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Scenario Filter Model as an Innovation Catalyst

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Abstract: This paper introduces the action scenario framework and its application in the participatory foresight process. Moreover, the Scenario Filter Model (SFM) and its possibilities to produce future oriented service innovations and skill requirements are introduced. The scenario filter model (SFM) is a tool to generate a comprehensive set of scenarios and also to select ideas for further development and commercialization. The advantage of the SFM it that it combines three different perspectives so called filters: market, society and technology. The SFM also supports strategic decision making by helping e.g. in the timing of strategic actions. The research also gives new insights for services in the fields of citizen wellbeing and security by introducing four alternative scenarios and some examples of future service concepts which were created during this foresight process.

Keywords: scenario; foresight; future skills & services; wellbeing; safety

1 Introduction

Multi-client studies among different business fields e.g. in the technology industry or in the chemical industry show how difficult it is even in business to business cases to form a common understanding of the future conditions, its alternative scenarios and the shared vision of the desired future (Leppimäki & Meristö 2007; Meristö & Kettunen 2007). Also, the time perspective varies from business to business, being at the longest more than 50 years and at the shortest less than one year (see e.g. Schwartz 1996). The scenario scene consists not only of the business field itself but also of global actors e.g. from the

governmental side or cross-national agreements with different focuses. The scenario writing process with multi-client purposes has been usually divided into theme groups with sub-goals as a part of the whole process. In practice, this can lead to sub-optimization without a systemic view (Day & Schoemaker 2011).

The focus on lifelong wellbeing services and skills brings a set of different actors to the scenario stage (Nurminen et. al 2010). This paper describes how to get all the actors involved in the development process and how to generate a common vision shared by all the actors. Of course, a discussion about alternative scenario development paths is needed among participants, which in this case represent e.g. municipalities, non-governmental organizations, small and medium size enterprises, educational organizations, local citizens as well as students from wellbeing and security faculties. The scenario process itself is participatory by nature (see e.g. van der Heijden 1996).

This paper is based on ForeMassi2025 project led by Laurea University of Applied Sciences. It is a network project on long-term foresight of qualitative skills in the wellbeing and security sector concerning especially independent living through a person's whole life. It is also related to service innovation design, especially on visionary concept design (Kokkonen et al. 2005). The foresight part of the project results in national and provincial wellbeing and security scenarios, also known as future manuscripts.

This paper contributes to the innovation community especially by introducing the action scenario framework and its application in the participatory foresight process. Moreover, the Scenario Filter Model (SFM) and its possibilities to produce future oriented service innovations and skill requirements are introduced. The SFM also supports strategic decision making by helping e.g. in the timing of strategic actions. The research also gives new insights for services in the fields of citizen wellbeing and security by introducing some examples of future service concepts which were created during this foresight process.

2 The aim and research questions

The aim of this paper is to describe how to use the scenario filter model (SFM) to produce future oriented service innovations and required skills to achieve a good life with wellbeing and safety needs met in every phase of life. Research questions focus on three categories: 1) How can we define a conceptual model to combine a participatory foresight process and multi-filter perspectives to shared future visions and alternative scenarios? 2) Can these scenarios serve as a basis for innovations in different fields, e.g. service design, competence development and strategy formulation? 3) What is the role of filters in timing the scenarios and strategic actions based on scenarios in the course of time?

3 Framework and methods

Action Scenario Approach as a Framework

In this ongoing research project the action scenario framework was used when formulating the phases of the scenario work. Action scenario approach consists of the

following phases: I Present state formulation (Who and where are we?), II Future state formulation (What are the possible worlds?), III Future action formulation (Where can we go and how?), IV Future strategy formulation (Where do we decide to go?) and V Future actions formulation (Where do we in real time go?). The main activities emphasize how to form a current understanding of the present state, how to find out truly new perspectives to the future based on the SFM and finally, how to meet those challenges concerning e.g. service concepts, skills requirements and changing values in the course of time. The Figure 1 shows how these phases are following one by one towards the final actions based on future perceptions.

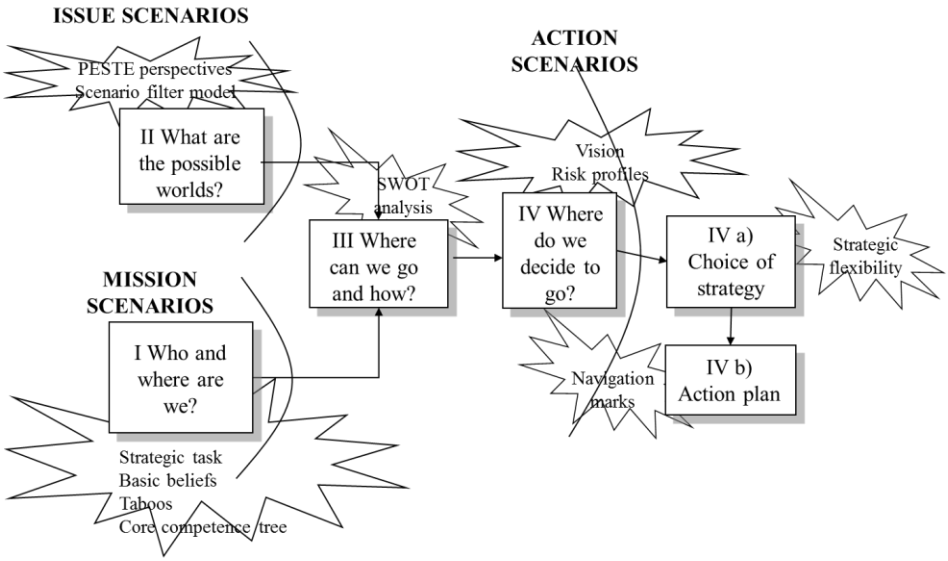

Figure 1 The action scenario approach as an integrated strategy process (Meristö 1989, 1991).

In this paper, the action scenario approach is used as a framework for practical phases of the ongoing research process. i.e. in the first phase taboos and skills & competences were recognized in the joint workshop and a shared vision was formulated. The second workshop focused on the scenario building process using the Scenario Filter Model (SFM), i.e. looking for change phenomena (wild cards, weak signals, trends) first through PESTE (political, economic, social, technological, ecological) perspectives and then sorting the change phenomena through market (M), society (S) and technology (T) filters towards finding the key drivers for the future. Finally, in the third workshop the scenarios were fine-tuned and the main actors and their roles in each scenario were recognized (Meristö et al. 2012).

The Scenario Process and the Data in ForeMassi2025 Project

The participatory part of the research process consisted of three workshops which were arranged in May 17th 2011, September 29th 2011 and November 17th 2011 (Figure 2). Before the first workshop background information of the wellbeing and security fields were collected from research reports and statistics. In addition, data concerning trends

and signals were collected in the World Future Society's annual conference which was held in Vancouver in July 2011. During the scenario process also regional background information was introduced by the regional coordinators participating in these workshops.

The three workshops focused on collecting visionary knowledge from the participants and analysing it further. The participants of the workshops consisted of personnel of five Universities of Applied Sciences from five different regions (Uusimaa, Pirkanmaa, Varsinais-Suomi, Satakunta and South Ostrobothnia) but also people representing different interest groups such as companies and organisations related to wellbeing and security fields as well as councils of regions, NGOs and local communities.

Between the workshops the results were complemented in Massidea.org which is an open innovation community for sharing challenges, ideas and visions (see e.g. Santonen & Karhu 2010). Through Massidea.org people commented and added new perspectives to the results of the workshops. Also students from universities of applied sciences participated in the work done in Massidea.org, which brought fresh ideas to the results. After the scenario process the results were supplemented with the comments and visions of the project's advisory board in February 2012.

The general frame scenarios were formulated during 2011. They were specified to the provincial level in 2012 in workshops organized in all five provinces in the project, i.e. the Uusimaa, Pirkanmaa, Varsinais-Suomi, Satakunta and South Ostrobothnia provinces. Based on the regionalized scenarios, proposals for educational content development were given, taking into account the future-oriented demand and change needs, competence profiles and structural recommendations. However, this article focuses on the national level process which was completed in 2011.

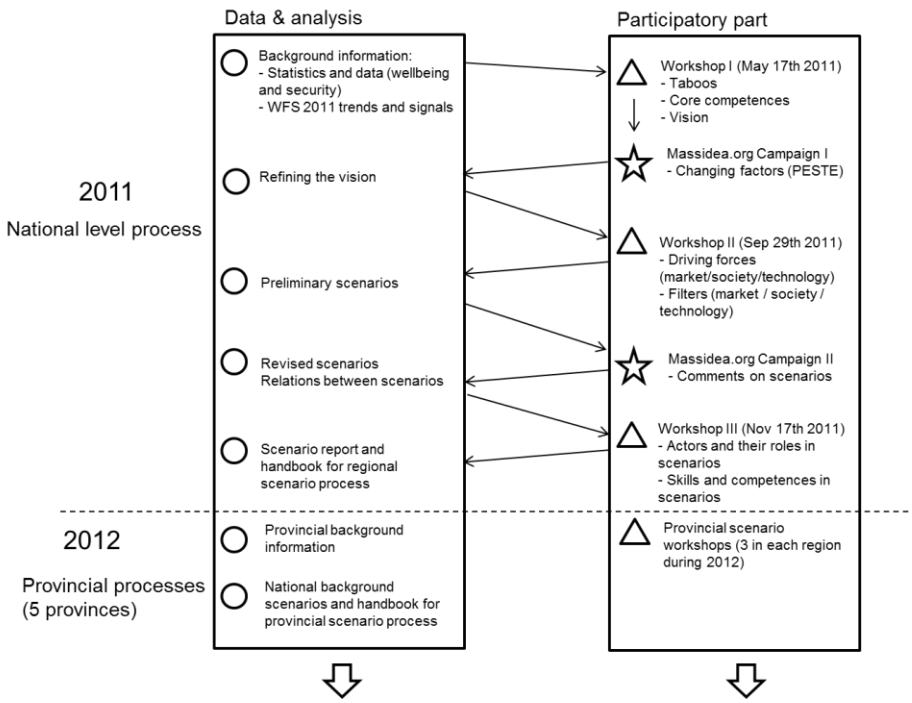

Figure 2 The research process.

The Scenario Filter Model as a Tool in Scenario Building Process

The scenario filter model (SFM) is a tool to generate a comprehensive set of scenarios and also to select ideas for further development and commercialization. The advantage of the SFM it that it combines three different perspectives so called filters: market, society and technology (adapted from Krupp, originally presented in 1976) (Figure 3). The market perspective has the shortest time dimension, usually 1-2 years, often only a few months. The society perspective varies from culture to culture but is usually the time between elections and is related to the changes of the government as well being usually 3-5 years. The longest time perspective is connected to the new technology applications and basic research behind them. New applications and solutions in the fields of infrastructure and energy may take even 30-50 years to materialize. According to Ringland (2008) a scenario planning process increases people's creativity when they step out of their comfort zone. The SFM forces people into zones not familiar, e.g. market people have to cope with society issues, technologist with politics, and so on.

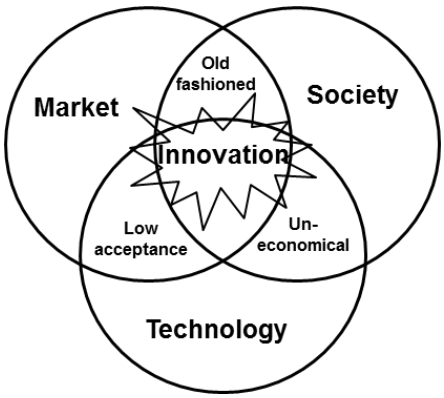

Figure 3 The tripartite approach of innovate action (adapted from Krupp, presented first in EIRMA Interim report 1976).

Compared to e.g. Chang's (2010) scenario methodology where he puts the uncertainty axes to one circle, in SFM there are at least three circles (in our model referred to as filters) including market, technology and society. These filters also form a systematic path to the future by combining these three perspectives together. In order to generate a successful innovation, all of these three elements should be taken into account simultaneously. If concept development is done only with market and society factors in mind the solution is technologically old fashioned. When only market and technology are considered the solution might be practical, efficient and economical but the customer acceptance of it is low and it will not succeed in the long run. In the third case, if only technology and society are interacting, the solution is uneconomical. In the course of time, SFM will give the company a better chance even to disrupt the development project when the early warning signals show the path will not go through the next filter. When applying SFM to build scenarios we can get a set of alternative future paths from different perspectives. Market actors and factors include e.g. market structure, competition positioning and of course customers perspectives including B-to-B customers and consumers as well. The elements of the society consist of values,

legislation and subventions as well as cultural and educational issues. Technology perspective has links to the research institutes and universities as well as to the informal networks and forums working for science and new applications in the field.

In the SFM the filters consist of the driving forces of each scenario. The filters form coordinates based on two factors, one on the horizontal axis and one on the vertical axis. The factors can be represented by a single variable or a bundle of variables. The factors within each filter have to be independent. Each filter, i.e. M, T, S was constructed by two key drivers and all the four parts of the filter formed a sub-scenario or a so called scenario module for the main scenario building process (Figure 4).

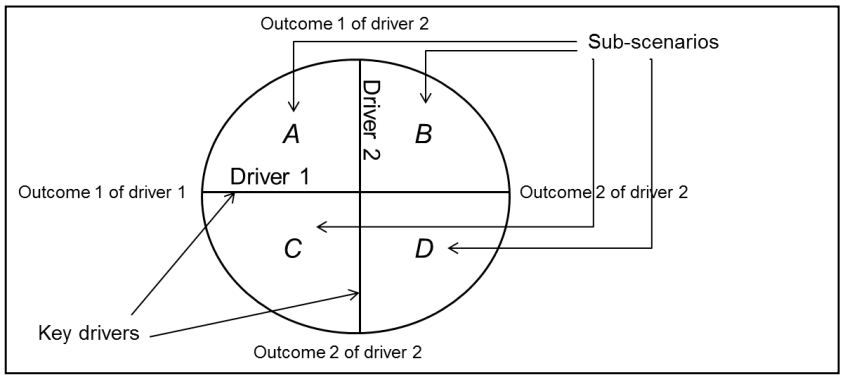

Figure 4 The components of the SFM's filter.

When the scenarios are built and illustrated with the SFM, the role and interaction of the market, technology and society dimensions in each scenario is clarified. The filters represent the requirements that these three key dimensions impose to the development. Moreover, the filters also point out the order in which things have to happen in order for the scenario to come true. For example, if the driving force of the scenario originates from technology, the scenario is technology driven. Thereby, the technology filter is the first one in the scenario path. If the necessary developments in the technology dimension come true, the second filter is formed by either the market or society dimension. For example, the market filter could be formed by the need to have sufficient market demand for the applications made possible by the new technology described in the technology filter. If the market requirements are fulfilled, the scenario is one step closer to become true. There is still one filter left as the society filter is in this example the third and final one. The society might have a role as an enabler in the scenario as there has to be public acceptance for the new technological solutions and their commercialized applications. If the development is not fulfilling the requirements of these three dimensions in the order described here the scenario is not coming true. In this way the SFM clarifies the main characteristics and logic of each scenario path in the course of time as well (Figure 5).

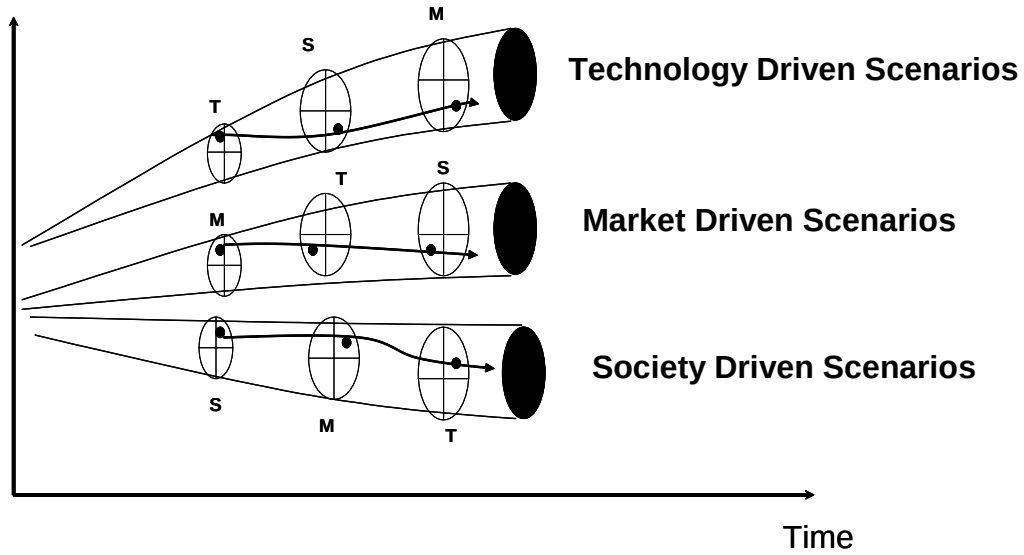

Figure 5 Scenario filter model as an illustration.

Scenario Filter Model gives a systematic view of alternative starting points for different scenarios (M/T/S). It also gives glasses to see required skills and competences as well as new professions in the future. The market orientation brings new demands for skills and competences to the welfare sector compared to a society driven welfare development. The technology approach brings to the market and to the society as whole challenges concerning e.g. effectiveness and efficiency but also privacy and security issues. Combined to the action scenario approach SFM will finally give a good step towards real time strategy work, i.e. it helps the timing of strategic actions. When connected to business intelligence systems it also gives early warning signals from changing conditions in the operational environment with the help of so called navigation marks which are indicators telling the sub-square of each filter in the course of time.

4 Results and practical implications

Scenario storylines

In this long-term network project on the foresight of qualitative skills in the wellbeing and security fields, and related service design we developed together with national and local networks national and provincial wellbeing and security scenarios, also known as future manuscripts. Based on the scenarios, proposals for educational content development are to be given, taking into account the future-oriented demand and change needs, competence profiles and structural recommendations. The foresight part of the project is being carried out with several workshops at the national and provincial level in different parts of the country in Finland. The scenarios drawn up from the workshops as well as based on expert work are presented in this paper. The four general frame scenarios are as follows (Meristö et al. 2012):

1. Scenario: Welfare and Security on Technology. This technologically driven scenario invests heavily in cost-efficient solutions to secure welfare and security services. The private and the third sector act as a support to the public sector. Services are produced locally only at the growth centres but the use of distance technology secures public welfare and security services also in the sparsely populated areas. The user-centred technology is also utilised in social interaction. The investing in welfare and security technologies provides small and agile Finnish companies with opportunities for international growth.

2. Scenario: Rise of the Civic Society. In this society-centred scenario the cutting of the public services and people's dissatisfaction with the services available make the people resort to the neighbourly help. The significance of the unofficial actors increases and many sorts of consortiums are formed, some of which are only momentary campaigns against certain problems while some are more long term partnerships also creating new business opportunities. New crosses between non- and for-profit organizations are formed, aiming at increasing people's welfare but also at doing business. Technology is exploited as long as it brings either clear savings or added value to its users.

3. Scenario: On the Markets' Terms. In this market driven scenario prevailing effectiveness, market orientation and individuality enhance the rise of the private sector in the service supply. There is a versatile selection of private services and their use is supported for example by service vouchers. Public services are an alternative only for those with limited means who cannot afford the excess payments of the vouchers. The market comprises of both international chains and local service providers. Finnish companies are internationalizing for example by entering the Russian market. The network of the public services is scarce and services are mainly available in the growth centres.

4. Scenario: Comprehensive Wellbeing. In this society-centred scenario people's wellbeing is the main priority. Wellbeing is considered wide-ranging, including security. Preventive health care and maintaining human performance is invested in. The network of public services is extensive but also the private services are subsidized. Finland is a model country of comprehensive wellbeing in the European Union. The wide definition of wellbeing enhances innovative services exceeding the sector limits. The significance of culture and leisure activities as part of wellbeing is recognized. Technology is utilized mainly as a tool, in the background of the personal health care, not as a substitute. As a result of the proactive and preventive health care the elderly are healthier and able to live longer in their own homes with lighter services.

Scenarios based on the SFM: an example

As an example of the SFM the scenario path of Scenario 2 "Rise of the Civic Society" is presented (Figure 6). The driving forces for the scenario come from the society filter: the starting point for the scenario is that public welfare services and security services are cut down at the same time as the population ages and the demand for services increases. This creates dissatisfaction towards the public decision-makers and at the same time a sense of communality increases among the citizen. The role of the third sector increases as a service provider. Also some unofficial service providers are born to complement the public service supply. The weak economic development can strengthen the development

and the services will concentrate on small service providers. The technology is utilised in the production of services: customer-oriented technological solutions are helping citizens to cut costs. A resort to unofficial and civic society solutions in health and security is only possible in a world of low risk awareness. On the other hand risks may cumulate as the civic society works globally, overcoming geographical and nation state boundaries.

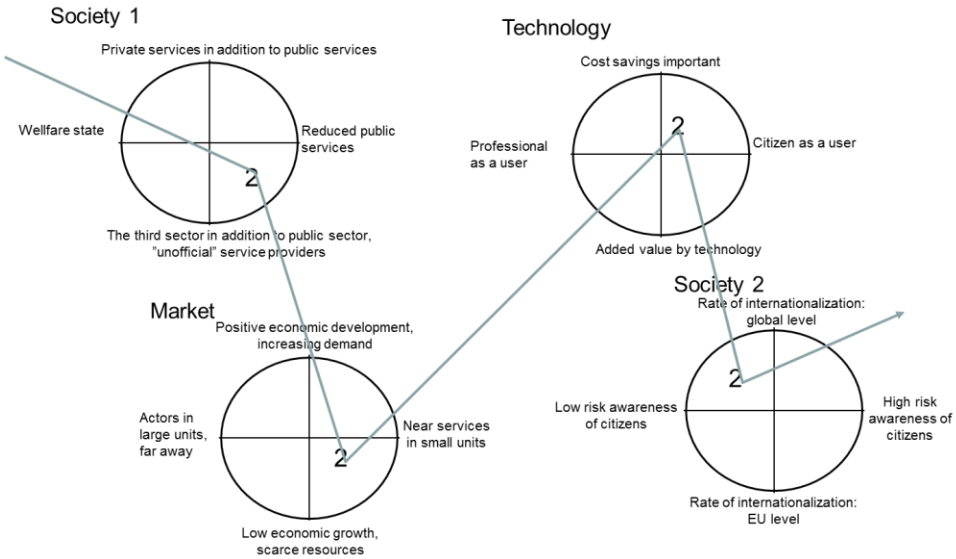

Figure 6 Example of the scenario path through filters in Scenario 2: Rise of the Civic Society.

The world changes fast and certain development paths can change direction. In that case we are moving from one scenario to another (Figure 7). Navigation marks help us identify which scenario we live in or if we are moving to some other scenario. In addition, we can follow the timing according to navigation marks and indicators behind them.

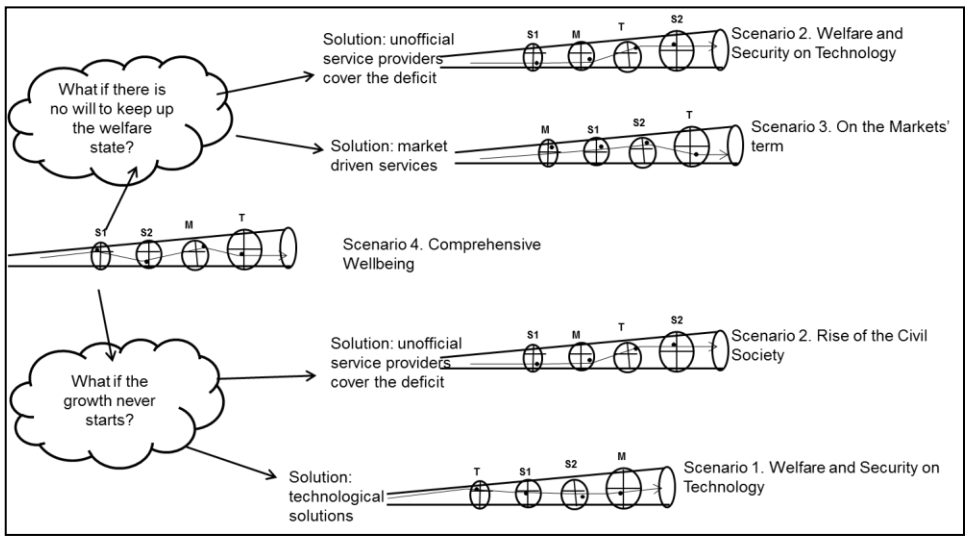

Figure 7 The scenarios in the course of time can drop from one scenario to another – follow the filter!

During the scenario process some preliminary service concepts related to each scenario were created in workshops as well (Figure 8). Some of the ideas already exist but they may need re-developing in order to operate well in practice in different scenarios. Also, some structural changes as well as changes in attitudes might be needed, as well as new skills and competencies, to realize them successfully in practice in the future.

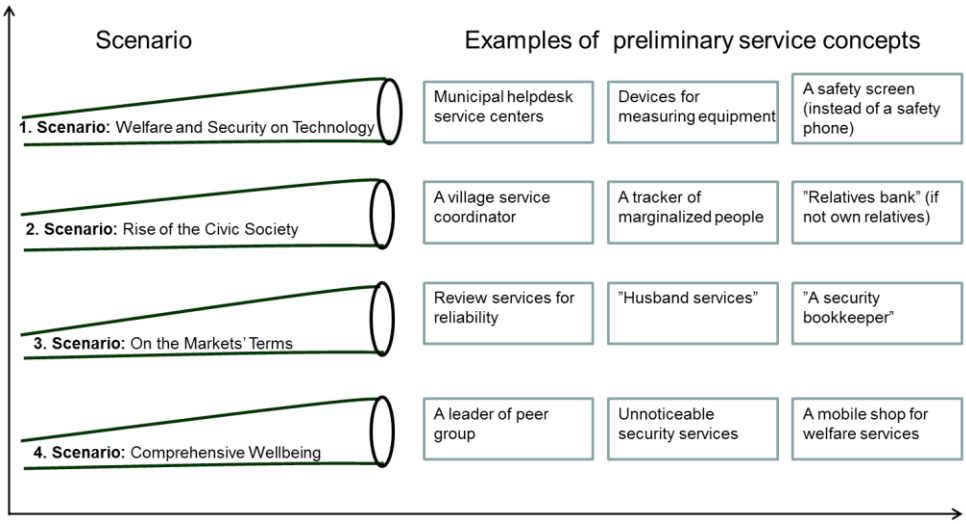

Figure 8 Examples of preliminary service concepts in each scenario (Meristö et al. 2012).

Practical Implementions of the Results

The results of this paper are based on an ongoing research project which includes participants from different sectors such as educational institutions, companies, administration and different kinds of organisations. Thus, the practical implications are versatile. Educational institutions can utilise the results of the project in their planning and their strategy work. The provincial dialogue helps educational institutions in the forming of their own profile and in the reducing of the overlapping education supply. The companies get fresh information about the trends of the future of wellbeing and security fields which they can utilise in their own operation. Regional actors, for example provincial federations, and the public sector organisations have possibilities to affect the future education supply of its own territory. National actors, for example the Finnish National Board of Education and the Ministry of Education have the possibility to carry on an active dialogue and to present views which are reflected in the strategies of the educational institutions and provinces based on the project results.

The scenario filter model brings new perspectives to the participants of the scenario process, when the model covers the technology, the society as well as the market orientation. Also, the long term focus on scenario work helps people to achieve a shared vision better than in everyday work life. On the other hand, a long term perspective can be too far in the future, when working with elderly people and their service needs in the wellbeing and security field. The complex system model without sub-goals keeps the actor group around the same theme, not losing the focus to daily politics or problems. Social media exercises during the process did not meet their goal. Maybe the next generation will be ready to work and co-operate in a totally open e-space. The educational organizations in the project will exploit the results in their strategic planning process. This is an ongoing project, which will give all its output and benefits at the end of the year 2013.

5 Conclusions

The Scenario Filter Model as a part of the participatory action scenario approach gives many benefits from the innovation management's viewpoint:

1) Market, technology and society (M/T/S) filters give different perspectives to the future, i.e. they will form alternative starting points and give key drivers for scenario building (=relevant key factors).

2) M/T/S perspectives will also be a basis for collecting and choosing participants to scenario workshops in order to ensure that representatives from all sectors are involved in the process (=relevant key actors).

3) Time frame to the future in scenario work is long, usually 10 – 15 years, sometimes even more than 50 years. SFM using filters not only as a starting point, but also following all of them to fulfill the time of occurrence, i.e. the filters will give specified navigation marks in the course of time for each scenario (=relevant key indicators).

4) Alternative perspectives (M/T/S) form not only the basis for alternative scenarios but also for visionary concept design, i.e. for each scenario precise solutions can be defined from different perspectives for the specific needs in this particular scenario (=relevant key concepts).

5) M/T/S perspectives include not only rational factors but also emotional, value based basic beliefs and even taboos not recognized via pure analysis, i.e. actors participating from all these sectors can systematically have dialogue of these, too (=relevant key dialogues).

6) M/T/S require different competences – the perspectives give new "glasses" (alternative viewpoints) to knowledge & skills, values & attitudes and network & contacts as a part of core competences (=relevant key competences).

7) M/T/S orientated scenarios form also a new basis for strategy formulation, e.g. technology companies have been forced to use society driven scenarios as wind tunnels for their strategy and vice versa. In addition, public organisations will better understand the opportunities from market and technology viewpoint as well (=relevant key alternatives).

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