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

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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 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.

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[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 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.* one 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 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.

<mark>BOX 2</mark>

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.