

PROCEEDINGS OF DRS

# DRS 2016

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## 50<sup>th</sup> Anniversary Conference Brighton, UK

### Design + Research + Society Future-Focused Thinking

EDITED BY:  
PETER LLOYD  
ERIK BOHEMIA

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# **Proceedings of DRS 2016**

Design + Research + Society  
Future–Focused Thinking

50<sup>th</sup> Anniversary International Conference  
Brighton, UK, 27–30 June 2016

**Volume 5**

Editors  
Peter Lloyd and Erik Bohemia

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## Editorial

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The 50<sup>th</sup> Anniversary conference of the Design Research Society is a special event at an interesting time for Design Research. The Design Research Society was formed in 1966 following the *Conference on Design Methods* held at Imperial College London in 1962. In the lead up to DRS2016 we contacted the secretary to the 1962 conference, Peter Slann, who now lives in Scotland, and who sent us the original reel-to-reel audio tape recordings of that conference. Listening to those tapes it is striking not only how similar some of the discussions are about design and design research, but also how much has changed. In 1962 every voice is a male British voice. One comment at the end of the conference stands out as significant. Thanking people for coming to the conference and looking towards the future at the end of the closing session, John Page, then Professor of Building Science at Sheffield University, asks the audience three questions (the quote is verbatim):

“if one agrees that there are bodies of knowledge that have been raised here, which need further exploration – particularly a case in point would be the terminology of design – is there any point in trying to get some kind of inter-disciplinary working party going on these problems? In this question of disciplines, is there any machinery or any way of arranging for an interchange of information between specialists and people working at Universities? Lastly, is there any point in making the whole thing more of a formal entity, a society, or something of that kind?”

Fifty years later it is clear that there was a point. The DRS as it exists today can trace its origins to the affirmation of that last question in 1962, and the ‘some kind of interdisciplinary working party’ that Design Research has become owes its identity to that 1960’s future-focused thinking.

Since the Conference on Design Methods in 1962 many Design Research conferences have been held, with the DRS often as a key organiser. Certainly in the earlier days, defined sub-fields of research originated from these conferences. Design Participation in 1971 started the participative design movement that has grown into present day co-design. Design for Need, held in 1976, and taking a global view of the population, started both sustainable and inclusive design, and Design Policy held in 1980 introduced a much needed social, political and international dimension to the design research field as Design itself lurched into the consumerist 80s.



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From almost every conference comes a thread that leads to the present day, so the fiftieth anniversary conference represents a point to gather these threads together, see how they complement and blend with one another, and consider what kind of textile they might weave in the coming years. Indeed, the early advice that many gave was not to spend too much time looking back and to concentrate on the future. For DRS2016, as well as the Design Research field more generally, the increasing number of PhD researchers is a sign that this future is set to be a healthy one. A significant number of papers in these proceedings are the result of doctoral research projects and organisations like PhD by Design, who had a strong presence at DRS2016, ensure that today's PhD Researchers will become tomorrow's Design Research leaders.

The DRS Conferences have always looked to develop new formats for people to engage with one another, over and above the standard paper presentation. The 1973 Design Activities conference aimed at:

“the provision of an extension of media forms beyond the normal ‘verbalized’ media of the average conference with the idea that such extensions were significant contributions to dialectical form, and not just ‘entertainments’.”

The 2014 DRS conference, in Sweden, continued that tradition by introducing ‘Conversations’ and ‘Debates’ alongside the more traditional academic paper presentation. It feels entirely appropriate that the field of Design Research is at the forefront of conference design, appropriating new technologies in developing more productive formats for discussion, networking, and presentation. And rightly so, because in an age when research papers and keynote presentations are available online we need to ask whether a conference, with all the travel, expense, and carbon involved, is still the most effective way of energizing and invigorating a research field.

DRS2016 is no exception and continues this ongoing conference prototyping activity. We have tried to develop a discursive conference that leans both towards the academic, in research papers, but also towards the practical in Conversations and Workshops. So this is a conference that presents existing research, projects, and discussions not as fixed end points, but as ongoing dialogue. To do that we have tried to balance the online conference with the offline one, and the ephemeral with the enduring. Partly this approach helps to provide a continued legacy for the conference, but it also helps to include as many people as possible in (re)directing the dialogical flow of research activity.

As an organising committee we met in January 2015 to talk about key questions, conference themes and conference design. From that discussion the three individual words of the DRS – Design, Research, and Society – were felt to define an interesting area for a conference; one that was about the practice and *doing* of design but also about design's societal impact and the moderating role that research plays between the two. Design + Research + Society perhaps represents a larger area than that of the Design Research Society, but as these proceedings demonstrate the appetite is clearly apparent for Design Research to embrace ever-wider concerns.

The underlying premise, however, was that 50 years of design research has provided us with a sound understanding of design and a solid foundation upon which to build. The interesting questions, then, appeared to us as not so much how we do more of the same – though that of course has its place – but in how we use what we now know. Hence the three broad questions that the papers in these conference proceedings respond to:

- How can design research help frame and address the societal problems that face us?
- How can design research be a creative and active force for rethinking ideas about Design?
- How can design research shape our lives in more responsible, meaningful, and open ways?

The DRS has a number of established Special Interest Groups (SIGs) which the organising committee thought important to prioritise but we also wanted to find a way to add additional emerging and complementary research themes to these. This resulted in a call for additional themes in June 2015 and a selection process that resulted in 15 further themes (from 25 proposals) alongside the 9 themes represented by the Special Interest Groups. The idea of a ‘conference of conferences’ began to emerge, with theme papers managed by sub-chairs, but consistency of peer-review overseen by a central review committee across all themes.

The systems currently available for managing paper submission, in the case of DRS2016 the excellent ConfTool system, now provide comprehensive integrative platforms to conduct sophisticated submission, peer-review, rebuttal, discussion, communication, and programming of papers, which means we can be more confident than ever about the academic quality of the final papers accepted for DRS2016. In total we received just under 500 paper submissions all of which were reviewed by two, and sometimes three reviewers, as well as being managed by theme chairs. In total 939 reviews were written by 290 reviewers with 200 papers being accepted, and a further 40 accepted following revision. This represents an acceptance rate of 49%.

The 240 papers in these proceedings have been grouped under 26 themes, 23 of which have been closely managed and developed by theme chairs (the other 3 themes derived from an Open Call). In these proceedings you will find an introduction to each theme by the relevant chair(s), outlining the background to the theme and putting the papers that were finally accepted and published into a wider context. Nine of the themes are the result of calls from the Design Research Society Special Interest Groups, which are active throughout the year and that report to the DRS council regularly. Many Special Interest Groups hold their own conferences, supported by the DRS, so the papers in these proceedings, responding to the overall theme of Future-focused Thinking, should be seen as a sample of those specialisms. Fittingly for a 50<sup>th</sup> Anniversary conference there is a strong historical thread of papers – the field of Design Research now becomes a subject of historical study in the themes of *Histories for Future-focused Thinking*, *50 Years of Design Research*, and *Design for Design: The*

*Influence and Legacy of John Heskett*. This is a useful development, and shows the maturity of the field now, with early work not just a familiar citation in reference lists, but something that can be looked at in a wider cultural and historical context.

Many of the new themes bring a more critical and speculative approach to Design Research, framing research questions and practices in ways other than what some see as more 'traditional' evidence-based approaches to research. These are papers that argue for a particular position or approach to understanding design or practice. Examples of these themes include *Aesthetics, Cosmopolitics & Design; Design-ing and Creative Philosophies*, and *Reframing the Paradox: Evidence-based Design and Design for the Public Sector*. The emerging area of Social Design is well represented in the areas of *Design Innovation for Society* and *The Politics of Commoning and Design* and shows the importance of Design Research to discussing and achieving concrete outcomes for social good.

The idea and limits of Design and Design Research are explored in many themes, but in particular *Objects, Experiences, Practices & Networks; Design and Translation; and Design for Tangible, Embedded and Networked Technologies* take a more systemic view of design, placing it within a network of activities and technologies. In contrast to this other themes focus much more on the individual and collective experience of designers and others involved in the process of design, for example: *Experiential Knowledge; Embodied Making and Learning; Aesthetic Pleasure in Design; and Food and Eating Design*.

Of course there are themes that have been ever-present in DRS, and in other Design Research, conferences – understanding design process and the nature of design knowledge are the subject of the *Design Epistemology* and *Design Process* themes. The practical impacts that design can have on all types of organisations are explored in *Design Thinking*, an area of continued and increasing interest, and *Design Innovation Management*. *Design Education and Learning*, now with its own large biennial conference series, was the most popular theme for DRS2016, with 28 papers accepted from 53 submissions.

Finally, there are a set of well-developed themes, organised as part of DRS Special Interest Groups, that broadly explore the welfare of others both in a small and large sense embracing ideas of person-centredness, responsibility and ethics. These themes include *Design for Health, Wellbeing, and Happiness; Inclusive Design; and finally Sustainable Design*.

As in any research field the definitions between sub-areas often blur and overlap, and there are themes that contradict and conflict with one another, strongly arguing against a particular approach or theoretical grounding of another area. The DRS2016 keynote debates were designed to explore some of these issues and fault lines but more generally this should be taken as a sign of health and maturity. For many years we have heard that Design Research is a new field, still finding its feet, but as an organising committee we think the definition and extent of the themes in these proceedings demonstrate precisely the opposite. In Fifty years we have built up a strong and diverse research field that is widely applicable, broadly inclusive and, in 2016, more relevant than ever.

There is a sense in which design research sits at the crux of a false dichotomy; between on the one hand research in a 'pure' form (which values objectivity, subjectivity, experiment, discourse, history, analysis) and on the other the active engagement in shaping future forms by suggestion, prototype, speculation, practice, and intervention at all levels, from the molecular to the political, from the anthropological to the computational. In an increasingly fragmented and atomised world Design Research is a field which reveals the falsehood of the dichotomy. It is a field that collectively links disciplines, audiences, and technologies in a critical but productive way. The design of a conference – with its implicit value systems, partiality to statistical analysis, but with an emergent structure and representation – is no bad example of a future-focused design research that shares what knowledge is known and explores what knowledge is possible.

Finally, we would like to thank all people – the local organisation, the international programme and review committee, and all the reviewers – involved in organising DRS2016 and who have contributed to such a huge collective effort. The valuable time that has been given in helping to shape and deliver the conference has been very much appreciated. Thanks should also go to the Design Research Society, for supporting the conference so effectively; to the Royal College of Art and Imperial College London for providing time and resources as partner Universities; and to the University of Brighton, particularly the College of Arts and Humanities, for enabling the early vision of a 50<sup>th</sup> Anniversary DRS conference to be fulfilled.

Peter Lloyd  
DRS2016 Conference Chair  
Vice Chair of the DRS  
Brighton, UK

## **Previous Design Research Society and Associated Conferences**

- 1962 *Conference on Design Methods*, London, UK
- 1964 *The Teaching of Engineering Design*, Scarborough, UK
- 1965 *The Design Method*, Birmingham, UK
- 1967 *Design Methods in Architecture*, Portsmouth, UK
- 1971 *Design Participation*, Manchester, UK
- 1972 *Design and Behaviour*, Birmingham, UK
- 1973 *The Design Activity*, London, UK
- 1974 *Problem Identification for Design*, Manchester, UK
- 1976 *Design for Need*, London, UK
- 1976 *Changing Design*, Portsmouth, UK
- 1978 *Architectural Design*, Istanbul, Turkey
- 1980 *Design Science Method*, Portsmouth, UK
- 1982 *Design Policy*, London, UK
- 1984 *The Role of the Designer*, Bath, UK
- 1998 *Quantum Leap*, Birmingham, UK
- 1999 *CoDesigning*, Coventry, UK
- 2002 *Common Ground*, London, UK
- 2004 *Futureground*, Melbourne, Australia
- 2006 *Wonderground*, Lisbon, Portugal
- 2008 *Undisciplined!*, Sheffield, UK
- 2010 *Design And Complexity*, Montreal, Canada
- 2012 *Uncertainty, Contradiction and Value*, Bangkok, Thailand
- 2014 *Design's Big Debates*, Umea, Sweden

# **Volume 5**

## A case based discussion on the role of Design Competences in Social Innovation

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**Abstract:** Thus far, many contributions in the field of design have described design's role in the life cycle of a successful Social Innovation (SI). Design, in fact, has been proposed by many authors to be the most suitable approach to developing SI initiatives from their start-up to release.

In particular, some authors have proposed Design Thinking as the best methodology for the development of new SIs; while others, promote Participatory Design as the best method to support SIs, heralding its process of collaboration, networking and coproduction.

Nevertheless, many research results have demonstrated that the need to find a balance between social and economic objectives is one of the main barriers to SI. This paper discusses these general results as they have been elaborated in the context of the SIMPACT European project and focuses on the value of design competences to better design SI products, services and brands, which is explored through the discussion of two well established cases of SI in Europe.

**Keywords:** Social Innovation; Design Thinking, Design Competences; SI Economic and Social Value

### Introduction

Europe is currently facing many societal challenges concerning vulnerable groups, from preventing migrant death in the Mediterranean (but not only) to delivering health and social care for an increasingly aging population. In this context, European research is addressing immigration, social exclusion and discrimination, as well as unemployment (specially youth unemployment), by exploring original forms of innovation.

Contemporarily, we're also observing the rise of a "social design" moment characterized by a socially-oriented objective instead of predominantly commercial or consumer-oriented



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ends. In fact, there is already a widespread acknowledgement of the role of design and its potential in facing societal challenges and helping social innovations (SI) to flourish.

In particular, there is an increasing awareness of the impact design has on understanding and framing problems and finding solutions in collaboration with communities, influencing societies and the wider environment (Armstrong et al., 2014). According to a recent report from the Arts and Humanities Research Council (2015), we can also talk about Social Design as a design-based practice aimed at collective and social ends, rather than predominantly commercial or consumer-oriented objectives, which operates across many fields of application including the local and central government, as well as policy areas such as healthcare and international development (Armstrong et al., 2014).

Despite wide acknowledgement of design as a strategic tool for developing SI initiatives, especially Design Thinking, and the urgency in which social issues are rising, design is still underestimated or not considered as a resource in SI praxis; an insight that was drawn from the study of 26 Business Case Studies under the SIMPACT Project, a European Project funded under the 7<sup>th</sup> Framework Programme.

Taking as a starting point one of the main results of SIMPACT, which illustrated how the vast majority of social innovators (80.7%) seek to obtain a particular social objective or a set of social objectives in combination with economic, respectively commercial, goals, this paper analyses and discusses the only two successful cases from SIMPACT benefitting from the role of design competences in shaping the tangible and intangible values of their products or services.

In particular, the two cases make evident that creating factors of competitive advantage that go beyond the social mission is necessary to survive in a competitive business environment and exemplify how the application of design competences can contribute towards the development of the social innovator's ability to generate revenues to be invested in the social objective.

The paper is organised as follows: section 2 describes the relationships that have been drawn until now, in literature, between design and SI and section 3 introduces the SIMPACT cases collection, as well as the two cases here discussed as examples of competitive SIs based on a design-oriented attitude. The final section draws some general conclusions and further steps from the SIMPACT project with respect to where we are with the application of Design Culture and design competences on SI

## **Design and its affinity with Social Innovation**

Regarding the diffusion of Design and especially of Design Thinking as the most suitable methodological approach to develop successful Social Innovation (SI), the debate here is still superficial and lacks a serious elaboration in the field of design practices and how it can be applied to SI processes.

In particular, Design Thinking is advocated, today, as the most suitable method to design SI solutions without however distinguishing the strategic level of policy from the operative level of the solutions.

If, at the general level, we observe a contradiction between the idea of SI as a kind of bottom-up process and that of design as a process of innovation led through the application of specific design competences (design-driven innovation), we also want to underline one bias that is occurring in the field of SI: that Design Thinking has been applied until now to analyse ex-post processes of SI. In this regard, we have seen a proliferation of studies that has tried to demonstrate how SI development can be described with user-centred design principles, which call for the involvement of end-users and beneficiaries in the development process of the solutions. Moreover, SI has been interpreted thus far by applying the typical process of New Product Development (Murray, Caulier-Grice and Mulgan, 2010) and it has been conceptualised as the development and implementation of new ideas, products, services and programmes to meet social needs (Mulgan et al., 2007).

While there is much buzz surrounding Design for SI, real practices seem to be quite distant from the application of basic principles of design. Moreover, it is also true that design shows a high potential for SI mainly for two fundamental reasons: SIs address problems that present high levels of complexity due to their intrinsic correlation with societal challenges; SIs require the involvement of different actors in order to be solved.

Regarding the first dimension, these kinds of problems are often chronic and unmet, even if the forms in which they appear are completely new (the problem of migration has always been faced by advanced countries in different historical periods yet if we think of it as it is emerging in Europe these days, we can perceive, for example, the new difficulty that arises from the impossibility to control the flows). As a result, we need the collaboration of new and old expertise to manage them.

Regarding the second dimension, the needs SIs address show a high degree of complexity due to the high number of actors involved in their solutions. This factor imposes a process of mediation capable of aligning and forming agreements between the involved stakeholders.

This complexity, however, has been largely misunderstood, with the idea that the mere involvement of users in setting ideas and understanding their needs would correspond to the introduction of design and its practices in SI development. This is the idea behind the contribution of Brown and Wyatt (2010) that has merited the introduction of Design Thinking in the context of SI as a strategic tool but that, at the same time, due to its nature, neglects to report the practices and the cultures that operatively transform a solution (a product, a service) into a design-oriented one.

Contrary to this perspective, we introduce here the notion “of design culture as a specific system of knowledge, competences and skills that operates within a specific context to develop new products, that mediates between the world of production and consumption

and that coordinates multiple factors related to technology, market and society” (Deserti and Rizzo, 2014).

With this respect the introduction of Design Culture and practices within the context of SI do not only rely on the collaborative dimension, between the end users or the beneficiaries and the initiator of the SI. Design Culture brings with it both the capability to strategically meet the needs of the users with the competences to deal with constraints related to all of the factors that affect the process of innovation development (technological, organisational, infrastructural, commercial, etc.).

SIMPACT’s research results have demonstrated that SI is still far away from a conscious application of Design Culture. The majority of the cases showed that constraints still tend to be underestimated; solutions are often drafted and applied before a sound development; and prototypes tend to be considered solutions to be maintained as long as possible, rather than intermediate objects meant to be turned into stable products.

But SIMPACT cases have also shown that when design culture applies to SI products, services and goods it can become more competitive and sustainable by better balancing its economic and social objectives. In the next section, we will focus our attention on the SIMPACT case collection and particularly on two cases, in which design did play a role in the solution, either immediately from the initial phases or later on, spurred by a need to be competitive on the market.

## **SIMPACT cases collection**

In SIMPACT, we analysed 26 case studies of Social Innovation (SI) that occurred across Europe during recent years, with a specific focus on their economic foundation. Their construction was based on case study methodology, used as a research frame particularly appropriate for examining a contemporary phenomenon within its real-life context during its evolution, when boundaries are blurred and not so clearly defined (Yin, 2014: 13). The SIMPACT project adopted a qualitative approach with the aim of exploring a real-life, contemporary bounded system (a case) over time, through a detailed and in-depth data collection involving several sources of information (Creswell, 2013: 97). In particular, the cases’ analysis advance the understanding of the economic aspects of already-known and described cases, by means of deep qualitative desk research (Strauss & Corbin, 1990; Denzin & Lincoln, 1994), during which the authors collected and compared information coming from different sources: scientific publications, non-scientific publications, interviews or presentations of the initiators, websites of the enterprises or initiatives among others. The use of multiple sources enabled the exploration of complex situations, allowing for the gathering of multiple perspectives.

The case studies provide SIMPACT with an important means of understanding the economic aspects of social innovation and of grounding Design Thinking by analysing the business models that inform SIs. In the longitudinal studies of the cases prepared in the context of the SIMPACT project, we noticed that if on one side, design thinking has not been

internalized in SI processes, on the other, when design is present in detailing the offer in SIs, it can increase its possibility to become successful.

In the following, we present Progetto QUID and Libera Terra as cases that show the role of design as a tool to make SI goods, products and services that render them competitive in the market.

### *3.1 Progetto QUID as a case of product design*

Progetto QUID, an ethical and eco-friendly “Made in Italy” fashion brand, provides an interesting example of the potential role of design in the start-up phase of a social innovation. Progetto QUID is a Type B social cooperative based in Verona, Italy<sup>1</sup>. It works off a double value proposition: a) by providing training and employment opportunities in the fashion industry to abused women and b) by offering major Italian fashion brands a way to re-use discarded or left-over stock material through the production of new product lines under a socially responsible brand.

The idea behind Progetto QUID stems from the desire of its two founders, Anna Fiscale and Ludovico Mantoan, to help abused women find employment. The location, their personal networks of friends and family and the core team, which other than themselves included two young designers, facilitated the choice of the fashion industry as the most feasible business idea. Progetto QUID is located in Verona, which is at the heart of VeronaProntaModa, recognized by the Veneto Region in 2003 as the Fast Fashion industrial district. The Fast Fashion industry produces clothes mid-season, basing production on items that have had the most success. This strategy directly contrasts traditional fashion, whose clothes are planned and produced entirely before the beginning of the season. Specializing in Fast Fashion allows for lower investment in the styling and prototyping phases but requires a larger organization of highly efficient work to cut production time.

Being situated in this district granted Progetto QUID a vast potential network of partners to insert themselves and the ability to feed off the intellectual resources at hand. The social enterprise’s original idea was to re-style clothes from previous seasons to sell in their store; however, this plan proved to be too difficult and provided low margins. After noticing the large amounts of discarded and scrap materials from previous seasons, the team decided it would be smarter to re-use the waste material to create new clothes from scratch. The first materials were donated to them by an important partnership developed with Calzedonia, a prominent intimate apparel company in Italy and the first to introduce Fast Fashion in the sector. The partnership with Calzedonia proved to be very fruitful and beyond providing them with free primary resources, allowed them the opportunity to test their products and learn the skills necessary to work quickly and efficiently. Progetto QUID furthermore, faces additional difficulties compared with traditional fashion companies as they must make do with whatever material they have at hand. The creative team is hence limited in their ability

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<sup>1</sup> Type B social cooperatives are profit-generating third sector organizations in Italy, in which 30% of the workforce must be composed of disadvantaged people by law.

to follow market trends as they are forced to design items based on the material stock provided; quantity is also an issue as the amount of material available is limited making it difficult to leverage popular items for higher yields. On the flip side, items are original and unique due to the nature of their production and hold a high social and ecological value for customers.

Under these resource constraints, Progetto QUID's team can thus be characterized by a bricolage attitude that leveraged a strong ability to transform relational value into economic value. The presence of designers in the start-up phase played an important role in this, allowing the team to remain creative under pressure and not only produce novel contributions with perceived waste but also to be resilient to organizational and strategic change. The success of the social enterprise can thus be attributed to its creativity and ability to acquire resources from its partner network (Calzedonia, in particular) and local territory and use them efficiently to promote their final goal: employment for abused women.

Unlike traditional firms who internalize know-how and competencies in the company structure, Progetto QUID relies on the intellectual resources provided by their partner network and local territory. In fact, the cooperative relies on its partner network for most of its resources: intellectual (know-how), primary (donated materials) and some human (abused women who are hired from social services). The cooperative's core structure is thus amplified by mutual relationships created with supporting structures, suppliers, distribution channels and local, territorial entities; hence their tools and knowledge set is embedded within the local context rather than being limited to the organization alone. Not only do the objectives of the cooperative blur sector boundaries mixing economic and social objectives, but the boundaries of the cooperative are likewise blurred, extending beyond the organizational structure and into the vast network of relations created by the cooperative; a network that holds in itself a relational value of increasing worth. Progetto QUID illustrates the perhaps unique aspect of design culture in social innovations: its potential role in fostering and harnessing the rising importance of relational value in embedding companies in territories and markets.

### *3.2 Libera Terra as a case of communication and brand design*

Libera Terra is a network of nine social cooperatives, mostly in Southern Italy, producing organic food and wine on assets confiscated from the mafias. Libera Terra is the concrete result of the advocacy work done by its parent association, Libera, who under the leadership of Don Luigi Ciotti collected one million signatures to petition for the law 109/96 targeting the economic power of the Mafiosi by confiscating their assets and designating them to those subjects—associations, cooperatives, municipalities, provinces, and regions—able to restore them to the citizens through the production of services, activities of social promotion and employment.

Libera Terra's social cooperatives currently manage 1,400 hectares of confiscated lands and employ about 140 people. In collaboration with the Consortium Libera Terra Mediterraneo

(LTM), established in 2008, the cooperatives produce 60 different products, including pasta, legumes, salsas, honey, cookies, coffee, sweets, juice, olive oil and wine under the brand, Libera Terra (the wine is sold under the brand Centopassi and Libera Terra).

LTM was established to consolidate the business strategy of the cooperatives and centralize not only their agricultural planning but also their marketing and brand management. The success of LTM can be seen in a 30% increase in total turnover in 2010, compared to 2009. In fact, the total turnover in agricultural goods alone rose by 34% and the net profit increased by 121%; results which testify the need for centralized coordination (Fiore, 2014).

The Libera Terra brand however is owned by the association Libera, to whom they pay royalties. The brands, Libera and Libera Terra, in fact share the same color codes and the word *libera*, Italian for “freedom”. The joint branding was important especially in the startup phase as it gave credibility to the social cause of the brand, which was the first ploy to attract customers. Importance was placed at the beginning on the social value of the product rather than on the quality of the product, as the products took on the advocacy work and social values promoted by the association and the cooperatives themselves.

In 2008, however, at the onset of LTM’s work, an improved brand strategy was of paramount importance in order to create a more solid market: one based on the quality of the products rather than solely on their added social value – a decision made based on the philosophy that pity purchases do not constitute regular purchases. The cooperatives needed a stable market of customers buying their products equally for both the quality and taste and the added social value. LTM thus started making gradual changes, first by modifying the brand’s tagline from “made from lands confiscated from the mafias” to “lands freed of the mafias”, changing the semantic power of the phrase from one which highlights the act of taking away to one being liberated and freed. The second change was made in the branding of its wine products, removing the tagline all together from the front of the bottle leaving only the brand, Centopassi, and placing the Libera Terra brand with the tagline on the back of the bottle, in order to further base consumer choice on the quality of the product rather than the social value.

Libera Terra thus highlights the importance of designing artefacts in social innovation capable of communicating the social message while likewise rendering the product or service competitive on the market. It therefore highlights an interesting trait of design culture in social enterprises that not only must mediate between production and consumption but also between different value propositions: balancing the added social value of products and services with their commercial value and thus mediating between the for-profit and non-profit divide. Design culture in social enterprises furthermore must mediate not only internally but externally as well, interfacing with the multiple stakeholders that are a part of the solution.

### **3.3 Cases discussion**

The SIMPACT cases have largely demonstrated how Design Cultures and practices are still superficially affecting Social Innovation (SI).

If attention to the needs of the beneficiaries as well as those of all of the stakeholders involved is clearly a characteristic of SI, then the clear assumption of constraints, the detailed design of solutions, the use of prototyping to test and provide feedback for their refinement are quite rarely emerging as established practices in SI.

On the contrary, Progetto QUID and Libera Terra have shown the potential that the introduction of Design Culture and practices may have on improving SI chances to become sustainable by improving the quality of the offering.

The literature on management as well as that on design has already discussed the role of design as a competitive asset in the for-profit sector (Borja de Mozota, 2002; Verganti, 2009; Martin, 2009). However, we still observe serious barriers in the field of SI to combine the idea of competitiveness with that of social impact, as pursued by SI initiates. In general we observe a sort of reticence to talk about the quality of the products and services SI offers, Progetto QUID and Libera Terra show specific treats that exemplify the impact that design culture can have to produce and offer good products.

Specifically, we discuss the elements of design culture expressed by each of the above-described cases to conceive and release a successful offering that can be synthesized as follows:

- high capability in product design;
- high quality of manufacturing;
- strong communication strategy and brand design.

#### **High capability in product design**

Progetto QUID represents a product innovation and a new method of production by: (1) finding a new channel to source its primary resource (cloth/textile materials); (2) producing in “outsourcing” for major brands their socially responsible clothing line; and (3) using the surrounding territory as an asset.

On the basis of these three components, Progetto QUID applied design competences and the skills of two young designers to design their products. While the original idea was to restyle clothes from previous seasons and sell them in their own stores, the introduction of specific design competences soon influenced the choices of the founders. They found that clothes were difficult to re-style and discovered that companies had a lot of scrap cloth left over from previous seasons, which could no longer be used. Progetto QUID decided to change strategies and use the leftover cloth to make new clothes. The cloth, coming from top fashion companies, were also guaranteed to be of high quality, allowing Progetto QUID to create not only unique items but high quality garments.

Libera Terra represents an innovative case of SI for the attention spent on a high quality offering and a large product portfolio. The Consortium Libera Terra Mediterraneo (LTM) and

the Agency Cooperare con Libera Terra were developed to facilitate commercial growth strategies, knowledge and skills. An important part of this strategy was gaining the skills necessary to bring quality to their products and to be competitive in traditional markets. The Libera Terra cooperatives are furthermore governed by an ethical code which binds their entire supply chain from local wheat farmers who help supply the necessary grains for their flour production to those who help transform raw material into final products. The suppliers must uphold to all of the criteria set forth in the code, which include being mafia free and using organic farming methods. After over a decade of development since the founding of the first cooperative, Libera Terra's products have risen in quality and in response their brand strategy and packaging has evolved to highlight this aspect as will be seen below, focusing on quality rather than the social value.

### **High quality of the manufacturing**

The success of Progetto QUID is highly rooted in the fertile, fashion and textile industry located in Verona, a factor which should be evaluated in scaling efforts or replication strategies. After investigating the opportunities that could stem from Verona, the two founders chose to dedicate themselves to fashion because they saw that it had the most potential, due to: the fertile fashion industry in the territory, the large network of family-owned companies and the handful of large brands based in Verona. The focus on fashion in fact resulted from an evaluation of the high-quality manufacturing available in the territory. The success of Libera Terra is rooted in the strengthening of local production through local employment, which exploits the knowledge and competences coming from the culture of the territories used to make the Libera Terra products. Each individual Libera Terra cooperative specializes in the food products coming from their own region and local territory. For the adhering cooperative, agricultural planning is strategically and centrally managed by LTM, as is the marketing strategy, allowing for a coordinated approach to market trends. As each cooperative is competing in the same niche market, it is important that the products are diversified in order to prevent internal competition. Moreover, the ethical code also enforces a distinct attention towards the quality of suppliers. Furthermore, the cooperatives benefit from the extensive knowledge and input of their partners, Legacoop (one of the four main macro-associations of cooperatives in Italy with over 15,000 members (cooperatives), in particular. Other certifications, such as organic food certificates issued by government agencies and national wine regulations also assist in assuring the manufacturing quality of the products.

### **Strong communication strategy and brand design.**

On top of the above outcomes and impacts, both cases benefit from a positive brand image and the presence of strong communication strategies that allow them to build valuable networks and partnerships.

The sound social and business ethos of Progetto QUID allowed them to work with companies like Calzedonia in constructing a positive brand image while creating resonance with end users. They decided to change their business strategy from focusing on items to be



sold in their stores to items commissioned from their partner companies to be sold in the company's distribution channels; thereby reaching a larger potential client base while maintaining the Progetto QUID brand.

Libera Terra's social cooperatives distribute their economic resources primarily to cover costs. Any remaining surplus is reinvested in the company. Being part of a strong network and supporting ecosystem brings great visibility and publicity to the SI especially when linked to a strong mission. LT also benefits greatly from the advocacy of its parent association Libera and from its network of partners, including Legacoop. The brand faced a re-design following their initial Cause-Related Marketing phase: the Libera Terra cooperatives realized that their products had to be chosen for their quality and not solely for their ethical or social value to have a market presence that wasn't seasonal or occasional but constant. The cooperatives thus, through LTM, implemented a new brand strategy focused on the quality of the products: organic, local and made on lands freed from the mafias. The packaging also changed in order to create a strong, clear brand image and culture that celebrated the local traditions that were allowed to express themselves thanks to the freed lands.

## **Conclusion and further steps**

In conclusion, the two cases, Progetto QUID and Libera Terra, have been reported in this article as exceptions and examples of the role that design can play in supporting Social Innovations (SI) to operatively develop products and services and strategically define their communication and brand strategy. Both cases have shown that when design culture meets SI, it can strongly impact the capability of the solution to become sustainable and self-standing.

This in turn may help SI to overcome some of the typical barriers that may prevent its development, like: dependency on public funds, donations and volunteering; the lack of specific competences and skills of production; the dilemma of balancing economic and social value; and the problem of scalability.

However, the majority of the cases from the SIMPACT collection has shown that SI praxis is still far away from applying design culture, competences and principles, despite many contributions, mainly from design theory that are drawing relations between SI and Design. The last few years have seen a rise of new forms, such as: co-design, co-construction, collaborative design, community design, design activism, frame creation (Dorst, 2015), social innovation (Manzini 2015) and manifestos such as Design for Transformation (Burns et al. , 2006) and DesignX (Ju, Neeley & Leifer, 2007) that push designers to use their skills to work on major societal challenges and to give shape to SI.

Despite the large number of contributions that are theorizing and recommending the application of design methodologies for the development of SI, the research SIMPACT conducted on 26 cases of SI in Europe has shown however that design has not yet been disseminated and applied in this area. Moreover, the two cases in which it did play a role have highlighted how, most of the time, the development of SI is far from being a typical

New Product Development (NPD) process of design driven innovation (Terstriep et al, 2015). In addition, Participatory Design, and its multiple techniques, does not appear to be applied in the design and implementation of the partnerships and the small scale networks that typically promote and start-up SI. On the contrary, the majority of the SIMPACT cases failed to demonstrate the application of Design at a strategic, as well as operative level; SIs furthermore appear as the result of bricolage and improvisation while facing problems under resource scarcity (Guntry et al., 2011). The role that Design can have in creating added value, by designing services, products or communication strategies for SIs to make them more successful, is in the majority of cases neglected. Our hypothesis is that until now, post-analyses of cases likely tried to impose the Design Thinking method as a series of steps along which to sort out SI steps. Despite abundant literature stating the role of user-centred design for SI development, the real practices seem to be quite distant from the application of basic design principles.

In this sense, on-going steps of the project are trying to include a design perspective on two accounts:

- understanding where, when and how design culture may intervene in the process of SI development both at a strategic as well as operative level. Along this line of research, the authors will start from the evidence that has emerged from the case analysis that have shown that while the process of SI is far from being comparable to a NPD strategy, there is a creative and constrained process, taking place under resource scarcity.
- designing a toolbox for social innovation that includes - among other fields' operational instruments – also some selected service design tools to facilitate both the generation of new SIs and the development of those already existing.

In conclusion, while the majority of the cases did not have the resources to support an idea generation and prototyping phase, the two cases above demonstrate that when SIs attempt to approach the traditional market, introducing elements of design, even in a non-codified and unstructured manner, allowed them to be more competitive. Generally, SIs instead scale through a complex, open and participatory process resulting from highly constrained creative processes that include serendipity, bricolage and a high level of context dependency.

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## References

- Adams, R., Mann, L., Jordan, S. & Daly, S. (2009) Exploring the Boundaries: Language Roles and Structures in Cross-Disciplinary Design teams, in McDonnell, J. & Lloyd, P. (eds.), *About: Designing: Analysing Design Meeting*, Taylor & Francis, 339-358.
- Armstrong, L., Bailey, J., Julier, G. & Kimbell, L. (2014) Social Design Futures: HEI Research and the AHRC. University of Brighton and Victoria and Albert Museum.
- Brown, T. (2008) Design Thinking. *Harvard Business Review*, 86(6), 84-92.
- Brown, T. & Wyatt, J. (2010) Design Thinking for Social Innovation. *Stanford Social Innovation Review*, 8(1): 30-35.
- Burns, C., Cottam, H., Vanstone, C., & Winhall, J. (2006) *RED paper 02: Transformation design*. London: Design Council.
- Consiglio Regionale del Veneto. Veneto Economy. Retrieved from <http://tinyurl.com/zpdvdho>
- Consorzio Sviluppo e Legalità. (2002) Le Iniziative: Coop. Placido Rizzoto Lt. Retrieved from <http://tinyurl.com/jnn7ujk>
- Creswell, J.W. (2013) *Qualitative Inquiry & Research Design: Choosing Among Five Approaches*. Third Edition. Thousand Oaks, CA: Sage.
- Denzin, N. K. & Lincoln, Y.S (1994) *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- Deserti, A. & Rizzo, F. (2014) Design and the Cultures of Enterprises. *Design Issues*, 30(1): 36-56.
- Dorst, K. (2015). *Frame innovation*. Cambridge, MA: MIT Press.
- du Gay, P., Hall, S., Janes, L., Mackay, H. & Negus, K. (1997) *Doing Cultural Studies: The Story of the Sony Walkman*, Sage.
- Fiore, V. (2014) 1003963, Le Cooperative di Libera Terra: l'uso sociale dei beni confiscati per uno sviluppo credibile [Power Point Slides]. 1003963, Parma: University of Parma, Department of Economics.
- Fiscale, A. (2015) Narrative Interview. Verona.
- Gundry, L.K., Kickul, J.R. , Griffiths, M.D. & Bacq, S.C., (2011) Creating Social Change Out of Nothing: The Role of Entrepreneurial Bricolage in Social Entrepreneurs' Catalytic Innovations, *Social and Sustainable Entrepreneurship*, 13: 1-24.
- Ju, W., Neeley, W. L., & Leifer, L. (2007) Design, Design, and Design AN OVERVIEW OF STANFORD'S CENTER FOR DESIGN RESEARCH.
- Lawson, B. (2004) *What Designers Know*, New York, NY: Architectural Press.
- Legacoop. (2011) Legacoop Informazioni. (Year 22 No. 18).
- Libera. (2012) Bilancio Sociale 2012. Rome: Libera Associazioni, nomi e numeri contro le mafie.
- Libera. (2013) Bilancio Sociale 2013. Rome: Libera Associazioni, nomi e numeri contro le mafie.
- Libera. (2014) Il riutilizzo sociale dei beni confiscati alle mafie per la legalità, lo sviluppo sostenibile e la coesione territoriale: proposta di lavoro nella programmazione europea 2014-2020. Rome: Libera Associazioni, nomi e numeri contro le mafie.
- Manzini, E. (2015) *Design, when everyone designs*. Cambridge, MA: MIT Press.
- Martin, R. L. (2009) *The design of business: why design thinking is the next competitive advantage*. Boston, MA: Harvard Business Press.
- Molotch, H. (2003) *Where stuff comes from: How Toasters, Toilets, Computers, and Many Other Things Come to Be as They Are*. New York, NY: Routledge.
- Mozota, B. B. (2002) Design and competitive edge: A model for design management excellence in European SMEs. *Academic Review*, 2(1), 88-103.

- Mulgan, G. (2006) The Process of Social Innovation. *Innovations: Technology, Governance, Globalization*, 1(2): 145-162.
- Mulgan, G., Tucker, S., Ali, R. & Sanders, B. (2007) *Social Innovation: What It Is, Why It Matters and How It can be Accelerated*. Oxford: Oxford Said Business School.
- Murray, R., Caulier-Grice, J., & Mulgan, G. (2010) *The Open Book of Social Innovation*. London: Nesta.
- Norman, D. (2010) *Why Design Education Must Change*, [http://tinyurl.com/oaz3u6m\\_](http://tinyurl.com/oaz3u6m_) (Accessed 20 July, 2015).
- Osservatorio Nazionale Distretti Italiani. Distretto VeronaModa. Retrieved from <http://tinyurl.com/jrckwww>
- Ranci re, J. (1991) *The Ignorant Schoolmaster: Five Lessons in Intellectual Emancipation*, Stanford, CA: Stanford University Press.
- SIMPACT project, (2015) <http://www.simpact-project.eu> (accessed 11 November 2015)
- Strauss, A.L. & Corbin, J.M. (1990) *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Thousands Oaks, CA: Sage Publications.
- Terstriep, J. & Totterdill, P. (2014) *Economic Foundation of Social Innovation: New Modes of Policy Production*. Paper presented at RIP 2014 – 9<sup>th</sup> Regional Innovation Policy Conference, 16-17 October 2014, University of Stavanger, Norway.
- Terstriep, J., Kleverbeck, M., Deserti, A. & Rizzo, F. (2015) *Comparative Report on Social Innovation across Europe*. Deliverable D3.2 of the project «Boosting the Impact of SI in Europe through Economic Underpinnings» (SIMPACT), European Commission – 7<sup>th</sup> Framework Programme, Brussels: European Commission, DG Research & Innovation.
- Tovey, M., Porter, S., & Newman, R. (2003) Sketching, concept development and automotive design, *Design Studies*, 24, pp 135–153.
- Ulrich, K., and Eppinger, S. (2004) *Product Design and Development (3rd edition)*, McGraw-Hill/Irwin.
- Verganti, Roberto. (2009) *Design-driven Innovation: Changing the Rules of Competition by Radically Innovating what Things Mean*. Boston, MA: Harvard Business Press.
- VeronaModa. Consorzio. Retrieved from <http://www.veronamoda.it>
- VeronaModa. Distretto. Retrieved from <http://www.veronamoda.it>
- VeronaModa. Servizi. Retrieved from <http://www.veronamoda.it>
- Whiteley, N. (1993) *Design for society*. London, UK: Reaktion.
- Yin, R.K. (2014) *Case Study Research: Design and Methods*. 5<sup>th</sup> edition, London: Sage Publications.

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