



VOLUME 13 ISSUE 1

Design Principles and Practices

An International Journal — Annual Review

The Role of Design Research in a Postindustrial Society

LORENZO IMBESI

**DESIGN PRINCIPLES AND PRACTICES:
AN INTERNATIONAL JOURNAL—ANNUAL REVIEW**
<http://designprinciplesandpractices.com>
ISSN: 1833-1874 (Print)
ISSN: 24735736 (Online)
<https://doi.org/10.18848/1833-1874/CGP> (Journal)

First published by Common Ground Research Networks in 2019
University of Illinois Research Park
2001 South First Street, Suite 202
Champaign, IL 61820 USA
Ph: +1-217-328-0405
<http://cgnetworks.org>

Design Principles and Practices: An International Journal—Annual Review is a peer-reviewed, scholarly journal.

COPYRIGHT

© 2019 (individual papers), the author(s)
© 2019 (selection and editorial matter),
Common Ground Research Networks

All rights reserved. Apart from fair dealing for the purposes of study, research, criticism, or review, as permitted under the applicable copyright legislation, no part of this work may be reproduced by any process without written permission from the publisher. For permissions and other inquiries, please contact support@cgnetworks.org



Common Ground Research Networks, a member of Crossref

EDITORS

Lorenzo Imbesi, Sapienza University of Rome, Italy
Loredana Di Lucchio, University of Rome, Italy

HEAD OF JOURNAL PRODUCTION

McCall Macomber, Common Ground Research Networks, USA

ADVISORY BOARD

The Design Principles and Practices Research Network recognizes the contribution of many in the evolution of the Research Network. The principal role of the Advisory Board has been, and is, to drive the overall intellectual direction of the Research Network. A full list of members can be found at <https://designprinciplesandpractices.com/about/advisory-board>.

PEER REVIEW

Articles published in *Design Principles and Practices: An International Journal—Annual Review* are peer reviewed using a two-way anonymous peer review model. Reviewers are active participants of the Design Principles and Practices Research Network or a thematically related Research Network. The publisher, editors, reviewers, and authors all agree upon the following standards of expected ethical behavior, which are based on the Committee on Publication Ethics (COPE) Codes of Conduct and Best Practice Guidelines. More information can be found at: <https://designprinciplesandpractices.com/journals/model>.

ARTICLE SUBMISSION

Design Principles and Practices: An International Journal—Annual Review publishes annually.

To find out more about the submission process, please visit <https://designprinciplesandpractices.com/journals/call-for-papers>.

ABSTRACTING AND INDEXING

For a full list of databases in which this journal is indexed, please visit <https://designprinciplesandpractices.com/journals/collection>.

RESEARCH NETWORK MEMBERSHIP

Authors in *Design Principles and Practices: An International Journal—Annual Review* are members of the Design Principles and Practices Journal Collection or a thematically related Research Network. Members receive access to journal content. To find out more, visit <https://designprinciplesandpractices.com/about/become-a-member>.

SUBSCRIPTIONS

Design Principles and Practices: An International Journal—Annual Review is available in electronic and print formats. Subscribe to gain access to content from the current year and the entire backlist. Contact us at support@cgnetworks.org.

ORDERING

Single articles and issues are available from the journal bookstore at <https://cgscholar.com/bookstore>.

HYBRID OPEN ACCESS

Design Principles and Practices: An International Journal—Annual Review is Hybrid Open Access, meaning authors can choose to make their articles open access. This allows their work to reach an even wider audience, broadening the dissemination of their research. To find out more, please visit <https://designprinciplesandpractices.com/journals/hybrid-open-access>.

DISCLAIMER

The authors, editors, and publisher will not accept any legal responsibility for any errors or omissions that may have been made in this publication. The publisher makes no warranty, express or implied, with respect to the material contained herein.

The Role of Design Research in a Postindustrial Society

Lorenzo Imbesi,¹ Sapienza University of Rome, Italy

Abstract: The following article reflects on an ongoing research study about the new roles of Design in our contemporary postindustrial society and the direction that higher education may point to in order to foresee change and to redraw its role. Such considerations should be considered as the foundational hypothesis for research at the PhD Program in Product Design and the Master of Science in Product Design at Sapienza University of Rome (Italy).

Keywords: Postindustrial Society, Post-Fordism, Knowledge Society, Design Research, Higher Education, Design Education, Design Thinking, Digital Democratization, New Technologies

Introduction

At the time of globalization, information technology, and post-Fordism, in other words the Third Industrial Revolution (Castells 1996; Rifkin 2001; Rullani 2004a, 2004b), the role of Design is growing and expanding along with the crisis of industry itself. This is connected with the questions of this phase: while allowing to enter new geographical areas, globalization is reshaping international markets (Robertson 1992; Beck 2000; Bauman 2000a, 2000b) and demanding for a cultural aesthetization and semantization of products for competitiveness given by Design, as a result making creative expression become a sort of added value for production (Gorz 2003; Imbesi 2008b; Maione 2001; Gilmore and Pine 1999; Rullani 2004a, 2004b).

The production of the artificial landscape in which we live comes to be a complex choice involving a multiplicity of design skills; knowledge, science, and technological developments; ethical and social options; and forms of artistic expression. Analyzing artificial production by Design helps us to understand and to reflect on our time and culture at every scale and sector of society. Design becomes a basic activity, looking forward to innovation for the management of processes and strategic scenarios. Therefore, Design is able to provide sense and direction to production, communication, interface, service, and image, while reaching new challenges and playing new roles (Manzini and Bertola 2004).

Postindustrial Scenarios

The first observation that emerges with the term “postindustrial” is that the formula using prefixes like “post-” or “de-” (as many other definitions use, such as postcapitalist, postmodern, postproduction, as well as deindustrialized or deterritorialization) determines the object of debate negatively rather than positively, thereby reflecting the uncertainty related to the configuration the future society will take. Then, the negative wording often implicitly involves a difficulty in identifying the positive characteristics and the future forms that will characterize it, but, at the same time, there is no denying that any new movement can express its complete configuration in detail only when looking back from a state of advanced mature age, while, initially, it is only possible to think of it “by difference” while comparing to what preceded it.

Secondarily, the term “postindustrial” evokes the prevalence of a new way of producing. We owe the diffusion of this term to Daniel Bell (1973), who focuses on the configuration of a new

¹ Corresponding Author: Lorenzo Imbesi, via Flaminia 70, SDR Sapienza Design Research Interdepartmental Centre, Sapienza University of Rome, Rome, 00196, Italy. email: lorenzo.imbesi@uniroma1.it

order of society (the so-called “service society”), which is not centred anymore on industrial production, but on the production of services, in particular those connected with public interest. The development of the service society arises with the progressive emergence of the tertiary sector and the following growth of the demand for skilled labor, particularly engineers and professionals, together with the new centrality given to knowledge and technology, taken into account as a source of innovation and competitiveness. The same construct, however, had already been used a few years before by Touraine (1969), who used it to emphasize the changing role of industry in contemporary society.

The big transition that began in the seventies of the last century to a “new capitalism,” variously defined as Post-Fordist, cognitive, postindustrial, flexible, and so on, among the many aspects defining it, we should highlight at least two basic factors. First, the twin processes of globalization and dematerialization of economy with open markets and the increased importance of technical-scientific and symbolic-cultural factors, which come to act as a motor for innovation and a tool to manage the growing turmoil of markets. This should be considered as a shift of the paradigm of production, which can be represented with the transition from a model based on the large production of hard and durable goods for mass consumption and the vertically integrated organization of industrial labour toward a pattern based on the production of services and knowledge, which can be organized by multi-level networks (which can be international, transnational, or subregional) (Castells 1996; Coriat 1991; Rifkin 2001).

The Creative Labour of the Mind

The crisis of the economies of scale as “one best way” to meet the demands of the increasingly diverse consumers is at the base of the emergence of new models of flexible accumulation. Related to this is the growing importance of the functions related to innovation and creativity, which emerge within this framework of macroeconomic transformations (Florida 2003).

As the postindustrial era is investing in immaterial assets of knowledge, the creative labour of the mind is now considered to be the primary workforce capable of generating value (Gilmore and Pine 1999; Rullani 2004a, 2004b). For a long time labour was reduced to an activity producing material goods, and this category has developed its own ethics and social morals (just think about the fatigue and the effort of crafting by hand); its own value was proportionate to the production time of a finished object. Today, thinking and producing are becoming the same thing, and we can state the hegemony of immaterial labour to create value (read: intellectual, scientific, cognitive, relational, communicative, emotional) (Gorz 2003).

This can be considered a result of the computerization of industry, also featuring an increasing number of processes and places of production and leading to the transformation of each work duty into the constant management of fluxes of information. As a result, the old idea of time as a value for manufacturing material goods is not viable anymore: as everything may be produced anywhere at low costs, then what becomes valuable is the quality of coordination and networking. While the material manufacturing is pushed at the periphery of the process of production, the heart of creating value becomes the immaterial work based on the knowledge of its human resources.

The Immaterial Capital

Knowledge becomes the feature that qualifies the human capital of any enterprise and project, namely the characteristics of humans to be smart and creative, to have imagination and experience, and, furthermore, to flexibly respond to different situations that may occur. To this end, we should distinguish between the formalized and objectified contents that may be transmitted without belonging to people, from the experiences and the practices that are developed differently by everyone—according to this, André Gorz (2003) states the basic difference between knowing the rules of grammar and being able to speak a language properly.

The intelligence of knowledge covers a widespread variety of capabilities, ranging from judgment to open-mindedness, to the attitude to assimilating new knowledge and combining with further information. Then, anything may count to increase the human capital of the enterprise: motivation, innovation, social competence, attitude responding to challenges, imagination, and personal involvement. Then, behavioral qualities may count even more than professional qualifications to state the quality of the service: these are qualities identifying the provision of a personal service, namely an immaterial work which is not possible to quantify with a number, nor to formalize or to objectify (Gorz 2003).

At the same time, as noted Enzo Rullani, intangible does not mean invisible, evanescent, or precarious. The value assigned by the user/consumer to the intangible quality of an object does not come by chance, nor is it the result of a lucky accident. On the contrary, it originates from an organized system of collective intelligence, creating and multiplying the value of the meanings assigned to an object. This may be considered the “factory of the immaterial” (Rullani 2004a, 2004b), which produces the symbols and the knowledge associated with the object while combining expertise, significant investments, creative imagination, and ability to communicate.

As an example, after the system of fashion there is not only the art of a designer, but also a well organized and very expensive “factory,” which gives meaning to the clothing items produced and sold at prices far from their material content. Also, behind sport, gastronomy, entertainment, aesthetic taste, and, in general, the media of social communication, there is a system that produces emotions, participation, and happiness (Gilmore and Pine 1999). Again, to this end, Rullani (2004a, 2004b) displays with numbers and percentages that the only industry still endlessly growing in times of crisis is the factory of the immaterial in terms of employed workers and economic relevance.

Post-Fordism is then characterized by technology, skills, and high flexibility, which induce labour practices and organization of production to be flexible. Then, it is a model of organization characterized by a mix of professionalism and ability to network specialized production units in order to combine various benefits and without risking production failure. The new factory operates outside through subcontracting, outsourcing, developing the tertiary sector, and integrating research and design to maximize the rapidity and inventive response to the market while adopting the model of the integrated factory.

Industry after Industry

Nevertheless, we should consider that the term “postindustrial” does not completely delete industry itself, nor does it still recognize its role within society. On the contrary, it refers to the historical shift of its role within innovation processes toward activities connected to the service industry, involving a knowledge-based workforce. Industry is still working, but with a new and different organization and weight.

The major change affecting production and society does not reset completely the world of the twentieth-century industry we were used to from one day to another, and, furthermore, the new flexibility and decentralization of the new economic development model are not always incompatible with the old Fordist factory of mass production. Old and new worlds often coexist together and should take into account all possible hybridizations between the two orders as well as their inner conflicts (Appadurai 1986). At the same time, we should detect the presence of ambivalent trends, mixed routes, strong contradictions, and processes of decomposition and fragmentation that characterize both the productive and economic sphere as well as the social, cultural, and institutional processes upon which much contemporary sociological thinking has been focused (Beck 2000).

For many critics, Fordism does not necessarily identify with the rigidity of the assembly line, nor with mass production; rather, it relates to the ability of the capital to permeate production, becoming synonymous with capitalist production as well as with the flexibility of mass production and technological innovation to take several different forms. According to this, many

authors on the wake of Touraine (1969) argue that the crisis of mass production does not involve the loss of industry and even of the relevance of its model to organizing work, nor the meaning attributed to it (Kern and Schumann 1991). For many, the passing of Fordism marks, if anything, the transition to a phase that may be called “neo-industrial,” where must be highlighted a radical transformation rather than a celebrated death.

Again, following this view, despite the undeniable advance of the tertiary sector, industry and industrial work are still essential, not only for the functioning and the reproduction of society, but also for its own understanding. At the same time, its organization and products are completely different, with an emphasis on its intangible factors connected to the narrative and the meaning implied behind them and along with the innovation in technology and materials.

In any case, after being subjected to fractioning and decentralization, the old Fordist factory changes its look, image, and organization by adopting more flexible forms of management to coordinate and comprehensively respond to the changing markets and the demands for innovation.

According to any analysis of the present shift we are experiencing, there is no doubt that in order to face the dual challenge of market globalization and dematerialization of value, the former “territorial” manufacturing capitalism is called to a great change. In this context, creativity is represented as a crucial resource to accompany the production system toward the new phase.

Design as a Science for Innovation

The term creativity here takes on a particular significance that refers to the process of differentiation of quality of companies, the strategies of differentiation of competitors, to open new niches, and segments of excellence made of details and history. Then, creativity may include those intangible features related to research and those distinctive capabilities both in production and market, which would bring the company to reach increasing performances and to display the real quality of their goods, also involving the consumer to achieve a status. To get citizenship in the consumer society, people are willing to pay a different price compared to the old “industrial” alternatives, even if this aspect may have been called into question by the more recent rise of the global crisis.

The goal of Design cannot be considered anymore just as limited to the production of new products; it has become globally an activity producing permanent strategies of innovation (aesthetic, functional, technological, or commercial). Innovation is vital for every productive sector in order to give an answer to international competition and new markets. Thus, contemporary Design acts as a producer of a sort of dynamic energy not only for ultimate products, but also for reversible strategies, dynamic processes, communication and information, services and promotion, real and virtual products, mass production, and experimental research (Branzi 2006).

Diversification and innovation are, therefore, the key functions for the success of products in global markets in which the creative professions have to respond. In fact, along with the emergence of the knowledge economy, a large value incorporated in goods resides in intangible assets: the actions of diversification and customization are the immaterial levers on which the innovation process takes place both for the technology, as well as for the functionality, the shape, and the communication of the products (Maione 2001).

The new generations of designers have seen and come to terms with deindustrialization and the rise of the service sector. While their predecessors had a role in the assembly line that brought them into close contact with manufacturing processes and provided them with objectives and stimuli, today’s designers are aware of their service and strategic role concerning innovation. The creative professions become strategic for the creation of services for production around product design, communication, advertising, marketing, styling, fashion, as exhibited in (Imbesi 2010a, 2010b). Then, it is useful to distinguish the image of the creative work from a simple

image of a purely artistic/aesthetic activity and thus avoid melting the professional characters of creativity in the vast sea of the knowledge labour, without any internal differentiation.

From Transmitting Knowledge to Innovating Knowledge

Innovation is the keyword that Design and production have to look at in order to face contemporary challenges of global competition and market changes while always creating new solutions. Education in Design turns out to be a field without a given configuration because the reference points and the strategies of enquiry steadily evolve through new paradigms to be explored. Therefore, away from the traditional linear pedagogic approach, the primary goal of university programs and higher education should not be considered limited as a space for just transmitting knowledge and notions from educators to students; moreover, it should aim at innovating knowledge itself and developing collaborative research. This is a paradigmatic shift which may change not only respectively the positions of teacher and learner, but also the role of the university toward society while developing areas for critical thinking (Imbesi 2010a, 2010b).

As Design can be considered a young discipline, dating back to the Industrial Revolution and modern production and culture, its history has always been connected with innovation through scientific discoveries, the progress of materials and technologies, and the fast social and cultural development associated with the growth of communication and modern cities (Florida 2003). Therefore, while Design had to innovate constantly its tools and approaches in order to face different scenarios in search of producing new outputs, it has always placed on the line of innovation while redefining every time its role and boundaries. Often proliferating in far territories, Design does not have a steady “disciplined” structure, so implying a diffused net of theoretical and methodological contaminations to be experimented every time (Imbesi 2009a, 2009b). Design and research turn out to be a cognitive activity giving awareness to material and cultural issues: we could call it the science of innovation which is able to foster science discoveries into social applications and solutions in order to foresee future scenarios not just for closing old problems, but also for opening new issues and objectives.

Design as a Transdiscipline

The changes of the production system, the globalization of markets, and the central role of communication have changed the nature of Design itself, which is now investing the entire production system and the “nerve centres” of society (infrastructures, transportation, attractors, communication), and not just its end products. Then, nowadays, Design has expanded its territories of action and developed its methods to constitute complex and cross-border fields, while introducing a vast collection of objects, inventive projects, as well as highly specialized laboratory research (Manzini and Bertola 2004).

It is service design, namely drawing of maps, routes, product strategy, and management. It is design connected to communication and fashion design. Furthermore, it is urban design and planning of microenvironments, both real and virtual. It is the product itself to be changed and become hybrid; in order to have visibility, it has to be a product of communication, a product-image, a product-service, a product-event, which plays a central role not only in the evolution of society, but also of taste and individual and social habits. The transition from the old twentieth-century “industrial design” to the contemporary “360-degree Design” has led to the multiplication and expansion of its fields of expertise. Therefore, today product design turns to communication and strategic vision. We may find fashion trends, but also ethical issues, eco-compatibility, as well what is permanent and what is transitory at the same time.

As a consequence, Design becomes a structurally open field, which is flexible and has no fixed rules or inner need to be defined too rigidly in its various divisions (Imbesi 2009a). While practising cross-fertilization, Design has an extensive capacity, allowing us to perceive the most

diverse and unexpected connections, but always in the context of its irreducible anthropocentrism that makes Design an interface between the outer and inner world of subjects.

In addition, similar to the methodology of science programs, the proper way project design operates is interdisciplinary and is out of the strict logics of the disciplinary fields, playing out the “thinking differently” from which innovation occurs. This is precisely for its character of playing on the boundaries of the fields, while capturing and using knowledge and techniques from other disciplines, carrying them into everyday life and translating into worlds, real and virtual artifacts, programs, communication, as well as developing its own tools.

Speaking Languages

As per the density of its factors, Design takes the complexity of a total social fact and thus has a central role in the ongoing changes of complex societies, between global and local. It is a Design augmented in plural terms, in which the specializations are multiplying and are increasingly more sophisticated and contextual, without starting close and rigid divisions. Conversely, this opens to a plurality of languages and methodologies, which interact and make the Design field even more pervasive and articulated.

Design does not have a specialized vocabulary, utilizing words that belong to both common language and to specialized languages of other disciplines. Yet, Design has a language other than common, though its specialism is not just the result of its special vocabulary or lexical expressions, as it is in the case of technical-specialized languages, but implies the presence of its own deep semantic field.

As a result, Design implies a strong core of methodologies as tools of analysis or research. Such methodological apparatuses have not just a function of description and interpretation of reality, but are directed to the problematization of reality and to opening up to new horizons.

Design drives implicitly a systematic translation of codes and meanings taken from the ethnographic, the sociological, the economical, the productive, and the consumption and market disciplines, to bring them into its own disciplinary context and to set them within the design perspective. As a result, this process develops a special language, positioned on the opposite side of the technical-scientific languages, which are aimed, on the contrary, at increasing the rigor and reducing the ambiguity of any ordinary language. By contrast, Design aims to enhance creativity through the systematic expansion of its metaphorical attitudes and its language skills, objects, and images.

Permanent Education

Design is expanding its roles and goals; blurring/networking the areas of art, communication, fashion, and architecture; and playing an important role to giving quality to artificial production and living spaces. Therefore, if Design can be reached in any product expression of society and culture, Design is happening to need a transdisciplinary approach while covering a widespread range of fields and scales of project, depending on the complex nature of contemporary processes and artifacts. As a result, education in Design becomes “permanent learning” while requiring varied and advanced tools and programs in order to face technological innovation and the social transformations that are incessantly changing our reference landscape (Imbesi 2008b).

The computer becomes the ultimate tool and, unlike instruments requiring innate specialized skills and abilities (like the ability to draw by hand), today’s user-friendly software opens up the field to a vast, totally new group of young people who would not have had access to design earlier.

The process of digitalization permeates every segment of professional activity; it settles timing and resources and thereby reduces the entire design process to producing and processing data that has been re-elaborated by the knowledge and creativity that are put into play. At this end, the rate at which software is updated measures how quickly innovations are made into

products, and designers have to follow a form of permanent education and learning on how to use updated technologies, thereby constantly redefining the rules of the game (Imbesi 2007).

Value for the Experience Economy

The economy of symbolic goods requires a steady process of aesthetization of everyday life in order to produce experiences and emotions that can be considered more strategic than physical products at every scale of a project. This is connected with a broadened demand of Design which reveals to be a disseminated phenomenon in service to the experience and service economy made up of creativity and immaterial factors (Gilmore and Pine 1999). As a result, new forms of consumption and new products require new approaches to Design in plural and innovative ways.

Along with the increasing success of the knowledge society, the creative practitioner takes the form of a “mediator,” as he or she acts simultaneously as a translator of social practices, languages, needs, social knowledge into economic value, but also as a translator of instances of economic value into social and cultural practices, especially in the field of fashion. This is an intermediate function that often ended up producing the indeterminacy of the professional profiles and the difficulty of defining and regulating its relationship with the company. Its status is therefore hybrid and ambiguous, creating value through the production of innovation and change (of contents, images, technology).

The epistemic break implies the revision of the social role of the Designer and the project tout court as an extensive social phenomenon and marker of contemporary time, while paradigms of industry and seriality cannot explain anymore the complexity and the plurality of the experiences connected. These are new roles to discover, in-between material and immaterial factors, interaction and communication, service and product, experience and scenario visions, local and global. Design comes out of industry and of the paradigmatic idea of modern projects in order to state diffusely its presence in every social and aesthetic event and performance.

The Digital Democratization of the Creative Profession

The spread of new technologies and software’s relative ease of use have allowed an exceptional stream of young designers to develop and grow on a global scale. This phenomenon is mirrored by the exponential increase throughout the world in the number of schools with this philosophy—be they state-run or private, university departments, or specialist colleges. They introduce this new group of people—which has now reached a critical mass—to techniques, technologies, approaches, and processes, which will let them become part of the international creative research community (Florida 2003). While on the one hand this phenomenon further reinforces the independence of the design discipline, on the other it breaks up and completely disperses its skills. Likewise, the educational offering has expanded and become increasingly varied, and students now learn to navigate on a global network through educational programs that are much more complex and heterogeneous than before in terms of their duration, degrees, and specializations.

Thus, together with the diffusion of new technologies and software, the anthropology of young Designers shapes a creative strata which has to rethink his or her role in order to answer to a spreading demand of aesthetics, while he or she gives rise to new products and services as well as new markets and consumption standards. This “democratization” of the professions connected with projects, while it has lowered its elitarian status, at the same time has allowed the development of an exceptional flux of young Designers, which has developed global extensions (Imbesi 2007). For example, the advancement of technologies for rapid prototyping, from syntherization to stereolithography, releases new scenarios for experimenting Design shapes and languages while bringing closer the activities of projects and those of production. New technologies and multimedia create emerging chances for enabling experiences of self-production and forms of participation, where Design has a new role as an intelligent actor in

complex networks not only giving solutions with a top-down approach, but also spreading and developing new tools for collaboration.

At the same time, the professional characters connected with creativity have been multiplied in every sector of production, such as the art director, the virtual modeller, the interior designer, and the web designer (Manzini and Bertola 2004). In fact, if it is true that we live in a society where “everybody designs,” then designers should accept that they can no longer aspire to a monopoly on Design, and, at the same time, they have to be able to recognise what could be their new specific role within society, also considering this may have to be newly discovered in a state of crisis of production and employment.

Then, according to the spread of creativity in every expression of society, designers have to learn how to actively and positively participate in social processes where new ideas are emerging. Thus, research and education should focus on understanding and tracing the new roles of Design in advanced knowledge societies.

This should be considered as a resource and a chance for Design programs for building, collecting, and giving evidence to critical design experiences emerging as an alternative and spontaneous space, often side by side and intertwining with the mainstream official production. Education and research in Design should still be the field for making room to the experiences that may not find direct and easy development within the established commercial and productive realm.

Design Networking

Along with the democratization of the creative profession (Imbesi 2007), the concept of networking has reached a special role for the Design process: collaborative networking in our knowledge society has opened a great social and cultural shift, revolutionizing the way we work through new collaborative approaches that highly affect our organisational models in every field (Castells 1996; Levy 1999). Along with the objective to develop networks of social creativity, Design programs should be the first to understand and even to foresee the new forms of organization and labour emerging in order to search and give tools to the students for building local and global collaborative networks before being out of school (Imbesi 2009c). To this end, students should acquire skills to be capable of organizing very complex projects while gathering a large number of people and interests while developing platforms for actions through open source and peer-to-peer models. This is an incredible chance given by new technologies which cannot be left and should be fully exploited.

At the same time, as said before, Design has multiplied dramatically the number of schools and universities, museums and collections, centres and incubators, events and fairs, spreading Design around the world out of the historical places of creativity, so releasing a polycentric geography from Milano to New Delhi, from Toronto to Berlin, from London to São Paulo. It is important to understand and at the same time be connected to the proliferating global network of Design for developing new forms of collaboration for didactics and research, while reaching the places in the world where innovation pushes ahead toward the new scenarios for projects. The organization of international Design events and conferences as well as frequent students didactic exchanges through international workshops or seminars should be considered as the output and the tool for reaching and spreading to new partners and so testing new and open forms of collaboration for research investigation, scientific discussion, and projects.

Furthermore, as introduced at the beginning, the historical epistemological shift from the Fordist-Taylorist paradigm of mass production into the postindustrial development draws a new economic and productive geography. As the industry of the chain assembly leaves space for new and more flexible forms of labour, a net of connected hubs delocalizes and autonomizes manufacturing activities. Therefore, research on Design should try to recognize also “where” is Design in the new geography of industry, for playing a role while enabling and connecting social and productive issues.

Then, education in Design should reach and foresee contemporary responsive scenarios in relation to the global challenges of contemporary societies: accessibility and inclusive technology, nomadism and mobile objects, identity and cross-cultural metropolis, and gender and racial issues. New application fields for Design should be constantly explored, from products to communication, from interiors to services, from ITC to crafts, from medical devices to fashion, with a special attention to their local areas of application, from the most mature industrial societies to the emerging ones.

Conclusion: Contemporary Challenges for Design

If one of the principal purposes of Design is improving social and human well-being, then this is a fundamental shift from the traditional aim of putting market success first. Design should play a part in innovation toward flexibility and sustainability, making the human factor central to the process, especially human values: ethical (sustainable development, care for the quality of the environment, energy reduction); social (relational systems); perceptive (cognitive sciences); functional (functional and symbolic factors); and cultural (areas such as cultural heritage). The need for a renewed attention to the centrality of human values in research into innovation for flexibility and sustainability leads us to consider the strategic role that these values can play within the whole process and to investigate all the interdisciplinary aspects of human factors today.

As a knowledge society is the result of a large transformation that is taking place at a global scale, overlapping and connecting the meaning of service, information, and network society, then contemporary Design research should stand for the production of knowledge that can be shared and accumulated. Hence, research and specific projects should explore complex Design issues and generate visions and solutions as original combinations of products, services, and communications, capable of facing specific issues (such as housing, mobility, health, food), while featuring new pioneering fields of enquiry for the study in Design, allowing at the same time exciting interdisciplinary connections to be made.

Methodologically, some key issues should be taken into account as reference topics to drive research and didactics:

- Technology (the innovation in technology and materials as an engine for design process, also impacting social consumption and use);
- Environment (Design for sustainability to accommodate human needs without compromising the environment);
- Global Design and cultural identity (the social role of Design and the cultures' appropriateness);
- Self-production and self-branding (the democratization of the creative professions);
- Hybridization (of languages and identities displayed in and by Design);
- Experience (the immaterial value of Design and the production of services);
- New every day (meanings related to the context of use and consumption as cultural familiar shape for dwelling);
- Critical issues (connecting objects and their social and political environment, while developing questions and issues);
- Global cities (the places in which locating and networking design processes take place).

REFERENCES

- Appadurai, A., ed. 1986. *The Social Life of Things. Commodities in Cultural Perspective*. Cambridge: Cambridge University Press.
- Bauman, Z. 2000a. *Liquid Modernity*. Cambridge: Polity Press.
- . 2000b. *Globalization: The Human Consequences*. New York: Columbia University Press.
- Beck, U., A. Giddens, and L. Scott. 1994. *Reflexive Modernization: Politics, Tradition and Aesthetics in the Modern Social Order*. Cambridge: Polity Press.
- Beck, U. 2000. *What Is Globalization*. Cambridge: Polity Press.
- Bell, D. 1973. *The Coming of Post-Industrial Society: A Venture in Social Forecasting*. New York: Basic Books.
- Bonomi, A., and E. Rullani. 2005. *Il capitalismo personale. Vite al lavoro* [The Personal Capitalism: Lives at Work]. Torino: Einaudi.
- Borriaud, N. 2002. *Postproduction*. New York: Lukas & Sternberg.
- Branzi, A. 2006. *Modernità debole e diffusa. Il mondo del progetto all'inizio del XXI secolo* [Spread and Weak Modernity: The World of Design at the Beginning of XXI Century]. Milano: Skira.
- Castells, M. 1996. *The Information Age: Economy, Society and Culture Vol I, The Rise of the Network Society*. Oxford: Blackwell.
- Coriat, B. 1979. *L'Atelier et la chronometre: Essai sur le taylorisme, le fordisme et la production de masse* [The Workshop and the Chronometer: An Essay on Taylorism, Fordism and Mass Production]. Paris: C. Bourgeois.
- . 1991. *Penser a l'envers: Travail et organisation dans l'entreprise japonaise* [Thinking Backwards: Work and Organization in the Japanese Enterprise]. Paris: C. Bourgeois.
- De Bono, E. 1992. *Serious Creativity. Using the Power of Lateral Thinking to Create New Ideas*. Des Moines, IA: The McQuaig Group Inc.
- Florida, R. 2003. *The Rise of the Creative Class: And How It's Transforming Work, Leisure, Community and Everyday Life*. New York: Basic Books.
- Giddens, A. 1990. *The Consequences of Modernity*. Cambridge: Polity.
- Gilmore, J. H., and B. J. Pine. 1999. *The Experience Economy: Work Is Theater & Every Business a Stage*. Boston: Harvard Business Press.
- Gorz, A. 2003. *L'immatériel: connaissance, valeur et capital* [The Immaterial: Knowledge, Value and Capital]. Paris: Editions Galiléé.
- Harvey, D. 1991. *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change*. Hoboken, NJ: Wiley-Blackwell.
- Imbesi, L. 2007. *La democratizzazione digitale della professione creativa* [The Digital Democratization of the Creative Profession]. In *DIID—Disegno Industriale*. Rome: RdesignPress.
- . 2008a. "Design for Self-Production: The Digital Democratization of the Creative Profession." In *Design & Recherche Conference Proceedings of Conference Saint Etienne*, edited by Justyna Maciak, Camille Vilain, and Josyane Franc. 54–56. Helsinki: University of Art and Design Helsinki.
- . 2008b. "Design Power. Design Cognitariat at Work in the Organization of the Knowledge Capital." In *Design Thinking: New Challenges for Designers, Managers and Organizations. Conference Proceedings of the International DMI Education Conference*. Paris: ESSEC Business School, Cergy-Pontoise.
- . 2009a. "Design Studies: Design in-between Theories and Project." In *Design Education 2050. Icsid Design Education Conference Singapore*. Singapore: Temasek Polytechnic.

- . 2009b. “Networks of Design: Critical and Social Connections between Project and Self-Production.” In *Design Connexity. Conference Proceedings of the 8th European Academy of Design Conference*. Scotland: The Robert Gordon University, Aberdeen.
- . 2009c. “Copy & Paste: Design in the Era of Postproduction.” *Design Principles and Practices: An International Journal* 3 (6): 235–46. <https://doi.org/10.18848/1833-1874/CGP/v03i06/37801>.
- . 2010a. “No More Lonely Heroes. From the Culture of Project to Spread Creativity.” In *Design Matters. Designers Too. Designers as Human Resources*, edited by Cumulus Think Tank, 59–62, 211–14. Antwerpen: De Boeck.
- . 2010b. “Hybrid in Design. Design as a Cultural and Collective Process.” In *Borderline—Pushing Design over the Limit. Conference Proceedings of Cumulus Genk Conference*. Katholieke Hogeschool Limburg, Media & Design Academie.
- Kern, H., and M. Schumann. 1991. *Das Ende Der Arbeitsteilung? Rationalisierung in Der Industriellen Produktion* [The End of the Division of Labor? The Rationalization of Industrial Production]. Munich: Beck’sche.
- Levy, P. 1999. *Collective Intelligence: Mankind’s Emerging World in Cyberspace*. New York: Basic Books.
- Lyotard, J.-F. 1984. *The Postmodern Condition: A Report on Knowledge*. Minneapolis: University of Minnesota Press.
- Maione, G. 2001. *Le merci intelligenti* [The Intelligent Goods]. Milano: Bruno Mondadori.
- Manzini, E., and P. Bertola, eds. 2004. *Design Multiverso. Appunti di fenomenologia del design* [Multiverse Design: Notes on the Phenomenology of Design]. Milano: Edizioni Poli.Design.
- Ohno, T. 1988. *Toyota Production System: Beyond Large-Scale Production*. New York: Productivity Press.
- Polanyi, M. 1967. *The Tacit Dimension*. London: Routledge and Kegan.
- Rifkin, J. 2001. *The Age of Access*. New York: Penguin Putnam.
- Robertson, R. 1992. *Globalization: Social Theory and Global Culture*. Thousand Oaks, CA: Sage Publications Ltd.
- Rullani, E. 2004a. *Economia della conoscenza. Creatività e valore nel capitalismo delle reti* [The Economy of Knowledge: Creativity and Value in Networked Capitalism]. Roma: Carocci.
- . 2004b. *La fabbrica dell’immateriale. Produrre valore con la conoscenza* [The Factory of the Immaterial: Producing Value through Knowledge]. Roma: Carocci.
- Sennett, R. 2000. *The Corrosion of Character: The Personal Consequences of Work in the New Capitalism*. New York: W. W. Norton & Company.
- Toffler, A. 1980. *The Third Wave*. New York: Morrow.
- Touraine, A. 1969. *La société post-industrielle. Naissance d’une société* [The Postindustrial Society: Birth of a Society]. Paris: Denoël-Gonthier.

ABOUT THE AUTHOR

Lorenzo Imbesi: Architect; Full Professor and Chair, SDR Sapienza Design Research Interdepartmental Centre, Sapienza University of Rome, Italy

Design Principles and Practices: An International Journal—Annual Review

explores the meaning and purpose of "design," as well as speaking in grounded ways about the task of design and the use of designed artifacts. The resulting conversations weave between the theoretical and the empirical, research and application, market pragmatics and social idealism.

In professional and disciplinary terms, the journal traverses a broad sweep to construct a transdisciplinary dialogue which encompasses the perspectives and practices of: anthropology, architecture, art, artificial intelligence, business, cognitive science, communication studies, computer science, cultural studies, design studies, education, e-learning, engineering, ergonomics, fashion, graphic design, history, information systems, industrial design, industrial engineering, instructional design, interior design, interaction design, interface design, journalism, landscape architecture, law, linguistics and semiotics, management, media and entertainment, psychology, sociology, software engineering, technical communication, telecommunications, urban planning, and visual design.

Design Principles and Practices: An International Journal—Annual Review, consists of articles considered to be of wide interest across the field.

Six thematically focused journals also serve this Research Network:

- *The International Journal of Architectonic, Spatial, and Environmental Design*
- *The International Journal of Design Education*
- *The International Journal of Design in Society*
- *The International Journal of Design Management and Professional Practice*
- *The International Journal of Designed Objects*
- *The International Journal of Visual Design*

Design Principles and Practices: An International Journal—Annual Review, is a peer-reviewed, scholarly journal.