TECHNOLOGICAL RESEARCH AND INVENTION IN THE INDUSTRIAL DESIGN\textsuperscript{i}

Mario Buono\textsuperscript{a}, Sonia Capece\textsuperscript{b}

\textsuperscript{a} Full Professor Industrial Design – (Department of Civil Engineering, Design, Building and Environment, University of Campania Studies Luigi Vanvitelli, Italy) e-mail: mario.buono@unina2.it

\textsuperscript{b} PhD Industrial Design – (Department of Civil Engineering, Design, Building and Environment, University of Campania Studies Luigi Vanvitelli, Italy) e-mail: sonia.capece@unina2.it

Abstract: Technological research proposes stimulating challenges starting from the new scenarios arising since XX century, the environmental imperative imposes new responsibilities, the industrial production, requires the rethinking of the concept of "material culture" as well as new information technologies lead to new models of theoretical and conceptual elaboration. We live a new condition, defined by Augé «surmodernitè», where history fades into actuality, space turns into images and individuals from being actors become spectators.

The industrial design moves from tackling "traditional culture" of the project to the "culture of innovation" for which the "know-how", which allows the transition from theory to practice, is replaced by the "can-do" that is the design of a technological solution allowing to model artifacts in a new way and, as a consequence, introducing a different interaction between users and the context.

The contribution illustrates the design experimentation of the industrial invention “inclusive control system device [repositionable]”.

Keywords: design culture, interaction, invention, industrial product, technology research

1. Innovation ability and design knowledge between "design culture" and technology research

Technological research proposes stimulating challenges starting from the new scenarios arising since XX century, the environmental imperative imposes new and more articulated responsibilities, the industrial production, on a global scale, requires the rethinking of the concept of "material culture" as well as new information technologies lead to new models of theoretical and conceptual elaboration. We live a new condition, defined by Marc Augé «surmodernitè» (Augé, 2009), where history fades into actuality, space turns into images and individuals from being actors become spectators.

In this transforming and hybridizing complex scenario it is interesting to understand how knowledge, humanities, the design culture, technological practices, the processes of communication and behavioral dimensions have mutated.
The industrial design moves from tackling "traditional culture" of the project to the "culture of innovation" for which the "know-how", which allows the transition from theory to practice, is replaced by the "can-do" that is the design of a technological solution allowing to model artifacts in a new way and, as a consequence, introducing a different interaction between users and the context-environment.

"Culture as a resource refers to a set of tools that can be used in various ways for the development, the growth, the activation of faculties, capacities, etc. arising from specific operating cultural background. In other words the culture as a resource means the culture as a field from which to draw to mobilize buried energy, as a source of resources and potential potentials. As a self-produced world whose overall productivity is to be increased. How this world can be solicited again and further to this end is the real problem. This is, for us, the implicit question in the essentially critique combination of culture as a resource". (Toscano, 2010)

Cultural communication has been transformed thanks to the changes that digital technology introduced. Of course it is not enough for a development project to be digital to be defined as innovative. «The innovative capacity of a system is therefore primarily related to the amount of information that can be infused into products, creating value (i.e.: responding effectively to specific social demands) [...] and competitive strategies [which] are primarily social strategies of knowledge and know-how creation to significantly expand, in the right direction, the "production DNA" of an economy». (Sacco, 2016)

This new approach translates into a new way to conceive the methodologies of informations and knowledge design in cultural virtual environments.

Industrial design discipline should take charge of the enhancement of the cultural capital or, more openly, to facilitate the transition from cultural to creative industries through the instruments of knowledge, skills and creativity. The methodologies of the industrial design discipline and the evolution of the discipline methods, underpin the cultural and scientific background knowledge as a starting point for the construction of thought as a response to the needs; on the skills that, starting from knowledge, enhance it by supplementing it and making it operational; all this through the instrument of creativity, for the achievement of right and necessary balance between intuition and reason, science and art. (Buono, 2015)

«Making things always means also producing [...] texts, in which technology can be art as well as art can be technological, in which nature is manipulated even in its depths [...] also design should reconsider carefully its position and role. And so it did». (Seassaro, Trochianesi, Volonté, 2010)

It is thanks to the "culture of design" - together with the quality, innovation and new technologies which, starting from the discipline of industrial design, from the meeting of technical, cultural and scientific potential, belonging to different disciplinary, organizational and linguistic universes, that is possible to explore the transformation processes in place, to experiment with emerging technologies, to assess the potential of new materials in order to envisage design solutions with highly innovative and inventive content.

In this sense, the availability of "cultures" and culture-oriented techniques is needed to reach and explore those paths, changes and dynamics – tangible and intangible – that foster creative processes, innovative experiments in the areas of design.

«Design is a disruptive instrument, capable of creating and "destroy" people, places and products. It is also a vehicle for a cultural reform. If observed as a comprehensive process, design is a sector in constant transformation. It imposes itself on the identity of brands, [...] highlights cultural values and distills the entire design process of physical goods and services. A form of direct storytelling because
the brain has a preferential relationship with the pictures [and shapes], which it interprets quicker than words». (Mosca, 2016)

In analyzing the relationships between virtual environments and the cultural fields, emphasis must be placed on a phenomenon that has really interested scholars who face new processes and new trends of the "cultural" communication: the concept of "metaverse", which became part of the lexicon of virtual environments and digital simulation industry, borrowed from cyberpunk novel Snow Crash written by Neal Stephenson in 1992.

In the virtual world of the "metaverse" users can interact with each other without being influenced by the limits of physical space and, despite being physically present in different places, may undertake joint activities and exchange information, representing the social and cultural dimension of its virtual collaborative environments.

The designed spaces and the processes will be "lived" and "implemented" in advance in the "metaverse", while the lost experiences, "reconstructed" in three-dimensional environments and spaces to move, to share memory, and to imagine through "actuators" and "simulators". The challenge will be to design an overlap between real world and imagination from the settled cultural awareness.

It is necessary to rethink the design of systems and products about the involvement of the public, pursuing quality and innovation, also in the production and content management. Technology alone is not enough, the design must be collaborative, to avoid cases of technologies which are immature, unusable, malfunctioning, difficult to maintain or grow old too soon. In the first place is necessary to observe users, analyze other experiences, share best practices and use cases, evaluate the implemented solutions.

It is necessary to prefigure interactive solutions capable to change due to the presence and action of the users, who act as intermediaries between the instrument and the product, becoming real co-authors of the design scene. Hypertext navigation, 3D virtual environments, computer generated images, interactive installations: from a closed and structured work to a source-work which contains, in its actualization and execution, a possibility of continuous variation.

For example, in art there is much talk of interactivity in an effort to engage museum visitors in certain forms of expression, that contemplate the use of sophisticated technology.

«Many visions of the design activity have been proposed and imposed which have been confronted with such transformations, from services design to interaction design, from sustainability to many forms of co-design and shared design, until the development of design semiotics». (Seassaro, Trocchianesi, Volonté, 2010)

Many of these proposals seem to share the common feature of relying on what we might call a "humanist dimension of design" and that can manifest itself in many different ways: by assigning the centrality of the human being or the social relationship in the project; by relating openly and directly with the territory, that is to say with the social geography of the recipients; reworking the connections between the artificial and the natural, between the human and the nonhuman; throwing bridges between memory and innovation; actively involving end users in the design process». (Seassaro, Trocchianesi, Volonté, 2010)
2. The interaction as design matter through creativity and artificial intelligence

It is the experience, dictated by established knowledge, that through the industrial design discipline can transfer creative processes to create "interactive dimension" in which planning is enriched by the unique artistic, cultural identity, inclusion and participation by a user-centered, dynamic custom dialog with the product-system.

As stated by Paolo Rosa, a socialized space is the first sense of our definition of sensitive environments. It is all about thinking of contexts where an interactive act is not confined to an individual dimension. Contexts in which the dialogue with the machine is associated and also maintains the comparison, even complicit, with other people. It is a guarantee to participate in the choices that will be more and more frequent in our society due to the spread of interactive consultation systems, less alone and isolated from a still essential human confrontation. (Rosa, 2003)

«The playful aspect is an intrinsic component of interactivity, of any shape [...] also the most archaic. The amusement aspect may sound like a synonym for superficial: falling naively in the rules of a envisioned game. But as we all know, playing primarily means knowing through a simulation, composing an experience through an imaginative adventure. [...] The play is an access threshold. As such should lead you to layers of progressive complexity». (Vassallo, Di Brino, 2003)

Technologies can help our interaction with others, with knowledge, information, and experience - and even with the same tools. In fact, the use of, even very sophisticated, technological artifices in archaeological museums was originally intended to create sceneries or suggestive effects, feeding curiosity and involvement. The key word in finding models through the technological maze is precisely interaction.

Although new technologies can intensify this experience, they must be designed to allow to compose a global vision. The common use is explained in today’s context, where the designer designs activities minute-by-minute. But Laurel has an even more ambitious goal. He stresses that what is great is the totality, where activities are interconnected, where each individual activity makes sense only when seen in relation to the other, and where they can be of considerable duration. Laurel takes care of experience as a whole.

«The sense of a «search for lightness as a reaction to the weight of life» quoted by Calvino, may perhaps be applied to read the interactivity of these artistic achievements as a reaction to the weight of computer revolution. The interactive art constitutes an offer of new interpretations, however conditioned, despite intentions, in a range of prepared choices; but it seems suggesting the hypothesis (or utopia) of bringing, in a more human and corporeal dimension, the immaterial, pervasive and modifying technology in which people, languages, and relationships are today increasingly immersed». (Vassallo, Di Brino, 2003)

Thinking human interaction as dramatic activity is thinking bigger, taking a total point of view and pointing out those thematic aspects of our activities and daily needs. Technology can achieve our experience and increase our joy, but only if it is properly conceived and applied. (Laurel, 1993)
3. Design experiments and transfer of technology for new forms of interaction and use of "knowledge"

The paragraph illustrates the design experimentation and the industrial invention of an “inclusive control system a contact rotational device [repositionable]” developed by researchers and designers. The research unit was expanded to include a person with motor disabilities, a second-year student with degenerative primary muscular dystrophy, who was working towards his degree in Industrial Design and Communication of the yet Second University of Naples. He collaborated on checking the aid, whereas the final phase of the project involved physicists and experts on materials. The incidence of different cultural factors, the mixture of roles and disciplines, the layering of skills, scientific and heterogeneous and contradictory operational references have contributed to “a shared, contested and negotiated narrative” (Benhabib, 2009, p. 5) one in which knowledge and experience were the cardinal principles of an inclusive methodological and design process. The system has been designed with the aim of satisfying the specific needs of disable individuals, starting from the conscious use of the analysis of needs, in a process of integrations and connections between different languages. One of the most valuable features is its adaptability, which makes it the first universal control device able to interact with video systems, integrating in a single system the functions of all the devices on the market and in use. In fact, it is in line with the latest research and market trends, especially about the mode of interaction with the new interfaces and video systems.

![Figure 1. operating mode and photorealistic renderings of the “inclusive control system a contact rotational device [repositionable]”](image)

The research activity was divided into three phases. The first one involved the survey, analysis and collection of data to define instruments and principles to help developing the next phase, which was design-oriented, whereas the third and final phase entailed circulating the results were achieved. Specifically, the first phase defined a methodological reference framework, mapped needs, identified the reference target, mapped the aid technologies currently on the market for different disabilities and studied innovative materials. In tackling the project for the “inclusive control system a contact rotational device [repositionable]”, it was decided that the first objective was to identify the reference target, using the disability classifications defined in recent years by the World Health Organization.
MARIO BUONO, SONIA CAPECE

Figure 2. operating mode and photorealistic renderings of the “inclusive control system a contact rotational device [repositionable]”

Furthermore, terminological analysis was conducted regarding EU/national regulations, and the types of disabilities to which the project had to respond were developed and investigated. In order to sketch out a complete picture of users and an operating approach that would be effective not only for specific needs, the team decided to starting with the study and analysis of a specific pathology and then generalize potential approaches.

The specific pathology studied here was Duchenne muscular dystrophy, a disorder that, with Becker muscular dystrophy, appeared to be highly significant for research purposes. The degree of muscular weakness produces a series of disadvantages in terms of reduced accessibility and working space, difficulty in using instruments or objects that require even the slightest anti-gravity muscle activation (use of the keyboard); the inability to perform even simple functions independently (e.g. eating); the need for support, containment and facilitation aids (postural support, articulated sliding devices); ways to deal with static/dynamic alterations of the spinal column, weight gain and pain due to fixity.
Once the disorder had been investigated, existing technologies and innovative materials were mapped, and the aid systems currently on the market were studied with reference not only to those suffering from motor disabilities but also expanding the field of investigation. Structured analysis forms were drawn up in order to list the evaluation of performance parameters in relation to minimal requirements such as efficiency, reliability, system flexibility, as well as ease in repairing and replacing components. These parameters, along with the definition of criticalities, constituted the design guidelines to be followed in the next phase. The analytical investigation and definition of criticalities revealed aspects that led to the definition of the design scenario and the redefinition of the initial objective, going from the design of a specific system for people with motor disabilities to that of an “inclusive control system a contact rotational device [repositionable]”, and thus expanding the use potential to the greatest possible number of consumers.

Several hypotheses and design solutions were set forth, examined and evaluated by identifying the requirements, principles and instruments that the inclusive control system had to have. The next step involved building study models to test and verify the function and usability of the system, defining its materials and innovative technologies. The aim will be to analyze and evaluate each component of the ergonomics human; user center design e new human factors, through the user-environment-product interaction according to a sequence that, starting from the physical-dimensional interaction condition and by the correspondence of the product to the anthropometric characteristics and to the capacity of users movement, involving aspects of perceptual and cognitive sphere, the emotional sphere, and finally to the social.

Further aim was to systematize the acquisition of user needs, through investigation and assessment methods designed to identify needs and translate them into a structured format and verifiable within the design process according to the principles of good design. In particular, the quality of interaction between the user and “inclusive control system a contact rotational device [repositionable]”, the assessment of compatibility between the characteristics of the product, the specifications, and the user’s physical abilities, the activities that this place and achieved performance, have been taken into account.

In parallel, the emotional components oriented to the study and design of the subjective aspects of the interaction user / inclusive control system will be evaluated. Among these, the emotions psychology, the areas of social and anthropology studies, while developing evaluation and intervention methodologies which are distant both from disciplinary origin and as intervention languages and tools, include and assess the subjective dimension of interaction, to date remained at the margins of the ergonomics interest. The second soul ergonomics is made from the User Center Design, whose objective is the creation of appropriate products of the needs of the user, the use of which is satisfactory and pleasant for the user and provides the possibility to carry out the required actions effectively and efficiently. User feedback in this case will be represented by system usability, i.e. the effectiveness, efficiency and satisfaction that specific users can experience using the product within the reference context, by the comprehensibility of the information available and the language in which they are presented, by the ease by which you can carry out the control procedures and / or dialogue, by the opportunity to receive appropriate feedback at the end of each procedure.

The design methodology has represented the indispensable tool to transfer, through scientific references, logic and systematic criteria to the project “inclusive control system a contact rotational device [repositionable]. This path has allowed the acquisition of interdisciplinary skills and specific knowledge needed to plan tangible results through the identification of design and methodological issues useful to optimize, innovate and enhance the design process.
Figure 3. The study of evaluation of the ergonomics and emotional aspects of the interaction user/inclusive control system a contact rotational device [repositionable]

Figure 4. Photorealistic renderings of the device "inclusive control system a contact rotational device [repositionable]"
4. The three C of innovation as an invention

Innovative design culture, through models of continuity between configuration and production, and new theories about the conformation of the industrial product, is a field of research and experimentation that feeds the new theories about systemic approach as a cognitive and operative instrument for the project.

Improving the process of access to content and enhancing the modalities of fruition, the potential of information technologies for the cultural communication can be fully exploited, assuming a proper use of the interfaces, the devices that visitors use to explore the cultural virtual environments so that they are able to optimize the relationship between "real space" and "virtual space" in order to transmit cultural content and optimizing visitor engagement.

The increasing use of "natural user interfaces", devices that provide interaction with the virtual environment based on the movements of the body, the tact, gestures and voice commands, constitutes an example of this trend.

The aim of the theoretical-methodological-projectual contribution is to propose new approaches guided by tactical design that identifies in the discipline of industrial design the dual function of director and actor of innovation processes, able not only to guide but to work within the design process to understand the dynamics and factors affecting the change by changing the strategy, if the situation requires it, to set the path to innovation as invention.

«The innovation as invention is configured, in fact, as an "open process" which, from the meeting of technical, cultural and scientific potentials capable of moving in between different disciplinary, organizational and linguistic universes, introducing original processes and products which can radically change the character of an industry, [...] launching a product or a completely new process: the "innovator's monopoly"». (Arquilla, Simonelli, Vignati, 2005)

Using the sport of sailing as a metaphor, one can compare the designer's role in innovative processes to the tactician's one during a regatta, so that, through the dialogue with the different skills and the acquisition of knowledge from art and science, they can build the foundations for the development of original products and processes in order to integrate the potential of open industrial design to the contributions from the different disciplines and fields of study.

Innovation needs to be rethought as a dimension characterized by the intersection between art, technology and genius loci. Rethinking Italian cities, territories, industrial, social and cultural districts as centers to reorganize, rebuild, re-evaluate in the light of the opportunities offered by new technologies, and begin to actually do it, enhancing the historical, cultural, environmental, natural, productive present there. In a world increasingly "condemned" to identify the distinctive feature, the competitive advantage, the quid that a country, an institution, a company possesses exclusively or at least to a greater extent than the others, καλοκαγαθία is the way to enhance the Italian genius loci and return to give culture, innovation, beauty to the world.

To rediscover a "creative" design approach, based on the need to address the difficult challenges that contemporary society imposes at in increasingly rapid pace. By simplifying, we can say that the design can provide the answers required to meet the needs of society to improve the quality of life. Similarly, the project makes use of the creative tool that can be used in accordance with their specific methods since the teachings of Bruno Munari and to include the principles of inclusive design.

The interdisciplinary approach for rewriting and design of inclusive tools for cognitive accessibility goes through creativity as defined by the mathematician Jules Henri Poincare, who stated:

«a new result has value, if it has, when, by linking elements known for some time, but until then scattered and apparently unrelated to each other, it creates order,
immediately, where it seemed to reign the disorder [...]. Inventing consists precisely in not constructing useless combinations, but building only useful ones, which are a small minority. Invention is discernment, is to choose [...] among all the combinations that you can choose, the most fruitful will be those formed by elements taken from very distant field. I do not mean that to invent something is enough to put together objects as desperate as possible: most of the combinations formed in this way would be completely sterile. But some of these, very rare, are the most fruitful of all». (Granelli, 2012, p.61)

A definition that is based on the awareness of the necessary "knowledge of the rules" and the need to overcome them or redefine them continually, requiring the possession of skills to manipulate rules and outcomes.

The Poincare’s definition is useful for two fundamental aspects related to starting and approaching research and innovation. The first aspect is, as noted above, the rewriting of knowledge not as the sum of monodisciplinary approaches, but as reconstruction of useful combinations that also pass through seemingly unrelated disciplines, as well as the design of inclusive tools for the dissemination and use of cultural contexts, essential for development and civil progress. The second aspect, preparatory to the first, is the need to use a creative and innovative approach to promote knowledge and the acquisition of the many possible combinations inherent in the vastness of information that characterize "cultures".

Figure 5. Conoscenza, competenza and creatività between science art and cultural industries
Technological research has allowed, through methodologies and survey instruments, new forms of science-oriented knowledge, with the aim to align the design knowledge and the industrial and productive progress. Through the implementation of existing technologies we will be able to explore the different fields of application of the “inclusive control system a contact rotational device [repositionable]” to configure solutions extensible to social inclusion, safety and assisted use of local, landscape and cultural contexts.

Research in ICT - Information Communications Technology sector has improved the services and the ability of users by offering a wide choice of tools and devices to be actively engaged in the production and sharing of content, through personalized adaptive dialogue with artifacts and centered on user. The technology itself becomes human-centric today and is smart, wearable, augmented, expanded, adaptive.

The real frontier of integration between real and virtual world is probably in breaking the barrier with physical reality, and with the ambition to also recover sensorial and corporeal dimension. The fast technological progress and the changes and implications on the habits and the quality of life, transform objects, behavioral patterns and physical and virtual spaces, in times hard to grasp by users and consumers. Designers mediate between technological and inventive accelerations, and interactive and usability routes, which should be suitable and adaptable to the incessant evolution of new usage models that pervade apprenticeship and leisure, health and safety and all the daily activities. We will live more and more in physical and virtual confined spaces, with the acceleration of time and everyday life, in pursuit of fluid destinies through the non-places of "surmodernità", which
have to be explored and rethought - redesigned through the discipline of design and industrial design.

A country that does not excel in the development of new technologies can still produce innovation learning to combine them in an original and creative way. (Bergami, Roccetti e Sobrer, 2016).

References

Bergami, M., Roccetti, M. & Sobrer, M. (2016). Pokémon Go, il made in Italy e l’innovazione in Il sole 24 ore, Milano.

Sacco, P. L. (2016). L’informazione del saper fare. La capacità innovativa è legata alla conoscenza infusa nei prodotti, Sole 24 ore, Milano.

Cfr Buono, M. (2015) le tre C dell’innovazione come invenzione, in Buono M., Capece S., Cascone F. Conoscenza, Competenze e Creatività tra Scienza Arte e Industrie Culturali in Ciro Piccioli, Luigi Campanella (a cura di) Diagnosis for the Conservation and Valorization of Cultural Heritage Atti del VIth Convegno internazionale (Napoli, 10-11 dicembre 2015) ISBN 978-88-86208-69.

Mosca, G. (2016). La cultura del design per cambiare il mondo in “Nòva il Sole 24 ore”, Milano.

Granelli, A. (2012). Città intelligenti? Per una via italiana alle Smart Cities, Luca Sossella Editore, Bologna, p. 61.

Toscano, M. A. (2010). Cultura e beni culturali. Per una pragmatica delle risorse manifeste e latenti in Rivista di pratiche filosofiche e scienze umane, Post-filosofie. La cultura come risorsa e le risorse della cultura, Cacucci editore, Bari.

Seassaro, A., Trochianesia, R. & Volonté, P. (2010). Testo introduttivo delle due giornate di studio Design & Humanities promosse dall’Unità di Ricerca e Didattica DeCH_Design for Cultural Heritage e della Facoltà del Design del Politecnico di Milano.

Augé, M., (Autore), Rolland, D. & Milani, C. (Traduttori) (2009). Non luoghi. Introduzione a una antropologia della surmodernità, Elèuthera, Milano.

Cfr Benhabib, S. (2009). The claims of culture. Equality and diversity in the global era. Princeton, NJ: Princeton university Press, pag. 5

Cfr Arquilla, V., Simonelli, G. & Vignati, A. (2005). Design, imprese, distretti. Un approccio all’innovazione, Polidesign, Milano.

Rosa, P. (2003). Rapporto confidenziale su un’esperienza interattiva, in S.Vassallo, A. Di Brino (a cura di) Arte tra azione e contemplazione. L’interattività nelle ricerche artistiche, Edizioni ETS, Firenze.

Vassallo, S. & Di Brino, A. (2003). Arte tra azione e contemplazione. L’interattività nelle ricerche artistiche, Edizioni ETS, Firenze

Laurel, B. (1993). Computers als Theatre, Routledge (traduzione C.Gily)

About the Authors:

Mario Buono Full Professor Industrial Design at the DICDEA, University of Campania Studies Luigi Vanvitelli. He is currently Coordinator of the Ph.D. ADI_Environment, Design and Innovation.

He is director scientific of different projects of applied research, industrial research for the development of new products with industries and companies operating in the country and internationally, through the tools of design and innovation with a view to enhancing and internationalization of local resources, gaining a large number of patents.

Sonia Capece, PhD Industrial Design at the DICDEA, University of Campania Studies Luigi Vanvitelli. He participates indifferent applied research projects, industrial research as a coordinator of the research group for the configuration and development of new products
Technological Research and Invention in the Industrial Design

with industries and companies operating in the country and internationally, through the tools of design and innovation with a view to enhancing and internationalization. It holds several industrial patents and designs / multiple community on ICT issues, inclusive design, energy design.

---

1 In this contribution, paragraphs 1, 2 and 3 are written by Sonia Capece, paragraph 4 is written by Mario Buono, while, graphics processing of figures 3, 5 and 6 has been carried out by Francesca Cascone. The contribution has been translated by Sandro Sacquegno curated by Service Scape https://www.servicescape.com.

2 The “inclusive control system a contact rotational device [repositionable]” was developed within the Department IDEAS_Industrial Design, Environment and History today DICDEA_ Civil Engineering, Design, Construction and Environment of the Second University of Naples today University of Campania Studies Luigi Vanvitelli, pursuant to the project entitled “New Technologies and Disabilities” – “Innovative aid system to allow people with motor disabilities to interact with design software”, promoted and co-funded by the Ministry of Education – Executive Office for Students and the Department for Technological Innovation of the Prime Minister’s Office, June 2008, the scientific director is Mario Buono. The project group is composed of Mario Buono (project manager), Sonia Capece and Pasquale Salzillo, Vincenzo Basile (disabled student), the physicists Nicola Spinelli and Wang Xuan, and the experts on materials Eugenio Amendola and Mario Montanino.

3 Beautiful and well done is also today’s καλοκαγαθία. Difficult word, but full of meaning that connects two aspects: "καλός", universally known as the beauty of Homeric culture, and "ἀγαθός", the attitude in the individual in making things right.