

Change management by design. Design as a flow improver in turbulent times

De Matteo, Valentina

Advanced Design Unit, Alma Mater Studiorum – University of Bologna, Bologna, Italy
valentina.dematteo2@unibo.it

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“One of the most significant facts of our time is the predominance of organizations. Perhaps this is the most significant. It will take time to fully understand its effects on individuals' thinking and behavior. Only a few of them will not be affected by this conditioning process”. If we read this sentence today, for the first time, without knowing its context, date and source, we would first be struck by its timeliness. We could also assume that we are dealing with an extract from a publication in the field of economics or business organization aimed at investigating the complexity and speed of the phenomena that contemporary organizations today go through in terms of markets, technologies, people, knowledge. We'd be wrong on both sides. It was 1957 when George Nelson published these considerations in his essay entitled "The Designer in the Modern World". Industrial designer and father of American modernism, Nelson had anticipated by many decades the discourse on the centrality of the organization understood as a complex social system and the main challenge for design for organizations and in organizations: identifying processes, practices, methods to influence them not only in terms of thought and expected behaviors of the individuals who are part of it but also and above all in the generation of a "positive effect on human experience in a world of increasing complexity" (Buchanan, 2015) . This paper aims at exploring the contribution of design in enabling the "shape" of organizational evolution and capacity building.

Keywords: *organizational design; change management by design; capacity building; circular organizations*

1 Intro. Design in the organization, design for the organization

The idea of complexity is central in organizational reflection and seems to arise as an ontological trait of the world, not just the contemporary one. As predominant and conditioning social systems - these are the attributes that we can deduct from Nelson's initial quote - organizations contain dominant elements of culture - clearly visible through practices, ideas, artifacts - residual - formed in the past but still active in the cultural process - and emerging – continuously created in the form of meanings and values, new practices, new relationships and types of relationships (Williams, 1977). The coexistence and interweaving of these elements lead to a constant evolution of the form and meaning



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of the organizations that Nelson defines as "worlds in the making". In this eternal becoming, people shape organizations and organizations shape people. This evolution is configured, to quote Chatwin and his "Anatomy of Restlessness" (1996) as a journey that "not only broadens the mind but gives it shape" through the continuous and conscious production of knowledge, concretely translated into skills and abilities that are regenerated in a desirable exercise of continuous learning. In this sense, contemporary economic theories highlight how much knowledge becomes today more than ever a strategic asset for companies and organizations, as also revealed by reading the guidelines and policies of the European Union of the last thirty years. Starting from the "White Paper" by J. Delors of 1993 up to the "Europe 2020 Strategy", they outline a series of "flagship initiatives" for the creation of "an agenda for new skills and jobs to modernize labor markets and enable people to upgrade their skills throughout their lives, in order to increase labor market participation and better match supply and the demand for labour, also through mobility" (European Commission, 2010, pp 5-6) .

The Italian National Recovery and Resilience Plan (PNRR) itself, in Mission 5 dedicated to "Inclusion and Cohesion", aims to reform the system of active labor and professional training policies to introduce and implement essential levels of services and promote the employability of workers in transition and unemployed and unemployed people for a total investment of 7.25 billion euros.

One of the open challenges of the initiatives is the continuous verification that the training and learning processes implemented in organizations are "satisfactory in terms of raising the critical skills of the subjects, expanding the cultural base and social inclusion" (Pastore, 2019). The risk of their inadequacy with respect to these parameters conceals what Gerardo Pastore objectively and trenchantly defines as the "dark side" of the knowledge society: the paths of production, distribution and acquisition of knowledge, if not suitably designed, in fact risk decrease participation in the labor market and at the same time fail to encourage continuous learning practices, in contrast with the ambitions contained in the European agenda and, more generally, with the socio-economic-cultural transformations which require people and organizations to have the ability to anticipation and learning in the transition.

It therefore appears clear that one of the main emerging properties of the contemporary organization is its progressive transformation from structure to evolutionary organism that feels in the context (Stanford, 2018) and learns from it (Senge, 1990) producing value through the knowledge that it continuously re-generates to react, act and pro-act facing the always different challenges of innovation and change.

In investigating the processes of production, distribution and reactivation of knowledge in the organizational sphere, design is the bearer of the "productive thinking" introduced by the psychologist, exponent of the Gestalt current Max Wertheimer in the 1945 book of the same name, the result of a reflection started about twenty years earlier, which has had great success in the discourse on the nature of creative thinking and the cognitive processes related to it. Design thinking is closely connected to the "infraordinary" nature of design (Celaschi, 2008) which has always been in balance between what pertains to the field of technique and culture and which in 2003 the philosopher Vilem Flusser described as a "bridge" between forms of knowledge (scientific and artistic). From this point of view, the designer is interested to explore two main research questions:

- how can the design of processes, formats, spaces and contents transform the company into a learning organization generating continuous innovation? – design in the organization
- in which way can designers consider the organization as a “shape” and manipulate it to enable its continuous transformation to answer internal and external innovation challenges? – design for the organization

2 Organization and design’s productive thinking. Framing the problem

Reading the above- mentioned research questions clarify how the effective planning of knowledge processes in the organizational sphere becomes crucial for realizing the goals of inclusiveness and enhancement of the critical skills mentioned above. The field of this research therefore intends to investigate the role and contribution of design in working on the shape of an organization - a term with which we will define contemporary companies specifically from now on - to enable processes production, distribution, reactivation of knowledge. Today there are many phenomena capable of making people understand the importance of the topic not only from an organizational but also a social point of view and which, on closer inspection, anticipate some interesting questions on the future of organizational knowledge and learning. In this regard, it is possible to cite three exemplifying and almost "ideal-typical" case studies to give evidence of the complexity of the phenomenon in space and time. Some of them are extremely close to us (following the model of stratification of the atmosphere we could therefore place them in the layer closest to us, that of the troposphere); others are experiments that we perceive as more distant and still niche which nonetheless form the glue between the present and the future (we therefore place them in the intermediate stratosphere); others constitute sparks of the future that we still feel very far away but manage to project us into a dimension of the prior future of organizational learning, helping to build it (mesosphere):

- The first case is that of the so called "corporate academy", training centers developed internally by companies (troposphere-present T0). In recent times, the importance of these business schools has become increasingly crucial, also on the national scene, especially in reference to digital-oriented training and qualifications and new ways of working and collaborating driven by exponential technological acceleration. Already in the pre-pandemic period, their presence was expanding in companies and tried to act as an "antidote" to some not very comforting data that appeared in a recent special issue dedicated to company academies which highlighted above all the lack of propensity for continuous training, witnessed from 8.1% of adults aged 25-64 who had had a recent learning experience compared to the highest EU average of 11.1%.
- The second case is the "Lifelong Kindergarten" of the MIT Media LAB whose experiments aim to engage adults in "creative learning experiences" (stratosphere - near future T1). The research group develops technologies, activities and communities to involve young people and adults from all backgrounds in learning experiences that can develop their thinking, creativity and identity, with a focus on people and situations characterized by systemic inequities and injustices, ideally meaning by them also the limited or lack of access to the possibilities of training and updating and to have appropriate orientation tools. Furthermore, with respect to the latter, it is worth mentioning the Careerscraft case - a version of Minecraft intended for the orientation and strengthening of skills to inspire people, especially the younger ones, through gaming mechanisms, allowing them to identify

their own skills, attributes and interests and how they affect career choices. The whole is based on six Areas of Learning and Experience (AOLEs): humanities, expressive arts, languages and communication, mathematics and logic, health and well-being. Within the "levels" of the video game it is possible to explore the jobs of the past and understand why they no longer exist; investigate and evaluate factors that could influence and shape the future job market; develop knowledge and awareness of local, national and international labor markets.

- The third case is that of the identification and development of the collective intelligence genome by the MIT Center of Collective Intelligence (mesosphere- future perfect T2). The center and its research products, mainly based on the theories of Malone (2010) assume that our current understanding of how organizations can be designed derives from the observation of large hierarchical organizations of the twentieth century. Internet first, then web 2.0 and 3.0 gave way to the emergence of significant forms of collective intelligence. The project is identifying a set of design patterns (or 'genes') that can be combined and recombined to create systems that leverage collective intelligence to generate shared value for the community. A further evolution is represented by the "Supermind" project which, through the ACI model - Augmented Collective Intelligence - completes people's intelligence with increasingly intelligent machines that combine ideas and network signals regardless of physical distance and in hyperscale. These "smart grids" are made up of large numbers of people plus AI and are connected by a distributed architecture. The result is "superminds" that within organizational contexts can be applied in all processes and functions that require continuous updating and speed of knowledge acquisition.

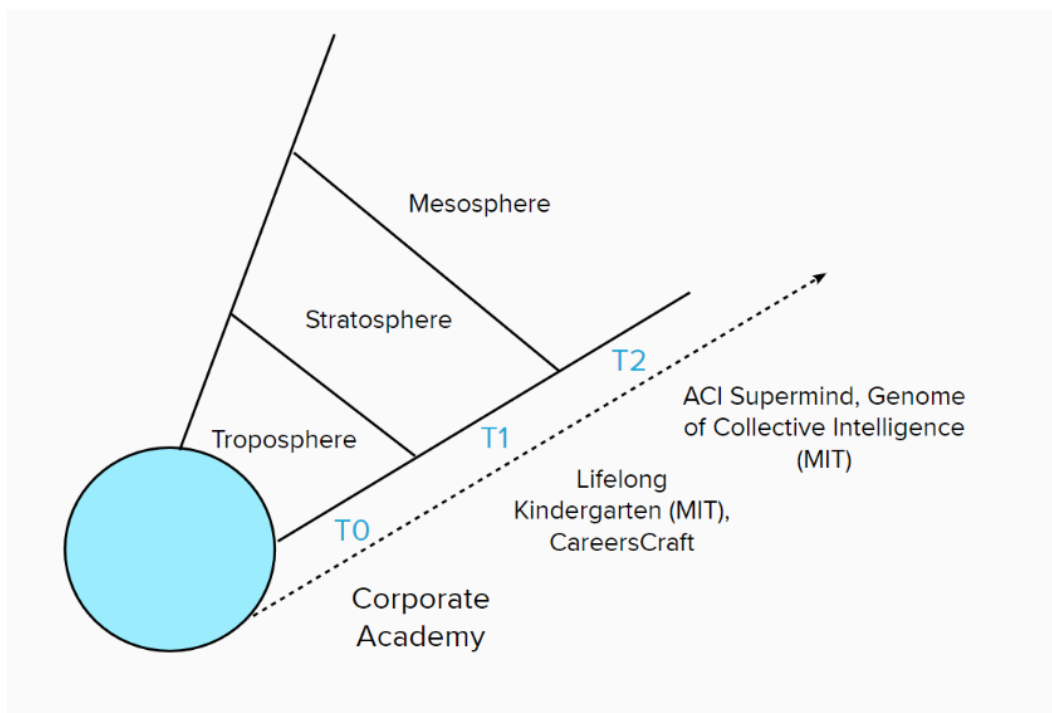


Figure 1. Innovation and anticipation phenomena in the field of organizational knowledge represented in a time and space frame based on the "atmosphere metaphor"

In the light of these emerged and emerging phenomena, while not "natively" a discipline focused on the analysis of organizational behavior and its flows of knowledge construction, design as a discipline, methodology and approach has placed itself in progressively closer dialogue with other disciplines in the study of the phenomenon by leveraging some of its characterizing traits and abilities:

- working on anticipation and transition. Design – with reference to Advanced Design, an articulated system of design practices used for the planning of processes, products or services for complex scenarios located in the future – operates in a conscious way on some of the tools of anticipation such as the analysis of trends and scenario building. Considering time as a "project scale" (Celaschi, 2016) concerns different levels of activity that design performs including the ability to organize anticipatory activities (products, processes, services, experiences, systems), or the "intermediate phases that exist between today and the given future so that there is a greater probability that that future will come true". Flaviano Celaschi takes up Roberto Poli's vision in this regard when he defines the designer as an "anticipated body or subject who makes decisions and performs actions in the present on the basis of something that could possibly happen". The ability to put time at the center of the project, transporting information and connecting knowledge leads design to increase its scope ("design bandwidth", in Giulio Ceppi's definition) to think about ever wider and more complex scenarios in transition. The increased scope of design leads the discipline to touch "unexplored foundational issues" by working "on submerged issues, conflicts and deep and authentic emotions" (Ceppi, 2010). But the increase in scope is also measured for Ceppi on another transformative phenomenon that has characterized design over time: "if design was born as a specialized and individual activity, its ambition today is to be humanistic and interdisciplinary, collegial and participatory". Here, therefore, is manifested in all its clarity the epigenetic character of design which sees the project as an open and continuous process which transforms itself as it becomes and which considers the adaptability to the transformation of the world and its continuous evolutions, local and global, materials and immaterial, cultural and economic.
- Collaborate in transdisciplinarity for lifelong learning. If the project takes on an open form, it becomes a field of experimentation for the hybridization of knowledge that positively contaminates each other. It is the creative contamination that generates the intersection between processes and knowledge, between theory and practice, between real and virtual to produce not only new "commodity-forms" but also new "company-forms" in which design, through its entrepreneurial vision, can design and experiment processes and strategies in the field of organizational learning able to diversify and/or integrate with the existing one.
- Activate people and participation. Design understood as participation and involvement of the "end user" within its main steps to co-define the product-service-system requirements is also peculiar to design methods and becomes essential for organizations in the "prosumeristic" logic of production, distribution and reactivation of knowledge. One of the key resources for the innovation of organizational processes and, more generally, of society, is what we could define as the "H-factor", the human factor for which users are no longer the object of analysis but participants in the project, with a view to the continuous

involvement of stakeholders through dialogue tools and mediation and sharing of the system of values" (Celaschi, Celi, 2010)

For exploring the problematic field, it is considered useful to proceed with the in-depth analysis of three crucial fronts:

- the relationship between design and organization, the latter seen through the lens of design as a real "artifact" in its most literal sense, i.e., a product that can be manipulated and subject to intentional transformative processes implemented to increase its continuous adaptability.
- the interaction between design and management, understood both as disciplines and as organizational areas that work with and in uncertain situations, are increasingly in dialogue in complex and knowledge-intensive contexts that are no longer governed by linear planning paradigms but require the adoption of a management model based on operational and administrative adhocracy (Mintzberg, 1981)
- the inception of design into knowledge processes, the latter to be circumscribed in the context of organizational "knowledge building", i.e. innovation of theories and practices, pedagogical approaches, technological tools aimed at satisfying the need, particularly emerging and critical in the 21st century to "work creatively with knowledge" (Scardamalia, Bereiter, 2010) in business contexts. In this reflection on design for the innovation of knowledge, some reflections on the innovation of knowledge for design will be introduced, i.e. tangential hints at the problematic field on the future of the evolution of the model of skills for designers as figures of mediation and anticipation in organizational change processes

3 The relationship between design and management. Beyond the “forced interdisciplinary field”

Much has been debated and theorized about the relationship between design and management since the end of the 1970s. It is worth briefly reporting the main stages of the discussion on the intersection between two disciplines starting from the five main key themes treated in the literature: value of design, methods, skills, tools, together with the trend of "better management by design". The relationship between the two disciplines has often given rise to what Borja de Morzota and Wolff (2019) have defined as a "forced interdisciplinary field", mainly attributable for the authors to three basic reasons: poor integration between schools, the courses of study of both the disciplines; lack of attention and interest on the part of management for the concrete and "aesthetic" aspect linked to organizational management; lack of attention and interest of designers in measuring the value of their contribution in the organization.

To fully understand the stages of development of the relationship between the two disciplines, it is useful to refer to the chronological reconstruction of Cooper (2011) on evolutionary domains and criteria of design management based on four structural themes: the ability of design management to create value, solve problems, to increase design skills in the organization, to create a "design leadership" useful for achieving organizational objectives.

With respect to the aspects of value creation and resolution of organizational problems, if until the early 90s it was the "aesthetic value" of design management that was detected in the organization in terms of value, quality and differentiation of its products and its identity of brand, in the period following up to the early '00s, design management stood out for its "process value" in creating new products and services, managing R&D teams and improving the efficiency of innovation processes. In the following decade it was its "cultural value" that was detected in the form of evolution of organizational culture towards values such as creativity and customer centricity up to the contemporary period in which it is the "strategic value" - digital transformation, sustainability, globalization – of design management to have a greater impact on organizations.

The reconstruction of the evolution of the value meaning of design management mirrors that of the design competencies expected and recognized by the organization. Only when the organization began to recognize the cultural and strategic value of design management did the concepts of "design skills"

(Guillerin et al., 2010) and "design attitude" make their way. last to be understood as (Michlewski, 2015): "a way of being ... not an innovation panacea ... not a quick fix, off the shelf solution to increase competitiveness or creative proficiency of an organisation ... [but] a deeply held set of beliefs, attitudes and mental models; a cultural footprint left by the professional culture of designers; a way of doing things and a way of making sense of the world around us."

This definition suggests the need for integration design with other organizational functions to achieve the condition of "better management by design" when the "specific qualities of the designer of vision and complex problem solving align with the profile of the twenty-first century manager" (Borja de Morzota, 2019). We then come to speak of the "designer manager" (Boland, 2004), taking up the forerunner position of Herbert Simon who referred to the manager, like the engineer and the architect, as a "form-giver" who forges the organization and its economic processes, focusing "not on the necessary but on the possible, in a word on design" .

Therefore, there seem to be two forces that regulate the relationship between design and management (Borja de Morzota, Wolff, 2019):

- management towards design (M to D): management reinforces the credibility of design through tools for measuring the contribution of the design function (KPI) and its endorsement in creating spaces for exploration for design. This helps to create that "design reflex" towards the wider audience of an organization's stakeholders.
- design towards management (D to M): design reinforces conversational skills and abilities between the organization and its external environment, improving customer orientation, cross-functional collaboration, creative problem-solving aspects of organizational culture, autonomy and participation of its people (Borja de Morzota, 2002) .

These two centripetal forces give life to a space of "management by design" that we feel we can further characterize, following the reflection of Schaffer (2017) with respect to the pervasiveness of change in every internal and external aspect of the organization, "change management by design". It is a complex space in which the processes of innovation and change of the organization are likely to take shape. It may be suggestive to try to compare it to a "turbulent regime", described in fluid dynamics as the motion of a fluid in which the viscous forces are not sufficient to contrast the forces of inertia, generating a chaotic and apparently non-preordered motion of its particles.

Just as the description of turbulent regimes is far from immediate and perhaps "the most important unsolved problem of classical physics" (Feynman, 2005) - so the description of organizations in a context of change escapes the definition of universally valid guidelines and recognized. However, there is a constant that the observation of organizational dynamics of different sizes and sectors lead us to trace starting from the parallel with turbulent regimes, i.e., the continuous contrast between the "stickiness" and the "inertia" of an organization. Its propensity to generate change to evolve is held back by its vis insita, or resistance to changes in the status quo: matter-organization has its own strength which can be exerted by resistance or impulse depending on its starting state (respectively quiet or motion) in which it tends to persevere unless compelled by the intervention of an external force to change that state. The concept of "organizational inertia" (Singh and Lumsden, 1990) was

born from this basic assumption, to explain the complex system between the organization and the surrounding environment and the phenomena that do not change easily in the face of environmental changes. From an organizational point of view, the literature has described four types:

- factual inertia (so-called insight inertia) which occurs when organizational members "do not adequately understand the environment and the cause of the changes" causing an "interruption" in the organizational learning cycle" (Huang et al., 2013)
- psychological inertia that occurs when organizational members resist changes regardless of their degree of expediency and urgency. Role changes, skills updating, loss of long-term sense of the psychological pact between person and organization can be factors that generate this type of inertia. It is interesting to note that the resistance on the part of the members of the organization is not in this case resistance to change tout court but rather to the loss of perceived elements of value during the change process such as, by way of example, stability, prestige, comfort (Godkin & Allcorn, 2008)
- operational inertia (so-called action inertia) which occurs when management's response to environmental activities is prolonged/procrastinated or when the information gathered from the reference context to carry out conscious action for the organization is inadequate and this is due to several factors including the segregation of knowledge, skills and scope of organizational members on the basis of assigned roles and consequent inability/disinterest in acting beyond them (Godkin and Allcorn, 2008)
- economic inertia which is related to cost savings incurred by the organization to change processes and introduce new approaches (Haag, 2014) . Economic inertia is the main cause of structural inertia for which the organization is unable to change its processes.

In the turbulent space of "change management by design" in which the organization moves in a non-preordered way in equilibrium between impulses and resistances, we could, as a metaphor, venture a disciplinary trespass, go back to the field of fluid dynamics and, comparing the organization to a pipeline, define the designer as the "flow improver" of the organization. Studies indicate that one of the most common problems in the passage of fluids inside the pipes of an oil pipeline is precisely the "frictional pressure" or the resistance of the pipeline.

This same resistance can be found in organizations in the phases of passage, of transition, of change. Over time, technology has developed specific products – flow improvers – which essentially act as inhibitors, reducers, optimisers. In fact, they have the task of inhibiting (not eliminating!) the turbulence in the pipeline, reducing the friction pressure and the level of dissipation – the loss of

energy generated by the chaotic movement of the fluid in the turbulence – optimizing the system and its components. *Mutatis mutandis*, it is essentially the synthesis of the contribution that the designer sets out to bring to the organization: inhibiting (again, not eliminating!) turbulence through methods and practices of facilitation and anticipation; reduce the frictions of the parts of the system by acting as a mediator of knowledge, skills, interests and avoiding the dispersion of their energy thanks to ways of working oriented towards collaboration and involvement; optimize the system and its components by channeling energy in a targeted way thanks to a constant exercise of problem finding.

When design has to act as a flow improver for the organization and in the organization through the interaction with other functions, in this case management, the two worlds build a dialogic and multifaceted relationship which can reach, in its most extreme configuration, take the form of “silent design” (Gorb, Dumas, 1987) for managers and “silent management” for designers: “managers designing without knowing has to be compared to... designers managing without knowing” (Borja de Mozota, Wolff, 2019). Osmotic integration or disintegration of the identities of the two disciplines?

In his book “Managing as Designing” Buchanan (2004) underlines how the idea of “managing an organization through design is [still] provocative and enigmatic”. It is provocative because “popular understanding of design tends to reduce it to a self-expressive artistic activity associated with the aspect of graphic communication, industrial products, interior spaces and buildings”. Bringing this kind of design into business and managing organizational life “seems metaphorical at best and frivolous at worst”. Considering design is not just an artistic activity and an aesthetic expression is the first step to really understand the impact of its humanistic and intellectual attribute in organizations. Design is “humanistic because it focuses on the human experience” and it is “intellectual because it requires direct or indirect knowledge of all the factors that must be integrated into a successful product”, be it an artifact, a service, a management, an environment, the organization itself.

3.1 Inspirations from lean culture: *monozukuri*, *hitozukuri*, *kotozukuri*

In the light of what has been learned from the lean and agile philosophies, the construction of a context/environment enabling new ways of considering and designing organizations as critical success factors for their evolution, we can introduce three variables of the lean culture where design can play a crucial role: *monozukuri*, *hitozukuri* and *kotozukuri*. In particular:

- *monozukuri* is “the art of making things”, (in the Toyota context this implies maintaining the spirit of craftsmanship within industrial production). The *monozukuri* is made through.
- *hitozukuri*, the art of “making people”, of developing their potential and knowledge through an educational process, with emphasis on lifelong learning aimed at developing their area of expertise as well as their ability to work with others beyond functional boundaries.
- *kotozukuri*, the art of “making things happen”. This refers to the passion for making things happen, the creation of value starting from the creation of knowledge. The power of building design stories to keep both *monozukuri* and *hitozukuri* strong by encouraging doing, not just thinking.

The combination of the three elements has guided the launch of some experiments in organizational contexts whose objective is to evaluate the role of design as a discipline and method of glue between the aspect of process optimization, the development of human capital and the materialization of semi-finished products of knowledge for innovation and continuous generation of value.

Below is a short map of the field experiments carried out (some of them are still in progress) with the related objectives and expected results. On purpose, these experiments have been carried within various industry environments (manufacturing industry with Rolleri case, service industry with Hera case, knowledge industry with UNIBO, BBS- Bologna Business School and Lacerba) to verify the design contribution potential in different conditions.

4 Organizational field experiments. A “work in progress” map

“The map is not the territory” but it helps to understand it. The diagram below represents a brief survey of the experiments carried out in organizational contexts of different nature, size and market segment to test some hypotheses relating to the problematic field with reference to the contribution of design in:

- foster the emergence of collective intelligence through the design of processes and collaboration formats oriented towards innovation and continuous change (production of knowledge)
- reduce the dispersion of knowledge in the organizational context and socialize expressed and tacit skills thanks to innovative tools and methodologies (knowledge distribution)
- contribute to the design of a learning environment through a synergistic work on processes, people, system for perpetual learning and continuous updating of skills (reactivation of knowledge).
- Make the knowledge and methodologies of its vertical domain usable and accessible also to non-designers to create internal organizational teams of "change agents"

The summary scheme is developed on two axes:

- the vertical one identifies the focus of the experimentation in terms of the final "user": in some cases the experiments concerned the person or a group
- the horizontal one is useful for positioning the experiments according to whether they have used design as a "product" (design as core capacity) or as a learning "process" (design as enabling capacity)

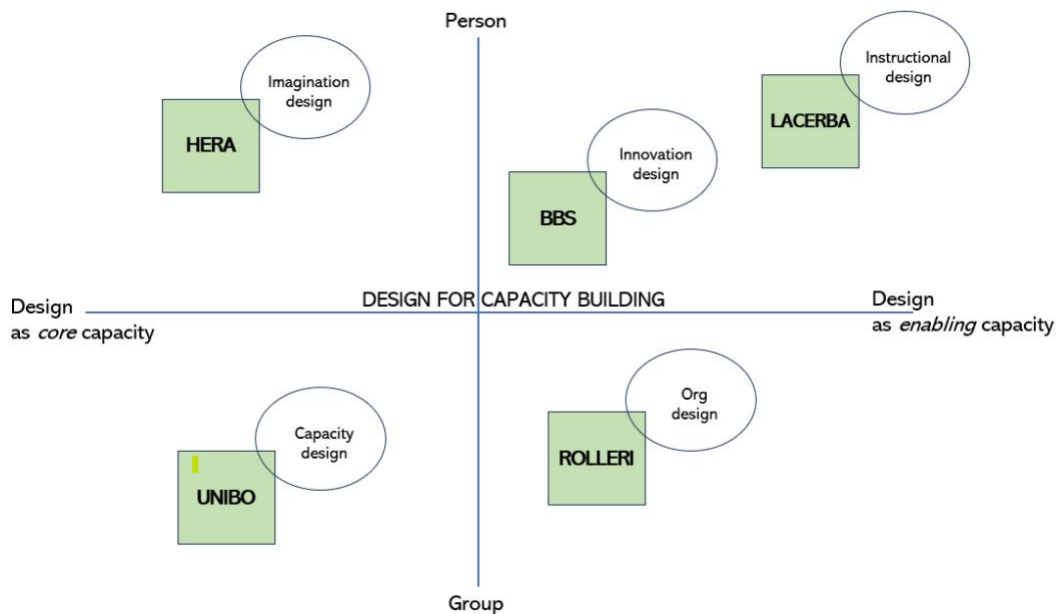


Figure 2. Experiment maps within the two axes: design as core/enabling capacity; person/group.

With respect to this last axis, the role played by design has taken on different connotations on which the summary sheets below can help clarify.

4.1 Project 1. Hera¹ – “Crevolution” project (group – design as core capacity)

- Question: What is the role of design in a group's ability to create generative futures for the enterprise?
- Contribution of design: imagination design, design for corporate creativity: accompanying organizations to rethink almost all of what they know, what they do and the ways in which they operate to give life to value production processes.
- Objectives: to imagine evolutionary futures of Hera's Circular Economy Department through the planning of an experiential training course that focuses on design and creativity as guiding skills for innovation and change
- Duration: 8 weeks
- Target: Circular Economy function team (10 people)
- Output: enhancement of collective intelligence through learning methodologies based on real problems and "experientiality", elaboration of a Manifesto for the Circular Innovation of the company

¹ Hera SpA (acronym for Holding Energia Risorse Ambiente) is an Italian multi-service company, operating in 265 municipalities in the centre-north of Italy and provides for energy (gas, electricity), water (aqueduct, sewerage and purification) and environmental services (waste collection and disposal) to approximately 4 million citizens.

4.2 Project 2. Lacerba² – “Mind-Hacking Academy” project (individual- design as enabling capacity)

- Question: what are the skills and enabling tools to help the individual acquire a mindset oriented towards innovation and continuous change?
- Design contribution: instructional design. It is the systematic process used to develop education and training programs in a consistent and reliable way. In other words, the set of activities that form the basis of a training project designed to determine the shape, appearance, propaedeutic nature, definition and distribution of the contents of a training course, especially digital
- Objectives: to design an accessible and transversal digital academy intended for different company profiles to support reskilling/upskilling processes
- Duration: 12 weeks
- Target: individuals with different expertise
- Output: creation of a digital academy and related online courses developed on the «four quadrants of innovation»: skills, behaviours, tools, organization

4.3 Project 3. BBS (Bologna Business School)³ – Executive Master Business Innovation Design (person – design as enabling capacity)

- Question: how to interpenetrate the logic of business innovation driven by the disciplines of management with the method and approaches of design?
- Design contribution: innovation design. Fluid managerial and organizational skills that can take on a position inside or outside the company with the aim of promoting innovation, for example through the development of new projects, products, services or corporate business models, through the enhancement of elements of creativity, the definition and management of change processes, the involvement of stakeholders
- Duration: 9 months
- Target: innovation managers
- Output: design and delivery of design-driven innovation modules for company executives/managers, entrepreneurs, freelancers

² Lacerba is an Italian innovative digital school born in 2015, specialized in designing simple and effective training experiences, for companies and individuals, with a particular focus on the development of digital skills.

³ Bologna Business School (formerly known as Alma Graduate School) is the business school of the University of Bologna founded in the year 2000 as a consortium between the University of Bologna, Fondazione Carisbo, and the Fondazione Guglielmo Marconi. In 2006 Alma Graduate School merged with Profingest Management School and is now one of the largest business schools of a public university in Italy with a global exposure and offering

4.4 Project 4. UNIBO – Design Thinking Lab for innovation⁴ (group - design as core capacity)

- Question: how to make methods, tools, collaborative approaches of design known to other university departments?
- Design contribution: design coaching. Creation of a "temporary" training organization to explore/study tensions inherent in the life of a group with the use of an experiential learning method (design thinking). Real-time training laboratory, temporary organization driven by learning from experience with a group "primary task", the design of the future of teaching
- Objectives: to experiment the culture of design and the problem-based approach in different disciplinary fields within training initiatives on transversal skills intended for UNIBO structured figures
- Duration: 8 hours (two online modules)
- Target: inter-departmental researchers and teachers
- Output: design and delivery of design thinking training modules through a case-based approach (e.g., future of teaching)

4.5 Project 5. Rolleri⁵ – Change management by design (group – design as enabling capacity)

- Question: how to accelerate people's capacity for innovation and change through collaborative methodologies and experiments aimed at increasing/updating skills?
- Design contribution: organizational design. Application of design principles and tools to organizations and to the experience of people in the company to activate and support a path of cultural change and knowledge innovation by promoting collaboration, co-planning and the creation of an environment enabling continuous innovation
- Objectives: to generate new value for the market through self-organization experiments facilitated by an external moderator through design techniques and tools
- Duration: 6 months
- Target: two cross-functional teams (20 people)
- Output: prototyping of a product-driven solution (Digital Twin for tools and machinery) and a process-driven one (creation of an Academy); acquisition of new ways of working oriented towards continuous change and process optimization; creation of a pool of internal "change agents" (transfer of design thinking methods for the facilitation of heterogeneous working groups)

⁴ The training project has been carried on in cooperation with AFORM – Area Formazione e Dottorato of University of Bologna- involving 19 participants among professors and researcher of different disciplines and departments

⁵ Rolleri S.p.a. is based in Vigolzone (Piacenza, Italy) and is a leader company in the production of tools for press brakes, with partners and branches in Europe and worldwide.

4.6 Experiments' first evidences

Beyond the context specificities and executive methods of the aforementioned experiments, some recurrences have been observed which will be the subject of further study and verification. In summary:

- all the trials highlighted the need to act on four dimensions of capacity building: knowledge, skills and experience; technical systems in which to contain them (repositories); managerial systems with which to favor their production and growth; norms, values and organizational principles to which knowledge can be anchored. The definition of the latter, combined with the correct involvement of management, enables the design of spaces and products for production, distribution, reactivation of organizational knowledge that becomes updated (problem-based) and socialized (team-based)
- in contributing to the development of organizational capacity building, design can act as a mediator of different interests and visions in the initial phase of top-down definition of project objectives and strategies and as a facilitator in the "muddling through" phases (Lindblom, 1959) , or in the bottom-up development of its executive steps characterized by complexity and unpredictability that require iteration and recurrence and that contemplate creativity as a positive deviance.
- There is a link between freedom and learning and between learning and change in which the experiments seem to suggest how the contribution of design can be relevant above all in the support for the design of contexts enabling learning for innovation and continuous change, so as to consider it plausible move from the dimension of capacity building to that of "capacity eco-building", meaning with it the possibility of working on the (eco)system and on the context, making it preparatory to the effectiveness of the planning of processes, formats and contents.

5 Conclusions

The organizational paradigms adopted by companies over the last two hundred years - hierarchy, hyper-specialization, segregation of functions and skills - are proving to be progressively less ready to accept, manage and implement projects characterized by a high level of innovation and rapid knowledge obsolescence. These projects often require from companies - subjects that operate by definition in complexity - the ability of anticipating, collaborating at an ecosystem scale and learning in the transition, attributes of the new project cultures and innovation driven by design. If on the one hand, therefore, these projects are difficult for companies to understand in terms of their usefulness, applicability and feasibility, on the other hand the problem is also mirrored in the designer's posture with respect to the organizations in which he/she finds him/herself acting as a "flow improver" in complex environments and turbulent times, i.e. a mediator of knowledge, skills, interests, having little or no knowledge of the organizational context and its functioning. While this could have medium-term implications on design academic curricula (for example by introducing some modules related to organizational knowledge and dynamics), further steps in exploring the research questions presented in this paper must consider studying the phenomenon from this dual point of view. Particularly, from a design point of view, working on the organization as a "shape", an artifact, means transforming it to analyze the relationship between the organizational model, innovation management and organizational knowledge/capacity building as a lever for value creation.

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About the Author

Valentina De Matteo: PhD candidate in Advanced Design at Alma Mater Studiorum University of Bologna (XXXVI Cycle). Her PhD research is focused on investigating the role and contribution of design in organizational transformation and capacity building, at the intersection of theories and practices of design, management, and

organizational sciences. She is a practitioner in the field of “change management by design” helping companies to build strategies, processes, and new organizational models for design-driven innovation.