Scenario Planning

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Abstract

The paper describes process of scenario planning. Scenario planning is a re-cognised tool, used by organisations and institutions as part of their strategic planning process. It provides individuals with the opportunity to ask the „what if" questions – to „rehearse" how they might respond, should a certain event or trend happen in the future. For organisations it provides an invaluable opportu-nity to have a strategic discussion around key drivers and critical uncertainties in their operating environments. This process is also demonstrated by a short scenario planning example, exercised in the IST-1999-29088 PRISMA Project funded within the 5th Framework Programme.

Key words: *scenario planning, innovative services, ICT, planning*

JEL Classification: O14, O21, O33

Introduction

In a world where the only given constant is change, the challenges faced by decision makers both in the public and private sector have mounted in complex-ity and uncertainty due to the intricate interactions of factors of different kinds – technological, social, political, economic and environmental. Decision-makers are constantly searching for better tools and methods to glance into the seem-ingly impenetrable fog of the future. To understand, what to expect from the future and how to react towards its hypothetical outcomes is even more impor-tant. One of the effective tools for future-oriented decision making and strategy planning is scenario planning.

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A scenario is an interpretation of the present, archetypal image of the future, and an internally consistent story about the path from presence to the future. Scenario planning is a tool that can be used to ask such questions and to deal with uncertainty in our operating environments. It is undertaken at the front end of the strategy process as a precursor to strategic and corporate planning. It is based on the idea that while strategic plans guide an organization to where it wants to go, it is important to ask where the world is going. Without this knowledge, the best-laid plans may be completely thrown off course by events seemingly outside of the control of the organization.

Developed scenarios aim to provide a clearer picture about the impact of major driving forces in the operating environment. They are created by exploring the critical uncertainties in areas such as technology, the environment, social, economic and political factors at the local, national and global level. It is important to note that scenarios are not forecasts. As Royal Dutch Shell, the most well known corporate proponent of scenario planning, states: „*The purpose of scenario planning is not to pinpoint future events, but to highlight large scale forces that push the future in different directions. A set of scenarios provides a learning environment, in which managers can explore these forces, better understand the dynamics shaping the future, and thus, assess, strategic options and prepare to take strategic decisions.*" One of the biggest challenges in the area of scenario planning use is development of information and communication technologies (ICT) and their impact on socio-economic development in the future.

Scenario planning, as one of the core activities, was used also in the IST-1999-29088 PRISMA (*Providing Innovative Service Models and Assessment*) project. The PRISMA project (for more look at <www.prisma-eu.org>) was aimed at providing a systematic analysis and synthesis of current and future impacts of new ICTs on government (or citizen) services in six service fields (administration, environment, transport, tourism, persons with special needs (the disabled and elderly), health) in Europe. The objective of the project was to undertake a foresight exercise and to develop long-term visions (ten years ahead) of possible circumstances and requirements for providing citizens' services in PRISMA's six service fields. Then used this work to specify future-oriented robust best practice models.

1. Best Practice, Scenario Development and Model Building

Visions of the future and scenarios of potential development have to be based on understanding and analysis of current trends and changes. Since the trends are reflected also in current best practices in the given area, it is useful to identify

and analyse the existing best practices. And then, when scenario planning exercise is completed, the developed scenarios can be used for identification of future-oriented robust best practice models („robust" in this context means that they would work in all identified potential scenarios).

1.1. Description of the Current Situation – Current Best Practices

Best practice is the best example of practice, which can be found and which achieves the objectives set by users in as effective and efficient way as possible. An important characteristic of best practice is its „learning" potential, to what extent it is transferable to other situations, what others can learn from it avoiding „reinventing the wheel". A given best practice cannot be automatically transferred to a different context. It is necessary to identify and agree on criteria for what can be described as „best practice". These criteria can be formulated – in a quasi endogenous manner – by following technical advances, but there are also normative criteria, based for example on cultural agreements (e. g. respect for human rights; civil rights like liberty, equal rights; the principle of sustainable development, etc.) some of which are partly codified in international treaties. Output from this step (understanding and description of current situation) should be a set of best practice criteria as goals or standards to be achieved.

1.2. Using the Modelling Approach

A model is a simplified representation of reality in which the variables and the relations between the variables, essential to an understanding of a given set of phenomena, are selected. There are two main reasons for developing models rather than attempting to apply a holistic methodology, which analyses everything:

(a) Reality is too complex.

(b) The selection of essential variables and relations implies the assumption that other variables and relations represent the context in which the set of phenomena under study play out. Changes in this context imply changes in the outcome of the model (representation through selected variables and relations of the phenomena) but not in the model itself. In a completely holistic approach there would be no key variables or relationships, nor specific contexts. Each case would be a case, inductive methods would not be allowed, and everything would be reduced to separate descriptions of unique events.

Thus, there are two types of components involved in modelling: endogenous and exogenous. Endogenous variables (also called dependent variables – both quantitative and qualitative) define the actual model itself. As indicated above, these endogenous/dependent variables are carefully selected as being the most

important key/defining components of the phenomenon under study, but their values are not freely chosen as these depend upon the values (both quantitative and qualitative) of the exogenous or independent variables making up the context. Thus, endogenous variables are the internal components of the mechanism, which determine how a given system (the model) reacts to an external set of stimuli defined by the context of exogenous/independent variables.

A scenario is the formulation of a specific set of exogenous variables (or of the values of these variables), so that different scenarios provide different contexts within which the model of the phenomenon under study is to play out. Although the values of the exogenous variables do not change the structure of the model, they do change the values of the endogenous variables and hence change the outcomes. Thus, each scenario (set of exogenous variables) will give rise to a different outcome for any given model.

1.3. Describing and Building Scenarios

Taking the best practice descriptions and the analysis of trends and changes, possible visions and evolution paths can be proposed. The expert panels play a key role in this. The information needed is collected through expert-interviews and meetings of expert groups. Developing the scenario building activity has to provide insight into three essential elements:
- those future developments, which are (relatively) controllable;
- those future developments that are (relatively) certain but not controllable;
- those future developments, those are relatively uncertain.

Controllable future developments can provide the basic raw material to develop policies, which can influence the evolution of services towards a definition of best practices. Developments, which are not controllable (and thus not themselves susceptible to policy formulation), will provide the framework for these policy formulations. In other words, policies should deal with controllable events in order to solve the problems and/or exploit opportunities generated by uncontrollable events. However, non-controllable future developments are not always predictable. This is why the definition of scenarios is important. A scenario may be defined as a plausible picture of the future. As unexpected and unknown developments may change the possible future, it is appropriate to built more scenarios, which will create images of the future that incorporate other plausible developments.

Application of the scenario method needs input, essentially for two tasks: for identifying structural change and for scenario writing. This input could come through information produced by expert groups working together for example in a Delphi procedure.

1.4. The Scenario Development Process

A scenario has to fulfil the following criteria:

- It has to be plausible (how probable the given scenario is, is not an issue in scenario planning). Indeed, given the uncertainty of the future, we explicitly state that the scenario is not a prediction, but only a possibility, as likely as many other possibilities.
- It should be internally consistent in order to be plausible and in order to enable a coherent discussion.
- It should not describe the developments that led to the described picture of the future. Instead, participants might be asked how that future might arise.
- It should contain enough information to describe the functioning of a system.

Step 1: Identify Structural Changes

A structural change is a change in the structure of the system. Changes within the subsystems making up the larger system, the relationships among the subsystems, or the relationship of the system to its environment can all be structural changes. For the purpose of developing scenarios, the system can be viewed as being made up of several smaller subsystems, for instance a demand subsystem, a supply subsystem, and the operational environment in which the overall system operates.

Whether or not a particular change to a (sub)system is labelled as a structural change depends on the magnitude of the change and its implications for the behaviour of the system. There are many judgements involved in defining the system under consideration, the relationships among the subsystems, and the definition of what is „large". Thus the determination of what constitutes a structural change is necessarily subjective. Structural changes are identified by conducting a series of brainstorming or focus group sessions. This step produces a list of structural changes in the system.

Step 2: Identify Assumptions Underlying the Structural Changes

The next step is to identify the assumptions underlying each of the structural changes. An assumption can be defined as an assertion about some characteristic of the structure or behaviour of the system that underlies the structural change. The occurrence of each structural change is usually contingent on the validity of several assumptions. That these assumptions are valid is often uncertain. In this step we specified for each of the structural changes identified in Step 1 the assumptions on which the structural change is contingent.

Step 3: Categorise Assumptions as Predetermined or Uncertain

The assumptions from Step 2 were placed into one of two categories, predetermined or uncertain. Assumptions of which we were fairly certain were placed

into the predetermined category. The remaining assumptions were placed into the uncertain category. The assumptions in the predetermined category were included in all the scenarios. The uncertain assumptions were used to identify the most important and relevant structural uncertainties that have to be taken into account.

Step 4: Assess the Impact of Uncertain Assumptions

We want to focus on the uncertain assumptions that are most important in determining future demand. To identify such assumptions, we consider the impact of each uncertain assumption on demand. Based on the estimated impact that each assumption has on demand, it is placed in either a high or low impact category. The uncertain assumptions in the low impact category are dropped from further consideration. The uncertain assumptions in the high impact category, along with the predetermined elements, form the basis for the scenarios.

Step 5: Develop Scenarios

A scenario includes four things:

1. the assumptions that were placed into the predetermined category in Step 2 (all scenarios include the same predetermined elements);

2. the logic relating the assumptions to the structural changes;

3. the logic relating the structural changes to demand and impacts; and

4. a quantification of the scenario assumptions into numbers that can be used by the demand generation and impact models.

The number of possible scenarios, depending on the number of uncertain high-impact assumptions, can be large. In such case, it becomes impossible to consider every combination of these assumptions. In order to reduce the number of combinations, scenarios may be clustered into a limited number of groups. One representative scenario from each family will be selected after that. The families of scenarios differ in the changes that we expect in each of main dimensions. Some mention needs to be made about the surprise-free scenario. The surprise-free scenario, as the name suggests, portrays a future world in which nothing unexpected happens. Large changes can be part of a surprise-free future world, as long as the people who are going to use these scenarios expect them.

Step 6: Quantify the Scenarios

The impacts of the assumptions determined in the previous steps are converted into inputs that can be used by the demand and impact models. This forms the basis for the subsequent assessment of policy options.

The *main aspects* by the *integration* of the scenarios into the practice include the following:

• Which opportunities and threats to current best practice can be derived from each of the scenarios?

• Which specific themes and dimensions of current best practice may be concerned by each of the scenarios?

• How far may preconditions and effects of current best practice be affected by each of the scenarios?

• To what extent are user needs (end users, intermediate users, providers) and requirements fulfilled in current best practice and how can deficits be overcome in future best practice models in the light of each of the scenarios?

• How might user needs change in the future according to each of the scenarios?

• Which strategies, policies, corrective actions need to be taken in view of each of the scenarios in order to facilitate the implementation of future-oriented best practice models, particularly if likely trends will result in undesirable outcomes?

2. PRISMA Project and Scenario Planning

The Project IST-1999-29088 *Providing Innovative Service Models and Assessment* (PRISMA) was funded by the European Commission within the Information Society Technology (IST) Programme of the 5th Framework Programme. The Project Coordinator was Danish Technological Institute (DTI) and the Technical University of Košice, Faculty of Economics was one of the members of the Project consortium. PRISMA was focussed primarily on the area of ICTs, which are supposed to be one of the key factors of the future development. Six service fields were studied within the PRISMA – administration, health, persons with special needs (the disabled and the elderly), environment, transport, and tourism. The main objective of the PRISMA Project was to specify long-term visions of citizen service provision (in each of the six service fields) and to develop scenarios of future service profiles 10 years ahead. This is essentially a task, which requires futures research and corresponding methods. As the most appropriate method from the available futures research methods scenario planning was chosen. The scenario planning exercise within the PRISMA Project was led by RAND Netherlands.

Building scenarios on how the external world might look in 10 years from now is necessary to inform about an appropriate adaptation of current best practice and to arrive at more robust future-oriented best practice models in the six service fields. Departing from the present situation, future views of good practice were described for each service. They represent the technology solutions, which are supposed to be available in the future and which are designed to meet as much as possible the forecast requirements and expectation of service users.

Scenario building has been designed as a two-stage process:

Stage 1 is devoted to develop exploratory (not normative) scenarios, partially based on existing work, but mainly on desk research within the PRISMA team, without direct involvement of external service area experts. Existing work in this area has been examined, including the Commission's Forward Studies Unit *Scenarios for Europe 2010* (http://europa.eu.int/comm/cdp/scenario/resume/index_en.htm) and the ISTAG *Scenarios for ambient intelligence in 2010* (http://www.cordis.lu/ist/istag.htm). In this stage, the main drivers and important dimensions of change are examined, in order to determine the most important elements of the future to be incorporated into foresight exercise (foresight is a process of building visions and strategy for the medium-to-long-term future, scenario planning was chosen as one of the foresight methods [1, 6]). Once these drivers and dimensions have been identified, they are fleshed out into plausible and concrete scenarios, using the method of desk research. It has been a deliberate decision to concentrate on a set of three such scenarios. They are labelled as „external scenarios" because they focus on the external environment of service provision in the six service fields.

Stage 2 has the task to integrate the external scenarios from Stage 1 into the service fields, using input from current best practice and identifying adaptations which may be required in the light of different future scenarios, in order to arrive at more robust and future-oriented best practice models. This stage was undertaken with major inputs from external service experts in specifically designed scenario workshops. Given each external scenario in turn from Stage 1, their expertise was used to determine what is future-oriented good practice in each field, based on fundamental European values (normative standards) and in consideration of circumstances and requirements of service provision in 2010. This also includes exploring how to get from the present to such a best practice state.

2.1. Construction of External Scenarios

The construction of „external scenarios" builds on a conceptual framework designed to capture the changes in the external environment of service provision by ways of five categories of *drivers and trends*: • socio-cultural • economic • political • technical • ecological.

The PRISMA team undertook a collation of opinion on major trends and drivers in the areas of socio-cultural, economic, political, technical, and ecological changes over the next ten years in relation to service provision in the six service fields. These trends and drivers were then consolidated and assessed within the team according to four criteria:

- importance (i. e. importance for e-service delivery): low, medium, high;
- certainty (i. e. likelihood of occurrence): low, medium, high;

• controllability, i. e. ability to manage if high, ability to determine outcome if not: low, medium, high);

• significance (global and European) – Yes/No.

Table 1

Assessing Socio-cultural Drivers/Trends

An Example on Assessing Drivers					
Socio-cultural Drivers/Trends	Importance	Certainty	Controllability	Global significance	European significance
Individualisation of the citizen	high	high	low		
Increasing migrations to Europe and North America	high	high	medium	yes	yes
Ageing population in EU	high	high	low	no	yes
Individualisation of industrial relations	high	high	low	yes	yes
Education in IT skills increases	high	medium	high		
Shortage of IT skills within EU	high	medium	high		
Persisting digital divide	high	medium	high	yes	yes
Enhanced mobility of citizens	high	medium	medium		
Persisting unemployment problems	high	medium	low	no	yes
Increasing employment flexibility	medium	high	high	no	yes
Global cultural conflicts	medium	high	low	yes	yes
Increasing security threats	medium	high	low	yes	yes
Increasing Post-modern life styles	medium	high	low	no	yes
Employees engage in continuous learning efforts	medium	medium	medium	no	yes
Changing gender relationships	medium	low	medium	no	yes
Leisure behavioural patterns	medium	medium	medium	no	yes

Using assessments on a total of around 75 trends and drivers, four dimensions were identified upon which the scenarios could be built (Economy/Society = ECON, Government = GOVT, Information Technology = INFO, Sustainability = SUST). The final result of this process was a set of three scenarios, differentiated among each other by specific characteristics on each of the four key dimensions.

2.2. Dimensions of the Scenarios

The four dimensions, which had been identified as the basis upon which the scenarios were then built can be characterised as follows:

1. Dimension ECON. This dimension refers to the general socio-economic well-being of Europe in 2010. It was decided to build three versions of the future along this dimension. Version „+" is characterised by good economic well being, relative peace in the world, EU integration progressing well, and positive moves

towards social cohesion and equity. Version „–" is built around a „Euro-depression" and represents relatively poor economic performance, leading to strife, a slowdown of EU integration, and an inability to make progress in social cohesion and equity. Version „0" lies between version „+" and version „–". That is, there is a slowdown in growth, but not an actual recession.

2. Dimension GOVT. This dimension refers to the role of government in peoples' lives. Here, again, there are three versions. Version „PP" (Public-Private Partnership) is a balanced world, with a division of competencies between central governments, the private sector; between central and regional governments; and between governments and non-governmental bodies. Version „C" is a conflict situation – both by government and the private sector wielding its economic power (largely at the cost of influence by the civil society). Version „FA" is a fall in the power of centralised control and a growth of regional governance, NGOs, and self-organising small groups.

3. Dimension INFO. This dimension refers to the development of information technology, and has two versions. Version „+" is a dynamic development and diffusion with full speed ahead, while version „–" is a slowdown in progress.

4. Dimension SUST. This dimension refers to the development of an attitude towards a sustainable environment and the implementation of policies based upon that attitude. It also has two versions. Version „+" is increasing awareness of sustainability, policies aimed at promoting sustainability, and progress in various indicators of reduction of the environmental load. Version „–" is regression in all of these characteristics. Two other „dimensions" are included as composites of different features of the ECON and GOVT dimensions. These are the dimensions of social progress and European integration. The first is an even balance between ECON and GOVT, and the second is based upon ECON, given the particular version of GOVT that is chosen.

Each of the dimensions is built upon drivers that were submitted by the PRISMA team as a whole, and rated for their importance to the service fields. All drivers considered important to any sector were included in at least one of the four dimensions. In addition, some drivers – especially those considered important with high certainty, are used in all of the scenarios as context-setting materials. These include, among others, population growth and migration. Brief characteristics of the three developed scenarios is given below. The full versions of the scenarios are at PRISMA Project site <www.prisma-eu.org>.

Scenario 1: **A PROSPEROUS AND JUST EUROPE**

ECON = version „+", GOVT = version „PP", INFO = version „+", and SUST = = version „+".

The first decade of the 21st century has been beyond everyone's expectations. The world is at peace and has experienced widespread economic and social progress. It is possible to combine economic growth with a reduction in the environmental burden on the planet. By 2010 Moore's Law[1] is still in force and ICT continues to contribute to the prosperity of Europe. The scenario assumes positive economic development, a neutral role of government characterised by a mix of public and private solutions, a positive contribution by ICT technologies, and increasing sustainable development.

Scenario 2: *A TURBULENT WORLD*

ECON = version „0", GOVT = version „C", INFO = version „+", and SUST = = version „–".

In this scenario economic growth has not been sustained. After an initial trend towards privatisation and outsourcing, there has been a shift towards strong central government direction. At the same time the market power of the private sector has significantly increased. The two forces are frequently in severe conflict. Driven by market incentives, information technology has continued its growth, but a regard for sustainability has been lost in the combination of economic volatility and conflict.

The scenario assumes slow but unstable economic development, an interventionist role of government, a positive contribution by ICT technologies, and a loss of sustainability.

## Scenario 3: *RECESSION AND REORIENTATION*

ECON = Version „–", GOVT = Version „FA", INFO = Version „–", and SUST = = Version „+".

In the decade up to 2010, people have become disillusioned with technology and have favoured decentralisation, environmentalism, and local markets while they have become more sceptical about government and global market forces. Although there is no economic depression, neither does the economy experience much growth. The scenario assumes slow economic development, a smaller role of government, a slow development of ICT technologies, but an increasingly sustainable development.

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[1] The observation made in 1965 by Gordon Moore, co-founder of *Intel*, that the number of *transistors* per square inch on *integrated circuits* had doubled every year since the integrated circuit was invented. Moore predicted that this trend would continue for the foreseeable future. In subsequent years, the pace slowed down a bit, but data density has doubled approximately every 18 months, and this is the current definition of Moore's Law, which Moore himself has blessed. Most experts, including Moore himself, expect Moore's Law to hold for at least another two decades.

Figure 1

The Three Scenarios Used in the PRISMA Project According to four Main Drivers (Economic Development, Sustainable Development, IT-Implementation, Government's Power)
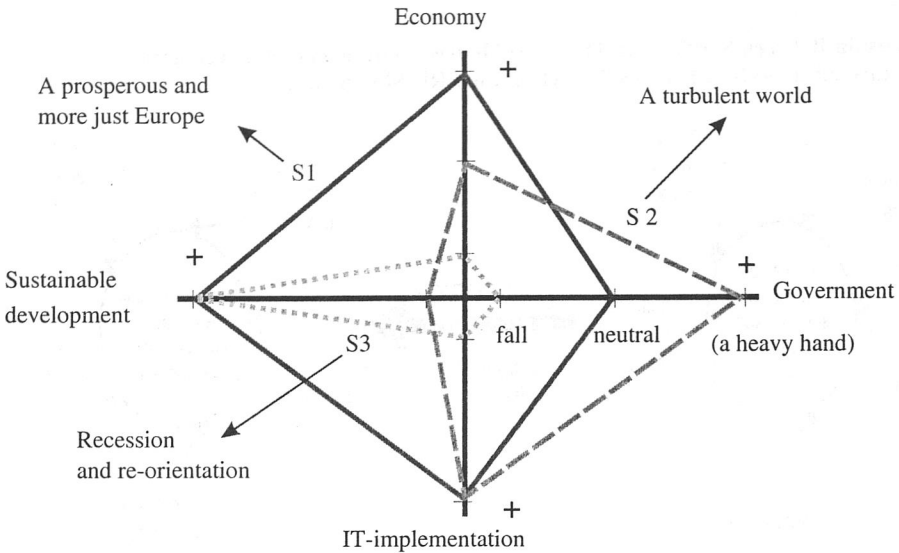
The three scenarios manage to create variation among all four dimensions. No scenario is perfectly correlated (either in a positive or negative direction) with any other scenario.

The three scenarios are very different pictures of the European world of 2010, each has interesting unique aspects, and experts for very different discussions can therefore use the set of three. None of the scenarios is the „trend", and each is possible.

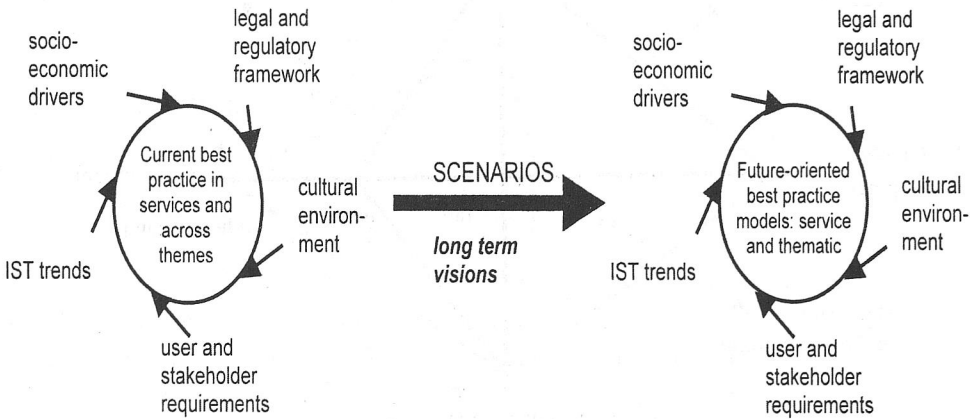## 3. Scenario Planning as the Way for Defining the Future Best Practice

The way how to achieve future best practice is not a traditional linear process but a parallel, iterative approach, in which the analysis is not sequentially fixed but which allows each factor to play off against other factors on a number of occasions during the research process.

For example in PRISMA, each best practice description and model was refined using at least five generic iterative factors: socio-economic, legal and regulatory frameworks, cultural environments, user and other stakeholder requirements and interests, IST trends.

The overall relationship between service and thematic models, generic factors, scenarios and future-oriented best practice models is sketched in Figure 2.

Figure 2

Relationship Between Service and Thematic Models, Generic Factors, Scenarios and Future-oriented Best Practice Models in the PRISMA Project

socio-economic drivers

legal and regulatory framework

Current best practice in services and across themes

cultural environment

IST trends

user and stakeholder requirements

SCENARIOS

long term visions

socio-economic drivers

legal and regulatory framework

Future-oriented best practice models: service and thematic

cultural environment

IST trends

user and stakeholder requirements

The point of departure for PRISMA was the definition of a set of themes (as goals or standards), which are both very important and more or less common to all services. These themes refer both to the technical characteristics of the services and to the social and economic impacts arising from these services. The common themes, applied to each service, generated a set of best practice criteria as goals or standards to be achieved.

In the PRISMA project, the 54 (6 service fields and 9 common themes) or more current endogenous variables were applied in turn to each of the 3 developed scenarios. This provides 54 or more future endogenous variables, each of which has a different value for each of the 3 scenarios. These were then incorporated in six future best practice service models. The future best practices describe goals or standards in the future. In this way, it is needed to generate future best practice model variants for each field we examine, as descriptions of goals or standards to be achieved. Based upon the three different scenarios, robust factors across all six PRISMA fields were identified. This was important in order to deliver some general conclusions about those dimensions, which are crucial for the development and delivery of future oriented electronic services. As an example, a summary of some major influential dimensions is presented. It gives an overview of PRISMA results, how information technology, the design of the information delivered online and the service suppliers may contribute to achieve future oriented good practice services:

T a b l e 2

Major Influential Dimensions for Future Oriented Good Practice Services

What is required from information technology?	*What are the demands on the design of information provided electronically?*	*What is required from the service suppliers?*	*Further general expectations*
• Multi-channel delivery • Open standards • Interoperable systems • Mobile communication devices • Secure and trustworthy technological systems • Assistive technology and supported access for special groups	• Multi-lingual presentation • Information, which is: comprehensive, reliable, up-to-date and easily accessible for all. • Personalised services and customised service options.	• Willingness of SMEs in particular to adopt ICTs • Implementation of e-business strategies in business plans • Provision of adequate ICT training and skills for workforce • Integration of back office to provide instant and efficient services • Trustworthy entities; development and standardisation of service brands • Flexible partnerships between the public and private sector • Monitoring of user demands and quality control of existing online services	• Democracy is stable but with varying focal points – the rise of NGOs and community/localised organisations that are concerned with democratic issues and bottom-up governance Partnerships are becoming increasingly important – the exact combination (NGO-Private-Public-etc) changes on context • Trust plays a big role as an informal validating/accrediting system – operators and all actors need trust at vary geographic levels • Integrated solutions are preferred – although the barriers and solutions change depending on context • User-centred design and multi-channel delivery are seen to go hand-in-hand – they shadow each other. Both are very important and again they must follow demand and be appropriate for application and changing attitudes. • Identification of target groups is a premise for the service design throughout all three scenarios. • In principal, services are provided multilingual via various types of channels. Against the background of each scenario, the service design changes. • Security issues are supposed to play an increasingly important role in all three scenarios. Depending on the different scenarios people trust or mistrust technology and electronically delivered services. • Inter-organisational co-operation within and between all sectors is necessary in order to gain an added value for both customers and service suppliers.

Conclusion

Scenario planning is a globally recognised tool, used by organisations and institutions as part of their strategic planning processes. It aims to: • Facilitate creative thinking and ideas • Legitimise uncertainties • Provide an opportunity for organisational learning • Assist with anticipating change • Improve reaction time • Clarify and manage risk • Develop more robust strategies – future best practices (objectives, standards) • Challenge strategic assumptions • Encourage flexibility and responsiveness.

Scenario planning provides individuals with the opportunity to ask the „what if" questions – to „rehearse" how they might respond should a certain event or trend happen in the future. For organisations it provides an invaluable opportunity to have a strategic discussion around key drivers and critical uncertainties in their operating environments. This assists with organisational learning and developing a shared view on key directions for the future through robust future best practices. The use of scenario planning techniques for prediction of step changes is questionable (it is questionable at all, whether some effective technique for step changes prediction exist). This method is focused on identification of a set of plausible alternative scenarios of future development, even without estimation of probabilities of particular scenarios. At the present, we see a gap in the scenario planning use especially by commercial sector in Slovakia (as an significant element of strategic planning exercise). Research sector could facilitate wider use of these techniques since in this area some activities have been already carried out.

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