/education/education/articles184.htm (accessed July 28, 2012).

reader-narratee—in other words, the quantity of signs that the reader-narratee has and uses when interpreting new signs to increase the meanings of those signs.[25]

The paradigm of the narrator—who maintains the open narrative borders—and the narratee—whose semantic heritage establishes these borders and thus concludes the interpretative process—is completely adaptable to the relationship between the company and the designer in innovation development processes.

Companies and designers behave respectively as the narrators and the narratees, where the former establishes the innovation frame, and the latter interprets, gives direction, and materializes the relative innovation frame.

The companies, which involve interior and exterior actors in the innovative processes, must establish narrative frames (i.e., data and information structures) to create basic cognitive perceptions, enhance linguistic comprehension, and promote action.[26] An absence of frames leads to cognitive anarchy. However, the frames are ambiguous in that they are neither directive nor coercive, and they help to orient rather than compel. Thus, companies envision some "research trajectories"—a proper narrative regarding the meaning of the products and the evolution of social-cultural models.[27] Designers then present themselves as real "interpreters"[28] who can decode the company narrative according to what they perceive, similar to antennas introduced into the circuits of the material and cultural production, which they then translate into ideas, concept development, and innovative solutions.

Designers can be considered as "hub-narrators" because they are part of the interconnection between the social-cultural models expressed by the consumption communities and the models of the material production organized by the companies. At this intersection, designers must "fill in the blanks" left by the companies that have articulated their stories.

In the course of this article, the relationship between company and designer is described as the relationship between narrator and narratee, as both subjects are fully involved in the narrative dynamics. With respect to the narrator, we consider the main narrative options and strategies, especially as they relate to innovation management and innovation strategy literature. With respect to the narratee, we present the counter-narratives, which are considered as creative answers and strategies adopted within the various frames of the narrative company.

Company Narrative as Design Frame

Any attempt to classify the typologies of narratives put into action by the narrator-companies based on its relationship with the narratee-designers is influenced by a series of contingent factors linked to company culture, the specificities and maturity of the sector, the competitive dynamics, and the idiosyncratic factors in
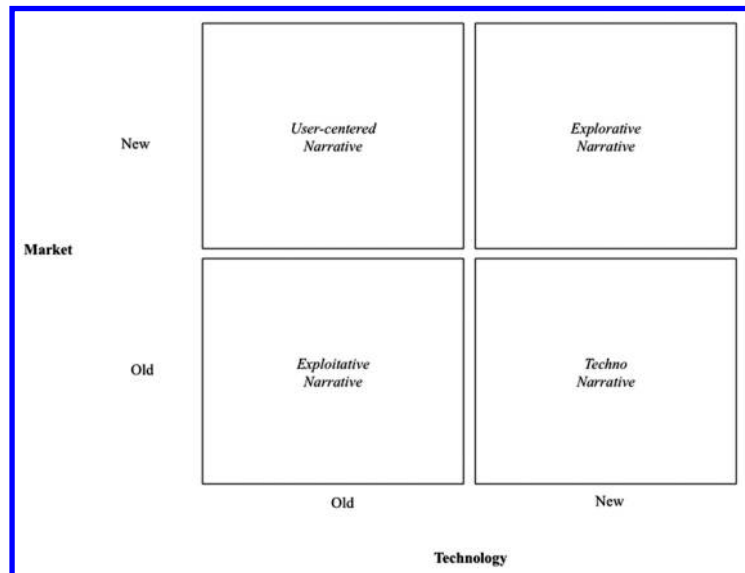
25 Eco, *The Open Work.*
26 Walter Kintsch and Teun A. van Dijk, "Toward a Model of Text Comprehension and Production," *Psychological Review* 85 (1978): 363-94.
27 Roberto Verganti, *Design Driven Innovation* (Boston: Harvard Business School Press, 2009).
28 Roberto Verganti, "Design as Brokering of Languages: Innovation Strategies in Italian Firms," *Design Management Journal (Former Series)* 14, no. 3 (2003): 34-42.

Figure 1
The four narrative fields.

29 Kintsch and van Dijk, "Toward a Model of Text Comprehension and Production."

30 Igor H. Ansoff, *Corporate Strategy* (New York: McGraw-Hill, Inc., 1965); Giovanni Dosi, "Technological Paradigms and Technological Trajectories: A Suggested Interpretation of the Determinants and Directions of Technical," *Research Policy* 11 (1982): 147-62; and Rita Gunther McGrath and Ian C. MacMillan, *The Entrepreneurial Mindset: Strategies for Continuously Creating Opportunity in an Age of Uncertainty* (Boston: Harvard Business School Press, 2000).

31 W. Chan Kim and Renée Mauborgne, *Blue Ocean Strategy* (Boston: Harvard Business School Press, 2005).

32 This approach deliberately excludes the companies that create new technologies, usually situated in the upstream stages of the companies of finished products working in different industries. In fact, mainly in design-driven industries, companies arbitrate between available technological options rather than creating new ones.

the relationship itself. This heterogeneity and subjectivity of the approach to narratives by the company requires the adoption of typical and consolidated variables in the literature on innovation processes to capture the specificity, as well as the diversity, of the narrative strategies and frames put into action in the relationship with designers.

As previously stated, the narrative frame represents a knowledge element set, or "world representation," that can translate into action innovative perceptions, comprehensions, and actions.[29] In the specific case presented here, "world representation" refers to the sense construction that the company instills in the innovative act. By "perceptions, comprehensions, and actions," we mean the ways designers translate the narrative frames using counter-narratives in a project response.

In this sense, recognizing and delimiting the different narrative frames help designers to understand the ways by which companies bind the narrative frames to the innovative aims and spheres and, with respect to specular terms, to think about the creativity processes and strategies they adopt in different narrative fields.

The conceptualization of the narrative frames and the recognition of them are based on two factors amply used by literature to describe the spurs and reflections that give rise to most innovative and entrepreneurial processes: (1) the market and (2) the technology.[30] Both of these factors are considered context variables toward which the company takes a position. With reference to the market, the company questions whether the innovative effort is directed to the current market served by the company or to the creation of a new market.[31] With reference to the technology, the company evaluates the double option of the innovative process—that is, maintaining the old technology or adopting a new one.[32]

The intersection between the two variables, market and technology, with their respective choice options, old versus new, creates four different narrative fields, as shown in Figure 1: the exploitative narrative, the techno-narrative, the user-centered narrative, and the explorative narrative.

In the "exploitative narrative," the company narrative is directed toward optimizing the processes of exploiting the existing offering. In this field, the company does not demand the design of an innovative product, but instead promotes the completion or update of an existing product. In the case of a predefined platform of services, the company demands the development of an additional service; while in the case of a manufactured product, it demands the development of complementary products or the development of a whole family of products from existing products. In the exploitative narrative, the demand placed on the designers is the maximum exploitation of the business model, given a system of fixed constraints that allows for no space to innovate and no space for expanding the business model or the company ecosystem. Such a conservative design framework is oriented to "problem solving,"[33] in which the designer is involved in a project activity with well-defined constraints and opportunities.

Moving to the bottom right side of the matrix in Figure 1, the company innovation strategy aims to adopt new technologies. In this sphere, the "techno-narrative" becomes the narrative field, where the company demands that the designer use and introduce a new technology to develop a new product-solution. The techno-narrative strategies tie the innovative act to potentialities and opportunities offered by the new technology.

In this case, the designer's freedom is more expansive than in the exploitative narrative. In this field, the narrative put forth by Philips Lighting is one example that explains how narratives are developed to crystallize certain characteristics intrinsic to technology (e.g., energy efficiency, maintenance, upgrades, light quality), certain standard settings, or certain product languages oriented toward marking the technology development trajectories. Designers—inside a predefined technological frame—are required to develop new product solutions capable of emphasizing the lighting qualities, Philips Lighting's morphological and language cross-references, and the new meanings of lighting created by the coming of electronics.

In the upper left square of Figure 1, which corresponds to the maintenance of the technological assets and to strategies oriented to new market segments, the narrative field is defined as the "user-centered narrative." In this sphere, the company—aware of the stability of the technological frame—demands that the designer, through the narratives, develop an outlet for the current cognitive schemes and scripts that links the product to the markets currently served and to the conventional use contexts.

33   Prigg, "Sir Jonathan Ive."

In other words, the company tries to set free the creative energies and release technology from its consolidated original market and contexts.

An example of this construct is Kinect from Microsoft Corp. In the narrative produced by Microsoft, the widespread technology of the X-box for video-games is reused in a narrative directed toward unexplored uses, markets, and use contexts. The technology takes movements of the body, speech commands, and objects in the environment and translates them into flexible data and image systems; it is re-contextualized in future potential use scenarios, such as health care, education, music, and image sharing and visualization. Each new use of the technology proposes a different mix of scenario-context, user typology, logic, and purpose of use. In this narrative field, the designer must explore the feasibility and concretization of these potentialities in artifacts and use systems. What the company narrates is a type of first inspiration of new users, new use contexts and occasions, which must then be followed by a project process of specification and functionality that is led by these new characteristics.

In the last upper right square of the matrix in Figure 1, the orientation to a new technological frame is combined with the new market exploration. Accordingly, the narrative field is defined as an "explorative narrative;" it has a higher level of potential innovation than previously defined spaces. In fact, in this sphere, companies are seeking new processes through technological experimentation while at the same time creating new market categories.[34] In this field, designers are essentially given free rein to tap the companies' exploration desires. Through the narrative fields, the companies are open not only to developing new technological solutions or applications but also to changing components of the existing business model or creating a new business eco-system. This square of the matrix is exemplified by BMW's experience with the project BMW-i and the launch of the electric vehicles. The written narration for the project site helps to explain the significance of this change:

> An integral part of BMW-i, in addition to the vehicles, is an offering of comprehensive and custom-designed services that can be used independently of the vehicle itself. These mobility services focus, for example, on solutions that make more efficient use of existing parking space, intelligent navigation systems that can also offer location-based information, an Intermodal Route Planning service, and premium car-sharing. In addition to developing and offering its own services, BMW-i also provides services in partnership with other companies and makes strategic investments in mobility service providers (…).[35]

34 Particularly to deepen the economic and entrepreneurship rationale of this area, see Sara D. Sarasvathy, "Entrepreneurship as a Science of the Artificial," *Journal of Economic Psychology* 24 (2003): 203-20; and James G. March and Johan P. Olsen (Eds.), *Ambiguity and Choice in Organization* (Bergen: Universitetforlaget,1982).

35 BMW-i project promotional brochure.

Adopting this radical change, the company demands that stakeholders and designers envision solutions that can provide the use of many mobility access logics, the use of different interfaces, the integration of the private mobility networks with other networks, the connection between domestic energy supply systems and vehicles, and the integration of a private box in a shared accessible system. The space of the project requires "open tracks" with reference to the business model as a whole because the objects of change become the mobility system, the transport conception, and the integration of different modal systems.

As the proposed framework suggests, companies use narratives with different logics and functions, and accordingly, design becomes strategic if it does not ignore the narrative and strategic field the company has outlined. In this sense, the designer becomes the interpreter-reader of the company's business narrative and then puts into action a counter-narration animated by the shape and logics of the creative process and by the results that are expressed as concepts, prototypes, and visualized knowledge.

Having defined the variety of the narrative strategies that companies use, we examine the different strategies of project narrations and counter-narrations that designers implement in different narrative fields.

Designing in Different Narrative Frames

The analysis of the design strategies and counter-narrations that designers implement in the different narrative frames is made on the basis of the main factors that stimulate and promote the design process:[36]

- The design orientation, especially the research of nonexistent variations and categories of products or the detailed deep analysis inside predefined categories;[37]
- The creative sources, which are the knowledge sets from which the designers-narratees draw to feed their "semantic heritage" as they create an alignment and go beyond the company narrative;[38]
- The design knowledge tools, which are the methods and procedures useful to acquire knowledge and to formalize project solutions; these tools include the narrative frames in which they are embedded;[39]
- The core capabilities, which are the set of specific skills and knowledge from which the designer chooses among different possible options;[40]
- The prototyping role, which is the solution materialization event, with which different narrative aims are associated;[41] and
- The stopping rule, which is the explicit or tacit rule that ends the design action.[42]

36 Emanuele Arielli, *Pensiero e Progettazione* (Torino: Bruno Mondadori, 2003); Nigel Cross, *Engineering Design Methods* (Chichester, UK: John Wiley, 1989); Nigel Cross, Henri Christiaans, and Kees Dorst, *Analysing Design Activities* (Chichester, UK: John Wiley, 1996); Leonard B. Archer, "The Structure of the Design Process," in *Design Methods in Architecture,* ed. Geoffrey Broadbent and Anthony Ward (London: Lund Humphries, 1969); and John C. Jones, *Design Methods: Seeds of Human Futures* (Chichester UK: John Wiley, 1981).

37 Archer, *The Structure of the Design Process.*

38 Cross, Christiaans, and Dorst, *Analysing Design Activities,* (Herbert Simon, *Models of Discovery* (Dordrecht, the Netherlands: D. Reidel,1977).

39 Brenda Laurel, *Design Research: Methods and Perspectives* (Cambridge, MA: MIT Press, 2003); Cross, *Engineering Design Methods;* Cross, Christiaans, and Dorst, *Analysing Design Activities.*

40 Nigel Cross, "The Nature and Nurture of Design Ability," *Design Studies,* 11 (1990): 127-40; Paola Bertola and Carlos Teixeira, "Design as a Knowledge Agent: How Design as a Knowledge Process is Embedded into Organizations to Foster Innovation," *Design Studies,* 24 (2003): 181-94; and Patrick Reinmoeller, "Research & Development. Design: Innovation Strategies for the Knowledge Economy," *Design Plus Research Proceedings* (Milan: Proceedings, 2000): 102–10.

41 Allen Newell and Herbert A. Simon, *Human Problem Solving* (Englewood Cliffs, NJ: Prentice Hall, 1972); Simon, *Models of Discovery.*

42 Cross, *Engineering Design Methods.*

An analysis of these factors and their different natures and specificities exhibited within the different narrative frames distinguishes the designers' strategies and processes associated with the different quadrants or spaces.

Designing in the "Exploitative Narrative"
In this quadrant, the interpretative permission of the designer-narratee is significantly limited. The project process follows a linear path, whereby the designer moves inside a well-defined narrative that coincides with the value systems, formal style, and communication choices of the company brand. The company narrative is actualized in a detailed, binding brief.

Designing in this context means to have dealings with mature sectors, in which the market and technology are consolidated and innovation is often linked to finishing and color details and shape. An example is the furniture industry, where the narrative is often limited to some branches of the semantic heritage. In fact, certain structural constraints influence the narratives. For example, a chair is always a chair, characterized by a precise morphological structure because it is linked to human dimensions. In this case, the designer's stylistic contribution makes the difference.

The designer's narratives are marked by the styling, the reproduction of stylistic lines of the past, the transposition of styles from other productive contexts, and the hybridization of widespread styles.

In this frame, the creative sources differentiate the project proposal through nuances such as aspects of the chromatic choices, matching materials with their tactile qualities, and finishing details. In this field, tools such as color, material, finishing (CMF) folders and the analyses of sector and extra-sector trends are fundamental.[43] In this square/space, the designer must consider new product languages that can be associated with consolidated conventional typologies.

The core capabilities are those of the typical designer: analysis and transposition of styles and languages and the analysis, representation, and control of the formal qualities. Accordingly, the prototyping role is limited to the presentation of a new language and style of product or of a family of products, which is a function of specification of the aesthetic and formal qualities.

The stopping rule in this quadrant is programmed and well defined and agrees with the lead time imposed by the company.

43 Flaviano Celaschi and Alessandro Deserti, *Design e Innovazione. Strumenti e Pratiche per la Ricerca Applicata* (Rome: Carocci, 2007); and Cabirio Cautela, Francesco Zurlo, Kamel Ben Youssef, and Stéphane Magne, *Instruments de Design Management: Théories et Cas Pratique* (Paris: De Boeck, 2012).

Designing in the "Techno-Narrative"

The narratives associated with this square are anchored to a specific technology and are intended to adapt the technology in different potential "texts." Once an innovative technology is not characterized by further evolution and development, the different potential applications are explored following an adaptive logic, where the design role consists of domesticating the technology for different market contexts.

In this event, the problem space is partially defined by the company's intention to promote a new technology for its products or to develop new products within its existing markets. The permission given to the designer to interpret the narrative is linked to the new technological corridor. Thus, the designer's narration is dominated by stories of the technology application. For example, in the OLED project promoted by Philips, the company asked international designers to interpret the new technology but to link it to existing contexts and markets.

As a result of such links, the narratives created in this sphere have both conservative features and those of progression directed at the future. As another example, the first hybrid car as Toyota Prius even though uses a new engine feeding system, retained the product language and the design traits of the old cars equipped with the consolidated oil based engine.

In these cases, narration takes the shape of a movie remake, such that a link to systems and signs that are recognizable in the market is needed.

In the techno sphere, creative sources are represented on one side by technological scenarios—in other words, by representations that companies and futurologists make of the new technological applications—and on the other side by scripts and cognitive patterns of the user. The former mark the progression forward, while the latter slows down the rate of change.

The design knowledge tools are represented by technology scenario boards,[44] which are maps of visualization of future technological applications, as well as by user portraits,[45] which are representations of the mental models of the users interacting with the products. In this framework, the designer's core capabilities consist of being able to select the signs of connection with the past technologies and, at the same time, being able to translate the potentialities the new technology offers in the signs and architecture of the products.

The prototype has a control function for the application potentialities of the new technologies, and the aim is to test the technology and verify any scaling-up of that technology. Accordingly, a real stopping rule does not exist, as the technology often advances and its optimization imposes a constant update in pursuit of the product design.

44   Wolfgang Jonas, "A Scenario for Design," *Design Issues* 17 (2001): 64-80.

45   Hugh Aldersey-Williams, John Bound, and Roger Coleman, eds., *The Method Lab: User Research for Design* (London, UK: Royal College of Art Press, 1999); Victor Margolin, "Getting to Know the User," *Design Studies* 18 (1997): 227-36; and Tim Brown, "Design Thinking," *Harvard Business Review,* 6 (2008), 84-92.

Designing in the "User-Centered Narrative"

This problem quadrant is well defined for available technologies but is open to research of new market segments. The designer's narrative in this case prefigures new application spheres for a consolidated technology. The narrative technique could be referred to as the mapping strategy, in that once a scale is defined for the given technology, it then becomes a matter of defining the "geography" of the possible technological applications.

An example is a consolidated manufacturing technology, such as rotomolding. For a long time, the narrative associated with rotomolding was focused on large dimensions and light and cheap objects. This technology was used mainly for functional objects, and little care was given for the finishing or colors (e.g., offshore buoys, large food containers). In the past ten years, the technical improvements have allowed these products to be used in different contexts; large products with great appeal because of colors, textures, and finishes occupy many spaces throughout numerous industries. For example, outdoor furniture, such as Kartell sofas (e.g., Bubble Club or the new Magic Hole by Starck), finishing accessories, and decorative and non-decorative containers have gained popularity.

In this frame, the emerging design orientation results in new product categories equipped with the old technology. The product represents a means to maximize technology exploitation, and the creative sources are represented by changes in the products' spaces, contexts of use, and mode of use. The study of these changes in the social-cultural regimes suggests new applicative potentialities of old consolidated technologies. This realized potential is what happened with the introduction of plastic for Kartell and Swatch in the furniture and watch industries, respectively.

The design knowledge tools in this frame are represented by maps of context of use—that is, representations of the main changes are evident in the triangulation of user, space, and products. Observation and critical analysis of the context of use and the evolution of the social and cultural model of the users represent the core capabilities the designer must possess in this narrative frame.

Here, the prototype is useful because it gives feedback from the new users and stakeholders (e.g., distribution channel), thus providing information regarding any unusual applications of the technology. In this sense, the prototype serves a learning function oriented to translating feedback into appropriate variations and adjustments. Thus, the stopping rule is established by the prototype improvement moment with respect to the inputs the new users provide.

Designing in the "Explorative Narrative"

In this framework, the narrator inhabits an open narrative process, building a platform that allows different narratees to actually participate in the story. As in John Cage's work,[46] we expect the reader-narratee to become the author and performer of the score.

The problem space, or narrative frame, must be found (problem finding), and the research is conducted through an exploratory process by abstract visions and incomplete proposals. The solution is then the narration process itself.

In this case, the narration is a technique whereby, following the Shannon theories,[47] issuers and receivers negotiate signifiers in a process of linguistic social interaction and, in the case of designers, visual interaction. Thus, the narration becomes a way of building visions and sense.

The involvement of the narratee and the demand to collaborate and focus on the narrative proposal is often fostered by platforms of narrative transportation,[48] built through the media (e.g., videos, storyboards, concept presentations, and different levels of definitions). These platforms often take the form of trailers—real teaser narrations, which increase the narrative's appeal and the involvement of the narratees.

The designer answers with system-stories—not with the proposal of a single product in a cultural frame, but with a continuum of products–services–information that provides solutions and often presents new business models. To support this process, the designer uses systems thinking and the ability to act as a mediator between the different interests characterizing the bonds and stakeholders of the ecosystem. The designer uses "diplomacy"[49] to manage the conflict between disciplines, interests, and perspectives to find potential solutions of convergence.

The adopted design knowledge tools advance the scenario building and the "visual awakening"[50] that is useful in representing the system, the relationship between the actors, the material and immaterial flows, and the value system in a synthetic and understandable way. The prototype plays the role of representing the different involved interests, and its scale is a set of solutions and relationships articulating an ecosystem of actors.

The stopping rule, because of the systemic nature of the solution, is determined at the moment of the agreement and convergence of all the actors involved. This consonance is what occurred in the design of the iPod and the interface of iTunes. Only the agreement with the global music production majors allowed for the launch of iTunes and the lock-in of the device to the greatest global music library.

Table 1 presents the characteristics of the different processes and strategies of design in the different narrative frames.

46   John Cage, *Silence* (Middletown, CT: Wesleyan University Press, 1961).

47   Claude E. Shannon and Warren Weaver, *The Mathematical Theory of Communication* (Chicago, IL: The University of Illinois Press, 1949).

48   Glen L. Urban, Bruce D. Weinberg, and John R. Hauser, "Premarket Forecasting of Really New Products," *Journal of Marketing* 60 (1996): 47-60.

49   Henry Dreyfuss, *Designing for People* (New York: Simon and Schuster, 1955).

50   Kim and Mauborgne, *Blue Ocean Strategy.*

Table 1 | Design Process Features in Narrative Frames

	Exploitative narrative	Techno-narrative	User-centered narrative	Explorative narrative
Design orientation	Styling reconfiguration	New application seeking	Exploitation of technology in new markets	System/business model innovation
Creative sources	Extra-sectorial trends/stimuli	Futurology User cognitive patterns	Signs evolution related to products, spaces, and contexts	Stakeholder system perspectives
Design knowledge tools	CMF Extra-sectorial trend	Technology scenario board User portrait analysis	Contexts of use map	System map Business models prototyping
Core capabilities	Language transferring	Balancing old and new signs/languages	Use context analysis	Systems-thinking Visual awakening
Prototyping role	Specification	Assessing	Learning	Convergence
Stopping rule	Predefined	Dependent on technology life-cycle	Dependent on user feedback	Agreement of system stakeholders

Case Study: Designing in the BMW-i Explorative Narratives[51]
"In the future, the BMW Group will be the leading manufacturer of premium automobiles and premium mobility services." The statement by Norbert Reithofer, President of the Board of Directors of BMW, is unequivocal. BMW defines its mission as linked to the production of premium automobiles and will address the services linked to the evolved mobility.

Through integration with other transport systems, the offer of navigation services linked to intermodal mobility, access to car-sharing services in partnership with Sixt AG, the development of applications such as MyCityWay (i.e., info-service about public transports and its rooms) and Parkatmyhouse (access service to temporary parking offered by private citizens), the German giant presents itself as the "enabler" of future mobility. The passage from the automobile manufacturer, characterized by sportsman-ship, technological futurism, and engineering research, to the enabler of mobility services is entrusted to the narrative of the project BMW-i.

The narrative proposed by BMW-i starts from a conflict sit-uation, characteristic of narrative structures. It describes the con-flict between an overcrowded present linked to the density and traffic of urban contexts and the natural inclination of humans to live in comfortable, stress-free, pollution-free environments, free to self-determine their mobility.

Into this conflict, BMW enters with two strongly connoted, narrative "signs:" the electric car with two versions—i-3 and i-8 that continues to underline the peculiarity and the traditional features of the brand (premium, sportsmanship, elegance, radical

51   The cues and reflections about the BMW-i case have been made by our analysis of the press release and the BMW-i project site (www.bmw-i-usa.com/en_us/) (Accessed April 14, 2012).

technology), and on the other hand, the new form of integration with many urban service networks as emancipation and progression elements for a desirable future.

In this case, mobility becomes access solutioning through the services offered by platforms, the customizable options, and both the individual and the collective advantages. What does it means to design in this narrative space? What does it mean, at this stage of the technological development and ecosystem cycle, to design for BMW-i?

The high level of narrative openness requires the adoption of a design approach for systems. In particular, the BMW-i narration is oriented toward defining mobility as an interface system that includes connection interfaces (multimodal stations), access interfaces (electronic devices), functional interfaces (cars, electric poles), and logistic interfaces (garages).

Designing evolved mobility in the BMW-i narrative frame means defining the current perspective components and interfaces of the system and defining the interactive, functional, and economic mechanisms adjusting their connections. It means designing while considering the interests and the perspectives of the mobility actors and, in a wider scale, those of the urban actors. This aim has led BMW, in association with *Wallpaper,* to engage six international teams of designers to conceptualize new forms of "Sustainable Neighborhoods."

In addition to the systemic scale, designing for BMW-i today means redefining the features of the old business model. The passage from the car manufacturer to the services provider opens the innovation process to the conception of new models of revenue (not associated to the car sale), new forms of relationship with users, new alliances on a local and global scale, and new meanings given to the brand and to the communication channels.

Designing the system and model of business, with reference to its components and internal relations, means to interact with other know-how and interest systems, where divergences and conflicts rise.

The typical capabilities of a designer—the ones linked to the visualization of complex solutions, the modeling of systems and networks, the inclusion of different perspectives, and the mediation between languages and signs—are fundamental for the construction of the solutions noted.

The role of design, which often seeks to facilitate the discontinuation of technologies, consists of balancing existing languages and signs, according to the cognitive patterns of the involved users and actors, with new languages and signs, according to the opportunity the technological progress offers. This mediation is also central for BMW-i, where the narrative strategy seems to suggest the need to preserve some typical signs of the brand while

associating them with unusual signs and languages that are linked to contamination of the preserved signs with those of the other complementary networks.

On a systemic scale, the inspiring conditions for designing in the narrative frame promoted by BMW-i seem to entail enlarging the project toward the reflection of the business model, representing and mapping the involved interests and relationships, and balancing between the preservation of some signs and the proposal of new signs. These ingredients seem to characterize strategic design to an increasing degree, conceiving multidirectional systems and systems of integration between intangible solutions and tangible components.

Conclusion

This article aims to define the variety of design approaches and strategies in different innovation and organizational contexts. The narrative acts as a tool that the company uses to implement innovation processes. In the current competitive context dominated by open innovation,[52] where the companies become permeable to spurs, ideas, technologies, and relationships, the ability to structure the narrative becomes fundamental in attracting the resources and relationships necessary for the company's competitive and innovative goals. The company's narrative ability is considered a tool that delimits its fields of innovation and its creative capacities. In this context, designers become the privileged interlocutors for two main reasons: (1) They serve as innovation-carriers, and (2) they act as expert manipulators of the signs and "texts" in the design process.

At a project kick-off, companies and designers circumscribe the subject and field of the innovation project through the narrations and the strategic orientation they provide. Successively, designers—leveraging on creative sources—articulate their own narratives as a sort of extension or counter-narrative of the company one.

This article also seeks to clarify the variety and different characteristics of the design process as strategic and innovation contexts change. The design processes—articulated according to the project orientation, the creative sources, the design knowledge tools, the core capabilities, the prototyping role, and the stopping rule—are differentiated according to the narrative frames and contexts established by the companies.

The spread of design as a competitive incentive in different sectors and cultural contexts creates multiple approaches to design, which seem difficult to compress into a single, prevalent approach. Although a single design strategy does not exist, a variety of design strategies connects to different productive and narrative contexts.

52 Henry Chesbrough, *Open Business Models: How to Thrive in the New Innovation Landscape* (Boston: Harvard Business School Press, 2006).

As discussed, design can be used both as an innovation tool to improve the style of a product with its minimum potentialities and as a tool to reconfigure and change the ecosystems of products–services and business models.

The narrative relationship between companies and designers, as an interesting and expansive subject, cannot be limited to the reflections and findings in this article. There are many lines of research requiring future study. For example, one line of research concerns the narrative strategies made available by means of digital communication, as companies use the network to an increasing degree to "announce" their innovations and to involve new actors. In this context, by exploring different narrative strategies, the companies' use of open platforms regarding the involvement of designers, experts, interpreters, and scientists emerges as an interesting area of research.

An additional research area concerns the narrative perspective of a project. The heuristics that designers use in innovative processes can be interpreted as a mix of codified grammar and a series of linguistic improvisations arising from a specific context. Codified grammar is a type of regulated linguistic structure, while linguistics improvisation is a variable slang according to the interlocutor and the context of the project. Recognizing the contingent variables and factors influencing the organization of codified grammar and the emergence of the variable codes might be a promising research area in design studies.

Finally, the expansion of the designer's role in comparison with the recent past—in which it was, instead, primarily a "shaper" of the industrial products—leads us to consider and analyze designers' new functions. Often, designers are used as mediators between the different knowledge cores in an organization. Specifically, in places where the designer conceptualizes complex systems involving different actors and interests, the analysis of the narrative strategies of mediation and convergence between these actors and their widespread interest systems is certainly intriguing and worth exploring.