Design, social innovation and sustainable ways of living

Creative communities and diffused social enterprise in the transition towards a sustainable network society.

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DRAFT

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INTRODUCTON

Introduction

1. Contrary to the most common clichés, in social and political terms trying to achieve sustainability is the opposite of conservation, or to put it better, the conservation and regeneration of our environmental and social capital means breaking with dominant tendencies in terms of lifestyle, production and consumption, and experimenting new ones. If we do not do so, if we do not acquire different experiences and if we are unable to learn from them, then real conservation will ensue: a conservation that will result in a continuation of the current, catastrophic, patterns of living, producing and consuming.
The paradox is that in reality, as we all know, under the influence of certain basic tendencies our living, production and consumption patterns are in fact changing profoundly just now. But unfortunately, if nothing else happens, this change is moving in an unsustainable direction. What is therefore required is to "change the change", and to do so without stopping the engines that keep the aeroplane we are all travelling on in flight.

2. Considering the present conditions of our planet and the catastrophic nature of the ongoing changes (i.e. the current major trends), we can ask ourselves what the effective role of designers has been up to now. Unfortunately the answer is only too clear. Generally speaking designers have been, and still are, "part of the problem".
However, we think that this is not an inevitable destiny. Designers can and must play another role and become instead "part of the solution". They can do so because within design's genetic code there is the idea that its raison d'être is to improve the quality of the world. And it is from here that we have to start again,e-thinking what the quality of the world is that design, following its deep ethical mission, should improve.

In view of this, we can assume that designers can actually be part of the solution because they are the social actors who, above all others, have to do with the everyday relationships of human beings with their artefacts. It is precisely these relationships, together with the expectations of well-being that are built on them, that must change in the near future, during the transition towards sustainability.
On this ground, designers can play a very special, and hopefully important, role: even if they have no means of imposing their view on others, they do have the tools to operate on the quality of things and their acceptability, and therefore on the attraction of the scenarios of well-being they help to generate. Their specific role in the transition that awaits us is therefore to offer new solutions to problems, both old and new, and to place scenarios onto the social discussion table, collaborating in the building of shared visions on possible, sustainable futures.

3. In the following chapters we will specifically consider the creativity and design capabilities necessary to put a social and technological innovation process of the magnitude of the transition towards sustainability into action. In particular, we will focus on one phenomenon that is in itself contradictory: societies under rapid transformation (i.e. western societies, but also and above all those that have undergone recent and turbulent industrialisation) create conditions whereby subjects, both the individual and collective subjects, must learn to act creatively and to develop design capabilities.

In this new context, even if these diffuse design capabilities, with their potential as social resources, are largely wasted (directed as they are towards the individualistic search for unsustainable ideas of well-being) some positive signals are appearing. They are *cases of social innovation*, in particular of grass roots innovation in everyday life (the creative communities) which indicate that, sometimes, these diffuse design capabilities generate ways of being and doing that are both creative and collaborative,and that can also be seen as promising steps in the direction of sustainability.

These unconventional ways of thinking and behaving are the starting point of the strategy towards sustainability that we will propose here. A strategy that, of course, is only one of the many that have to be implemented. But that, in our view, is more directly related to what people can do in their daily life. And, for what mostly interest us here, to what designers should be able to do in their professional and research activities.

4. The chapters contents are articulated in 5 steps.

Sustainability. *Systemic change and social learning process.* The transition towards sustainability will be a social learning process thanks to which human beings will learn how to live well, consuming far fewer environmental resources and regenerating the quality of the contexts, in which they happen to live. To do that a systemic change is needed at both the global and the local scale.

Ways of living. *Product-based and context-based well-being.* The idea of well-being, the traditional, unsustainable product-based well-being, is changing. A new idea, defined as access-based well-being is emerging. Unfortunately, this new vision on well-being, as it is appearing now, is even more unsustainable than the old one. The on-going change has to be changed and re-oriented towards the search for a well-being based on the qualities of the whole context of life.

Social innovation. *Creative communities and diffused social enterprise.* Contemporary society emits different, contradictory signals. Among these are the very promising ones of groups of people inventing sustainable ways of living. Some of the practical ideas produced by creative communities consolidate and last in time. Some of them are reproduced in other contexts. All of them have to be considered as experimentations of possible futures.
Emerging scenarios. *Active well-being and distributed economies.* Today, creative communities and diffused social enterprises are minorities. Nevertheless, a closer view shows that they are linked to powerful drivers of change. Considering these links their real potentialities emerge and a new scenario appears: the scenario of the multi-local society, based on a new sense of place and on the ideas of active well being and distributed economies.
Enabling systems. *Bottom-up, top-down and peer-to-peer interactions.* Creative communities and diffused social enterprises are complex and delicate social organizations. For this reason their origin and their existence cannot be planned. But something can be done to make them more probable. A favourable environment can be generated. Supporting services, products, spaces and communication tools can be designed.

5. Various research activities, which will be referred to later, make up the background to these chapters. One of these, EMUDE *Emerging User Demands for Sustainable Solutions*, is of particular significance in that it triggered many of the ideas expounded here. EMUDE has been a European research project funded under the 6th Framework Programme and completed in April 2006. It was carried out by 10 research centres and 8 design schools and was co-ordinated by the INDACO department of the Politecnico di Milano.

The issues raised by EMUDE are now being developed in two other projects: another European project called LOLA-*Looking for likely alternatives,* and an activity that seeks to verify the validity outside Europe of the results achieved by EMUDE: CCSL- *Creative Communities Sustainable Lifestyles*, a programme backed by the United Nations Sustainable Lifestyle Task Force and funded by the Swedish Government with the patronage of the United Nations Environmental Program.

1. Sustainability
Systemic change and social learning process

DRAFT

The transition towards sustainability will be a social learning process thanks to which human beings will learn how to live well, consuming far fewer environmental resources and regenerating the quality of the contexts, in which they happen to live. To do that a systemic change is needed at both the global and the local scale.

Sustainability requires a *systemic discontinuity*: from a society where a normal healthy condition was one of growth in production and material consumption, we must move to a society capable of developing by reducing them and, at the same time, improving the quality of the overall social and physical environment. It is difficult to foresee today how this can come about. However, something is already sufficiently clear.

First of all, it is clear that this discontinuity is going to take place, that there will be a long period of transition and that this transition will happen in the form of wide-reaching *social learning process*. It is also clear that this deep transformation will touch all dimensions of the socio-technical system in which we live: the physical (material and energy flows), but also the economic and institutional (the relationship between social actors), and the ethical, aesthetical and cultural (the values and quality judgements which give it social legitimacy).
It is also certain that it will touch the various scales of time (what can be done in the short term and what will require a long time) and space (from the "micro-scale", single product and service, to the "macro-scale", global socio-technical systems). Finally, in view of what we know from the complex systems evolution theory, it is highly probable that this systemic discontinuity on a macro scale will be preceded by many local discontinuities. That is, radical changes on a local scale.

1. The Limits of the planet

The fact that our planet's limits have become evident is today a deep and powerful transformation factor. To become aware of this one must not only look at what is usually considered as relating to "environmental problems". In reality attention paid explicitly to the environment issue depends on contingent factors, on the space dedicated to it by the media (i.e. on some new problem coming to the surface or some serious catastrophe occurring) and on the competition between this issue and other issues weighing on public consciousness (for this reason, if there is an economic or political crisis in progress there is no talk of the environment – other issues seem to be of more immediate concern). However the problem continues to exist and grow even when it does not explicitly appear on the order of business. This is both because environmental deterioration goes on even when we don't talk about it, and because limits come to light in other forms: market saturation (limited demand), unemployment (limited job opportunities), the proliferation of regional wars for the control of natural resources (limited resources), emigration and consequent racial problems (demographic and social limits), difficulty in imagining the future (because an awareness of the concept of limits prevents the future being seen, most simply, as a continuation of the past, as the further proposal of a development model based on growing material consumption).

The theme of limits, then, cannot simply be related to the "environment question" in the way it has been treated in the past (i.e. as a set of problems which we try to solve separately). If we consider the whole cultural and operational system of industrial society up to now, we are faced with one huge question as to what the words "wellbeing" actually means. More explicitly, what form of development does not jeopardise the well-being, or the very lives, of future generations on our planet? So it is in this perspective that the theme of limits links with that of sustainable development and the sustainable societies based on it. (see **BOX 1.1 Sustainable development**) In order to justify this statement we must outline certain aspects of environmental sustainability, in the way in which the most recent studies have been characterising it.

The size of the change. The expression "environmental sustainability" refers to the system conditions by which, on a worldwide level and on a regional level, human activities are such as not to overstress the ecosystem. In other words not to stress it beyond the limits where irreversible degeneration phenomena set in. (See **BOX 1.2 Environmental and social sustainability)**

A system of production, use and consumption which meets the demands of society for products and services without disturbing natural cycles and without impoverishing natural capital, must, first of all, drastically reduce the use of environmental resources It must be fundamentally based on renewable resources (guaranteeing renewability at the same time), optimising the utilisation of those which are non renewable (including air, water and land) and avoiding the accumulation of garbage and waste.

At this point it is necessary to quantify the expression "reduce drastically": how big is the necessary reduction?
Obviously this question cannot be answered simply. The impact on the environment of human activity generated by resource consumption depends on three fundamental variables: the population, the demand for well-being and the eco-efficiency of the technological "metabolism" , i.e. the efficiency with which the production system is able to transform environmental resources into social well-being (and we see how, even when facing environmental questions in technical-environmental terms alone, we meet unavoidable problems of a social, economic and political nature).

Starting from these considerations, taking into consideration the predicted increases in population and hypothesising, as is only right, an increase in demand for well-being in hitherto underdeveloped countries, a dramatic fact emerges: taking the current metabolism of a mature industrial society as our reference point, conditions for sustainability can only be reached by increasing its eco-efficiency by at least 10%. In other words: only those systems of production and consumption which utilise 90% less of the environmental resources per unit of service provided that is currently utilised in a mature industrial society, can be considered sustainable. (See **BOX1.3 Factor 10***)*

Systemic discontinuity. This is an approximate estimation but is nevertheless a valid indication of the dimensions of the change which must take place. It gives rise to a picture of the society we must live in, and if possible live well, using only 10% of the resources utilised in industrial societies.

It is clear that the production and consumption system of this sustainable society will be profoundly different from what we have known up to now. So different that no partial modification, no step-up innovation in the technology already in use, no *redesign* operation of what is already in existence can take us there.
As a result, starting by quantifying the size of the increase in eco-efficiency which must be achieved, we have reached a qualitative consideration: sustainable development requires us all - the most industrialised societies as much as those more recently industrialised or those not yet industrialised - to focus on and actualise development ideas which are so different from those which have dominated the scene up to now that we cannot imagine them without questioning the entire economic and socio-cultural complex on which the existing system of production, use and consumption is based.

What must take place, and in practice is already beginning to take place, is a *systemic discontinuity*: a form of change where, on completion, the system in question, in our case the complex socio-technical system on which industrial societies are based, will be different, structurally different, from what we have known up to now.

2. The actors and their roles

Environmental sustainability requires a discontinuity: from a society where a normal healthy condition was one of growth in production and material consumption, we must move to a society capable of developing by reducing them, improving the quality of the overall environment. It is difficult to foresee today how this can come about. However, it is certain this discontinuity will take place and we must expect a long period of transition.

Faced with this necessity the picture which emerges is contradictory: on the one hand, the gravity of the environmental problem is by now universally recognised and measures are beginning to be taken. On the other, considering the enormity of the transformations which must come about, all such measures are still insufficient and, in reality, consumption of environmental resources and the level of deterioration of the planet are still (on average) increasing.
The problem is that what has been done up to now has really not put under question the currently dominant economic and social paradigms. Consequently the basic lines of political and social economy keep directing the system in the opposite direction to sustainability.

Towards a new idea of well-being. Until this direction is inverted, in other words until discontinuity is recognised as inevitable so that the transition can be dealt with, the pressure of the environmental problem will be, and is now, let off in other directions, uncontrolled and uncontrollable (social tension and confrontation, wars, economic crises). Indeed, thinking and promoting discontinuity is not only a question of environmental policy, but is also the only way to imagine a future which is, as far as possible, pacific, tolerant and democratic.

How this is all to come about is difficult to foresee today. However it is certain that the discontinuity we are talking about will touch all dimensions of the system: the physical (material and energy flows), but also the economic and institutional (the relationship between social actors), and the ethical, aesthetical and cultural (the values and quality judgements which give it social legitimacy). It is also certain that it will touch the various scales of time (what can be done in the short term and what will require a long time) and space (from the “micro-scale”, single product and service, to the “macro-scale”, global socio-technical systems).

On the other hand, although for reasons already mentioned the transition will be long, it has already begun. So from now on, it is a question of steering, i.e. managing it while seeking to minimise risks and increase opportunities. For this purpose, one of the fundamental questions for discussion is about the quality of expected and perceived well-being: the ideas of well-being which a society puts forward and socialises constitute a formidable driver to action. Ideas which operate as social attractors able to stimulate and direct actions both on the demand and the supply side of, products and services. In order to minimise risks and increase opportunities, intrinsic to the transition to sustainability, we must consider and, as we shall see, profoundly change the ideas at present dominant in this field.

3. A social learning process

The transition towards sustainability will be a social learning process thanks to which human beings will gradually learn, by error and contradiction – as always happens in any learning process – how to live well consuming (much) less and regenerating the quality of the environment, i.e. of the global ecosystem and of local living contexts, in which they happen to live.

This sentence, which summarises the outcome of several decades of experience – and errors – acquired around the issue of “well-being, consumption, sustainability”, in its apparent simplicity contains a considerable number of important strategic implications.

First of all, it states the necessity of consuming far less environmental resources and also of regenerating the physical and social environment. However, it also says that this change must come about as a result of positive choice (and not as a reaction to disastrous events or authoritarian imposition), if it is not to look like a social catastrophe. In other words it must come about on the basis of a transformation capable of being perceived by those who live it as an improvement in living conditions (both individual and collective).
It is also clear, even though the sentence does not explicitly say so, that in the light of current ideas and practices, the possibility of a drastic reduction in consumption being perceived as an improvement in the

quality of life by individuals and by communities is by no means a straightforward prospect when considered in the present day framework of cultural and behavioural reference. It is evident that such a possibility requires, above all, a thorough redefinition of the meaning which each individual or group attributes to the concept of quality of life and, ultimately, to the idea of well-being. That is, the solution to the environmental problem requires a *systemic discontinuity*.

Radical changes at the global and at the local scale. A solution to the environmental problem, then, requires a *discontinuity* to occur: society must move from being one where the normal healthy condition is of increasing production and material consumption, to being one capable of developing while reducing them and improving the quality of the environment as a whole.

Put like this, while for scientists of ecology the problem is to focus on those physical aspects of a society's metabolism which avoid an environmental catastrophe, for all the other social actors the problem is how to facilitate a transition which achieves that goal without a social (and therefore cultural, political and economic) catastrophe.
More specifically, if the role of politics and institutions is to create an environment favourable to steering innovation towards sustainability, for designers and enterprise, and also for ordinary citizens in their communities and organisations, possibility for action lies in their capacity to give a s*trategic orientation* to their own activities, in other words to their ability to define objectives which combine their own needs and requirements with sustainability criteria as they gradually come into focus.

Putting together these differing requirements, as we said, implies considerable design skill: the ability to generate visions of a *sustainable socio-technical system;* to organise it into a coherent system of regenerative products and services, *sustainable solutions;* and to communicate these visions and systems adequately so that they are recognised and appreciated by a wide enough public to render them effectively practicable.

Design implications

Sustainable solutions and strategic design. To design sustainable solutions means to define a result and to conceive and develop the systems of artefacts needed to achieve them. And to conceive and develop them in such a way that the consumption of environmental resources is reduced and the qualities of the contexts of life regenerated. It has to be added that, as we have seen, every real step towards sustainability calls for a radical change. In the cases that are more interesting for us here, it calls for radical changes on a local scale - that is, for local discontinuities or more precisely, for local discontinuities coherent with the perspective of sustainability.
It therefore follows that to move from main stream design towards design for sustainability, two main steps have to be taken: firstly, to move towards a strategic design approach and secondly, to take sustainability criteria, and consequently the emerging design guidelines, seriously.

With the expression *Design for Sustainability* (*DfS*) we usually mean a design activity that aims to encourage *radical innovation* orientated towards sustainability, i.e., that steers the development of socio-technical systems towards low material and energy use and high regenerative potential. Effectively, to move in this direction, we need to use a *strategic design* approach (and strategic design tools). Thus, in order to arrive at design for sustainability, intended as *strategic design for sustainability*, it is necessary to work through strategic design and its characteristics, aims and ways of operating.

This is not the appropriate place to enter into the merits of all the different forms that strategic design may take. Suffice it to say that they have in common planning activities whose project objective is a system, consisting of products, services, and communication, defined overall as a *product system*. This definition includes widely differing activities, ranging from those used to define the *identity* of a product line and/or business service (including that of an entire company), to those relating to the *re-shaping of a company's activities* (e.g., the re-orientation of a previously *product-orientated* company towards the delivery of services and the innovative use of the Internet to define new forms of relationship with clients and/or suppliers), to those which lead to *offering solutions* and, for this reason, attempt to bring together the various actors necessary to achieve the desired result.

Design for radical local changes. Design for sustainability may occur in any of these areas, but it has one particular characteristic: the product system as it is applied must relate to an *orientated radical innovation*, i.e., it must encourage, facilitate, and be part of a process of systematic change. This implies a break in continuity with the initial situation and an outcome consistent with the fundamental criteria for sustainability.

This definition of the field of activity necessary for sustainable design brings with it significant implications: it is unlikely that the radical innovation we are referring to can be traced back to a purely technical dimension. It always requires consideration of a system in its entire social, technological, and natural complexity. In addition, it is unlikely that decisions relating to such a system can be taken by one single actor or protagonist (as we can refer to a single producer and/or manager, when talking about the production of a product or service). In this case the innovation involves a number of different actors (producers, service providers, institutions, and various organizations, whether they are an expression of society in general or of single groups of potential users). Consequently the innovation that interests us here is a social occurrence, or rather, the social dimension of the desired phenomenon is greater than normally considered when referring to innovation and design.

Criteria for sustainability. A sustainable solution is the process by which products, services and know-how are *made into a system* with the aim of facilitating the user in achieving a result coherent with sustainability criteria. To be more precise: a result which also has the effect of transforming the given system and generating a new one which is *consistent with the fundamental principles* of sustainability. Meaning that it is characterised by its *consistency with the fundamental principles* of sustainability, by a *low energy and material intensity* and by a *high regenerative potential.*

- *Consistency with the fundamental principles.* This refers to *ethical principles* related to people and society (such as *justice within and between generations* and *international justice*), principles related to our relationship with nature and the environment (conservation of biodiversity, zero hazardous wastes, etc.). It is also linked to more complex social and economic questions such as the issue of *fair distribution* of wealth and power, or that of individual and collective *involvement,* of *community* empowerment and, in short, of reinforcing *democracy*.

- *Low energy and material intensity.* Metaphorically speaking, this refers to the lightness of the solution and its effects. It is assessed in terms of systemic eco-efficiency, i.e. on the basis of the quantity and quality of the resources used to obtain a result. Therefore it expresses the technical dimensions of a solution, its capacity to obtain a given result in the best possible way. This is the most traditional set of criteria for sustainability, and it remains the fundamental one: whatever the system, to be defined as "sustainable", it has to be highly eco-efficient, bearing in mind the overall life-cycle of the related artefacts.

- *High regenerative potential.* This refers to the capacity of the solution to integrate with its context of use enhancing the environmental and social resources available. It therefore expresses the prepositional dimension of a solution, its capacity to modify, positively, the state of things. This third criterion summarises a series of considerations about the quality of living contexts and is assessed by means of a series of social, cultural and economic parameters. In turn, these parameters are the expression of knowledge and social expectations with regard to sustainable well.-being. Even though the criteria for contextual quality from a sustainability perspective are still today a matter of discussion, certain aspects are already fairly clear and agreed. It is in particular a widely shared opinion that a system must be highly integrated with its context in order to be defined as sustainable, and it must enhance and, where appropriate, regenerate the local environmental and social resources available.

Orientation and guidelines. The criteria for sustainability proposed here provide useful indictors by which to gauge the quality of results. In other words to assess whether, and to what extent, the system which emerges from the integration of the new solution with the existing state of things (i.e. its environmental, social, economic and cultural implications as a whole) is sustainable. However, the assessment parameters that come most directly out of these criteria are not in themselves planning directives: in fact they enable us to assess the choices made, but not to guide them when they have still to be conceived.

To do this we must start from these criteria themselves, and from the concrete experience gained so far, and proceed to develop *orientations* and *project guidelines:* general indications and specific suggestions to take

into consideration so as to guide design choices towards solutions which, on the basis of knowledge and experience gained so far, seem potentially most successful, i.e. which will most probably turn out to be sustainable solutions. So these orientations and guidelines are an expression of the state-of-the-art of these issues and should be taken as dynamic directives, in perpetual evolution.

General principles. In a perspective of sustainability, certain fundamental considerations must be made before beginning a proper design process. This leads us to some general principles which must be given due attention before starting a project:

- *Think before doing. Weigh up the objectives.* Since certain design proposals are in themselves ethically unacceptable, before starting on a project think about its general implications, **e.g.** Do not use products which have been declared harmful or genetically modified organisms. Do not design weapons. Do not collaborate with companies that use child labour.

- *Promote variety. Protect and develop biological, socio-cultural and technical diversity.* Since sustainability is practically synonymous with diversity, plan respecting existing diversity (biological, but also cultural, organisational and technological) and if possible generate new forms, **e.g.** Greater prominence to characteristic craft products. Development of energy systems based on different sources. Fostering multi-means of transport.

- *Use what already exists. Reduce need for the new* . Since we need to minimise intervention on the existent, before thinking up something new, enhance what is already there, **e.g.** Recuperation of infrastructure, buildings and unused products. Optimised use of those little used. Protect and/or update knowledge and existing forms of organisation.

Quality of context. By this we mean the tendency towards the development of solutions which promote the overall quality of contexts. In particular, a tendency towards solutions which imply the re-qualification of common assets and the promotion of an ecology of timing. This brings us to face complex issues such as our relationship with nature and food in highly artificial urban contexts, or the organisation of space in daily activities and the shared and flexible use of common assets and service infrastructure.

- *Give space to nature. Protect natural environments and promote "symbiotic nature".* A densely populated and highly artificial environment requires the planning of "natural spaces". We must plan systems that respect remaining natural areas and which integrate natural components innovatively into the urban fabric, **e.g.** Natural parks, urban parks and gardens, but also urban vegetable gardens and city farms. Green, leafy roofs and facades which also help to maintain a steady temperature inside the buildings.

- *Re-naturalise food. Cultivate naturally.* Develop evolutionary advanced, organic food production systems which reduce the artificialness of our food system and make its product flow more transparent, **e.g.** organic food production. Direct, transparent distribution systems. Product traceability systems.

- *Bring together people and things. Reduce demand for transport.* Develop low intensity transport systems to reduce the impact of mobility and reinforce the local social fabric, **e.g.** Decentralised services. Point-of-sale production and/or consumption. Neighbourhood offices for distance working.

- *Share tools and equipment. Reduce the demand for products.* Develop systems which optimise the employment of products and systems and at the same time foster new forms of socialisation, **e.g.** Car sharing. Condominium laundries. Shared gardening and do-it-yourself tools.

System intelligence. This orientation tends towards an intelligent, sensitive management of renewable resources, energy flows, materials, products and people. Furthermore, in the framework of a transition towards sustainability understood as a social learning process, this orientation strengthens the tendency towards greater systemic eco-efficiency by developing a capacity to learn from experience and correct any perceived mistakes. Indeed this learning capacity is the most characteristic aspect of this particular form of intelligence

- *Empower people. Increase participation*. Develop enabling, socialising systems to foster personal capabilities and reinforce the social fabric, **e.g.** Well developed do-it-yourself systems. Systems for the

exchange of possessions, time and skills. Interactive information systems. The promotion of informed purchasing groups.

- *Develop networks. Promote decentralised, flexible forms of organisation.* Develop systems capable of learning from experience, amplifying feed-back and making choices re-orientable, **e.g.** Systems based on "bottom-up" forms of organisation. Systems equipped with listening ear and distance check up channels. Decentralised or point-of-sale production.

- *Use the sun, wind and biomass. Reduce dependence on oil.* Develop alternative energy systems minimising production of CO2, **e.g.** Bio-climatic architecture. Sustainable employment of bio-mass and wind generators. Integrated photovoltaic systems. Fuel cells.

- *Produce at zero waste. Promote forms of industrial ecology.* Develop industrial eco-systems which tend to "close the circle of materials" and cascade energy,. **e.g.** Symbiotic industrial systems. Total employment of waste and scrap. Co-generated heat and electricity. Decentralised energy networks.

Promising solutions. A solution which follows such orientation and which has developed adopting one or more of the corresponding guidelines, can be called a *promising solution:* one which, on the basis of previous experience, holds a good chance of being sustainable.

The concept of promising solution needs more careful explanation because it is the one most often referred to when talking about proposals for sustainable everyday life. We shall start with two fundamental considerations.

- Consistency with one or two guidelines does not, in itself, guarantee the effective sustainability of the proposal. This can only be truly verified by adopting adequate assessment methodologies.

- If all the artefacts that make up the solution are taken into consideration and their entire life cycle analysed, assessment methodologies can only be applied rigorously when the project has taken shape and all its components have been developed.

- Assessment methodologies are so complex that their application is unthinkable as long as there are a lot of very different alternatives on the carpet.

Faced with the complexity of rigorous, quantitative assessment methodologies (and consequently the time and financial commitment required for their application) *simplified methodologies* and *guidelines* have been developed which, as already said, allow promising solutions to be conceived and developed.

It must be clear that these methodologies, and the promising solutions they give rise to, are relatively uncertain, however this should not worry us unduly. Experience teaches us that every human action, in reality, gives rise to unexpected consequences. This is also true of promising solutions. It has happened more than once that, when put to the test, they have shown themselves to be considerably less promising than expected, or have proved to be definitely the wrong choice. In spite of this, even from them we have learnt something which, if nothing had been done, we would not have learnt. In fact, it was from exactly these errors that we were able to develop new guidelines able to take them into account.

In other words, faced with problems of great complexity, it is better to carry out trials conscientiously and see the results (and so be able to learn from experience), than to do nothing. This is why the concept of promising solution is so important. Because it attempts to use the best of what we know, but at the same time it explicitly accepts the chance of making a mistake (and so the need to learn from experience).

Technical and social innovation. This definition of the activity necessary to design for sustainability brings with it significant implications: it is unlikely that the radical innovation we are referring to can be traced back to a purely technical dimension. It will always require the consideration of a system in its entire social, technological, and natural complexity. In addition, it is unlikely that decisions relating to such a system can be taken by one single actor or protagonist (in the way we can refer to a single producer and/or manager, when talking about the production of a product or service).

In this case, the innovation involves a number of different actors (producers, service providers, institutions, and various organizations, whether they are an expression of society in general or of single groups of potential users). Consequently the innovation that interests us here is a social occurrence, or rather, the social dimension of the desired phenomenon is greater than normally considered when referring to innovation and design.

BOX 1.1

Sustainable development

The expression *sustainable development* was introduced into international debate for the first time in a World Commission for Environment and Development document, *Our Common Future* drawn up by the commission coordinated by Gro Harlem Brundland).
From then on, the expression was more and more widely used until it became the keyword in a fundamental conference on the issue (UNCED – United Nations Conference on Environment and Development), held in Rio de Janeiro in 1992.

What made this conference, and the documents drawn up there, so important is that for the first time what had long been clear to some, but was certainly not on any international political agenda, enterprise programme or even in the thoughts of most of the citizens of this planet, was officially stated at the highest levels, i.e. that development as it had been understood up to then was an objectively impracticable prospect.

With the introduction of the term sustainable development it was officially declared that the promise of well-being based on the continuity of the development model of the richer countries (for this reason said to be “developed”) and on the emulation of this by those less rich (for this reason said to be “underdeveloped”, or more optimistically “developing”) could never be maintained, because the functioning of this model ran completely against the resilience limits of the ecosystem, and was rapidly consuming natural capital.

The foolish use of renewable resources (overexploitation of some, such as fishing resources, and underemployment of others, such as solar energy); an equally foolish use of non renewable ones (with rapidly diminishing reserves, at least for some, and a corresponding accumulation of waste); the emission of a growing number of new, potentially harmful, synthetic substances into the environment, substances unknown to nature and consequently no longer possible to re-naturalize – just to quote some of the already well-evident problems – all showed unequivocally that the road we were racing down, with the prospect of an almost redoubled population within the following few decades, by no means led to the development which everybody dreamed of.

On the other hand, the new concept of sustainable development gave no indication as to what a new model of development should be like. It stated only that the model as thereto put forward (which, in a nutshell, said “Do as we westerners have done “) was not a practicable proposition. Another had to be found which was consistent with certain basic principles (the physical and ethical principles of sustainability): a very vague definition which has certainly left space for a thousand interpretations, but which has nevertheless been enough to change the course of history.

BOX 1.2

Environmental and social sustainability

The systemic conditions by which human activities, both on a worldwide and on a regional level, do not disturb the natural cycles they are based on beyond the resilience limits of the ecosystem these cycles constitute, and that, at the same time, do not impoverish the natural capital which will be inherited by future generations.

Our society, and consequently our lives and those of future generations, depends on the long term functioning of that jumble of ecosystems which for simplicity's sake we call nature; on their various qualities (mainly biophysical, but not only) and on their productive capacity (their capacity to produce food, raw materials and energy).

In this problematical framework, research into environmental sustainability must refer to two fundamental concepts: resilience and natural capital

- The resilience of an ecosystem is its capacity to bear a disturbing activity without irreversibly losing its equilibrium. This concept, when extended to the whole planet, introduces the idea that the natural system which human activity is based on has limits of resilience beyond which irreversible deterioration phenomena will start up.

- Natural capital is the non renewable resources and the environment's systemic capacity to reproduce renewable ones, taken as a whole. However, the term also refers to genetic richness, i.e. to the variety of living species on the planet.

To these fundamental precepts, based on mainly physical considerations we must add another of a social and ethical nature, which we refer to by the expression social sustainability.

Social sustainability refers to the systemic conditions by which, both on a worldwide and a regional level, human activities do not contradict principles of fairness and responsibility towards the future, as far as the present distribution and future availability of "environmental space" is concerned.

The concept of environmental space and the principles of fairness and responsibility towards the future, which this definition is based on, require a concise definition:

- Environmental space is the territorial extension which would be necessary to maintain the socio-technical system of reference to the space itself, in a sustainable way, i.e. it indicates how much "environment" a person, city or nation should have available in order to live, produce and consume without triggering off irreversible deterioration phenomena.

- The principle of fairness states that every person has the right to the same environmental space.

- The principle of responsibility towards the future states that we must guarantee to future generations at least the same quantity and quality of environmental resources as we have available to us today.

BOX 1.3

Factor 10

Factor 10: We can consider as sustainable only those production and consumption systems which employ at least 90% less of the environmental resources per unit of service rendered than that currently employed by mature industrial societies

The impact on the environment of human activities depends on three fundamental variables, linked together by a relationship that can be expressed by the formula:

Environmental impact = Population × Demand for well-being × Socio-technical system eco-efficiency

Where:

- The *population* is the number of people who weigh on a given ecosystem.
- The *demand for well-being* corresponds to the expectations, in terms of products and services and common assets, that people express in a given social context and require as a necessary endowment in order to consider satisfactory the intrinsic quality of their living context and the access potential it offers.
- *Socio-technical system eco-efficiency* is an indicator of the efficiency of the production system's metabolism. In other words, of how it is able to transform environmental resources into the required well-being (Ehelich, Erlich, 1991, Meadows et al., 1992).

Taking into account the forecast increase in population and hypothesising a rightful growth in demand for well-being from currently more disadvantaged countries, from here it appears that conditions for sustainability can only be achieved by increasing technical system eco-efficiency by at least a "factor 10" i.e. increasing it by at least 10 times (Jansen, 1993, Shmidt-Bleek, 1993, WBCSD, 1993 e 1995). This is an approximate estimate but is nonetheless valid to indicate the measure of change that must take place. It gives rise to a picture of a society where it will be necessary to live, and hopefully live well, utilising 10% of the resources employed today in an industrialised society.

It is evident that the production and consumption system in this sustainable society will be profoundly different from that we have known until now. So different that no partial modification, no incremental innovation in the technology currently in use, no *re-design* operation on the existent can lead us there (Hawken,1994; Pauli, 1997; Sthael, 1977; Manzini, 1999).

2. Ways of living
Product-based and context-based well-being

DRAFT

The idea of well-being, the traditional, unsustainable product-based well-being, is changing. A new idea, defined as access-based well-being is emerging. Unfortunately, this new vision on well-being, as it is appearing now, is even more unsustainable than the old one. The on-going change has to be changed and re-oriented towards the search for a well-being based on the qualities of the whole context of life

The idea of well-being is a social construct: it takes shape over time according to a variety of factors. The idea of well-being dominant today in the west and widely diffused throughout the world, was born with the industrial revolution. It has changed with the evolution of society and now appears as an articulate set of visions, expectations and assessment criteria which undergo continuous adaptation, but with a persistent common characteristic: that of linking expected and perceived well-being with the availability of a growing quantity of products and services.

Today we know that this idea of well-being leads to an intrinsically unsustainable consumption of environmental resources. We know that because of this, given the limits of our planet, this way of thinking and consequently behaving must change over the coming years. In fact, we can see today that in many ways this change is already happening and that other ideas of well-being are emerging. The timing and the way in which this transformation process will come about are, however, still a completely open question. Faced with this transformation, our common problem – that is the problem for the entire worldwide community – is to facilitate a change which can take place in the least dramatic way possible. Our common design aspiration is, or should be, to foster conditions such that this can come about from choice and not from necessity. In other words: by the attraction of new opportunities and new ideas of well-being, rather than under the force of catastrophic events.

1. Product-based well-being

As industrial society unfolded, the combined development of science and technology offered a growing number of people a hitherto unknown possibility: of having at their fingertips products which were the *materialisation* of complex services – machines which carried out cheaply service functions that were previously accessible only to the privileged few (from having clothes washed in the laundry, to having music played by a chamber orchestra during dinner).
In addition, by making such products available in rising quantities at falling prices, the application of increasingly efficient industrial systems *democratised access,* outlining a vision of the future in terms of an indefinite growth in well-being or, to be more specific, in the well-being that these products would be able to bring (see **BOX 2.1 Well-being**).

The original strength of the idea of well-being produced by the industrial society lies exactly here, in this promise of democratisation of access to products which reduce fatigue, leave more free time and extend the opportunities for individual choice - in short, which increase individual freedom.

Unkept promises. The crisis in product based well-being starts with a very concrete, and in its prospects devastating, question: the promise of individual freedom and the democracy of consumption it is based on has not been kept and, more significantly, we are discovering that it cannot be kept, either now or in the future.

On one hand, the contribution to individual freedom brought by new generations of products seems more and more debatable: on multiplication, products tend to become a weight and their added value, in terms of end performance, verges on zero. As a result, the impact on the quality of life of a person – and so on perceived increase in freedom – caused by the entrance of a washing machine into a house where there was none before, is very different from the impact of the latest model of mobile phone which replaces one of the previous generation. All this is important but, as we said, debatable ground (in the sense that we can discuss the meaning each of us gives to different products, including the technological gadgets we are offered today). However, what is considerably less debatable is the failure of the second promise, that of the diffusion of product based well-being. Indeed it is principally on this ground that we can observe, also in terms of quantity, how it has not been maintained and neither can it be in the future.

Unworkable promises. To be concise: product based well-being, extended on a worldwide scale, is an intrinsically unsustainable model.

We can see the risky nature of this proposal at different levels and from different points of view. On a global scale it leads to an environmentally catastrophic situation: the Planet cannot sustain a world of 6 billion consumers of goods and services of the kind propagandised. It is common knowledge that today 20% of the world's population living more or less according to this model, alone consumes 80% of the environmental resources available. For the remaining 80% of the population, if nothing changes, there is just not enough environmental space[1] to sustain the possible consumption[2] (Wuppertal Institute, 1996; Chambers, Simmons, Wackernagel 2000).

The present main-stream idea of well being, extended on a worldwide scale, proposes an intrinsically unsustainable model. More precisely: it is intrinsically unsustainable for a small, densely populated planet that is highly interconnected and in which we wish to respect certain elementary principles of fairness. In fact if all the inhabitants of the planet really sought this type of well-being, in the same way, (as is their sacrosanct right, since this is what others do and what is daily promised to them), there would be a huge catastrophe. An ecological catastrophe if they managed to succeed: the planet would be unable to support the weight of 6-8 billion people approaching the western standards of consumption. Or a social catastrophe if they did not, if 6-8 billion people aspired to the same standards of well-being, but only a few succeeded. In this case there would be a catastrophe because a highly interconnected and globalised society could not bear for long a state where 20%, or less, of the population had access to the promised well-being, while the remaining 80% were forced to look on with no real chance of taking part. A further prospect, halfway between the first two, exists: a world in a state of both environmental and social crisis, where the number of "high impact" consumers increases at the same time as the number of those excluded. As we can all see, this is the prospective that seems most probable.

Weak but promising signals. The fact that this explosive mixture of two dramatic prospects is unfortunately very probable, does not mean that it is a sealed destiny. That described is the *inertial scenario,* the situation we could reach if the main tendencies underway were not modified. However, in a complex society the main tendencies are not the only ones. Just as the dominant ideas, like the idea of well-being outlined, are not the only ones in the social debate. Contemporary society in its complexity generates numerous tendencies and different, and often conflicting ideas. Among these we can identify behaviour, questions, lifestyles and forms of innovation which look promising from the sustainability perspective: movements in the right direction.

[1] *Environmental space* is the quantity of energy, water, land area and raw materials that can be used sustainably. It is also referred to as "ecological footprint" and indicates how much of the environment a person, nation or continent has available to live, produce and consume without exceeding sustainable limits.

[2] On this issue see the work of the Wuppertal Institut fur Klima, Umwelt, Energie; the Advisory Council for Research on Nature and Environment (in particular, *The Ecocapacity as a challenge to technological development*, a study funded by a group of Dutch ministries).

Obviously nobody can say today what the future of these weak but promising signals will be. However, as designers, we cannot but back them and do everything possible to improve their chances of getting stronger and becoming widespread ideas and practices.

2. First lesson learnt.

In conclusion, it should be said that it was apparent right from the start of our decades-long learning process that the idea of product based well-being was out of the question as a point of reference. Our pathway throughout these years can be seen, on the whole, as the necessary process of challenging and surpassing this basic idea.

Well-being and consumption of resources. The first step is to improve our understanding of the problems we face. Product based well-being can be described as a double correlation. By definition, in the ambit of this conception, more well-being = more products. At the same time, operating with current technical and production systems. More products = more consumption of natural resources. From this double correlation it follows that the increase in well-being, to which everybody rightly aspires, is directly linked to the consumption of natural resources. In a limited world with a growing number of inhabitants, this is clearly and inevitably unsustainable.

In the first half of the last century, in an economic and cultural context where the concept of limits seemed to have been forgotten, this direct link between growth in well-being and growth in the consumption of natural resources was not seen as a real problem. Over recent decades things have been changing and we have begun to understand (or rather we have been forced to understand) that this link brings all kinds of problems, not only environmental but also social, political and, ultimately, economical. Consequently the environmental issue was put on single individual, political and economical agendas.

The first effect of this “discovery of the environmental problem” was to make us face the above mentioned double correlation, concentrating activities on the second of the two (the link between products and consumption of environmental resources) taking the first for granted (i.e. the correlation between well-being and product availability). So all efforts have been focused on the technical possibility of breaking the bond between products and consumption of environmental resources, uncoupling growth in the first from that in the second, and by so doing increase the environmental efficiency of the products (defined as *product eco-efficiency).* In short: make more products with lower resource consumption.

The proliferation of light products. The effort has achieved partial success: many products have been redesigned, their eco-efficiency has been greatly improved and, on the whole, each single industrial product has become “lighter” (in the sense that the environmental weight – *the ecological footprint* – of their individual existence has been reduced).

Unfortunately however, statistics tell us that total cumulative consumption of environmental resources has continued to grow. This is because, while the environmental weight of each single product has diminished, their number has at the same time increased more than proportionally. In consequence the overall consumption of resources has risen (see **BOX 2.2 Rebound effect**)..

This contradiction between expectations and results is one of the disconcerting aspects facing us in the learning process underway and which together have been termed *the boomerang (or rebound) effect:* the phenomenon by which, in its intricate intertwining of events, choices taken to be positive for the environment have in fact proved to be generators of new problems.
However that may be, the outcome of all this is that the relative de-materialisation of products has not brought with it any reduction in overall consumption. The expected uncoupling of products and consumption (taken as a whole) has not taken place. In spite of everything the system is still heading for a real crisis.

Breaking the correlation between well-being and product. The first lesson to learn from this experience, and from the discovery of the boomerang effect in first place, is that we must know how to learn from the experience itself. In this case, as well as reminding ourselves once again of the complexity of the systems we face, the experience tells us that we must operate on the connection between well-being and product.

Remembering the double correlation we started with, it appears evident that concentrating solely on the second of the two, “more products = more consumption of environmental resources” does not lead in the right direction. To be more precise, we have learnt that this type of intervention is important but not sufficient: single products can be lightened, but their quantity may rise more than proportionally. Because of this we must now concentrate on the first correlation “more products = more well-being”, and find a way to break it.

3. Access-based well-being

Considering the dominant ideas of wellbeing, in the last decade, something started to change, at least as far as mature industrial societies were concerned. This change, that has to be related to the on-going shift towards an economy based on services and knowledge, can be summarised in the slogans “from the material product to the intangible” (IPTS, 1999a), “from consumption to experience” (Pine, Gimore 1999) and “from possession to access” (Rifkin, 2000). All this seems good: in principle, access to services and experiences which satisfy intangible needs appears to be a promising concept, an idea on which to built some form of sustainable lifestyle. Unfortunately, as we will see, reality shows a completely different picture.
In the framework of this new economy the central position of the material product in the definition of well-being becomes obsolete: well-being no longer appears linked to the acquisition of a “basket” of material products, but rather to the availability of access to a series of services, experiences and intangible products. More specifically: in a society saturated with material goods, to focus on the immaterial seems more interesting. And, at the same time, when life-styles are characterised by speed and flexibility, the ownership of material products appears too heavy and rigid a solution, something that increases the inertia of the system (which, on the contrary, is intended to be as light and flexible as possible) (Rifkin, 2000, Bennet, 2000)

In fact, in coherence with this vision, which we may define as the vision of *access-based wellbeing*, quality of life is related to the quantity and quality of services and experiences which it is possible to have access to. And, consequently, the idea of freedom tends to be coincident with that of *freedom of access* (metaphorically, the contexts that best illustrate this vision are *theme parks*: places where, at your pleasure, you can choose your thrills among many, and where everything has been carefully thought out to offer you an “exciting experience” – if you have the money to buy the tickets).

The rebound effect, in the “age of access”. The problem with this emerging vision of wellbeing is that, even though it breaks the direct link between wellbeing and consumption of environmental resources, practically, while developing in the present cultural and economical context, it may becomes even more unsustainable than product-based one (IPTS 1999b, Manzini 2001). And this for several interconnected reasons:

- The new “intangible needs” tend to be added, and not to substitute, the old “material ones”.
- The speed and flexibility of new life-styles imply the same speed and flexibility in access to services which, for this same reason, proliferate.
- Services and experiences, per se, may be immaterial, but their delivery may be highly material intensive.

In conclusion, the access-based idea of wellbeing, applied in the way in which it is taking place now, brings insignificant, if not actually negative results. The question that we cannot escape is: why does it happen? Why, whatever we do, the final result turns out to be a further increase in the consumption of our environment?

4. Second lesson learnt.

If the reasons for the environmental and social un-sustainability of the product-based wellbeing have been very widely discussed far less discussed has been the issue related to the sustainability or unsustainability of the access-based wellbeing.
In the following paragraphs some hypotheses will be formulated. These hypotheses will be the basic framework of the scenarios of sustainable wellbeing that we want to build.

The crisis of *common assets.* Our first hypothesis of work is related to the existence of a strong relationship between rebound effect and the crisis of the common goods, and in particular, of the local common goods.
The expression local *common assets*, that is the pillar on which this first hypothesis is built, stands for "goods" that belong to everybody and nobody in particular. And that - until they remain "common" - cannot be reduced to marketable products and cannot therefore be bought or sold.
Examples of common goods range from basic physical resources, such as air and water, to social resources like a neighbourhood community or the civic sense of its citizens, up to more complex resources such as the landscape or an urban public space or a "sense of security" in a town.

It is clear that these common goods constitute a fundamental part in the construction of a human habitat, i.e. in the definition of the quality of the physical and social contexts in which human beings live, and in which products themselves take on meaning.
Nevertheless, in the models of wellbeing which have been dominant in industrial societies up to now the central position held by individually acquirable goods (whether products or, more recently, services) has caused, as a highly tangible side effect, an underestimation of the role which common goods assume in the actual definition of a state of wellbeing. The consequences have been the complementary phenomena of:

- *Desertification*: the neglect and, consequently, the degeneration of the common goods, considering them as insignificant or considering their deterioration as inevitable (assuming it as a sort of penalty to pay to progress and to the quest for wellbeing).
- *Marketisation*: the transformation in market goods of some components of the traditional human habitat that previously had been common goods (i.e. often assuming that their privatisation would be the way to avoid their deterioration – see the present world-wide debate on water management).

The disappearance of the *contemplative time*. The second hypothesis of work is related to the relationship between rebound effect and the crisis of the contemplative time.
The expression *contemplative time,* that is the pillar on which this second hypothesis is built, stands for a time that is used "to do nothing" and, nevertheless, is not empty, nor meaningless.
Examples of contemplative time range, of course, from looking to a sunset to making some spiritual exercises. But we may assume that there is a bit of contemplative time also in doing something (walking, eating, talking with people,…) at a slower pace.

Traditionally, the contemplative time has been an important part of the life and it had been considered as a privilege (as a matter of fact, poor people hadn't had a lot of possibilities for contemplating) (Offe, Heinze, 1997). Now things are changed and the contemplative time is disappearing for both the wealthy and the poor. This disappearance is caused by two complementary phenomena concerning our use of time:
- *Saturation*: the tendency to saturate every moment with something to do, and, more and more frequently, to stuff it with several things to do at the same time.
- *Acceleration*: the tendency to do everything at a faster pace to have the possibility (or the illusion) to do more.

Appearance and diffusion of *remedial* goods. If we consider the past century, we can empirically observe how the spread of goods and services for private use and consumption has run parallel to the common goods deterioration and to the disappearance of the contemplative time.
Facing this observation, our third hypothesis of work may be articulated in this way:

- There is a *relationship* between the diffusion of market goods (if ever more sophisticated and efficient) and the crisis in common goods and contemplative time, and in all that they bring as their specific, cost free, contribution to the definition of "a state of wellbeing".
- There is a second *relationship* between the crisis in common goods and contemplative time, and the proliferation of new *remedial goods*, i.e. products and services that try to make acceptable a context of life that, per se, is heavily deteriorated.

- The growth in consumption of remedial goods, in turn, brings to more consumption, and to a further crisis of both common goods and contemplative time. And so on in a negative auto-reinforcing cycle.

The concept of *remedial goods* is obviously the central issue in this hypothesis. The common character of the remedial goods is that their use or consumption is not improving the quality of life or opening new possibilities for the user (as it could be the case for a new washing machine for a person that, until then, had washed by hand). What they do is simply to (try to) restore a degree of acceptability to a context of life that has been degraded.
The meaning of this definition immediately appears if we consider the crisis of some basic common goods: we buy "bottled distilled water" because natural, local water is polluted, we move to faraway "tourist paradises", because the beauty nearby has been destroyed, we buy electronic and telematic domestic security systems, because neighbours no longer discretely, and at no cost, keep an eye on the house, and so on.
Even if it may be less evident, the same concept of remedial goods may be used in dealing with the disappearance of the contemplative time: we buy and we consume a growing number of products and services "to stuff the time", to kill the sense of void left by our incapability to enjoy contemplative time or, simply, to do something at a slower pace. In this case, i.e. considering the relation between goods and the disappearance of contemplative time, it is not easy to establish with a sharp precision, which goods are the remedial ones and which are not. But we could easily say that a lot of them, from TV, to mobile phones, to junk food, have inside a strong remedial component.

Sustainability and contexts of life. In conclusion of this part, we can assume that un-sustainability, at the local scale, is a process of deterioration of the contexts of life, caused by the crisis of the common goods and the disappearance of the contemplative time.

The expression *context of life*, here, denotes a physical and social environment (the habitat of person) and a set of possibilities (the possibilities, for this same person, to make his choices). For what regards its quality, it is given by the way in which different systems (natural and artificial, physical and socio-cultural, market goods and common goods) match together (Manzini, 2001c).
As a matter of fact, in the present socio-economic system, we are witnessing the double process of crisis of the common goods and disappearance of contemplative time and of the saturation of the time and space with remedial and "entertaining" goods and services.
This double phenomenon is particularly dangerous because, as we have seen, the different drivers reinforce each other in a negative circular process: more consumption, more context degradation, more consumption (of remedial goods).

If these hypotheses are correct, it comes that every idea of wellbeing, to be sustainable (or at least, to have some probability to be sustainable) has to consider the overall qualities of the *contexts of life*. More precisely: it has to be based on the access to a variety of products and services, but also, or even more, on the quality and quantity of the available *common goods* and *contemplative time.*

5. Directions for a context based well-being

The great design issue that society as a whole must face is the following: how can we move towards a society where expectations of well-being are separated from the acquisition of new artefacts? How can we place people in a position to live well consuming (much) less and regenerating the quality of our habitat?

In order to reply to this question we must imagine a cultural and production system where a reduction in the consumption of product and material services is (more than) compensated by an increase in other forms of quality: the intangible qualities of culture and spirit but also – and this is of greater interest to us here – the quality of our context of life, where well-being is created bearing in mind the whole setting of a person's life.

To understand this statement better we need to observe more carefully, how to create conditions of well-being and, in particular, how to define the relationship between products and services, and the overall quality of the context we live in. To do so we shall introduce two pairs of concepts fundamental to us: those of user subject and context of life, and those of common assets and contemplation time.

Subject-actor and co-production of value. In order to talk about well-being we must first of all sketch out the protagonist of our story, i.e. the subject we are referring to. To be more specific, since we are particularly

interested in the relationship between this subject and the system of artefacts we can use to create an idea of well-being, we shall refer to our subject as *subject-actor:* the subject seen in context adopting an *action strategy* to achieve a given result.

This picture of the subject-actor placed in context is what distances our proposition from the more common one, when speaking about subject and product, of *subject-consumer, i.e. o*ne where the subject is usually considered as a figure uprooted from the complexity of a specific living context, reduced to a single possible role: that of consumer.
The subject-actor model, on the other hand, offers us the possibility of considering an active subject who participates in the process of value production, in other words, in achieving a result. This focusing on the possible active role of the subject is fundamental if we want to move away from a picture of product based well-being and its corollary, of a subject limited to the role of consumer.
On the contrary, when given a result the subject can participate in its achievement by enacting various *forms of participation.* These are, in their turn, defined by the different ways he employs his *personal resources* whether physical, economical or cultural (what he knows, what he knows how to do and what he can – physically and economically speaking - do) in combination with his *time (the time he can and wants to dedicate)* and his *attention* (the degree of concentration he is capable of).

The combination of these variables gives rise to various *action strategies* which, for simplicity's sake, can be collocated on a *passive v. active* scale. Where on the one hand the subject is presented, and considered, as a subject "to serve", while on the other hand, he is presented as a bringer of potentially valuable resources.

Contexts and life strategies. So the protagonist of our story is an actor placed in a precise setting. This setting is his context, the context of his actions and therefore also of his daily search for well-being. By the term *context* we mean the physical space and the social set-up which constitute the background to an action, and in relation to which that action becomes possible and takes on meaning. So it is the *set of restraints and opportunities* that, in a given time and place, delimit the possibility for action of the subject to which the context applies.

We should underline that, between context and action (and actor), there is no deterministic bond: the context directs and conditions, but never completely determines the effective action undertaken. In short, the context is a "trampoline for action" that enables the actor to jump in various, but not all, directions.

A context can be described by listing various property typologies. The basic one which interests us here refers to the properties of the natural and artificial system in which the action takes place, in other words, the physical space and social set-up which constitute the substrata of the context itself, and also the substrata in relation to which the subject placed in it will assess his own well-being and enact strategies for maintaining or improving it.
Without going into details we can say that various typologies of assets, and various timescales, come into play in the definition of these strategies: the assets to take into consideration are both private, mainly those acquired on the market, and those of the community. Timescales refer to the rhythms at which events take place and to the existence or otherwise of an ecology of timing.

Various combinations of private assets and assets in common, of different timescales and different ways of taking action constitute the different living strategies by which the subject actor tries to approximate his idea of well-being.
Our working hypothesis is that to move away from product based well-being we need to value community assets more highly, develop islands of slowness and promote individual participation. Exactly the opposite of what is happening today, at least as a dominant tendency. Let's try to explain more clearly by considering common assets, contemplative time and their current, increasing state of crisis.

Common assets and contemplative time. *Common assets* are tangible and intangible systems which go to help create a context and its particular quality, and which by their very nature belong to everybody. The notion of common asset covers a complex range of context components: from basic common physical assets like air or water, through social ones like neighbourhood community or the civic sense of its citizens, to more complex ones like landscape or urban public space or a sense of security. One characteristic common to all common assets is that their role in generating quality of life is not generally perceived until the asset itself has been consumed in some way and to a certain extent. In other words: when a common asset exists in good state of health, the service it offers seems quite obvious and normal. We realise its importance when for some reason it starts to wane.

The model of well-being up to now dominant in industrial society has largely neglected the importance of common assets. In fact the central importance given to individually acquirable assets (whether products or, more recently, services) has brought with it as a possibly undesired, but all too tangible, side-effect their dramatic deterioration, evident in their progressive *desertification* (i.e. their abandonment and consequent degeneration) and successively, their increasing *mercerisation* (i.e. their transformation into marketable goods: bottled water in the place of natural water, the shopping mall instead of the public square, a private guard service instead of a neighbourhood watch, and so on.

Contemplative time is time for "doing nothing" but which is lived neither as empty nor as meaningless, or otherwise, time in which "something is done" but which is done, by choice, slowly.
Above all, this expression denotes intervals in time when the flow of targeted (i.e. purposeful) actions is voluntarily broken. More obvious examples of contemplative time might be time spent looking at the sunset or doing some form of spiritual exercise. We can, however, assume that there is also a quota of contemplative time in doing things such as walking, eating or communicating with others, at a slower than socially normal pace.

Traditionally, contemplative time was an important part of life and having such time available was seen as a privilege (in effect, the poor never had much time for contemplation in the past). Now things have changed and contemplative time is disappearing both for the rich and the poor. This progressive disappearance can be traced back to two causes. The first is time saturation (i.e. the tendency to fill every moment of life with something to do and, ever more frequently, to fill it with more than one thing to do at the same time – for example: driving while making a telephone call and having something to drink). The second is acceleration, the tendency to do everything more quickly in order to have the chance (or rather the illusion) of being able to do more.

Design implications

Quality of context vs. market commodities? Compared to the last century, we can observe empirically how the diffusion of market commodities and services has gone parallel to the deterioration of common assets and the disappearance of contemplative time. From here the direct relationship between the diffusion of market commodities (however sophisticated and efficient they may be) and the crisis in common assets, contemplative time and all that they bring as their specific and (economically and environmentally speaking) free contribution to a state of well-being, becomes evident.
So it is from this observation that our original statement springs: to be sustainable, any idea of well-being must (re)discover quality of context, and therefore the value of common assets and contemplative time.

Reference to context of life as the background on which to base a social conversation about well-being is the first move towards changing the rules of the game, laying the foundations for the development of a new idea of (and about)well-being. The second step is to indicate a direction: the direction which, to the best of our current knowledge, would seem to lead towards sustainability.

All this requires skilful planning. At the same time however, it places designers in a paradoxical position in many ways: we need to move towards a world where expectations of well-being are less tied to the existence of new artefacts, but the only way in which designers and enterprise seem to have to do this, is by designing and producing new (tangible and intangible) artefacts.
Totally new forms of innovation will be required to overcome this paradox and identify product-service systems that promote and bring about a new idea of well-being: a radical innovation that generates products, services and systems which respond to social demand, which are feasible and which are also able to *regenerate the quality of the context* where they are collocated to live.

Solutions and results. How can designers help subjects and communities in their search for a well-being which will also bring an improvement in their overall context of life? The first step to be done is to move form thinking in terms of products to looking to the results that we wont to get and to the different possible strategies to achieve them (that is the possible solutions).

In the most general sense we can give to the term, a *solution* is a process by which product, service and knowledge are put together to achieve *a result* (solve a problem or reach an objective).

In general, this daily activity is undertaken by the subject-actors themselves, putting their personal capabilities into play according to the opportunities given them by the context they find themselves in.
In practice: by identifying a result and choosing the products and services required to achieve it from among those they have a real chance of access to.
Recently, the increased transformation speed of socio-technical systems has put this traditional way of behaving into difficulty: the traditional know-how subjects have acquired no longer seems to be sufficient, adapting new products and systems, case by case, to those already in existence is not easy, the actual results to achieve become more and more complex (as for example, when we really want to take into consideration the environmental and social implications of our own choices).

So in this context under rapid transformation, it becomes necessary to conceive and bring into being products, services and systems of know-how thought up right from the beginning as "a system"; to be co-ordinated, or easily co-ordinatable, according to the result. Starting from this necessity, some producers and service providers have begun to offer solutions: *advanced solutions* conceived as unitary systems and, for this reason, separate from *off-the-cuff solutions,* widely put into action outside any real plan.

Action strategies. Considering the solutions from the point of view of the subject-actor, they are the result of his strategy. An *action strategy* understood as a sequence of choices and actions by which, according to his capability, an actor identifies and achieves a result (see BOX – Capability)

The concept of action strategy has to do with the way subjects act and, in particular, refers to how they articulate their life plan into specific objectives and into the strategies required to achieve them.
The term *strategy*, in this context, should be interpreted as a set of choices and moves made to a purpose and carried out in a highly unpredictable context.
In our case it indicates that the sequence of actions a life plan is articulated into occurs in a context which is never entirely predictable. Consequently the subject who acts must use his strategic ability to keep to his course, receiving feedback from the system he is operating in, constantly redefining his movements and, if necessary, reorienting his own objectives.

In short, an action strategy is the expression of the way a subject is able and knows how to determine his moves. This means, how and how far he is able and knows how to focus on a result and, in each situation, identify, acquire and use the necessary means to achieve it (this may involve associating different products and services with each other, or accessing a system of products and services conceived at the outset as a "solution"). In other words, a person's action strategy is the conversion into concrete acts of the *capability* of that person.

A subject's action strategy, as well as his capability, depends on the combination of *forms of participation* which he can, and knows how to put in play (therefore mainly on the physical, economic and cultural *personal resources* available to him) and on the *solutions* which present themselves (therefore on the set of product, services and knowledge which the subject has access to and which can enable him, if endowed with the appropriate personal resources, to achieve the desired result).
Consequently, it can be seen that the emergence of new action strategies and that of new solutions are linked.

Starting from results. We have already hinted that thinking in terms of solutions is a pre-condition for the development of sustainable production, use and consumption systems. Now this statement will be reasoned through.

We have also said already that in order to steer ourselves towards sustainability a systemic discontinuity must occur. On the scale of the design issues discussed here, this discontinuity (which can be seen as a *local discontinuity)* comes forward as a radical change in the results required and in the ways of achieving them, i.e. as a change in the typology of solutions proposed and in the action strategies adopted.

The sense of this statement can be understood better if we consider briefly the steps to take in planning a solution. They are:

- *Change our viewpoint*, i.e. move the centre of interest *from things* (e.g. refrigerators and cookers, cars and washing machines), *to results.* More precisely: to the activities aimed at a result (as we said: getting a meal, moving around the city, washing clothes).
- *Imagine alternative solutions,* i.e. plan different possible combinations of products, services, knowledge, organisational ability and roles to be played by the actor-subjects involved, by which these results could, in principle, be achieved.
- *Assess and compare* various alternative solutions, i.e. utilise an appropriate set of criteria to evaluate the effective economic, social and environmental expediency of the alternatives identified.
- *Develop the most suitable solutions,* i.e. plan following a twofold process: *promote convergence* between the enterprises and the social actors involved in realising the chosen solution and interface the products, services and know-how which go to make up the solution.

Solutions and sustainability. Thinking in terms of solutions can therefore be considered as a pre-condition to conceiving and bringing about sustainable systems. This is for two sets of complementary reasons:

- *It promotes a systemic approach,* i.e. it encourages the designers, and the group in general of actors involved in the planning, production, running, use and final divestment (of the material components) of the solution, to think in terms of system, which - potentially - brings numerous advantages form the environmental and social point of view.
- *It opens discussion on the current system of products and services,* i.e. it considers the possible alternatives to the "off-the-cuff solutions" at present available (which, as we now know, are largely unsustainable). In so doing, it offers the possibility of introducing criteria and guidelines coherent with the requirements of sustainability.

On the other hand, the changeover from products to solutions (i.e. from the current systems-oriented-towards-product to new systems-oriented-towards-result) is only a pre-condition (and not a guarantee) for sustainability. This because new solutions which may emerge could even be more unsustainable then those they substitute. All depends on the design choices which are actually adopted.

In practice, if we observe contemporary society, we can see an increase in the availability of product and service systems which are in fact solutions. Unfortunately however, as we have already seen, the way in which this is happening is not leading the production, use and consumption system in the right direction.

In order to change the direction of development it is necessary for other transformations to take place; that a new idea of well-being, the one we have defined "context based well-being", spreads and a new generation of sustainable solutions emerges.

BOX 2.1

Well-being

Well-being: *a set of context properties which a person perceives to be positive and towards which he steers his action strategy.*

1. The concept of well-being is complex and controversial. Its interpretation swings from positions seeking a (presumed) objectivity and hierarchy of needs, to those which claim maximum subjectivity of judgement, appealing to the total subjectivity of what is considered to be "useful". Here we shall adopt a position midway between the two, following the line of thought laid out by the Anglo-Indian economist, Nobel prize-winner for economics, Amartya Sen, in the study of living standards, and so also of individual well-being.

According to Sen, what determines well-being is neither goods nor their characteristics, but rather "the possibility of doing various things making use of those goods or their characteristics…… (Nussbaum, Sen, 1993). It is exactly this possibility which, in the best hypothesis, enables a subject to approach his idea of well-being, giving him more possibility of "being" (what he wants to be) and "doing" (what he wants to do".
In order to develop his idea Sen introduces two very effective concepts: the concept of *functioning* and that of *capability*.

2. "Living – writes Sen – consists of a set of "functionings" relating both to doing and to being, like being adequately fed, housed and clothed … being able to move around freely, being able to meet friends and have relationships with them, being able to appear in public without feeling ashamed, being able to communicate and participate, being able to follow one's own creative instincts and so on" (Nussbaum, Sen 1993).

On the other hand, the quantity and quality of functionings which a person can bring into play depends on the integration of two fundamental components: the solutions to which he has potential access and the personal resources which he has available. It is precisely the integration of these two components from which emerges the concept of "capability" on which Sen bases his definition of well-being. For Sen, and for us too, the condition of well-being emerges from the dynamic relationship between functionings and capability, between what could be done and what one could be and what one can actually, and knows how to, do and be.

Reference to the concept of capability in the concept of well-being means, then, taking into consideration something which is not (only) a set of products and their possibilities, neither is it (only) "the mental reaction to those possibilities, or rather happiness….". As Ota de Leonardis observes, "Capabilities rest midway – and link - the subjectivism of usefulness with the objectivism of need (De Leonardis, 1994). So doing, linking the solutions available in a given context with the personal resources of the person acting in that context, the concept of capability gives a concrete reference on which to base an evaluation of the living standard actually offered to that person.

BOX 2.2

Rebound effect

Rebound effect: *this is a phenomenon by which choices which had been considered positive for the environment, have in fact proved to generate new problems once put into practice.*

1. The rebound effect is the great, and in many ways tragic, discovery of the last few decades of experience in the planning and development of eco-efficient products and services. It is the phenomenon by which choices which had been considered positive for the environment, have proved to generate new problems once put into practice. In fact, every technological improvement introduced with the intention of increasing the eco-efficiency of products and services, for reasons which are rooted in the complexity of the socio-technological system as a whole, seems to transform itself "naturally" into new opportunities for consumption and consequently increase the unsustainability of the systems they are introduced into.

In the recent past, when considering the reduced individual environmental weight of various artefacts, taken one by one, naively it did indeed seem that the overall production and consumption system was evolving in the right direction, towards the conditions for sustainability. However, widening the range of observation from single products to the system as a whole, we became aware that this was not how things were going. We realised that when products become light, small, efficient and cheap they tend to change their status and proliferate, evolving towards wider and faster forms of consumption, drawn into fashion cycles (as happened with watches) or into the instant world of throwaway goods (as in the case of cameras).

2 - Similarly we have seen that the development of electronic systems and magnetic and optical memories (and their friendly interfaces), making previously difficult and boring activities easy, has tended to popularise them and also in this case cause them to proliferate. In so doing these too have enormously increased the consumption of resources. For example, the "*push and print* syndrome" is well known. With the availability of computers, printers and *word processors,* it has become so easy to update and print texts that every document is printed in umpteen versions, causing an exponential growth in paper consumption.

The rebound effect is the result of a jumble of economic, social, cultural and technological matters which encroach on all spheres of social and individual life. The fact that nobody had foreseen it, depends principally on a dominant mindset among observers that has led them not to consider the systemic character of the phenomena observed and, above all, to overlook its complexity. In other words, not to consider the unexpectedness (and the potential contradictoriness) of the socio-cultural phenomena which every technological innovation brings with it.

3. Social innovation
Creative communities and diffused social enterprise

DRAFT

Contemporary society emits different, contradictory signals. Among these are the very promising ones of groups of people inventing sustainable ways of living. Some of the practical ideas produced by creative communities consolidate and last in time. Some of them are reproduced in other contexts. All of them have to be considered as experimentations of possible futures

The transition towards sustainability and, in particular, towards sustainable ways of living, will be a wide-reaching social learning process in which the most diversified forms of creativity, knowledge and organisational capabilities will have to be valorised in the most open and flexible way. Among these, a particular role will be played by local ventures that, for several reasons, can be seen as signals of new behaviours and new ways of thinking. That is, as *local discontinuities*. These grassroots innovations in everyday life are promoted and managed by creative and enterprising groups of people, *creative communities*, which may evolve into lasting organisations, *diffuse social enterprises*.

Although at present these promising cases are the expression of social minorities, and when confronted with the main-stream ways of thinking and behaving they tend to disappear, they are crucial for promoting and orienting the transition towards sustainability. In fact they can be seen as *social experiments* of possible futures: a multi-located, diffuse laboratory where different moves towards sustainability are tried out . As in every laboratory, nobody can say a priori which experiment will be really successful. Nevertheless, it is possible to learn something from every attempt. If we are able to recognize it and to learn form it.

1. Promising cases

In its complexity and contradictoriness, contemporary society can also be seen as a great laboratory of ideas and innovations for everyday life: ways of being and ways of doing that express a capacity to formulate new questions and find new answers[3]. Among these are some where diffuse design capability has found a way of converging in collaborative activities. For example: ways of living together where, in order to live better, spaces and services are shared (as in the examples of *co-housing*); the development of production activities based on local capabilities and resources, but linked to wider global networks (as occurs with certain *typical local products);* a variety of initiatives to do with healthy, natural food (from the international *Slow Food* movement to the spreading to many cities of a new generation of *farmers market*); self-managed services e.g. childcare services (such as *Micro-nurseries*: small playgroups run by the parents themselves) and services for the elderly (such as *Living Together* : models of home sharing where the young and the elderly live together); new forms of socialisation and exchange (such as *Local Exchange Trading Systems – Lets* and *Time Banks*); alternative transport systems to the individual car culture (from *car sharing* and *car pooling* to a rediscovery of bicycle potential); networks linking producers and consumers both directly and ethically (like the worldwide *fair trade* activities)…the list could continue[4] (many of the cases referred to here can be found on the SEP, *Sustainable Everyday Project* website: http://www.sustainable-everyday.net/cases).

[3] For the Young Foundation, the term *social innovation* refers to "new ideas that work to achieve social results" (Young Foundation, 2006). Another definition is the following: *"Social innovation* is a change in the way individuals and communities act to achieve socially appreciable results (i.e. solve problems or exploit new opportunities). Generally this is the result of "bottom up" behavioural transformations (as well as in changes in technology and the market) (EMUDE, 2006; Meroni 2006)

[4] The examples (and comments on them expressed here) came out of research carried out by DIS-INDACO Department of the Politecnico di Milano and by SDS, Bruxelles, together with other European universities, research centres and the UNEP (United Nations Environmental Programme) in the framework of EMUDE project, a research financed in the 6th European Framwork Programme.

Social experimentations. The proposed cases are very diverse in their nature and in the way they operate. But they have a very meaningful common denominator: they are always the expression of *radical changes at the local scale*, i.e. discontinuities with regard to a given context, in the sense that they challenge traditional ways of doing things and introduce new, very different (and intrinsically more sustainable) ones: organising advanced systems of sharing space and equipment in places where individual use normally prevails; recovering the quality of healthy biological foods in areas where it is considered normal to ingest other types of produce; developing systems of participative services in localities where these services are usually provided with absolute passivity on the part of users, etc.

Clearly, a precise analysis should be undertaken for each of these cases to assess the effective level of environmental and social sustainability. However, even at a first glance we can recognise their coherence with some of the fundamental guidelines for environmental and social sustainability (see **Chapter 1**). More precisely, the examples we are referring to here have an unprecedented capacity to bring individual interests into line with social and environmental ones. In fact, one side effect of their search for concrete solutions is that they reinforce the social fabric and, more in general, they generate and put into practice new, and more sustainable, ideas of well-being. In these ideas of well-being a higher value is given to the quality of our "commons", to a caring attitude, to the search for a slower pace in life, to collaborative actions, to new forms of community and to new ideas of locality. Furthermore, achieving this well-being appears to be coherent with major guidelines for environmental sustainability, such as: positive attitudes towards sharing spaces and goods; a preference for biological, regional and seasonal food; a tendency toward the regeneration of local networks and finally, and most importantly, coherence with a distributed economic model that could be less transport intensive and more capable of integrating renewable energy and efficient energy systems.

Precisely because in proposing solutions they manage to converge personal interests with social and environmental ones, we believe they should be considered as *promising cases:* initiatives where, in different ways and for different reasons, people have been able to steer their expectations and their individual behaviour in a direction that is coherent with a sustainable perspective.

2. Creative communities

Behind each of these promising cases there are groups of people that have been able to imagine, develop and manage them. A first view shows that they have some fundamental traits in common: they are all groups of people who cooperatively invent, enhance and manage innovative solutions for new ways of living. And they do so recombining what already exists, without waiting for a general change in the system (in the economy, in the institutions, in the large infrastructures). For this reason, given that the capability of *re-organizing existing elements into new, meaningful combinations* is one of the possible definitions of creativity (Merriam-Webster dictionary), these groups of people can be defined as *creative communities*: people who cooperatively invent, enhance and manage innovative solutions for new ways of living.

A second characteristic, common to these promising cases, is that they have grown out of problems posed by contemporary everyday life such as: how can we overcome the isolation that an exasperated individualism has brought and brings in its wake? How can we organise daily functions if the family and neighbourhood no longer provide the support they traditionally offered? How can we respond to the demand for natural food and healthy living conditions when living in a global metropolis? How can we support local production without being trampled on by the power of the mighty apparatus of global trade?
Creative communities generate solutions that are able to answer to all these questions. Questions that, it has to be said, are as day-to-day as they are radical. Questions to which the dominant production and consumption system, in spite of its overwhelming offer of products and services, is unable to give an answer and above all is unable to give an adequate answer from the point of view of sustainability.
In conclusion to this point, we can state that creative communities apply their creativity to break from the given mainstream models of thinking and doing. And in doing so, consciously or unconsciously, they generate the local discontinuities we mentioned before[5].

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[5] In particular, they succeed in solving the difficult problems of everyday life by proposing and realizing unprecedented cultural, economic and organizational models, i.e. models that are beyond the classic polarities on which mainstream modern thinking has been built: private - public; consumer - producer; local - global, need – wish. In fact, they propose solutions that make private, social and environmental interests converge. Solutions the motivations of which are always a complex mix of needs and wishes. Forms of organisation where, everybody being active, the distinction between the producers' and the users' roles blurs. Finally, their initiatives are profoundly rooted in a place and, at the same time,

A third common denominator that we will mention here is the fact that creative communities result from an original combination of *demands* and *opportunities.* Where the demands, as we have seen, are always posed by problems of contemporary everyday life, and the opportunities arise from different combinations of three basic elements: the existence (or at least the memory) of some *traditions*; the possibility of using (in an appropriate way) an existing *set of products, services* and *infrastructure*; the existence of *social and political conditions favourable* to (or at least capableof accepting) the development of a diffused creativity.

Traditions as social resources. In answering the questions posed by contemporary life, the creative communities we are referring to have found more or less strong and explicit links with ways of doing and thinking proper to pre-industrial cultures: the old market, the vegetable garden of their grand parents, children walking to school in "the good old days", the sharing of tools and equipment before the present consumption-oriented society, and so on. The existence of these more or less evident links to traditional ways of doing leads some observers to say that, after all, these cases are nothing new and that they simply spring from a nostalgia for a village life that can no longer return.
Looking better at the cases and their motivations, it clearly appears that nothing could be falser: the "past" emerging in these cases is an extraordinary, absolutely up-to-date, social and cultural resource: it is the value of neighbourhood sociality that enables us to bring life and security back to a neighbourhood or a village. It is the sense of season and local food production that can put today's unsustainable food network back in order. It is the value of sharing that enables us to lighten the burden of apparatus and specially-equipped spaces, which we must or want to have available… In the end, it is a heritage of knowledge, behaviour patterns and organisational forms that, seen in the light of current conditions of existence and current problems, may constitute valuable building materials for the future.

Communication technologies as enabling systems. The majority of promising cases at issue here utilise "normal" technologies (i.e. what today in many countries is considered as "normal"). However, very often they utilise them in an original way, by putting products and services normally available on the market into a new kind of system. For example, they generally use the telephone, the computer and the internet just as any ordinary member of society can do (obviously, members of society in parts of the world where telephones, computers and the internet are actually available). Nevertheless, we must stress how important these normal technologies are. In fact, though few cases make use of sophisticated services and products, not one of them could have existed without a telephone. And very few without a computer and the internet.

Having said this we can add that these technologies, however modest they may be, however normal they may be considered, still have largely unused (and even unimagined) potentialities: mobile telephones, just to take the most commonly used communication device worldwide as an example, have mainly been used until now as communication enablers. However, they also have great potential as system organisers. The same potential can also be attributed to (clever) uses of computers and the internet. Just to give some examples: innovative schemes of car-pooling, purchasing groups, time banks, collaborative services in general could not exist without the telephone and would be very difficult to manage without a (normal but clever) use of computers and the internet.

The hypothesis of these potentialities is corroborated by direct observation of on-going social innovation: against a background of cases that employ commonly used technologies, some examples can already be found where specific technologies, and information and communication technologies in particular, have been developed and are now in use. These cases give us an idea of how the situation could evolve if appropriate enabling technology were developed. The evolution of *car-sharing* is one such idea: twenty years ago it worked by telephone, paper and pen; nowadays it has become an application field for a variety of specialised technology packages, i.e. purpose designed to deal with bookings, car fleet management, and the customising of vehicles to the requirements of individual users.

In conclusion, although it is true that the use of information and communication technologies as enablers for new forms of organizations is still at the very beginning, some creative community inventions can be seen as very advanced. In other words, they are at the cutting edge of socially-led systemic innovation, where existing, normal, technologies are used to create brand new systems and organisations.

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strongly connected to other similar ones on an international scale. That is, they represent a brand new form of globalisation based on the interconnection between localities of a new kind.

Complex economic models. Another characterising aspect of creative communities is their economic dimension i.e. the "economic model" on which they are based. The starting point of discussion is the following: creative communities succeed in solving difficult everyday life problems proposing (largely) self standing organisations. That is, organisations that function without . external funding, or that require only minimal support for their own self-help capabilities It is this characteristic that makes them real social enterprises. On this point, and on how they differ from traditional social enterprises, we will come back in the next paragraphs. Here we would like to outline some aspects of their functioning models.

We can say that creative communities are the expression of unprecedented cultural and organizational models because they go beyond the classic polarities on which mainstream modern thinking has been built: private - public; consumer - producer; local - global, need – wish. In fact, they propose solutions that make private, social and environmental interests converge. Solutions the motivations of which are always a complex mix of needs and wishes. Initiatives that are profoundly rooted in a place and, at the same time, strongly connected to other similar ones on an international scale, and finally, and most importantly for us here, forms of organisation where, everybody being active, the distinction between the producers' and the users' roles blurs. It is here that the issue of the economic model comes out. To make a long a complex issue short, we can say that they propose economic models based on different "economy mixes": different combinations of the do-it-yourself economy and of mutual exchange, of the gift economy and, in different ways, of the market economy too.

3. Diffused social enterprises

Creative communities are living entities that evolve over time. In fact, a closer observation shows that the promising cases they generate can be seen as solution ideas at different stages of their specific innovation processes. As a matter of fact, we can observe that social innovations, like all innovation processes, emerge, mature and spread in an 'S curve'[6] (see **BOX 3.1 Stages in the social innovation process**). And that, moving along this line, they evolve towards more mature organisations: a new kind of social enterprise that we will call diffused social enterprises (EMUDE 2006).

The concept *diffused social enterprise* is very important to discuss creative communities' potentialities in terms of generating lasting organisations and, most of all, in terms of the possibility of scaling them up, i.e. replicating them in different contexts without losing their original social and environmental qualities. A more formal definition is the following: a diffused social enterprise is a "diffused enterprise" that produces specific results and social quality. Where the term "diffused enterprise" indicates groups of people who, in their everyday life and in a stable way, organise themselves to obtain the results they are directly interested in; and the expression "to auto-produce specific results and social quality" refers to the process whereby, through actively seeking to resolve their problems, people enhance a project that has the side effect of (more or less deliberately) reinforcing the social fabric and improving environmental quality.

Given this working definition, we have to underline that diffused social enterprises are social enterprises but in very peculiar way, i.e. they are very different from the more traditional ones. In fact, they are social enterprises that centre on a common everyday problem: childcare, support of the elderly, urban mobility, healthy food,… In other words, although some of them deal with highly critical social problems (such as interaction with marginalized social groups or care of the seriously ill) their specificity lies in extending the concept of "social" to a wider area where individuals meet to tackle growing difficulties in daily life and the new demands for well-being that follow.
Another difference with the more traditional concept of social enterprise is that they are social enterprises where people do things to help themselves and (partly at least) by themselves. Unlike the mainstream vision of social enterprise where the predominant figure is someone who does things for other people, the characterising aspect here is that everyone concerned is directly and actively involved in achieving the result that the enterprise itself sets out to reach. However, the predominance of individual action does not detract from the social value of the project because, as we said, its collective nature produces sociality as a side effect.

Common characters. Diffused social enterprises, evolving towards maturity, take different forms. As, for instance: welfare services, micro-enterprises, networks of active citizens, participative local institutions (see

[6] Social innovations, like all innovation processes, spread in an *'S curve'*, with an *early phase* of slow growth amongst a small group of committed supporters, then a phase of *rapid take-off*, and then a *slowing down* as saturation and maturity are achieved (the Young Foundation, 2006)

BOX 3.2 Diffused social enterprise typologies).However, even though they are organisations with different forms, different goals and different kinds of actors, they have some relevant common denominators.

They call for *direct action* by the people involved. And their existence is based more on people's *capacity/willingness to act* (alone and/or within mutual help schemes), rather than on their tendency to demand (as in the social service tradition).

They are conceived and managed by citizens themselves, or often, they are the outcome of a virtuous convergence between different actors: citizens, civil society organisations, non-profit, local institutions and companies. In all cases however, even when institutions or companies are involved, these activities are conceived and set up from the *bottom, and at a local scale.*

They are organisations whereby, through actively seeking to resolve their problems, people generate the side effect of (more or less deliberately) reinforcing the social fabric and improving the environmental quality. In other words, they *produce sociality.*

Diffused social enterprises and knowledge society. In conclusion of this part, we can observe that creative communities and diffused social enterprises can be recognized, and their role discussed, in the framework of the emerging knowledge economy (and, hopefully, of a possible knowledge society). An economy (and a society) of which they are, at the same time, results and (possible) promoters.

As a matter of fact, research carried out up to now shows that creative communities and diffused social enterprises mostly emerge in fast changing contexts characterized by diffused knowledge, a high level of connectivity (intended as the possibility to interact with other people, associations, companies and institutions), and a certain degree of tolerance (towards non conventional ways of being and doing). That is, in contexts where the knowledge economy is more developed.

To this rather obvious observation, we can add another, complementary one (that for many people could appear far less obvious): creative communities and diffused social enterprises can be a very fertile ground for the development of a knowledge economy. It has been observed, in fact, that for a knowledge economy to flourish, it needs a wider knowledge society (knowledge-oriented companies need well-trained knowledge workers and dynamic, stimulating social contexts): creative communities and diffused social enterprises can offer this favourable background. In this framework, let's consider, for instance, social entrepreneurs who are promoting and managing diffused social enterprises: willing or not, they have to learn how to mange their enterprises, complex organizations and economic models. The result is that creative communities and diffused social enterprises can not only become the seed of new knowledge-based businesses, but also the incubators of large numbers of well-trained knowledge workers.
At the same time, creative communities and diffused social enterprises can help in generating the dynamic and tolerant contexts that, as we have seen, are required to start and maintain a lively knowledge economy.

Finally, and most important for us here, creative communities and diffused social enterprises can contribute in moving the concept of knowledge economy from its present very narrow meaning (the knowledge economy as market economy where the product is "knowledge"), to a larger and deeper one: an economy that is part of a system where knowledge and creativity are diffused throughout society (and not only in formal knowledge and creative companies): a knowledge-based society that could be the backbone of a future *knowledge-based sustainable society*.

4. A larger view

What has been said in the previous paragraph could induce us to think that the entire issue of creative communities and diffused social enterprises is related only to the most mature industrial economies, i.e. the ones that are at an advanced stage in the move towards a mature knowledge economy.
This idea is, at the same time, right and wrong. It is right that, until now, creative communities and diffused social enterprises have been mainly observed in those regions of the world where the knowledge economy is rather mature (in fact, the starting point of this line of research focused on Europe, with particular attention to the specificities of Central Eastern European countries).

However, it is not true if we infer from this that creative communities and diffused social enterprises can only be found in these countries. Although it is true that we can find creative communities mainly in fast changing contexts characterized by diffused knowledge, a high level of connectivity and a certain degree of tolerance, we can also observe that in the "emerging economies" at least there are vast urban (or quasi-urban) areas that can be described in the same terms (if we agree to adapt their meaning to the new circumstances): they are fast changing contexts (a lot of people moving from villages to the cities), with a certain degree of tolerance (at least because nobody can exercise a strict control on such a changing society). And as far as regards diffused knowledge and creativity, we can find that there are very interesting hybridizations between traditional culture, new behaviours and advanced technologies.

As a matter of fact, this is what we start to observe in the results of some research. In fact, in the initial research itself (EMUDE 2006) some considerations on what was happening in other non European countries were made. Afterwards, other research projects have been developed (CCSL 2007). The initial results emerging from all of them indicate, in spite of some differences, that creative communities exist everywhere. The service ideas and the production models that they generate, if they are good, move worldwide. The difference in the recent history of these countries (consider for instance the three main emerging countries: China, India and Brazil) has consequences in the way these new social organizations appear.

In particular, in the emerging countries, similar service ideas (as for instance: purchasing groups, community based agriculture, car pooling) have been observed. But it is has been observed too that their motivations are different and differ from the ones we can find in Europe. For instance: the different roles of living traditions and of existing social networks leads to different meanings of the term "community". Different weights of economic needs over other social and environmental ones, generate the different motivations.

Good ideas move world wide. In conclusion, even if this worldwide overview on the potentialities of creative communities and diffused social enterprises is still to be investigated, the first research results show that good ideas, generated by grassroots innovations, are appearing world wide. Once they have been generated, they move around and re-localise (i.e. adapt to the specificity of the different contexts) in other places. Finally we can observe that this movement of ideas can go in all directions: from North to South, from West to East, and vice versa.

In fact: the changing conditions of life (from villages and subsistence economy, to cities and market economy) is effecting increasing proportions of the population in the emerging countries. This means that some European experiences (in how to live in a city) may also stimulate the adoption (and adaptation) of analogous ideas in the new emerging urban environments. Vice versa, it may be that the persistence of traditional ways of thinking and doing in the new metropolises will constitute an extensive reserve of social and cultural resources, and also generate new and sustainable ideas on sustainable ways of living. Ideas that, in turn, could be adopted in (and adapted to) western societies.

In conclusion, we can say that where in the world this kind of grassroots innovation takes place is not a question of being a mature industrial country or not, of being rich or poor, of being in the East, in the West, in the North or in the South. It is simply a matter of speed of change: where changes are fast and deep, there creative communities and diffused social enterprises appear.

Design implications

Design for social innovation. Looking at social innovation, and taking it seriously, a new, different and fascinating role for the designer emerges out of what has been said here. A role that does not substitute the traditional one, but that works alongside it opening up new fields of activity, not previously thought of.
The first step on this ground that designers must make is to consider themselves part of the community they are collaborating with. To be and act as experts participating peer-to-peer with other members of the community in generating the promising cases they are working on, and their evolution towards more efficient and accessible systems.
The second step is to take these social innovations as a kick off point, and use their specific designers' skills and abilities to indicate new directions for product and service innovation (in practice this involves moving in the opposite direction from that more frequently taken by designers i.e. where, starting by

observing a technical innovation, the designer proposes products and services targeted to achieve social appreciation).

When things are put in this way, the professional profile of a designer tends to appear rather differently from the historically consolidated form we are used to. The classic idea of a designer is of an operator who, case by case, refers his activities to a final user, working for or with a firm. In the new scenario, the designer tends to become an operator who acts within a more complex network of actors (that may certainly include firms but not exclusively) where his main interlocutor, his actual client, may be an institution, a local authority or, as in this case, some creative communities.

Fostering a virtuous circle. The design role in fostering social innovation is a question of establishing a 'virtuous circle' encompassing *social innovation* (which we have recognised here in the forms of creative communities and diffuse social enterprises) and *technological and institutional innovation* (that can be implemented by the actors who, through their decisions, can advance the possibilities of success of promising proposals). Setting it up requires first and foremost the development of the communication, design and strategic skills necessary firstly to recognise, reinforce and transmit, in an adequate manner, the ideas and solutions generated at a social level, transforming them into original working proposals and endowing them with greater potential in terms of large scale dissemination, and secondly to find ways to institute them in the most efficient manner.

More precisely, designers and design researchers should contribute to this wide reaching innovation process by organising their capabilities in four steps: 1. focalising and giving visibility to *promising cases* (highlighting their most interesting aspects); 2. building *scenarios* of potential futures (showing what could happen if these cases were to spread and consolidate, becoming mainstream ways of doing); 3. developing *enabling systems* (conceiving specific solutions to increase the promising cases efficiency and accessibility); 4. promoting *creative contexts* (collaborating in the development of new governance tools).

If this is, in a nutshell, what designers should do, then the next question we can ask is whether designers are capable of carrying it out. We believe they should be. However, in order to play this role, they must update their traditional cultural and functional legacy. Moreover, the very idea of what a designer is in our day and age must change.

Diffused design capacities. When talking about design for sustainability we are referring to designers who operate on complex social-technical systems to encourage innovation. Such innovation, in turn, is more social than technological. It rises from the bottom rather than filtering down from the top. It is achieved through the involvement of a multiplicity of actors rather than made in a laboratory or design centre.

Seen in this way, the professional profile of a designer tends to differ from the historically consolidated form we are used to. The classic idea of a designer is of one who, case by case, directs his or her activities to a final user, working for or with a firm. In the new scenario, the designer should act within a more complex network of actors, which may certainly include private sector firms, but where the main client could be a public institution such as a local authority, or any other social entity.

If, as we often say, the transition towards sustainability is a learning process and can provide the grounds for diffuse creative initiatives (as the *creative communities*), then the designer increasingly assumes the role of *facilitator* in the learning process and acts as a *support* for the distribution of design skills and thinking. In other words, the field of action moves further and further away from the figure of a traditional designer, towards one of an actor operating to *make DfS-oriented events happen*, making sure interested subjects can effectively participate and do so creatively. He becomes a process facilitator who acts with *design tools* to generate ideas on possible solutions, then visualizing them, arguing through them, and placing them in wide, multi-faceted scenarios, which are presented in concise, visual, and potentially participatory forms.

As we gradually move towards this area of activity, the designer is faced with the question of new skills and new tools, or rather of skills and tools that in principle have always been present in the bag and baggage of strategic design, but which have never appeared particularly important until now.

BOX 3.1

Stages of the social innovation process

A closer observation of the promising cases of social innovation shows that they represent the different (initial) stages through which social innovations emerge and spread: from brand new ideas (*solution prototypes)*, to relatively consolidated solutions (*working solutions*), to mature and diffused ones (*implemented solutions*).

Solution prototypes. They show that somebody (in general a group of very special people, often situated in a very special context) has been able to conceive and put in practice a new way of doing something. Examples of this kind of prototype are cases like these: a new idea of *"coffee shop for kids and families"* (that offers a playground for families, art courses and exhibitions, help for foreign parents and children, a coffee shop based on exchange and participation, and a library of information); an innovative *"furniture renewing workshop"* (where people bring their old furniture to be given a new look and find a new owner); an *"experimental eco-village"* (where people learn how to build their own homes and live in eco-efficient, natural buildings). The existence of initiatives like these appears (at the moment, at least) to be related to some very specific context and people. In short, what they do is to open up possibilities. But, at this stage, nobody can really say if these inventions could last in time and work independently from the special people that started them and/or the different contexts in which they have been created[7].

Working solutions. They are solution ideas that have been able to last in time and, sometimes, to inspire other groups of people in other places to do something similar.
Good examples of this category can be the *purchasing groups* (where groups of collaborative people buy organic, ethically produced food directly from producers - and, doing so, support them economically); *vegetable box subscription initiatives* (where fresh, organically grown, reasonably priced vegetables are delivered to the door, together with recipes, and opportunities to visit the farm) and the *LETS-Local Exchange Trading System* (where participants exchange mutual help in a kind of time bank framework). It can be observed that all these ideas are, per se, not new. But they have been recently re-proposed. And from that moment on they have spread internationally by imitation. These can be seen as real social innovations, even if the solutions that they propose may still have relatively difficult access. I.e. for less motivated and entrepreneurial people it may not be so easy to organise them or even simply to participate in their activities[8].

Implemented solutions. They are solution ideas that are supported by a specifically designed enabling platform. Let's take a very well known case as an example: *car sharing organisations* (residents in a given area who share a fleet of cars to be used and paid for only when required: thanks to appropriate services and products, the adoption of specific innovative organisational models and sometimes a mix of institutional interventions, this proposal has become very accessible, effective and replicable in different contexts. Car sharing organisations can be adopted (and, as a mater of fact, they have been adopted) by people who are not particularly motivated. The same is true for those who want to start them as a new business opportunity. Other interesting cases also underwent a similar evolution as, for instance, the intelligent systems to facilitate the use of rented bicycles[9]

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[7] In our catalogue of promising cases these examples correspond to: *Cafezoïde. Playground café* in Paris**-**France; *Mőőblikom - Furniture re-designing studio,* Tallinn-Estonia; *Earthship*, in KInghorn Loch Fife**-**United Kingdom.

[8] In our catalogue of promising cases these examples correspond to: *GAS Gruppo d'Acquisto Solidale* in Milano-Italy; *Gemüsekiste - Vegetable Box*, in Cologne and Bonn-Germany; *Ayrshire LETS, Local Exchange Trading System*, in Ayrshire-UK.

[9] In our catalogue of promising cases these examples correspond to: *MCS – Milano Car Sharing*, Milano-Italy; *MFG Mülheimer Fahrrad Gruppe – MFG Cycle Association,* Cologne Mühlheim- Germany.

BOX 3.2

Diffused social enterprise typologies

Creative communities evolve into diffused social enterprises that assume different organisational forms. Just to give some examples: the *active welfare services*, the *micro-enterprises,* the *networks of active people*, the *participative local institution* (organisations that, it has to be said, in reality, often combine themselves in different ways. For instance: active services may be supported by micro-enterprises and based on networks of active people. And vice versa).

Micro-enterprises. They are entrepreneurial initiatives that enhance new models of locally-based activities, with direct relationships with users and consumers (in this case too, they become co-producers. Many of the observed cases enter in this category.
Examples are: a housing company, that renovates houses for young people looking for a more communal way of living; a farm that helps the client to experience the value of biodiversity in the food chain; a local enterprise that teaches people about old and used materials so that they can be re-used; a shop where people exchange used sporting goods[10].

Active welfare services. They are social services where final users are actively involved and assume the role of service co-designer and co-producers.
Some examples are: a house where elderly people of different ages live in a resource-sharing community suited to their diverse needs and lifestyles; a senior club where older, sick and disabled people are supported in daily life and where socialising and cultural activities are performed; a service that facilitates house sharing between elderly and young people (students find cheap, family-style accommodation, while giving lonely, but independent, elders help, companionship and financial support), in Milan; a workshop where unemployed, disabled and immigrant people find work in repairing and up-grading used products[11].

Networks of active people. They are groups of people who collaboratively solve some problems or open new possibilities (and who, again, become co-producers of the obtained results.
Some examples of this category are: groups of residents who transform an abandoned plot into a shared neighbourhood garden; groups of people who love cooking and who use their skills to cook for a larger group, dining together in one of the members' houses; groups of people who exchange mutual help in terms of time and skills[12].

Participative local institution. These are parts of larger institutions that operate at the local scale, on locally defined projects and with the extensive participation of interested people.
Some examples are the promotion by local authorities of programmes that generate: flexible, customised professional day nurseries for small groups of infants, at a low price, and with a socialising environment; urban vegetable gardens for elderly people; cooperation with a local association in improving the living conditions of the place where they live[13].

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[10] In our catalogue of promising cases these examples correspond to: *OranssiHousing company,* Helsinki- Finland; *Cream o'Galloway dairy farm,* Dumfries and Galloway, South Scotland; *Materjalid.net – Used construction material recycling,* Tallinn- Estonia; *Minimo Impatto,* Milano-Italy.

[11] In our catalogue of promising cases these examples correspond to: *Aquarius – Social elderly community,* Eindhoven-The Netherlands; *Raciborowice Senior Club,* Krakow-Poland; *Prendi a casa uno studente – Lodge a student at home,* Milano-Italy; *Työ & Toiminta – Job and Action Association,* Hlsinki-Finland; *Banca del Tempo – Time Bank,* Milano-Italia.

[12] In our catalogue of promising cases these examples correspond to: *Jardin Nomade — Nomadic Garden*, Paris-France; *Huiskamerrestaurant Schuif 's Aan – Living Room Restaurant*, Oosterhout NB- The Netherlands;

[13] In our catalogue of promising cases these examples correspond to: *Nidi in Casa – Nurseries at home, San Donato-Italy; Orti del Parco Nord – Parco Nord Vegetable Gardens*, Milano-Italy; *Neighbourhood Shares*, The Hague-The Netherlands.

4. Emerging scenarios
Active well-being and distributed economies

DRAFT

Today, creative communities and diffused social enterprises are minorities. Nevertheless, a closer view shows that they are linked to powerful drivers of change. Considering these links their real potentialities emerge and a new scenario appears: the scenario of the multi-local society, based on a new sense of place and on the ideas of active well being and distributed economies.

On order to discuss the future potential of creative communities and diffuse social enterprise, we must imagine a world where the effects of the current major demographic, environmental, economic and technological trends will be more visible than they are now. This will be a very different context from what we have known until now and the dominant ways of being and doing (that appear so solid today) will become increasingly inadequate to cope both with the great challenges of our Planet and those of normal everyday life. On the other hand, such a context will become increasingly favourable for other ways of being and doing, including those proposed by creative communities and diffuse social enterprise.

While saying this we should also add that these proposals are linked to other important technological, economic and socio-cultural dynamics underway, and that together they permit to build an original scenario. This scenario is based on the evolution of the major trends mentioned previously, and advances new ideas of society (*multi-local society*), well-being (*active welfare*) and economy (*distributed economy*). Such a scenario of a *multi-local society* offers a coherent framework within which creative communities and diffuse social enterprise proposals could develop. At the same time, these communities and enterprise can also be seen as the first concrete implementations of the feasible, sustainable society that this scenario is now presenting.

1. Visions of possible futures

Creative communities and diffuse social enterprises can be seen as *forerunners of possible futures:* solutions able to resolve current problems, although in a hostile environment, by offering concrete answers that are already viable; social experiments that also serve as banks for acquired expertise in the transition towards sustainability. In short we can say that they are *working prototypes* of sustainable living.

This potential of theirs is even more interesting if considered alongside other economic and technological innovation fields. We are thinking particularly of the synergies that could be generated between creative communities and diffuse social enterprises, and other innovative processes underway that have not as yet expressed their full potential: the emerging new idea of locality (*cosmopolitan localism*); the maturing of unprecedented network infrastructure (*distributed systems);* the spread of collaborative organisation models (*social networks).*

As we shall see, these phenomena are very different but they have a common denominator: they all propose a new idea of “local” or, to be more precise, a new relationship between “local” and “global”. Our working hypothesis is that, in the near future, these phenomena will converge, become a unique complex dynamic of change and constitute the building blocks of a new vision: the scenario of the *multi-local society*. A scenario that, when developed, could offer an overview of what everyday life could be like in a society where the idea and practice that creative communities are now anticipating could mature and spread.

In the following paragraph this scenario building exercise will be undertaken introducing, as building blocks, the *promising cases* of social innovation that we have presented in the previous chapter and the ones that we will present in the following paragraphs.

Cosmopolitan localism. Contrary to what was thought in the past, the joint phenomena of globalisation and increased connectivity have given rise once again to the local dimension. By the expression 'local' what is meant now is something far removed from what was understood in the past (i.e. the valley, the village, the small provincial town, all isolated and relatively closed within their own culture and economy). The new local combines the specific features of places and their communities with the new phenomena generated and supported world-wide by globalisation and by cultural, socio-economic interconnection.

As a matter of fact what we see are groups of people who invent unprecedented cultural activities, forms of organisation and economic models that are the point of intersection of two complementary strategies: a balanced interaction between the local and the global dimension, on the one hand, and a sustainable enhancement of local (physical and socio-cultural) resources, on the other hand.

What appears is a kind of *cosmopolitan localism* (Sachs, 1998, Manzini, Vugliano, 2000, Manzini, Jegou, 2003), intended as the result of a particular condition characterised by the balance between being localised (rooted in a place and in the community related to that place), and open to global flows of ideas, information, people, things and money (Appandurai, 1990). This is quite a delicate balance as, at any time, one of the two sides can prevail over the other, leading to an anti-historical closure or, on the opposite side, it can lead to a destructive openness of the local social fabric and of its peculiar features.

One clear case of the *re-discovery of the "local",* in the framework of cosmopolitan localism, is the *success of local products, which are linked to the identity of the place of origin and to the cultural and social values that characterise their conception and production*. The most commonly known and quoted examples are quality wine and some niche food products, such as those promoted by Slow Food. But also non-food products can be quoted such as the essential oils of the Provence region, in France or the Murano glassware in Italy, all products that carry the spirit and history of a place and a community with them, to the end consumer[14]

The success of some local products on the global markets is the most visible part of the re-discovery of the "local". But there is also another, less visible, but even more important side of the story: the one of *local products for local markets*. The cases where direct links between producers and the consumer communities are established. This possibility is particularly clear in the case of food, where innovative, localized, de-intermediated *food networks* are appearing (as in the case of purchasing groups, community based agriculture, farmer markets, vegetable subscriptions, …). But something similar can be found for some other local traditional products and for *the local use of renewable energy* (this point, which is a particularly important one, will be dealt with in the next paragraph too)[15]. (see **BOX 4.1 Slow model**)

Distributed systems . In recent decades the adjective *"distributed"* has been increasingly used in relation to several different socio-economic systems: information technologies and *distributed computing*; energy systems and *distributed generation*; production and the possibilities of *distributed manufacturing*. the processes of change and the cases of *distributed innovation*, *distributed creativity*, *distributed knowledge*. And, finally, in relation to the overall socio-technical systems, the rise of new, more effective economic models: *distributed economies*.

Some of these concepts became mainstream two decades ago (the "classic" distributed computing). Some of them have a strong position in the international arena (such as the concepts of distributed generation and

[14] However, for the success of this model, the place and the community, to which these products are related, need to be alive, thriving and of high quality. In other words, if there are products that carry with them the spirit of the place, the quality of this place (and of the community which characterises it) must also be guaranteed. Therefore, a double link needs to be established between the place, the community and the product: the quality of the place and of the community is a decisive element for a product's success; vice versa, the success of a product, to be long-term, needs to favour the qualitative regeneration of the place and the community of origin. In short , the products of controlled origin require places and communities of guaranteed quality.

[15] The issue of local production for the local market can appear in a different context, driven by different motivation, as the possibility to develop *point of sale and/or use production*. In this case the re-localisation of a part of the production process has nothing to do with the place per se, but is a direct consequence of the search for light and flexible production systems. See in the next paragraph.

distributed manufacturing). Some of them have emerged, and are emerging, over the last few years and have a wide and growing audience (distributed innovation, distributed creativity, distributed intelligence and distributed economy).

In all these cases, what the term *distributed*[16] adds to the substantive to which it is related, is the idea that it is to be considered as a web of *interconnected, autonomous elements*, i.e. elements that are capable to operating autonomously, being, at the same time, highly connected with the other elements of the system. In other words: what the adjective "distributed" indicates is the existence of a *horizontal system architecture* where complex activities are accomplished in parallel by a large number of connected elements (technological artefacts and/or human beings). These ideas on distributed systems are not only a theoretical model. They are a very concrete possibility with some very real success-stories.

Distributed intelligence. The first, and quasi obvious today, success story is the one of the *distributed intelligence*. In fact, it is well known and recognized that the Internet and the increasing computing potentialities have generated, and are still generating, a new form of distributed intelligence of the socio-technical systems. The implications of this phenomenon are radical changes in the organization of the socio-technical system: the solid and vertical organizations that have been considered – and still are – dominant in the industrialised society, are melting into fluid and horizontal ones. New distributed forms of knowledge and decision making are appearing. The dimension and the power of this phenomenon are today commonly recognized. What is not totally understood are its potentialities and its implications.

Distributed power generation. A second very concrete example is *distributed power generation*. This expression usually refers to an energy system (mainly) based on *interconnected small and medium size power generators and/or renewable energy plants*. Its implication is a radical change in the dominant idea of electrical system. But not only: there is the possibility of a new relationship between communities and their technological assets and, possibly, a more democratic way of managing the energy system. Today, even if it is not yet main stream strategy, the option of distributed generation is largely recognized as a very promising one and its implementation has been enhanced in several different contexts, both in dense urban spaces and in the country side, in the North and in the South of the world.
The distributed power option has been made possible thanks to the convergence of several factors such as: the existence of highly effective small and medium size power generators and the possibility to base the new energy systems in an intelligent information network.

Distributed production. Another promising field of application for the distributed systems approach is *point of sale or point of use production*. One example is the re-localisation of a part of the production process as a direct consequence of the search for light and flexible production systems. The possibility and the opportunity to re-design the process and the products to realize customized final products just-in-time and on-the-spot (i.e. when they are needed and where they are needed) is not new and we can refer to several families of products: from t-shirts to CDs, from books to glasses, from beverages to furniture … for some of these examples point of sale production is now, the normal way of doing. For others the idea is still in an early phase. But, it is more than probable that the combined force of the demand for customization and contextualization, the potentialities of new technologies and the increasing environmental and economic costs of transportation will push onwards this concrete possibility of technologically localizing products and productions.

The integration of distributed intelligence and distributed generation can be seen as the pillar of a new infrastructure: the distributed infrastructure *infrastructure* of a viable sustainable society where traditional and new forms of distributed production can take place and spread. (see **BOX 4.2 Distributed systems**).

Collaborative networks. Something very interesting is happening in the field of organisations and in the ways people participate in collaborative projects. The starting point of this phenomenon is the organisational model emerging from the Open Source software movement[17]. Over the last decade the principles behind this

[16] *to distribute*: to divide something into portions and dispense it (from: Wiktionary – the wiki-based Open Content dictionary).

[17] The best-known open source collaborative experience is the Linux software, originally developed by the Finnish graduate student Linus Torvald. Anyone can use Linux for free as long as any changes or new features are shared with others at no cost. Simple rules, shared goals and clear yardsticks for judging performance, allows this global community to share ideas and, as a result, to improve the software, which is a *shared, public good.*

highly collaborative approach have increasingly been applied to areas beyond the coding of software (Lessig, 2001; Stalder, Hirsh, 2002). The result of this is that, since the 2003 the internet has seen an impressive growth of end-users applications *as blogs, podcast, wikis, social networking websites, search engines, auction websites* and *peer-to-peer services*. Considered as a whole these applications are also called: *social computing* or *web 2.0*, as they exploit the internet connectivity to support the networking of relevant people and contents (see **BOX 4.3 Social computing**). Their main common denominator is that, in their application, the user is an integral part and co-producer of all the elements of the service delivered, whether it be content (*blog, wiki*), taste /emotion (*Amazon*), goods (*eBay*), contacts (*MySpace*), relevance (*Google pagerank*), reputation/feedback (*eBay*), storage/server capacity (P2P), and connectivity (wifi sharing, mesh network)(Pascu and alt. 2007).

Today, we can observe that these principles have been highly successful in proposing collaborative and effective organisational models in several fields that are of our interest here. For instance: the building of new common knowledge, as in the now very well known case of *Wikipedia*, the encyclopaedia that, in a few years, has become the largest one in the world. The realisation of new forms of social organisation, as in the cases of *Meet-Up, SmartMobs* and *BBC Action network*: *"platforms for action"* that brings together people interested in doing something (from renting a bus for a journey, to cleaning a river bank) and, once the necessary critical mass is achieved, supports them in doing it.

The innovative character of these new models has to be underlined. All these examples of *collaborative networks,* generate *non-hierarchical, network-based organizations* (Cottam, Leadbeater, 2004a; 2004b; Thackara, 2005) and unprecedented economic models (called wikinomics - Tapscott, Williams, 2007). All of them are characterized by motivations and ways of doing that, until a few years ago, were totally unimaginable. Now they appear to be not only possible, but also capable of catalyzing large numbers of interested people, organizing them in peer-to-peer mode and building a common vision and a common direction. Doing that, they can develop complex projects on bot global scale (as in *Wikipedia*) and the local one (as in *Meet-Up, SmartMobs* and the *BBC Action network*). Quoting the British Design Council, which refers to them with the expression *Open model*, they are: new forms of organisation that do not rely "on mass participation in the creation of the service. The boundary is blurred between the users and producers of a service. It is effectively often impossible to differentiate between those who are creating the service and those who are the consumers or users of the output" (Cottam, 2004b).

It is important to underline here, that all these applications appear very promising in the perspective of a new generation of public services. They will be networked and user-driven services that will overtake the present top-down and largely unsuccessful proposals of e-government, e-health, e-learning (as an examples of this new model to services, see for instance the peer-to-peer approach to health care activities, as in the case of *Open welfare*, a project led by the British Design Council - Cottam, 2004a). But what is really interesting for us here is that open source and social computing propose an use of computers and internet that, as opposed to others virtualising and delocalizing applications, collaborate in making people meet and organize "in the real world".

We think that this potentiality has to be better understood and that the "normal" view on these technologies has to be challenged. In fact, the normal way of looking to information and communication technologies considers them as drivers towards virtualized and delocalized experiences (that, unfortunately, is what mainly happened and is still happening). Nevertheless, several cases that we ha quoted here shows that that the contrary is possible too: bridging the virtual world with their real one, these same technologies can support contemporary people efforts to cooperate to solve (real) problems in the (real) world. And, doing so, they may also collaborate in generating a new sense of place and community.

A possible convergence. Looking at creative communities and diffuse social enterprises in the framework of these three streams of innovation, and considering them as the background to such communities (i.e. grassroots social innovation in everyday life) we can observe that, until now, they have been considered and dealt with as different, separate phenomena. In fact, except for some minor overlapping, they have been generated by different people with different motivations. Nevertheless, as we anticipated in the introduction, it is more than probable that, in the near future, these innovation phenomena, grass roots innovation in everyday life and the three that have just been outlined, will converge and become a unique complex dynamic of social change.

In fact, looking at these emerging phenomena, it is reasonable to assume that the same principles of peer-to-peer organisation can be extended to facilitate the emergence and diffusion of new creative communities, distributed systems and cosmopolitan localism. In particular, it is highly probable that the very powerful trend towards networked, peer-to-peer

systems will drive the convergence that we are referring to here. If this happens, these different lines of innovation will strongly reinforce each other: creative communities will bring the lively richness of people involved in real, daily problems. Collaborative networks will bring the new opportunities that have been opened by their brand new forms of organisation. The cosmopolitan localism approach will connect with traditions and local resources. And, finally, distributed systems development will give the technical infrastructure of this emerging sustainable society.

But, of course, to say that this convergence is highly probable says nothing about its modalities and, most importantly, on the quality of its final results. The modality of the process and quality of the results will instead be largely influenced by the existence, or not, of an appropriate mix of bottom-up/top-down initiatives. I.e. of new and appropriate forms of governance.

2. Multi-local society: a viable scenario

There is another important reason that makes creative communities, cosmopolitan localism, distributed systems and collaborative networks, and their possible convergence, so important. As we anticipated at the beginning of this chapter, taken all together, they can become the building blocks of a new scenario: the scenario of a sustainable *multi-local society*. A society where the dominant ideas of "global" and "local", "large" and "small", "fast" and "slow" are challenged. A society where new ideas of wellbeing and production appear. A society and economy where, contrary to dominant trends, the "global" appears as a network of "local systems": a society and economy that rediscover their capacity for *local adaptation,* using to best advantage whatever is locally available and exchanging within the network whatever cannot be locally produced. It is a society and an economy that is at the same time both local and cosmopolitan.

The multi-local society, in our view is a positive, viable scenario. That is, it is a vision that everybody can understand and discuss. And that, hopefully, could trigger, catalyze and orient a variety of local initiatives. But as it has to be, to be a real scenario, it is a vision based on very deep and powerful demographic, environmental, economic and technological trends (the ones that we mentioned at the beginning of this chapter), the effects of which will certainly become more and more evident in the near future. And it is *locally practicable*, given that it is based on *real cases of social innovation* (creative communities, cosmopolitan localisations, distributed systems and social networks).

The local is not local. The *multi-local society* is a society where, contrary to dominant trends, the "global" appears as a network of "local systems", which is at the same time both local and cosmopolitan, based as it would be on communities and places that are strong in their own identity, embedded in a physical place, but open to (i.e. connected with) other places/communities. A society rediscovering its capacity for *local adaptation,* using to best advantage whatever is locally available and exchanging within the network whatever cannot be locally produced.

It must be stressed that the local dimension of this multi-local society does not in the least propose a nostalgic view of the past: it doesn't refer to little, local autarchic entities, but to places, communities and systems that are, as we said, highly interconnected. As a matter of fact, in the multi-local society, as in every network-based system, the ideas of "global" and "local", and of "large" and "small", are challenged. In fact, in a highly connected system *the small is not small*, but it is (or can be) a knot in a network (the real dimension of which is given by the number of links with other elements of the system). Similarly, and for the same reasons, in the multi-local society *the local is not local*, but it is (or it can be) a locally based, cosmopolitan community. In other words: in a multi-local society, communities and places are junctions of a network, points of connection among short networks, which generate and regenerate the local social and production fabric, and long networks, which connect that place and that community with the rest of the world (De Rita, Bonomi, 1998). Junctions that connect "long global networks" with "short local networks" and that, doing so, provide support to organizational forms and production and service systems based on the *subsidiary principle* (that is: to do on a larger scale only what cannot be done on a smaller scale, i.e. at a local level).

New ideas on well being and production. The emerging scenario of the multi-local society generates, and is generated by, a new idea of well-being. This well-being is based upon the awareness of the way and the extent to which some local qualities can contribute to the possibility of feeling good; moreover the awareness of how and the extent to which, for example, the sense of security resulting from a still active social fabric, the healthiness of the places, the beauty of the landscape etc. can contribute to well-being (Censis 2003).

This awareness regarding the positive role of quality of context in the definition of well-being is what, first and foremost, distinguishes the new localism, on which we are focusing here, from the traditional local "village culture" (which, normally, did not attach any value to these characteristics of physical and social context). This awareness, combined with the delocalising potential of information and communication technologies,

leads to the spread of new forms of local-global activities which strongly concur with the definition of cosmopolitan localism.

The scenario of the multi-local society proposes also a new idea of production, or better, of the production and consumption systems, proposing a new relation with effectiveness and quality. This production model can be defined as: “the slow model”, referring, of course, to the Slow Food Association’s experience. To make it more understandable, let’s start with this Slow Food experience. This association has met with great and growing international success, demonstrating that, contrary to dominant trends, there is the real possibility of linking food quality research to the safeguarding of typical local products and to the sustainable valorisation of the skills, expertise and organisational models from which such products originate. In so doing it has played an important role on two complementary fronts: firstly, in regenerating such a precious collective good as the *biological and cultural diversity* of local food production and secondly, in proposing and initially setting up *new food networks.*

However, though the specific scope of Slow Food lies in these new food networks, its experience is of more general value and is significant for those working in other fields and addressing other problems. Its experience is encapsulated in the new meanings that, thanks to its activities, have been attributed to the adjective “slow” and that, as we said, we can refer to as the “*slow model”.*

The slow is not slow. The expression “slow model” means the simple, but in current times revolutionary, affirmation that it is not possible to produce and appreciate quality if we do not allow ourselves the time to do so, in other words, if we do not activate some kind of slowdown. However, slow does not only mean this. It also means a concrete way of actually putting this idea into practice. It means *cultivating quality*: linking products and their producers to their places of production and to their end-users who, by taking part in the production chain in different ways, become themselves *co-producers.*

So, the slow approach outlines a new production and consumption model that is at the same time both subversive and feasible. While clashing head on with the ideas and practices of today’s prevailing globalisation, it can be enacted locally both immediately and, as Slow Food has proved, successfully.
In our opinion, the great potential of the Slow Food experience needs to be understood better, both in terms of its nature as a strategic project for the development of new food networks and, as is of greater interest to us here, in its more general potential as a contribution to the definition of new ideas on quality, well-being and development models.

Design implications

The scenario of the Multi-local society, like every possible scenario, is not the result of a “neutral” analysis. Scenario building processes are always the result of some basic choices (we would say: basic design choices): from the complexity of society, from the contradictory signals that it emits, every scenario building process consists in extracting those tendencies and those weak signals that, put together and correctly interpreted, can generate a new and motivated vision of the present and of its possible evolution in order to give a reference to our daily concrete actions.

Scenarios in general and design orienting scenarios. Scenarios are communicative artefacts targeted to generate shared visions within a large system of actors. The most traditional of them have been developed in the framework of the Future Studies (Masini, 1993) and are finalised to evaluate the evolution and impact of macro-trends, and to discuss the related political and/or economical decisions to be taken. These scenarios, which usually deal with the macro-scale of the socio-technical systems and present a variety of possible futures, have been widely used in relation to the environmental issue and to orient the consequent environmental policies. Here we will not consider this typology of scenarios, which we can refer to with the expression *Policy-Orienting Scenarios* (POS). Vice versa, our interest will be focused on a more recent family of scenarios that have been defined *Design Orienting Scenarios* (DOS) to stress that, rather than to facilitate political decisions, they are conceived as tools to be used in the design processes (Manzini, Jègou, 2000).

The usefulness of scenarios in decision-making grows with the turbulence of the context, the complexity of the system operated on, and the number of actors involved (or to be involved). In fact it is true to say that:

- The greater the number of elements in the system, the more interdependent those elements are and the more uncertain and faster the changes in the context, the more difficult it becomes to produce, intuitively, a model of the reality we are referring to and working on.

- The greater the number of actors who will have to take part in the decision making/design process (and the more complex the system and the reference context), the more difficult it is to lay the ground, the "platform for interaction", on which that process can effectively take place. When these conditions arise, scenario building not only allows us to overcome the limits of intuition and more simplistic model making, but also puts us in a better position to select with awareness and argue our options through in a participatory planning process.

In particular, *Design Orienting Scenarios* operate on the scale of systems, which have to be manageable by all the actors who participate in the design process. Their aim is to help in focusing alternative viable evolutions of the given systems, to better understand them and to explore the panorama of different possibilities in a systematic way. In short, they constitute "thinking material" to aliment the exchanges between actors and incentive strategic conversation.

Macro and micro-scenarios. The output of the *Design Orienting Scenarios* exercise is a panorama of shared visions, responding to shared motivations and suggesting tentative strategies to implement them. The shared visions and motivations, in turn, can be organised on different scales: from the large scale (in our case the (macro) *Scenario of the Multi-local society*) to the small scale (in our case, for instance, the *Scenario of Diffused Social Enterprises*). The macro-scenarios give a vision of *what* society would be *like if* the promising cases outlined by the micro-scenarios became widespread. In describing (some) aspects of the general economic, social and political conditions, the macro-scenario also gives the micro-scenarios a wider perspective. This wider perspective empowers a variety of micro-scenarios giving them a common direction and, in short, reinforcing the practical cases and proposals on which the micro-scenario is built. In conclusion, the micro and macro-scenarios together act as facilitators of strategic conversations between the different actors involved, i.e. they are design tools that make the meaning and implications of the promising cases clearer, and develop what may be needed to facilitate their replicability and to conceive new sustainable solutions.

In its most common interpretation the word scenario is considered as synonymous with *vision*: the vision of a hypothetical future. But the scenarios that we are referring to here are more than this kind of vision. For what regards the *Design Orienting Scenarios* in particular, they have to propose a *variety of comparable visions* that have to be clearly *motivated* and enriched with some visible and (potentially) feasible *proposals*. And, finally, they have to be *assessed*. In other words: they have to be visions based on considerations that the "scenario builder" may share with, and eventually build with, the potential "scenario users", proposing them as an integral part of the scenario itself.

It is not the aim of this note to present the design-orienting scenario approach and methodology in depth. Therefore we will simply introduce some of their specificity, for what concerns their *structure* and their *characteristics*.

The design-orienting scenarios structure. A design orienting scenario consists of three main components: a vision, a motivation, and some proposals. These three components constitute the scenario architecture.

- *Vision:* this is the most specific component of a scenario. It answers the basic question: "What would the world be like if……?", and it does so by telling a story and/or sketching a picture of what things would be like if a set sequence of events were to take place.

- *Motivation:* this is the component of the scenario that justifies its existence and confers its meaning. It answers the question: "Why is this scenario meaningful?" and it does so by explaining rationally what we wanted to do in building it, what the premises were, what surrounding conditions have been adopted and finally how the various alternative propositions will be assessed (i.e. by what criteria and instruments).

- *Practicability*: this is the component that adds depth and consistency to the vision. It answers the questions, “What are the various facets of the overall vision? What does it consist of? How can we make it happen?….”. Different kinds of scenario give rise to different kinds of proposals, which have in common, the capacity to bring about the scenario they anticipate.

The characteristics of design-orienting scenarios. For what regards the characteristics of design-orienting scenarios, they are:

- *Plurality:* they identify alternative solutions and/or contexts in order to assess their economic, social and environmental implications.
- *Feasibility/acceptability* : they are based on some existing technological and/or socio-economical opportunities.
- *Micro-scale* : they refer to the scale of the *contexts of life*, i.e. to a physical and socio-cultural space in which actions (performed by individuals or groups of individuals) take place.
- *Visual expression* : they present visual images of coherent contexts and proposals, with the aim of giving synthetic and concrete suggestions of what they could be like.
- *Participation* : they facilitate the convergence of different actors on a common vision that acts as catalyst in the network building and in the partnership generation processes.

BOX 4.1

Slow model

To discuss the concrete possibilities of *cosmopolitan localism*, our departure point is the Slow Food experience. An experience that focuses on the field of food, but that can be extended to many other application fields. An experience that, while not self-defining as a design, is, from our point of view, one of the few successful example of strategic design for sustainability.

There are several motivations for bringing the *Slow Food experience* and *design* together. The main one is the mutual support they can offer each other: the slow model can open up new opportunities for design while design can bring useful conceptual and operational tools to the slow approach: Slow Food must be seen as an extraordinary example of "de facto design" from which the designer (i.e. the "explicit design") community has much to learn and vice versa, new design can propose and bring to light skills and abilities able to foster the consolidation and extension of the slow model.

A (de facto) strategic and service design approach. Slow Food demonstrates that it is possible to generate and put into practice an idea of well-being and economy based on the sustainable valorisation of local physical and social resources. It is therefore one of the worthy ventures that in recent years have tried to conjure up and promote a new idea of development.

This united effort has given rise to a vision that is very near to the scenario of the *Multi-local society,* and of the *distributed economy* on which it is based. Slow Food is undoubtedly part of this more general movement of ideas, experimentation and concrete experience. However, it is so in a special way and makes a contribution that is, in our opinion, fundamental and largely still to be appreciated.

- The first and most evident peculiarity of Slow Food as experimenter of alternative development models is its success: a success that is at once both local, because its activities have worked well there where they were carried out, and global, in the sense that they have received widespread media coverage and have spread widely into other regions near and far, achieving results that no other similar venture has been able to attain. Behind this evident success lie two characterising aspects that interest us here. The first, and most obvious and familiar, is its capacity to connect what must be done for ethical, social and environmental reasons with what is "good and beautiful", i.e. with the quality dimension. The success of Slow Food largely derives from the fact that everything it proposes is perceived as an improvement in the quality of life. This is certainly not a characteristic common to all who deal with sustainability (whose proposals are almost always – or are perceived as being – ethically correct but qualitatively modest).

- The second characterising aspect is its capacity to make cultural propositions and support them with adequate communicative and organisational structures. In other words, it has been possible to realise and propagate Slow Food proposals because at the same time specific organisational models have been imagined and set up (from *Presìdi* to "Terra madre", from the *Master del Gusto,* to the University of Gastronomic Science) that have made it possible to activate and network large numbers of people and to create communities.

Both these characteristics are the result of a design activity (though none of the "designers" has until now called themselves such): of *strategic design* that enables qualities to be identified and adequately communicated, so as to make them effectively recognisable; and of *service design* that leads to the imagination and realisation of the organisational structures (i.e. enabling platforms) necessary to put whatever we wish into practice.

BOX 4.2

Distributed systems

We have seen that in recent decades the adjective *"distributed"* has been increasingly used in relation to several different socio-economic systems: *distributed computing*; *distributed generation*; *distributed manufacturing*; *distributed innovation*, *distributed creativity*, *distributed knowledge*; *distributed economy* (see the glossary for more information on some of these themes)

Drivers. Considered as a whole, the diffusion of the distributed systems can be seen as the result of two major *drivers* and of a new *technological platform*.

- *techno-economic driver*: the search for flexibility, effectiveness, waste reduction, system robustness and security.
- *socio-cultural driver*: the search for creativity, autonomy and responsibility, as a basic human inclination, particularly developed in contemporary society among a growing group of people .
- *new technological platform*: the present higher degree of connectivity and the possibility that it offers to manage very complex systems.

Implications. The perspective of the distributed systems could be an interesting model per se: a very productive line of socio-technical innovation to be explored in all its possibilities.
But the same perspective becomes even more important considering its environmental, social, cultural, and political implications.

- *socio-economic implications*: bringing a large part of the value creation process to the local scale, distributed economies generate, and maintain, local wealth and local jobs. At the same time, intensifying local activities and interactions, they reinforce the *social fabric* and prepare a favourable ground to use at best, and to regenerate, the existing *social resources*.

- *environmental implications*: reducing the scale of their individual elements, distributed systems allow us to use local resources at best and to facilitate forms of industrial symbiosis (and, therefore, to reduce waste). In parallel to this, by bringing the production nearer to both local resources and final users, they reduce the average transport intensity of their activities (and, therefore, reduce congestion and pollution).

- *political implications*: by bringing the power of decision nearer to the final users and increasing the visibility of the systems on which decisions have to be taken, distributed systems facilitate democratic discussions and choices. In particular, given that the advantages and problems that are related to a choice can be better compared, they facilitate individuals and communities in taking responsible decisions.

Glossary

Distributed intelligence
Keywords: *de-intermediation*, *peer-to-peer exchanges*, *open sources* …

The Internet and the increasing computing potentialities have generated, and are still generating, a new form of distributed intelligence of the socio-technical systems.
The implications of this phenomenon are radical changes in the organization of the socio-technical system: the solid and vertical organizations that have been considered – and still are – dominant in the industrialised society, are melting in fluid and horizontal ones. New distributed forms of knowledge and decision making are appearing.
The dimension and the power of this phenomenon are today commonly recognized. What is not totally understood are its potentialities and its implications.
In many ways the other phenomena that will be mentioned in the following points have to be seen as direct or indirect implications of this first one.

Distributed generation
Key words: *reduction of transmission losses*, *co-generation*, *energy cascading*, *local and renewable energies integration*, *flexibility, system resilience, local responsibility*.

The expression *distributed generation* usually refers to an energy system (mainly) based on interconnected little and medium size power generators.
Its implications is a radical change in the dominant idea of electrical system. But not only: there is the possibility of a new relationship between communities and their technological assets and, possibly, a more democratic way of managing the energy system.
Today, even though it is not yet main stream strategy, the option of distributed generation is largely recognized as a very promising one and its implementation has been enhanced in several different contexts, both in dense urban spaces and in the countryside, in the north and in the south of the world.
The distributed power option has been made possible thanks to the convergence of several factors such as: the existence of highly effective small and medium size power generators and the possibility to base the new energy systems on an intelligent information network.
The integration of distributed intelligence and distributed generation can be seen as the pillars of a new infrastructure: the infrastructure for a multi-local society.

Distributed creativity
Key-words: *flexibility, innovation, diffused entrepreneurial attitude, diffused design capabilities, …*

The expression *distributed creativity* refers to the diffusion of creative behaviours in society. It is based on very different phenomena: from the diffusion of 'creative professions' (*cfr.* Florida), to that of diffused innovators (*cfr.* von Hippel), to creative communities (*cfr.* EMUDE research). More in general, this kind of diffused creativity can be seen as an expression of the "normal" condition of individuals in the present society where, to face their daily life choices, they have to develop specific entrepreneurial and design capabilities (*cfr.* Giddens and Beck).
The concept of distributed creativity, which is still relatively new, can be seen as complementary to the ones that have been previously introduced. In fact, distributed intelligence and distributed generation con be enhanced by the diffuse existence of this kind of creative people. At the same time, these distributed socio-technical systems can be considered as a kind of optimal infrastructure for the diffusion of this kind of social creativity and innovation.

Distributed economy
Key-words: *flexibility, reduction of transport intensity*, *industrial symbiosis*, *local production, distributed manufacturing*, *local responsibility*, *economy of the network*, …

The expression *distributed economy* emerges form the re-discussion of the main-stream models of production, where economy of scale is challenged by the new demands of flexibility and customization, of localization and identity and, finally, by the new possibilities offered by the diffusion of the Internet.
The integration of these heterogeneous drivers is a production and consumption system that shifts towards new forms of production/use/consumption networks. Networks where the different involved processes are, at the same time, open (to the flow of knowledge and people) and localised (i.e. capable to integrate and use in a sustainable way the local resources).
The tendency towards distributed economy models emerges form the convergence of different drivers. The main ones are the new demands for flexibility, personalization and localization, and the diffusion of distributed intelligence and creativity. These same economic models could be strongly enhanced by a large diffusion of distributed generation systems. And vice versa.

BOX 4.3

Social computing

1. Social computing, otherwise called web 2.0, indicates a recent development of the world wide web, and refers both to a new set of *ICT applications* and to a specific new *attitude* to using them.

- *ICT applications,* social computing covers mainly blogs, podcasts, wikis, social networking, websites, massive multplayer online role-playing games, and also search engines, auction websites, and peer-to-peer service.

- *attitude*, social computing focuses on proactive role of users in participating in services delivered, and refers to the concepts as user-generate content, user participation and empowerment, and long tail, network effects created by an architecture of participation, harnessing of collective intelligence.

2. Social computing means a proactive role of the users (individual users or groups of them) in taking part in the service delivery process. This can happen in different ways:

- directly providing the service (such as producing content in the case of *Wikipedia*)
- providing referral/guidance/feedback which improves the service or helps other users to better use the service (as in the social bookmarking website as *del.icio.us*)
- living digital traces which are transformed into a service for other users (such as in Amazon.com service:"user who bought this book also bought …").

5. Enabling systems
Bottom-up, top-down and peer-to-peer interactions

DRAFT

Creative communities and diffused social enterprises are complex and delicate social organizations. For this reason their origin and their existence cannot be planned. But something can be done to make them more probable. A favourable environment can be generated. Supporting services, products, spaces and communication tools can be designed.

Creativity and collaborative attitudes cannot. by definition, be imposed. Creative communities are very delicate social organisations and every intervention from outside puts their equilibrium at risk. The diffused social enterprises that they generate are deeply rooted in specific places and communities and the idea of reproducing them in different contexts seems to be very difficult. Nevertheless, looking more attentively at these cases of grass roots innovation, it appears that something can and should be done to consolidate them, to make them more accessible and enable them to be *appropriately scaled-up*. That is, to be replicated without losing their original qualities.

In fact, we can observe that some of the "service ideas" generated by creative communities have in fact moved from one place to many others. Similarly we can see that top-down decisions and peer-to-peer interactions are often needed to help them develop and last in time, and that implicitly or even explicitly they do call for different kinds of support. In other words, it appears that even though creative communities and diffused social innovations are not totally plannable we can help them to come to life and make their existence easier. To do so different supporting interventions, or *enabling systems*, can be conceived on different scales and involving different groups of actors. (1471)

1. Scaling-up

Creative communities as active minorities. Creative communities are groups of active people who are proposing new and more sustainable ways of living and, more in general, new ideas of well-being (active well-being) and new visions of society as a whole (multi-local society).
Sometimes their ventures are very successful and consolidate into new forms of organization (diffuse social enterprises). Sometimes the proposals they have developed have been replicated worldwide. But in all cases, until now these creative communities and these diffuse social enterprises still remain the expression of a minority.

In the previous chapters we discussed the role of these minorities in the transition towards sustainability and we proposed to consider them as *promising cases*, i.e. social experiments of sustainable ways of living. This proposal comes from the observation that these active people are motivated by a new perception of priorities and needs and by a new inclination towards searching for different ideas of well-being that are an expression (a particularly positive and proactive expression) of several, converging trends: the growing pressure of environmental limits (energy costs, waste production limits, urban traffic saturation), the social transformation due to socio-demographic changes underway (the diffused processes of individualization; the fast urban population growth, the diminishing size of nuclear families) and the rise of a new kind of society (variously referred to as a knowledge, creative, or network society).
In fact, since in the future the pressure of these environmental and social trends can only increase, it is thinkable that this new perception of priorities and needs and this inclination towards an active idea of well-being cannot but grow accordingly. And that larger sectors of society will be able to recognise the value of the social experiments by current active minorities.

Having said this, a question arises: is it possible to do something more than simply look to the combination of these powerful driving forces and of what people's spontaneous creativity and entrepreneurship will be able to do? In other words: is it possible to facilitate the existence of these creative communities and their evolution towards stable social enterprises? Can these initiatives be widely replicated in different contexts? Can their potential for diffusion and consolidation cope with the dimension of the problems that are (and that will be) raised by the transition towards sustainability?

From minorities to the main stream. These questions, and the last ones in particular, are crucial. To give an answer to them we have to move our discussion on these promising cases towards a more proactive attitude. We have to assume a design-oriented approach and take their role as forerunners of sustainable ways of living seriously. This means realising that, if it is to achieve real success, such social innovation must move on from the idea and working prototype stage and develop into consolidated, diffused applications or, in our case, a number of solutions that together reach the same scale as the problem they seek to solve. Unfortunately, in our case, the problems to be solved are huge: how to propose to billions of people viable opportunities to live, and to live better, in a sustainable way.

This point is very important and we want to avoid all possible misunderstanding: in these notes we are not focusing on creative communities and diffused social enterprises only because they are sociologically interesting (although they are indeed significant aspects of contemporary societies). Nor are we doing so because they can generate potentially profitable niche-markets for new businesses (even though this opportunity too could and should be explored). We are interested in them because we think they can generate solution ideas that could be scaled up. Unprecedented ways of living that have the potential to become mainstream[18] and are capable of (contributing to) re-orienting the on-going social and economical changes in a sustainable direction.

Bottom-up, top-down, peer-to-peer interactions. Creative communities and diffused social enterprises have been described until now as *bottom-up* initiatives*:* actions "from the bottom" that give rise to promising cases of social innovations. But a closer observation (from the initial idea to their evolution towards more mature forms of organization) indicates that their possibility of long-term existence, and often even of making the starting move, depends on complex mechanisms, and that the initiative taken directly by the people interested (the bottom-up mode) can be supported by mutual help and information exchange with other similar organisations (the peer-to-peer mode) and by different kinds of intervention by institutions, civil society organizations or companies (the top-down mode).

For instance, a micro-nursery exists thanks to active parental participation. However, it may have been started looking to the experiences of other groups (and eventually interacting with some of them) and it could be backed up by specific tools and initiatives: e.g. a guide-book indicating, step by step, the procedure to be followed to start and manage it; local authority support in assessment (to guarantee its conformity to established standards); or the support of a centralized service (in case of educational or medical problems that cannot be solved within the nursery itself).

This example, like many other similar ones that could be given, tell us that creative communities and diffused social enterprises are to be considered as bottom-up initiatives not because everything happens at grassroots level, but because the active involvement of people directly interested is the precondition for their existence. Consequently their starting up, their daily life and their possible improvement usually emerge out of a complex interplay between bottom-up, top-down and peer-to peer interactions (which differs from case to case). It is exactly on this basis that we can assume that even if the creativity and collaborative actions that are the necessary building materials of every creative community and diffuse social enterprise cannot be planned, something can be done to make their existence more probable, lasting and capable of spreading.

Before discussing these topic a short digression is necessary on creative communities and the promising cases they generate.

[18] This statement is highly problematic: what does it mean to scale-up in a network society? In parallel (and this will be developed in the next paragraphs), we can observe that in the traditional industrial culture scalability means growth: to be successful a small business or a small social enterprise has to become a large one. Can this interpretation still be true in the contemporary and future contexts? In the perspective of sustainability and in the framework of a network society, is growth in size the best indicator of a new idea's success, and will it be in future?

Creative communities, collaborative services and service ideas. We have just said that we are interested in creative communities because they invent and put in practice promising cases. And because the promising cases that they invent may consolidate into diffused social enterprises and replicate. If we look at them more attentively, we can observe that each case can be seen as a particular form of service: a *collaborative service* in which the different actors participate in the production of a commonly recognized value (Cipolla 2007). Consequently, each concrete case can be considered as the actualization of a service idea (where the notion of service idea stands for the description of an organization, its systemic architecture, its main actors and their motivation).

In practical terms, worldwide we can find various examples of co-housing, car sharing, farmer markets and community based agriculture. Each one of them is a case of social innovation, deeply rooted in a specific context and largely shaped by the characteristics of the promoters. Nevertheless co-housing, car sharing, farmer markets, community based agriculture are also ideas, or better, as we said, service ideas. When here we discuss the possibility of replicating promising cases, we have bear in mind that in realty what can be replicated are not these cases with all their local characteristics, nor the creative communities who generated them, since they are un-replicable groups of people, but the service ideas that this group of people invented or adapted to the specificity of a given context.

We can also add that these service ideas con be replicated, but this replication can not be totally planned. In fact, assuming that they are collaborative services, the precondition of their existence, is the presence of a collaborative attitude between the partners. And this, as we have said several times, cannot be planned. It can only be facilitated.

The conclusion of this short theoretical digression is that when talking about replicability what we can plan is not how to replicate the promising case, or, as we have seen here, the service ideas on which they are built, but how to generate conditions that facilitate the emergence of such collaborative service ideas and help them consolidate and spread. In the following paragraphs we will call these favourable conditions, considered as a whole, an enabling system.

2. Enabling systems

Let's go back to the original questions. They were: what is it possible to do to facilitate the existence of creative communities and their evolution towards stable social enterprises? How can they be replicated in different contexts? Now, the second question can be stated more precisely in this way: how can the service ideas on which these creative communities and diffused social enterprises are built be replicated in different contexts?

As we have anticipated, both the questions have a positive answer, even though, for several reasons, it may be a very difficult one. In fact, non only creativity and collaborative attitudes cannot be planned, but the very special people who are needed to generate new ideas (or to creatively adapt and manage existing ones) are not so common and their capability and willingness to be active are not eternal. In parallel to that, the qualities, and in particular the social qualities, that in these cases are generated are very delicate and every intervention form outside puts their delicate equilibrium at risk. Finally, several experiences from the past showed that the nature of small, creative and collaborative organizations changed when they were scaled-up and became large organizations: sometimes they gained in terms of performance and efficiency, but always they lost many of their original meanings and social qualities.

Facing these difficulties, in short, what can be done is: to create a *living context* and *specific instruments* to make the existence of creative communities more probable (giving creative people more possibility to express ideas, to meet partners and to start projects) and to *help promoters* in developing and managing their ideas (making it easier, for them and for the other actors, to actively participate and maintain their enthusiasm over time). At the same time, these *living contexts* and *specific instruments* have to facilitate the diffusion of good service ideas (facilitating their replication thanks to specific interventions and dedicated toolkits). Finally, they have to be able to make all this happen in such a way that the original qualities (i.e. the social and environmental qualities that made the creative community who generated the idea so interesting and promising) are maintained or even increase.

We have just said that, considered as a whole, these interventions on the living context and these specific supporting tools, have been called *enabling systems,* complex, wide socio-technical systems working at three

main levels:1) *enabling frameworks*, the interventions needed to make the living context of creative communities more favourable; 2) *enabling platforms*, sets of dedicated infrastructures; 3) *enabling solutions,* systems of products, services and communications specifically conceived to make a given service idea more accessible, effective and reproducible.

Enabling frameworks and favourable living context. The living contexts of creative communities and diffused social enterprises are complex socio-technical systems with several dimensions (social, economic, cultural, administrative, institutional) and are the results of long processes of co-evolution. The complexity of their nature is such that, as a whole, they cannot be "designed". Nevertheless, some of their elements can be conceived and realised through planned actions. We can refer to these "designable" components of a (potentially) creative context with the expression: *enabling framework*[19], meaning the set of material and immaterial elements that, when implemented in a given context, enhance its chances of becoming a fertile ground for creative, bottom-up initiatives. Or in other words, they enhance its capacity *to support* creative communities and *enable* a large number of *potentially innovative citizens* to move in the same direction.

In practice, in order to promote a *living social fabric* that offers *public spaces* (both physical and virtual) and, most importantly, is highly tolerant towards differences, what an enabling framework can provide are innovative kinds of *infrastructure*, *governance*, *and legal framework*. More precisely, it can create: an infrastructure capable of supporting this small scale, flexible, highly interconnected activity (a *distributed infrastructure*)[20]; a governance specifically targeted at facilitating the existence of creative communities and diffused social enterprises (a *participatory governance*); a legal framework capable of dealing with creative community ventures even when, as always happens in radically new ventures, they find themselves in a kind of (legal and fiscal) "grey zone" (a *supportive legal framework*). (see **BOX 5.1 Enabling frameworks**).

In general terms we can say that these interventions have to promote a *favourable milieu*[21]. That is an environment characterised by an high degree of *tolerance level.* In fact, by definition, the promising cases at issue are radically "different" forms of organisation from those normally set up. Consequently, fostering them means accepting diversity (the diversity in the ways of thinking and behaving intrinsic to such new forms of organisation). This tolerance must first and foremost be expressed in social and political terms, but also administratively: a nascent creative community may certainly be killed by the incomprehension of others and by political hostility, but it can also be killed (and it is often this that actually happens) by an administrative inability to accept the innovation put forward.

In the light of these considerations, what emerges is the demand for a new form of *governance :* a governance that facilitates the regeneration of specific context traditions, fosters an appropriate technological infrastructure; supports the birth and growth of new talents (new skills and abilities) and, above all, generates a favourable social, political and administrative context. But how can all this be done? Obviously, there is no single, simple answer to this question. However, there is one particular possibility which, because of its potentiality, must be mentioned here. This possibility is offered by new organisational models emerging out of the organisational principles of collaborative networks (introduced in Chapter 4). The issue to be discussed

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[19] *Creative milieu*: a place – either a cluster of buildings, a part of a city, a city as a whole or a region – that contains the necessary preconditions in terms of 'hard' and 'soft' infrastructure to generate a flow of ideas and inventions – Charles Landry. Or, more in general: a social, cultural and economic environment where creativity may flourish.

[20] Traditionally, the term *infrastructure* stands for a set of artefacts that enables a particular activity to exist. In our case, if the activities to be developed are sustainable bottom-up initiatives, the needed infrastructure seems to be the distributed systems and what they can do: to facilitate a sustainable use of local resources and, at the same time, to give the local communities the highest visibility on all the processes their lives, and their demand of well being, depend on (and all the problems that they generate).

[21] The theme has been dealt with in other contexts, when talking about a creative society and the conditions favourable to its development (these conditions have been summarised by Richard Florida, using a typically market formula, in the principle of the three Ts: Talent, Tolerance and Technology).
However, the creativity we are talking about here is not exactly the same: it is not attributable to anyone who must be creative by profession (as in the so-called "creative class"). Rather, it is the creativity of people and communities who invent new ways of behaving because they need to: people who are not creative by profession but out of necessity. From this point of view, the number of creative communities does not depend on a growth of the creative professions, but on a widely felt necessity to plan our lives and, as Giddens and Beck teach us, to do so day in day out because whether we like it or not this obligation to plan every day is a characteristic trait of contemporary life.

is: is it possible for collaborative networks to become an organisational metaphor and a practical tool to help us imagine and realize a form of governance that proposes flexible, open and horizontal principles rather than putting forward the traditional, rigid, hierarchical models? The question at the moment has not sure answers. But the possibility exists. And the challenge is clear: a new wave of participative governance tools has and can be generated.

Platforms and solutions. Until now we have dealt with the general environment and what can be done to facilitate its evolution towards being a creative milieu. Now lets move towards whet could be done in terms of more direct intervention on specific collaborative services (enabling solutions) or on clusters of services with similar characteristics (enabling platforms).

Enabling platforms. It is a set of technologies, infrastructures and legal frameworks aiming at empowering a whole cluster of similar promising cases, that is, of collaborative service with some similar need. For instance, some creative communities may need incubators for their start up phase (such as those that resemble real micro enterprises); or they may need some special transportation facilities (e.g. those who deal with direct producer-consumer relationships), or they may require specific know-how, skills and abilities such as those that integrate new technologies). The list could continue. What we can see is that different service ideas can be clustered on the basis of some specific infrastructures. We can call these *enabling platforms*. Recent researches have drawn up a list of specific *enabling platforms* component including *citizens agencies; collective space; connecting platforms; multi-use(r) products*; *semi-professional equipment; complementary product service systems*; e*xperimental spaces*. (see **BOX 5. 2 Enabling platforms**).

Enabling solutions. It is a system of products, services, communication and what ever else necessary to improve the accessibility, effectiveness and possibility of spreading of a specific promising case, that is, of its collaborative service idea. For example, a solidarity purchasing group could be supported by special software designed to manage its activities and facilitate the relationships with producers; a co-housing project could be facilitated by a system that puts potential participants in touch, helps find suitable buildings or building lots and, finally but most importantly, helps overcome any administrative and financial difficulties. (see **Box 5.3 Enabling solutions**).

Thinking to the enabling solutions possibilities, *new markets* and new *lines of research* appear. They concern the possibility of developing and delivering systems products, services and knowledge conceived to increase and strengthen individual and collective opportunities. Systems that make given results accessible by actively involving users in bringing them about. In carrying out this role, a special type of solution intelligence has to be brought into play: an intelligence that has to be capable to stimulate, develop and regenerate the ability and competence of those who use it. Obviously the more expert and motivated the user and the simpler the results to be achieved, the simpler the necessary instruments may be. On the other hand, the less expert the user, the more the system must be able to make up for his/hers lack of skill by supplying what he/she doesn't know or can't do. In addition, the less the user is motivated, the more the system must be not only friendly but also attractive as a kind of stimulating experience.

These same cases can also express a demand that goes beyond the existing technologies and that indicates new, *socially driven new markets and new lines of research*. For instance: experience of shared living facilities could become the starting point for a new generation of apparatus for totally new domestic and residential functions. Solutions that make a healthier diet and direct relations with producers possible could be stimuli for a new rationale in nutrition lines. Cases of localised production and self-production could spur the development of processes and products specifically conceived for this kind of de-centralised production. Experience of mobility systems alternative to the car monoculture, could lead to the development of alternative means of transport. And so on.

Results, performances and enabling potential. When considering the performance of a given collaborative service we can discuss its effectiveness and efficiency in achieving a result, that is, in transforming resources into perceived values. Where, in our case, the active users' capabilities are to be considered as a major resource and where the values we are referring to are those perceived by each partner, as well as by the group of active users as a whole (the creative community) and those perceived by enabling solutions promoters and by society in general (in terms of social and environmental results).

It has also to be underlined that, for each one of them, and for the active users first of all, what could appear to be the main value, given by the main functional/economic result, blurs with other kinds of values/results: taking part in a community-based agriculture scheme (where an urban community twins with a group of

farmers near the city) for the active user means not only having fresh, seasonal vegetable and fruits, but also meeting farmers, visiting and enjoying their farm, and doing physical exercise while joining in with activities in the fields. At the same time, given this initiative achieves the results of supporting farmers, promoting organic food and reinforcing the social fabric, these social and environmental values come back to the active users returning a feeling of social responsibility. And therefore adding on him/her side another perceived value. This last value, the feeling of having done something good, is particularly important in collaborative services because it can provide a very important glue to keep people together.

Finally, the effectiveness of an enabling solution can be expressed in terms of *enabling potential* and can be evaluated confronting the performances of the relative collaborative service *before* and *after* its application. This enabling potential has to be verify from the point of view of the final users and from the one of the solution promoters. For both, it has to be considered for what regards the change in *performances* (the increase in the effectiveness in achieving the main results) and in *qualities* (the transformations that its application cause in the qualities perceived by the individual actors and by the community as a whole). In fact, for the specific nature of the collaborative services, the assessment of the empowered services is particularly important because an high degree of relational qualities is needed to permit the existence, and to guarantee the same effectiveness, of the initiative.

3. Replication strategies

Another important role of an enabling solution is to make it easier to replicate the collaborative service to which it is applied. That is, to move an innovative service idea towards more mature and, and therefore, more *replicable* applications[22]. We have already said that the very nature of creative communities, and the collaborative service ideas they generate, makes the question of their "replicability" a very delicate and problematic one. Here we will consider these difficulties by the two pints of views of the performances in terms of accessibility, and of the results, in terms of relational qualities.

Replication and accessibility. The first problem regards *accessibility*: generating a new idea, creatively adapting and managing an existing one or even simply actively participating in an on-going venture calls for a huge commitment in terms of time and energy. Although this almost heroic aspect is one of the most fascinating characteristics of these initiatives, it is an objective limit to their possibility of long-term existence, of being replicated by others or being adopted by many. In fact, the first limit to the diffusion of collaborative services lies in the limited number of people capable and willing to cross the threshold of commitment required to become one of their promoters, or even just one of their active participants. In fact, it has been verified that these initiatives, with their mix of practical results and socialising effects, appear to many people as very attractive. But in practice, for the majority of them, they simply require too much attention and time. They call for too large an investment of the very resources that today are, or are perceived to be, the scarcest ones.

Faced with this problem, what has to be done is to increase the replicability of these collaborative services, making them more accessible (for both promoters and active users). This means conceiving enabling solutions following the empowering design guidelines we introduced in the previous paragraph.

Replication and relational quality. The second problem that we have to face in dealing with the replicability of collaborative services regards their *quality.* To replicate a collaborative service, it is not enough to merely consider its performances. It is also necessary to reproduce its original relational quality, i.e. the quality of the deep and lively relationships that characterize it (Cipolla 2007).

[22] One point must be absolutely clear: we are not proposing "to industrialize" creative communities and/or diffused social enterprises. Our discussion in this chapter will be about whether and how it may be possible to apply a kind of "industriousity" to them, meaning a mix of creativity, design capabilities and technological knowledge. The same "industriousity" that, in the past, facing very different constraints and aiming to democratise comfort, was able to generate, for good or evil, a new system of production and consumption: the consumer-oriented industrial society. Today, facing different constraints and opportunities, we think that the same human industriosity should, and could, generate a new wave of complex artefacts: new socio-technical systems of production and consumption based on the experiences of creative communities and diffused social enterprises.

Let's take a step backwards. The promising cases at the centre of our interest have been called creative communities. The word "community" has not been used by chance. It indicates that these cases exist thanks to the enterprise of groups of people with a special kind of mutual link: relationships where trust emerges out of direct contact with others and where persons-to-person interactions become, as we said, real and lively relationships. We can observe that, while all services may possess some degree of relational qualities, for these particular services things are different: the relational qualities are not only a component of the final delivered values. They are also pre-conditions to their very existence. By definition, in fact, these services are based on peer-to-peer collaboration and this kind of collaboration calls for relational qualities: no relational qualities, no collaboration and no collaborative organisations. That also means: no practical results.

So, moving from creative communities to diffused *and replicable* social enterprises calls for the regeneration of these relational qualities. How can relational qualities be regenerated in other contexts…and by other people? Of course these questions open a lot of possible lines of discussion. Here we want to consider only one of them. It starts from the following observation: relational qualities are possible only when interactions between the promoters and active users are sufficiently direct. And when the goals and the ways to achieve them are sufficiently simple and manageable. That is, in short, when the organisation they set up is sufficiently small.

Scaling-up in the age of networks. A contradictory situation appears: to face the transition towards sustainability we need to scale-up the impact of creative communities and diffuse social enterprises. At the same time we know that we have to maintain their original social qualities. Qualities that, as we have seen, are largely related to the *small scale* of each single initiative.

To overcome this contradiction is the second main problem that we have to solve. And the experience of the past is not helping us at all. In the last century several small, creative and collaborative initiatives appeared. However, when scaled-up they became large organizations and, in general, their nature changed, losing their original social meaning. The best known case is the cooperative movement in Europe: one century ago a grassroots cooperative movement flourished in several countries. At the beginning it was similar in many ways to our present creative communities. Afterwards, their evolution, and for some of them, their success, led them to change. In becoming large and institutionalised organisations, they gained in terms of performance efficiency, but they lost the "sense of community" that had originally been an important by-product of their practical cooperativeness.

Now, given that these historical cooperatives appear, at least at a first glance, very similar to contemporary creative communities, we can ask ourselves why their evolution should be different. Why should contemporary creative communities evolve towards diffused social enterprises and not follow the same road trod by the cooperative movement in the past century. The question is correct and we do not yet have solid evidence to prove that, today, the second path could be followed. Nevertheless, at least one supporting argument is already clear (at least in terms of its general claim): where in the past the dimensional growth of the involved organisations appeared to be the only viable way to give an original idea more power.

Today, new and different strategies of "growth" are possible. As everybody is saying (often without considering all the implications), we are entering the network society and the very ideas of small and large are challenged because the impact of a phenomenon is not necessary linked to the dimensions of its elements, but to the quantity and quality of the links between them (as we noted in a previous chapter, "the small is not necessary small any more"). In this unprecedented framework, scaling-up can be achieved by adopting different strategies, and among them developing a *replication strategy*: a way to scale-up an idea, in our case a service idea, that doesn't require the original element to grow but to replicate and to connect.

In the next few years the potentialities of this replication strategy will have to be proved. That is, it will have to be proved that internet and computers can generate new and stable distributed socio-technical systems, and in this framework, it will have to be proved that collaborative services will really have the possibility to scale-up, replicating themselves as horizontally connected systems of small social enterprises.

Franchising, formats and other replication toolkits. Let's summarise: our problem is to scale-up the impact of collaborative service ideas maintaining the small scale, and the related qualities, of each concrete case. The challenge is to develop this strategy taking the potentiality of the networks seriously and, in particular, verifying if and how the collaborative networks could help. But, looking to what already exist, we can easily find some existing collaborative networks that, even though operating in different contexts and

moved by different motivations, present interesting similarities and offer useful experiences. There are three replication strategies that are useful to consider. They are the one of *franchising,* mainly in the commercial activities; the one of based on the notion of *formats,* mainly in the entertainment industry; and the one of delivering of toolkits, in several field of application where the do-it-yourself approach has been adopted (see **BOX 5.4 Replication strategies**)

Given these three replication strategies we can immediately see that the first two are, by their very nature far from our field of interest: not only because they are too strongly commercial and business-oriented, but also because the models they propose are too closed to give the necessary space to the creative groups of people they would (try to) support, and too centralised to permit the relational qualities to emerge. Nevertheless, we think that they offer some interesting elements for reflection too: the case of franchising, because it deals with enabling small scale enterprises and the one of formats, because it is about replication done through the actualisation of ideas. Of course, a TV programme idea is very far form a collaborative service one, and a commercial business under the umbrella of a big brand is even further from a collaborative service. However, in all cases, these experiences indicate that the discussion on how to enable a large number of small enterprises to transform into operative and replicable programmes need not start from zero.

Finally, we can consider the replication strategy based on toolkits. It is clear that the notion of toolkit is rather near to the one of enabling solution: the toolkits are offered for certain tasks, but they can be interpreted in different ways and used for different goals. Thanks to this openness, the development of an appropriate enabling toolkit is compatible with the nature of creative communities and with the theme of their corresponding collaborative services. Given that, the recent success of the toolkit idea has to be attentively analysed. At the same time, we still think that, for our purposes, the notion of enabling solution is more useful than that of a toolkit. In fact, a toolkit normally denotes a precise set of tools for individual self-help, This seems to be too narrow a definition of what is needed to permit creative communities to evolve into diffused social enterprises and to be replicated as collaborative services. Vice versa, as we have seen, an enabling solution is conceived for collaborative people and it indicates a system of very diverse tangible and intangible artefacts. A system that is articulated in different phases to support the conception, development and management of collaborative services. And, finally, it is a system whose borders blur with the more general socio-technical systems that form the wider living environment of all these active people, communities and collaborative services.

Design Implications

Enabling systems and designing networks. Designers can play an important role in promoting enabling systems: they can collaborate with different institutions to promote favourable contexts, develop enabling platforms and solutions, and in this framework, when necessary, to conceive dedicated new services, communications and products.
In particular, considering the development of enabling solutions, designer have to be active part of a design process that can be articulated in four main steps: (1) to recognize a promising case of social innovation and to outline the service ideas on which they are based; (2) to analyse the real cases and their service ideas in order to asses the values they produce (the values for each participants, and the social and environmental ones) and to better understand their strong and weak points; (3) to conceive a system of artefacts that strengthen and maintain, or increase, individual and social values: (4) to create the necessary partnerships and to develop the whole enabling system and each one of its single elements.
Looking to these activities as a whole, it becomes apparent that in most cases they require the collaboration of various players: private firms, public institutions, social enterprises, voluntary associations and, directly or indirectly, the end-users themselves. To say this is more than simply restating what has always been well known: that design activity is an interdisciplinary activity and that it calls for the participation of different actors. In our case, today, the involved actors are not only participants, they are real co-designers in that the end-users are an active part of this design process, i.e. they really play the role of co-designers.

Designers and designing networks. The design processes related to the development of the enabling systems we are talking about are part of a wider, flexible network where, in different ways, everybody designs (Giddens 1991,2000; Beck, 1997). In fact we know that design capabilities are diffuse in contemporary society: whether they like it or not, everyday people have to design and re-design their business, their neighbourhood, their associations and their ways of living (and of course this includes the

creative communities and diffuse social enterprises we are dealing with here). The result is that the enabling systems are also conceived and developed in this complex mesh of *designing networks*[23].

Operating in this new context, designers have to positively accept that they can no longer aspire to a monopoly on design. But precisely for that, i.e. precisely because contemporary society can be described as the society of diffuse design capabilities, we think that the designer's role is acquiring (and will acquire in the future) a greater importance. They are the *design specialists* in a world of *design amateurs,* experts in generating something that the new designing networks need: *scenarios, proposals* and, more in general, *design knowledge.* This new designer role will appear (and, as matter of fact, it is already appearing) in two main modalities (which in reality, given the nature of the networks, often blur).

- *Design **in** the designing networks:* it means to participate *peer-to-peer* with other involved actors, in the generation of more efficient and accessible promising initiatives. In this modality designers have to consider themselves as social actors endowed with specific *design knowledge* and *skills* to facilitate the convergence of different partners towards shared ideas and potential solutions. That is, to promote and enhance specific co-design processes. This kind of activity requires a series of relatively new skills, even for designers: generating collaborations among diverse social actors (local communities and companies, institutions and research centres); participating in the construction of shared visions and scenarios; co-designing complex systems of products, services and information

- *Design **for** the designing networks:* it means to collaborate with other involved actors in conceiving and developing *enabling systems* to create the best conditions to stimulate, develop and replicate creative communities and diffuse social enterprises. It is in the framework of this kind of activities that the processes of conceiving and developing enabling solutions and platforms take place.

The triple challenge. In conclusion, designers have to accept a triple challenge: that of the transition towards sustainability, that of operating in the society of the diffused design capabilities, and that of being proactive agents in emerging grassroots innovation processes.

To move in this direction they have to learn how to operate in the new interwoven networks of individual people, enterprises, non-profit organizations and local and global institutions, which are using –and hopefully will use more and more in the future - their creativity and entrepreneurship to take some concrete steps towards sustainability. However, to do so, to really play this positive role, the design community has to develop new *conceptual and practical tools* and, most importantly, has to better understand the importance of *design research*. In fact, to effectively operate and, hopefully, to move towards sustainability, the new designing network calls for design knowledge: a new kind of knowledge that only a real and effective design research will be able to generate.

[23] The notion of *designing networks* emerged in the final consideration of the EMUDE research results (EMUDE 2006). The theatrical and practical background was also given by other important lines of research, such as the ones developed by Pierre Lévy, on *collective Intelligence* (Lévi, 1994), or by Hilary Cottam and Charles Leadbeater of *open services* in the framework of the wider phenomenon of the *open source movement* (Cottam, Leadbeater, 2004).

BOX 5.1

Enabling frameworks

Enabling framework: the set of material and immaterial elements that, when implemented in a given context, enhance its chances of becoming a fertile ground for creative, bottom-up initiatives. That is, its capacity *to support* creative communities and *enable* a large number of *potentially innovative citizens* to move in the same direction.

In practice, in order to promote a *living social fabric* that offers *public spaces* (both physical and virtual) and, most importantly, is highly tolerant towards differences, what an enabling framework can provide are innovative kinds of *governance*, *working environment* and *legal framework* (EMUDE 2006)

- *Participatory governance*: Diffused social enterprise will re-weave the social fabric by creating new social and physical spaces. Thereby they will become major stakeholders in governments' activities operating on those spaces from another direction. For this reason they could have a role to play in putting into practice the active engagement of civil society into governance.

- *Enabling working environment*: To be able to participate in the diffused social enterprise initiatives people need to have the possibility to flexibly shape their engagement into working life according to their needs. New possibilities are needed to switch between different levels of engagement in working life, community life and private life as well as training and education phases without putting at risk workplace security.

- *Supportive legal framework*: There should be a legal and economic framework that accommodates diffused social enterprise activities. In fact, they raise questions that have to be discussed and solved at two levels: the positive changes in the financial support, taxation and juridical matters that have to be done in order to open up for bottom-up initiatives. And the nature of the legal and economic "grey" zone where many of the initiatives promoted by the diffused social enterprises operate (in fact, the same tolerance that could be considered as necessary for some of diffused social enterprise initiatives could also be seized by "illegitimate" actors). New legislations and economic policies related to: use of public spaces; working at home; family companies; new forms of collective ways of living. New kind of taxes related to: alternative economies (where exchange of labour replaces conventional money systems) and new cooperatives (where individuals are members and not customers).

BOX 5.2

Enabling platforms

Enabling platforms. It is a set of technologies, infrastructures and legal frameworks aiming at empowering a whole cluster of similar promising cases, that is, of collaborative service with some similar need.

Recent researches have drawn up a list of specific *enabling platforms* component including *citizens agencies; collective space; connecting platforms; multi-use(r) products*; *semi-professional equipment; complementary product service systems*; e*xperimental spaces* (EMUDE 2006)

- *Citizens agencies*:, meant to act as catalysts for grassroots initiatives, but also as a facilitator for existing ones to grow, multiply and flourish. Instead of searching for solutions for various demands such as spaces, people, equipment etc. in negotiation with various governmental and non governmental actors, the citizens agency would provide the first point of contact for people to embark on a diffused social enterprise.

- *Collective spaces*: Facilities that can be used by communities for mixed public-private functions could address an emerging user demand for space and shelter. Collective spaces are not completely public but jointly managed by a group of people either living closely together or driven by a common interest. A number of the promising cases found in different realms rely on the availability of such spaces for their realisation.

- *Connecting platforms*: Connecting people to people, people to products and services, and even products/services to products/services is a very important demand within the diffused social enterprises. . A connecting platform consists of technological innovations and policy measures to help satisfy these demands.
- *Multi-Use(r) products*: These are products that allow for various forms of shared use. Such products address the emerging user demands for sharing, synchronizing, personalizing, payment, tracking and tracing and also, depending on how much private information is needed to satisfy these demands, for privacy. They are important enablers in many of the solution ideas apparent in the EMUDE cases. Policy opportunities include orienting technological innovation to societal needs that will become even more urgent in the future, improving resource efficiency and lowering environmental impact through more sustainable consumption patterns (use intensification, collective use)

- *Semi-professional equipment*: This type of equipment is used in a non professional environment, often even in private spaces, to provide a service for a larger group of people. A number of the EMUDE cases are characterised by this type of situation. The challenge is to have products suitable for such an environment, which lacks many of the preconditions of a professional environment such as ample space, safety provision, waste disposal etc. Policy measures could include the development of guidelines for safe, semi-professional and environment- friendly equipment for social enterprises.

- *Complementary product service systems*: These are professional product service systems specifically designed by companies to complement social enterprise activities. For instance: flexible mobility services; fluid payment systems; customised and intelligent booking and ordering systems, as well as tracking and tracing technologies.

- *Experimental spaces*: Experimental spaces are meant to facilitate socio-technical experimentation. In fact, to achieve real changes in current models of production and consumption, technological and social innovation have to be aligned. However, it is difficult to find adequate experimental space for both technological and social innovation at the same time. The DSE activities could become such socio-technical, micro-experimental spaces.

BOX 5.3

Enabling solutions.

Enabling solutions: system of products, services, communication and what ever else necessary to improve the accessibility, effectiveness and possibility of spreading of a specific promising case, that is, of its collaborative service idea.

The first step to be done to conceive an enabling solution is to analyse the targeted cases strengths and weakness and, moving form here, to define what is needed to enhance available resources (i.e. their strengths) and to overcome the problems (i.e. their detected weaknesses). Some possible general design line guides are the following:

- *Individual and/or community empowerment*: cultural capabilities (improving skills and knowledge); physical capabilities (developing specific tools) material ; psychological drivers (promoting cultural or ethical interests); economic incentives (offering opportunities to save money or to be paid).

- *Improvement incontext conditions*: accessibility (reducing physical or psychological barriers)*;* time to do it (making the proposed activity more efficient, or freeing time in other activities)*;* space where to do it (reducing the space needed, freeing other spaces, or creating new spaces)

- *Systemic issues* development: management (facilitating the organization of the activity)*;* network building (facilitating connection between different actors)*;* community building (facilitating the building of new forms of community)*;* critical mass generation (involving community the necessary number of participants)

The product-service system that will emerge from this initial analytic and desing phases will be structured in two sets of enabling artefacts corresponding, the first one, to the phase of conception and development of the new collaborative service idea (*ground laying stage*) and the day-to-day management phase when the service has been set up (*real-time integration and support*):.

- *Ground laying*: enabling users to create the conditions for a new initiative to materialise (for instance: creating a shared vision, increasing knowledge and practical skills, preparing the setting where the actions will take place, delivering specifically designed tools, publicising the new initiative and, if necessary, certifying to its quality, etc).

- *Real-time integration and support*: complementing user capabilities and skills in the normal day-to-day activities, and supporting them in particularly critical moments (for instance: on-line help-desk services, special interventions for critical moments, administrative and economical advice, etc).

BOX 5.4

Replication strategies

Replication strategy: a way to scale-up an activity (as, for instance a service, a business, social enterprise) that is mainly based on the reproduction and the adaptation of the same service or business idea in different contexts. It generate (mainly) horizontal networks and it can be enabled by different kinds of supporting actions.

- *Franchising*. It is a framework of procedures and communication tools to enable local entrepreneurs to start a commercial activity as franchisees of a larger company. This company supports the franchisees with a dedicated set of instruments and requires them to respect of a set of procedures and quality standards. In other words, a franchising programme enables several small entrepreneurs to enter into business under the umbrella of the "mother company's" reputation". They enjoy the reputation of this company and, at the same time, commit themselves to follow the rules that the mother company lays down.

- *Format*. It consists of a model and a list of procedures, e.g. the model of an existing successful show and step-by-step indications of what to do to replicate it in different contexts. The format producer gives the format purchasers the rights to reproduce the original programme, adapting it to the local specificities. In other words: a format is a programme idea that, extracted from a real experience, can be set up in other contexts. The result is a multiplicity of programmes that are, at the same time, global (the idea is proposed world wide) and local (in each context it is broadly localised).

- *Toolkit.* It consists of a set of tangible and intangible instruments conceived and produced to make a specific task easier. Each tool can be more or less dedicated to a specific task and the whole kit can be more or less specialised on a specific activity. On the other hand, whoever adopts the toolkit can use the different tools in the freest way. And whoever produces the kit takes no responsibility for the results of its use. The growing number of toolkit proposals is linked to the diffusion in more and more application fields of the do-it-yourself approach.

- *Enabling solutions.* It is a system of products, services, communication and what ever else necessary to improve the accessibility, effectiveness and possibility of spreading of a specific service ideas generated by emerging cases of grass roots social innovation.

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