



DESIGN FOR SUSTAINABILITY

A Step-by-Step Approach

UNITED NATIONS ENVIRONMENT PROGRAMME
DELFT UNIVERSITY OF TECHNOLOGY



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ISBN: 92-807-2711-7



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ACKNOWLEDGEMENTS

This document has been a 'work of art in progress' for some time. D4S: A Step by Step Approach reflects the vision and insights of many people, as noted by the number of contributing authors and supporting organizations. We gratefully acknowledge the support of the Swedish Environmental Protection Agency, the Ministry of Housing, Spatial Planning and the Environment, The Netherlands and InVEnt, Capacity Building International Germany. We would also like to acknowledge the efforts of UNEP colleagues, Anne Solgaard, Desta Mebratu, Bas de Leeuw, Sonia Valdivia and Guido Sonnemann. A special note of thanks also belongs to Erica Allis, UNEP DTIE consultant who untiringly wove together the many visions and insights presented.

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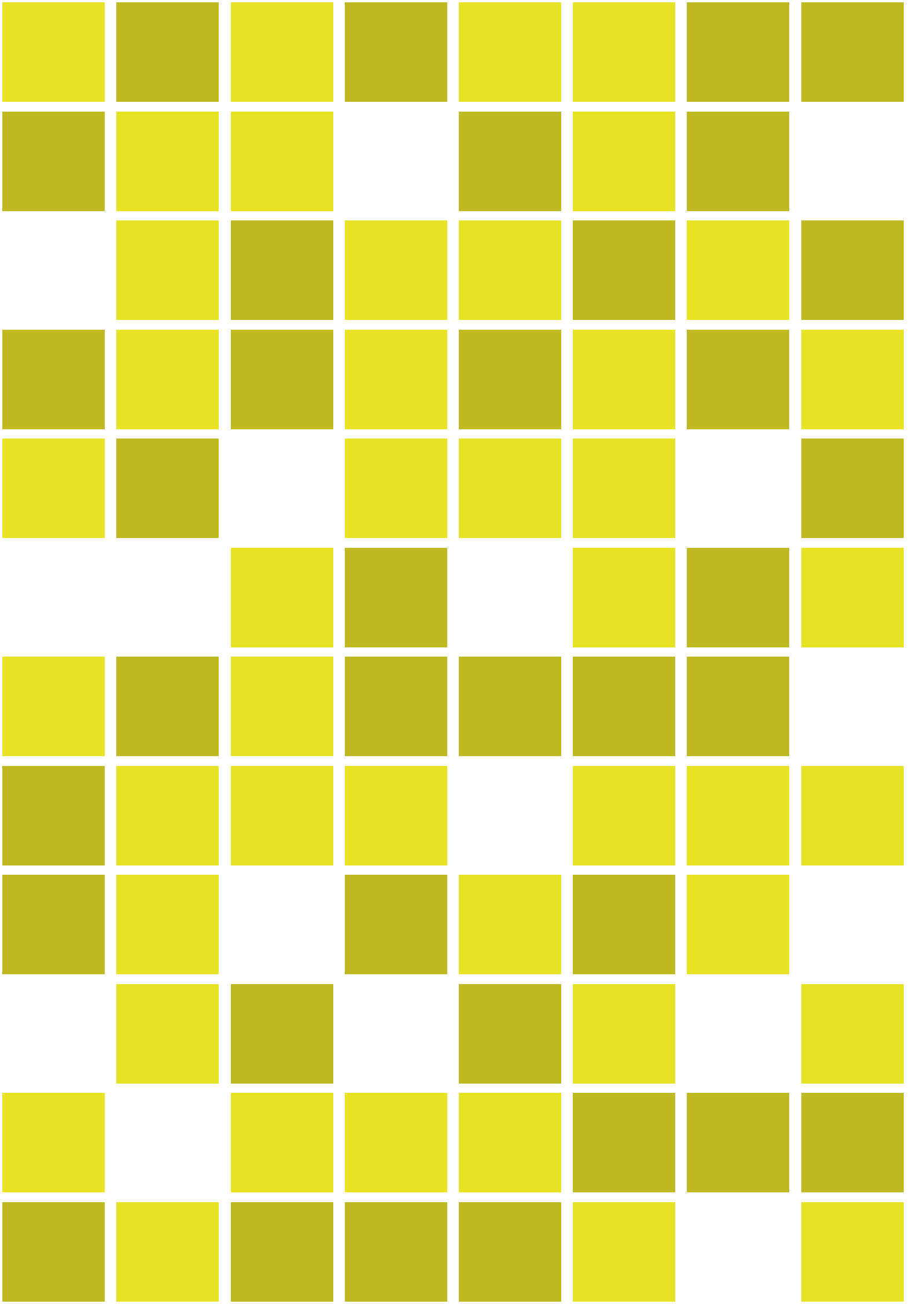
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D4S Redesign

D4S Benchmarking

Product-Service Systems





PEOPLE

MODULE

B

DESIGN ORIENTED SCENARIOS:

GENERATING NEW SHARED VISIONS OF SUSTAINABLE PRODUCT SERVICE SYSTEMS

EZIO MANZINI, FRANÇOIS JÉGOU, ANNA MERONI.¹

B.1. BACKGROUND AND OVERVIEW

This Module sets out a process that can help businesses, designers and communities ‘think through’ possibilities for the development of new sustainable products, product-service systems or businesses.

Innovation for sustainability often involves the development of complex systems of products and services, and the reorganisation of current value chains into new networks, requiring the cooperation of many different actors (i.e. companies, public institutions, associations, small and large...). This network is likely to involve new partners that have no history of collaboration, raising a key-question:

How can you facilitate and support dialogue between these actors that will generate a convergence of ideas?

Innovation involving many actors requires mutual understanding of a problem and the identification of common interests and possible synergies. It involves the mutual exploration of different solutions and, finally, defining and fine-tuning a common objective. This requires processes of communication which can support strategic conversation throughout the innovation process. It also requires that those processes of communication can support the development of shared – converging – visions.

In this module, processes and tools will be presented to initiate communication and facilitate dialogue within a large group actors towards the creation of shared visions, or a ‘panorama of potential solutions’, from which a partnership of actors may choose new

product-service systems to be developed for the market.

The first part of the module will address the construction of scenarios of potential product-service systems. These scenarios called “**Design Orienting Scenarios**” allow the exploration and description of promising innovations involving a set of relevant actors. The second part will describe how to visualise these scenarios and discuss them so as to produce a “**Design Plan**” – design directions for the development and refinement of a new, more sustainable, product-service system.

B.1.1 DESIGN ORIENTING SCENARIOS: BUILDING SHARED VISIONS ON SUSTAINABILITY...

The process of building scenarios is presented here as a way to generate shared visions within a large system of actors.

The term scenario is considered as a synonym for an overall vision of something complex and articulated – a set of possible conditions, or transformations, affecting the domain under consideration. In addition to presenting a vision, *Design Orienting Scenarios* (DOS) have to demonstrate a clear *motivation* (what the scenario is aiming at?) and *practicality* (the concrete actions that have to be taken in order to favour its implementation). They are called “design orienting” because they provide a framework for the design and realisation of new products and product-service systems. DOS are a way to

systematically explore a panorama of alternative possibilities. They constitute “thinking material” to orient the strategic conversations between actors.

Critical points of the DOS methodology are:

- > Analysing the current system of actors and discussing its strengths and weaknesses in terms of sustainability;
- > Negotiating and defining a set of common goals and intentions for the coming product-service system;
- > Generating ideas for solutions and selecting a diagram to organise them.

B.1.2 THE DESIGN PLAN: SUPPORTING STRATEGIC CONVERSATION AMONG NETWORK OF ACTORS

The Design Plan (DP) is a sequence of tools, in different formats, to assist in the synthesis of possible solutions in contexts that involve numerous actors and complex interactions.

The Design Plan is a *shared* and *progressive* system to represent and elaborate solutions:

> *shared*, in the sense that it's based on a set of rules, allowing the representation of solutions in a reproducible and comparable way. It uses a series of *fixed formats of representation* (maps, matrixes, story-boards...), an *open library* of graphic elements (icons, pictures, arrows...), and a *set of rules* (layout, syntax...) to represent the different dimensions of a possible solution (platform organisation, partners' interests, user interaction...). It provides conceptual and visual models, a sort of “technical drawing” to communicate a product-service system, and to structure the thinking process and design.

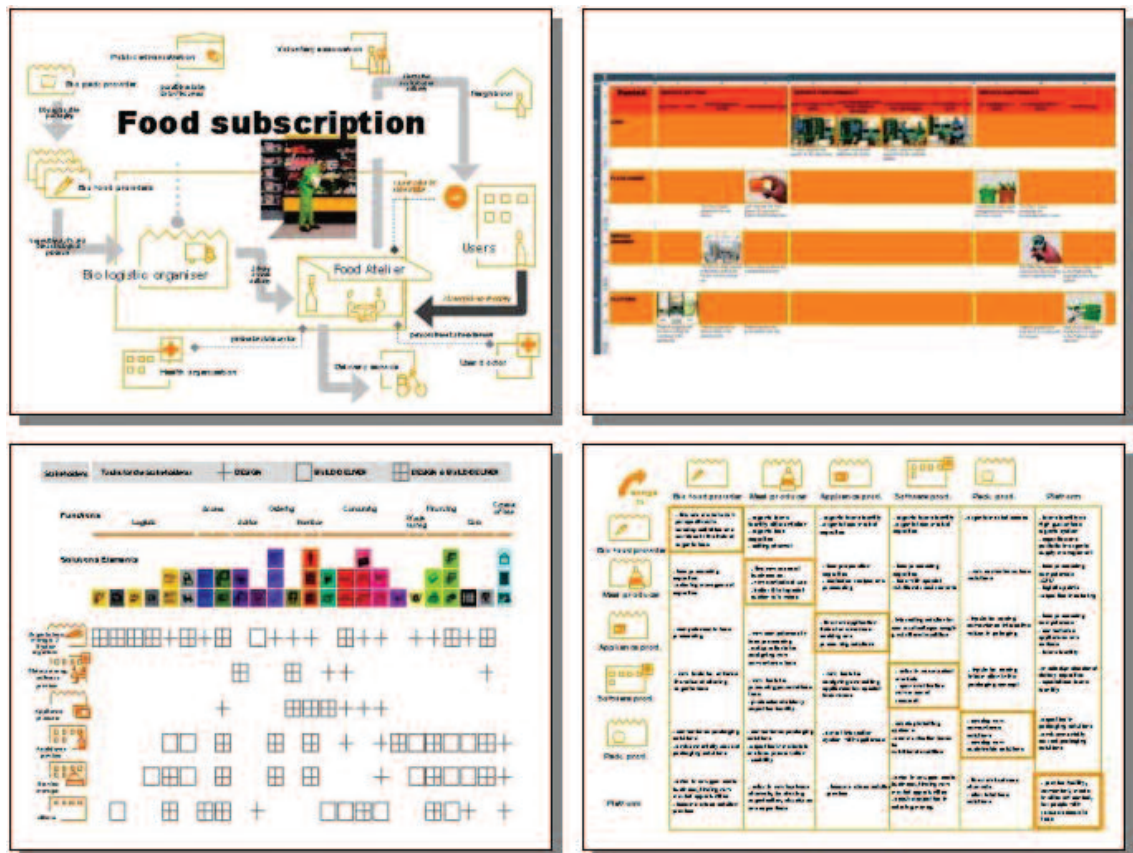


FIGURE 1 ____ THE DESIGN PLAN IS BASED ON A SERIES OF FORMATS TO CO-ELABORATE A SOLUTION INVOLVING DIFFERENT PARTNERS

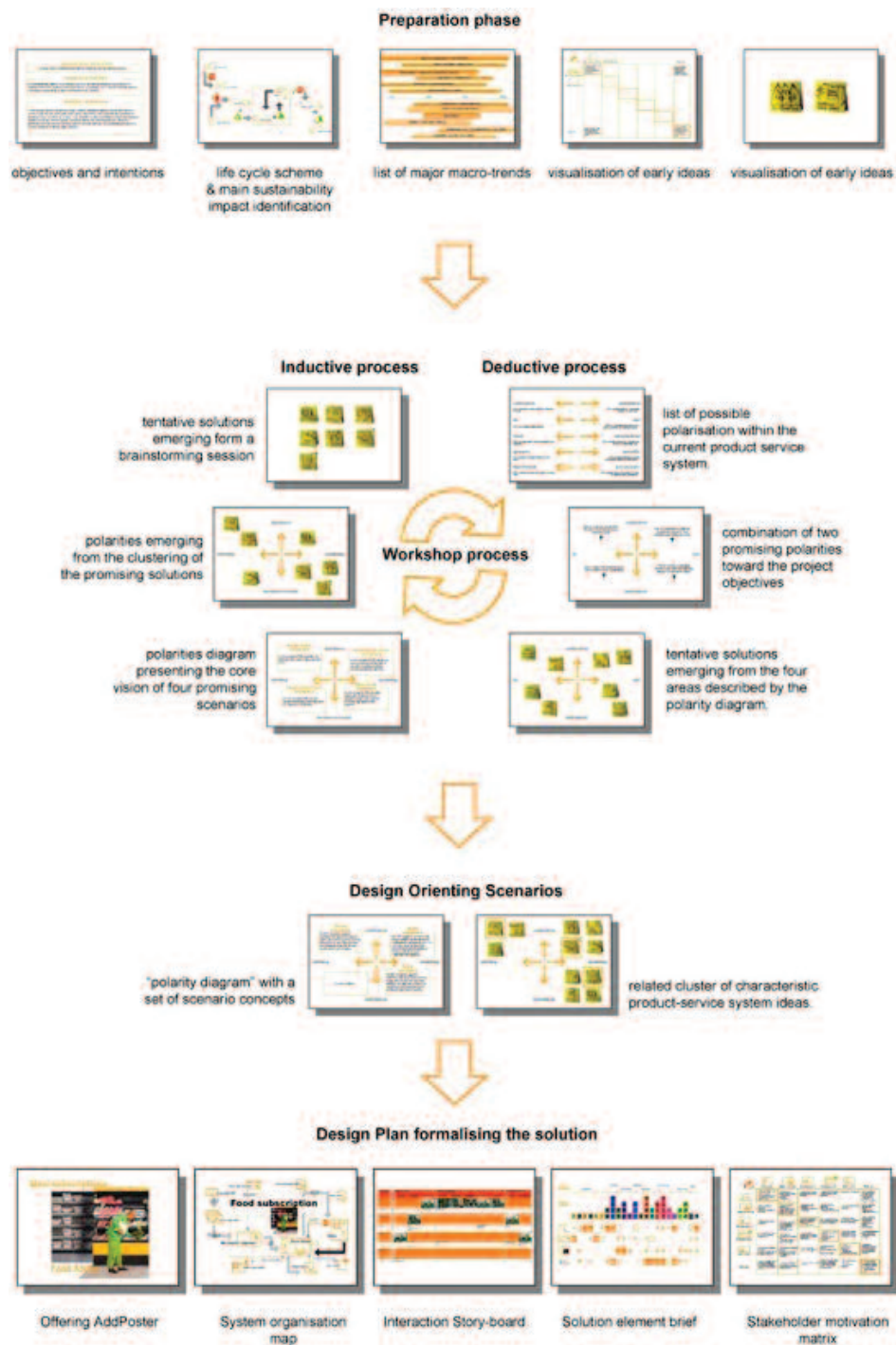


FIGURE 2 — GENERAL SCHEME SHOWING THE GENERATION OF DESIGN ORIENTING SCENARIOS IN A CREATIVE WORKSHOP PROCESS AND THE PROGRESSIVE DEFINITION OF A RELATED SOLUTION THROUGH DESIGN PLAN FORMATS.

> *progressive*, in the sense that it is a “formalisation-in-progress” of a solution, facilitating strategic conversation among partners, and giving a more and more accurate picture of their common goals. It gives a view of the developing concept for a new product-service system, helping to understand that development as an outcome of a shared vision. It specifies “inputs formats” and “outputs formats” at each stage, from the early visualisations of first ideas and related hypothetical network of actors, to a detailed description of agreed specifications within an identified partnership.

The Design Plan (DP) consists of 5 main tools presenting the solution from different points of view, with the common goal to develop “generative images” of it, images with the capacity to open and extend – and yet focus - the discussion about a subject. These tools have different formats and contents and respond to different aims:

- 1> the “*Advertisement Poster*” that presents the potential solution to the market;
- 2> a “*System Map*” that depicts the system of actors and their interactions;
- 3> an “*Interaction Story-board*” that depicts the performance of proposed solution, step-by-step, from the user’s point of view;
- 4> a “*Solution Elements Brief*” that defines the task of each stakeholder in providing the solution as well as the likely interactions between the stakeholders;
- 5> a “*Stakeholder Motivation Matrix*” that maps the synergies and potential conflicts between the stakeholders.

B.1.3 THE OVERALL PROCESS

Two different tools are presented:

- > the Design Orienting Scenario (DOS) process supports the generation of a collective and shared *vision* among a coherent group of actors.
- > the Design Plan process (DP) supports the strategic conversation between the actors towards the implementation of this focused vision.

Although these 2 processes are independent one from the other and can be used separately, they tend to be used consecutively in practice, through a creative workshop involving all the stakeholders in the scenario

building process and a following series of meetings with different sub-groups of the actors involved. (See figure 2)

B.2. THE METHODOLOGY AND TOOLS FOR DESIGN ORIENTING SCENARIOS.

B.2.1 THE SCENARIO BUILDING METHODOLOGY

The scenario building methodology consists of a series of processes to systematically explore potential reconfigurations of the current system of products and services. These are described as alternative scenarios. This process is useful within complex situations with a large quantity of variables and a high number of actors. *It is used at the beginning of an innovation process in order to start it in a coherent and organised way – without reducing the creative interaction necessary to build shared visions.*

The scenario building methodology consists of an iterative dialog between two reciprocal processes:

> An inductive, bottom-up process starting from the creative generation of promising, tentative, new ideas for the reconfiguration of the current system of products and services;

> A deductive, top-down approach starting from a systematic exploration of promising reconfigurations of the current system, describing alternative scenarios and suggesting new tentative solutions.

(See figure 2 – the workshop process).

Both these processes make use of a polarity-based approach. A polarity shows a possible variation along one dimension of a product-service system (PSS), between two opposite directions: e.g. the relationship between the user and the product may be *individual* or *collective*, *enabling* or *relieving*...pointing each time to an alternative situation more or less pertinent to the objectives of the project.

Both the inductive and deductive processes can be described as a coherent and consecutive sequence of activities. In practice, the two processes are often conducted in parallel, as an iterative dialog, converging progressively towards a limited set of promising scenarios and a related number of possible solutions. (For example, in practice a workshop group might be split initial-



FIGURE 3 ___ POLARITIES ARE REPRESENTED BY A LINE WITH ARROWS AT BOTH ENDS BETWEEN AND A PAIR OF OPPOSITE CONCEPTS FIGURING THE POTENTIAL VARIATION CONSIDERED IN THE CURRENT SYSTEM OF PRODUCTS AND SERVICES.

ly into deductive and inductive groups, comparing their polarity systems and initial solutions only after some work.)

B.2.2 THE PREPARATION PHASE (PROJECT INPUT MATERIALS).

As figure 2 shows, the construction of the *Design Orienting Scenarios* should begin with a preparation phase. This is necessary in order to gather all information – on the actors, their motivations, the contexts in which they evolve, the strength and weakness of the current situation...and so on. This becomes the *project-input material*. A series of concise formats are proposed in order to synthesise this information and share it easily between the participants to the scenario building activity. We suggest six areas for information:

- (i) Objectives and Intentions
- (ii) Life-cycle diagram for current system
- (iii) Sustainability impacts identification
- (iv) Major macro trends (key changes in the context of the current product-service)
- (v) Initial stakeholder motivation
- (vi) Visualisation of early ideas

B.2.2 (I) OBJECTIVES AND INTENTIONS

This format (Figure 4) gathers 3 levels of progressive summary of the objectives:

- > *box one – general intentions*: gathers all the various motivations to start an innovation process, coming from each part of the project team;
- > *box two - specific intentions*: selects, from box one, the set of general intentions agreed by all of the project team;
- > *box three - fundamental objectives*: an attempt by the project team to summarise its intentions in one single

sentence which all agree to.

Note: filling in box two and three may constitute a good warming up exercise for the workshop participants.

B.2.2 (II) LIFE CYCLE SCHEME

The life cycle scheme (Figure 5) presents actors and

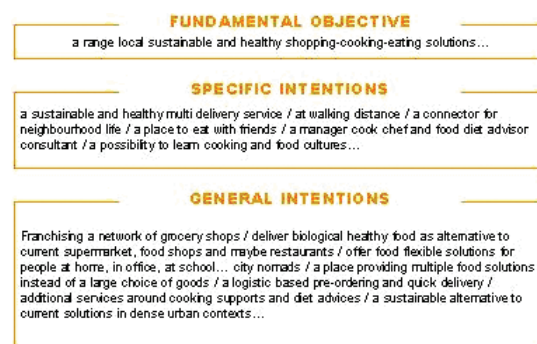


FIGURE 4 ___ SUMMARY OF THE OBJECTIVES OF THE PROJECT TEAM IN TERMS OF NEW PSS DEVELOPMENT.

flow of the current product-service system.

This scheme is made using the principle of the System map described in the Design Plan (above), in order to generate a coherent visualisation of the system and be able to make comparisons between the current product-service system and potential new ones.

B.2.2 (III) MAIN SUSTAINABILITY IMPACTS IDENTIFICATION

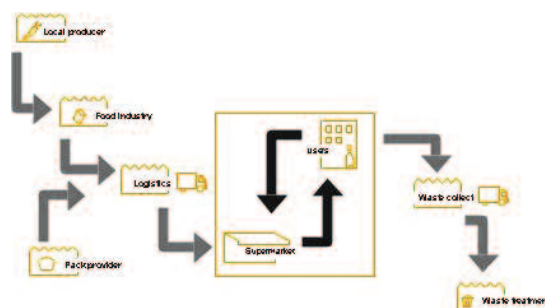


FIGURE 5 ___ LIFE CYCLE SCHEME PRESENTING ACTORS AND FLOW OF THE CURRENT PRODUCT-SERVICE SYSTEM.

This format (Figure 6) shows the main sustainable impacts of the current system of products and services. Different pictograms are used to “flag” the main impacts and options from all the three sustainability dimensions (people = socio-ethical, planet = environmental, and profit = economic) on the life cycle map, with links to detailed descriptions.

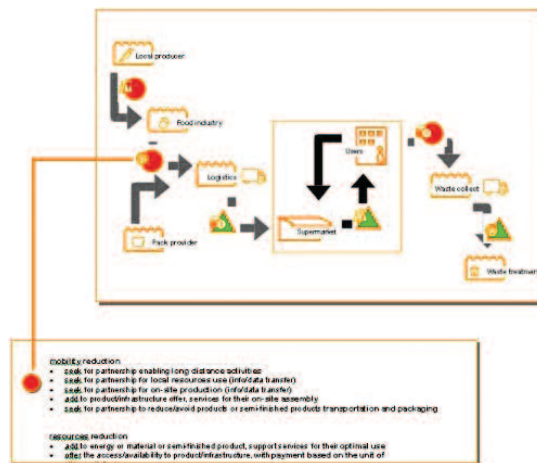


FIGURE 6 ___ MAIN IMPACT/OPTION FROM ALL THE THREE SUSTAINABILITY DIMENSIONS (PEOPLE = SOCIO-ETHICAL, PLANET = ENVIRONMENTAL, AND PROFIT = ECONOMIC)

B.2.2 (IV). IDENTIFICATION OF MACRO TRENDS

This format (Figure 7) shows a list of major macro-trends potentially influencing the current system of products and services. A macro-trend is considered as a general change in the context of the current system that may have a potential effect on its development. These changes are listed if they are considered as reliable and regular enough (invariant) *within the project time frame*.

The format shows:

> a time line with current time and project time frame (the approximate period of application of the new solution (from its expected implementation to its

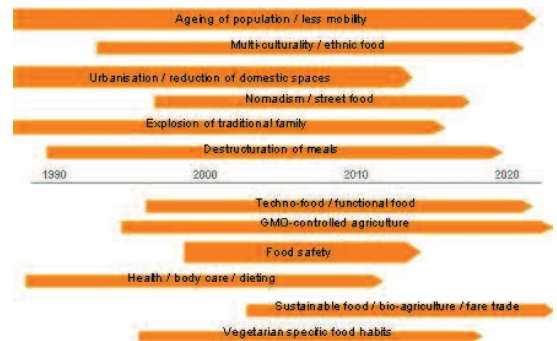


FIGURE 7 ___ LIST OF MAJOR MACRO-TRENDS POTENTIALLY INFLUENCING THE CURRENT SYSTEM OF PRODUCTS AND SERVICES.

expected maturity);

> each macro-trend represented each by an arrow figuring the trends emergence (arrow start), its expected duration (length) and its estimated impact on the focus system (thickness).

The format distinguishes then between broad macro-trends (regular and long term changes starting before and going beyond the project time frame) and short fashion/trends (temporary changes occurring within the project time frame).

B.2.2 (V) INITIAL STAKEHOLDER MOTIVATION MATRIX

This format (Figure 8) show the *Stakeholder motivation matrix* at the very beginning stage of the project. In par-

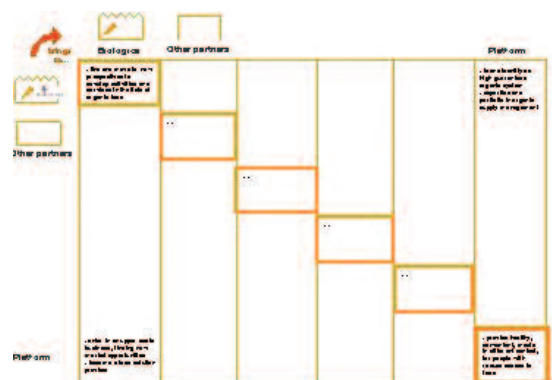


FIGURE 8 ___ INITIAL STAKEHOLDER MOTIVATION MATRIX SHOWING THE PROMOTING ACTORS, THEIR OWN MOTIVATIONS AND THE INTENTION FOR THE PRODUCT-SERVICE SYSTEM.

ticular, it shows:

- the promoting (initial) actors;
- their initial motivations and the intention for the new solution.

(This scheme is made using the principle of the *Stakeholder motivation matrix* tool described in the Design Plan.)

B.2.2 (VI) VISUALISATION OF EARLY IDEAS.

This format (Figure 9) shows early ideas or tentative solutions brought to the project by team members before the project starts. Each early idea is formalised as a quick drawing showing a characteristic aspect of the idea and a title/slogan explaining it.



FIGURE 9 ___ SET OF EARLY IDEAS / TENTATIVE SOLUTIONS EXISTING WITHIN THE PROJECT TEAM BEFORE THE PROJECT STARTS.

B.2.3 (WORKSHOP) INDUCTIVE PROCESS:

The inductive process is made of 3 steps:

- Creative Sessions;
- Clustering and organisation;
- Description of characteristics.

B.2.3 (I) CREATIVE SESSIONS

Creative sessions start from the collective review of all project-input material to generate spontaneous *tentative solutions*. The creative session may be conducted through classical brainstorming sessions in sub-groups. In order to facilitate exchanges and communication between participants, tentative solutions are presented

in a standard format (Figure 10) based on simple drawings highlighting a specific feature or characteristic of the solution and a short slogan explaining it.



FIGURE 10 ___ TENTATIVE SOLUTIONS EMERGING FROM A BRAINSTORMING SESSION.

B.2.3 (II) CLUSTERING AND ORGANISATION

Clustering and organising the tentative solutions can show promising directions for a variation from the current system of product and services. The workshop exercise requires the identification of some key polarities represented by the tentative solutions. The solutions are then clustered into a map with two of the most characteristic polarities as axes. (See Figure 12 example)



FIGURE 12 ___ POLARITIES EMERGING FROM THE CLUSTERING OF THE PROMISING SOLUTIONS.

B.2.3 (III) DESCRIPTION OF CHARACTERISTICS

Descriptions are then made to express the characteristics of the four areas generated on the map and characterised by the tentative solutions places in those quadrants. They constitute the core visions of alternative scenarios (e.g. Figure 14). Most of the time, one of the four areas will describe the current system of products and services, with the three others depicting alternative scenarios.

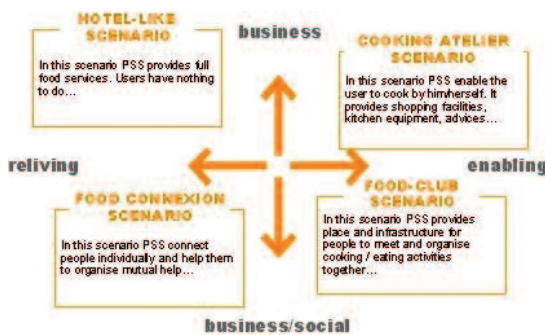


FIGURE 14 ___ POLARITIES DIAGRAM PRESENTING THE CORE VISION OF FOUR PROMISING SCENARIOS.

B.2.4 (WORKSHOP) DEDUCTIVE PROCESS

The deductive process is made of 3 steps:

- (i) List of possible polarisations;
- (ii) Combination of two polarisations;
- (iii) Creative sessions.

B.2.4 (I) STEP 1: LIST OF POSSIBLE POLARISATIONS

Starting from a collective review of the *project input materials*, various consistent polarities showing possible changes in the current system of product and services are defined, keeping in mind the objectives of the project (e.g. Figure 16).



FIGURE 16 ___ LIST OF POSSIBLE POLARISATION WITHIN THE CURRENT PRODUCT SERVICE SYSTEM.

B.2.4 (II) COMBINATION OF TWO POLARISATIONS

Various combinations of two polarisations are explored to define promising new areas for solutions and the most pertinent pair is selected (e.g. Figure 18).

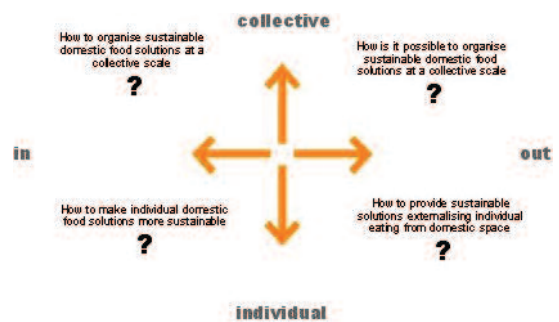


FIGURE 18 ___ COMBINATION OF TWO PROMISING POLARITIES TOWARD THE PROJECT OBJECTIVES.

B.2.4 (III) CREATIVE SESSIONS

A creative brainstorming within each of the four areas generates new tentative solutions (e.g. Figure 20).

B.2.5 DESCRIPTION OF THE DESIGN ORIENTING SCENARIOS

Repeated iterations of both inductive and deductive processes (according to time and availability of people) will produce a convergence to a description 4 scenario

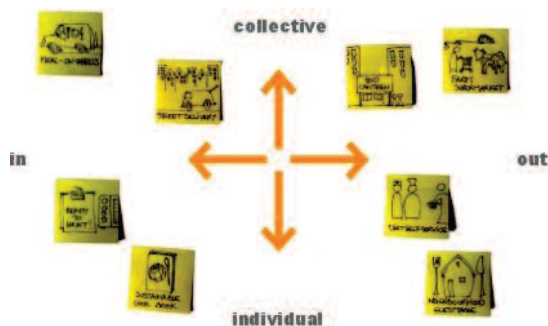


FIGURE 20 ____ TENTATIVE SOLUTIONS EMERGING FROM THE FOUR AREAS DESCRIBED BY THE POLARITY DIAGRAM.

visions that have the support of the majority of actors involved and can be described on polarity diagrams. Each of these visions will involve a cluster of related tentative ideas for new solutions (e.g. Figure 22).

B.3. THE DESIGN PLAN TOOLS

When a set of Design Orienting Scenarios have been described, the next phase in the process (see figure 2 for reference) is to formalise and test solutions through the Design Plan tools. Taking each of the DOS in turn (or starting with the DOS considered most interesting or promising) five DP tools are used to test and plan the scenarios.

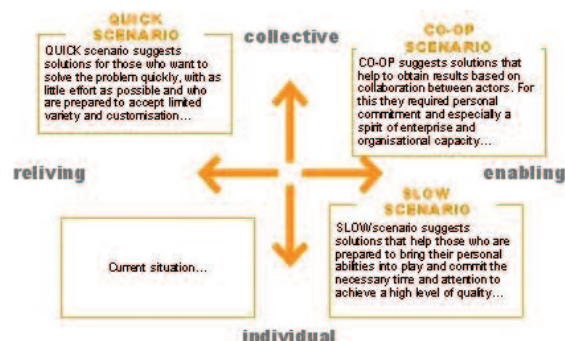


FIGURE 23 ____ POSTER ADVERTISEMENT SHOWING THE MAIN FUNCTIONALITY OF THE TENTATIVE SOLUTION IN THE FORM OF A SIMULATED ADVERTISEMENT.

B.3.1 POSTER ADVERTISEMENT.

The *Poster Advertisement* is a visualisation presenting the tentative solution to the market (potential users).

The aim is to build a virtual or imaginary advertisement, a way in which the new offer *could be* well presented to the market (assuming it is developed). Advertising is often the way users discover a new product /service. This is a simple and effective way to understand how new solutions could be presented to potential user groups and to reflect on the potential of the concept, assisting the project team to further refine their ideas.

These visualisations are called a “*Poster Advertisement*”, relating the process to film advertising in

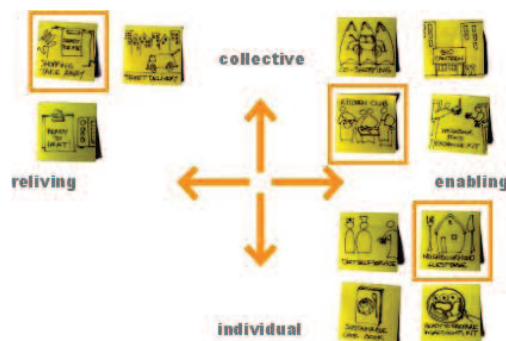


FIGURE 22 ____ THE TWO FIGURES SHOW A “POLARITY DIAGRAM” WITH RESPECTIVELY A SET OF SCENARIO CONCEPTS AND RELATED CLUSTER OF CHARACTERISTIC PRODUCT-SERVICE SYSTEM IDEAS.

- > they do not intend to sell what is presented on the image but invite the viewer/user to take part in the fiction represented;
- > they project a new situation the users have never encountered before.

The *System Map* shows the necessary organisation between the partners providing the solution.

- > system boundaries,
- > main and secondary stakeholders,
- > physical, informational and financial flows;
- > the core performance of the solution and any secondary functionality.

The *Interaction storyboard* shows the performance of the proposed solution along a horizontal time line. It is the translation of an event, which takes place in space and time, into a sequence of static images, with an explanatory caption under each one. In this case it is based on a series of images representing the significant steps of the interaction between the user(s) and the provider(s) of a product-service.

Compared to a classical story-board, this *interaction story-board* shows not only the experience of the final user, or the “front office” of a service, but also the dif-



ferent levels of interaction among the various stakeholders along the performance of the solution. Thus, several lines of interaction are vertically distributed to show the synergies and connections between different providers and users as defined from the system organisation map.

B.3.4 SOLUTION ELEMENTS BRIEF



FIGURE 25 ____ THIS INTERACTION STORY-BOARD SHOWS DIFFERENT LEVELS OF INTERACTION BETWEEN A CORE PARTNERSHIP PROVIDING THE ORGANISATION OF THE GENERAL SOLUTION, TO A LOCAL PROVIDER THAT MANAGE VARIOUS POINTS OF DELIVERY... WHERE FINALLY THE USER INTERACTS WITH THE SERVICE. FOR EACH SOLUTION STEPS, THE INTERACTION STORY-BOARD ALLOWS COMMENTS, POSSIBLE IMPLICATIONS, REQUIREMENTS ETC FOR EACH PARTNER TO BE RECORDED.

The *Solution element brief* breaks-down the product-service system into *elements*, relevant to the different partners, which have to be combined to deliver the total solution. Its aim is to visualise simultaneously the connections among elements and partners, in order to design, build and deliver solutions by showing:

- > all solution elements that are necessary to perform the targeted product-service system (horizontally);
- > the different options for each solution element (vertically);
- > the briefing of each partner (which solution element is already in its core business, which may be implemented and which connection with another solution element should be carefully considered);
- > the solution elements that have to be performed by specific partners.

B.3.5 STAKEHOLDERS MOTIVATION MATRIX

The *Stakeholders' motivation matrix* is filled in by the partner stakeholders, to show the actors and their intentions, their motivations for being involved, their potential contribution to the partnership and expected benefits from it. It is also a way of describing the possible motivations of any other hypothetical partners neces-

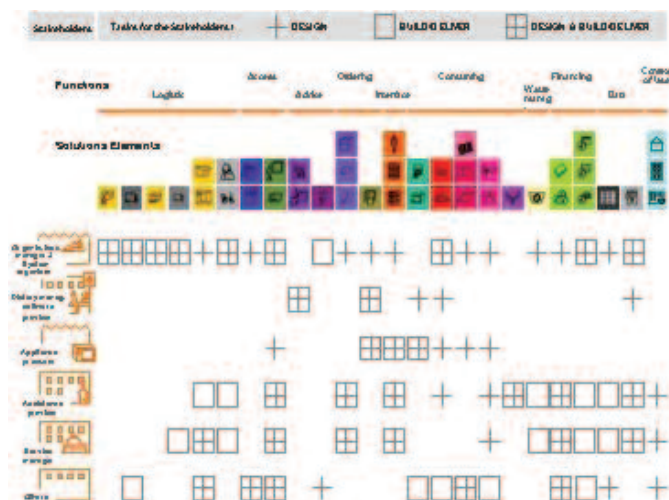


FIGURE 26 ____ SOLUTION ELEMENT BRIEF SHOWING THE BREAK DOWN INTO SOLUTION ELEMENT AND THEIR ATTRIBUTION TO EACH OF THE ACTORS INVOLVED.

	Strategic	Meat producer	Application prod.	Software prod.	Pack. prod.	Platform
Strategic	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage?
Meat producer	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage?
Application prod.	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage?
Software prod.	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage?
Pack. prod.	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage?
Platform	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? 	<ul style="list-style-type: none"> How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage? How can we use the resources of the partnership to create a competitive advantage?

FIGURE 27 ____ FINAL STAKEHOLDERS MOTIVATION MATRIX SHOWING ALL THE ACTORS, THEIR CONTRIBUTION AND BENEFITS FROM THE PARTNERSHIP AND POTENTIAL INTERACTION BETWEEN EACH OTHER.

sary for the solution who will have to be brought into the partnership for the solution to work. (In other words it is a way of defining the characteristics of other partners who will have to be found.)

The *Stakeholders motivation matrix* shows the solution focusing on the *stakeholders'* interests. The matrix shows a checklist of motivations, benefits and contributions from each actor's point of view (including interactions between them). This is an important part of the process. It should bring out the range of motivations of the actors, including:

- > those factors that relate to their interests in evolving their current business / activities
- > what they could bring to the partnership and what the partnership could bring to them
- > their expectations for the partnership
- > potential synergies/conflicts that may occur between them

Through this matrix the solution can be improved:

- > hypothetical actors can be replaced by real ones;
- > actors contributions to the partnership and

expected benefits can be adjusted;

- > interaction between actors, synergies and potential conflicts can be investigated.

B.4. FURTHER BACKGROUND INFORMATION

B.4.1. SCENARIO ARCHITECTURE

Scenario building entails focusing on three fundamental 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 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 the intention of building it - what the premises were, what surrounding conditions were assumed 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 the capacity to bring about the scenario they anticipate.

B.4.2. APPLICATION OF SCENARIOS

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.

> greater the number of actors who that will 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.

3 DIFFERENT NATURE OF SCENARIOS

The kind of scenario varies according to its motivation,

and the way it is built depends on in which phase of the design process it will be applied.

Policy-Orienting Scenario (POS)_ this is the vision of a context as it might appear in the presence of certain (economic, social and cultural) dynamics, and/or should certain (economic, social and cultural) policies be implemented. It supports decision making in the face of complex and/or participatory institutional or industrial options. In general, several sets of POS present themselves, corresponding to the various policies that could be enacted.

Design-Orienting Scenario (DOS)_ this is a (motivated and many-faceted) vision of a context as it might appear in the presence of certain (economic, social and cultural) dynamics and if carefully defined *design choices* were enacted. It is a support tool used in design activities where different actors take part in the strategic orientation of choices. In general various sets of DOS present themselves, corresponding to different design options. This methodology can also be used in relation to both individual and whole community behaviour. In this case the “projects” that the DOS refer to are individual *life projects* or processes of *social innovation* arising out of a combination of various such individual projects.

Solution-Assessing Scenario (SAS)_ this is a vision of a design proposal and its context, which tends to highlight their reciprocal interaction. It is a support instrument used in the assessment phase of a well-defined design hypothesis. In general, single SAS are put forward that correspond to specific design proposals and their clearly defined contexts.

B.5. CASE STUDY EXAMPLE: DESIGN ORIENTING SCENARIOS AND DESIGN PLAN FORMAT: A SIMULATION OF A FOOD DELIVERY SOLUTION – PUNTO X

This case show the use of some of the Design Plan tools within the industrial implementation

phase of the E.U. HiCS (Highly Customised Solutions) research project. The HiCS research project aimed at developing a methodology facilitating the constitution of partnership of companies and institutions able to provide industrial solution customised to different contexts of use.

The implementation phase was targeted at contexts-of-use characterised by a reduced access to food (elderly, handicapped people but also people with temporary mobility or time limitation such as patient in hospital or rushing workers). The Italian firm BioLogica running the network of Natura Ride biofood shops in franchising start a flexible delivery service of prepared biological food called Punto X. The examples presented below show the use of some of the Design Plan format during development process of the Punto X product-service system and the constitution of the partnership of companies able to provide it.

THE SYSTEM MAP SUPPORTING THE STRATEGIC CONVERSATION BETWEEN POTENTIAL PARTNERS

The “system maps” have been used by the Punto X team to communicate and discuss solution all along the partnership building process. They constitutes a synthetic view of the architecture of the platform, showing all partners involved, defining their role and relationships in the process of performing the solution. Their modular and up-gradable characteristics make them convenient tools to support strategic conversation between potential partners.

At early stage of the concept generation, the comparison of the maps help to “filter” which solutions are based on similar platforms and may be clustered and which solution requires a too different platform and should be excluded. At the final stage of the partnership building, the superposition of the maps as layers allows to communicate how the same partnership is able to perform different solutions with the help of specific partners.

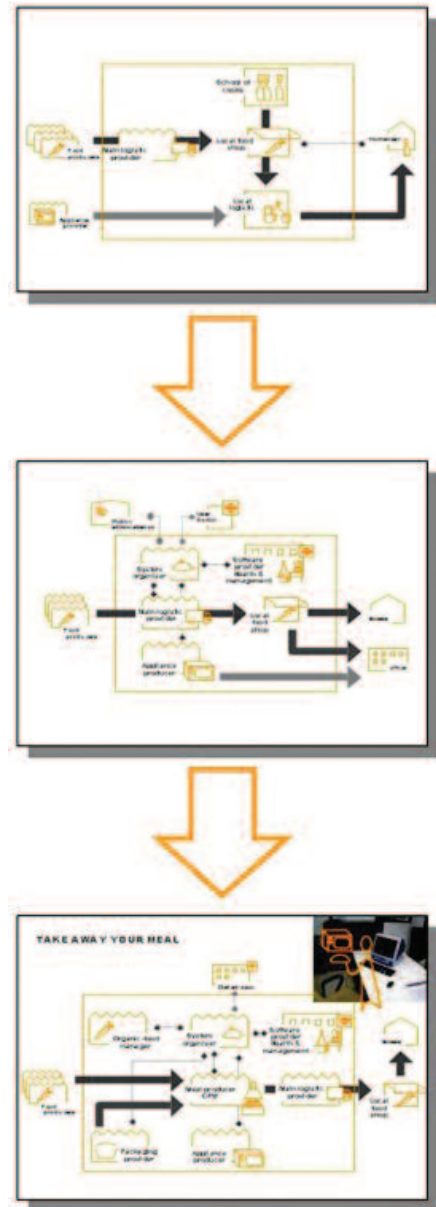


FIGURE 28 __ SHOWS SNAPSHOTS OF “SYSTEM MAP” AT MAIN STAGES OF THE ITALIAN PARTNERSHIP INVOLVEMENT AND ESPECIALLY HOW:

- THE DRAFT OUTPUTS OF THE WORKSHOPS PROGRESSIVELY ENRICH WITH THE PROGRESSIVE DEFINITION OF THE PLATFORM;
- ARCHITECTURE ADAPTS ACCORDING TO THE NECESSITY OF APPROACHING POTENTIAL PARTNERS;
- INTERMEDIATES MAPS “FREEZE” THE STATE OF THE ART OF THE PARTNER INTERESTS AT EACH STAGE OF THE DISCUSSION IN A SORT OF INFORMAL “VISUAL CONTRACT”;
- THE FINAL MAP IDENTIFIES THE NATURE, POSITION, ROLE AND INTERACTION OF THE PARTNERSHIP..



FIGURE 30 ___ DETAIL OF THE PUNTO X SOLUTION ELEMENT BRIEF FORMAT.

ner is involved:

- > in producing / providing a solution element: square sign;
- > in designing the solution element: cross sign;
- > in both providing and designing: square + cross sign;
- > in providing nor in designing the solution: no sign.

The zoom on the solution element brief in this figure shows as illustration the specific question of the production of food in Punto X:

> all the partnership is involved in the design of the food element and all actors are supposed to interface themselves in this task (Biologica should specifies the biological qualities of the food, the “health software provider” should integrate the food characteristics in its diets program and the “cooking appliance producer” will specifies the food according to the cooking devices he will provide);

> the production of the food is not done by one of the actor: although food is a core element in the platform, it’s a local resource and therefore, it will depend from a series of local producers. Some of them will be associated in the initial design phase and all the other will only receive specification form what they have to provide to the system.

THE STAKEHOLDER MOTIVATION MATRIX SHOWING SYNERGIES BETWEEN PUNTO X PARTNERS

The “platform motivation matrix” allow to explore the potential relationship between the partners within the collective scope of building a platform and outlines the modalities of the future business plan of Punto X. It shows in particular if possible synergies / conflicts may occur between partners taken two by two. The matrix explores systematically each couple of actors in their business relationships: what they

should provide and gain participating to the new platform but also what could be the incidence on their current business.

Figure 31 shows for example a focus in the Stakeholders motivation matrix of Punto X and illustrates the relationships between the “appliance producer” and the “health software provider”. Their respective intentions in taking part to the platform (boxes at the crossing of an actor to himself) appear distinct: respectively “find new application fields for advanced cooking and preserving solutions” and “enter non-medical markets and open and finalise new areas of research”. Their specific relationships within the partnership shows more clear synergies as the health software provided by one could be directly hosted in part by the appliance produced by the other.

This module has been collectively written by the 3 authors but F. Jégou has written A; B/1; B/2/a,b,e; B+; C; Ezio Manzini has written A+ and Anna Meroni has written B/2c,d; C+/I

Manzini, E. and Jégou F., “The construction of Design-Orienting Scenarios”, Final Report, SusHouse Project, Faculty of Technology, Policy and Management, The Netherlands, Delft University of Technology, 2000.

Jégou F. Manzini E. Meroni A. “Desing Plan, a design toolbox to facilitate solution oriented partnership” in “Solution oriented partnership, How to design industrialized sustainable solutions” edited by E. Manzini, L. Collina, S. Evans, Cranfield University, 2004

ISBN 1861 94 10 64

for more detail on sustainability dimension, see PSS module.

The Design Plan tools as been developed within the HiCS (Highly Customerised Solutions) European research project funded by the Growth Programme / European 5th Framework by F. Jégou, E. Manzini, A. Meroni. and the MEPSS (Methodology for Product Services Systems) European research project funded by the Growth Programme / European 5th Framework by F. Jégou, D. Sangiorgi, E. Pacenti.

European Commission “GROWTH Programme, Research Project HiCS,

Highly Customerised Solutions (HiCS) Solution-oriented design, production and delivery systems, N° GRD1-2000-25516

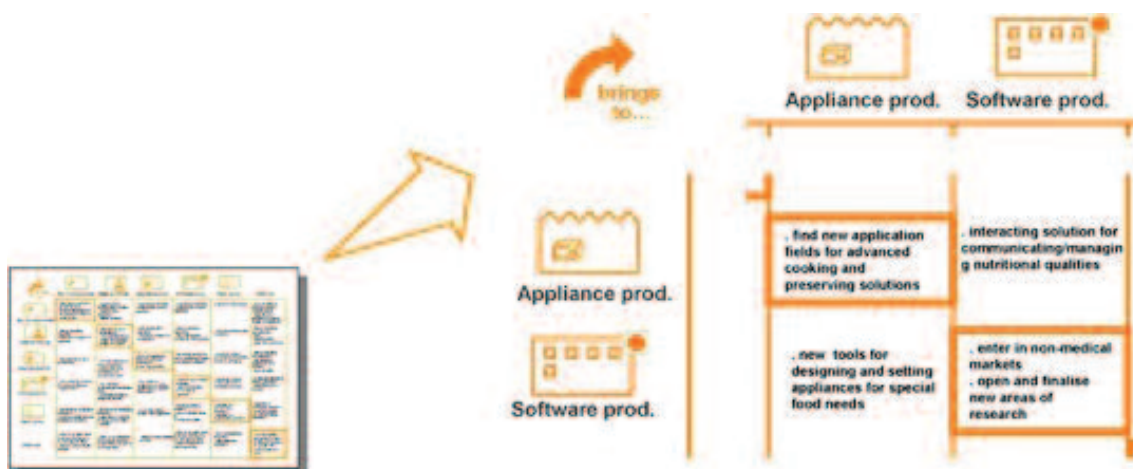


FIGURE 31 — DETAIL OF THE STAKEHOLDER MOTIVATION MAP OF PUNTO X.

