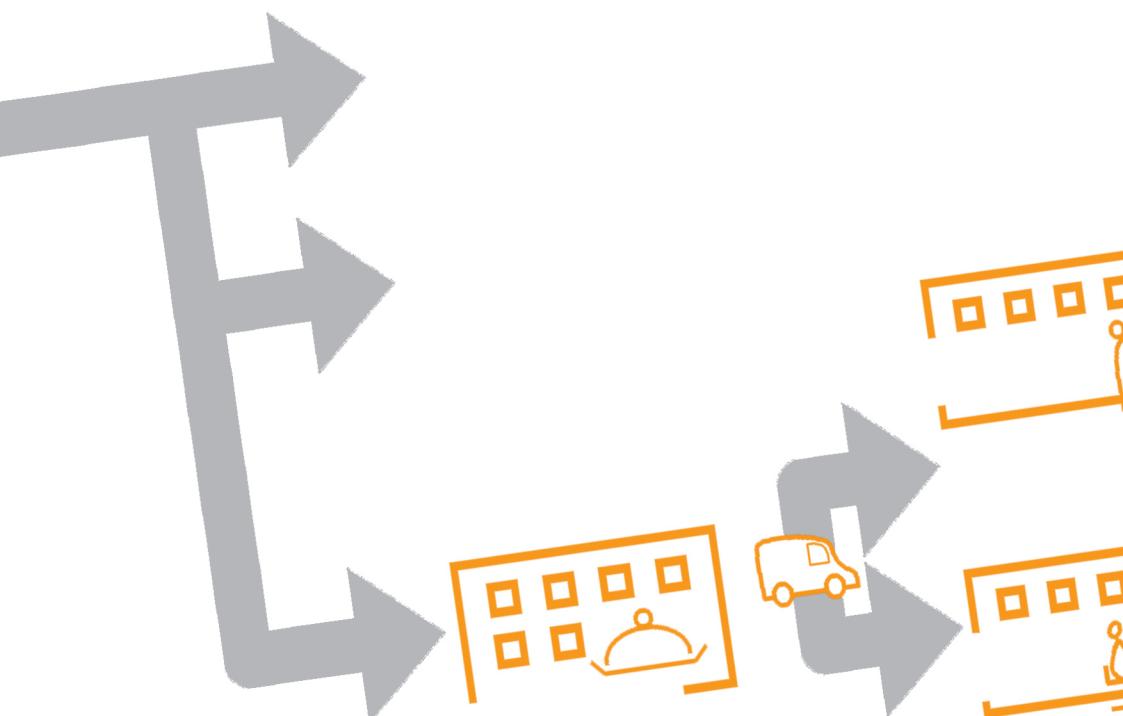


Edited by
E. Manzini, L. Collina, S. Evans

Solution oriented partnership

How to design industrialised sustainable solutions



European Commission GROWTH Programme

ISBN 1861 94 10 64
2004 Cranfield University
First edition: March 2004

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Printing:

Oscar Press, Milton Keynes, UK



Special thanks to:

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European Commision “GROWTH Programme” Research Project HiCS,
Highly Customerised Solutions (HiCS) Solution-oriented design, production and
delivery systems, N° GRD1-2000-25516

Executive summary

Ezio Manzini

Solution Oriented Partnerships develops dual themes. The main theme concerns the building up of patterns of collaboration between different social players resulting in the *co-production of sustainable solutions*. Given their nature, these solutions are known as *Partner Based Solutions*. The complementary, yet more original, theme relates to the way in which these “result-orientated collaboration patterns” are able to give rise to solutions that are highly contextualised (i.e. sensitive to and appropriate for the specific characteristics of target contexts) and equally highly effective and efficient (i.e. able to offer high quality results while minimising the economic and environmental costs). In developing these themes, this book also aims to promote a new concept of industrialisation: an *advanced industrialisation* with the capacity to get a multiplicity of players together to collaborate in sustainable ways, with sustainable objectives, operating on different scales and following different rationales. This is industrialisation based on a network economy, context specificity, the enterprise of local partners, and the active participation of end users. This book proposes the Solution Oriented Partnership Methodological Framework (SOPMF) as a methodology for achieving this advanced industrialisation. This book deals with issues linked first and foremost with research and projects on *eco-efficient services, product-service systems* and, more generally, the *function-based economy*. Within this main stream of reference, the book develops three themes in particular: *partnership building, focus on context-of-use*, and the definition of *system architecture*. In this way it links up with other lines of research and other disciplines, including: ethnographical research and the sociology of consumption; innovation management and the theory of systemic innovation; strategic design, service design and scenario building methodology.

This book arises from the activities of a group of research centres and European enterprises, in progress from 2001 to 2004 and funded under the European Community 5th Framework Programme. The work, known as *HiCS, Highly Customerised Solutions*, takes the form of an *action research* project, the specific subject of which was “*food for people with reduced mobility*”. The results of the design component of this work are presented in the book “*Food Delivery Solutions*” published in parallel to this.

Solution-orientated partnerships is organised in two parts.

The first part, *Themes*, presents issues that are particularly relevant when trying to understand the nature of partner based solutions and their industrialisation. Problematic issues are introduced concerning; the definition of contexts-of-use, partnerships and ways of building them, system architecture and its possible shapes and forms, enterprise strategy, the relationship between the local and global dimensions of solutions, the sustainability of the solutions and the system innovation needed to realise them.

The second part, *Tools*, presents new or adapted methodological instruments for the conception and development of industrialised sustainable solutions. They form a general methodological framework with which to facilitate and orientate the entire planning process (*Solution Orientated Partnership Methodological Framework*) and a series of more specific instruments including: *the Solution Scan*, *the Design plan*, *the Benefits plan*, *Partnership Building*, the methodology for investigating context-of-use, and the methodologies for environmental, social and economic assessment of the proposals put forward.

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Solution-oriented partnerships: introduction

Ezio Manzini

New demands

Contemporary society is changing rapidly and profoundly. As part of this change we can see a demand for new services, which differ in many ways from those formulated up to now. For example, when considering the more *industrialised* countries, how do we respond to the growing demand for social services arising from a population that is ageing amidst a general transformation of the family and its role? How can we provide a new generation of residential services that meet the requirements of the increasing number of people who live alone, adopting totally de-structured lifestyles and rhythms? How can we provide multi-modal mobility solutions that can overcome the crisis in transport models based on individual car use? Or again, when considering society in *recently industrialised* or *not yet industrialised* countries: how do we create solutions able to meet the social demands they express without resorting to the socially destructive and environmentally unsustainable models of industrialisation hitherto put forward?

When addressing these demands, and the nature of the services they require, it becomes apparent that in most cases these are complex and contextualised services. In other words they require the collaboration of various players (private firms, public institutions, voluntary associations and, directly or indirectly, the end users themselves). Careful observation of society and the signs of innovation it shows tells us that interesting examples of solutions, able to offer services of the complex, contextualised kind mentioned, do exist and are already operating in various fields. However, another interesting aspect also emerges from this examination: in general, these solutions are realised ad hoc, case by case, according to a decidedly “pre-industrial” logic.

Solution Oriented Partnerships starts from these concrete observations and proceeds to put forward ideas and useful instruments for the development of solutions that can be described as “*advanced industrialised solutions*”: solutions based on collaboration between social players and that give rise to highly *contextualised* services (services that are sensitive and appropriate to the specific characteristics of the contexts in

which they are provided), which are also equally effective and efficient (able to offer high quality results while minimising economic and environmental costs).

In developing these themes, this book aims to promote a new idea of industrialisation: an *advanced industrialisation* with the capacity to get a multiplicity of actors together to collaborate in sustainable ways, with sustainable objectives, though operating on different scales and following different rationales. This is industrialisation based on a network economy, context specificity, the enterprise of local partners, and the active participation of end users.

Motivation

The social and environmental problems that lead to the demand for these complex, contextualised solutions can only increase in coming years. This is true for industrialised countries and, even more so, for those that are not yet industrialised. Consequently these new demands will act as a powerful innovation driver.

Already today the issue of social services in the ageing industrial societies, and that of the so-called “emerging markets” in those not yet industrialised, are beginning to interest companies. The aim is to establish new business models able to transform these potential demands into new, far-reaching market opportunities. It is still difficult to foresee what this interest can actually lead to. However, for various social and environmental reasons, it is to be hoped that the result will be a new generation of sustainable solutions based on collaboration between different social players, which will give rise to highly *contextualised* services that are both highly *effective* and highly *efficient*. Solutions are needed that lead to services able to meet the new demands while improving the quality of results, reducing the economic and environmental costs and sustainably promoting local resources.

The diffusion of information and communication technology, and the movement towards a service and network economy, are phenomena that have been seen by many to hold great social and environmental potential. However, up to now, there have been few opportunities for the realisation of this potential. The concept of Partner Based Solutions referred to here, can be considered as a way out of this impasse, a way of exploiting new technology and of experimenting with network potentiality. Partner Based Solutions could form a useful reference model for economic activities based on new forms of relationship between private and social

enterprise, between local situations and global bodies, between bottom-up and top-down activities. They can therefore add consistency to the model of advanced industrialisation mentioned above and, in our opinion, are much needed.

References

The issues dealt with in this book are linked with research projects developed recently around the themes of *eco-efficient services*, *product-service systems* and the *function-based economy*. By now, the results of these research projects together constitute a body of important, coherent knowledge. Although different research traditions have led to the use of different categorisations and terminologies (which clearly leads to some misunderstanding and further confrontation and debate), as a whole they have brought to light some fundamental issues such as: the need to consider the sustainability of the production and consumption system on the scale of *product-service systems* (and not only at the level of single products and services); the concrete possibility of doing so by promoting new solutions (or, to use other terminology, new product-service systems); and the *localised, partner-based* nature of the most frequently imagined, sustainable solutions. Within this main stream of reference, this book develops three themes in particular: *partnership building, focus on contexts-of-use*, and the definition of *system architecture*. To do so it intercepts, and relates to the central theme, other disciplines and lines of research: the characterisation of users and their contexts-of-use (with particular reference to ethnographical research and the sociology of consumption); the management of decision making and innovation processes (with innovation management and the theory of systemic innovation); and complex system planning (with strategic design, service design and scenario building methodology). Finally, the book refers indirectly to a vast corpus of study and research concerning a more general vision of the reality we face and on which we wish to operate: research relating to the spread of connectivity, the characteristics of a network society and its economy, and its implications in industrialised and non-industrialised or recently industrialised countries.

Innovative contributions

The book suggests ideas and instruments for development through the advanced industrial rationale of Partner Based Solutions. Its most original contributions are:

- A general methodological reference framework (the *Solution Oriented Partnership Methodological Framework*) that accompanies the entire planning process and outlines three different aspects: the form of partnership, the context-of-use, and the required solution architecture.
- A series of tools for the management of specific activities connected with the definition of Partner Based Solutions. Some tools are totally new, like the *Design plan* and *Solution Scan*, others are original adaptations of existing instruments, like the context analysis, and environmental and social evaluation methodologies.
- The introduction of the complementary concepts of *solution platform* and *meta-context-of-use*: two key ways to find the necessary compromise between the demand for solution contextualisation, and the need to supply them in the most effective and efficient way possible.

Besides its main content, the book also sets out to contribute to solving certain more general problems regarding the evolution of the development model and the forms of industrial production. The themes and instruments it puts forward can be seen as ideas and tools for “operating in the network”: in other words to promote the convergence of a multiplicity of players towards shared objectives and to build solutions that are effective, efficient and contextualised.

Background to the book

This book arises from the activity of a group of research centres and European enterprises, in progress from 2001 to 2004 and funded by the European Community 5th Framework Programme. The work, known as *HiCS, Highly Customerised Solutions*, took the form of an *action research* project where theoretical and methodological reflection took place alongside a real world design activities. The focus, “*food for people with reduced mobility*”, both fuelled the reflection itself and served as its testing ground. *Solution Orientated Partnerships* presents the theoretical and methodological results while the design activity is presented in *Food Delivery Solutions* published in parallel. However, this is not simply a research report. It is an original work offering reflection on the activities carried out and on what still needs to be done in order to develop sustainable solutions in an advanced industrial rationale.

Part one: themes

Introduction to themes

Luisa Collina and Stephen Evans

This book proposes that:

New types of collaboration between different actors result in solutions with significant properties – solutions that are sensitive to context while delivering environmental and economic efficiencies.

The following *themes* explain different trends that have converged to make Partner-Based Solutions feasible today.

Often rooted in a traditional subject-discipline, the broader context for each theme is explained in terms of their history or traditional positioning. Each author brings to the surface of a complex subject, those aspects of the theme that offer potential for convergence toward a Solution Oriented Partnership. The essays explain how these key new concepts, or transformations of existing concepts, are relevant to SOP formation, and how they offer opportunities for designing sustainable futures.

The contemporary position of the Solution Oriented Partnership, is placed within a broad historical context of *Globalisation, Localisation and Industrialisation* in the first theme. Apparently contradictory trends are shown to be available for convergence. That convergence enables the delivery of solutions with many positive characteristics, and this is taken up by the theme *Corporate Strategies* which positions Solution Oriented Partnerships within the context of business and the opportunity available in a post-industrial world that values service and personalisation.

The third theme to be explored is *Users and Society*, asking questions about the relationship between producer and user and what that means for user involvement in the collaboration that we term the Solution Oriented Partnership. The theme *Users in Context-of-Use* takes this further by asking *How can we better understand users needs*

and expectations? Moving beyond traditional market segmentation offers new ways of understanding of users' lives, which can inform and inspire the innovation process. Then **Partnership Building** explores the challenge of co-ordination between different organisations in a new working environment characterised by flexibility and movement. Yet the flexibility and movement needs structure in order to bring value to consumers, society and business, and the critical challenge of **Systems Architecture** is explored as a means to bring structure with flexibility. Finally, **Sustainable System Innovation** characterises the Solution Oriented Partnership approach by comparison to models of sustainable system innovation; and shows the reader the innovative potential of the concepts.

What we did with the themes?

This Book has been written following a co-ordinated activity to develop the concept of a Solution Oriented Partnership, with many collaborators working to create tools and methods that promoted the convergence of the themes. The themes explore the link between the proposal, our experience in using the concepts in real-life projects, and the subject fields that the concepts originated from.

These activities took place as part of the HiCS project, and involved exploring, developing and promoting three separate Solution Oriented Partnerships that devised three Partner-Based Solutions. While the tools are briefly introduced in Part Two of this book, the companion book describes the actual Partner-Based Solutions.

The focus for the three cases was '*people with reduced access to food*', resulting in real-life experiences that are not described here but they have been an important source of reflection for the theme essays.

The Solution Oriented Partnership Methodology Framework

The SOPMF is a structured, interconnected, reference framework that helps plan and implement Partner-Based Solutions. This was the primary 'tool' used to bring the many concepts and tools together in an integrated way. It is visualised as a matrix where partners, contexts and solutions generally progress from left to right:

	explore	develop	explore	develop	
partners	Solutions Promoters	Platform Providers	Planned Providers	Solutions Providers	
contexts	Contexts-of-Use	Meta-Contexts-of-Use	Target Contexts-of-Use	Specific Contexts-of-Use	
solutions	First Solution Ideas	Solution Platform Elements	Proposed Solutions	Partner-Based Solutions	

The SOPMF underlies the process by which different social players converge towards highly context-based, advanced industrial solutions; as our main problem-solving tool for setting up a system innovation project it is often referred to in the *Theme* essays and is fully described in the *Tools* section..

Getting the best from Globalisation, Localisation and Industrialisation

Stephen Evans

The Solution Oriented Partnership approach sets out a new way to see the trajectories of Globalisation, Localisation and Industrialisation. These trajectories are often seen as having their own internal logic that competes against the others, meaning that sub-optimal compromise is the only realistic possibility.

We believe that each of the three trajectories has features that are valuable to a sustainable future (while also having features that are less valuable or even opposing sustainability). This essay will try to show the valuable features of each and will explain how a new way of seeing these trajectories, through the lens of the Solution Oriented Partnership approach, can use the strength of each to create a coherent whole without compromises.

Globalisation

Globalisation is the term we use to describe the process that has resulted in corporations seeing the whole planet as a potential market, potential locations for production or potential locations for supply. Globalisation is closely linked to global businesses, though it is also a trend that has encouraged travel and better understanding of those from other countries. When viewed as a business trend, globalisation is most potently seen through global brands, where consumers from any part of the planet get the same product. Emerging from a post-World War II world, the resource efficiencies of ever-bigger businesses could deliver increasing value for money. While initially aimed at basic products, the success of globalisation now means that we can produce the most frivolous of products at a reasonable price, so increasing the proliferation of variety – more product types – while simultaneously reducing product choice – only the big brands being available – designed for everyone and managed through the media to be products that everyone aspires to – a globalisation of desire.

Globalisation has the positive benefits of global reach, being able to meet global

needs, allowing competition everywhere, keeping product cost down, concentrating knowledge and resources onto a problem, etc. With global corporations constituting 50 of the largest 100 economic entities (the other 50 being nation-states) we can also recognise the capability that globalisation has for changing how our world works. Significant change to our world of consumption, and self-fulfilment through that consumption, could come through working with global business. Business' capacity for change, and for changing the world, is arguably superior to those other economic entities tied down by the democratic imperative of re-election. They can be more decisive if selfish benefits are available.

The negative impacts of globalisation include the provision of 'me-too' or similar products everywhere. Globalisation also seeks the cheapest labour, preferring to convert expensive local (local to the product user) employment for distant cheap labour, so destroying the link between local consumption and production that can help balance a local economy. Another impact is on transport, with the cost of labour advantage outweighing the transport costs over enormous distances. Of course, the environmental impact of the transport is not internalised by these global businesses.

Localisation

Localisation is a cultural trajectory, rather than an economic one. It encourages local production with consumption as an economic tool, and recognises the importance of the community. For our well-being, humans wish to live (and work) in places that provide a 'sense of place'. Localisation has the positive benefits of local employment, and also of encouraging diversity in our activities – most clearly seen in music, dance, clothes, food, but also in management systems, architecture and in decision-making. Localised products are more likely to meet the needs and wants of members of the community, they may also be customised to your individual requirements – from meat in the local shop to a kitchen built by local craftsmen – again giving the customer what they want and increasing local employment.

But localisation has its own problems. For the end customer it may be price, with local producers being unable to compete with advanced production technology available to larger competitors. The benefit of reduced transport is of more

significance to the environment than to cost. For the local producer the problem may be access to a greater range of customers, with the bigger retailers unable to deal with small volume producers, or unable to flex their (global) specifications to source locally produced products.

Industrialisation

Industrialisation is the way in which manufacturing has created economic efficiency and made so many products available to many people at low cost. The transformation of business began with the industrial revolution when the benefit of specialism, and especially the division of labour, became obvious. Then with the availability of cheap energy and power, the ‘manufactories’ of the 18th and 19th Centuries made ever more products available to customers at a reasonable price. At the same time they broke the link that the majority of the population had between its own work and its ability to feed its family. A link that is growing ever more distant. Poor working conditions are now behind us, at least for many countries, and the personal wealth and production efficiency of industrialisation has allowed many of us to attain a material-rich lifestyle. Other advantages include the ability to invest in equipment, invest in product research and design, and the ability to invest in environmental technologies due to the concentration of production.

But industrialisation often relies on the paradigm of ‘cost, volume & standardisation’, where increased quantity of production of similar products is used to reduce the unit cost. Industrialisation advantages lie in the concentration effect, the greatest advantage being in lower cost per unit produced (especially where the capital cost for appropriate manufacturing is high). So the business pressure built into industrialisation is for growth of volume, to drive down unit cost; but this needs more customers and so big, global industry dominates.

Disadvantages of industrialisation come from the same concentration logic. There is a tendency to make products that are similar for all without being exactly what anyone wants (which, in turn, means that there is little interest in uncovering local needs as these have to be ignored...), transport distances can be huge, and there is little loyalty or link between a (large) local employer and their community. The concentration logic of industrialisation creates concentrations in population densities around large production centres which can, in turn, create social and environmental challenges.

What is new?

The Solution Oriented Partnership approach proposes that these three trajectories are NOT CONTRARY to each other; and that in their core lies advantages that are wanted by all. For example, the low-cost production benefits of globalisation and industrialisation make many products available to many people, while localisation brings local employment and sensitivity into (locally produced) products.

The Solution Oriented Partnership proposal is an architecture that:

structures solutions to be made up of product and service elements (that can be produced in multiple locations and integrated) such that it is possible to seek global cost-efficiencies with local-delivery;

structures the needs and wants of local and global users into specific- and meta-contexts that seek global-needs and efficiencies while meeting local-needs;

structures global and local actors (being manufacturers, businesses, government, charities, etc) to enable efficient co-operation between partners; and that

structures business plans to ensure that all stakeholders can benefit. The innovative aim of a Solution Oriented Partnership is to gain the advantages of Globalisation, with the advantages of Localisation, with the advantages of Industrialisation.

The Solution Oriented Partnership proposal rejects the logic of trade-off and competition between the globalisation, industrialisation and localisation trends and shows that an ‘advanced industrialisation’ can be structured that brings actors together to design and deliver solutions that work at both local and global scales.

The Solution Oriented Partnership can be seen as an evolution of the process of specialisation and integration that has seen the world become more divided into specialist functions, and that require businesses to rely on extended supply chains to actually get products to consumers. This results in innovation itself being organised around each part of the system.

However, by directly involving non-business actors, by having efficient ways to involve local actors, and by involving and understanding consumers in their own context, the Solution Oriented Partnership proposal is actually a revolution. A revolution that enlarges the design task, far beyond the system of production-delivery-use, to the system of consumer context, partners and solution architectures. Through the active design of this greater system the synergies between globalisation, industrialisation and localisation become available. The challenge is to make such

a system design task reasonable. In a Solution Oriented Partnership the design/innovation task is organised around the much wider scope of a system. Here the process of specialist design creating partial efficiencies is thrown away as being inappropriate and ineffective, and we move another step towards a society of design where all actors take part in the design of society.

Experience, exposure and extension

Solution Oriented Partnerships work. It is possible to bring these apparently opposing trajectories of our modern world together and to do so in a manner that offers benefits to each trajectory, to the many stakeholders and to our journey toward sustainability. But this experience of Solution Oriented Partnerships and the resulting Partner Based Solutions is limited in scope and quantity. We have found that potential partners can understand this proposal and are willing to challenge the current paradigm by following the novel logic of the Solution Oriented Partnership approach. The challenges in operating to a different logic are not small, but neither are they impossibly difficult.

The problem now is one of exposure; we need many actors motivated and capable of becoming part of a Solution Oriented Partnership, and this will only happen when they are convinced of this new logic, its benefits, especially the benefits for them directly, and can see a clear path and plan to achieving those benefits while working with others.

This final extension of the logic beyond the current pioneering partners may signal an important change to the way that we see the trends of globalisation, localisation and industrialisation.

Corporate Strategies

Tommaso Buganza, Alessio Marchesi, Roberto Verganti

Corporate Strategy is changing

In the turbulent market of today, companies are facing pressures from every direction. While customers demand more and more value added and personalized solutions to answer their explicit and implicit desires, and legislative bodies impose strict quality standards on the products and services offered, companies find themselves competing in an increasingly interconnected and global marketplace. They compete in a marketplace that has changed the traditional meanings and definitions of what constitutes a sustainable competitive advantage.

What worked in the past no longer applies to the present, let alone the future. Companies that had a competitive and stable position within a given industry find themselves competing with outside and foreign companies they never would have thought would become direct competitors. To add to this, these new competitors are actually succeeding.

Thus, companies are currently facing the need for more efficient strategies to compete in the worldwide arena as well as the need to be more effective in answering customer needs.

Satisfying your demanding customer's needs while increasing your firm's efficiency is now possible:

The Solution Oriented Partnership approach SHIFTS THE TRADE OFF between EFFECTIVENESS and EFFICIENCY

Be more EFFECTIVE: Satisfy your customer

Today's production and consumption patterns ask for increasing levels of customization within a framework for higher degrees of sustainability.

The traditional concept of customization, with its (superficial) product variations, no longer adequately responds to the needs of a society that is increasingly characterized by complex structures of needs that ask for increased wellbeing

and economic growth, health, cultural and social empowerment, as well as environment sustainability. More specifically, modern markets are no longer asking for customized products for specific clients, but asking for solutions: combinations or systems of products, services and communication elements that enable users to satisfy their needs and desires. Currently, every customer satisfies his/her needs for solutions through an ad hoc mix of different products and services that create what is commonly known as a DIY (Do it Yourself) Solution. Thus, a great opportunity exists: designing a system of elements (and not single products as is done most often today) that converge towards the satisfaction of customer needs; in other words, the development of solutions. The development of such personalized and contextualized solutions is built on recent theories of solution design, service design, and system design.

A personalized solution is a solution that may be configured to satisfy the needs of a specific customer. However, a personalised solution must not only satisfy the needs of its user but also the needs of its stakeholders (i.e. those actors and entities that, directly or indirectly, interact with the solution). A contextualised solution is a solution that fulfils the needs of a customer within his/her context-of-use. By context-of-use we mean the physical and social space that constitutes the environment in which the solution will be used. Recent trends in marketing and design have highlighted the importance of looking at customers within their context-of-use (especially when one has to design a personalized offering), since this is the locus where actions take place and where the specific customer's needs emerge. Thus, the trend is clear:

Satisfy your customer by offering them a:

Partner Based Solution.

A Solution designed to achieve high degrees of personalisation, customisation and contextualisation.

Be more EFFICIENT: Build partner-based solutions

The major challenge facing companies that want to develop these types of solutions is to design a Partner Based Solution in a cost-efficient way. Customers have always developed DIY solutions to solve their problems individually. The purpose of a

Partner Based Solution is not to substitute the customer's capability to arrange solutions, but to provide customers with better and cost-effective ways to achieve their desired results. Hence, the Solution Oriented Partnership approach represents for solutions what mass production is for standard products, and mass customization is for personalized products. In other words, a Partner Based Solution represents the movement from craftsmanship in solution delivery (i.e., the arrangement of a solution made by the user or by a company specialized in tailor-made and expensive solutions) to industrialization in solution design (i.e., the delivery of a solution that has been designed according to an advanced industrialization rational).

Turn yourself into an Industrial Craftsman

Obviously cost-efficiency is related to the final number of solutions one can deliver. Yet, to consider each customer inside his/her specific context-of-use may lead to the creation of one-of-a-kind solutions making the industrialization (and therefore the cost-efficiency) virtually unachievable. Thus, it is crucial not to design a specific solution for a specific customer in a specific context-of-use, but rather an array of personalized and contextualised solutions. In order to design a partner-based solution, it is necessary to consider the meta-context-of-use of the solution (i.e. the array of contexts-of-use that share some common characteristics and that represent a single, highly personalized and customised solution).

Think about your Meta Customer

Design for a Meta-context of Use

Another implication of looking at industrialized solutions is that, apart from in very rare and peculiar cases, these can be designed, produced and delivered only by combining several different competencies, capabilities and assets. Consequently, it is unlikely that a single company will own all the knowledge and physical assets necessary for the development of industrialized solutions. It is more likely to see the convergence of several different actors, belonging to different industries, supply chains and with different strategic objectives, to offer industrialized solutions. An industrialized solution therefore needs a Solution Oriented Partnership: a network of stakeholders that work in unison to offer the industrialized solution. Note however,

that a Solution Oriented Partnership is not made up of normal relationships like those found along single supply chains within a specific industry. A supply chain usually produces a specific product. An industrialized solution instead is a system of elements with completely different characteristics that are typically designed by companies operating in different industries and that typically do not talk to each other. Rather than being concerned only with vertical relationships (along the supply chain), an industrialized solution needs a network of vertical and horizontal relationships. These relationships may also require new rules and procedures given that some of the contributing stakeholders may be non-industrial or public sector partners (i.e. customers, social services and local authorities).

Build a Solution Oriented Partnership around YOU

From a Corporate strategy perspective, being part of a Solution Oriented Partnership (and therefore delivering a solution) offers multiple benefits. Firstly, solutions compete on attractiveness: one can be better off answering customer needs through solutions due to the fact that a solution's elements are designed to seamlessly interface with each other and therefore may constitute a more effective response to a specific need. Moreover, focusing on the meta-contexts-of-use, the solution can also allow the distribution of investment among stakeholders allowing a more cost-effective strategy in the delivery process. Even more important, however, is that these competitive advantages can be highly defendable for at least two reasons. First, stakeholders contribute in different ways to the value creation. Some of these partners may bring to the partnership specific and unique assets crucial for the solution (e.g. local authorities may facilitate a contact with hospitals) that translates into the Solution Oriented Partnership's ability to cut out any other alternative solution: a concept similar to specific unique asset, but with the crucial difference that, within a Solution Oriented Partnership these assets may be owned by either non-industrial and/or industrial partners. The second reason lies in the fact that the value of a solution is greater than the sum of the values of the individual assets each partner brings to the solution.

Generating Corporate Strategies

The value of an industrialized solution depends on the relationships among

partners, on their will to work together, on their reciprocal trust, and on their knowledge of each other's processes and procedures. Thus, to build solutions does not simply mean to find a group of partners with similar assets and competences. It means making them work together integrating *corporate agendas* and *soft skills* that make solutions inimitable, while collaborating in defending the partner based solution(s) from potential internal and external threats. Therefore, to design and build an industrialized solution from a corporate perspective, each partner must be able to evaluate its strategic position and those of its partners within the Solution Oriented Partnership throughout the life of the partner based solutions.

| Integrating corporate agendas, soft skills and collaborative efforts: the | | basic building block for partner base solution development |

This means that each partner must look at how the Solution Oriented Partnership will develop the partner based solutions from a system, as well as an individual firm perspective, so as to be able to decide: (1) whether or not to invest in the alliance and (2) if one decides to invest, how much to invest in it.

Why is this an important consideration that needs to be evaluated when developing partner based solutions? Simply, the reason is that each player collaborating in the design, development, implementation and delivery of industrialized solutions through the Solution Oriented Partnership approach must find it strategically and operationally viable as well as economically, socially and environmentally profitable in order for them to participate. Otherwise, they may as well go home and develop single products for DIY solutions.

Evaluating partner-based solutions

How can a firm evaluate this opportunity from the perspective of its own corporate strategy? The answer is in the development of a partner based solution business planning process that is strategically divided in a top down and bottom up approach so as to look at the planning process from both a system and firm level perspective. The focus of the system level business planning is on evaluating the viability and profitability of the partner-based solution as a whole: it looks at the revenue model that lays at the base of the solutions and analyses its relevance within the marketplace. The firm level business planning, on the other hand, determines

the viability and profitability for each firm that decides to invest in the Solution Oriented Partnership and related solutions. This latter business plan is where each firm's corporate strategies are designed so as to be able to better negotiate the most profitable position within the Solution Oriented Partnership. To support the firm in this evaluation, the firm level business plan is both a multi-criteria and a multi-stage business plan. This means that each firm can not only base its decision of whether or not to invest in the opportunity via evaluating multiple criteria, but it can also make progressive decisions evaluating the same criteria in different moments in the evolution of the Solution Oriented Partnership so as to modify its course of action toward the most appropriate corporate strategies.

If we focus on the multi-criteria portion of the decision to invest or withdraw from a partner based solution business venture, each company involved in the partnership must evaluate the balance between its internal payoffs, the probability of opportunistic behavior on behalf of some of the partners, and finally the external payoffs it expects to gain from being part of the partner based solutions. Each point will be better explained below.

Internal payoffs

What does it mean to evaluate the internal payoffs of investing in a Solution Oriented Partnership business venture? Firstly, we define an internal payoff as the potential revenue that a company can bring home from investing in the Partner Based Solution. To evaluate this, each company must be able to quantify or qualify:

1. The forecasted revenue potential of the solutions.
2. The strategic position the company holds in the Solution Oriented Partnership. This is determined by considering how the company's relative dedicated investments in location specific or asset (tangible or intangible) specific investments affect the companies overall revenue potential within the partnership. Moreover, it involves assessing how their relative size compared to other partners may effect their position within the partnership. Finally, it also means evaluating how their complementary assets' strategic relevance relative to those offered by the other partners effect and determine the revenue generated by the partner based solution.

3. The degree and probability that other partners will behave opportunistically undermining the overall Solution Oriented Partnership's revenue potential, and consequently each individual company's internal payoff and strategic position within the partnership

Opportunistic behavior

Opportunistic behavior is defined as being either Proactive or Passive Calculated Self-Interest driven, where Proactive calculated self-interest opportunistic behavior is a classification that houses all forms of opportunity and incentive based behaviors that a partner can manifest where they act deceitfully by proactively taking advantage of certain circumstances for individual and personal gain rather than for the overall benefit of the Solution Oriented Partnership as a whole. A classic example would be one member's development of a strategic alliance with other companies outside the Solution Oriented Partnership that could threaten its survival and/or profitability. Passive calculated self-interest opportunistic behavior, on the other hand, comprises all the other forms of opportunity and incentive based behaviors related more to the level of commitment, dedication and responsibility orientation towards activities that need to be carried out in order to guarantee the successful development and implementation of the Solution Oriented Partnership business venture. A typical example of passive calculated self-interest is when a partner dedicates less time and resources than it should for the successful development and implementation of the Solution Oriented Partnership. This, in turn, will not only affect the overall probability of success and profitability of the entire Solution Oriented Partnership, but will also affect each member's relative strategic position within the partnership.

External payoffs

What does it mean to evaluate the external payoffs of investing or leaving a Solution Oriented Partnership business venture? External payoffs are the potential revenues (costs) incurred by a partner that either invests or disinvests from a Solution Oriented Partnership venture that result from activities external to the solutions. In other words, a partner may not only gain or lose from activities internal to the Solution Oriented Partnership, but may also gain or lose from potential activities

that lie outside the boundaries of the partner based solutions. For example, a member firm may be able to take advantage of another member firm's brand equity, competency and/or technologies in business ventures that lie outside the Solution Oriented Partnership boundaries. Therefore, to better evaluate and quantify the extent of external payoffs, each company should identify and quantify the typical payoffs that may arise from the development of strategic alliance or partnerships with other firms. The main externalities that can exist are:

1. Development of parallel markets which typically occurs when a partner feels that it can take advantage of the use of a technology, component or sub-product of the industrialized solution in a market that runs parallel to the chosen target market of the partner based solutions.
2. Taking advantage of potential spillovers. As the term suggests, spillovers are leaks that may arise from the collaboration between partners in the design, development, implementation and delivery of the proposed partner based solutions. In particular, the collaborative nature of the Solution Oriented Partnership offers the possibility for partners to develop, exchange and transfer assets between themselves in a more fluid manner. The three main types of spillovers are competence-specific spillovers, technology-based spillovers, and brand equity based spillovers.

What is important to note is that these external payoffs may positively and/or negatively effect the strategic position and therefore the overall decision to either invest or disinvest from the Solution Oriented Partnership venture. Consequently, when determining the effects that these externalities may have on a corporate strategic decision, each company must identify the positive or negative impacts that each type of externality may have, the probability of their occurrence and finally their connection with internal payoffs and potential opportunistic behavior related to the partnership.

Balancing partnership related payoffs and opportunistic behaviour is a must

Turning our attention to the multi-stage part of the decision process to invest or withdraw from a Solution Oriented Partnership business venture, each company involved must re-evaluate its relative payoffs against the degree and probability of

opportunistic behavior of each partner in the Solution Oriented Partnership at different key moments in the development of the venture. In particular, there are 4 key moments that should prompt a business planning re-evaluation at the firm level:

1. The introduction of new participants to the Solution Oriented Partnership. Every time a new partner is integrated within the Solution Oriented Partnership, it is paramount that the existing members re-evaluate their individual strategic position so as to safeguard their investments/payoffs against potential opportunistic behaviors. This situation will typically arise whenever there are major modifications made to the solution design or scope. The introduction of new partners is typically an iterative event that occurs until the partnership feels comfortable with the number and division of responsibilities and risks between partners.
2. Upon reaching predefined milestones defined in the Solution Oriented Partnership methodology related to the evolution of the various solutions. These milestones differ from the introduction of new participants given that not all milestones suggest the introduction of new participants. In fact, each company should evaluate their position within the Solution Oriented Partnership every time there are major modifications made to the structure and/or scope of the solutions: these evaluations will primarily be described by the most recent agreed upon documentation that summarizes the state of the art of the partnership and related partner based solutions in terms of scope, responsibilities, commitments, activities and solution descriptions.
3. Upon signing a Heads of Agreement, which represents the key milestone separating the partner based solution's design phase from its implementation phase.
4. Any other moment in time when a company feels that they need to re-evaluate their position within the Solution Oriented Partnership. These moments could arise for exogenous circumstances related to the partnership or to the company's other day-to-day operations.

From a corporate strategy perspective, what this multi-criteria and multi-stage approach means is that a company's level of commitment to the development and

implementation of the proposed solutions will grow and become concrete when their level of uncertainty can be balanced with an adequate level of confidence in the information needed to calculate their potential costs, benefits and risks associated with the Solution Oriented Partnership. To accomplish this, the firm level business planning activities need a certain level of completeness in terms of system level thinking before a business decision can be made. A completeness that manifests itself only after:

1. The Solution Oriented Partnership has collectively decided on the specificity, structure and role that each partner will play in designing, building, implementing, delivering and renewing the proposed partner-based solutions.
2. A set of partner innovations scans can be drafted that evaluate the assets, competencies, technologies and general knowledge that each partner brings to the Solution Oriented Partnership and related partner based solution development phases.
3. A project plan has been drafted and agreed upon by all Solution Oriented Partnership partners in which the nature, scope, business strategy and plan of action for the development of the partner based solutions are documented.

Using these as inputs each firm should be able to systematically evaluate the benefits and risks associated with the Solution Oriented Partnership and its partner based solutions so as to better understand their strategic position within the venture.

Users and Society

Pia Valota

The HiCS project approached the fundamental issue of users and society straightforwardly as “users are society”. In our opinion, terms such as “consumers” and “users” are ways of naming “people”, within the present global market economy discourse, which deliberately ignores territorial and political characteristics implicit in similar terms like “citizens”. The referent of these words – a group of human beings – is the same, but “consumer” and “user” suggest they are merely constituents of a potential market for a particular named product or service. So, people’s spending capacity is by these terms evidenced, whilst people in their capacity to acquire economic power are named “workers”.

Specific wording is of course needed for sector discourses to remain clear. We see “consumers” as being the points of junction between production systems and territories. This interpretation is used because it recognises people’s real complexity. This stance is unusual in economic studies (but common in anthropology for example) despite the fact that taking it reveals many appropriate and effective insights of great potential benefit for business activity.

Keeping in view people’s real complexity

There is no doubt that any entrepreneurial activity should take into account the consumer or user of its output. There is also no doubt that producers will take into consideration the societal environment they are, or will be, acting in. However, these issues have usually been left to the marketing culture whose current representation of the consumer is so restrictive that it appears unreal from the consumer’s own point of view. For instance, it normally considers consumers just as potential or actual buyers, not as input givers to the design of a product. This is a dangerous misunderstanding that dulls innovation capacity. If the consumer is seen as having only very limited intervention in the product lifecycle, only from point of sale to disposal, it is as if ‘people’ are not part of earlier production phases in different countries or in other roles.

Globalisation in particular relies on this limited view of “consumers”, but at

the same time there are obvious opportunities for new wider interpretations of “consumer” that emerge in parallel with the expanding information society. It seems that at present these two different views – embedded in their use of words – come into conflict; the traditional all-inclusive territorial view versus the new sector-functional one that is supposed to fit the new global economy. Neither should prevail. There are reasons to be happy with global markets, but people would be very unhappy with a purely economy-focussed society and are in fact beginning to reject this perspective. Difficult as it is to deal with a comprehensive interpretation, we need to face the actual challenges of the world we are living in. Here we explain the way the consumer was integrated into the Solution Oriented Partnership approach, starting with the knowledge that the way consumers define their role in society dictates the roles they expect producers to play, and influences the way they interpret product qualities.

The consumer as a person with fundamental rights

First of all, the consumer must be defined according to the 1985 UN Charter on consumers’ rights; as a person characterised by having the following eight fundamental rights:

1. the right to satisfy her/his fundamental needs
2. the right to health and safety
3. the right to be correctly informed
4. the right to choose products and services
5. the right to be listened to and represented
6. the right to be paid for her/his damages
7. the right to be educated about responsible consumption
8. the right to a safe environment

These consumer’s rights set the general framework to be considered when designing or evaluating any product or service and regulations and codes of practice provide for their enforcement.

The consumer or user as the sum of different roles

From the producer’s perspective, any output of a productive process is called a “product”, be it a material or non-material good or a service. The “customer” is the receiver of a product, “consumers” being one of many types of possible customer.

From the consumer's perspective, services differ from goods because they cannot be checked and tested in advance. Goods may be used to deliver a service, but the service itself is an intangible moment in time and space. Each service arises at the interface between the consumer and the organization providing it. For this reason services cannot be stocked and, as an example, an airliner flying without passengers cannot constitute a service.

Therefore, these two aspects of services need to be considered – firstly the circumstances, and secondly the entities that come into contact at the moment of service delivery. Complementarity should be the sign of a good service. The supplier's capabilities and organization should match the consumer's characteristics and needs. In most services, and especially in food services, contact between consumer and supplier may occur at several points in the process and in various ways. The same person may be a different consumer-user depending on circumstances, whilst an organization must be aware of the range of consumer-user types it is trying to serve.

Accordingly, a single term – consumer or user – appears to be too wide and generic, maybe even confusing. In order to describe this complementary interface usefully, the standard production-consumption-disposal lifecycle needs to be reviewed. The full set of roles people play should be identified, and the most relevant ones should be given specific names. The following have been intended for the purpose of the HiCS project. Other authors or different service settings may generate different roles and associated names. Many different factors affect final service quality and many different services may potentially be designed. Therefore, the implicit knowledge of local promoters is usually the best way to identify these roles. Using the Solution Oriented Partnership approach the need for a common language was identified as a means to facilitate internal communication about solutions;

- *Customer*: the role of who (a person or an organisation outside the producer organisation) influences requirements, production process characteristics and the quality of the offering end-users receive from the producer
- *Client*: the role of who (a person or an organisation) negotiates price and buys the offering thereby entering into a contract with the producer organisation

- *Co-supplier*: the role of who (a person or an organisation outside the producer organisation) actively co-operates in the production or delivery phases of a service thereby having a direct impact on quality
- *End-user*: each consumer inevitably plays this role when they use or receive the service, some consumers may take this role only.

So an individual consumer or user does not necessarily only play the role of end-user. She or he may also play a combination of other roles depending on the circumstances of the service interaction. From this perspective the consumer is seen as the sum of all the roles they actually play in relation to a given service.

The consumer-user is an intrinsically changeable figure

From the consumer's perspective, getting a service means someone else doing something on your behalf so that a particular personal objective is better or more easily achieved. From the consumer's point of view, services should be evaluated according to the degree to which the service delivery improves one's own overall condition.

A lot of interpretation takes place at the user-supplier interface that can turn a simple misunderstanding into real frustration. People's motivations for a service may vary greatly meaning that in the same situation people may have very different needs and desires. They may also have different expectations of the service that result from their own or other people's experience. All of these variables will have an influence on how people perceive the quality of a service.

The following is a list of contrasting motivations for a meal delivery service identified from real cases:

- *poverty or reduced physical capability or difficulty in using cooking devices vs. desire to use one's capabilities and resources in other ways*
- *lack of time to cook or lack of equipment, space, or cooking skills vs. dislike of cooking as an activity*
- *being isolated within a scholastic, therapeutic or work place setting vs. being tired in a hotel*
- *having psychological problems or general inability to look after oneself vs. desire not to waste a sunny day cooking*

In other words, the consumer is an intrinsically changeable figure. Taking a single limited view of the consumer may set unnecessary limits to entrepreneurial activity.

At the same time getting information in advance on what is required from the organization's own capabilities is a fundamental requirement for success.

People influence each other

To take into account the numerous ways people interact at the societal level, influencing each other as individuals and as a general public, requires a distinction between the direct customer (individual consumers) and the indirect customer (people who set service requirements for and in the name of the consumer). For example a consumer may be in contact with a doctor in such a mediator role. In most cases laws and societal norms impose some requirements as well: the consumer may have influence as a citizen.

On the other side of the interface, producers may have a strong or even mandatory influence on characteristics set by law, especially when reference is made to technical standards. Generally though, procedures, technical specifications and equipment will be defined by internal company decisions or at a collective level by an industrial community. Therefore when consumers are a company's shareholders, they may find themselves with a conflict of role.

Decisions on products are therefore actually set at many hierarchical levels. Locally, an additional filter to a consumer's range of choice is set by the distribution system and the retailers' policies. "Customisation" may just add trifling variety to products, whilst real input from consumers – that could result in new product families – can only be gained at earlier steps for system innovation to occur.

Indirect clients are also a means to articulate all the ways in which service costs are shared by people other than the end-user. Among the many kinds of indirect clients are: parents, health authorities, social services, and tax-payers through the public money used to support enterprise. Such actors often act as indirect customers as well, and their impact on end-user satisfaction is crucial. However, most companies' management systems currently overlook these impacts.

Indirect co-suppliers also exist, normally in family situations. When receiving a service that benefits the family group, different family members may take responsibility for different phases of the interface with the supplying organization. We can all think of personal examples of where sharing responsibilities causes problems, and how different evaluations of the same service can result.

In summary, the same individual may receive the same service but in very different situations that result in very different degrees of satisfaction. When looking for a better service, this person may not only seek more appropriate circumstances or better information, but may also switch roles, both as an individual and as a social being.

People's identities develop in relation to their context

In reality we find much steadier individual consumption behaviour than is found analysing higher level groups of consumers. People's link with the place they (temporarily or permanently) live is one reason for this. That place is more than just a geographical location and because of its stable characteristics, is often felt as a fundamental part of one's identity. Context is a term that can be used to account for both the material and non-material environment, and is an appropriate keyword to explain the reciprocal influence of 'place'.

Physical and cultural contexts should be seen as elastic or "zooming" concepts, like "home" for example: it may mean Europe when you are in Asia, your country of origin when you are abroad or your own flat when you are in town. The borders of a person's physical context may be no larger than their residential community, whilst the borders of their cultural context are only limited by the individual's memory and information capacity, which may expand far in space and time. At present, and certainly in the future, no universal link can be pre-supposed between one's physical and cultural contexts, as was the rule in traditional societies. Today the same physical territory is shared by people whose cultural contexts are very different. For the concept of "context" to be used effectively when designing products some general questions need to be answered; what constitutes a "good" product, and what do we mean when we say humans are "social animals"? Buying a product, even an artistic work, is never an objective in itself. People are actually seeking to improve their condition through the benefits they expect from the product. People are motivated to fulfil these expectations according to their personal priorities. Products will be judged good or bad at this level according to the individual as well as the society they belong to. People, even the stylite, live in constant relationships with others. The consumer is an individual but never ceases to be part of a community. One's individual purchase behaviour is always under the

scrutiny of groups of other people. In most cases, people in the community will be part of these groups, but not always. Usually, it is a person's cultural context as well as their map of human relations that counts. The result is an invisible network of affinities and aversions that qualifies a person's feeling of belonging.

Background environment is a system that impacts choice

Contextualisation should take both these conditions, match them together and embed them into the product to be designed. Today people's relationship networks can be so extended, and their expectations so volatile, that such a task may appear impossible. In reality people's natural egocentrism – a valuable asset for survival – sets some limits, making people more attentive and involved in events that are perceived as nearer. People therefore give these events higher priority. Nearness then, in all the accepted meanings of the word, is a first necessary condition that makes contextualisation possible. A second limiting condition is set by the systemic nature of people's material environments. Nearly any product, in order to deliver an effective service, needs other complementary environmental resources and equipment. Expanding context beyond the borders of home, water and electricity supply systems can be considered the high level environmental resources.

These assets frame a background with characteristics that are largely independent of the individual, being common and pre-set at the local level. The impact of this background to consumption is therefore mostly stable. It may constitute the setting for most activities, but not for all.

Contextualisation shapes products differently to traditional marketing input

One might suspect that contextualisation is just a new name for existing marketing tools. After all, marketing has always been aware that people are different, think differently and have imagination but live in a real and pre-established world. Where is the difference? The main difference concerns the intended use of essentially similar types of information. It is, of course, the final objective that will dictate the way this information needs to be collected and processed.

Marketing tools generally aim to establish whether some of a place's inhabitants can be considered a profitable opportunity for a pre-established product sold with

only limited “customisation”. A company is likely to choose a market because of its existing background characteristics. When companies consider modifying the original situation the envisaged changes will usually aim to increase the enterprise’s power in that context. Once solidarity obligations have been satisfied through taxation, “social marketing” becomes a way to add value to the brand. All of this seems reasonable, but in fact it is just an extension of the nineteenth century “black box” approach, maintaining the divide between producers and the societies they serve. But social solidarity should not be seen as an external philanthropy (e.g. giving economic help to local charities or sport groups) nor as an internal tax obligation. Instead it should be seen as an opportunity to bring a new wave of creativity to productive processes and has the potential to become a key driver for advanced industrialisation. *Contextualisation* should therefore be a way of identifying the steps towards this internalisation. Companies can do business for profit and at the same time strive to improve social situations by designing appropriate products and processes that address the needs of the context without creating new problems. People’s needs and desires for products are, of course, a major part of what must be taken into consideration, but should not be the only focus. Nor should designers slavishly comply with consumers’ pre-set expectations. Instead, companies should aim to increase creativity both internally and externally through open interaction not only with consumers, but with citizens, workers and other organisations. This is a distinct position compared to both “normal” business and ‘Third Sector’ initiatives, whose explicit aim is “to build communities and society through market and business activities”. Deserving as they are, the latter’s priorities are the reverse. Moreover, they lean towards localism but local failings can often be rooted at higher levels or in other places. In contrast, when addressing a local issue, a contextualised Partner Based Solution can turn to the Platform of shared knowledge, capabilities and resources, to find coherent and effective synergies across locations. Technological flexibility, innovation and new methods are required to live up to the suggestion that industrialised solutions should be based on economies of scope and social learning rather than on economies of *scale* and *volume*.

Contextualised product quality

In the real world what does contextualisation mean in terms of a product’s quality?

Firstly, widely held values should be respected by even small businesses. Honesty, transparency, environmental care, product safety, and social accountability are not just required to satisfy especially “critical” consumers, but should be the starting point of any “good” that is good for the consumer. Additional criteria should also be adopted, primarily dealing with the kind of product that is being designed. A high level of intrinsic quality is more important than ever.

When considering the case of food on the HiCS project one question that arose was - is providing local food, or employing local agricultural products, an appropriate interpretation of “food related to context”? In general this principle was agreed to be a good choice, but not necessarily the best or only option in all cases. When high level conditions are fulfilled, the global market becomes an opportunity to explore. Nothing better than food, being the repeat consumption product par excellence, gives people a way to profit through variety and express their increasingly individual and changeable needs.

What should be kept in mind is the importance of reaching an overall improvement in the consumer’s situation. The way to achieve this depends on a variety of factors. When solutions aim to address a contextualised situation they will be shaped by the local needs they choose to face. The solution’s configuration is defined by these factors, and independently of ideological preferences, a philosophy that is the reverse of the predominant multinational approach.

Whose business is it, to decide upon a product’s fitness?

Currently producers have privileged access to knowledge that enables them to make valuable assessments of product fitness. What people need is the transparent sharing of this knowledge so that citizen-consumers can compare it with their own private and societal knowledge when making consumption decisions. At present retailers become liable because of the choices they make on behalf of consumers. This traditional dependence upon assuming consumers’ attitudes is beginning to be replaced by a willingness to reduce knowledge asymmetries. The increased availability of information is one reason for this, but there is also a recognition that too many decisions have been taken in the name of the consumer that people do not agree with. People do not like experiencing contradiction between roles and are becoming much more knowledgeable about products than before. The consumer’s

attitude, once based upon how well they could adapt to production systems, is now increasingly based upon assimilation – how well the production system fits them. Individual consumers are now happy to explore and use their power, whilst guarding it tightly. Even pricing is at stake as the usual relationship between quality and price becomes challenged, not in itself but by people looking for individual quality at the best price. Consumers seem to have suddenly recognised that market segmentation is a tool for levering extra revenues from specific markets with specific product features. As a result the search for the same product at the lowest price, or for cheaper products with the same performance, is becoming a clever new parlour game and no longer has the stigma of poverty.

A clear distinction is growing between the producer and the consumer encouraging the former to be more open to dialogue with stakeholders than ever. The fact that stakeholders are stimulating creative tension in this way can only be good news for an efficient market economy.

Contextualised products can address weaker consumers' interests

Not all consumers are in the position to exercise power over producers. Should this mean that these *special targets* need to be characterized and addressed by *special products*? This is the traditional response of institutional marketing approaches. However the Solution Oriented Partnership approach takes a different view on this issue. When we think about the inhabitants of a given place, we normally think of them as citizens and in this way we inadvertently enter into the frame of institutional thought. Contextualisation does mean thinking about people in their own territory, but not *a priori* following the same classifications that local institutions apply. Institutional thought is functionally related to the idea of communities, where people share the same territory independently of the many population groups they belong to. When people in a community share problems over time, resulting in social concern, then an institution intervenes to ensure the community's existence by protecting lives and restoring order. The community in trouble is seen as a whole and envisaged as dependant.

The approach brought in by industrialisation, in contrast, separates the person and their characteristics from their territory. It analyses the general public independently from geographical location, identifying different population groups that have stable

configurations of needs and desires. Criteria for segmentation are then selected according to the producer's ability to sell products to a certain number of consumers and quantitative mapping indicates which locations represent a profitable market. A specific product or technology is the basis of this consideration of territory. Using the Solution Oriented Partnership approach, Partner Based Solutions can take both the local dimension and the characteristics of real people into consideration. This process of contextualisation matches the person and their characteristics to the delivery interface representing an integrated approach that respects the diversity of people and contexts.

The HiCS project addressing people with reduced mobility

People are continually influenced by both markets and institutions. For this reason the phrase “people with reduced mobility” will normally conjure up the image of *needy* (having charitable/social-welfare needs), *handicapped* (with reduced mobility as a stable characteristic) *individuals*. However, the HiCS research project found that this is a very misleading image upon which to base a new food service.

As you drop the assumption that reduced mobility is a “stable” or “permanent” condition it appears that many different people may have temporary reduced access to food. One indication of the scale of this is that every day in Milan more than 1.7 million out-of-home meals are consumed. This is more meals than there are inhabitants. When you drop the assumption that these consumers are “needy” it seems that even people with full access to food will enjoy a home delivered meal. Exploring the way people enjoy food you find that being an “individual” alone may be detrimental to people’s satisfaction. Companionship whilst eating is widely appreciated when you can choose your companions. Institutional meals may be especially disliked, regardless of quality, because people have no choice about who they eat with. Enlarging the potential group of consumers in this way is a business opportunity and does not compromise any original social objective. On the contrary, “needy, handicapped individuals” are no longer likely to accept being classified on the basis of what they lack compared to “normal” people. Instead they want to share, as far as possible, the same market as anybody else.

If *physical access* is the problem, then delivery must be the solution. In reality the cost of delivering a meal service is high compared to the cost of the food itself.

Relative delivery costs will also drop as the number of meals delivered increases. This economy of scale is one rationale used to justify the institutionalisation of physically handicapped people.

If *economic access* is an additional problem for some people at home, then costs, even in a for-profit business, can be internalised and shared among all users of the service. Within a small geographical area a mixture of people with and without access, and with or without the need for charitable support, are likely to live and have the potential to enjoy meals together. Many examples of satisfactory solutions can be imagined. In the HiCS project such findings wiped out the importance of setting targets and gave rise to many new ideas for possible solutions.

Consumer and NGO contribution to Partner Based Solutions

Unfortunately consumers are currently expected to participate only at the end of the product design process, when customer test panels are asked for their opinions. Where NGOs are concerned there is always a danger that general opinions are viewed as flimsy petitions, instead of as effective design inputs. Their old and well-established role requires them to provide their input in the form of specific product requirements.

The Solution Oriented Partnership approach specifies early consumer involvement in design projects and the shared goal of sustainable solutions. These are certainly reasons underlying the positive results of the HiCS project. In addition, the early, equitable and ongoing participation of all partners gives Solution Oriented Partnerships a means to share their often very different cultures. When different stakeholder types meet it is a challenge to understand each other, whether it is a producer understanding a consumer or a producer understanding other business partners. For new solution ideas to be born many hurdles need to be overcome. From both the consumer's and producer's point of view, a co-evolutionary process, using specific partnership building tools, is a worthwhile way of achieving this.

Users in context-of-use

Simona Rocchi & Christina Lindsay, Philips Design

This chapter answers the question '*How can we better understand users' needs and expectations in order to provide customised solutions?*' by outlining the importance of the local context-of-use.

Beyond traditional market segmentations

Current advanced societies present complex structures of living. People are increasingly characterised by multiple lifestyles, which are less dictated by available income and more related to a freedom of choice often underpinned by a new perception of 'quality of life'. This new quality of life includes values such as health and personal well-being, education, protection of the environment, safety and balance, socio-cultural enrichment and personal empowerment.

The market place is therefore becoming more sophisticated and difficult to predict. On the one hand, users are more demanding: they are looking for personalised solutions to better fit their own individual multifaceted needs and local habitats; they are looking for solutions able to provide not only material answers, but also to supply experiences and meanings, and to fulfil values. On the other hand, companies' competitiveness cannot be based anymore only on technological innovation since this is becoming the common equity among all enterprises.

Early methods of segmenting demand, such as traditional socio-demographics in the 1950s and 1960s and segmentation by lifestyles in the 1980s, have proven to be less effective in capturing complex market dynamics and user requirements, and have started to deliver a lower return on investment. Certainly, analysing and monitoring current socio-economic segmentations (e.g. class, position, income, education) and demographic forces (e.g. ageing population, gender) helps companies to better understand the general direction of the marketplace, and, as such, make a valuable contribution to the way business is conducted. However, these studies do not cover two relevant dimensions:

- the understanding of new emerging socio-cultural values - in relation

- to changes in beliefs and value systems – and, therefore, the possibility of anticipating new future market demands;
- the understanding of the individual's unsatisfied or latent needs related to the local contexts of everyday life, and, therefore, the possibility of exploring new potential current market opportunities.

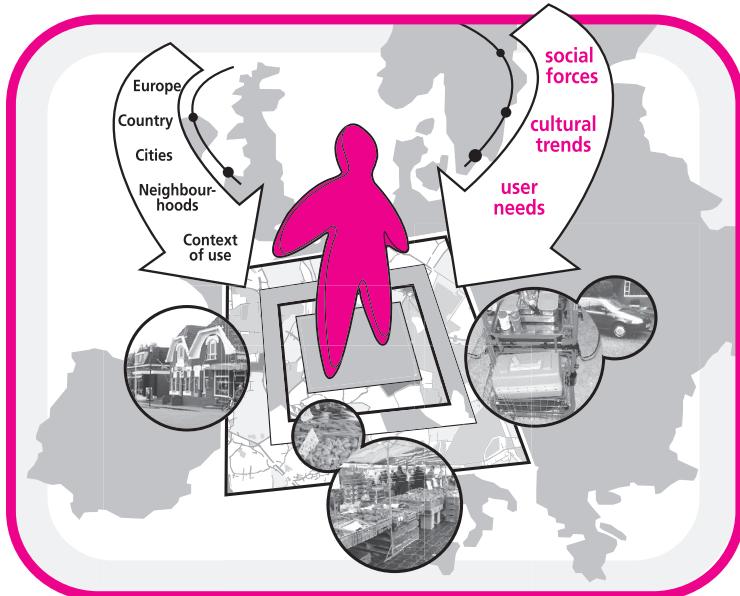
These dimensions require complementary user investigation models for doing business, including new patterns of interaction between users and companies.

New emerging approaches

Competitive enterprises have started to search for additional ways to gain a deeper understanding of user's 'needs' and 'expectations'. While there are no tried and tested instructions for doing this, there are already some strong indications on possible directions. New methodologies for business value-creation seem to combine macro and micro scale analysis of the market and the society.

On a macro scale, social and cultural trends analysis can help businesses to anticipate future demands through an understanding of the deeper layers of transformation in society and the changes in beliefs and value systems, both globally and regionally. In order to tap into these changes, we can use methods and tools from the social sciences, as well as observing the expression of this transformation by looking at its first manifestations in art, music, fashion, advertising, etc. For this purpose, it is possible to develop and visualise a number of 'scripts' or 'narratives' – rich in socio-cultural knowledge – able to reflect people's view of future quality of life and values. As a result, business can have a much wider understanding of what will be important to people in the next years.

On the micro scale, to achieve a deeper understanding of users' current personal needs and wants, a promising approach seems to be to consider the user in his/her everyday life environment: in other words, an approach able to analyse the user in his/her specific socio-cultural and physical context. The assumption is that while lifestyles are in principle almost infinite in number, the contexts – in which user demand is expressed – are limited. As a consequence, the complexity of this demand can be reduced.



■ figure 1: **from a collective macro level to the micro individual level: a theoretical framework for researching social phenomena, cultural trends and users' needs.**

Source: Philips Design 2002

Context-of-Use: the theory

Understanding the *context* or more precisely the *context-of-use*, its components and their interactions and reciprocal influences, becomes for us the very starting point of understanding human behaviour and users' preferences. It becomes one way to increase the possibility of achieving a higher degree of personalisation (localisation) with the business offer. But from this perspective, how can we define a context and a context-of-use?

In order to create some working definitions necessary to carry out our action-research study, we looked into different disciplines including linguistics, literary theory, psychology, philosophy, anthropology, biology and architecture. These disciplines provided us with different insights, generating a wide range of meanings.

Nevertheless, three basic components emerged as key elements in describing the context-of-use:

- **Socio-cultural component**

Clark and Carlson consider a context as the sum of the norms belonging to a precise society and shared by a certain number of individuals (Clark et al., 1992). This sharing is articulated on different levels: it relates to cultural socialisation agencies, identifiable as both formal institutions (e.g. educational systems, public bodies, etc.) and informal institutions (e.g. family, friends, etc.).

- **Psychological component**

The study of context cannot leave out psychology or more specifically the psychology of human behaviour. The convergence of personal experiences, history, education and other aspects that individuals have internalised during their life, affects personal interpretations of socio-cultural context. This can lead to new inputs and new behaviours (Flavell et al., 1993).

- **Physical component**

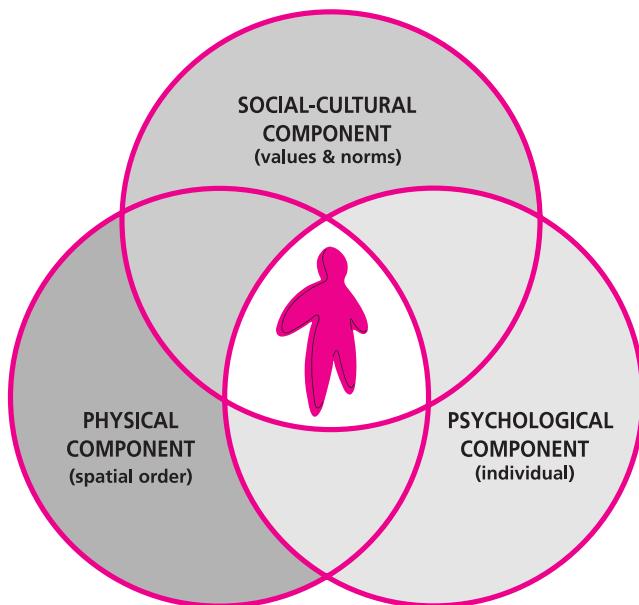
Hillier and Hanson argue that physical context has a specific logic and organisation, which derives from social functions, cultural significance and behavioural implications. For them, “human societies are a spatial phenomena: they occupy regions of the earth’s surface, and within and between these regions, material resources move, people encounter each other and information is transmitted” (Hillier and Hanson, 1984). The physical component has a spatial element, but this does not have to be a static space, such as a home, but can refer to a person’s movements through different spaces, as in travelling to work.

Starting from these components, we have defined a **context** as “*the environment - which is the result of continuous tensions among socio-cultural, physical and psychological components - where an action takes place and assumes a meaning, at a particular time*”. Within this, the **context-of-use** is “*the context of an action where the user interacts with a product, service, or system of products and services*”.

Therefore, it is in the interaction of these three components and the user that the context-of-use is found (Figure 2).

In the light of these definitions, it becomes evident why the development of a context-of-use methodological approach (see Chapter Context-of-use Co-research methodology) is one of the milestones of our project: **to fully understand the**

meaning of an action (users' interactions with products and services), **we need to refer to its contextualization** (local manifestation).



■ figure 2: **the socio-cultural, physical and psychological components of a context.**

Source: Philips Design 2002

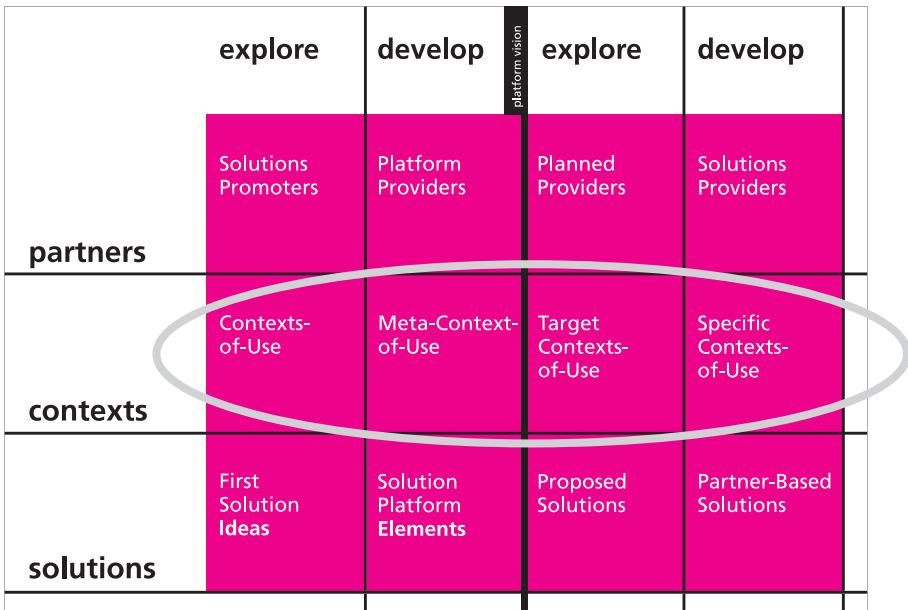
Understanding users

We believe that the investigation and analysis of the contexts-of-use can help companies to become closer to users, gaining more in-depth information about them, and even involving them in a solution-oriented co-creation process – whether creating products, tools, services or final product-service mixes. Indeed, users may not only have ideas about new solutions but may already be working to solve their problems.

In doing so, users can also help generate a shift from a ‘consuming society’, where they are considered as passive players, to a ‘building society’, where they assume an active, responsible and co-creative role.

Our project to develop a methodology to understand users in their contexts-of-use provided us not only with information about people and their relationships to

products and services, but also helped us in the identification of those local actors necessary for the implementation and the success of new global-local business ideas. In addition, such information gave us the possibility to envision real-life scenarios that facilitated the discussion and creation of a common vision among partners with different competences and business interests. The context pillar of the Solution Oriented Partnership methodology thus provided valuable insights for the other two pillars.



■ figure 3: **visualization of the Solution Oriented Partnership (SOP) methodological framework.**

Source: Politecnico di Milano 2002

Context-of-use: investigation and experimentation

Our challenge was to develop a practical methodological approach able to combine the benefits of short-term traditional consumer research techniques, such as surveys and focus groups, with new emerging medium/long-term investigation methods, such as ethnographic studies. The approach had to be able to explore local manifestations of users' interactions with products and services via a repeatable, flexible, cheap and easy-to-use process.

We considered it essential to ‘set the scene’ by starting at the macro level (Figure 1) with an exploration of general emerging trends in food consumption, outlining possible future market directions at the European level. To move to the micro level required us to determine how to select contexts-of-use, and we decided to identify contexts-of-use broad enough to contain a certain variety of classical consumer segmentations.

These are the context-of-use selection criteria that we decided to use:

- **Geographical restrictions**

- territorial and physical barriers that limit ease of access to food for users. Contexts-of-use located in the countryside or in peripheral urban areas are often not supported by adequate infrastructures; even particular urban areas are sometimes not equipped with the necessary facilities to provide access to food.
- possible access, for the research team, to the physical and socio-cultural environments of our investigation.

- **Social relevance**

- new emerging societal trends (e.g. aging populations, migration flows, etc.) that generate different manifestations of needs and desires in local contexts.
- people’s critical social conditions in their everyday life (especially for fragile categories of our society such as immigrants, elderly, people that require health-care, etc.) related to the presence, or absence, of services for supporting their access to food.

- **Market opportunities**

- possibilities to provide better answers than existing solutions to current needs, or new answers to hidden or emerging needs.
- possibilities to simultaneously satisfy needs related to different categories of users across different contexts-of-use.

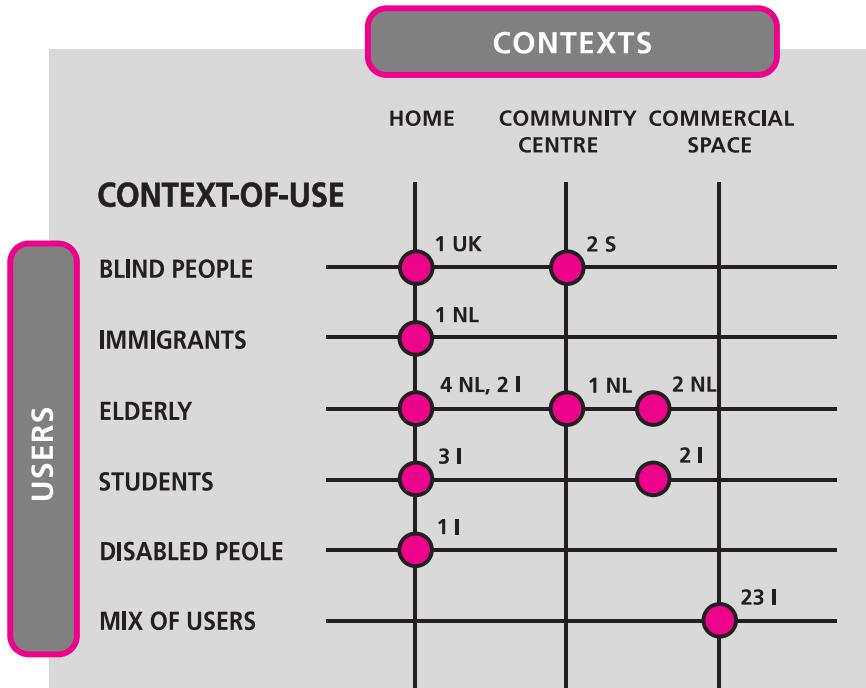
- **Food quality limitations**

- restrictions in access to food based on different quality parameters such as fresh, healthy, tasty, diet friendly, ethnic food, or even reduced access to knowledge of ‘where’, and ‘how’ to get food and to prepare it.

To finish the shift in focus to the micro-level of users in their contexts-of-use,

we related the context-of-use directly to the issue of people with reduced access to food by considering the phases of food delivery, shopping, preparation and consumption.

By using these selection criteria, 42 pilot cases were addressed in this initial exploratory investigation (Figure 4). Regional teams of user researchers, designers, and sometimes the users themselves, carried out the research.



■ figure 4: **overview of the major contexts-of-use investigated. (This shows the major pilot cases analysed in Italy, Spain, UK and The Netherlands, clustered by different target groups and specific contexts.)**

Source: Philip Design 2002

The geographical locations of the contexts-of-use were Italy, Spain, the UK and the Netherlands and both urban and rural sites. In addition, we considered private and public spaces as well as people in temporary locations such as hotels or at work.

The social criteria enabled us to consider elderly, disabled or blind people at home

and in community or healthcare centres as well as immigrants in public spaces and students in shared accommodation. The market opportunities identified in the food consumption trends report had shown that increases in the elderly and immigrant populations in Europe offered potential expanding markets. Our definition of the food quality criteria including issues related to all three components of the context-of-use (socio-cultural, physical and psychological) enabled us identify a wide variety of problems to investigate.

The issues emerging from the contexts-of-use analysed have been grouped in six main clusters: knowledge; experience; timing; variety and choice; physical barriers (to shopping/delivery); quality. Finding out about people's everyday lives in their contexts-of-use provided information about general and specific issues and problems, both overt and latent, which have been shared with the industrial partners through visual and narrative inputs. Feeding into the other streams of the Solution Oriented Partnership framework, this information has been presented during several creative workshops for concept generation and scenario building. During the creative process, and sometimes at the later phase of commercially evaluating the concepts, new potential contexts-of-use were identified for further exploration. These contexts then became new bases for the ideation of new concepts considered for the final development of sustainable and contextualised solutions.

Value and limitations

The context-of-use analysis has produced real-life information (latent or unsatisfied needs, wants and wishes) valuable for both the design process and the business innovation process. The research findings have provided important **information and inspiration inputs** for designers to create added-value solutions customised to specific socio-cultural and physical environments. In particular, these findings have supported the creative phase by outlining the **characteristics of potential solutions** needed to answer particular issues: issues that often have been recognised across different contexts-of-use, allowing for the extension of the potential solutions from one context to another, therefore solving multiple problems. The context-of-use information has also been used for **envisioning design** scenarios that communicate how potential solutions

resolve people's current problems, how they can be used and which actors are necessary for their implementation. From this perspective, the findings have contributed to:

- the identification of those local partners necessary for the implementation and success of specific new global-local business propositions (e.g. maps and videos documenting users' interactions with local products and services helped us figure out the players involved in current solutions, but also those less visible, or even hidden, players that can potentially assume an important role in the promotion of new solutions);
- the creation of a consensus on the strategic direction to be followed and the roles and responsibilities to be taken by the global and local partners, resulting in a common accepted vision (e.g. the use of story-boards to visualize issues and problems emerging in a specific context-of-use helped us clarify realistic and precise activities that can be carried out by different partners to fulfil and optimise performance).

Considering the outcomes of the overall Solution Oriented Partnership process, the importance and limitations of our approach become quite clear. The context-of-use approach was intended to produce qualitative inspirational and informative knowledge. The success of the approach, and the usefulness of the information it is able to produce, has been demonstrated through its use in subsequent stages of the project. It should be emphasised, however, that this approach was not designed to replace traditional consumer research on current and future market potential and size, but to enhance it by providing new and complementary kinds of information: information that should be used to design new solutions that improve on those currently available. Therefore, we advise that the context-of-use approach should be used in conjunction with traditional consumer segmentation analysis and market research (fundamental for gathering quantitative data on current market opportunities) and with future socio-cultural studies (fundamental for understanding new emerging trends and anticipating longer term demands). Indeed, it is in combination with these existing research methods that the context-of-use approach can fully express its added value: the value of using an 'human focus' approach as a precondition for generating real contextualised and sustainable solutions for users, local communities and society.

Partnership Building

Stephen Evans

What is special about Solution Oriented Partnerships?

Collaboration between organisations from different sectors (business, charity, government), of different scales (multi-national, local), often with different goals (profit, social improvement) is needed to deliver Partner Based Solutions. The Solution Oriented Partnership methodology recognises that we need many actors to work together to design a Partner Based Solution, and that these actors must work on a common activity that delivers benefits to all. Many forms of partnership currently exist, from tightly defined customer-supplier business relationships, to ‘public-private-partnerships’.

Few of these partnerships follow the logic of emergence, where the subject of the partnership is allowed to change and be designed in parallel to the partnership membership and structure itself. Only through the flexibility to design the partnership in parallel to the outputs and activities of the partnership can we deliver the targeted benefits of a Partner Based Solution.

The final benefits of such a partnership are valuable, but the lack of personal successful experience of such a way of working might cause concern. The job of partnership building within the Solution Oriented Partnership is to ensure that partners can efficiently work with other organisations; some of which may come from a very different history. They need to be able to help with some tough questions:

- How will we ensure that other work to our speed/urgency?
- How will we, a charity, ensure that the businesses don't just make money from us?
- And without any history of working together how can we find a partner who we will understand and can work our way?

A major focus for partnership building is on establishing mechanisms for sharing benefits, especially when the benefits are not known at the beginning of the co-operation, and on protecting ideas and intellectual property.

The effort any organisation will have to put into joining or starting a SOP is

expected to create a benefit. If the risk of not getting the benefit is high then they will not put in the effort. Individual organisations that are considering joining or starting a SOP can often see the excellent benefits but they may also quickly see many difficulties of working in this new way, with new organisations from different backgrounds. So a SOP must know how to work together safely and efficiently.

The cost of partnership building, and the risk of failing to achieve the benefits, must be minimised.

The Co-ordination Model

Building a Solution Oriented Partnership can be seen as a set of co-ordination challenges. The diagram below illustrates how some partners (individual organisations) might meet and choose to work together over time to implement a work-plan that follows the SOP method. The result is a Partner Based Solution that is sustainable, industrialised, and delivers benefits to all the partners. The co-ordination model separates the co-ordination of relationships from the co-ordination of progress.

The separation between co-ordination of progress and co-ordination of relationships allows partners to analyse a complex situation and to structure their actions.

In most partnership situations either the relationship or the task is fixed. We either know what we want to do and are looking for a suitable partner, or we have a working relationship that is looking for a new task to carry out. For a Solution Oriented Partnership this is not the case, with the both tasks and partnership members changing over time. While the search and integration of new partners is likely to be happening away from your own subject knowledge and even network of contacts. The situation can appear to be complex, and the Solution Oriented Partnership methodology framework provides tools that separate the analysis of the partnership situation into relationships and progress.

Making progress with flexibility

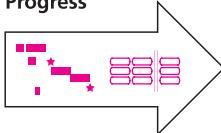
To make progress toward a Partner Based Solution, the overall Solution Oriented Partnership methodology suggests tasks for the partnership to work on together,

Co-ordination of SOP Relationships

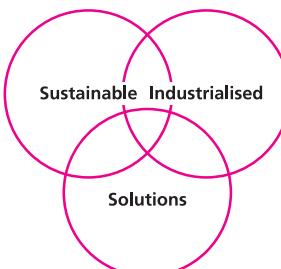
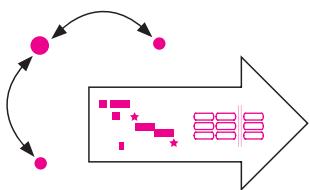


- * Finding, recruiting, integrating and deleting members
- * Structure and legal frameworks for risk reduction

Co-ordination of SOP Progress



- * Through all phases – initiation, design and delivery
- * Across all tasks - context-of-use, solution design, business planning



Combine the co-ordination of partner relationships and co-ordination of partnership progress to achieve sustainable and industrialised Partner Based Solutions

and has tools to help in those tasks. The co-ordination of progress is used to ensure that different partners can work on their own tasks while understanding and using the efforts of their partners on the same or other tasks. Though based on standard project management disciplines, the challenge is to keep the flexibility of the Solution Oriented Partnership by allowing changes to solutions, to business plans or to contexts-of-use based on knowledge emerging from the partners work together. This flexibility is extremely unusual in standard partnerships, where the reduction of co-ordination cost and risk is achieved by fixing the tasks rigidly beforehand. As Solution Oriented Partners learn about possible contexts, possible solutions, etc they can re-plan the whole activity to take advantage of the new knowledge. This flexibility can also be confusing. Most projects with multiple partners are clear and precise about their goal before beginning. In the case of Solution Oriented Partnerships it may be impossible to agree in detail how to share the eventual benefits until the solution design emerges. So re-calculation and agreement about benefit-sharing is part of the continuing co-ordination of progress.

Integrating partners

As the solution itself emerges it may change the demands on existing partners, even

requiring new partners to be found. The challenge of co-ordination of relationships is increased in an environment where the partners may not have previous experience of working together. Special effort is required to maintain focus on the prime issue of making progress toward the Partner Based Solution, rather than distracting the energies of partners into issues around the selection, behaviour or rewarding of partners. All of these challenges have been experienced and discussed under the term ‘networked economy’. They include envisioning benefits through (non-traditional) co-operation, the parallel emergence of solutions and relationships, the sharing of benefits and a reduction in co-ordination costs. These experiences also point to ways that networks of partners may fail: no previous relationship means no shared history and reduced willingness to work through problems (“the ties that bind”); difficulty in fixing the business relationship early ('no contracts' or inappropriate, inflexible contracts); distractions or difficulties push one partner to reduce priority on this new business development delaying the other partners. The Solution Oriented Partnership approach is to separate the analysis and prognosis of co-ordination in order to simplify and reduce co-ordination costs.

Relationships

The co-ordination of relationships needs to be organised and proactive, rather than rely on individual skills and attention. Within the Solution Oriented Partnership methods to understand and document progress toward an agreed form of partnership must be used. Describing partnerships in a way that helps all the partners identify costs, benefits and risks; that help them agree a legal relationship and know when they are ready for it; and that help in protecting Intellectual Property and resource investments made, is a key need.

New forms of solution and new benefits are available to those organisations that can conquer the co-ordination task for emergent partnerships. Separating the co-ordination of emerging progress and the co-ordination of emerging relationships may be one weapon.

Meeting the emergent partnership challenges

We have considerable history with supply chain relationships. Our dominant business relationships have been with customers, with suppliers, rarely with equal

partners. Where there are genuine peer-to-peer partnerships these rely on fixed rules to co-ordinate efforts, as with membership organisations or with professional partnerships (such as law firms). Partner Based Solutions offer benefits to partners, to society, to customers/users, and to the environment; but they may not happen if the partners do not continue to co-operate. Partnership building is therefore a required capability of any organisation seeking these benefits. Through active involvement in a number of Solution Oriented Partnerships we have observed:

- That it is possible for disparate organisation types to co-operate.
- That self-interest is necessary, acceptable and its open discussion should be encouraged.
- That the final shape of a partnership can be pre-planned or it can emerge through interaction (top-down and bottom-up).
- That the co-ordination tasks are rarely fully shared. And that there may even be a special role for a co-ordinating partner who ensures analysis and planning of any co-ordination tasks.
- That the ability to describe possible future outcomes (even before they are agreed) is a key to recruiting new partners.
- That using good networkers is an effective way to find potential partners outside of normal contacts.
- That analysing and planning for a co-ordination of emerging progress and co-ordination of emerging relationships is feasible.
- That new solutions and new benefits are available for organisations that can embrace new forms of partnership.
- That Solution Oriented Partnerships can successfully emerge in parallel with the solutions and contexts that they deliver.

New forms of collaboration are proposed to offer new levels and types of breakthrough performance based on their ability to tackle issues unapproachable with traditional structures. Effective co-ordination and supporting tools are needed at a practical level. Such co-ordination should aim to reduce the energy wasted on internal analysis and act to release the energy of the partners onto the system design and problem solving tasks.

System architecture

Luisa Collina

Why do we refer to system architecture in relation to design and solution production?

Solutions, in order to be accessible in terms of cost, must be produced industrially: they cannot be unique, but rather they must be customised and contextualised combinations of components and relationships among recurring elements. In other words, various “applications” of a common architecture. The solutions that can be ascribed to a common architecture can, in these terms, be considered to belong to the same system. Here, the topic of architecture is applied to solution systems as a fundamental way to overcome the dichotomy, of uniqueness and accessibility, that exists between traditional and industrial production methods.

Only in the presence of system architecture, designed to allow a high level of synergy among different solutions, is it possible to produce highly industrialised solutions.

But what does solution system architecture mean? What similarities and what differences are valid, compared to the current and consolidated concept of product architecture?

Product architecture

Product architecture is the conceptual tool that makes it possible to express types of product subdivision. It is the scheme according to which product functions are organised into physical elements and components are aggregated into sub-groups, sets and groups of components, so-called “chunks”. If a product is considered in terms of a set of components, product architecture defines:

- how the main physical groups within the product relate to their function (“what they do”);
- the interfaces between the various groups and between single groups and the product itself.

Numerous theoretical studies on product architecture were carried out in the ‘80s and ‘90s, when mass production was replaced with the new paradigm of mass-

customisation, aimed at responding to the market requirement for more customised products, within shorter time periods from the placing of the order. From this point of view, the design focus shifted from the products to their architecture as, with the same product architecture, it is possible to obtain a “family” of single products, different from each other. Research on product architecture therefore has the objective of overcoming the conflict between a project dimension that, taken to extremes, aims to respond to the requirements of every consumer with a singular product, and a production dimension that tends to reduce the variety of the products themselves. This dichotomy between singularity and inexpensiveness is made more critical when reference is made to industrialised solutions instead of products.

Product architecture versus System architecture

Moving from physical products towards solutions, we may define solution architecture as the “form” or “structure” of a product system. It is the configuration of relationships between different components of a given solution. It defines the patterns through which these components interact and the interfaces that link them. Traditionally (in the building sector, in new product development and innovation management), the term architecture refers to material components. As far as solution architecture is concerned, it refers to different components: material (products and infrastructure), relational (services) and immaterial (communication, knowledge and information). For this reason, designing an architecture for personalised, contextualised and industrialised solutions is very different from designing a product and its architecture.

The main problem when considering solution architecture is its hybrid (material-immaterial-relational) nature. This unusual characteristic implies that, when describing solution architecture, we have to consider something very similar to traditional “product architecture” (for the material components of the solution and their interfaces) and, at the same time, a “process architecture” (for the immaterial and relational components and their interfaces). The processes needed to deliver the solution (i.e. the services and communication components), which we call “functional processes”, are integral parts of the solution (i.e. the product system on which the solution is based). In contrast, the processes needed to produce the

solution (i.e. to develop and manufacture the material components and organise the immaterial and relational ones), which we call the “production processes”, are not part of the solution (i.e. production processes are not to be confused with functional processes). These two different parts of the solution (“product architecture” and “functional process”) will be referred to in terms of “front view” (the solution from the viewpoint of the user) and “plan” (the processes needed to deliver the solution) of the general system architecture.

Studies by Joseph Pine, the main theorist of mass-customisation, are centred on the resolution of this contradiction between “plan” and “front view”. It is sufficient to consider that the main objective of mass-customisation is the combination of the two different aims, low costs and high efficiency in mass production (the process) and the capability of meeting individual consumer requirements (the product or rather the product service system). These studies are of interest, but they do not succeed in resolving the solutions problem, as they have mainly been focused on products or services.

What characteristics can architectures have? How do they evolve?

In dealing with system architecture, we can refer to studies on product architecture and try to extrapolate their main characteristics in order to highlight the different configurations that architecture can assume: some of the polarities taken as reference points include modular or integral, open or closed, reversible or irreversible, flexible or rigid. Ulrich and Eppinger, for example, make a distinction between two main types of product architecture, modular architecture and integral architecture, according to the differing correspondence between the functional elements composing the product and the physical elements. Joseph Pine in Mass Customisation identifies, among the 5 major process and product innovations of mass customisation, the adoption of a modular type of architecture. This enables the mass production of standard elements, which combined in different ways, generate widely differentiated products. Other types of product architecture classification use the terms open and closed (generally modular architecture is open: different modules can be developed by different companies; in a closed architecture, the design of components and their interfaces is managed directly by one company), and flexible and rigid. A priori flexibility refers to a product which

can be adapted to the variety of user demand at the moment of purchase (e.g. Swatch watches). More generally, we can say that a priori flexibility is the degree to which technology elements can be used in different conditions and for different purposes. Alternatively, we can refer to subsequent flexibility (or flexibility of use), referring to the greater or less aptitude of an element to be modified, replaced or incorporated. Modularity gives the consumer increased personalisation (a priori flexibility) and flexibility of use (subsequent flexibility).

A high degree of personalisation and flexibility of use is also related to a different “scale” of product architecture: from a type of modularity that refers to a single model designed to be marketed in various versions to a modularity that refers to a wider view; from the design of a single product to product families, where single elements, strategies, targets or, at least, “cohabitation rules” between elements are shared by several solutions. These common, material and/or immaterial “ingredients”, shared by different members of a solution family are defined by various authors as a platform. This concept of platform is a crucial part of solution system architecture: the platform is the real core of any industrialised solution that allows a variety of specific solutions (i.e. solutions that are related to specific users in their specific contexts-of-use) to be delivered industrially (i.e. with efficiency and efficacy).

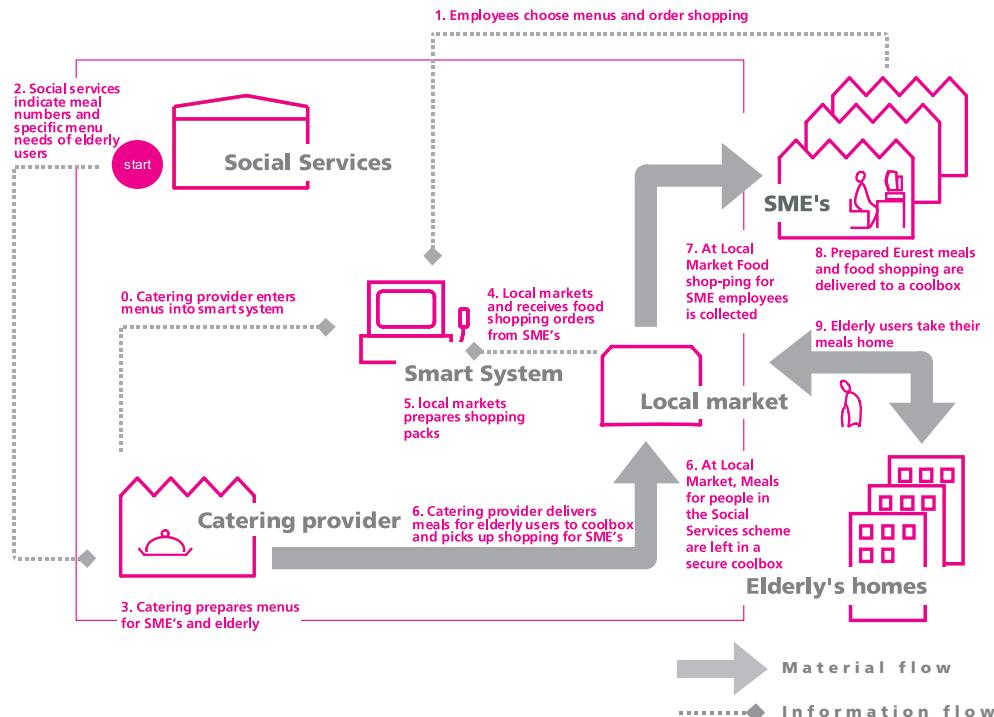
Three HiCS Partners Based Solutions

The book “Food Delivery Solutions “ presents 3 Partner Based Solutions developed during the HiCS project and referred below:”La Fiabrera –Good food for all“, “Punto X –Get fed with wellness“ and “DuniChef –Freedom of choice“.

“La Fiabrera –Good food for all“

SME employees order and pay for their lunch and fresh food shopping in advance through the smart ordering system on the internet. Meanwhile, the Social Services place an order through the smart ordering system for a number of set menus for people in need enrolled in their scheme. The Social Services choose according to the medical needs of each user (e.g. food options for diabetes or low cholesterol diets). The orders go through to a catering company’s central kitchen and shopping orders to a market stall in the Municipal Market. Here the stallholder and a volunteer prepare the ordered fresh food and place them into separate bags for each person. A van with prepared meals from the central kitchen (for both Social Services

and SME users) goes to the market, where meals for people in the Social Services scheme are left in a secure coolbox. Food shopping prepared for SME employees is then collected from the market stall and put in the same van. The van then travels to the SME where prepared meals and food shopping is delivered into a coolbox at the SME premises. The Social Services users walk to the market to pick up their meals from the secure coolbox. The food can be stored for two or three days in the fridge, and at the desired moment can be heated in domestic microwaves or ovens for eating.



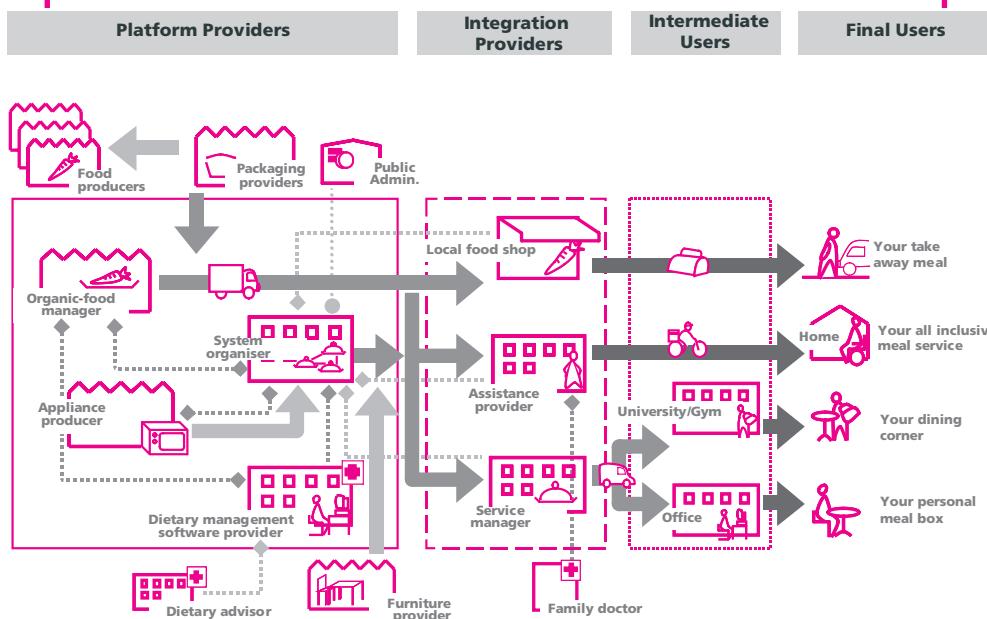
“Punto X –Get fed with wellness”

“Punto X” is the name of a system of products, services and expertise, that offers food solutions personalised to meet the needs of specific contexts-of-use. The solutions are based on traditional local, fresh organic and healthy meals, either “ready to eat” cold, or “ready to heat”. The requirement for personalisation arises from the different local conditions and personal situations of users. “Punto X” is a system of four solutions, delivered through different “service formats”, representing different organisational patterns that the system can assume

before reaching a user in a given situation (localised context).

The four formats are:

- Your all inclusive meal service: a home delivery service for personalised daily meals for users at home;
- Your personal meal box: a periodic delivery service for personalised meals to a community situation where an area is equipped for consumption. A service geared mainly for offices and day stay centres.
- Your dining corner: an automatic vending facility for personalised meals in a community context where an area is equipped for consumption. A service developed mainly for offices, universities and places of transit.
- Your take away meal: a point-of-sale for personalised take-away meals, mainly for shops, stations and transit points.



“DuniChef –Freedom of choice “

A tray that permits different meal configurations: on which there can be different modular containers, with different food in them and in different sizes.



System architecture in the HiCS project

What sort of architecture will solutions have?

Modular or integral? Closed or open? Rigid or flexible? A priori, or subsequent flexibility?

What kind of platform will they have? Comprising a core component, or characterised by a set of standard components? Based on core knowledge or the sum of coded knowledge?

In what sequence is system architecture (and the platform) designed?

From the solution system architecture to the solutions? Or, from the solutions to the system architecture?

Is the system architecture generalised or vertical? Global or local? From the top down or from the bottom up?

Does it consist of modules (elements) present in all contexts? Who arranges them (the “glue”)?

Here are some architectural questions that arose at the beginning of the HiCS project. Now, after years of developing these solutions, it is possible to present some answers to these.

Some architecture properties described above have been recognised as essential since the beginning of the project:

- flexibility: in terms of ability to provide different solutions using the same system; to incorporate solutions to be developed in the future; to avoid long term partnerships;
- system openness: in terms of the ability to involve new elements or new partners during the process;
- interchangeability: of different partners and solution components; where

- elements/partners are not connected by unique relations;
- presence of a platform: intended as the “common denominator” of several solutions, ensuring the feasibility of industrially manufacturing the solutions.

1. The vision in perspective

Seen by the user, the solution appears as a combination of components – material (products and infrastructure), relational (services) and immaterial (communication, knowledge, information) – assembled ad hoc to respond punctually to a specific user requirement (customisation) expressed in a specific context (contextualisation). From this perspective, solution architecture is perceived as integral, where the solution is seen in unitary terms with a priori flexibility but without subsequent flexibility, so once “delivered”, the solution is not designed for further customisation. Flexibility of use means that the ingredients, rather than the complete prepared meal, are delivered. These “enabling solutions” are present, for example in “La Fiabrera”, where extras or alternatives to the meal are delivered to the homes of SME employees, as well as the shopping requested; also in the “Take away your meal” and “Your all inclusive meal service” by “Punto X”, it is possible to collect or have delivered either the complete meal or its different ingredients. Regarding the platform, some elements present in the different solutions can be identified:

- the simplified microwave, provided to users, the recipes and the distribution system in “La Fiabrera” characterise both the solutions offered: the delivery of prepared meals to social service users and the delivery of prepared meals and fresh food shopping from the local market to SME employees;
- organic, healthy and high quality food, recipes, food information, packaging and brand identity, consumer profiling and first level logistic system are the main common elements of the different “Punto X” solutions.

In addition to these platform elements there are elements that are specific to the single solutions:

- In La Fiabrera: the secure coolbox (with lockers) at the market, where the people pick up their meals, is only used in the solution for social service users; the food shopping bags and the smart ordering system distinguish the solution for SME employees;

- In Punto X: the type of vending machine and the final distribution system differentiate the different solutions, making this differentiation the main “penetration” strategy for the different solutions contexts: some integrative partners (e.g. the university service manager, the assistance provider, the local food shops) are intermediaries able to reach different contexts; we may define them as access facilitators in different context-of-use. In contrast, in the “DuniChef - Freedom of Choice” different solutions are the result of different meal product configurations, distributed in a complete form to hospital patients. In this case the platform can be traced back to the presence of a tray on which there can be different modular food containers: this is a tangible core component which acts as the support structure for the different solutions. This case also represents the solution for which there is the most concentrated, “design investment”. For DUNI, the tray actually constitutes a completely new product created ad hoc for the HiCS project but was also designed to be used in other solution contexts.

In the other cases, where there was no single “core-component” present, design activity was mainly concentrated on the creation of an innovative system for elements already present in the market or the retrieval from the so-called “innovation warehouses” of the different companies of temporarily abandoned ideas/prototypes. In terms of the solution, this means:

- recombination of existing elements, without the introduction of new elements;
- some elements being present in several solutions;
- none of the elements of the solution having been designed to be specifically employed in that given system only; some of them have been re-designed, in order to make them fit the specific solutions (e.g. electrical appliances, such as simplified microwave ovens and modified refrigerators); another was “brushed up” from a previous project that never reached the experimentation stage (the vending machine of the “Punto X” solutions).

Taking the users view of the solutions, it is of little importance if these solutions are the result of a traditional process, as they have always been, or an industrialised one (reducing cost or improving general accessibility of a solution). A neighbour can bring a meal prepared ad hoc to someone, but not everyone has a neighbour that cares about them enough to provide this kind of service.

2 Plan vision

Seen as a “plan”, we can add industrialisation to the important characteristics of personalisation and contextualisation, which have significant roles in solutions. What does it mean if a solution is industrialised?

While it is well known what is meant by “industrialising” material components, it is far less clear what it means to industrialise immaterial and relational components. To industrialise a whole complex hybrid artefact, a solution, is a completely new issue. The building sector is an interesting reference point regarding this issue (a building is a unique contextualised and customised product). The debate over what it means to industrialise a building started in the ‘60s and continues today. Recently, the conclusion has been reached that an industrialised building does not necessarily have to be composed of industrially produced parts (prefabricated off-site). Instead highly industrialised and standardised components and traditionally produced “unique pieces” can co-exist within the building (the introduction of numerically controlled machine tools has made the dichotomy between industry and craftwork partly obsolete). This concept has been replaced with the industrialisation of the organisational and logistic process that creates the building. Interest has therefore shifted onto organisation systems that can produce varied objects.

Similarly, in the HiCS project, the starting point is the use of solution industrialisation to increase efficiency and efficacy. In principle, both efficiency and efficacy refer to single components and the solution as a whole. But in the research, the most interesting aspect is the issue of increasing the efficiency and efficacy of the solution as a whole. Therefore it is recognised that to achieve the advanced industrialisation of solutions they must be supported by an industrially organised and managed process. For the HiCS project, this idea similarly leads to studies on innovation in the building sector like the ones on virtual organisations, not to commit all solution components to industrial production but rather with a view to industrialise the interfaces between these “logistics”. This is the so-called “glue” that, in terms of the “front view” above, results in a solution made up of physical, virtual and unitary aggregations between elements. Considered in terms of the “plan view”, this refers to the relationships between the different protagonists/partners and the different process stages; an organisational system that forms the fundamental element of the architecture. In these terms, the industrialisation of the solution is associated

with the introduction of “system organisers” able to structure and coordinate the entire functional process (without being responsible for manufacturing the single elements), from order to the delivery of the solution. They are able to combine products, services and communication efficiently and effectively.

This “system platform” in this cases takes the form of a computerised system which facilitates the exchange of organisational and logistic information, allowing electronic collaboration within projects. The smart system that collects orders and sends them to the distribution system in “La Fiabrera”. In “Punto X” the system processes the parameters making up user profiles, food characteristics, recipes and the logistic system. In DuniChef the system collects the choices of different patients, transmits them and takes care of the configuration and delivery of the DuniChef tray. These different forms of organisational-informative-logistic “glue” has not yet been fully developed by the three partnerships. The absence of this pre-determined structure, controlling flow management, information and interfaces among the parties, means the hypothesised “platform” concept is still developing and must be considered a future target for the project.

Otherwise the presence, in the HiCS project, of a “platform” formed by common procedures, agreements, more in general “cohabitation rules” between elements and partners may be considered as a more feasible nature of a platform more respondent to the actual flexible, fluid, constantly changing company organizations.

3 Other questions

From the solution to the system or from the system to the solution?

Rudolph Arnheim makes a distinction between a “from the top downwards” design process (from the product as a whole to its elements), and a “from the bottom upwards” process (from product elements to the whole). Likewise, Ernst H. Gombrich makes a distinction between “subdivision” and “repetition and extension” design processes. In the IT sector, the transition from (immaterial) products to solutions has been highlighted and companies are developing solution platforms: packages that feel like they are entirely customised to an individual customer but are actually 90 % pre-developed and thus capable of being offered to a range of buyers. This is generally the result of a process that shifts from the single solution to the standardisation of its elements, in order to subsequently propose a

means of combination that offers a higher number of customised solutions.

In the HiCS project, the process was divided into different stages. First a brainstorming stage aimed to create a high number of solutions, starting from a protagonist present on the project. The second stage clustered these solutions into families characterised by the shared elements (e.g. physical or organisational elements). The third stage evaluated how these “families” or systems could create a higher number of solutions. This continuous fluctuation between solutions and architecture and vice versa can be said to characterise the Solution Oriented Partnership design process.

Top down or bottom up architecture? Local or global platform?

Is there a relationship between the local dimension and the solution? Or can a global protagonist provide solutions (e.g. IBM now sees itself as “seller of solutions” rather than products)? Or does the high level of customisation needed in the solution itself, its contextualisation, require the presence of local protagonists?

The building sector is characterised by general contractors with strong links to the local area but usually a low levels of innovation. These local companies tend to work with larger international materials and components manufacturers with high degrees of innovation. Paradoxically, something similar can be observed in the IT sector. Firms that operate in the global market supply single or assembled components, whereas small local firms function as “adaptors” of these standardised components for single users and different contexts.

In the HiCS project, two main directions are represented, due to the different nature of the three enterprises at the “core” of the three different partner based solution systems: a big global enterprise (DUNI), a small, local and new enterprise (BioLogica) and a design consultancy (CDN). In the first case, the system was created by a firm that operates in an international market and aims to broaden this market. In contrast, the second and third cases local firms followed a bottom up process where solutions were designed and tested locally, based on partnerships with other local protagonists, and aimed expressly at specific contexts. As such solutions were not “exportable” to other situations without making modifications to both the elements and the partnerships.

From these examples we can propose an emergent model of:

- international “suppliers” of solution components as well as standard elements

(paper napkins, etc);

- local solution component “integrators” (e.g. a hypothetical “piadine” supplier, a typical product in the Italian region of Emilia, that is only included in solutions offered in that specific region);
- “assemblers” of both physical and immaterial component units that are able to assess the specificity and potential of different reference contexts, create systems for them, adapt component units for different contexts (transforming the units into solutions) and coordinate the general solution production and supply.

The latter figures, the key protagonists of the process, are predominantly local (they can be defined as “context related”) and have limited spheres of activity. Once these spheres of activity have been exceeded they are no longer able to take advantage of offering different solutions. A symbolic example is the role of Whirlpool across “Punto X” and “La Fiabrera”. In the former they collaborated in the design of solutions, and could be considered “assemblers” in the Italian solution. However in the Spanish project they only “supplied” existing products, which were modified ad hoc for the local context.

Lessons learnt

1. Taking the “plan” view of system architecture, the presence of a “platform” allows the efficient and effective combination of products, services and communication elements and therefore the production of highly industrialised solutions.
2. The definition of this platform has gradually taken on a conceptual rather than a physical nature.
3. The formation of a platform, in its different aspects and/or stages (the creation of a common view; of a trust environment; the definition of “interfaces rules” between elements and partners, like agreements, procedures and definitions; the construction of an IT infrastructure, etc.) takes time and resources. With the progress of the project, the focus has inevitably shifted from the component elements of the solution to the interfaces among them. In other words, from the “modules” to the “glue”. It is the integration of such modules that allows the supply of highly industrialised solutions. In the HiCS project this platform, aimed at organising and managing the functional solution supply process, became “a shared vision”, “a unitary language” and “a group of rules for achieving compatibility between

different elements and partners”.

4. When designing and producing advanced industrialised solutions, the solution architecture and the partnership system form two sides of the same coin. A Partner Based Solution in the HiCS project, can be seen as a system architecture characterised by low intensly interconnected elements where the interfaces are a set of rules for achieving compatibility. This situation is mirrored in the partnerships between the different protagonists involved. The collaboration agreements are mostly non-exclusive, changeable (many partnerships changed during the project), potentially reversible and have limited time periods. These are systems made up of flexible non-binding relationships. This kind of partnership and solution architecture is a better response to the actual fluidity and flexibility of the organizations involved in solution oriented partnerships. Exceptionally, more formal partnerships are able to move this model (e.g. becoming a promoter of a shared computerised infrastructure). As underlined by studies on product architecture, the platform concept requires a high level of R&D time and economic investment, which must be shared between firms. There should be early design effort applied to the development of platforms with long life cycles so that the required R&D investment can be shared across a number of solutions. The relationships between solution promoter firms using a platform tend to reject conventional supplier-customer type relationships because the firms share objectives (supplying the solution) and design capabilities. But, this is not an immediate change as seen in the HiCS project experimentation work.
5. Finally, the designer is a key contributor to the solution project, tentatively creating solution ideas, displaying shared visions, facilitating the convergence process and outlining the system architecture for the different solutions and their shared platform.

Sustainable System Innovation

Tom van der Horst

Introduction

Within the HiCS project Partner Based Solutions have been developed. Partner Based Solutions are solutions produced and delivered by Solution Oriented Partnerships . The main characteristic of these partnerships is that they are able to deliver highly dedicated solutions for users in a wide range of specific contexts-of-use (i.e. the meta context). These solutions are produced and delivered based on platforms that are ecologically and economically optimised. The Solution Oriented Partnership Methodological Framework aims to facilitate the Partner Based Solution innovation process and the close interactions needed between all involved actors. The methodology described in the Solution Oriented Partnership approach has to be seen as a new way of innovating. To realise a Partner Based Solutions it is necessary to innovate the product, the related service and the underlying system. From this perspective the Solution Oriented Partnership approach can be seen as an approach to achieve system innovation.

In the literature system innovation has been defined in different ways. Recent literature defines system innovation as an important step towards transitions, like Rotmans and Butter. Transitions are major changes in society towards sustainable development. The premise is that a number of sustainable system innovations, that are smaller and more well defined than a transition, can lead to a transition. Within this perspective the development of sustainable solutions can be seen as a form of bottom-up system innovation with a large potential to contribute to transitions. Much has been learned about which elements of the Solution Oriented Partnership approach can contribute to the realisation of sustainable system innovations. This chapter will define the concept of Sustainable System Innovation (SSI) and its relation to the Solution Oriented Partnership approach. The experiences of the HiCS project will be considered from the SSI perspective, and based on this reflection, the following central question will be answered:

How does the Solution Oriented Partnership approach enable Sustainable System Innovation, and which elements of the approach are crucial and unique to the achievement of this goal?

This chapter will refer to cases of Partner Based Solution piloted during the HiCS project; the Duni case, the CDN case and the Biologica case. An extensive description of these cases is published in the book: “Food delivery Solutions – cases of solution oriented partnership”.

Sustainable System Innovation

Different definitions of system innovation can be found in the literature. Rotmans defines a system as a coherent combination of parts that influence each other in a certain direction. For example an economic sector, a branch, a city or region, a societal domain or theme. The system is the umbrella under which individuals, companies and organizations have organized themselves. System innovations are innovations that go beyond existing organizations and radically change the relationships between companies, organizations and individuals. System innovation is defined as a combination of technological, organizational and cultural change that results in a totally new fulfilling of needs. System innovations themselves have originate from smaller project-, product and process-innovations. Transitions and system innovations are seen as social learning processes. This means that they require a continuous learning cycle, occurring at all levels and with all actors involved. For sustainable system innovation a number of key characteristics can be defined. The author believes the following is a list of 7 characteristics of successful sustainable system innovations:

- 1) *Inherently sustainable.* The essence of sustainable system innovation lies in finding solutions in which the economic interests of individual companies and organisations can co-exist with the objectives of societal sustainability. This win-win situation is referred to as ‘inherently sustainable’.
- 2) *Focus on the user.* User needs are taken as the starting point of system innovation. Continuous interaction with (potential) end users and consumers during the innovation process appears to be crucial.
- 3) *Balance short-term and long-term.* Large scale social change cannot be achieved in the short-term. However, short-term progress is needed to encourage and create a basis of support for innovation. Therefore, finding the balance between long-term and short-term ambitions is a key aspect of sustainable system innovations.

- 4) *Integrated multidisciplinary approach.* Sustainable system innovations involve a combination of changes in technological, cultural (including behavioural) and structural (i.e. organisational, economical, administrative) systems, requiring an integrated and multidisciplinary approach. In past and present practice most innovations are implicitly or explicitly based on technology push alone, so they are very often doomed to failure.
- 5) *Multi-stakeholder.* System innovations exceed the boundaries of individual companies and can only be achieved with the involvement of multiple stakeholders. This means that versatile joint ventures (both private and public-private) must be developed and that the basis of support among different stakeholders must be built up step by step.
- 6) *Multilevel.* Sustainable system innovations must pay attention to the opportunities and threats at different levels of scale – micro, meso and macro. The macro level, that of national or supranational government, is of importance because system innovations can only make a contribution to large-scale social change if there is a basis of support at this level. The meso level considers the interests of actors like trade associations and regional and local governments. The micro level comprises individual players, each with their own specific interests. System innovation success depends the willingness of actors at these levels to innovate or create a basis of support for it.
- 7) *Multipliable.* Finally, sustainable system innovations must be multipliable, meaning that they should in some way be part of a broad societal move toward sustainability. This is a prerequisite of the assumption that a number of system innovations must be capable of generating a transition, either in parallel or sequentially.

THE SOLUTION ORIENTED PARTNERSHIP APPROACH FROM THE PERSPECTIVE OF SUSTAINABLE SYSTEM INNOVATION

Inherently sustainable

Sustainable system innovation requires solutions where the economic and social interests of actors in society (companies, government, consumers) can co-exist with

the objective of a sustainable society. We are searching for win-win relationships between profit (economy) people (social) and planet (ecological aspects). To achieve these inherently sustainable situations it will be necessary to rethink existing ways of doing business and to develop new sustainable business models. The value chain itself is an important point of focus when analyzing and innovating systems. Value chains dominate relationships between partners. To create new business models new value chains have to be developed. And to create new sustainable business models these value chains must take into account the social, cultural, and ecological interests of the actors involved. The Solution Oriented Partnership approach specifically aims to help achieve this ambition. On a practical level, in real life contexts, new solutions have been developed with very promising results. The HiCS research project defined the space for innovation. The Solution Oriented Partnership approach contains a Benefits Planning Tool, presenting a process for developing new business models based on combinations of economic, ecological and societal benefits. Taking one example from the HiCS project, the CDN case very clearly illustrates the achievement of a win-win-win relationship between economical, ecological and social improvements. Using a system that is both economically and ecologically more efficient (because it uses less transport) means that, in the town of Rubí in Spain, the Social Services can feed more poor people. Within this new business model, or rather benefit model, many interesting value concepts have been incorporated, including voluntary charitable donations by workers receiving a food delivery service that contribute to the cost of local poor people receiving similar meals. The crucial role of the designer in the development of inherently sustainable solutions is to combine economical, social and ecological interests in new tangible solutions. The HiCS project proved that this combination can stimulate very promising new concept ideas. For example, the modular Duni food packaging makes it possible to serve a variety of small customised portions benefiting the user but also resulting in a reduction of food waste, an ecological benefit. Whilst it is emphasized in the Solution Oriented Partnership approach, this key creative visioning role of designers is often missing in many system innovation approaches.

Focus on the user

The notion that the user should be the basis and focus for innovation, including

system innovation and transition, is still growing. The essence of this idea is the continuous interaction of users and innovators, or that in the extreme users themselves become innovators. This approach can be seen as a social learning process and is suggested for innovating new products (by Philips vision of the future), but also for innovating new systems and solutions for society and interactive policy development (by Slob and Hoogma). The Solution Oriented Partnership approach offers clear tools for involving users in the design process. On the one hand these tools aim to focus on specific niche groups with in-depth methods. With the other they aim to improve social quality by studying broader societal trends. Although specific target groups for Partner Based Solutions sometimes change during the innovation process (due to changes in focus or interests of partners) the in-depth user research conducted early is not wasted because many of the insights generated apply across user groups or contexts (i.e. they are general to the meta context) and are therefore relevant throughout the innovation process. One fundamental issue shared by the Solution Oriented Partnership approach and Sustainable System Innovation is the ambition to reach a solutioning society. In both these approaches, as well as in transition management and in interactive policy development, much attention is paid to the involvement of civilians and consumers in the process of societal change. This is seen as an answer to the outdated policy of top down societal development (i.e. “the designed society”) or purely market driven approaches that do not solve problems beyond individual interests. The new bottom-up approaches seek an ongoing interaction process combining more input and commitment from society with non-individual social goals. The Solution Oriented Partnership approach offers a clear and promising way to organize these interactive and bottom-up innovation processes. The approach’s central concept, the Partner Based Solution, underlines the importance of involving many different sorts of actors in system innovation. As such the approach can be seen as a tangible step towards our ambition to become a designing society.

Balancing short and long-term

Large-scale social change cannot be achieved in the short term. However, progress in the short term is still needed to stimulate and support further innovation. Finding the balance between long and short-term ambitions is therefore very

important when innovating at the system level. The literature on transitions and system innovation pays much attention to tools for exploring futures, scenario-development, backcasting and road mapping. The aim of this future oriented approach is to combine the interests and priorities of partners' in a shared ambition. These visions of possible future system innovations make the ambitions tangible and desirable and thereby help generate support and interest. At the same time these future visions can be far-reaching innovations. Based on these visions realistic steps can be identified to bring the ambition closer to today's reality (i.e. "think in jumps, act in steps"). Rotmans believes that these visions of future ambitions will change during the transition process (of many years) based on the experiences and continuous learning built up in the processes of stepping towards them.

The Solution Oriented Partnership approach offers many opportunities to arrive at new visions of ambitious future-oriented solutions. The methodology does have some recognizable elements of more conventional design processes as used within companies and design schools (client research, concept development, technology development, and business planning). The advantage of this starting point is that it makes it easy for designers and companies to use the approach. However, the solutions developed during the HiCS project by Duni (diversification), Biologica (new distribution concepts) and CDN (new system for local food delivery) illustrate that the new elements of the Solution Oriented Partnership approach result in substantial and very positive changes to the business of the involved companies. It seems that the Solution Oriented Partnership approach makes it possible and feasible to build up important new business activities.

Crucial to this success is the fundamental and unique choice, at the heart of the Solution Oriented Partnership approach, to manifest the ambition for far-reaching innovative sustainable solutions in real life projects. The consequence of this choice is that the design decisions needed to achieve these ambitious solutions are still dominated by the short-term interests of partners. This is understandable in terms of the business interests of the participating companies but it potentially limits a jump forward in terms of system innovation. However, the big advantage of choosing to center the Solution Oriented Partnership approach around practical real life projects (instead of concept experiments) lies in the relevant, high value and high quality results of this actionable approach. The learning gained in real life

and ambitious innovation projects is unique and has a high value for new business and policy development. It is hoped that future work on sustainable solutions, by companies and researchers, will be positively influenced by the learning results of these real world projects. From a strategic perspective, this influence on future sustainable solutions is at least as important as today's practical results. Improved visions for future solution systems are so important because they help increase support for societal change.

Integrated and multidisciplinary

System innovation requires multidisciplinary interactions. This means interaction between technological, organizational and social/cultural disciplines. Although this statement is certainly not new or shocking, the difficulty of putting multidisciplinary interaction into practice is often greatly underestimated. Both literature and experience underline the importance of arriving at shared problem visions and of developing a language that can be shared between disciplines. Shared language is a good example of something required to make trans-disciplinary work effective. The Solution Oriented Partnership methodology is both an approach and a new language that helps to bridge between the many different disciplines needed in complex international innovation processes. Indeed, it is interesting that participants in the HiCS project, using the Solution Oriented Partnership approach, often refer to it as a new way of life. The HiCS projects illustrate that designers and design-oriented people have strong trans-disciplinary interests and that they have the ability to bridge disciplines. The Solution Oriented Partnership approach enables people to involve and interact with different discipline specialists in a shorter amount of time, without biasing the start point. Organizing the involvement of many disciplines in a complex innovation process always leads to what we can call the multidiscipline paradox ; that the involvement of all the disciplines needed, in all phases of the process, makes the situation unmanageable. If some disciplines are not involved at the start important views could be overlooked, or arrive too late, resulting in an inefficient process. If other disciplines define very strict starting points at the beginning to reduce risks, no breakthrough innovation will occur at all. It appears that the Solution Oriented Partnership approach solves this issue very effectively because the process it presents is non-linear but very clearly defined.

Multistakeholder

Transition and system innovation are, by definition, processes in which many stakeholders are involved. If we want to fundamentally improve systems, like food production and distribution for example, it is clear that this change will influence many different actors in the system. This is further reaching than simply involving the consumer, individual companies or all the companies involved in the value chain. To create transition towards a sustainable society requires changes that also involve local authorities, national and supranational authorities. Furthermore, NGO's, intermediaries and knowledge centres will undoubtedly have strategic roles to play. Transitions and system innovation quickly lead to discussions about the roles of the various players in the process, especially the role of government. Is the government, as the representative of social interest, also the primary problem owner where sustainable development is concerned? If government takes a proactive stance and wants to work with the business community to develop sustainable system innovations, how far should this commitment go? Do sustainable system innovations and transitions have to be government initiatives that are gradually adopted by the market, or does it work differently? Although the answers to these questions are not unanimous, the dominant opinion is that, because of its broad societal role, government should take the lead in sustainable development. Ways then have to be found for government to manage this objective within the current interests and trends of society, such as the de-linking described under the first characteristic (inherently sustainable). Partnership development forms a big part of the Solution Oriented Partnership approach. The framework helps to develop solutions delivered by new partnerships and it enables companies to work together in innovation processes. As such it is aligned with the current trend in innovation management towards co-development and brand sharing in innovation. The Duni case illustrates that within the Solution Oriented Partnership approach attention can be paid to the interests of other crucial partners in the process thereby increasing the chances of successful partnership. The CDN case illustrates that involving public sector organisations, like Rubi Social Services, can create new business opportunities.

So it can be concluded that the Solution Oriented Partnership approach contains a number of valuable elements that make it possible to build step by step support

for a new innovative solution. Different roles for government (at local, national and supranational level) are essential parts of this process of developing support, particularly because the Solution Oriented Partnership approach tries to develop sustainable solutions. Government must be a representative of societal needs (e.g. sustainability), a founder of innovation, a creator of new policy and the conditions needed for sustainable solutions, a customer of new solutions, and the initiator of societal transition processes. These conclusions echo the experience of transition projects in the Dutch Ministry of Economic Affairs. More attention should also be paid to the role of the designer within these multi-actor processes. Designers often run the risk of becoming the representative of power of change, with the responsibility to push innovations forward even when they are not asked for. A more desirable situation would be the emergence of natural champions (like companies or government) that within the new system context ask for new solutions that can be realized by designers. From this perspective it is important to explicitly define the role of process manager in projects using the Solution Oriented Partnership approach. The process manager's main task is to create a situation where the actors involved discover for themselves new solutions and opportunities for sustainability. The process manager should facilitate the change of organizational, cultural and technological system conditions achieved by the actors. One important role for designers is to stimulate this innovation process by developing visions and solutions, making them visible, tangible and inspiring.

Multilevel

Here the assumption is that transition, system innovation and structural change in society can only occur if trends and developments on three different levels (micro, meso and macro) are mutually supportive. The HiCS project has illustrated that it is possible to generate societal, ecological and economical win-win-win situations on a micro level. It is also clear that a greater number of such solutions would become possible if conditions changed at the meso and macro level. Examples would include changes in the economic and legal conditions that could be made by (local, national or supranational) government. The fact remains that the challenge of system innovation is to find connections between trends and developments on these three levels. These first steps in this direction are of great importance because

information about the micro-level boundaries identified within real life HiCS case projects can be fed back to the macro level. Moreover, it is hugely important that government priorities at the macro level continue to influence the domains and subjects that become the focus of future experiments in practice. A good example occurred during negotiations for the HiCS project when the EU underlined the importance of the elderly target group and the domain of food. These were major areas of alignment with EU policy. The next step should be to evaluate the experiences of the HiCS project from the perspective of EU policy, and to identify how government can support further initiatives.

Multiplication

Sustainable system innovations must be multipliable; in one way or another, individual system innovations should be part of a broader societal transition toward sustainability. This is based on the assumption that a number of system innovations, either in parallel or sequentially, must be capable of generating a transition.,

The Solution Oriented Partnership approach aims to develop new products and services. By their very nature these innovations aim for multiplication using the ability to scale-up as a business driver. Furthermore, the Solution Oriented Partnership approach strives to create platforms as a means to replicate solutions. The number of properties common to all three HiCS project cases illustrates the feasibility of these generic platforms.

The starting point for all Partner Based Solutions is that they are inherently sustainable. They are good for business and good for society, so both companies and government should be interested in their multiplication. However, for this support to materialise both have to be convinced of all the benefits of the Partner Based Solution. As such it is very important to have a good monitoring system for assessing the experiments in practice and to support the social learning process.

Lessons learnt

The central question was: *How does the Solution Oriented Partnership approach enable Sustainable System Innovation, and which elements of the approach are crucial and unique to the achievement of this goal?*

The discussion above leads us to draw the following conclusions. The Solution

Oriented Partnership approach offers organisations who want to develop radical new sustainable solutions a promising and strong methodology. This methodology opens up many possibilities for shaping practical innovation processes that can initiate sustainable system innovation. The following crucial and unique elements of the approach can be identified. The inclusion of a tool for developing a Benefits Plan formalises the ambition to develop new benefits models – business models that define value streams in terms of economic, ecologic and societal benefits. From the perspective of system innovation and transitions, the Solution Oriented Partnership approach offers a promising methodology for achieving our ambition to become a ‘solutioning society’. This approach seeks to combine bottom-up societal input and commitment from individual citizens, with business drivers and the high-level societal needs of government. On the one hand this interactive approach provides an answer to outdated top-down policy development approaches (the ‘designed’ society’). On the other it is a antedote to purely market driven approaches that fail to solve problems beyond individual interests. The Solution Oriented Partnership approach combines the ambition to develop far reaching and innovative sustainable solutions with a focus on real life projects. The learning outcomes of these ambitious real life innovation projects are unique and have a highly valued influence on new business and policy development. The Solution Oriented Partnership approach also offers a clear methodology and language that enable many different partners from across disciplines to work together. These elements make it possible to involve and interact with more specialists from different disciplines, quickly and without biasing the project start points.

The dominant opinion is that government, because of its broad social remit, should take the lead when it comes to sustainable development. Ways still have to be found for government to combine this objective with society’s current interests and trends. The Solution Oriented Partnership approach facilitates a multi-actor innovation process including important potential roles for government; representing societal needs, fostering innovation, creating new policy conditions for sustainable solutions, being the customer for new solutions and initiating the societal transition process.

The major challenge of system innovation is to find mutually supporting

connections between trends and developments on the three levels: micro, meso and macro. Within the Solution Oriented Partnership approach governmental priorities at the macro and meso levels influence the domains and subjects that become the focus of practical micro level projects. Learning about how projects work at the micro level is then fed back to the macro level.

Finally, the starting point of any Partner Based Solution must be that it is inherently sustainable; it should be good for business and good for society. As inherently sustainable both companies and government share the motivation to multiply and propagate the solution.

Part two: tools

Introduction to tools

Stephen Evans and Luisa Collina

This book has proposed that Partner-Based Solutions are feasible. The following Tool essays answers to the critical question of How such Solutions and their required such Solutions and their required organisational form of a Solution Oriented Partnership can be made to happen efficiently and effectively. Both the craft tradition and mass production tradition offer possible directions. But neither approach is effective and efficient, requiring significant resources and/or failing to deliver solutions that meet specific needs.

Many of the challenges described within the *Theme essays* are taken up here and essays are taken up here and turned into practical advice. The operationalisation of these is non-trivial; while parts of each tool may appear obvious, this is part of the elegance of a well-designed method – to seem obvious and clear, to use existing ideas and methods wherever possible, and to link together into a whole.

The individual essays tackle a range of challenges. Firstly the *Solution Oriented Partnership Methodology Framework* essay describes the integrating logic that can take a seed of an idea to a workable Partner-Based Solution with an operating Solution Oriented Partnership. All other tools follow the logic of the framework, and connect to other tools through the framework. For example, the *Context-of-use Method essay* describes how a deeper understanding of potential consumers can be gained and how that can inform the process of solution design. The Design Plan essay presents the critical methods used by partners to design the solutions themselves. Specific methods to help partners build a Benefits Planning Roadmap are described, focussed on understanding how to find and equitably share the benefits arising from the designed solutions. If the consuming context, the solution design and the potential benefits are emerging, then organisations will need to find and integrate new partners into the Solution Oriented Partnership. The essay *Tools for Co-ordinating Solution Oriented Partnerships* describes how new partners can be integrated into an emerging partnership, while managing contractual issues and concerns. The *Solutions Scan* essay describes how a single organisation can begin to seek out new partners and to assess them for their ability

to join with a solution-centred innovation task.

Given the objective of a Partner-Based Solution to deliver economic, environmental and social benefits, the serious technical challenges for System Assessment are described along with approaches to deal with assessing solutions that operate at a system level. Finally, a *Life Cycle Costing* method appropriate to system-level method appropriate to system-level solutions is explained.

Taken together, the tool essays operationalise the process by which different social essays operationalise the process by which different social players converge towards highly context-based, advanced industrial solutions.

SOPMF: Solution Oriented Partnership Methodological Framework

*Anna Meroni**

A methodological framework for developing Partner Based Solutions

The Solution Oriented Partnership Methodological Framework (SOPMF) is a structured, interconnected, methodological reference framework, aimed at the planning and implementation of Partner Based Solutions, and within which to collocate specific methodologies and instruments.

It is the methodological structure that underlies the process by which different social players converge on highly context-based, advanced industrialised solutions; a problem-solving tool for setting up a system innovation project in terms of strategic design. Indeed, working together towards partner based solutions that offer their users results, integrating visions, expertise and assets, is above all a question of identifying common interests alongside individual interests and pursuing these using a shared strategy.

The basic principle of the SOPMF is to include within the solution planning process actions that aim to establish alliances between partners and that bring players face to face with specific contexts. The result is a matrix derived by crossing three streams (rows) - Partners, Contexts and Solutions - with four stages of activity (columns) consisting of a process of Exploration and Development carried out twice in each stream. The twelve resulting cells each suggest a set of key actions that aim to organise this convergence by laying out the important stages of development.

Therefore the value of SOPMF is in outlining the important (and crucial) points on the path towards strategic convergence as simply as possible, using an approach that facilitates the setting up of the system architecture and its supporting platform.

This occurs thanks to the ability of this instrument to:

- define key actions common to all players involved in building the system,

* a first draft of this methodological tool was outlined by: Andrew Burns, Ezio Manzini and Simona Maschi

matching them to specific methodological instruments that are potentially capable of being reshaped ad hoc for each project-link planning factors together and bring out the relationship between system performance and its logical and productive organisation

- define important points at which to assess progress and align strategies
- stimulate discussion in decision-making while viewing the process from different perspectives
- share an effective technical language, able to facilitate the exchange of experiences

The result of the path is a system of Partner Based Solutions delivered, by a Solution Oriented Partnership, in Specific Contexts-of-Use.

Description of the SOPMF

The SOPMF aims to support a complex planning activity by organising it and reducing the margin of risk through the orchestration of a series of actions which back up critical stages in its progress.

- It supplies an interdisciplinary base on which facilitators and integrators with different, complementary expertise, can work alongside a group of stakeholders towards the goal of becoming a Solution Oriented Partnership.
- It is not a step-by-step methodology but rather a flexible, open framework that proposes not a linear path, but a series of actions to be repeated over again. It offers a basic framework on which to draw up different pathways. Within this framework the process of design/generation is continuous, based on a set of specific methodologies, adaptable to different project situations, themes and objectives.
- Each cell corresponds to a key-action or set of actions with a precise aim, summarised in the cell title. Progresses generally occurs from left to right, but the succession of actions that correspond to each cell is not necessarily linear. Action can occur simultaneously in several cells, or move freely from one cell to another adjacent. It is always possible and often necessary to move back to previous, or even to the initial, stages. Action can start from any of the left-hand cells and will end on one of the three right-hand cells.

Revisiting of previous actions is usually necessary when new information, new ideas, or new actors appear.

- Horizontal movement means that progress has been made towards the evolution and completion of the solution and supporting partnership.

Vertical movement means that progress is being aligned across the three themes around which players can converge on a Partner Based Solution.

STREAMS

Here the three streams defining the rows of the matrix are presented.

First stream: partners

The concept of partners used here comes from the idea of partnership as a flexible strategic alliance between different players (economic, social or institutional).

The rules of alliance are laid down case by case in order to achieve the best formula for collaborating in the development of a solution. Such alliances may consequently include leadership and enterprise roles for local actors, advantageous co-operation between *profit* and *non-profit* bodies, synergy between public and private organisations, symbiosis between multinationals and SMEs, the sharing of specific markets, and effective collaboration with users. This is partnership fuelled by the conviction that it is advantageous to ally oneself with others when striving for sustainable objectives despite traditional dynamics of global-local production, using shared scenarios that leave everyone the space to continue pursuing their own specific strategic objectives.

Progress along this stream is defined by the cells: Solution Promoters, Platform Providers, Planned Providers and Solutions Providers

Second stream: contexts

The concept of context-of-use includes all the variables that intervene in the implementation of a solution in a specific situation. This includes not only the user, but also her physical and social habitat, made up of people, products and services. The context-of-use is therefore also a context of activity, potentiality and limits, which the new solution must face. A solution that is able to respond appropriately and effectively to the requirements of a context must, necessarily, measure up to the (practical, organisational and cognitive) capabilities found there and present

itself as a service able to use them to best advantage, according to a strategy of economy of resources and local enhancement. Then a new concept is introduced – the metacontext-of-use – which is a simplified model of the context-of-use, characterised by a reduced set of properties which prove to be common to a set of specific contexts-of-use. It is an abstraction shaped by the need for effectiveness in analysis and design: it involves the adoption of a point of view to filter the reality, allowing only the characteristics important for the specific design process to pass through. The meta-context-of-use, is therefore, a design act that brings with it a vision of what the partners are trying to achieve.

Progress in this stream is defined by the cells: Contexts-of-Use, Meta-Context-of-Use, Target Contexts-of-Use and Specific Contexts-of-use.

Third stream: solutions

The concept of solution used here refers to a system of products and services orientated towards solving a problem through a service of high environmental quality and socio-economic value. Such a result is possible in so far as producers are able to offer a complex service at lower (economic, environmental and user effort) cost than that of the contingent, asystemic combination of individual products and services. To do this it is necessary to plan the interconnection of elements that make up the system, or rather the architecture of the system itself, and the standardisation of the interfaces between them. Progress in this stream is defined by the cells: First Solution Ideas, Solution Platform Elements, Proposed Solutions, Partner Based Solutions.

COLUMNS

Here the four stages of activity that define the columns of the matrix are presented.

First Column: platform exploration

This stage explores and identifies the initial terms on which to base the process of convergence towards a common platform and explores its foundations. The project pathway may spring from any one of the conditions defined by the actions shown in the three cells, or even from the co-existence of several conditions: this means

that there can be one or more partners recognising a Context-of-Use or some possible Solution Idea as interesting, so that they decide to explore a system level innovation addressing that context or that idea. This means that, in any case, action requires the exploration of the other cells and then proceeds towards an initial hypothesis of a system.

Second column: platform development

This stage outlines actions aimed at consolidating the initial results of the platform exploration stage: the effort focuses on the definition of a set of partners, contexts and solution ideas which will constitute the basis of the solution system being developed. The final aim is to propose a hypothesised structure for the platform and to outline the shared Platform Vision from which to start in identifying the integrative competences needed to develop the solutions. At this stage, the platform is shaped by a set of solution elements, making up various solution ideas, designed and delivered by several providers and addressing a set of requirements common to a number of contexts-of-use (the meta-context-of-use).

Third column: solution exploration

Given the Platform Vision as the basis of the system, this stage starts the investigation of specific solutions which together cover the meta-context-of-use. The system architecture is explored as a function of the competence and strategies of the integrative partners needed to implement solutions in specific contexts.

Again, these activities are explorations of new specific possibilities (in terms of solutions, partners and contexts), but beginning this time from the opportunities and constraints of the agreed platform. A first series of project assessments are needed at this stage in relation to the target economic and environmental context-of-use.

Fourth column: solution development

This stage outlines the actions necessary to finalise convergence of the partners, and to implement the various Platform-Based Solutions in real contexts, firstly through pilot experiments and then in industrialised form.

It envisages definition of commercial, general system management, brand

management and intellectual property rights agreements to structure the type of alliance between the various partners.

explore		develop	platform vision	explore	develop
partners	Solutions Promoters	Platform Providers		Planned Providers	Solutions Providers
contexts	Contexts-of-Use	Meta-Contexts-of-Use		Target Contexts-of-Use	Specific Contexts-of-Use
solutions	First Solution Ideas	Solution Platform Elements		Proposed Solutions	Partner-Based Solutions

Solution promoters

	explore	develop	explore	develop
partners	Solutions Promoters	Platform Providers	Market Providers	Solutions Providers
contexts	Contexts-of-Use	MetaContexts-of-Use	Target Contexts-of-Value	Specific Contexts-of-Value
solutions	First Solution Ideas	Solution Platform Elements	Proposed Solutions	Partner-based Solutions

The identification of project promoting organisations motivated to build a platform of products, services and competences able to offer solutions. Input: a request by one (or more) partner(s) for a strategic alliance toward a particular objective. Output: a vision of requirements and solution proposals to inform the identification of partners for a solution platform, utilizing convergence on interesting Contexts-of-Use and some initial Solution Ideas.

Context-of-use

	explore	develop	explore	develop
partners	Solutions Promoters	Platform Providers	Market Providers	Solutions Providers
contexts	Contexts-of-Use	MetaContexts-of-Use	Target Contexts-of-Value	Specific Contexts-of-Value
solutions	First Solution Ideas	Solution Platform Elements	Proposed Solutions	Partner-based Solutions

Here, Platform Promoters undertake systematic exploration of possible Contexts-of-Use and identify emerging demands that may be met by specific solutions. Input: a vision to guide the specific focus on a particular area of demand. Output: an in-depth analysis of the environmental, social and personal conditions in which some of the possible potential solution-users live, with special focus on existing opportunities and resources.

First Solution Ideas

	explore	develop	explore	develop
partners	Solutions Promoters	Platform Providers	Market Providers	Solutions Providers
contexts	Contexts-of-Use	MetaContexts-of-Use	Target Contexts-of-Value	Specific Contexts-of-Value
solutions	First Solution Ideas	Solution Platform Elements	Proposed Solutions	Partner-based Solutions

Generation of the first solution ideas, starting from Contexts-of-Use understanding and based on the strategic interests of the Platform Promoters. Input: a series of stimuli, based on the vision of a possible technological production platform, which responds to the demand arising from defined Contexts-of-Use. Output: a structured set of Solution Ideas that are promising (in terms of added value for the user, competitiveness, profitability, social and environmental sustainability) that can serve to start a strategic dialogue with other players to draw into the partnership. The ideas are expressed as concepts, which could be broken down into the main product and service elements which make up the solution.

Platform providers

	explore	develop	explore	develop
partners	Solutions Promoters	Platform Providers	Partners	Solutions Providers
contexts	Context-specific	Meta-Context-of-use	Target Context-of-use	Specific Context-of-use
solutions	First Solution Ideas	Solution Reference Elements	Proposed Solutions	Partner-based Solutions

Identification and integration of partners needed to enable full development of all elements in the platform. The partners become fully involved in the project by collectively setting up a shared vision. This takes place through a series of strategic dialogues among players.

Input: the Platform Promoters' vision is a statement of the ability, interest and commitment of the individual players in the project. Output: a group of Platform Providers (including Platform Promoters and new partners) united by a shared vision and the rules by which a common project can be initiated. The first objectives are to identify the reference Meta-Context-of-Use and on the basis of this, a series of possible solutions.

Meta-Context-of-use

	explore	develop	explore	develop
partners	Solutions Promoters	Platform Providers	Partners	Solutions Providers
contexts	Context-specific	Meta-Context-of-use	Target Context-of-use	Specific Context-of-use
solutions	First Solution Ideas	Solution Reference Elements	Proposed Solutions	Partner-based Solutions

Identification and integration of partners needed to enable full development of all elements in the platform. The partners become fully involved in the project by collectively setting up a shared vision. This takes place through a series of strategic dialogues among players.

Input: the Platform Promoters' vision is a statement of the ability, interest and commitment of the individual players in the project. Output: a group of Platform Providers (including Platform Promoters and new partners) united by a shared vision and the rules by which a common project can be initiated. The first objectives are to identify the reference Meta-Context-of-Use and on the basis of this, a series of possible solutions.

Solution Platform Elements

	explore	develop	explore	develop
partners	Solutions Promoters	Platform Providers	Partners	Solutions Providers
contexts	Context-specific	Meta-Context-of-use	Target Context-of-use	Specific Context-of-use
solutions	First Solution Ideas	Solution Reference Elements	Proposed Solutions	Partner-based Solutions

Development of the first solution ideas that fit with the partners shared vision and identification of product and service elements that make up the platform. This activity begins by selecting the most promising First Solution Ideas, identifying expertise necessary to implement them and a first draft of a conceivable organizational and technological model for the

platform. Input: the First Solution Ideas and the Platform Providers assessments of the identified Meta-Context-of-Use. Output: definition of the Solution Platform Elements and their articulation within a system. Systematic consideration is given to specific solutions, their various elements and the expertise necessary to implement them.

Planned Providers

	explore	develop	explore	develop
partners	Solutions Promoters	Platform Providers	Planned Providers	Solutions Providers
contexts	Contexts-of-use	MetaContexts-of-use	Target Contexts-of-use	Specific Contexts-of-use
solutions	First Solution Ideas	Solution Platform Elements	Proposed Solutions	Partner-based Solutions

Exploration of possible partners needed to complete the system and implement the solutions at specific local level, by means of targeted contacts and meetings with possible interlocutors. Input: the vision of the Platform Providers and a statement of missing expertise needed for the development of solutions. Output: a group of partners motivated to contribute to the local implementation of solutions and able to conduct the implementation.

Target-Context-of-Use

	explore	develop	explore	develop
partners	Solutions Promoters	Platform Providers	Planned Providers	Solutions Providers
contexts	Contexts-of-use	MetaContexts-of-use	Target Contexts-of-use	Specific Contexts-of-use
solutions	First Solution Ideas	Solution Platform Elements	Proposed Solutions	Partner-based Solutions

Selection and analysis of specific Contexts-of-Use for the application of solutions developed by the Solution Oriented Partnerships. Input: a variety of specific contexts outlined in the Meta-Context-of-Use and the real capacities and strategies of possible (local) providers.

Output: an analysis of real contexts and the demands emerging from them, by which to personalize the specific solutions.

Proposed solutions

	explore	develop	explore	develop
partners	Solutions Promoters	Platform Providers	Planned Providers	Solutions Providers
contexts	Contexts-of-use	MetaContexts-of-use	Target Contexts-of-use	Specific Contexts-of-use
solutions	First Solution Ideas	Solution Platform Elements	Proposed Solutions	Partner-based Solutions

Generation of ideas for Partner-Based Solutions, based on previously agreed platform characteristics and the capacities and strategies of partners. Input: the vision and capabilities of the partners, and an ambition to deliver solutions into real, specific Contexts-of-Use.

Outputs: detailed and contextualised ideas for Partner-Based Solutions, where the organization of the general architecture of the system is clearly visible and the roles and responsibilities of the players involved in the Solution Oriented Partnership is

foreseen. Meta-Context-of-Use. Output: definition of the Solution Platform Elements and their articulation within a system. Systematic consideration is given to specific solutions, their various elements and the expertise necessary to implement them.

Partner-Based Solutions

	explore	develop	explore	develop
partners	Solutions Providers	Platform Providers	Planned Providers	Solutions Providers
contexts	Contractor-of-Use	Meta-Contractor-of-Use	Target Context-of-Use	Specific Context-of-Use
solutions	Proposed Solutions	Solution Platform Elements	Proposed Solutions	Partner-Based Solutions

Final definition of Partner-Based Solutions with fully integrated partner capability, motivation and strategy. This occurs with the detailed planning of solutions and their component elements and the simultaneous definition of the architecture that supports them. This closing stage in project development focuses particularly on defining rules of interface between the elements of the system. Input: the Proposed Solutions and the implementation limits/potential emerging from the context and the abilities of the specific partners. Output: the plan of all the elements and the system organizational architecture that makes up the Partner-Based Solution.

Solution providers

	explore	develop	explore	develop
partners	Solutions Providers	Platform Providers	Planned Providers	Solutions Providers
contexts	Contractor-of-Use	Meta-Contractor-of-Use	Target Context-of-Use	Specific Context-of-Use
solutions	Proposed Solutions	Solution Platform Elements	Proposed Solutions	Partner-Based Solutions

Finalisation of agreements between partners and the negotiation of duties, responsibilities and benefit sharing mechanisms (economic, image, and other benefits) needed to deliver to the shared mission. This activity requires agreement over the form of strategic alliance and the formulation of a system-oriented business plan. Input: the Proposed Solutions and the economic and organizational limitations arising in specific contexts. Output: a series of organizational, economic and strategic agreements among the Planned Providers as to how to implement the solutions, expressed as a definition of the Solution Oriented Partnership.

Specific Context-of-Use

	explore	develop	explore	develop
partners	Solutions Providers	Platform Providers	Planned Providers	Solutions Providers
contexts	Contractor-of-Use	Meta-Contractor-of-Use	Target Context-of-Use	Specific Context-of-Use
solutions	Proposed Solutions	Solution Platform Elements	Proposed Solutions	Partner-Based Solutions

Detailed analysis of the individual specific contexts, and final assessment of solution impacts and benefits for the user, the environment and society. Input: the Proposed Solutions and knowledge of Specific Contexts. Output: a cognitive vision of the specific contexts, oriented towards the introduction of Partner-Based Solutions.

Context-of-use Co-research methodology

Christina Lindsay & Simona Rocchi, Philips Design

What is the Context-of-use Co-research methodology?

Understanding the context-of-use, its components and their interactions and reciprocal influences, is the starting point of understanding users' behaviour and preferences. The context-of-use is the environment of an action where the user interacts with a product, service or system of products and services. It consists of three components: the socio-cultural, the psychological and the physical. The context-of-use co-research methodology is designed to explore users' behaviours, their needs, wants and preferences by looking at their everyday lives and, starting with the physical component of the context-of-use, investigating the actors and their aims, actions, activities and artifacts. A key component of this methodology is to work with users to create with them 'stories' or 'narratives' around their everyday lives. This co-research goes beyond the 'what' and the 'how' of users' actions to the 'why', and strives to develop, with users, hypothetical solutions that improve their lives. The philosophy behind this research approach reflects the elements of contextualisation and partnership of the Solution Oriented Partnership approach. The context-of-use co-research methodology:

- takes an ethnographic view by considering people's by considering people's everyday lives in context;
- offers a multi-disciplinary perspective in which researchers, in which researchers, designers and the users themselves work together as a team;
- enables the co-creation of solutions by the researchers, the designers and the users.

This methodology provides a selection of methods to examine the micro level aspects of contexts-of-use in people's lives. The macro level of societal changes and trends was addressed through a socio-cultural study.

Why do we need a different research method?

To investigate the physical, socio-cultural and psychological complexity of

contexts-of-use the research needs to move beyond the ‘what’ and ‘how’ of people’s lives to the ‘why’ so that the research team can:

- begin to understand the complexities of people’s lives and problems, both open and latent, with respect to the research issue;
- investigate what people actually do, not just what they say that they do;
- obtain the view from within people’s lives, to find out what is actually important to them and not what is assumed to be important;
- examine all aspects of people’s relationships to the research issue and not look at just one specific problem;
- consider the research issue, not just in isolation, but how it fits into the rest of people’s lives.

Consumer research tools, such as surveys based on questionnaires, telephone or direct interviews and focus groups are valuable instruments to collect basic and general quantitative indications of current consumer preferences and market trends. However, they are static, one-time data collection techniques cannot generate insights into specific emerging or latent needs related to equally specific contexts-of-use. In order to create added-value solutions a different, more complex kind of information is required to identify differences in people’s use and socio-cultural habits. Innovative, dynamic and interactive consumer research techniques are available today. Cultural probes, shadowing and ethnography offer adequate knowledge on how people act and interact in particular contexts and why (i.e. what motivates them). The choice of technique depends very much on the goal of the research, the breadth of the investigation, the level of involvement of the research team, and on the budget and time available.

Unfortunately, these naturalistic techniques are not always effective and affordable methods of investigation for business. They are expensive (in terms of expertise and time involved) and they require a translation of the data collected into useful information for designers and marketers. The idea of including the users in the design process is not new. Practitioners in the field of participatory design have extensively involved users in the design of, primarily, information and communication systems.

There have also been attempts to include designers in the research process, for example through the Empathic Design approach. However, existing methodologies

and practices have met with limited success and, in general, address only one part of the research and design process. The integration of researchers, designers and users as co-creators in both the research and design processes has not been extensively researched or developed. In summary, there are many well-documented research methods for investigating people's lives – some of which (e.g. design ethnography; contextual research) have been adapted for use in the design field. However, these methods are usually presented individually and not linked together in a research process that provides a flexible framework of varied methods for use in different contexts. In addition, there is very little written on how to translate the information obtained using these research methods in the design process.

The challenge

In this framework, the research challenge was to develop a practical, methodological approach that combines the benefits of short-term traditional consumer research techniques with new emerging medium/long-term investigation methods. It had to be an approach able to capture users' personal preferences, wants and desires in their original contexts-of-use, resulting in:

- a repeatable process (precise but flexible enough for adaptation);
- a relatively inexpensive process (in terms of people and time involved);
- a relatively easy-to-use process (no particular expertise in social research, but enough sensitivity and skills to conduct social analysis);
- a process for the empowerment of the user (enabling participation through self-reporting activities);
- a process providing immediately available inspirational information for designers during the creative process of concept generation.

In addition, the research method had to be designed so that it was flexible enough to be adapted for different individual contexts-of-use while still uncovering enough information about the complexities of everyday life to analyse the socio-cultural, physical and psychological aspects of these contexts-of-use.

Where does this fit within the Solution Oriented Partnership process and who should be involved?

This research methodology is for use in the context stream of the Solution Oriented

Partnership Methodological Framework, for the exploration of potentially interesting contexts (first half of stream) as well as for detailed investigation into specific contexts-of-use. Verbal and visual articulations of the research findings are used in the solutions stream to help generate solution-hypotheses that answer similar needs manifested in different and specific contexts-of-use. In addition, there is feedback to the partnership stream to assist the industrial partners in identifying potential local partners and in suggesting other possible contexts-of-use to investigate.

One of the keys to the success of this research methodology is its emphasis on multi-disciplinary teams. Not only should researchers and designers work together to conduct this research, but users should also play significant roles. This must go beyond simply paying ‘lip-service’ to obtaining these people’s buy-in, and it should recognise that team members are all able to contribute different skills, knowledge and viewpoints. In fact, users become an essential and integral part of the research team and actually perform some research activities themselves. The users are experts in the research subject – their own lives.

In addition to providing unique insights, the inclusion of designers in the team facilitates the transfer of the research findings into the partnership and solutions streams of the Solution Oriented Partnership process. By actively experiencing the contexts-of-use co-research, designers are able to take this first-hand knowledge of people’s lives and needs into their subsequent design and development processes.

The context-of-use co-research methodology

The contexts-of-use co-research methodology was therefore designed to meet the challenges encountered as well as allowing for the research methods to be multiple, flexible, varied and interactive. The research methodology is shown in the flowchart below. Each step of the flowchart is explained with respect to its aim and an overview of some of the key tasks involved. There are two paths in the methodology and both will give insights into people’s everyday lives. While both paths entail spending significant time with the users, the additional time spent in the in-depth route will enable the research team to investigate more of a ‘slice of life’, and to uncover further problems, existing solutions and latent needs.

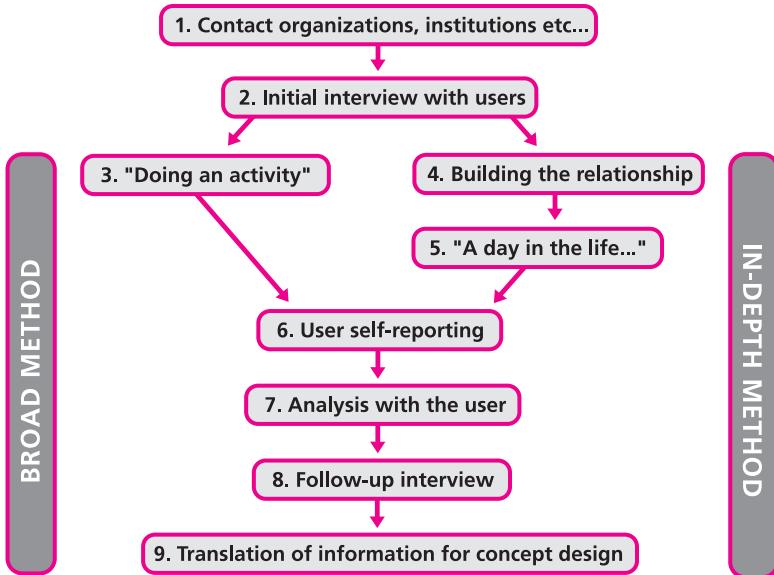


figure 1: **The flowchart shows the two research paths that can be taken. The path on the left side, 'Broad method', gives less depth of information than the 'In-depth method' path on the right side, but takes less time.**

Step 0: Select context(s)-of-use

The chapter 'Users in Contexts-of-use' gives details on how to select contexts-of-use for study, based on criteria of geographical restrictions, social relevance, market opportunities, and food quality limitations.

Step 1: Initial contact with organisations and groups

Aim: To find appropriate research sites and research subjects within the chosen contexts-of-use by contacting people in relevant organizations and institutions and obtaining their commitment to the project and a list of possible users.

Step 2: Initial contact with the user

Aim: To explain the project in detail to possible participants including what is expected of them and the schedule, and to gain their informed consent. This starts

the relationship between the research team and the users.

Step 3: Doing an activity (Broad path)

Aim: Focused on one or more specific activities, this is the main data-gathering period (2 or 3 hours) spent with the users in their contexts-of-use. While users perform activities related to the research issue, information is collected through observation and explanation of what the user is doing, why and how it fits into their lives, and through taking photos and video if possible. The user is also given an explanation of how to conduct the self-report assignments.

Step 4: Building the relationship (In-depth path)

Aim: This is a relatively short period (2 or 3 hours) spent with users in their contexts-of-use to establish the relationship and to find out about the user's general views on the research issue, through an informal unstructured interview, by taking photos and by drawing maps.

Step 5: A day in the life... (In-depth path)

Aim: To observe users' relationships to the research issue by spending an extended period of time (5 – 7 hours) 'shadowing' users, and taking photos and video to illustrate the stories obtained during observation. The user is also given an explanation of how to conduct the self-report assignments.

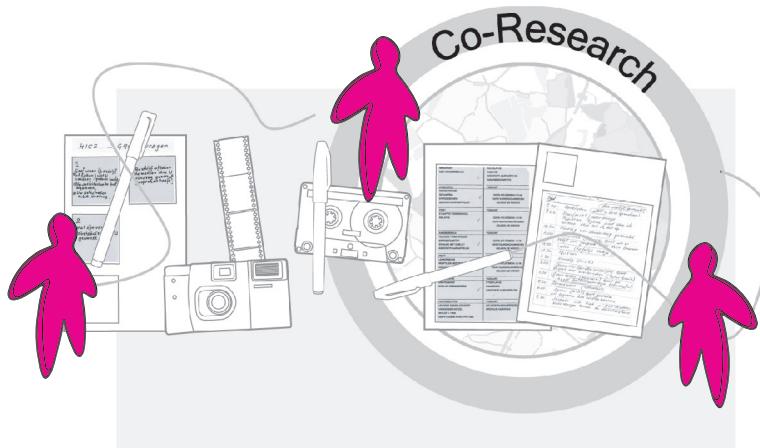
Step 6: Extended research - self-reporting

Aim: The users document their lives over a week with respect to the research issue by keeping a diary, drawing maps, taking photos and collecting things. If they run out of ideas of what to do, trigger questions are provided in the toolbox.

Step 7: Analysis of the information collected

Aim: The research findings are analysed from two points of view:

- from the user's perspective, working with the research team, to determine what is important, the problems encountered and the actions taken by the user to solve them;
- from the research team's perspective focussing on identifying hidden needs and



■ figure 2: **The user toolbox provides a variety of creative tools and includes; blank coloured cards; post-its; crayons; a bag to put objects into; a disposable camera; and a help phone number on a card.**

problems as well as recognising patterns of behaviour. The next part of the analysis is to move from individual contexts-of-use to comparison across different contexts-of-use, looking for commonalities and differences, and clustering problems together. In this way, similar problems across different contexts-of-use can be found.

Step 8: Follow-up with the user

Aim: This is a brief telephone interview two weeks later to tie up any loose ends, collect any further thoughts the users may have and to ask any outstanding questions.

Step 9. Translation of findings

Aim: Presentation of the research findings in ways suitable for use in concept generation:

- using the raw data – text, spoken word, photos, videos, drawings, objects etc.;
- using the analysis of clustered problems;
- innovative ways of presenting the data such as through personas, roleplaying and stories.

The method in use

Case studies using this methodology were carried out throughout Europe – specifically in the Netherlands, the UK, Italy and Spain. Illustrating the flexibility of the methodology, a refinement was made to accommodate particular circumstances of some contexts-of-use. Interviews in contexts-of-use (in steps 1, 2, 3, 7, 9) constitute. (in steps 1, 2, 3, 7, 9) constitute an alternative approach used when only a single, relatively short visit to the user is possible. In this case, the user is considered a passive actor able to provide answers to pre-determined open questions, often only about one part of the research issue.

The user does not carry out any homework assignments, but the research team is able to observe the contexts-of-use first-hand and to take photos for later analysis.



■ figure 3: **Some of the photos taken by the users during the self-reporting step of the Context-of-use investigation.**

Lessons learnt

The evaluation of the context-of-use co-research methodology focused on what kinds of information were obtained, the value provided, the skills and effort required of the research team, the user involvement needed (time and effort) and the limitations of the method. The in-depth method provides a slice of the users' lives through stories, diaries, videos, photos, drawings, objects and observations. The information obtained can cover many aspects of the research issue and provides detailed knowledge, the how and why of an action, latent needs, hidden solutions and the user's personal view.

All of these are highly inspirational inputs for the design process. The broad method provides similar information but related to just one or two elements of the issue being researched, giving snapshots of people's lives. The skills required of the research team are also similar in the two methods and include strong interviewing abilities, observation skills, and empathy and communication skills. However, the methods differ in the amount of time the research team spends in the field with the users for each case study (less in the broad method). The time required for analysis of the extensive and varied information obtained should not be forgotten. In addition, there were some financial costs associated with the materials supplied to the user as research tools.

The involvement and commitment required from the users included spending time with the research team and self-reporting over a period of about a week. As with any longer term research, both methods require a significant commitment of time and effort from the user, as well as a sense of adventure to experiment as a co-researcher and a willingness to open their homes to the research team. Interviews in contexts-of-use should be used when it is not possible to obtain the time, effort and commitment required of either the research team or the users. The information obtained provides an overview of specific issues or moments in users' lives through stories and photos. This method does not include the extended user self-reporting activities, yet offers the advantage of being closer to the socio-cultural and physical scene of an action. In this way it is possible to catch some insights into the 'how' and the 'why', and to collect visual inputs that can become useful sources of inspiration during the concept generation process. Sometimes the context-of-use

itself precludes the use of research methods that are longer term or that involve close contact and collaboration with users.

Examples could include investigating people's reduced access to food when staying overnight in hotels or at a music festival. In these cases more traditional methods of questionnaires and surveys can be used. We strongly suggest, however, that these methods are used in conjunction with other qualitative methods, perhaps when they have uncovered the questions that should be asked. In summary, the context-of-use co-research methodology is customisable to different contexts-of-use and research needs.

A combination of the research methods discussed here should be used, depending on the research issue and the depth and breadth of information required. For example; questionnaires could be used initially to explore issues and for market research; interviews in contexts-of-use could then be used to obtain more information about potential contexts-of-use; the broad method would obtain general insight into one or more activities in the selected contexts-of-use; questionnaires based on these findings could be used to obtain more specific quantitative data; and the in-depth method would be applied to collect more details, inspiration and information about the research issue and how it fits into people's everyday real lives.

Design Plan

A design tool box to facilitate solution oriented partnerships

*François Jégou, Ezio Manzini, Anna Meroni**

A TOOL TO COMMUNICATE AND EXCHANGE AMONG PARTNERS

The Design Plan is a strategic design tool-box that works as a series of formats to present, in a synthetic way, a solution involving numerous actors in a complex interaction process.

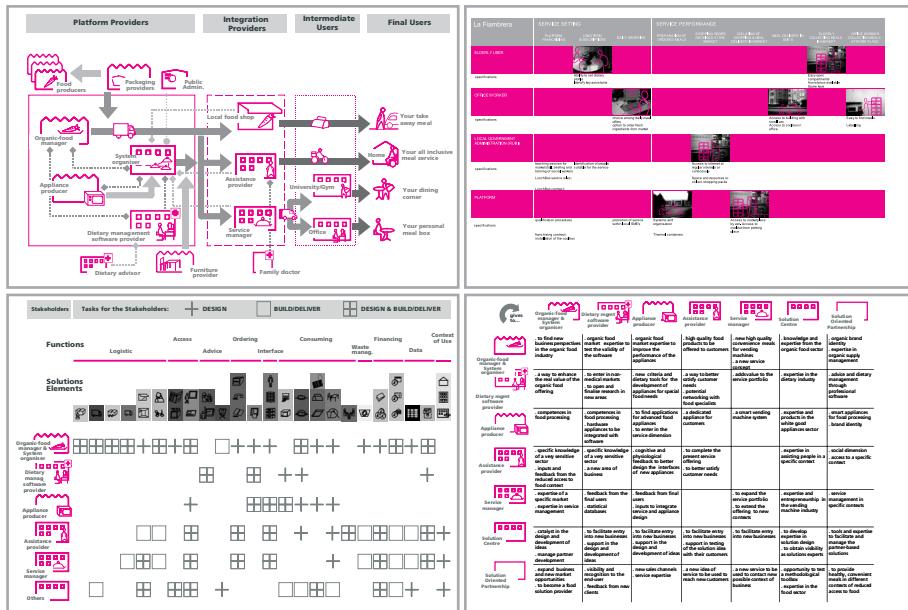


figure 1: The Design Plan is based on a series of formats that help different partners communicate and develop a solution together.

The Design Plan formats allow the actors involved to:

Build a common language...

The formats provide a learning process that brings convergence. A large number of actors from very different backgrounds and with limited understanding of each

other tends to make conversation between them difficult. The very process of learning, modifying and agreeing a common language requires them to reconsider their perspectives, discuss their divergence and begin the process of convergence. The Design Plan formats also provide a shared framework for this convergence. Different actors working in parallel need to build a common framework of expression. Fixed formats using explicit rules of representation allow them to share the same language, to speed up the comparison of their views and to facilitate decision making. In other words, to share a common approach to the design of a solution.

Support the strategic conversation...

The formats help reach a user-oriented visualisation. Multiple actors with different professional backgrounds and interests have difficulty reaching shared visions. The Design Plan visualisation formats are evolved models of representation based on typical user-oriented communication media – advertisement, user story-boards, topographic diagrams, etc. – and are designed to facilitate strategic conversations between actors.

The formats provide a visual identification for each stage of the solution design process. The Design Plan is a practical tool that helps translate the different strategic issues that occur during the solution development process, providing a common visual identification for each. For example early phases of concept generation tend to produce large numbers of alternative ideas and tentative solutions. The systematic visualisation of each solution using a common format (a solution with a name, a slogan and a visual identity) helps partners remember and recognise them, thereby facilitating convergence on one or more of the ideas.

Customize a standard language...

The formats provide a kind of open technical drawing. A single common language can never encompass the uniqueness of each project. The Design Plan allows the customisation of standard formats that can be adapted to the specific purpose of its users. For example each stakeholder icon can be customised using associated pictograms and verbal elements unique to the solution. The formats provide a qualitative expression of the solution. A standard language facilitates conversations

among partners but should also allow the refinement of the solutions by leaving areas open to personalisation and interpretation. This enables the creation of complementary elements that enrich the library of standard elements and refine the visualisation.

A TOOL FOR THE CO-ELABORATION OF SOLUTIONS.

The Design Plan works as a mediation tool for collectively building and refining a complex solution:

Producing synthetic views...

The Design Plan uses a limited number of formats. Creative workshop sessions and successfully involving partners in meetings require a complete set of information for the participants. The communication of large amounts of this information (multiple actors, numerous ideas, complex solutions) in a limited time is facilitated by the standardization of the information in a reduced number of formats. The formats allow control at the level of details. The concept generation phase requires the progressive refinement of several solution ideas whilst maintaining a controlled and equivalent level of detail for each. Each Design Plan format requires a certain level of detail (i.e. the graphic readability of the format is a clue to the level of detail that should be presented and the quantity of information to include).

Providing easy-access and flexible formats....

The Design Plan formats are formalisations in-progress and easy to change. The process of refining solutions and involving partners is iterative and needs numerous and constant adjustments. Therefore, formats based on open software and modular elements allow quick upgrading and refinement by the actors involved.

The Design Plan formats provide a formalisation system independent of the graphic capabilities of its users. Visualisation materials normally require the intervention of experts/designers which slows the strategic conversation process and increases its costs. A system based on the manipulation and association of prefabricated library elements, mixed with home made pictures, within a widely available software presentation system allows and even encourages the contribution of all actors involved to contribute even when they have no particular skill in the field.

Agreeing a visual contract...

The Design Plan creates informal collective documents agreed “de facto”. The first phase of a new partner’s involvement in the Solution Oriented Partnership methodology focuses on identifying the possible basis of collaboration. The resulting “first solution ideas” constitute the first shared evidence of a potential collaboration. Materialised through the Design Plan formats, they constitute the first informal agreement between partners. The Design Plan is a solution-oriented format with first business plan considerations in the background. The process of formalising solution ideas forces the potential partners to consider the ways in which they will collaborate. The Design Plan formats help to “boil down” the implications of a hypothetical solution in terms of the relationships needed between potential partners and encourages the first steps in the progressive preparation of a business plan.

A SOLUTION GENERATION DESIGN TOOLBOX

How does the Design Plan work?

The Design Plan is a shared and progressive system for representing and elaborating a solution. The Design Plan is a shared system in the sense that it is based on standard rules system in the sense that it is based on standard rules allowing the representation of solutions in a reproducible and comparable way. It uses a series of fixed presentation formats (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 solution proposal (platform organisation, partner interests, user interaction...). It provides conceptual and visual models, a kind of “technical drawing”, to communicate solutions, but it also supports designers thinking about solutions because representation is a means to structure thinking and solve problems. The Design Plan is progressive in the sense that it is a “formalisation-in-progress”, in the sense that it is a “formalisation-in-progress”, facilitating strategic conversation among partners, and giving a more and more accurate picture of solutions over time. This is to say that it presents the on-going state-of-the-art of a solution, providing a shared vision that helps to preview its development. To do this the Design Plan provides visualisation models targeted on the progressive objectives of the solution development. It specifies “input formats” and “output formats” at each stage of the Solution Oriented Partnership

methodology, from early visualisations of first solution ideas and hypothetical partnerships, to detailed descriptions of agreed specifications within an identified partnership.

What does the Design Plan consist of ?

The Design Plan consists of 4 main formats presenting the solution from different points of view. The common goal is to develop “generative images” that start particular discussions about the solution. These formats have different contents and correspond to different aims; therefore they use various levels of abstraction and ways of interpreting the solution.

MAIN DESIGN PLAN TOOLS

System organisation map

The system organisation map shows the solution form the point of view of the organisation of the partnership providing the solution.

The map consists of both a visualisation of the solution idea (an advertising-like

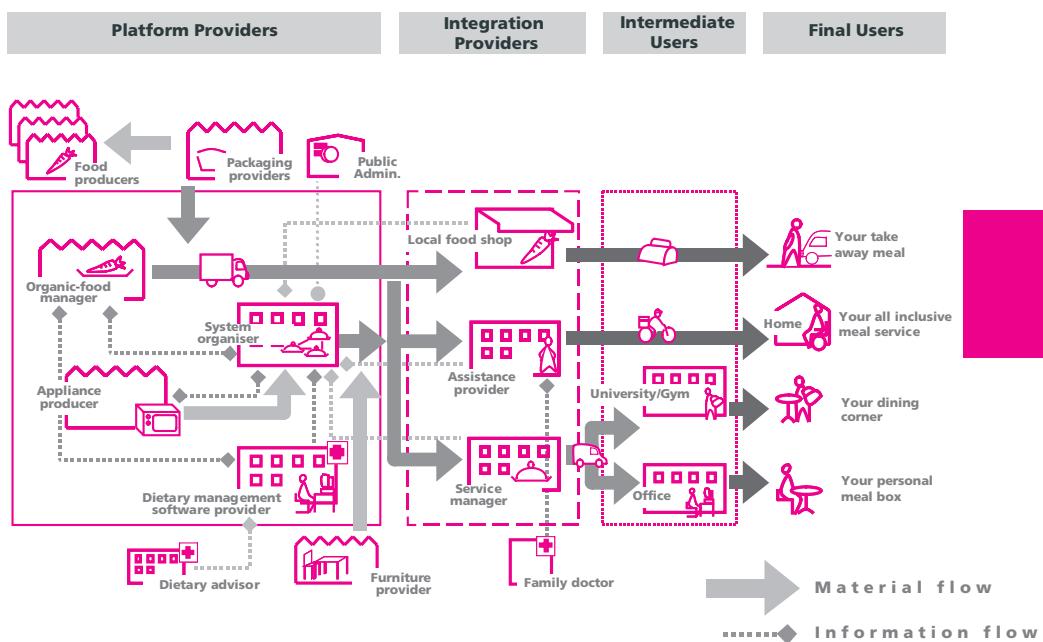


figure 2: **System organization map**

image showing the solution) and a map of the general system organisation (the main stakeholders and the flows and relationships between them). The map identifies system boundaries, the primary and secondary stakeholders, the physical, informational and financial flows; the core performance of the solution and its secondary functionalities.

Interaction storyboard

The Interaction story-board shows the solution performance along an horizontal shows the solution performance along an horizontal time line. It is the translation of an event, which takes place in space and time, into a sequence of static images and explanatory captions. As such it is a series of images that represent the significant interactions between the user(s) and the provider(s) of a product-service. In view of the need to represent services organised as solutions, this is an effective, polymorphous tool, able to mix contextual detail with narrative content to tell the story of the solution. In a limited sequence of pictures it visualises the salient service situations and the advantages that result. The main actions are visualised

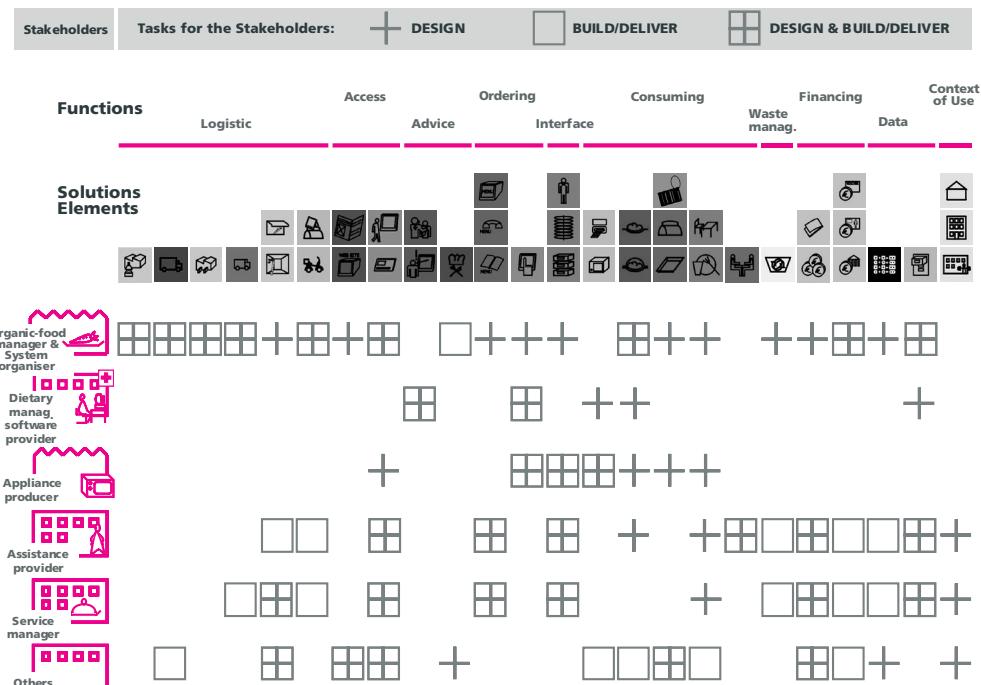
La Fiambrera	SERVICE SETTING	SERVICE PERFORMANCE			
	PLATFORM FRANCHISING LONG TERM SUBSCRIPTIONS DAILY ORDERING	PREPARATION OF ORDERED MEALS SHOPPING ORDER RECEIVED AT THE MARKET COLLATING OF SHOPPING & MEAL DELIVERY IN MARKET	MEAL DELIVERY IN SME'S	ELDERLY COLLECTING MEALS IN MARKET	OFFICE WORKER COLLECTING MEALS AT WORK PLACE
ELDERLY USER					
specifications	Ability to set dietary profile Identify key assistants			Easy open compartments Assistance available Store keys	
OFFICE WORKER					
specifications	choose among daily meal offers option to order fresh ingredients from market			Access to building with small van Access to coolbox in office	Easy to find meals Labelling
LOCAL GOVERNMENT ADMINISTRATION (RUBI)					
specifications	Teaching session for marketplace; briefing and training of social workers LunchBox service rules;	Identification of people suitable for the service	Access to internet at regular intervals or continuously Space and resources to collect shopping packs		
PLATFORM					
specifications	LunchBox contract; qualification procedures franchising contract; installation of the coolbox	promotion of service within local SME's Thermal containers		Access to meal service by van Access to coolbox from parking place	

figure 3: **The Interaction story-board shows different levels of interaction between a core partnership providing the general solution organisation and local providers that manage various points of solution delivery where the user finally interacts with the service.**

against a succinctly outlined background context and only those elements that usefully communicate and reinforce the atmosphere of the situation are included. Compared to a classical story-board, the Interaction story-board, is intended as a representation showing not only the experience of the final user and the “front office” of the solution, but also the different levels of interaction between various stakeholders during the delivery of the solution. Thus, several vertically distributed lines of interaction show the synergies and connections, between different provider and user categories, that constitute the architecture the Solution Oriented Partnership.

Solution elements brief

The Solution element brief breaks down the solution into elements that can be recomposed to give different final Partner Based Solutions. It helps to systematize and communicate the complex



■ figure 4: **A Solution element brief showing the break down of solution elements and their attribution to each of the platform partners.**

system. Its aims to simultaneously visualise the connections among elements and partners so that the solution can be designed, built and delivered. It shows:

- all the solution elements that are required to perform the targeted Partner Based Solutions (horizontally);
- the different options for each solution element (vertically);
- the contribution of each partner (which elements are already in its core business, which can be implemented and which connections with other elements require careful consideration);
- the elements that are delivered by specific partners.

Stakeholders motivation matrix

The stakeholders motivation matrix shows the solution from the point of view of the stakeholder's interest in taking part in the partnership. The matrix shows a checklist of motivations, benefits and contributions from each stakeholder's point of view, between individual partners and over the whole partnership. Cross referencing the stakeholders (those already identified and those still needed) allows them to check what are or could be their respective motivations to evolve their current business; what each can bring to the partnership and what each gets out of the partnership; and what potential synergies/conflicts may occur between partners. The stakeholders motivation matrix is initially filled by the solution promoters as an input to the Solution Oriented Partnership methodology showing:

- each solution promoter, their intentions, potential contribution to the partnership and expected benefits;
- the target Solution Oriented Partnership being aimed for;
- the description of hypothetical partners still to be identified during the process.

As more partners are identified during the building of the Solution Oriented Partnership the motivation matrix is completed:

- hypothetical partners are substituted by real ones;
- partners contributions and expected benefits are adjusted;
- partner interactions, synergies and potential conflicts are investigated.

Once complete the Stakeholder motivation matrix can form the basis of the Business Plan and the first formal agreement between partners, the Memorandum

 gives to...	Organic-food manager & System organiser	Dietary mgmt software provider	Appliance producer	Assistance provider	Service manager	Solution Centre	Solution Oriented Partnership
 Organic-food manager & System organiser	. to find new business perspectives in the organic food industry	. organic food market expertise to test the validity of the software	. organic food market expertise to improve the performance of the appliances	. high quality food products to be offered to customers	. new high quality convenience meals for vending machines , a new service concept	. knowledge and expertise from the organic food sector	. organic brand identity , expertise in organic supply management
 Dietary mgmt software provider	. a way to enhance the real value of the organic food offering	. to enter in non-medical markets , to open and finalise research in new areas	. new criteria and dietary tools for the development of appliances for special food needs	. a way to better satisfy customer needs , potential networking with food specialists	. adds value to the service portfolio	. expertise in the dietary industry	. advice and dietary management through professional software
 Appliance producer	. competences in food processing	. competences in food processing . hardware appliances to be integrated with software	. to find applications for advanced food appliances . to enter in the service dimension	. a dedicated application for customers	. a smart vending machine system	. expertise and products in the white good appliances sector	. smart appliances for food processing , brand identity
 Assistance provider	. specific knowledge of a very sensitive sector . inputs and feedback from the reduced access to food context	. specific knowledge of a very sensitive sector . a new area of business	. cognitive and physiological feedback to better design the interfaces of new appliances	. to complete the present service offering . to better satisfy customer needs		. expertise in assisting people in a specific context	. social dimension , access to a specific context
 Service manager	. expertise of a specific market . expertise in service management	. feedback from the final users . statistical databases	. feedback from final users . inputs to integrate service and appliance design		. to expand the service portfolio . to extend the offering to new contexts	. expertise and entrepreneurship in the vending machine industry	. service management in specific contexts
 Solution Centre	. catalyst in the design and development of ideas . manage partner development	. to facilitate entry into new businesses . support in the design and development of ideas	. to facilitate entry into new businesses . support in the design and development of ideas	. to facilitate entry into new businesses . support in testing of the solution idea with their customers	. to facilitate entry into new businesses	. to develop expertise in solution design . to obtain visibility as solutions experts	. tools and expertise to facilitate and manage the partner-based solutions
 Solution Oriented Partnership	. expand business and new market opportunities . to become a food solution provider	. visibility and recognition to the end-user . feedback from new clients	. new sales channels . service expertise	. a new idea of service to be used to reach new customers	. a new service to be used to contact new possible contexts of business	. opportunity to test a methodological toolbox . expertise in the food sector	. to provide healthy, convenient meals in different contexts of reduced access to food

figure 5: Final stakeholders motivation matrix showing all the partners, their contribution to and benefits from the partnership and potential interactions between them.

of Understanding.

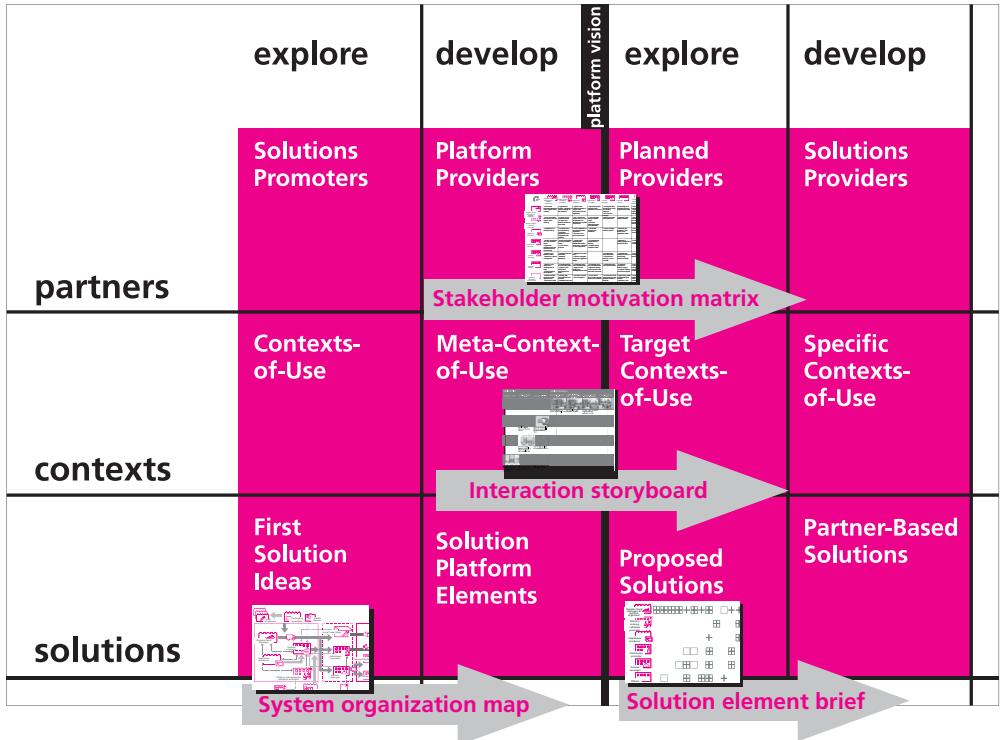
THE DESIGN PLAN DISTRIBUTED ALONG THE SOLUTION ORIENTED PARTNERSHIP

METHODOLOGY FRAMEWORK

The 4 main formats of the Design Plan are form the input and output for each of the different steps of the Solution Oriented Partnership methodology. *Figure 6* shows a typical distribution, but their use is flexible and should be adapted to each specific project and its particular requirements.

Step 1: Explore

When starting the project the Solution Promoters can fill in the Stakeholders



■ figure 6: **The different formats of the Design Plan distributed along the Solution Oriented Partnership methodological framework.**

motivation matrix (to understand the motivations, relationships and results expected by the different parties involved) and define the current Solution organisation map (to describe the current system which the project aims to evolve). Designing, particularly in this phase, is a matter of continuously matching visions, interests and solution ideas.

The results of Context-of-Use studies provide early input ideas for creative workshops and form the starting point for the Interaction story-boards). The First Solution Ideas generated are formalised in a first series of Solution organisation maps (showing an image of the proposed solution and the organisation of actors needed to provide it).

Step 2: Develop

The superimposing of the various Solution organisation maps allows the filtering and/or integration of the various solutions. The building of the partnership also requires ongoing modification of the Stakeholder motivation matrix.

At the end of this second step a solution architecture is outlined (represented in one Solution organisation map and one Stakeholders motivation matrix) and Interaction story-boards are produced showing, in more detail, the solution benefits from both the user and stakeholder point of view.

Step 3: Explore

The breakdown of solution components is shown in the Solution element brief format format which defines which parts of the solution each actor will design, develop and deliver. The Interaction story-board is used to assess the solution for different users in the is used to assess the solution for different users in the context-of-use: the business customers who act as local providers of the solution via a typical business to business relation; and the final users who play the role of active consumers and effective co-designers. As such it is a first way to asses the potential market acceptance of the solution. The Solution organisation map is used to consider the environmental assessment and lifecycle costing of the solution. The Stakeholder motivation matrix is used as the basis of the business plan and partnership agreements.

Step 4: Develop

The solution is developed and the various formats are used for reference to keep the project in-line with the initial concepts.

It should be noted that the Design Plan is presented here in relation to the different phases of the Solution Oriented Partnership methodological framework.

However, in general it should be understood as a series of independent representation tools that can support the formalisation of a solution, from different points of view, in any product service system design process.

Lessons learned

This apparently banal statement, on the synthetic and universal character of visualisations, needs to be reaffirmed here for its particular pertinence in complex, multi-actor projects. Two aspects have to be stressed:

- visual schemes illustrated with concrete elements allow quicker understanding and better recall within an heterogeneous group of actors;
- tools that produce quick and easy visualisations are very welcome in project teams developing new solutions, especially when people have not been trained in visualisation techniques and because the production of visual material is often expensive and time consuming.

* This methodological tool is the result of the team work of the authors, that in this book it has been written as follows: Jegou, paragraphs: “A solution generation toolbox”; “Main Design Plan tools”; Manzini, paragraphs: “A tool to communicate and exchange among partners”; “A tool for the co-elaboration of solutions”; Meroni, paragraphs: “The Design Plan distributed along the Solution Oriented Methodology Framework”; “The power of visualisation to support convergence”.

Benefit Planning Roadmap

*Menno Marien, Laura Vidal, Joanna Lambert,
Tommaso Buganza, Alessio Marchesi*

INTRODUCTION

What

The Solution Oriented Partnership Benefits Planning (SBP) Roadmap describes the methodology to develop a benefits plan for the PBS platform and specific elements. The name Benefits Plan purposely highlights the difference between a normal business plan and a Solution Oriented Partnership business plan. The Solution Oriented Partnership not only includes profit oriented companies but could also include other organisations such as governmental and other not for profit organisations. Benefits describe a wider aspect of the “profits” obtained from the solution, including also social and environmental and therefore sustainability benefits. The SBP roadmap starts with an initial company with an innovative idea, and provides 10 steps guiding the company in the process of creating a SBP formed of a Partner Based Solution and a Solution Oriented Partnership. The SBP roadmap steps should be interpreted as “snapshots” from a “benefits” oriented view, the SBP roadmap integrates and refers to all other tools and methods that support the SOPMF: the method for concept generation, the Solution Oriented Partnership development method and the method for Context of Use definition, and the Solution Scan tool. Furthermore it provides with a “template” to fill out during the process of developing the solution and the Solution Oriented Partnership. Also it provides a decision support tool enabling individual companies or organisations to evaluate the benefits and investment impact of joining the partnership.

Why a Roadmap for Benefits Planning

There exist many roadmaps, templates and guidebooks to develop business plans for companies. However, considering that the Solution oriented Partnership approach is multi-dimensional and different to a normal business approach, a need is felt to develop a special roadmap to analyse and keep track of the benefits that the approach can offer to the group of companies and organisations that are involved.

The benefits plan differs from a normal business plan by:

- Being a dynamic and filling document. As the concept generation is an iterative process, also with a continuous interaction with partner search, the “snapshots” differ every time a new step and iteration is made.
- Describing a solution composed of many different products and services, and therefore directed to many different targets / contexts of use, requiring different counting of benefits and growth perspectives.
- Offered by a partnership and not by an individual company. This requires different approaches towards marketing, strength and weakness analysis, analysis of dependencies and understanding the breakeven of the Solution Oriented Partnership as a whole.

The SBP roadmap supports the partnership to understand the potential benefits of the partner based solution and enables them to value if they should enter or not into the partnership.

Who

The Roadmap is developed to be applied by the Solutions Centre or any other business opportunity consulting company. The Roadmap refers to several other SOPMF tools, but also assumes that the user disposes of a basic knowledge of business plan development (general knowledge on marketing, company strategies, competitive analysis, etc.). The process of developing the SBP should be led and guided by the consultant till the point of Freeze is reached where the Solution Oriented Partnership is supposed to be self supporting.

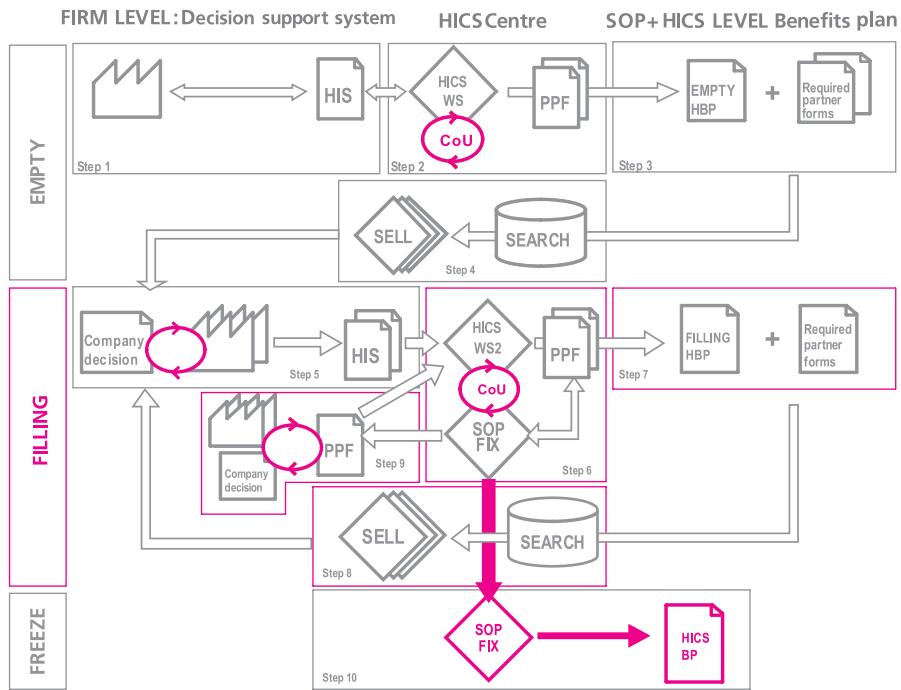
The Solution Oriented Partnership Benefits Roadmap

The SBP Roadmap could be considered as making “benefits” snapshots during the process of solution development and supporting partnership development. Therefore high interaction with other tools is needed.

The picture in the next page shows the overall process of the SBP Roadmap.

The Roadmap should be read from top to left to down. From top to down 3 “maturity levels” are defined: empty, filling and the freeze level. Furthermore the roadmap is crossing the integration levels from an individual company towards a SOP through the support of a Solution Centre. The following paragraphs explain

these maturity and the integration levels.



MATURITY LEVELS

The “EMPTY” level.

The roadmap starts with an individual company having an innovative business idea and with the objective to further exploit this. At this point the company would normally be acting on its own or maybe with a first partner. However the partnership and the possible partner based solution would be at a very broad level and not yet filled with “real” data, figures and/or concrete solution elements. At this level the SBP is considered to be at the “EMPTY” maturity level. This means that most of the information is based on assumptions and conceptual ideas of services, markets, growth perspectives and expected benefits. Essential at this level is the definition of required partners and the creation of good presentation material in order to attract new partners or investors.

The “FILLING” level.

At this stage the selling activities start and the creation of the partnership is initiated. During this stage iteratively the solution concepts will be adapted and enriched according to the ideas and contributions of new incoming partners, further studies and detailing of the context-of-use. The SBP will therefore be a highly dynamic document that will fill with more and more “real” data. Solution elements, specific contexts and the related targets, market coverage and expected benefits will be concretised during this filling stage. At this level each partner will use their own decision support tool to analyse the attractiveness of the SBP and the impact it might have to participate in the partnership.

The “FREEZE” level.

At this stage the decision will be taken to FREEZE the Solution Oriented Partnership in a legal format and organisational structure defining responsibilities, shares and other necessary agreements to commercialise the solution. This decision will be made when all the involved partners are satisfied with the expected results/benefits of the solution concept proposed, and a reasonable break even is expected for each of the partners. It is important to take a decision on FREEZING the iterations of solution design and inviting new partners because at a certain stage the interest of partners might disappear if they do not start to see concrete results.

The opportunity detected might run out if it takes too long to launch the concepts. It should not be understood as an absolute freeze as it can respond to new opportunities, interesting partnerships, contexts of use, etc... that may appear once the concepts are launched and functioning.

Integration levels

From left to right different “integration levels” are distinguished. The Integration levels refer to the level of how companies and organisations are getting their processes, mentalities, cultures and other behaviour integrated towards a Solution Oriented Partnership. Though we live in a “networked” economy, still there are not many networks that really share a solution offer. One could interpret the left and right side of the roadmap also as generating the process from bottom up (the firm level) and a top down approach (the partnership and system level). The process as

a whole is constantly moving from the individual bottom up view at firm level towards the holistic and system view and vice versa. The Solution Centre has a “connecting” role in this process and should keep a holistic view but at the same time match the individual interests of the companies and organisations.

The Firm level

At this level companies and organisations are acting as individual entities. They collaborate with clients, suppliers, etc, and have the normal collaboration activities in their sector. However, they do not collaborate on a strategic partnership level. At this level, organisations may be interested to join a solution oriented partnership as a provider of specific solution elements, however, they would still act as an individual entity and would not promise more. This position is low risk and does not create any dependency on other organisations. However, companies and other organisations with innovation and expansion objectives might be interested to enter in a higher level of collaboration and integration with other companies/ organisations. This is when the process would start creating a full solution oriented partnership. The Roadmap provides steps to take, and the organisation can come back several times to its individual firm level in order to measure if it is still interesting for them to proceed with integration with others.

The Solution Centre Level

The Solution Centre has the role of creating synergy between organisations that are looking for similar opportunities. The HICS centre has a stimulating and guiding role in the process to bring organisations together and create the basis for integration of activities. The Solution Centre should guide partners through the roadmap and should consult in all steps to guarantee a fluent process.

The Partner Based Solution and Solution Oriented Partnership level

At this level the organisations reach a level of integrated processes and business and benefits interests. At this level the organisations should reach a level of strategic partnership.

THE STEPS OF THE SBP ROADMAP

STEP 1. The solution eye-opener

Description

The eye opener step could have two possible starts: From the company or from the Solution Centre.

- It can start with a company that has an innovative business idea and would like to exploit it.
- The company contacts the Solution Centre. If the company idea is innovative or complementary to other possible company initiatives a Solution Scan workshop is planned with the company.
- This will guide and introduce the company in the solution approach and further enhance the focus of the business idea. The results are a first definition of the platform elements and a conversion of individual business ideas into a partnership oriented business focus.

STEP 2. The Tentative Solution Generation

- This step consists of two activities:
- The generation of the first solution concepts defining elements and possible partners that should be involved. Further analysis on the context-of-use should be executed. This should provide market potential estimates to be used in the next step.
- the Proposed Partner Forms (PPF) should be filled out for different possible scenarios of partners and their tasks assignment
- The concepts should be illustrated and further explained using the graphical tools and icons as described in the Design Plan,

STEP 3. Create the empty SBP

- In this step the first “benefits oriented” snapshot will be taken by ordering all the information, ideas and concepts obtained in the previous steps. This “ordering of information” should be done using the template.
- The Benefits snapshot consists in defining exploitable solution elements and trying to price them by positioning the solutions compared to possible competitive solutions.
- The snapshot at this level permits the company to reflect on their initial

business idea and to get an impression on the business/benefits potential.

STEP 4. Search for partners and sell

- The company, supported by the Solution Centre should search for possible partners that comply with the required partner profiles.
- It is very important to understand clearly the partner profiles required, especially considering innovation intention, strategic directions and market positioning of the partners.

Selling

- Once the possible partners are selected and prioritised the selling activity should be prepared.
- The empty SBP provides the necessary information to highlight the benefits to possible partners.
- The selling activities should be on an individual basis.
- Considering the fact that this is a new approach the presentations in the selling activities should be as pragmatic as possible with a concrete focus on the individual impact for the organisation.
- After the selling activities a short report/minutes should be written in order to document the findings, reactions and expectations of possible interest of the partner

STEP 5. The new company level decision taking

Firm level decision making

- This step comprises the activities of the organisation at an individual level, to analyse and decide if the concepts are of interest.
- The organisation will have a clear idea on what role is expected from them and also what the benefits could be.
- The more iterations are made the more concrete the data becomes. At the same time, the more partners that join, the impact of new partners joining on the other partners is getting bigger as well. When a new partner joins, the decision not only affects the new partner but also the other partners that are already in.

STEP 6. The Platform vision, definition and solution design development

This step is where the three development streams are running in parallel in order

to design the final solution. The different activities include:

The concept generation activities

- This is at a similar level as in step 2 but with more partners. What is very important to understand is that the entrance of a new partner may bring new solution ideas. This could have a positive effect on the benefits potential of the solutions, however it could also lead to problems with balance in the share of tasks and investments.
- In a second iteration the concept generation workshops should be at a more mature (“filled”) level. At this level the concept definition is becoming more complex as there will be more partners involved, more ideas and more possible directions.
- In a third iteration the platforms should be defined and the linking to specific solution elements on top of the platform elements can be further developed. Again, at this stage the management of the (benefits) interests of the different partners is very important.

The Solution Oriented Partnership Method activities

- The partnership building activities are essential in this phase as there will be continuous adaptations of the roles and expectations of the different partners.
- The PPFs created during and / or after the concept generation will be the input for workshops.
- The results of these workshops could be the identification of new required partners.
- At further iterations the Solution Oriented Partnership activities will focus on management structure definitions and maturing the partnership relations.

STEP 7. Filling the Solution Oriented Partnership Benefits Plan

Description

- In this step further “benefits oriented” snapshot will be taken by ordering all the information, ideas and concepts obtained in the previous step.
- The “filling Benefits Plan” will now start to be filled with real data based on studies and on concrete knowledge, networks, market access, brand values, etc... of partners.
- In this step it is very important that all the companies receive appropriate support from the Solutions Centre.
- The filling of the Benefits Plan will make the partnership more attractive for

new partners.

STEP 8. Search partners and sell 2

This step of search and selling is similar to step 4 of the empty level, however more partners are in the partnership, and the shared interest becomes more complex.

Search

- When selecting partners it is important to consider the possible impact the possible partner could have on the development and “enrichment” of the solution concept. Considering the Benefits point of view, also the possible market positioning and access to different contexts should be considered when selecting possible partners.

Selling

- Once the possible partners are selected the selling activity of the concepts should be prepared.
- As before, the more the SBP is “filled” the more attractive the partnership will be to enter, and therefore easier to persuade a new organisation to join.

STEP 9. The company level decision taking

- As in the step 6 description, when modification are made to the concepts, this will lead to changes in expected roles, benefits and investments in the Partner Based Solution (as are described in the PPFs)
- Therefore the partner could reconsider its interest in staying in the partnership.

STEP 10: FREEZE

- At this point the SBP should be completely “filled” and the partnership signed a Heads of Agreements.
- This means that all partners are aware of their risks, expected benefits, the growth potential, etc... of the proposed solution.
- The Freeze level can be made in a workshop.
- Following the freeze the management of the partnership will be led by the partners.

Lessons learned

Important lessons learned during the development were:

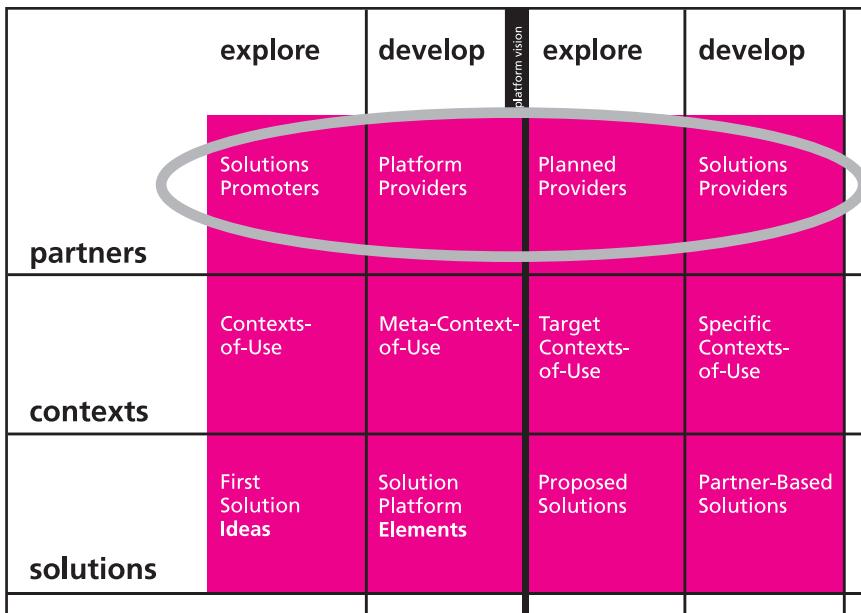
- Two separate teams should work in parallel on the Partnership development and on the solution development. This is essential as decision taking is connected but differently focused: the Solution Oriented Partnership decisions are business decisions, whereas the solution decisions are more related to technical and product development decisions.
- Companies and organisations need to be very well prepared for the iterative approach to the benefits planning.
- At the moment of selling the concept a good analysis should be made of the business/benefits and interests of the potential partner and the selling activity should be directed towards these.
- An external consultant or “third party” should guide the companies through the process of developing the Benefits plan

Tools for Co-ordinating Solution Oriented Partnerships

Andrew Burns and Stephen Evans

Partnershipping as a Solution Oriented Partnership activity

The process of building a network of partners, capable of effectively working together to design and deliver a solution, is fundamental to the Solution Oriented Partnership Methodology Framework (SOPMF). Partnershipping as a process will be at the heart of any Solution Oriented Partnership's activity, whatever its stage or maturity. This chapter provides an introduction to tools that a Solution Oriented Partnership can use to address key partnershipping issues, introduced in the first part of this book; co-ordinating progress and co-ordinating relationships.



Co-ordination tools

Three tools are presented, each designed to support the co-ordination of Solution Oriented Partnerships in terms of their progress towards objectives and the relationships between partners.

1. The PPF (Proposed Partnership Form) matrix allows the Solution Oriented Partnership to represent and plan the complex interaction of their relationships and activities, thereby aiding the separate planning of both.
2. The LPS (Legal Progress Support) tool then helps Solution Oriented Partnerships co-ordinate the process of building and formalising the relationships between partners, and the sharing of costs, benefits and risks across the Solution Oriented Partnership.
3. The MTG (Management Team Guidelines) tool provides Solution Oriented Partnerships with a mechanism and guidance for the co-ordination of the group's progress towards the goal of a Partner Based Solution reaching the market.

Tool Application

These tools are specifically designed to be used throughout the life of a Solution Oriented Partnership. The PPF tool helps to force the discussion of different partners' ambitions, expected benefits, capabilities and potential responsibilities. It also helps identify partners that are missing and still required to make the Solution Oriented Partnership work. Later it is used to incorporate new partners and can form the basis for business planning and legal relationship formation.

Questions about legal relationships can occur early in the Solution Oriented Partnership process, particularly surrounding Intellectual Property issues. Concerns tend to focus on ensuring delivery from other partners and on the repercussions of non-performance by a partner. The LPS tool therefore supports these issues throughout the Solution Oriented Partnership life-cycle. It proposes a progressive process of increasingly formal relationships building up to the commitments inherent in the launch of a Partner Based Solution to market. The tool provides guidance on a variety of relationship types that SOPs can move towards, rather than prescribing one ideal Solution Oriented Partnership organisational form. From day one, the effective management of the individual and collective activities of the Solution Oriented Partnership and its members is essential for effective progress. The MTG tool provides a structure and guidance for setting up a Solution

Oriented Partnership Management team. The earlier this co-ordination function is set up, the sooner effective progress can be made.

Tool focus

The emphasis of these three tools is the management of the partnership's progress in terms of integrating members, structuring relationships and supporting activity. Whilst incorporating consideration of key success factors, these tools do not specifically address soft partnership issues such as 'trust', 'alignment' and 'culture'. These 'relationship factors' are indeed critical and relevant to partnership in the context of Solution Oriented Partnerships, but they are by no means unique to this context and tools exist to help (see HiCS project deliverable D10). The three tools presented here also assume a Solution Oriented Partnership is in progress and do not cover the partner search activities contained in the Solution Scan tool (see next essay).

Proposed Partnership Form Tool

The tool is designed to be used by at least two organisations that believe they have a common basis of working together. Before the tool can be used, this Solution Oriented Partnership must have at least initial ideas of the solution(s) they intend to co-develop and the belief that these require a partnership.

The tool focuses on mapping the Solution Oriented Partnership's future internal relationships and activities over the life-cycle of Designing, Building, Delivering, and Renewing a Partner Based Solution. PPF uses two matrices as a basis of convergence and agreement between partners. These matrices evolve over time, acting as a shared record. The first provides a structure for assigning roles and responsibilities at each life-cycle stage to members of the Solution Oriented Partnership and thereby forces the identification of gaps in the partnerships capabilities, this can lead to the search for a new partner. The second then provides a mechanism for each partner to present to others their personal view of the scope, costs, benefits and risks associated with their involvement in the Solution Oriented Partnership. Eventually these matrices lead the partnership toward Legal and Business Planning activities. The process of partners coming together to complete the matrices provides the key moments of convergence on the shared goal that are

pivotal to the success of the Solution Oriented Partnership.

PPF matrix one – Roles and Responsibilities

The first matrix calls for the Solution Oriented Partnership to identify the key actions that are required in the Design, Build, Deliver and Renew stages of the overall process for creating a Partner Based Solution and a supporting partnership. There are 4 stages of activity. First the solution must be designed; this is the DESIGN stage. The Build stage is where the designed solution is resourced and elements are prepared for production. Finally the solution is ready for the market and the SOP enters the DELIVER stage; the solution is promoted, sold and supported in the market. Later, the Solution Oriented Partnership must move to a RENEW stage where new contexts for solutions are identified and the future of the partnership is planned.

PPF - Roles and Responsibilities Matrix

Activity 								
DESIGN								
BUILD								
DELIVER								
RENEW								
Capability needed								

Each partner is likely to prepare individually prior to meeting together in a workshop devoted to completing the matrix. Usually the matrix will be completed as a large poster with the group using post-it notes and marker pens. The result is then converted into a shared electronic document that is updated after each

subsequent use of the tool .The general process for completing matrix one is as follows:

1.The first step is to generate the solution activities and enter these as the column headings in the matrix. These are based upon the individual solution elements. Each heading is usually a task that a partner will have to undertake. It is normal to have an incomplete list at the beginning. (Example activities in a food solution included: Food Provision, Menu Provision, Appliance Provision, Assembly of Solution, Transport to market, Distribution in Market, Waste Management, Sales and Ordering, Marketing).

2.Tasks for each stage of the lifecycle are entered into the appropriate cell. (Example in a food solution: Menu Provision might be broken down as – DESIGN: research food preferences, create menu options, BUILD: identify suppliers, build menus, DELIVER: communicate menus, manage menu updates, RENEW: develop new menus.) The aim is to document the tasks required to bring the solution to market. Similar tasks are removed by merging.

3. Once the tasks have been identified the partners begin volunteering for tasks. Each partner should put forward their selfish view of the roles and responsibilities they wish to take on and which tasks they want to be involved in. (Example: many may wish to be involved in the DESIGN stage of Food Provision. But only one partner is likely to take on the responsibility of physically handing over meals to customers.)

4. As a result of the allocation of roles and responsibilities it is inevitable that there are certain tasks that the SOP cannot currently fulfil, either through a lack of capability or a lack of will.These ‘missing capabilities’ are entered into the final row of the matrix where they serve as a guide to the new partners that the SOP must involve. (Example:“we have a food provider but we need someone to DESIGN an IT ordering system”.)

Once this initial stage is complete the partners must resolve any areas of disagreement or conflict.The Solution Oriented Partnership is then ready to begin using the second matrix.

PPF matrix two – Costs, Benefits and Risks

The second PPF matrix is completed using a similar process to the first, It aims to

capture each partner's view of the impact of doing the tasks they have volunteered for. The matrix provides a mechanism for each partner to identify the scope of their involvement in activities, the benefits expected in return, and the expected costs and risks. It is important to recognise that each organisation must define costs, benefits and risks in their own terms. Whilst a business might define benefits in terms of financial revenues, a charity might define them in terms of social improvements. Ultimately the matrix allows the partnership to decide whether to proceed or not by checking there is enough benefit to share around, with minimised costs and risks. On the basis of the convergence achieved here the partnership can begin to consider which legal and business relationships can accommodate the needs and concerns of all partners.

PPF - Cost Benefit Risk Matrix

Activity								
SCOPE								
BENEFIT								
COSTS								
RISKS								
Capability needed								

In the second matrix each organisation uses one column for each of the activities it has volunteered for. The same activity may have several columns, one for each organisation involved. Eventually these columns should be grouped together. Again individual preparation occurs before partners come together in a meeting devoted to completing the matrix and finally conversion to a shared, updateable electronic document. The general process for completing matrix two is as follows;

1. Each partner identifies the activity that they plan to do. Ensuring that each partner is selecting activities from the same list of headings.
2. For each activity heading each partner then inputs to the matrix;
 - what is the SCOPE of involvement? The market size, the duration of involvement, the physical range of involvement, the stage of involvement (DESIGN, BUILD, DELIVER, RENEW)
 - what is the COST of involvement? Effort, resources, knowledge/ intellectual property, financial, equipment, brand equity.
 - what is the BENEFIT expected in return? Financial, social, environmental, access to new knowledge, access to new markets,.
 - what is the RISK of involvement? External legal liabilities, non-performance by partners, financial risk, loss of intellectual property.Many of these items will apply generally across activities but partners must strive to identify the specifics associated with each activity.
3. The matrix is then filled in such a way that different partners' columns for the same activity appear next to each other.
4. The matrix is then studied to identify capabilities missing from the Solution Oriented Partnership. The activities are identified and the COSTS, BENEFITS and RISKS of each are brainstormed. This is used to identify partners that are needed but currently missing.
5. Once the matrix is complete the partners discuss the integrity and reasonableness of the situation it represents. (Example: "we are one of many partners so we cannot claim 100% of the profit" or "we are taking little risk, so we might get less share in the profit"). The aim is to prepare for an equitable sharing of costs, benefits and risks. Each partner generates its own TOTALS column describing their SCOPE, COSTS, BENEFITS and RISKS of involvement. TOTALS columns should also be created for potential future partners. It may be impossible to reach agreement at the first attempt. In such cases the use of the tool should stimulate activity. (Example: "we need to go and investigate how much revenue we can generate in this market" or "we need to investigate how much this equipment will cost".)
6. Finally the TOTALS columns developed for the missing partners are used for approaching and introducing new partnership members. Each existing partner's TOTALS column can form the basis of their business planning, and the division

of responsibilities and risks can form the basis of any legal relationships that might be required.

Summary

It is important to remember the PPF matrices evolve over time. Early discussions will focus on the need to find new partners and what they might look like. Later discussions will focus on the shape of the partnership as a cost/risk/liability/benefit sharing entity. Initially Solution Oriented Partnership members should be selfish and describe the partnership they want or need. Over time convergence occurs and trade offs are made by all. It is unlikely that the first use of the PPF will result in the final organisation form of the SOP being reached.

The Legal Progress Support Tool

The LPS presents information and relative properties of different forms of legal relationship and is used as a decision support guide for partnerships formalising legal arrangements between members. The LPS explains different legal structures and their pro's and con's. Progress to achieving legal relationships is promoted as a progression from informal, via quasi-formal, to legally binding documents. The achievement of these legal relationships is an option that only some Solution Oriented Partnerships will choose. The LPS tool should not be used without each partner seeking independent legal advice. The landscape of commercial law is forever shifting and the authors accept no responsibility for the accuracy of the information presented here. The full tool includes template legal documents and is available elsewhere (see HiCS project deliverable D10). This section will provide an overview of LPS and the guidance it contains.

The process of legal convergence

When partners come together to work on a shared idea it is inevitable that legal issues will at least be discussed. Often the relationship between partners starts very informally; no commitments are made and ideas are just being discussed. Later there may be a need to formalise the relationship; resources are committed, risks are taken, intellectual property shared and partners have to be relied upon to do their part of the work. In Solution Oriented Partnerships, the power of interesting new

solution ideas often dominates people's thinking. Concerns over losing this idea, or having it copied or stolen, means that confidentiality can become a concern. Later, some partnerships may want to create a legal structure formalising the relationship between partners. Other partnerships may be less concerned and wish to use traditional contractual relationships. Either way it is important to recognise that Solution Oriented Partnerships can organise themselves in a huge variety of ways, and that it is impossible to prescribe a single legal organisational form. Mature Solution Oriented Partnerships will often be bound together by more than one legal agreement and may include more than one type of partnership. However, common to all Solution Oriented Partnerships will be the shift from informal to formal relationships over time, and the sharing of concerns such as; liability, obligation, intellectual property, risk, assets, relationships with 3rd parties, flexibility, legal entity, degree of control, taxation, and conflict resolution. Reflecting these shared concerns and the progression to formal relationships the LPS tool proposes the following general process;

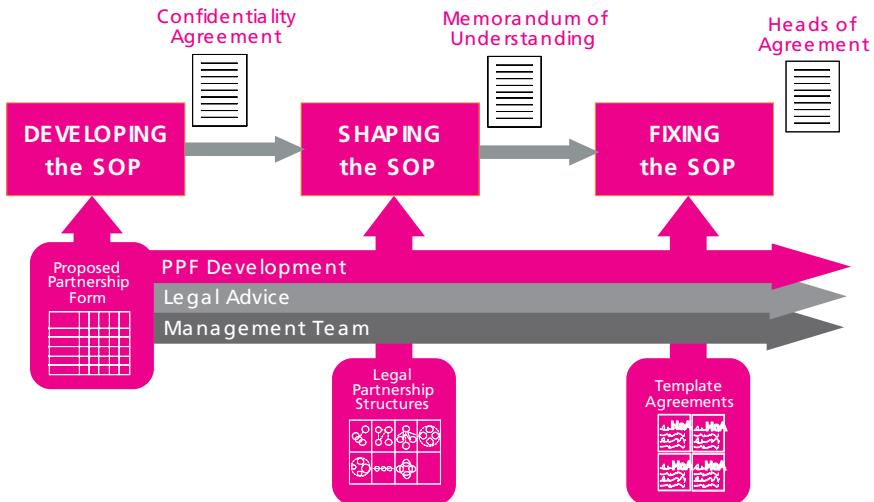
1. DEVELOPING THE SOLUTION ORIENTED PARTNERSHIP

The introduction of partners, discussion of solution ideas and the initial use of the PPF tool allow progress towards developing the Solution Oriented Partnership. During this period the confidence to contribute fully to the partnership can be supported by drawing up Confidentiality Agreements. The subject and terms of these agreements are decided by the partners with the benefit of legal advice. The aim is to protect the idea the partnership shares. Existing members and new partners joining the Solution Oriented Partnership sign this document binding them to non-disclosure. At this stage it is suggested that the Solution Oriented Partnership puts in place a management structure for co-ordinating progress including that towards legal agreements (see the MTG tool in the next page).

2. SHAPING THE SOLUTION ORIENTED PARTNERSHIP

As the Solution Oriented Partnership continues in its activities, the relationships become more defined. If partners are to continue to devote time and energy to the partnership they will need confidence that it will last. More substantial and/or costly actions are likely to be taken and partners need to feel that they are not taking on these risks and costs alone. At this stage the partnership considers what organisational shape it will adopt. The LPS tool provides information on the legal options open

LPS Process Overview



to the group and the advantages and disadvantages of each. The partnership should draw up a Memorandum of Understanding outlining the basis of the collaboration, the roles and responsibilities of each partner, the benefits they expect in return, and the process for managing the Solution Oriented Partnership. By signing, the partners demonstrate their commitment to the partnership and they agree contents of the PPF and the aims of the Solution Oriented Partnership. Memoranda of Understanding should not be legally binding, but nonetheless, legal advice should be sought during their drafting. The Memorandum of Understanding can provide the desired level of confidence needed to progress to the prototyping stage.

3. FIXING THE SOLUTION ORIENTED PARTNERSHIP

The legal relationships that make up the Solution Oriented Partnership, and its interaction with 3rd parties, is formalised by the drawing up of legally binding Heads of Agreement documents. Heads of Agreement will take a variety of forms and there are likely to be multiple documents covering different types of relationship. Solution Oriented Partnerships may not always require progression to this stage if they feel confident going forward on the basis of quasi-formal relationships.

Solution Oriented Partnerships as legal entities

The full LPS tool provides guidance for Solution Oriented Partnership members on the appropriateness of 7 possible legal arrangements. Each has its advantages and disadvantages. The LPS provides guidance in identifying which structures are suitable for the kind of Solution Oriented Partnership that has been defined using the PPF. The key variables on which the structures are compared are as follows;

- | | |
|-----------------------------|------------------------|
| - Legal Status | - Set-up Costs |
| - Taxation | - Flexibility |
| - Liabilities | - Management Structure |
| - Assets | - Ownership rites |
| - Control | - Conflict resolution |
| - 3rd Party Relationships | - Motivation |
| - International differences | - Pros |
| - Level of Commitment | - Cons |

The 7 partnership structures presented and compared in the LPS include

Contractual Joint Venture (Integrated)

Contractual Joint Venture (Non-integrated)

Joint Venture Company

Corporate Partnership (General)

Corporate Partnership (Limited Liability)

Unincorporated Association / Co-operative

European Economic Interest Group

The LPS tool contains several guides and decision making processes designed to be used in a facilitated workshop setting. These mechanisms let individual members record their preferences and requirements and allow the partnership to arrive at a group decision. The aim is for the group to identify the ideal target organisational form.

The Management Team Guidelines Tool

The MTG tool provides a series of guidelines for the formation of a Management Team required to co-ordinate the Solution Oriented Partnership's progress. The tool emphasises the following key priorities of this co-ordination role;

- | | |
|---------------------------------|---------------------------|
| - Encouraging Action & Progress | - Hazard & Risk Avoidance |
|---------------------------------|---------------------------|

- Co-ordinating Work Plans
- Reducing Wasted Effort
- Communication
- Opportunity Recognition
- Decision Making
- Relationship Management

The MTG tool is a simple guidance mechanism for running the co-ordination function of the Solution Oriented Partnership. A formal management team will be set up early and its operation will be agreed between partners. The MTG tool provides a template for this team and guidelines for its activities. These cover the need to focus on factors that influence the successful progress of the Solution Oriented Partnership, and include conflict resolution. The tool provides an agenda for the management team throughout the Solution Oriented Partnership lifetime. The MTG uses standard project management techniques from new product development to plan and monitor progress, with special recognition of the need to keep all partners involved and committed.

Conclusion and Links

Solution Oriented Partnerships do not just happen. They need to be actively and continuously managed. The tools in this section are designed to reduce the Solution Oriented Partnerships reliance on chance. They provide mechanisms to support the co-ordination, organisation and direction of Solution Oriented Partnership progress and the structuring of the relationships. The tools encourage the shared definition of each partner's expected costs, benefits and risks of taking part. They provide guidance for the consideration of the legal aspects of entering into collaborative work. Finally they provide guidance for those partners adopting the important role of co-ordinating the Solution Oriented Partnership activities. Partnership co-ordination is closely linked to the Solution stream. In fact, the design of the partner-based solution dictates the kind of partnership that is needed to deliver it. The solution is used to form the basis of the PPF matrix and defines the roles that must be shared between partners. This reference to the solution also helps to identify missing capabilities and therefore any new partners needed by a partnership. A key to successful partnering is often the sharing of visions between the partners; in a Partner Based Solution-driven Solution Oriented Partnership the vision of the solution itself helps to bind the partners, who must then seek shared visions for the allocation of the work to achieve the solution;

Solution Scan

Helma Luiten, Tom van der Horst, Emma van Sandick

Introduction

The methodology for creating Solution Oriented Partnerships is a comprehensive and ambitious approach to innovation and has to be communicated with care in order to get actors involved. With this in mind the Solution Scan is developed as a tool for communicating with companies. The partners, that together form a Solution Oriented Partnership, are not necessarily just companies. Government agencies, NGO's, and charitable organisations can all be partners. However, this scan is typically designed for companies.

The aim of the Solution Scan is to make a company enthusiastic about the Solution Oriented Partnership methodology and about offering 'solutions' instead of single products. This is the first step in starting a new initiative that needs the investment of time and money from partners. The tool allows the opportunities for a company to start or to join such a project to be quickly scanned. For example, how capable is the company at innovating and is it willing to do so? The tools also generates ideas for new Partner Based Solutions and the agreements needed for follow up activities.

Possible results of a Solution Scan session are:

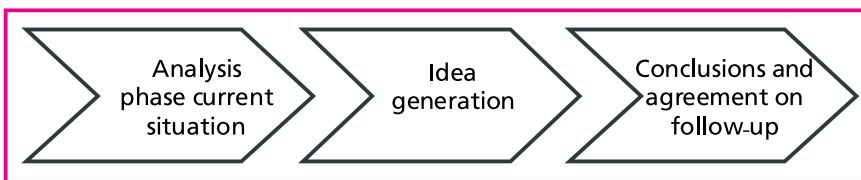
1. The company is so interested in the ideas generated that it wants to start feasibility studies immediately.
2. The company is enthusiastic about the potential of the approach and wants to do a more concrete Solution Scan project. This follow-up project will use the Solution Oriented Partnership Methodological Framework.
3. The company sees no possibilities now or in the near future.

Solution Scan: a tool for setting up Solution Oriented Partnerships

The Solution Scan is a useful tool in the phase before an actual Solution Oriented Partnership project can start. The scan is divided into three phases, see figure 1:

- Phase 1: is the analysis phase in which the sources of innovation within

- the company and the market are defined.
- This information forms the basis of phase 2, the idea generation phase. Phase 2 offers tools that generate ideas for potential Partner Based Solutions.
 - Phase 3: the conclusion and agreement to follow up, defines the transition to the next step in the innovation process. The results are listed and uncertainties for realization are defined.



■ figure 1: **The phases of the Solution Scan**

It takes approximately two hours to complete the whole scan. The company involved must actively participate, otherwise the results are unlikely to fit its profile or needs. This requires a certain amount of trust to have already been established and the tool is likely to be used on a second or third meeting with a company. Earlier meetings should focus on making the acquaintance of the company and introducing the philosophy.

Dialogue between Solution Centers and companies.

Solution Centers are responsible for new Solution Oriented Partnership projects. They have the methodological knowledge, established networks of (potential) partners interested in these projects and are motivated to stimulate new initiatives. Solution Centers are located in the Netherlands (TNO and Philips Design), Italy (Politecnico Milano), the UK (Cranfield University) and Portugal (INETI) and carry out the Solution Scan. This toolkit supports these coordinators in their acquisition activities.

But the scan is not only useful in acquisition, it also stimulates the dialogue between Solution Centers and potentially interested new partners. The aim of using the tool in this dialogue is to give the company insight into what the Solution Oriented

Partnership Methodology can offer. It gives a first impression of what makes a Partner Based Solution and supports the creative thinking that (hopefully) results in first ideas. The creativity of the person using the tool determines whether or not the scan results in new ideas. So as well as knowing the ins and outs of the methodology, this person must be able to quickly understand the situation in which the company operates and combine this with creative thinking.

A serious and useful dialogue requires openness. It is to be expected that a company on first acquaintance is not completely open and sincere. The company will probably not offer confidential information at first. It has to be clearly stated to companies involved that, because of the confidentiality of strategic company issues, the results of a Solution Scan session are fully secret. Copies of the results will be sent to the company and original sheets are kept in the Solution Center's archives. Only these two copies of the sheets should be made. Furthermore, receiving only limited information from the company does not have to be a problem for using this tool. Even with limited information new ideas can be generated and new business insights can be delivered. The tool opens up the minds of the people present and opens doors to new ideas.

The reason for using the Solution Scan

The Solution Scan toolkit can be seen as a guided tour of the main aspects of the Solution Oriented Partnership methodology. It supports Solution Centers starting the dialogue with potentially interested companies. By using the tool the added value of the methodology becomes visible to a company. It results in a limited number of potential new ideas tailored to this company and shows what partners are needed in order to offer new and better solutions in a specific context-of-use. This is very important at the beginning of the innovation process. You not only have to have companies interested in participation, but the direction the innovation takes depends on these partners. Executing the whole innovation process in a very limited time provides a better feeling for tentative solutions and the partners that would be needed to realize them.

Outline of the Solution Scan

The Solution Scan is a paper-based toolkit. A3 sheets are designed, one per tool,

each with a dedicated layout. Each sheet is presented in a format that shows the steps that make up the tool, the questions that should be asked and what should be filled in. They are completed on the spot with the company at present. Figure 2 shows an overview of these tool sheets that make up the Solution Scan. The sheets are divided into three phases: ‘analyses’, ‘idea generation’ and ‘conclusions and agreement on follow up’. The figure also gives an overview of the interrelationships between the separate tools.

- Tool sheets 1, 2 and 3 collect company specific information and insight into the innovation potential.
- In tool sheets 4 and 5 the company’s awareness of and commitment to sustainability is analyzed.
- Sheet 6 is used to identify important trends and developments for the future.
- This information is used in sheets 7, 8 and 9 where the business is redefined and new function fulfillment ideas are generated.
- In tool sheets 10, 11 and 12 the Design Plan method [see earlier chapter] is used to define interesting platforms based on the ideas from sheet 9.
- Sheet 13 is used to exchange solution ideas that have been developed in scans with other companies.
- Sheet 14 summarizes the conclusions
- Sheet 15 outlines questions of feasibility to follow up.

There is not the space here to present all the sub-tools making up the scan, but every sheet is described in more detail below. As an example of how the tool sheets are presented sheet 1 is shown in figure 3 below. Each sheet like this example should be printed out on A3-format and filled in by the Solution Center coordinator in conversation with a company.

Analysis phase sub-tool sheets

Sheet 1, ‘the current situation’, is part of the sub-tool: ‘Company Innovation Scan’ (sheets 1-2-3). The purpose of the Company Innovation Scan is to gain insight in the current situation of the company (sheet 1), their innovation potential (sheet 2) and the elements the company could potentially contribute to a platform (sheet 3). The sheets show lists of items and sub-items that should be completed to provide

insight into the company's opportunities and ambitions.

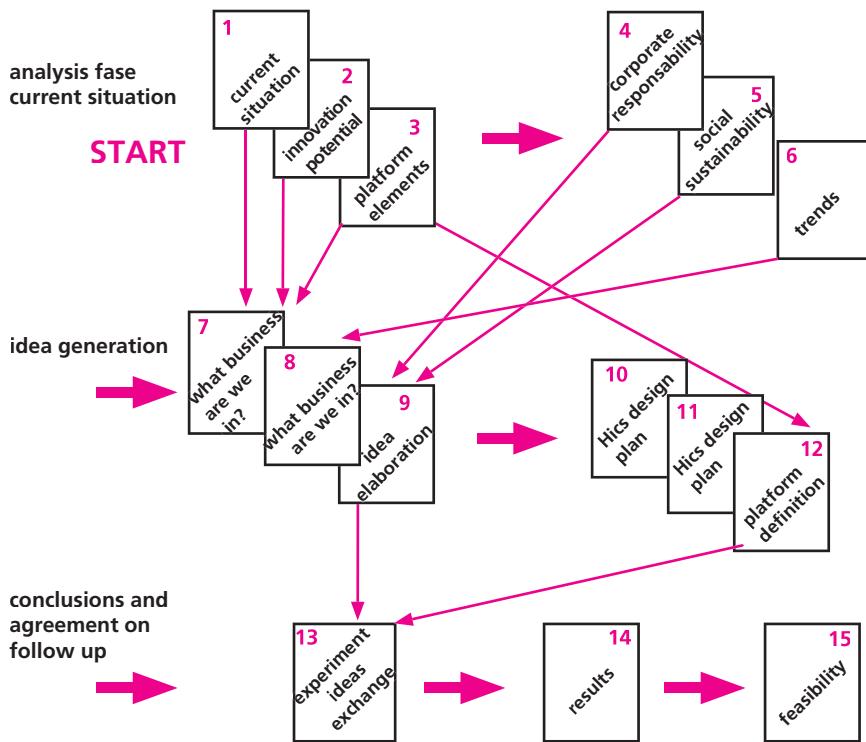


figure 2: **Outline of the tool sheets of the Solution Scan.**

- The Current Situation, see figure 3, consists of items like the financial situation, unique skills, production techniques, R&D possibilities, etc.
- The Innovation Potential (sheet 2) captures the hypothetical potential of the company to innovate. It gives an idea of the flexibility of the company: what aspects are they willing and able to change and which are fixed. For example the item 'organisation' asks the company to identify new activities and partnerships that would be attractive to them in the future. When such a question is put to companies they can start to fantasize and at the same time give their opinion on what is possible and what is not. In another example the item "technologies" asks what new (attractive) technologies can be created; One frozen food company was very clear

about their strength ('frozen food') and that they were not willing to change this thereby defining the innovation trajectory.

- The Platform Elements (sheet 3) identifies product, service and communication elements, presently available from the company, that could form part of a Platform. This takes the form of a list of the company's qualities and assets that have the potential to becoming part of a Partner Based Solution. What products, technologies, services, partnerships, etc. can be used to reach new markets and other contexts-of-use? Identifying three to four such elements from a company is a really good start.

Company innovation scan

current situation

organisation	financial situation employees partnerships	...
competence	unique knowledge unique skills	...
innovation process	management culture innovation dilemma	...
supplier	strategic relations	...
technologies	core technologies-capabilities	...
assets	production techniques other tangible assets	...
perceived value	of the company by external stakeholders added value for consumer	...
products	portfolio profitability co-development core business	...
distribuition channels	current channels	...
markets	countries profitability of markets profitability of clients competitors	...

■ figure 3: **Tool sheet 1; Current situation.**

Tool sheets 4 and 5 go deeper into the company's awareness of environmental and social sustainability.

- Sheet 4 presents diagrammatic indicators for assessing the company's corporate responsibility. What is their attitude towards sustainability? Is it reactive or proactive? It is impossible to capture a complete view of the company's attitudes in a single meeting but this tool can provide first insights into the company's involvement and ambitions.
- Sheet 5 uses eight indicators of social sustainability. Diagrams are used to qualitatively assess the current situation (how much attention does the company give...?) and the ambition (how much attention does the company want to give....?).

Tool sheet 6 presents a list of trends focused in the specific business area of the company involved. It contains both mega trends and domain specific trends. This list can be prepared in advance and tailored to the company. The idea is to identify the opportunities and threats for the company's business that potentially result from these trends.

Idea Generation sub-tool sheets

Tool sheet 7 and 8 explore the question "what business are we in?". The aim is to quickly generate challenging ideas for new businesses that create value. This sub-tool follows the steps:

1. What products/services does the company offer?;
 2. What functions do these products/services offer?;
 3. What needs underlie these functions;
 4. What new product/service ideas can also fulfil these functions;
 5. What partnerships need to be defined to develop these ideas.
- Sheet 7 is used for steps 1 and 2 - brainstorming the functions that current products/services offer.
 - Sheet 8 is used for steps 3 to 5 - brainstorming new ways to deliver these functions.

Tool sheet 9 is used to build on the ideas that come from sheet 8. This is done using a sustainability checklist. This checklist is based on Design Guidelines from Manzini and System Design Strategies from Van der Horst like "check basic assumptions" and "empower individuals and communities".

Sheets 10, 11 and 12 aim to define possible platforms for two or more the solution ideas that have been generated.

- For each idea one transparent sheet (e.g. two ideas – sheet 10 and 11) is used to describe it in terms of a Design Plan (see earlier chapter).
- These two sheets, one on top of the other, can be covered by sheet 12 (Platform Definition) which is also transparent. All the constituent elements of the two ideas should still be visible. The elements that are present in both ideas are potential platform elements. These can be circled and redrawn on sheet 12.

Conclusion and follow-up phase sub-tool sheets

The purpose of the ‘conclusion and agreement on follow up’ phase is to exchange solution ideas between companies involved in the scan process. These sheets summarise the results of each scan session and identify the next steps to take.

- Sheet 13 becomes part of a solution ideas database that will be used to exchange Solution Scans ideas between other companies. Each company can ‘subscribe’ to this database and can add new solution ideas to the list.
- The results of the session are summarised on sheet 14 which describes a solution idea, the partners involved, and the platform elements.
- Sheet 15 contains two questions concerning feasibility, namely:
 - What are the main uncertainties of the solution ideas?
 - What are the activities needed to continue activities?

Links with the Solution Oriented Partnership Methodology Framework

As stated before the Solution Scan can be the first step in a new Solution Oriented Partnership project, a new innovation process. The Scan process is particularly relevant when the choice is made to start the project from the point of view of partners (i.e. in the left upper square in the framework diagram – see the earlier chapter on the Solution Oriented Partnership Methodological Framework).

Lessons Learnt

- Using the tool showed that companies involved saw new possibilities for themselves. They were prompted to look at their activities in a new light.

This new way of looking opened up new possibilities.

- As highlighted before, the skills of the person conducting the scan determine whether or not new ideas are generated. Creative people with a good sense for the needs of companies should use the tool so that new ideas are generated. The toolkit should not be used by laymen. The tool supports the person using it, but this person should already have profound knowledge of the methodology and philosophy.
- The Solution Scan must also be time restricted. There will never be enough time to go into the company and potential ideas in full depth. But this is not the purpose of the Solution Scan. The Solution Oriented Partnership Methodology is designed as the mechanism to achieve this.

Conclusion

The Solution Scan is a ‘quick and dirty’ scan that demonstrates to companies the possibilities of the Solution Oriented Partnership Methodology. These companies are essential for starting up new innovation projects. Therefore this tool is designed as a way to communicate the methodology and philosophy in limited time. The tool stimulates the creativity and new thinking that will hopefully lead to new Partner Based Solutions.

System Assessment

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What does this methodology do?

Focusing on new architectures of production-consumption systems, which include new forms of consumption, the Solution Oriented Partnership methodology aims to provide strategies for short-term innovative solutions to predefined problems. From a Sustainability point of view, its influence on the performance of current systems should introduce changes towards more sustainable solutions, the benefits of which need to be assessed and demonstrated.

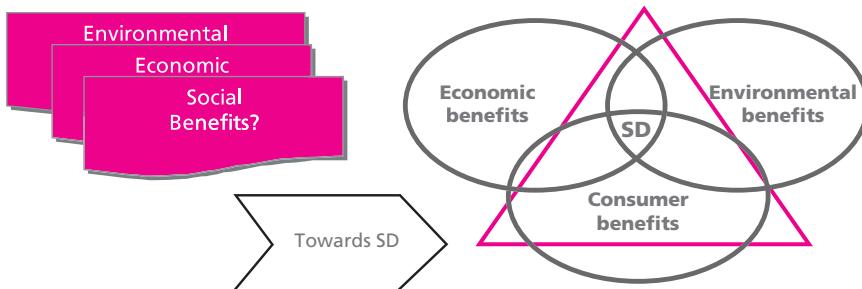
To achieve this, an easy-to-use abridged assessment method was developed to facilitate systemic and life cycle thinking in problem solving processes that are aimed at system-level solutions. Considering the three interrelated dimensions of Sustainability (social, economic and environmental), selected physical and non-physical attributes are assessed regarding each context-of-use, on a limited scale with reasonable reliability, transparency and reproducibility. This enables managers, designers and researchers to evaluate solutions in a systematic way. This supports discussion about proposed solutions in a context-of-use and whether it is providing conditions for sustainable transitions, where social, economic and environmental interests align. In turn, this allows priority issues to be addressed and choices to be made.

Why should this tool be used?

To assess the sustainability of a given system we must use a holistic approach to problem definition and incorporate life cycle thinking. Inspired by the triple-bottom line concept, we recognise that economic growth is linked to the well being of society and to the health of ecosystems. Any system assessment must balance all three areas. Within the frame of Partner Based Solutions, and considering the complexity of sustainability assessment of production-consumption chains, we have striven to create a simplified method suited for abridged analysis of solutions.

The Solution Oriented Partnership approach aims to offer solutions with added value for consumers, for partners and for the environment, by identifying consumers' needs in real contexts-of-use, and delivering solutions according to

those needs. Any assessment method has to rely on the formulation of an easy-to-use tool that, in a business context, enables the user to quantify and/ or qualify the benefits that are gained in the three sustainability dimensions (fig. 1) throughout the solution life cycle, and finally communicate them.



■ figure 1: **The assessment of solutions in the three dimensions of sustainable development need an integrated approach.**

The assessment method has to be designed to have a twofold purpose:

- To compare a given solution with alternatives and demonstrate benefits;
- To identify critical design aspects in a useful timeframe, in order to suggest further improvements to the solution designers.

Who should be involved?

Different groups of actors may have varying views on the reasons for assessment. Within the whole methodology, this tool follows the design, creativity and optimisation stages, where sustainability guidelines aim to influence (through quick checking and early decision-taking). In a validation stage complementary to the Solution Oriented Partnership methodological framework, the validation of solutions has to be explicitly addressed. Thus, the sustainability assessment model generates a structure to enable evaluation of highly context-oriented solutions.

Different parties relate direct and indirectly to this tool: the Solution Oriented Partnership (including business, designers, engineers, researchers, social system actors, government and users/consumers). The involvement effort of different actors depends on their ability to use the assessment tool and/or just using its outcomes. Particularly during direct use, access to empirical data is impacted by the partners and the expert knowledge and assistance that they could have from

Solution Oriented Partnership co-ordinators. In addition the assessment results can be useful for ‘green’ marketing purposes and for development purposes considering both supply (design process: improving/ replacing the solution) and demand (highlighting conscious consumption) subsystems.

Validating the benefits of solutions: The general setup

Using life cycle thinking how do we validate the benefits of new Partner Based Solutions? This encompasses a move from evaluating the performance of a single product (or service) to the evaluation of integrated solutions in specific contexts-of-use (each having specific local social-cultural conditions). Moreover, there are societal, economic and environmental aspects related to the sustainability of both production and consumption activities, which will involve complex relationships. In order to focus on the fulfilment of a complete function through a given integrated solution instead of a single product or service, and using the triple-bottom line concept as a basis for tri-dimensional (3D) assessments, a new methodology is proposed here for the sustainability assessment of solutions in integrated production-consumption chains. According to the stages of Solution Oriented Partnership progress, and having access to key information and data, this tool can provide: (a) A quick check in early design stages, giving early guidance on sustainability; and (b) A more detailed evaluation of the final solution.

The assessment process creates a workflow that, when applied to the Partner Based Solutions, consists of the following ten steps:

1) Starting the assessment: Goal definition

Defining the reason for doing an assessment and stating the intended use for the analysis. For Solution oriented Partnerships, the purpose is at least twofold in comparing between solutions to demonstrate their strengths and weaknesses, and formulating foci for improvements.

2) Definition of the system

The definition of the system (of which each solution is a part) pre-determines to a large extent the result of an assessment. Moreover, decisions at this point greatly depend on the purpose of the assessment. Good practice in this situation requires that the procedures used for defining the system are transparent and that the decisions are clearly described. The Solution Oriented Partnership approach is

very much focused on the customer, and on the context-of-use, as the functionality of the system and the functions of the solution have to match the needs/desires of consumers. However insights are required as well at a broader level of analysis (see scoping). In addition, for a coherent integration of the three dimensions of evaluation and its application at a later stage in the evaluation of solutions, it is necessary that they will be based upon the same system definition.

3) Definition of the scope of analysis

This defines the boundaries (determining different aggregation levels of analysis) and assumptions for the recording, examining and evaluation of impacts/ benefits. For system analysis, the perspective of function fulfilment helps to define the system boundaries taking a lifecycle perspective (from extraction of raw materials, through production and use, to waste management, including all the inputs and outputs involved in the ‘metabolism’ expressed by the selected functional unit) and a multi-layer perspective (micro, meso, macro), with focus on the context-of-use.

4) Definition of possible functional unit(s)

The selected functional unit must be described in such a way that it is relevant for the purpose of the study. It has to capture changes in the system at the required level. For such selection, we must identify the result that is delivered by the production subsystem, and/ or the need/desire it fulfils in the consumption subsystem. In order to focus on the fulfilment of a complete function through the Solution Oriented Partnership approach, a wide definition may be assumed.

5) Definition of the assessment type

The assessment may be qualitative and/or quantitative throughout the life cycle stages where changes are felt. The balance between quantitative and qualitative indicators varies according to each aspect under consideration, and according to resource and data availability. When comparing a new Partner Based Solution with alternatives, to demonstrate its benefits quantitative data might be crucial. Where qualitative approaches have to be applied, scalable responses rather than open-ended descriptive statements are encouraged.

6) Selection of indicators

According to the pre-defined criteria, a set of indicators is selected to perform the assessment in each dimension. A feasible metrics system is crucial to support decision taking when addressing highly context-oriented sustainable solutions.

Indicators, which are defined as key information about physical, social or economic aspects of a system, are used to measure and motivate progress toward sustainable goals. Therefore, at a concrete level of each activity in a given chain, they should address the main dimensions of sustainable development, and be relevant to the issues and impacts for target groups. Indicators used in each assessment dimension should be applied to the whole function, within the predefined boundaries (space and time), so providing specific measurements of individual or global aspects that can be used to track and demonstrate performance. The focus is on both the profiles of the current and the new system. They should enable a structured data collection, providing triggers for dialogue and further enquiry within different evaluation levels, on the issues of concern to the project team and to different stakeholder groups. Possible experimental constraints also have to be identified (e.g. time and budget).

7) Data management

It includes input data, data assembling, the performance of necessary calculations and inventory analysis. Data aggregation and aggregated scoring should be avoided when possible. Using the indicators scale of change and their change percentage compared to the existing solutions is a more transparent result than using differences in aggregated impact scores between alternative solutions.

8) Evaluation

After the assessment in each dimension of sustainability, evaluate the potential benefits of each new Partner Based Solution, considering the selected functional unit. After an integration of results, the aim of the evaluation stage is to confirm and/or improve the functionality of each new solution. To give insight on the changes each alternative solution is promoting, indicators and their change percentage compared to the existing solutions are provided.

Besides the previous characterization, a complementary evaluation might be performed to identify other characteristics of the system relevant for innovation (e.g. rewards, incentives, regulation).

9) Comparing solutions

When comparing the new Partner Based Solutions with corresponding current solutions, more than one reference situation should be used. But how does the solution fulfil the envisaged functions compared to current solutions? How radical

is the new solution design? An analysis of strengths and weaknesses of each new solution, when compared to a conventional production-consumption system, can be performed and therefore the key hot-spots can be identified. Then the related solution elements can be improved and later re-assessed.

When the need/demand is satisfied by alternative solutions, it is relatively easy to compare solutions. To understand possible trade-offs between options and subsequent implications, use system thinking to promote a final discussion on results, instead of discussing each assessment dimension in isolation. Using the triple-bottom line concept, explore the interfaces between each two sustainability dimensions: (i) The economic – environmental area; (ii) The economic – social area; and (iii) social – environment area.

10) Communicating results and conclusions.

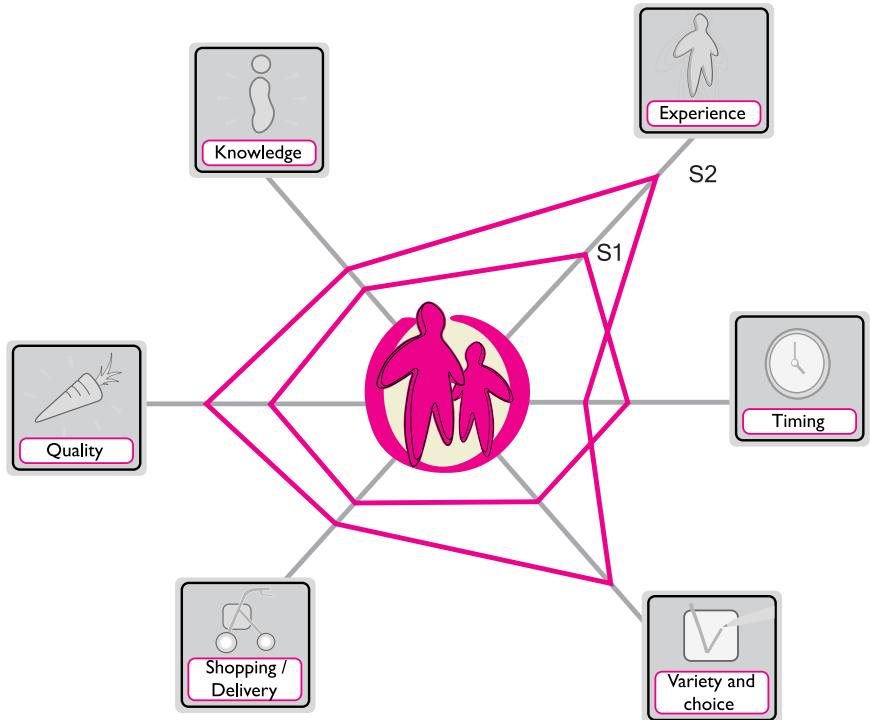
According to the assessment purposes, different interested parties, which may be internal or external to the process, may be targeted in this communication. Results and conclusions can confirm and/or help to formulate further development aspects within the evaluated path. The assessment results can also be useful for ‘green’ marketing purposes.

Performing the specific assessments in each dimension

On the basis of the common steps described above, this section gives insight on the specific characteristics provided by the social, economic and environmental assessments, as they are explored as distinct dimensions of sustainability before an integrated evaluation. The final validation of expected benefits includes the following criteria:

- Social – Customer perceived increase in added value of the system, measured as the ability to satisfy need at a reasonable cost, (when compared to the present scenario); Increased number of initiatives at European dimension.
- Economic – Life cycle costs of the system sensibly reduced when compared to traditional products and services.
- Environmental – Environmental impact of the system sensibly reduced when compared to the present scenario.

The social assessment enables the integration of social aspects into the life cycle



■ figure 2: **The social assessment of a new solution compared with a reference situation.**

thinking and assessment of Partner Based Solutions delivered through Solution Oriented Partnerships. The focus is on interaction of users and the system elements, and their experience of using the solution. The social assessment is a qualitative assessment and is not intended to provide quantitative, statistical information.

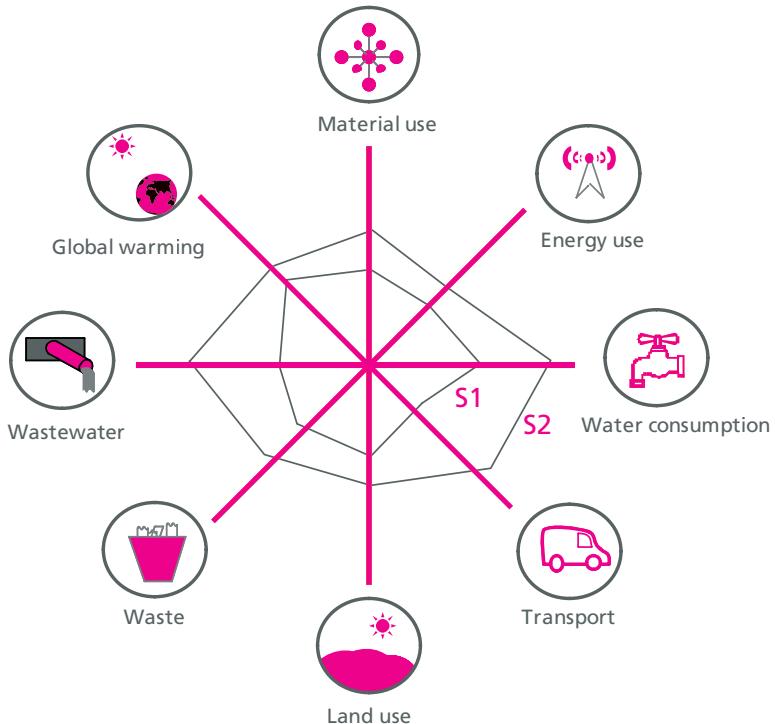
In a multiplayer approach, having a focus ranging from customers and local communities to the society level, the aim of the social assessment method is to understand how a proposed or implemented solution contributes to the quality of life of people. This improvement looks ahead at the value added that is achieved by a high functionality solution. Users and other stakeholders are asked to reflect on the before, during and after situations to find out the unexpected as well as assessing the expected (especially in terms of people's use and attitudes). For the assessment, the unit of analysis consists of a personal story, a personal experience

of interactions with the current and new solutions, using a radar graph (fig.2) that allows a visualization of the findings according to predefined assessment criteria. The economic assessment enables a validation of marginal cost-benefit effects that result from the new partner-based solutions, using three levels of analysis. In general, various aspects of costs should be considered for a complete life cycle of a solution, enabling indirect and hidden costs as well as non-market values to be incorporated into the accounting system of companies, or other institutions (thereby documenting improper, inefficient and ineffective use of resources).

The economic assessment of new solutions is an abridged quantitative methodology, based on the marginal cost-benefits of providing one more functional unit. Given the multiple definitions costs may have, and the complexity of data gathering from the different partners' inputs throughout the value chain, this validation process requires a joint workshop, where all partners will determine the costs-benefits on the basis of pre-elaborated inputs. In this approach, a distinction is made between internal costs, which are relevant on the context-of-use and meta-context-of-use levels, and external costs, which are relevant on a societal level. The resulting joint assessment indicates the occurring changes in the system characterized through four cost indicators (time, infrastructure, material and energy). The data is then evaluated and converted into euros. Where relevant, externalities are added to arrive at the societal benefits. Finally the life cycle costs-benefits of the solution are derived simply by adding up all internal costs (context-of-use level), or internal plus external costs (societal level), which is followed by a round confirmation of the validation results.

In the environmental assessment a process analysis and selected input/output parameters along the production-consumption chain are combined, in order to determine the impacts of new Partner Based Solutions at the three predefined levels of analysis. The environmental assessment is a life cycle thinking based methodology, which enables practitioners to investigate and quantitatively assess in a systematic but abridged way, the influence on the solutions design of selected environmentally related inputs and outputs through life cycle stages. In turn, this allows priority issues or problems to be addressed and choices to be made. The group of indicators selected are intended to provide easy data-collectable variables of particular impacts at the life cycle stages under scope. An important characteristic

of these metrics is that measurements can be combined to calculate the impact per output unit over the life cycle stages. Due to the complexity of assessment methods available to evaluate how significant each new solution is in its context-of-use, a reasonable approach is to consider the depletion of resources (i.e. inputs that the economy appropriates from nature) and the effects of resulting pollution (e.g. green house gases and ozone depletion).



■ figure 3: **The environmental assessment of a given new solution compared with a reference situation.**

The natural resource base (e.g. air, water, and soil) is used for inputs, recycling and disposal of wastes. Moreover, the use of inputs is indirectly the cause of emissions and solid waste problems that occur throughout the solution life cycle stages. Given the boundary conditions of a new Partner Based Solution to be validated, the set of environmental indicators considered (fig.3) is relatively simple and

clear. It requires readily available, meaningful and applicable data organized into resource consumption- and pollution-oriented categories, and focuses mainly on the most critical inputs and on a few outputs of both subsystems of production and consumption. Following the simple general rule that the fewer the metrics the better, such metrics can be used to evaluate relative performances of products and processes.

Conclusion

It is frequently complex to communicate the sustainability value created in systems. This methodology aims to overcome that drawback occurring in transitions towards sustainability, by:

- Reducing the complexity of the assessment process through a streamlined methodology, as sustainability assessment is a resource intensive practitioner and research field;
- Providing a holistic judgement. Having in common with conventional tools for life cycle analysis a systemic and a life cycle thinking basis, the sustainability assessment of systems goes beyond environmental and economic assessment concerns, extending the focus to social issues as well;
- Providing a comparative analysis to the design team on the performance of current and new Partner Based Solutions, in order to frame key issues, demonstrating strengths and weaknesses, and highlighting critical areas for improvement;
- Enabling in a communication stage to target different interested actors, which may be internal/external to the process. Results and conclusions enable Solution Oriented Partnership members to confirm and/or to formulate further development aspects within the evaluated path as well as communicate externally.

Validation of Life Cycle Economic Benefits of Partner-Based Solutions

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Introduction

This chapter presents a methodology for validating the life cycle economic benefits of Partner Based Solutions. It starts with the goal and scope of the validation and goes on to explain why a life cycle approach is necessary, how the functional unit of the validation should be defined and how the reference situation should be selected. Specific attention is given to the problem of validation levels, where an intelligent choice has lead to significant reductions in the amount of necessary validation work. Also, it explains how the required data can be found by organising a workshop and how these data can be structured by using six cost indicators.

Furthermore, this document makes a distinction between internal costs, which are relevant on the context-of-use and meta-context-of-use levels, and external costs, which are relevant on the societal level. A section on how to conclude the validation is also included. The methodology presented here is quite different from a conventional Life Cycle Costing analysis. The difference is explained at the end of this chapter.

Goal and scope of the validation

Partner-Based Solutions offer cost reduction in several ways, e.g. by:

- Increasing the use of standardised and hence, cheaper components;
- Eliminating losses;
- Making better use of existing infrastructure, e.g. by joining forces with other solutions already being supplied or more productive use of available ICT facilities;
- Making more use of ecologically sound components, renewable energy or materials;

The goal of the methodology is to compare the Partner Based Solution with a suitable reference situation and in doing so, to see if any of these cost reductions have been realised, and how. The methodology is designed for validating solutions

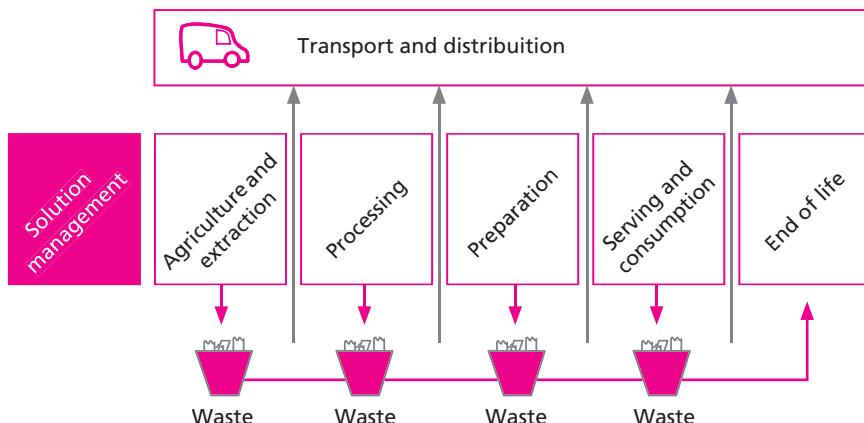
on a pilot scale, giving concrete results with comparatively little effort.

For the companies involved, Partner Based Solutions also have the potential to increase turnover and profits and to strengthen the customer base. Similarly, local communities may benefit also, e.g. through the generation of jobs for people who would otherwise be unemployed. However, these effects cannot be validated by pilot cases simply because of their limited scale. Therefore, these meso-scale effects are not addressed by the validation.

Partner Based Solutions also promise reduced environmental impact. This validation addresses these reductions also, but only insofar as they can be monetarised, i.e. “out-of-pocket” costs for society. Finally, Partner Based Solutions promise increased customer benefits and hence, a willingness of customers to pay more. This increase in (perceived) value is largely subjective and is therefore not addressed in this validation, which – after all – is concerned with cost, not value.

Why a life cycle approach is necessary

Typically, a solution has a life cycle consisting of five stages: agriculture & extraction, processing, preparation, serving & consumption and end-of-life. For the validation, this quintet is expanded with a solution management stage and a transport stage (see Figure below).



Note that life cycles can in principle be very short and simple. For instance, in the case of someone eating home-grown vegetables, there is really only one stakeholder, hardly any processing and waste, and virtually no transport. However,

in the majority of solutions, life cycles are very complex, involving many different stakeholders and transport steps, each of these being a possible source of waste.

During each stage, costs are incurred. Moreover, because reductions made in one stage may lead to increases or decreases in another, it is necessary to take into account all five stages in the validation. A simple example is the use of canned instead of raw vegetables in a restaurant kitchen: this allows the cook to prepare the meals faster and hence, cheaper. However, this cost reduction for the preparation stage is at least partially offset by the increased cost of processing, since the vegetables still have to be cleaned, sliced and canned. Naturally, this example can be generalised to include all pre-prepared ingredients and even entire meals.

Also, it is necessary to draw up similar life cycles for auxiliary products insofar as these are actually consumed in the solution. Again, cost reductions in one stage may be offset by increases in another. In the example just given, this would include the cans.

Defining the functional unit for the validation

In performing the validation, it is indispensable to define a “common denominator” for all costs, with which all costs can be normalised and totalled in the right way. As a default for the validation of a food solution, the functional unit can for instance be defined as follows:

Providing one meal for one consumer, the meal being healthy, tasty and sufficiently large, and being served in a manner that meets the relevant standards for hygiene and safety.

It is quite possible to choose a different definition if the specific solution merits this. For instance, if a food solution provides a full set of meals for one day (i.e. breakfast, lunch, dinner and snacks), this full set can be chosen as the functional unit. This can prevent problems of allocation.

Note that such a default definition is a very technical one: the example lies very far away from the actual experience of eating, which involves issues such as how efficiently food is digested and how enjoyable it is to eat. This need not be a problem if the validation of customer benefits takes these issues duly into account. Still, if the new solution is aimed specifically at improving such issues, it might be better to define the functional unit in such a way that these issues are clearly reflected in

it (people do not visit a two-star restaurant simply to “carbo load”). Future research will have to show if such a choice is actually advantageous.

Selecting a baseline for the validation

The cost reduction of Partner Based Solution can only be determined in relation to a well-defined reference situation, henceforth designated as the baseline. However, baselines cannot be selected in a totally objective manner. After all, a consumer society offers choice and, apart from in very tightly constrained contexts-of-use, different consumers are likely to meet their needs in different ways. So, the crucial question is really: in making the validation, what are we actually comparing with what?

Imagine a Partner Based Solution consisting of a lunch meal service for workers at an SME, replacing the workers' current lunch consisting of a low quality homemade sandwich or snack. Compared to this first baseline, the solution will show huge customer benefits with moderate cost benefits. However, one could also use a standard catering service as the baseline, which is expensive (and hence, not currently used) but offers good quality. Compared to this second baseline, the solution will show small (in any) customer benefits with huge cost benefits.

It is best to select the baseline that lies as close as possible to the actual situation (in the example above, this would be the first baseline). If this is somehow unsatisfactorily, more than one baseline must be used. If this still doesn't solve the problem, then it must be concluded that the Partner Based Solution in question is simply not aimed at one specific need. This need not imply that it is doomed to be unsuccessful, but it does unfortunately rule out any form of comparative validation.

Validation levels – marginal and integral costs

The validation should only address the marginal or variable costs of the Partner Based Solution, i.e. the costs of providing one functional unit more. Any capital investments necessary for the solution must be excluded. The actual use of such facilities, naturally, is to be included.

There are two important reasons for this choice. One, it is usually not possible to determine these cost factors for the baseline, because the investments were made in the past and often at least partially for other purposes also. The second reason is that

making an integral instead of a marginal validation would lead to infinite regress, which can be succinctly summarised as “machines to make machines to make...” This choice also means that the “container” category of so called overhead costs is to be omitted from the validation also. For instance, the costs of general administrative work, space heating and lighting etc. should not be included. What should be included are, for instance, the labour costs directly involved in the actual solution management.

All this is not to say that the capital investment costs, plus costs associated with the training of people, marketing campaigns etc., are insubstantial, on the contrary. Such costs can be a major burden on a given solution and should therefore be duly addressed in the Partner Based Solution business plan for that very solution. However, for the validation methodology, we make the hypothesis that a certain marginal cost benefit also implies a comparable integral cost benefit, at least after a certain “learning period” has passed.

Note that in environmental life cycle assessment (LCA) parlance, a validation of marginal effects is called a first-level assessment, with zero level being an assessment of the primary product only. Producing the necessary equipment would be included in a second-level assessment, etc. So called rebound effects typically take place on the second level. In LCAs, such effects can include, for example, extra airplane holidays made from money saved by energy-efficient living. A possible cost equivalent of a rebound effect would be the profits from investments made with the money saved by the Partner Based Solution. Again, if these are projected to be substantial, they should be included in the business plan, but they have no place in the validation of the cost benefits.

Data gathering – the workshop approach

In the Solution Oriented Partnership approach, a partnership teams up to provide one or more solutions for several end users, consisting of different combinations of solution elements provided by the respective partners. Furthermore, there may be intermediary partners involved. In such a complex set-up the cost benefits cannot be validated through a series of one-to-one interviews because costs can be defined in various ways (for instance, costs may or may not include profit margins).

A better way is to get all partners together to determine the benefits in one joint

workshop. The assessor should prepare this workshop thoroughly, by

- 1) Defining the goal & scope of the validation;
- 2) Defining the functional unit;
- 3) Selecting the baseline(s) for the validation and
- 4) Drawing up system maps for both the Partner Based Solution and the baseline(s).

These maps must highlight the role of each partner. They should include all the relevant steps that are essential for providing the solution elements and the ultimate solution, and should be organised along the life cycle stages defined earlier in this chapter. With these inputs, the workshop can begin. For each of the life cycle stages it is jointly determined whether or not there is any change between the baseline and the new solution. This is repeated if there is more than one baseline. If there is no change in a certain stage, then this entire stage can be omitted from the validation. Next, the changes that remain are substantiated, using six cost indicators: time, materials, waste, energy, transport and infrastructure, further described below. In this well structured way, no relevant cost item need be forgotten. Note that partner companies need not reveal any commercially sensitive information regarding their internal cost breakdown. Rather, the aim is to jointly find those places in the system maps where the new solution is more cost-effective. This should also be presented as the main motivator for attending the workshop, because during the validation it is likely that new potential “cost savers” will be found.

The six cost indicators are as follows;

- *Time*: means simply time spent by people involved in the baseline and the new solution. It covers paid labour, volunteer activity and time spent by the end user. It excludes time spent for transport, which has a separate indicator.
- *Materials*: means the products and auxiliaries consumed (e.g. for a food solution, this would include the food itself, plus any packaging materials and disposables).
- *Waste*: means just that.
- *Energy*: means electricity and heat for unit actions such as processing, preparation and conditioned storage, but not fuel for transport, which has a separate indicator.

- *Transport*: means just that.
- *Infrastructure*: is a special indicator, used solely to determine if the solution makes better (or worse) use of existing space, IT facilities, subsidies or similar “infrastructural” inputs. It can also cover any non-core functionality of the solution that has no clear parallel in the baseline(s).

Important note: a given partnership can generate different solutions for different contexts-of-use on the basis of the same set of solution elements. It is perfectly possible to validate such sets of solutions at the same time, in the same workshop. To do this, steps 1 through 4 above must be executed for each separate solution. Such a combined assessment is in fact desirable, since many unit actions will be the same in the different solutions.

Concluding the validation

The data gathered in the workshop concern the out-of-pocket costs for the partners. These costs are internal to the companies in the sense that they can, in principle, affect their magnitude. But in addition, there are external costs that are borne by society, which are typically paid by companies and end users alike through taxes, and which companies cannot affect. Such costs include environmental costs, but only insofar as these are monetarised; non-monetarised impacts can find their place in the validation of environmental benefits.

The aim is to validate the life cycle cost benefits of solutions on (1) the level of the (meta-) context-of-use and (2) the level of society as a whole. The first one is the level on which the partner companies and the end users are active. On this level, internal costs provide a complete picture. To give the complete cost benefits for the societal level, by definition, the external costs, the externalities, must be added. To do this, the following distinctions must be made per indicator:

- *Time*: through wages, paid labour directly translates into a cost on both levels. Volunteer labour time has zero cost on the (meta-) context-of-use level, but not on the societal level: here, it should be multiplied by the legal minimum wage per minute. End user time has no cost consequences on either level, but any significant change here should lead to an entry in the customer benefits assessment.
- *Materials*: euro for euro, material costs are internal costs. For the societal

costs, externalities should be added depending on the environmental impact of the material production.

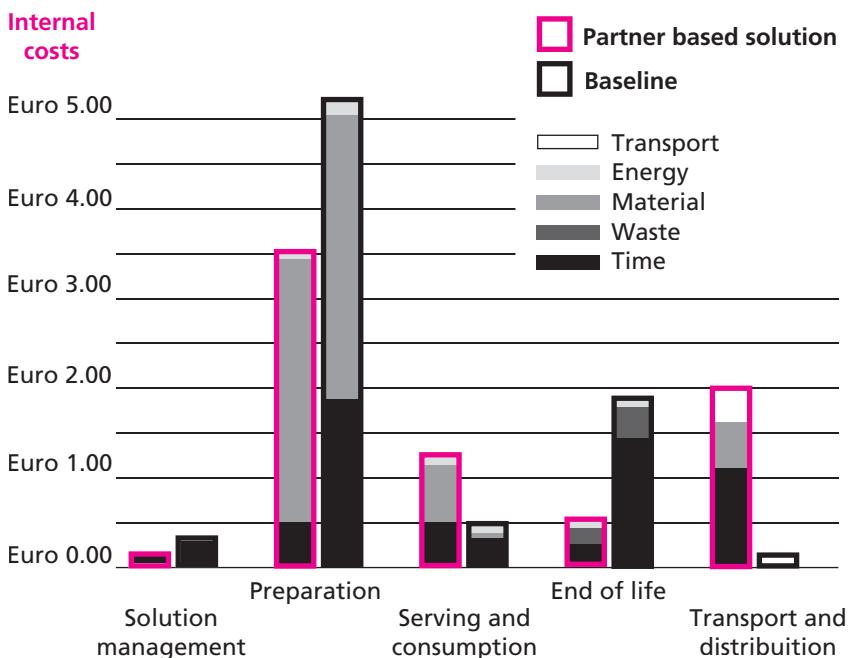
- *Waste*: no change is necessary on the societal level if the solution wastes are disposed of and/or recycled as in the baseline.
- *Energy*: this directly translates into cost on the (meta-) context-of-use level. For the societal costs, externalities should be added if the energy is generated in non-sustainable ways, i.e. from fossil fuels.
- *Transport*: as with energy. Again, externalities should be added to determine the societal costs.
- *Infrastructure*: space made available is converted into euros through the cost per square metre. If it will actually be used for other purposes, then this cost is an internal effect; otherwise, the potential value should be treated as an externality. Euro for euro, subsidies represent a negative cost (i.e. a benefit) on the (meta-) context-of-use level, but a zero cost on the societal level.

Having made these changes, the life cycle costs of the solution are derived simply by adding up all internal costs (for the (meta-) context-of-use level) or internal plus external costs (for the societal level). The same is done for the baseline(s). The differences then are the cost benefits of the solution on the respective levels. The assessor completes the validation through one final feedback round with the partners. By way of example, imagine a food service for the elderly, where hot meals are delivered by volunteers on bicycles, the meals consisting of normal ingredients. This baseline is then compared with a partner based solution using cold chain technology, where professionals deliver organically-grown meals by car. Furthermore, imagine that both the baseline and the new solution get a one euro subsidy per meal. The figure below depicts the results (all values are realistic, but fictitious).

Conventional LCC versus Validation of LC Economic Benefits of Partner Based Solutions

There can be considerable confusion between conventional or “standard” life cycle costing (LCC) and the methodology for validating Partner Based Solution life cycle benefits as described in this chapter. The three main differences are explained here. In LCC, the “life cycle” is really that of the product starting with its purchase by

Life cycle costing / DuniChef



■ figure 1: **Example validation output: bar graphs of baseline and solution.**

the end user. Subsequent stages are maintenance, re-use and eventually end-of-life. The actual life cycle of the product prior to purchase does not enter the analysis. In a validation of life cycle benefits of Partner Based Solutions, however, all life cycle stages are taken into account. So, the first difference between the two methodologies is, quite simply, a different meaning of the words “life cycle”. The approach taken in a Partner Based Solution life cycle benefits validation is essentially that of an environmental Life Cycle Assessment (LCA), but one in which costs are addressed instead of environmental impacts.

The second difference lies in the number of stakeholders and in how they are related. LCC considers a situation where one end user arranges everything s/he needs through a series of one-to-one interactions with various suppliers. Partner Based Solutions, and the accompanying benefits validation methodology, are based

instead on cooperation between solution element providers, working to deliver solutions instead of products. Furthermore, the validation in principle allows distinguishing between the context-of-use and the societal levels.

Finally, the third difference is that LCC can be used both for a comparative and an absolute validation. The Partner Based Solution life cycle benefits methodology is designed specifically for a comparative validation, and then only relating to pilot cases instead of full-scale implementation. It should reveal no more, but also no less, than whether or not a certain Partner Based Solution is a step in the right direction and where the priorities for optimisation lie.

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A THREE YEARS PROJECT (1.4.2001-31.3.2004)

European Commission “GROWTH Programme”, Research Project HiCS,
Highly Customerised Solutions (HiCS) Solution-oriented design, production and delivery
systems, N° GRD1-2000-25516

Consortium partners:

Polytechnic di Milano, Cranfield University, TNO, INETI, CDN, Philips Design, DUNI,
BioLogica, ACU, DALT

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In addition to the authors the following people were key members of the project team: Gabriele Cervetta, Geke Deetman, Goldes Enrique, Annamaria Formentini, Marianne Guldbrandsen, Tziranda Hernández, Erik Indekeu, Matteo Kalchschmidt, Marjolijn Knot, Simona Maschi, Lelio Mondella, Lucia Rampino, Michel van Schie, Paul Souren, Etjen Vanderheyden, Alberto Villa.

The project team would like to thank the following people for their contributions to the research: Laura Acciarri, José Luís Ariño, Valentina Auricchio, Cristina Barbosa, José Barranco, Enric Bascompte, Christiaan van den Berg, Boelo, José Luís Bogas, Casper Boks, Ronald Boot, Ursula, Borroni, Han Brezet, Jan Buijs, Marco Caffagni, Elena Casartelli, Jordi Casas, John Cass, Manuela Cianella, Claudio Civanelli, Susanna Civetta, Dario Cologna, John Delphine, Emma Dewberry, Anton Dijk, Mili Docampo Rama, Raoul Dumoulin, Huub Ehlhart, Laura Erma, Marco Frangipane, Filip Fransen, Andreas Fruchtl, Riccardo Gatti, Patrik Geens, Anne van der Graaf, Harm, Peter Heisen, Ruud van Heur, Luc van den Heuvel, Ilse van den Hurk, Óscar Ibáñez, Jan Jacobs, Johan, Sarah Jukes, Slava Kozlov, Lia Krucken Pereira, Josep Llovera, Peter Lloyd, Remco van der Lugt, Boris Lutman, Michela Marini, Anna Ma Martínez, Karin Meinders, Monique, Pietro Morini, Francalma Nieddu, Florencia Pascual, Maddalena Pigozzi, Lucile Rameckers, Philip Ramondt, Rene, Fiona Rees, Han Remmerswaal, Harrie Rikkink, Carlos Sacramento, Albert Salazar, Sara Sancito, Daniela Selloni, Sacha Silvester, Leonor Sota, Paul Thursfield, Luca Valer, An Vanderauwera, Remco van der Velden, Philip Vergragt, Rafael Vicente, Frank van der Zwan.

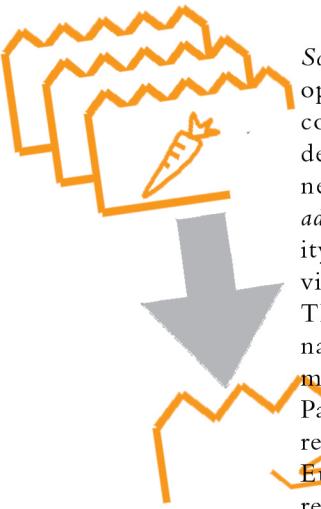
Thanks must also go to: Roberto Broggi, BSH Spain, Gianni Cavinato, Enterprise, Erasmus University Rotterdam, Eurest Colectividades Spain, Antonietta Forcella, Frigicoll, Roberta Garbagnati, Paul Gardien, Josephine Green, Nico Heukels, Jan Jaap Bouma, Anja Janssen, Steven Kyffin, Alfredo Morini, Sodexho Nederland, New Solutions Development – Design Research Program of Philips Design, Joan Potts, Ajuntament de Rubí, Associazione SENECA Milano, users from Rubí Social Services scheme, users from CDN, Whirlpool Italia.

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Whirlpool



Solution Oriented Partnership is about the conception and development of solutions. More precisely: it is about industrialised, contextualised, sustainable solutions that are produced and delivered by networks of partners: the solution-oriented partnerships. It is also about a new idea of industrialisation: an *advanced industrialisation* with the capacity to bring a multiplicity of players together to collaborate in an effective way, with a view to sustainable objectives.

The book is organised in two parts: *Themes*, that discusses the nature of partner-based solutions, and *Tools*, that introduces methodological tools for their conception and development. Partner-based solutions arises from the activity of a group of research centres and European enterprises, funded under the European Community 5th Framework Programme. This research, known as *HiCS, Highly Customerised Solutions*, was an *action research*, the specific subject of which has been “*food for people with reduced mobility*”. The results of the practical stream of this research are concrete proposals that are presented in a companion book, *Food delivery solutions*.

