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BLUEPRINTS FOR FORESIGHT ACTIONS IN THE REGIONS

UPGRADE

Foresight strategy and actions to assist regions of traditional industry towards a more knowledge based community

DISSEMINATION CONFERENCE
BRUSSELS, SEPTEMBER 23, 2004

Foresight blueprint for upgrade regions

THE UPGRADE BLUEPRINT

Foresight strategy and actions to assist regions of traditional industry towards a more knowledge-based community

During the next 20 years every region attempting to upgrade its industrial economy will be forced to re-double efforts to resist global competition.

Even before the enlargement of Europe from 15 to 25 Member States, massive disparities were evident in the economic strength and sustainability of European regions It now becomes a continental priority to create the structures which will enable industry, at the regional level, to think strategically about the future, grasp new opportunities and manage change more effectively than elsewhere.

A well planned foresight programme can certainly help to provide these advantages but only if it clearly defines how policy aspirations can be converted into practical operational delivery. It is with this in mind that the UPGRADE blueprint has been designed as a step-by step decision making tool for practitioners.

This is the preliminary version of the UPGRADE blueprint produced for the dissemination conference "Building the future on knowledge". The final blueprint will be published after the conference by the Office for Official Publications of the European Communities.

Gordon Ollivere (Coach)
Luk Palmen (Advisor)
Michael Guth (Advisor)

September 2004

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Blueprints for Foresight Actions in the Regions expert group

To develop their potential, and find their new role in the emerging EU25+ knowledge-based economy, regions need to widen their focus and go beyond their own innovation landscape to explore the European and trans-regional dimension to the full. Foresight is a key element in the creation of future oriented and outward looking visions and strategies. Many regions considering implementing foresight exercises need help to overcome initial barriers, such as doubts about the usefulness and usability of foresight, problems linking foresight to existing regional mechanisms, as well as simply lack of knowledge on how to set up and undertake foresight activities. Easy to understand practical blueprints on how to set up a foresight activities to suit specific regional circumstances could be instrumental in supporting regions to implement regional foresight.

The blueprints expert group builds upon the existing Foresight knowledge base developed so far mainly at EU level by involving regional experts and policy makers active in earlier exercises, as well as using already available methodological tools and case studies, e.g., the Country specific Guides to Regional Foresight (http://www.cordis.lu/foresight/cgrf.htm).

> Blueprints are practical guidelines to the setting up and planning of foresight. They are manuals or roadmaps, not foresight exercises in themselves. Blueprints build upon real problems in real regions, with strong stakeholder involvement.

The expert group was built around a core group of experts on foresight processes, who steered five working groups with regional partners, chosen because of their capacity to initiate actions and influence policymaking.

The working groups have been open to outside participation, and the resulting blueprints (one for each working group) are being designed so as to provide useful tools for regions not actively participating in the expert group, but facing the same challenges. The resulting blueprints are:

FOR-RIS: Experiences and ideas for developing regional foresight in a RIS/RITTS project context;

UPGRADE: Foresight strategy and actions to assist regions of traditional industry towards a more knowledge based community;

TECHTRANS: Trans-regional integration and harmonisation of technology support mechanisms;

TRANSVISION: Bridging historically and culturally close neighbouring regions separated by national borders;

AGRIBLUE: Sustainable Territorial Development of the Rural Areas of Europe.

The work started in December 2003 and its present stage ends with the dissemination conference on September 23, 2004.

Professor Liam Downey, Chairman
Professor Peter Heydebreck, Secretary


UPGRADE

Foreword

It gives me great pleasure to introduce the 'Upgrade Blueprint', one of five practical guides for the implementation of foresight in different types of region. It is the product of eight months of discussion and experience exchange by a working group consisting of sixteen people representing, ten regions in eight countries and many others who attended our meetings in Belgium, UK and Germany.

The 'Upgrade Blueprint' does not pretend to be a learned document. There are no academic references or unique intellectual discoveries. First and foremost, it is a well organised collection of advice, examples and best practice tips from an enthusiastic group of practitioners all of whom are either managing or setting up their own foresight programmes. As such it adds value to previous publications which were probably more informative about the subject but less specific about the process.

Full details of the inputs, outputs and working methods are contained in the website which fully reflects the richness of discussion (www.foresight.org.uk/blueprint). One very striking feature was the need to work closely together but also at a distance. With so few meetings, most contributions had to be made electronically and via the completion of two detailed questionnaires, which are quoted widely in the text. It remains for me to thank Luk Palmen and Michael Guth, who acted as special advisors to the project as well as all other members of the EU core group and invited guests from Russia, Ukraine and elsewhere, who combined to make this such a stimulating and productive project.

Gordon Ollivere
Managing Director, RTC North

The flight of the honey bee is not as random as it seems. Behind it lies the will of the swarm. This tiny creature displays an industry, sense of purpose and social responsibility which should inspire the foresight planner!


UPGRADE

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Introduction

This blueprint guide is intended for application in regions where the principal policy driver is to accelerate development in a traditional industrial economy and improve wealth and quality of life. This is most elegantly expressed in the mission statement of the UPGRADE working group:

> "Our collective objective is to use Foresight as a structured methodology for creating a knowledge based economy with the intention of living trustfully with change, developing a learning region and ensuring competitiveness in the long term"

Our focus is on strategic interventions within regional economies, which can no longer depend on the industries from which they previously derived strength and prosperity. Such regions now need to re-position themselves, in order to make use of the opportunities presented by high value knowledge based economies. Three special needs can be observed:

(1) A general aim to raise skill and technological level in reconversion regions. Key problems include environnmental degradation, industrial decline and military withdrawal - as well as the overall transition to a sustainable, eco-efficient knowledge consuming society.
(2) A need to "energise" innovation policy at the regional level, adapting it to address the specific structural deficits affecting traditional, slow moving economies in a fast changing world.
(3) A need to recognise existing potential and also to realise new opportunities by concentrating on strengths and developing the capability to implement effective learning processes.

Structure of the Blueprint

At an early stage, the working group decided that a linear, purely sequential blueprint would be too simplistic for the great variety of regions involved in the UPGRADE process. The agreed structure was a matrix of approaches, tools and best practices, which could be used as a 'pick and mix' resource base.

We recognise six essential elements in any foresight exercise - whatever its scale (ie, single issue, industry sector, territorial programme) – that every foresight planner should take into account:

Element (A) Securing commitment and clarity
Element (B) Gathering knowledge and resources
Element (C) Applying foresight methodologies
Element (D) Designing practical applications
Element (E) Managing the regional programme

In a complex regional programme these elements will often occur in parallel rather than in sequence. However, all must be addressed and at every level. For this reason they constitute the backbone of the "matrix model" that leads the foresight planner through a set of 20 questions, allowing a speeding up of the implementation process.

TWENTY KEY QUESTIONS FOR THE FORESIGHT PLANNER

Clarity and Commitment	Knowledge and Resources	Foresight Methodology	Practical Applications	Programme Management
Step 1 What is the 'policy-makers' vision for the future of the region?	**Step 5** What size and scope of foresight project do we wish to have?	**Step 9** What experience and lessons can we gain from outside?	**Step 13** Which actions for the upgrade of industry sectors & companies?	**Step 17** How can we select and support the central focal point for foresight?
Step 2 How can we promote the value of foresight to enrich this vision?	**Step 6** Where can we find the specialist knowledge in the local context?	**Step 10** What tools/skills do we need to develop in the local context?	**Step 14** Which actions for the upgrade of the science and knowledge base?	**Step 18** How can we build a network of partners to help deliver foresight?
Step 3 What are the critical areas for application of foresight methods?	**Step 7** How can we widen the context to take account of global issues?	**Step 11** What methods will we use to explore future possibilities?	**Step 15** Which actions for the upgrade of education and skills?	**Step 19** How should the regional programme be managed and marketed?
Step 4 How can we secure commitment from the sponsors / stakeholders?	**Step 8** What funding, human and material resources are available?	**Step 12** What process will we use to decide on the detailed plan?	**Step 16** Which actions to feedback and inform regional strategy?	**Step 20** How will we measure success and ensure long term sustainability?

Answers to the above 20 questions will help to specify and customise the nature of any regional programme.

1. Commitment and clarity

Element A is at the beginning of the process. It must be evangelical in nature since decision-makers often have an imperfect understanding of foresight. Four essential questions must be addressed:

- What is the 'policy-makers' vision for the future of the region?
- How can we promote the value of foresight to enrich this vision?
- What are the critical areas for application of foresight methods?
- How can we secure commitment from the sponsors / stakeholders?

Step 1: What is the 'policy makers' current vision for the future of the region?

Foresight is about linking long term vision building processes with immediate action planning and implementation. Most regions are already engaged in a structured process to prioritise regional goals around a set of policies focussed on improving wealth and quality of life. The problem with these 'conventional' planning exercises is that they are essentially backward looking, relying on historical knowledge and projections of current experience to create a vision for the future.

The 'foresight planner' should analyse existing strategy documents, gather visions that have been developed in the past and try to find out how they were formulated. This overview should allow him to verify the sustainability of existing visions within the current and future context. The planner should then assess whether these visions still have the necessary support at policy level. It is important that the above tasks are undertaken in a systematic and visible manner, perhaps via consultation groups as in the example from Romania below.

Where possible, a mission statement should be framed, which links foresight to regional planning objectives. This should be short and to the point - clearly identifying the **added value contribution**. For example, some regions may favour a narrow approach based on support for particular technologies or clusters. In such cases, the foresight mission should reflect this. Most regional programmes, however, will express a broader agenda to improve general economic performance as well as the quality of life or address specific social problems (crime, ageing population, etc.).

A generic mission statement might, therefore, be to "improve prosperity and quality of life in REGION X by assisting its people and organisations to anticipate future developments and their likely impact on society." Specific objectives need to be more focused and will be dependent on the priorities identified later in the process.

Typical tools: SWOT analysis, consultancy studies, regional strategy documents
Web-reference:
http://www.mv.hiiumaa.ee/medis/3_swotexample.doc

Case Study
Iasi County in Romania is a good example of a region demonstrating problems of UPGRADE in a new member state. Preparatory to the foresight exercise, SWOT analyses (strengths, weaknesses, opportunities, threats) were carried out by consultation groups in four distinct areas:

- Economic development
- Human resources
- Infrastructure
- Quality of Life

The results were then used to produce summary papers called "development directions". These are essentially lists of objectives, matched against existing regional priorities that will be used as inputs to the creation of a regional foresight programme.

Step 2: How can we promote the value of foresight to enrich the regional vision?

Persuasion is the most important weapon in the early stages of any foresight exercise. The **objective** is to explain how the "conventional vision" described above can be much enriched through the application of futures thinking. Foresight must be presented as a credible skill set which can be transferred from thinkers to doers and applied with good effect to real life problems.

The first task is to overcome scepticism by demonstrating value to policy makers. It is imperative for regional foresight to become aligned at an early stage with the aspirations of regional decision-makers. Financial and material support will only be made available for foresight if it is seen to be helpful in creating new values for policy preparation and the implementation process.

Here are four ways in which the benefits of foresight can be sold to decision makers …

1. It will make good public programmes much more visible
2. It will help to secure wider societal acceptance of regional policy
3. It will help to allocate financial resources in a more effective way
4. It will increase the impact of actions arising from this policy

The second task will be to provide success stories from elsewhere – other regions and other countries, which have applied foresight techniques in the past. Documents such as the Practical Guide, produced by FOREN, give some useful examples, although very few of these contain the detail that would allow a direct transfer of best practice. Exposing policy makers directly though network projects and best practice visits is an excellent strategy provided the examples are clear and relevant.

It is not only the policy makers that need to be convinced. Promotion of foresight to a wider audience of potential actors and players is also necessary. This may be done through facilitated workshops and training sessions - many high quality materials exist for this purpose, usually produced by national government foresight programmes. These have generally not been well circulated, as in the UK, where the proposed rollout of foresight resources to the regions took place in a very piecemeal fashion.

Document reference: A Practical Guide to Regional Foresight, FOREN, December 2001
Web reference: http://foren.jrc.es/
Summary of the work of the FOREN network; http://www.cordis.lu/foresight/cgrf.htm Country Specific Practical Guides to Regional Foresight.
Typical tools: Country guides, national materials, networking projects, local workshops, road shows seminars, best practice success stories.

Best practice tip

Use skilled facilitators! Communicating foresight concepts is difficult. It needs to be done by people with a genuine understanding of the time dimension and how it impacts on economic development. Many foresight exercises have failed because they were led by people who were themselves unskilled or unconvinced.

Step 3: What are the critical areas for application of foresight methods

This process is a natural extension of step 1 (overall vision). The **objective** will be to pick out specific problems within the region that can realistically be helped by foresight actions. One common approach to is to use a technique called STEEP which is similar to the SWOT analysis but oriented more towards the medium or longer term future.

The acronym STEEP stands for:

- Social — factors influencing human beings, society and lifestyle
- Technological — factors stimulated by science and its applications
- Economic — factors affecting industry and wealth creation
- Environment — factors impacting on the physical world we live
- Political — factors relating to government and administration

All European regions are subject to the STEEP factors but the way in which they affect UPGRADE regions differs from the rest. In general, this type of region possesses institutions and infrastructure, in which capability has been decoupled from future requirements. Indeed there are also big differences between UPGRADE regions themselves. For example the issue of ageing population might be an opportunity in Germany where old people possess significant purchasing power but a threat in Romania where they rely heavily on public services.

There is no universal formula for foresight. Each individual region must make its own choices as to which critical issues should be embedded in the process. Setting priorities is not only about ranking the importance of issues but also about deciding if foresight tools and techniques (and available financial resources) can provide any solutions.

Tools – Opinion surveys, trends analysis, STEEP workshops

The 'issue identification template'

This tool was submitted by a member of the upgrade group from Poland. It consists of five 'core issues' surrounded by 20 thematic issues. It works like a STEEP analysis and is useful for identifying relevant priorities upon which a regional foresight exercise could be based. The sequence is as follows:

- Discussion on the thematic issues related to the core issues
- Description of impact of each thematic issue on the core issue
- Analysis of the current situation in the region for each core issue
- Comparison of the results of each different core issue
- Construction of an overall picture of the current situation

A graphic of the template and an illustrative example of how this technique may be used to identify critical issues are provided in the following pages.

Example template for issues identification
20 thematic issues around 5 core issues for UPGRADE regions

Regional identity		Territorial planning: land-use, infrastructure and communications
	Quality of governance	
Administration: public services, legal framework		Culture

Entrepreneurship		Economic structure: sectors; products and services, clusters, networks
	Quality of business	
Competitiveness Innovativeness benchmarking		Availability of resources

Finance		Infrastructure
	Quality of potentials	
Human Capital: education, skillss		Technologie

Knowledge consumption		Knowledge production: import, export, benchmarking
	Quality of knowledge	
Supporting infrastructure		Fields of knowledge

Education		Health
	Quality of life	
Environment		Leisure, social services

ISSUE IDENTIFICATION - CONSENSUS BUILDING EXERCISE

Quality of Governance:

- Regional governments play a large part in local economic development, often taking sole responsibility for infrastructure and for innovation support instruments.
- Unfortunately, infrastructure has been concentrated around those areas that are currently devastated, left behind after closing down companies.
- At the same time green field sites and facilities for new economic activities are characterised by a lack of basic infrastructure.
- Key Priority - to reverse the poor image and negative perceptions of the region which are preventing potential being realised in new sectors.

Quality of business:

- There is cycle of inertia in UPGRADE regions based on lack of confidence. This has its greatest impact in new member states of eastern and central Europe.
- Regions in the new member states lack the broad base of knowledge consumers and knowledge based companies that they see in more advanced regions.
- New sectors seem to be much more risky than the traditional sectors. After all, these sectors are being confronted with a dynamic global market environment.
- Key Priority – to stimulate much higher levels of innovation, entrepreneurship and competitiveness.

Quality of potentials:

- Regions in decline must define their potentials in terms of financial and human resources, infrastructure and technologies.
- Key Priority – Focus on these strengths which can help build a new diversified networked economy based on knowledge.

Quality of knowledge:

- There is still a heavy dependence on traditional industry and means of production and this will continue for some time to come – they should not be marginalised.
- Companies which have introduced new technologies are seen to be doing better.
- Key Priority - In order to grow and compete effectively in the future, it is necessary to promote more knowledge consumption in the regional economy.
- Key Priority – Give equal weight to knowledge production (as well as knowledge consumption) but target it more closely at market needs.

Quality of Life:

- Regions of industrial decline are faced with social degradation, often concentrated in large urbanised areas, where companies have closed down.
- Massive restructuring of industry has had a negative impact on districts surrounding them (social service deserts, crime, hopelessness, lack of interest in education).
- Historical negligence has left a lot of environmental black spots and population is faced with health problems from working in or living near heavy industry.
- Key Priority – Invest in social regeneration but only at a rate that the economy can afford.

Step 4: How can we secure commitment from the sponsors and stakeholders?

What drives the establishment of a foresight project? Is it the entrepreneur, the citizen, the technologist or the bureaucrat? The answer is that all of these may influence the decision making process but the real initiator is the politician or policy maker. Most large scale projects have been heavily dependent on public money, although a few cases do exist in which large companies have turned to foresight for their own needs at a time of uncertainly or perceived external threat.

Foresight should have a special appeal to policy makers in UPGRADE regions where industrial decline is accompanied by high unemployment and falling standards of living. They are well aware of the connection between culture and the economy and the need for tools to stimulate a step change in the attitudes of individuals towards enterprise.

However, policymakers are not the only stakeholders. They are only the enablers. In the long term (if it is to be truly successful) foresight must be transformed into a 'mass-participation activity', with representation from all sectors of society including scientists, industrialists, public sector workers and the man in the street. What we are really trying to do is to embed futures thinking in daily life and decision making.

Another key question is "who needs foresight?" The broad answer to this is threefold:

WHO is the target?	**WHY** is there an (Upgrade) problem?	**HOW** will foresight gain access?	**WHAT** will be the benefits?
Institutions	Resistance to change and poor contribution to economy / society	Via public projects, (strategic futures) and expert task groups	Reduced bureaucracy, informed decisions and efficient services.
Industry	Severe weaknesses in industrial structures & access to knowledge	Via sector or cluster activity and capacity building with SMEs	More small firms with outward focus and knowledge utilisation
Individuals	Low appreciation of the value of innovation and wealth creation	Via schools activity, vocational courses & life-long learning	Positive attitudes to science, business and entrepreneurship

The concept of targeting institutions, industry and individuals in parallel (we may call these the three 'I's) is a very attractive and useful one. After all, these are distinct and separate units of decision making within our society. At each level of decision making, different strategies need to be employed and these will be discussed in the next strand of the blueprint (steps 5-8).

Regional Partnerships:

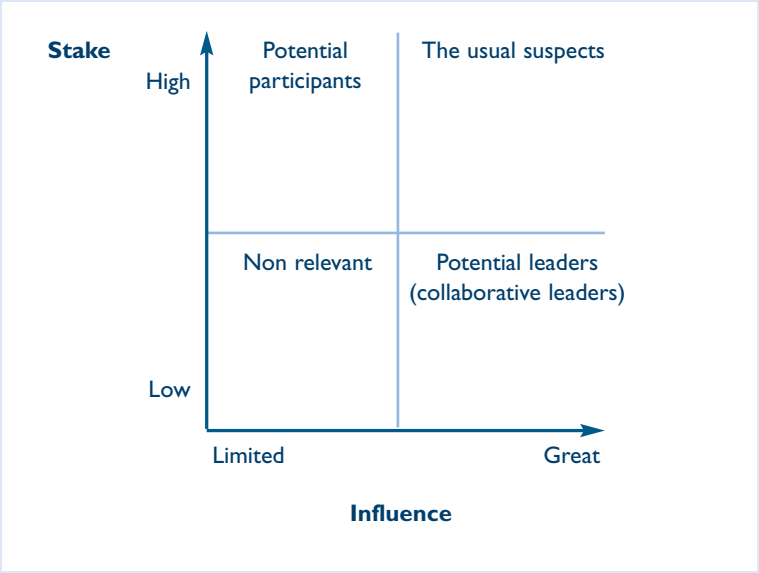
Much work has been done in Nordic countries to examine the role of regional partnerships in foresight actions. Value Creation 2010 is a national programme in Norway aimed at 'Enterprise development through broad participation'. It recognises the significance of grass roots involvement of employees in regional learning, development and innovation projects. VC2010 is delivered throughout Norway via regional development coalitions. One of these is located in the Agder region which, with 250.000 citizens, was the smallest region represented in the UPGRADE group.

In Sweden, much more political power is delegated to the local (municipal) level than in most other countries. This political power is also coupled with resources. However, in terms of size and economic strength many of these municipali-

ties lack the credibility it would take to lead regional foresight. The approach taken will, therefore, have to be more decentralised than in regions, say in Russia or even Germany in which political systems are hierarchical.

Identifying stakeholders is an "art" in itself which the foresight planner needs to consider very carefully. A useful illustration is indicated by the stakeholder map inspired by David Chrislip in Collaborative Leadership: The Fieldbook.

Stakeholder Map



Source Adapted from Chrislip D D Collaborative Leaders The Fieldbook

What is seen far too often is that the people who turn up for consultation exercises are the 'usual suspects' in the diverse initiatives by public agencies. It is vital that the foresight process must include all stakeholders with a high stake in the process. Who the stakeholders are, of course, depends on the objective of the foresight exercise. In most cases this involves a definition of the stakeholders in those value creating systems (clusters) we target. Provided that we manage to clarify who the stakeholders might be - the next challenge is to get them to the table.

The challenge for regional foresight is to involve the correct stakeholders right at the beginning of the process. The old, comfortable idea of having representation from business associations and the like does not work anymore since the representatives cannot or will not make the kind of commitments required. This challenge is particularly acute in UPGRADE regions where public sector people are no longer respected as before. This problem highlights the lower right quadrant in the stakeholder map i.e. how to establish a credible and professional leadership for the foresight process.

2. Knowledge & Resources

Element B begins when there is sufficient agreement about the need for a foresight programme and the general direction it should take. The key issues to be decided are as follows:

- What size and scope of foresight project do we wish to have?
- Where can we find the specialist knowledge in the local context?
- How can we widen the context to take account of global issues?
- What funding, human and material resources are available?

Step 5: What size and scope of foresight project do we wish to have?

Methodological Scope

At an early stage foresight planners will have to define the type of foresight programme that they want or could afford. In most cases foresight is introduced to a region by a series of discontinuous actions. Events and studies that highlight emerging technologies or present scenarios of future economic and social conditions are typical. In UPGRADE regions foresight events are often used to demonstrate how 'uncompetitive' the region is in a global context. In general regional governments will recognise foresight as a potential new element in its regeneration strategy and will implement it as a 'top-down' or policy driven programme. But it is also possible that a set of small and dispersed actions will lead to a structured bottom-up programme initiated by networked stakeholder groups.

DELIVERY MODE		1	2
Will foresight be: - A1 + A2 - A1 + B2 - B1 + B2 - B1 + A2	**A**	Continuous (programmed)	Top down (organised by government)
	B	Occasional (interventionist)	Bottom up (organised by participants)

SUBJECT FOCUS		1	2
Will foresight be: - C1 + C2 - C1 + D2 - D1 + D2 - D1 + C2	**C**	Comprehensive (all sectors)	Incremental (focus, then expand)
	D	Narrow and deep (1-3 critical issues)	In Parallel (explore, then focus)

In UPGRADE regions foresight programmes often address broad themes rather than narrow issues. Typical themes include industrial diversification, emerging technologies, social regeneration, environmental improvement and entrepreneurship.

Some regions favour a cross-cutting approach that combines many themes into a single comprehensive programme. This may be designed to develop gradually, beginning as a small project and growing in size based on achievement. In Mecklenburg-Vorpommern foresight plans are aimed almost exclusively at the medical sector, which is perceived as the best opportunity for a relatively poor region to catch up with its neighbours.

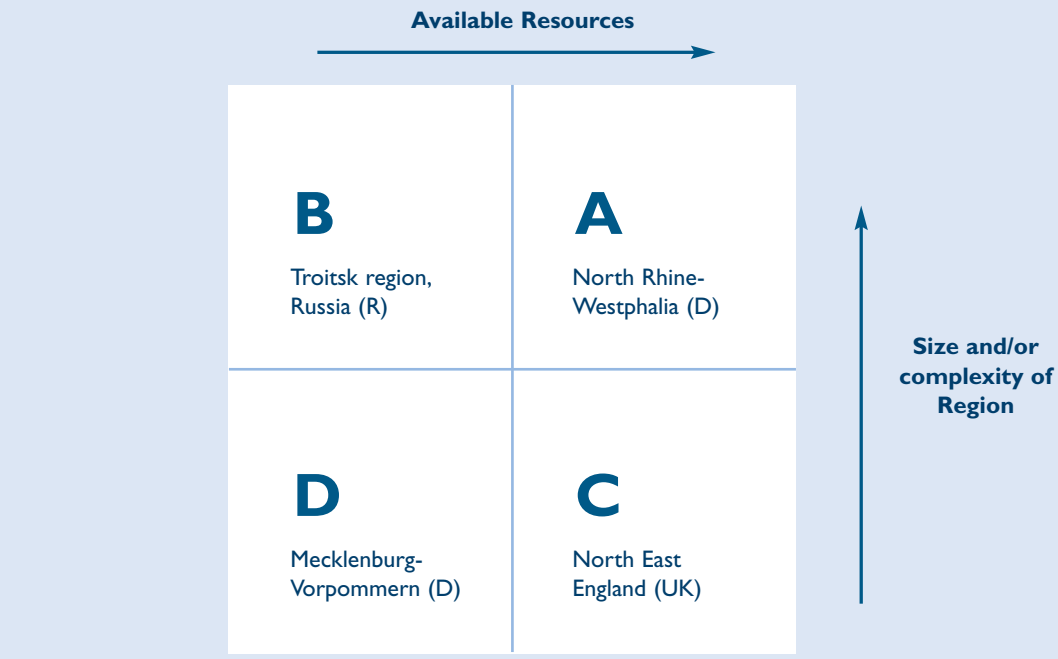
Even where funding is plentiful, a selective approach might be favoured in order to solve specific problems or concentrate on areas in which foresight could have a real impact.

Territorial scope

European regions vary greatly in size and complexity. For example, within the UPGRADE working group, the smallest had a population of 250,000 people and the largest had 18 million. Physical size and economic infrastructure must also influence the design of a foresight programme.

North East England with a population of 2.75 million has a compact land area and a cohesive industrial structure. Under these circumstances Foresight can be delivered very efficiently from a single base. Officials from Nordrhein-Wesfalen in Germany (population 18 million) examined the practicalities but concluded that their region was not suitable for a region-wide delivery of a foresight programme. Their favoured approach would be distributed delivery points focusing on key clusters.

The illustration below shows how two key factors – available financial resources and size and complexity of the region – could influence the final nature of a regional foresight programme. We have already seen that economic policy in Mecklenburg-Vorpommern favours intensive support for medical technology - to be reflected in the foresight process. In the much larger Troitsk region of Russia, however, a severe resource shortage means that foresight will be restricted to a few non-intensive or 'exploratory' actions in selected sub-regions.



Zone A: Large region / good resources
Zone B: Large region / poor resources
Zone C: Small region / good resources
Zone D: Small region / poor resources

- Dispersed delivery aimed at competitive clusters
- Exploratory projects addressing a few specific issues
- Single point delivery to multiple target groups
- Strategic approach in one thematic area (e.g. Medical)

Step 6: Where can we find the specialist knowledge in the local context?

If it is to be taken seriously, foresight must engage local specialists who truly understand the subject being targeted. Their knowledge is essential even if they have no direct stake in the process. As stated earlier (in step 4) and illustrated by the 'stakeholder diagram' it is easy to get participation from public agencies but they will not necessarily provide good leadership.

The Central Hub: As regards the core programme, what is needed is specialist knowledge and enthusiasm about foresight itself. The host organisation which delivers the core programme must be seen as a centre of excellence in foresight, with all the necessary professional skills (management, facilitation, knowledge) and resources (research, tools, training materials, media). Choice of personnel for the core team will depend on the model of foresight being employed. Assuming that the model is 'networking' rather than 'scientific' then the skills required are linked to marketing, facilitation and communication. The function of staff within this model will be to stimulate external activity through the use of a wider network of volunteers and partners. Even where the model is strongly focused on technology, scientific knowledge may be of secondary importance to facilitation skills.

Thematic Projects: Outside the central hub, most activities tend to be thematic in nature and are typically governed by external panels established by the regional foresight programme (see step 19). Access to specialists who will drive these projects is often via existing clusters and sectors (see step 13).

However, specialist knowledge may be required even to understand how a sector operates. In the construction industry, for example, there are a huge variety of stakeholders including town planners, architects, contractors, builders merchants, property developers, speculators, bankers and financiers. Some of these elements are notoriously uncollaborative. An early decision must be taken as to which parties should participate from the beginning in the same foresight exercise, or whether sub-groups, such as the architects, should begin by determining their own more focused priorities.

Leadership: The best guarantee of success is where foresight is led by a strong individual with a high degree of specialist knowledge and respect within the field of activity. For example, a senior corporate strategist from Daimler Chrysler would be ideal to explore the future of the car industry; or perhaps a regional police commissioner leading a foresight exercise on crime prevention. Such people are difficult to recruit, but will greatly enhance the process – particularly if they are also able to bring a prior understanding of foresight methods.

Web reference:
http://en.scmi.de/ScMI_Vision.html - Describes the foresight programme of Daimler Chrysler

Best Practice Tip

Pick your targets carefully. Not all industry sectors are receptive to foresight. Some are 'internally competitive' with all the different actors trying to protect their position or increase their market share. Others are 'mutually dependent' and likely to be cooperative because visible commercial benefits accrue from success in the local context. Then there those which consist of 'distant relatives' because the conditions they share do not bind them in any functional way. For example the defence sector is very diverse and its members simply share a common procurement source. Get expert help from within the target sector to define how and if to proceed.

Step 7: How can we widen the context to take account of global issues?

Specialist local knowledge must be combined with a comprehensive understanding of external influences or drivers. Scenarios (see step 11) are built from this mixture of global and local knowledge. This helps us to build more robust strategies by widening perceptions of possibilities and applying 'what if' questions to a list of key uncertainties.

Widening the subject matter: Projects based on a specific theme are popular at regional level but can suffer from being too inward looking and narrow in their approach. This was certainly the case with some national foresight programmes, that used delphi studies and panels of technology experts. In regional projects it is important to recognise cross cutting themes and build in some mechanisms to access information from a wider context. In the example of stakeholder panels, the experts can be joined by industrialists and designers, whose products may be affected by the technology and social groups whose lifestyle may be influenced in the longer term. This helps to identify potential connections between sectors, such as medical devices and textiles - which in very different ways both cater for the human body. The foresight planner might therefore initiate parallel working groups, in subject areas that are potentially connected. After a period of working separately these could be brought together to discuss synergies and joint action. This works well with groups of providers and consumers e.g., sensor technologies + crime prevention, information technologies + home working.

Global access to knowledge: It is debatable whether market research or technology watch are valid functions within a regional foresight programme. However, without accurate information, the art of foresight merges into fantasy and it will be difficult to impress a business audience in particular. It is recommended that the foresight

team within the central hub includes an information specialist who may, for example, produce lists of 'favourite' web sites corresponding with each major industry sector and R&D strength within the region. Hot links to these can easily be added to the foresight web-site maintained by the host organisation. A good place to start are the internet sector and cluster portals. These are large multi-service web sites designed to be comprehensive one-stop destinations for users. A very interesting site for understanding the work of clusters is that of the Competitiveness Group (www.competitiveness.com) based in Barcelona. This is a private sector company offering commercial services in cluster management The quality of case studies and credentials of the directors of the company speak for themselves.

Worlwide experience exchange: A third method of widening the context is to examine global developments which are currently outside the control of regional planners but will almost certainly affect the region at some point in the forseeable future. These include changes in global trading patterns, inward/outward investment, economic growth, labour mobility and transport systems. International networking is beneficial not only for economic purposes but also to understand the complexities of other societies and political systems. The UPGRADE working group was very fortunate to have two non-EU members who were able to offer detailed insights into the Troitsk region of Russia and the Donbass region of Ukraine. The sheer scale of problems and opportunities in Russia was of particular interest. In a country with 48 times the land area of Germany, there are enormous natural and human resources, yet to be integrated with the EU economy. The city of Troitsk is just one of a network of 70 Science Cities and contains 10 big research units. Of its population of 33,000, 40% are educated to degree level, including 1,000 Phds. Troitsk will soon be the pilot for regional foresight in Russia and its objective will be to turn this scientific excellence into economic advantage.

Step 8: What funding, human and material resources are available?

The ability of a region to fund its own foresight programme varies considerably. Ideally, foresight will be given a high priority by regional policy makers and granted sufficient funds for at least a three year period. The reality is that UPGRADE regions are characterised by scarce resources and have many pressing demands on their budgets. This makes it all the more important to prepare well and secure early commitment and clarity of purpose.

The first thing to establish is the amount of money required to kick-start the process and maintain it for an agreed period. Research conducted by the UPGRADE working group, based on a questionnaire circulated among the group suggests that the amount of money required for an initial foresight programme was not so great, and certainly well within the means of any region in western Europe.

Estimated annual budget for the foresight focal point
(data provided by actual or potential lead organisations)

Organisation name	Budget (in '000 euros)	Time period	Paid Employees (full/part time)
HSE, Moscow, Russia	100-200	2 years	4 + 0
Donbass Regional Development "Agency	100-200	3 years	4 + 6
ZENIT GmbH, Mulheim, Germany	100-200	3 years	5 + 0
Dahmén Institute, Örebro Sweden	200-400	2 years	2 + 10
S.C. Technopolis, Iasi, Romania	100-200	longer than 3 years	3 + 5
Patentverwertungsagentur, M-V, Germany	200-400	longer than 3 years	?
Already operating …	Actual budget		
RTC North, Sunderland UK	230k euros	Mean since 1996	
	514k euros	Budget for 2004	4 + 4

Total budgets envisaged in the table above vary between 400 euros and 2000 euros some of which might be covered by European structural funds. Most UPGRADE regions in the EU do qualify for some form of ERDF funding. As the rules currently stand, objective 1 areas would be allowed to use these funds for a broad variety of foresight of activities. Objective 2 regions, however, could only use ERDF for foresight actions with SMEs - not with large companies, institutions or community projects.

In terms of human resources, there would have to be a mixture of full-time, part-time and voluntary labour, depending on local conditions and the scope of activities. The survey results indicate that the popular model amongst foresight planners was for a small group of 2-4 full time staff (located in the hub) supported by a variable number of 'outworkers' within partner organisations. Responses regarding the type of staff required – science, industry, business – were not consistent.

Material needs at the foresight hub will include flexible space for small scale training and workshop activities. Good projection and demonstration equipment, video conferencing, whiteboards and specialist multi-media (eg, alternative scenario film-clips) would all be essential. A network of lap-tops which can be taken off-site as well as software packages for structured brainstorming and mind mapping would also be desirable. Costs would be modest since expensive equipment could be accessed via educational institutes in the partner network.

3. Foresight Methodology

Element C is about applying foresight methodology to create an operational plan. By this stage policy issues have been agreed and the remaining tasks are to define how these convert into' client support' actions.

- What experience and lessons can we gain from outside?
- What tools/skills do we need to develop in the local context?
- What methods will we use to explore future possibilities?
- What process will we use to decide on the detailed plan?

Step 9: What experience and lessons can we gain from outside?

Published information on foresight experiences around the world is plentiful, although it must be said that much of it is focused on national rather than regional programmes. Even where the subject is clearly regional in scope, descriptions tend to be of foresight projects rather than foresight programmes ie, fixed-term term rather than continuous activity.

Nevertheless, it is well worth consulting 'A Practical Guide to Regional Development' (December 2001). This publication was produced by the FOREN network with funding from the EU's STRATA programme. The Practical Guide is structured in question-answer format throughout and contains nine regional case studies. Since then DG Research has commissioned a series of 'Country Guides' to regional foresight for all current member states (with the exception of Luxembourg), in the specific language of each country. http://www.cordis.lu/foresight/tools.htm These are based on the FOREN guide but the methodology has been updated and they are tailored to local circumstances including governance structure, science & technology priorities and business mentality.

International organisations such as UNIDO, OECD and the RAND Corporation have also done interesting work on regional foresight. The Technology Foresight programme of UNIDO, for example is implementing a global initiative on technology foresight that draws on regional initiatives. Currently, those regional initiatives are focused on UPGRADE regions in central and eastern Europe (CEE) and the newly independent states (NIS). Web reference http://www.unido.org (/doc/5216).

Despite the wealth of electronic and published material there is no substitute for direct exposure to working programmes and learning by doing.

In the words of Dr Christian Svanfeldt of DG Research "networking regional foresight is the most effective way to build synergies and learning effects between different regions". It follows that inter-regional visits, personnel exchange, peer review audits and small network projects should be built into the planning of a new (or existing) foresight programme.

The UPGRADE group met only three times during its short lifespan. The first was in Brussels where a planning workshop and a preliminary programme was agreed. The second was in Sunderland where the strengths and weaknesses of an 'established programme' were analysed and the third was in Greifswald where the 'reference region' was planning a new and very different foresight programme focusing on the medical sector. All five blueprint groups reported similar benefits from this mode of operation.

Benefits of visiting a region planning a new foresight programme:

- Opportunity to refresh your own programme with new tools and ideas
- Reminder of set-up problems and continued importance of stakeholders
- Contribution to the selection of activities and design of the programme
- Critical assessment of another regions strengths and weaknesses
- Ability to apply own knowledge and ideas to different regional criteria

Benefits of visiting a region with an existing foresight programme:

- Gaining of best practice about development issues such location and funding
- Opportunity to meet experienced staff and observe them doing foresight
- Gathering of potentially transferrable project ideas and processes
- Chance to assess operating efficiency – impact, and value for money
- Receipt of advice on dos and don'ts regarding project management

Step10: What tools and skills do we need to develop in the local context?

This step involves not just the selection of tools from outside but also their adaptation or development for local needs and consideration of cultural factors that will determine how they are applied.

Cultural considerations: The ultimate selection of tools and the time scale, in which these tools could be applied, depends in part on the culture in a specific region. In some UPGRADE regions – because of economic and social degradation – social capital is low and lack of trust will form the main barrier for bringing people together in large discussion forums. Here one could opt for tools that include individual interviews with experts and meetings in small specialist groups.

Stakeholders in Central and Eastern Europe are also more likely to be motivated by tangible, short-term benefits whereas in Western European regions, a debating culture allows the organisation of consultation meetings over a longer period of time. In the first case, one should use those tools that provide clear measurable milestones; in the latter it would be possible to take a more holistic approach towards vision and scenario building.

Regional preferences: Having identified a set of generic tools and techniques, foresight planners will have to consider how these can best be adapted to the circumstances of their region and the skills available. This should be done with a limited group of key stakeholders, in order to verify acceptance of the way in foresight will be provided. In order to gain a better understanding of this process, each member of the UPGRADE working group was asked to consider the importance of a typical set of foresight tools and techniques in the context of his or her own region.

	Which of the following tools and techniques should your foresight programme be adopting? (5=most important, 1=least important)	Score
1	Scenario building workshops and events	27
2	Setting up of sector panels or futures groups	23
3	Regular consultation events on thematic issues	19
4	Seminars in specific thematic areas	18
5	Intensive work with individual organisations/companies	17
6	Small scale training events and courses	16
7	Organisation and participation in conferences	12
8	Circulation of foresight news and information	10
9	Supply of funds to SME pilot projects	8
	Total (10 questionnaires)	150

An equal number of questionnaires were filled in by 'West European regions' and former 'eastern bloc' regions. When the results were added together, the clear favourites were the scenario building events and sector panels (futures groups). These scored equally well in both types of region. Thematic events and seminars were both rated highly – but mainly because of eastern bloc regions. Both german regions (east and west) gave a very high score to training courses but others did not. Intensive work with individual organisations was a popular tool with all. Obviously such a small sample is not statistically significant but it does emphasise the relevence of cultural differences. Some alternative ways of utilising these tools is discussed in the next section (step 11).

Step11: What methodologies will we use to explore future possibilities?

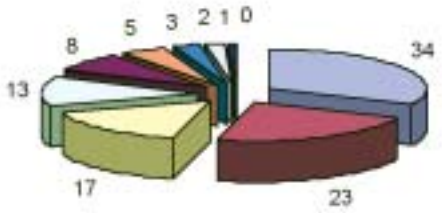
This step is about harnessing the imagination, in a way which takes us far beyond existing horizons and knowledge. Tried and tested techniques for doing this include scenario planning, role play, driver analysis, contingency design, technology road mapping, sector projections etc. Essentially they all use some form of 'what-if' questioning to create alternative strategies. The objective is to create robust strategies by widening perceptions of opportunities and possibilities.

The trend is good but in the current rush to apply foresight methods, there is a danger of becoming too mechanistic. Foresight is not a magic solution to economic and social problems. It is a creative discipline and if is treated as a scientific formula to be applied by one or more closely defined and quantitative methods, then it will lose its precious innovative quality. A fresh approach is recommended so that the foresight team can use methodologies in a flexible way. It has three parts:

1. **Setting priorities** → decide the most important 'domains' on which to focus foresight
2. **Exploring possibilities** → use scenarios and cross-impact techniques to widen the debate
3. **Regaining focus** → return to foresight 'domain' areas to define strategy and actions

Setting Priorities: All the many factors identified in SWOT and STEEP analyses must be prioritised in some fashion so that the foresight process can concentrate on the most important issues and develop effective action plans. Ranking by consensus and ranking by voting are two common methods of prioritisation. The first is commonly achieved in workshops or consultation groups and the second by private ballots or questionnaires. The latter method was employed by the UPGRADE working group to force a selection of 5 priorities in order of importance from an initial list of 10.

Selected Upgrade Priorities



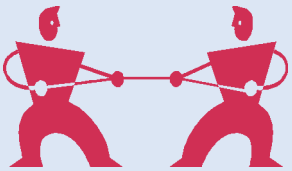
- Enterprise culture
- Industrial structures
- Education and skills
- Emerging technologies
- Health and quality of life
- Population Issues
- Global trade
- Environment and waste
- Information society
- Security and vulnerabilty

Despite the fact that they came from verydifferent regions, representatives of the working group came up with amazingly similar results about their priorities for the future. That is because they reflect the global drivers that most powerfully express the failure of UPGRADE regions as a whole. The lack of enterprise culture and outdated industrial structures stand out very clearly. Since these are already well recognised they must now be put aside so that new inputs or uncertainties can be explored.

Exploring possibilities: Scenario building is probably the best known and most important of foresight tools. It is also by far the most difficult to master. Nevertheless, when properly applied, scenarios are a very valuable counterweight to traditional planning techniques or quantitative projections. Scenarios are images of the future, which may be presented singly or as a set of contrasting alternatives. They are built around assumptions which do not necessarily have to be based on real evidence or visible trends but should always be coherent and believable.

trend-based scenarios

predictive scenarios



conflicting scenarios

The art of creating good scenarios is to banish the present. Some creative training and virtual reality facilities use darkened rooms, loud music and dramatic film clips to disorientate participants prior to brainstorming sessions. It is very hard to get senior industrialists and politicians to forget the daily pressures of their work - and the older they are the more difficult it becomes!

There are no hard and fast rules for building scenarios, but the methodology described below requires a mixture of trends analysis and predictive techniques. It would seem to be appropriate for UPGRADE regions because of its relatively short life span and very practical outcomes. The conflicting scenarios model is not favoured since it deliberately creates 'extremes' in which positive and negative elements are exaggerated.

There are six stages in the recommended model as follows …

- Decide on a time scale of not more than 10 years and define domain boundaries
- Identify 6-8 key influencing factors (local drivers) affecting the region
- Predict how these influences may evolve or be disrupted during the time period
- Consider how cross relationships might develop between the factors
- Produce an overall story line supported by 6-8 compatible assumptions
- Use the scenario assumptions to enrich strategic and operational plans

Regaining focus: Scenario building is both creative and enjoyable. However, the real value is in applying the results in the regional 'domains' or target groups defined earlier. When working with industrial companies, for example, they can be asked to map the 6-8 assumptions against a similar number of strengths and weaknesses in their current business plans. Each intersecting box is then given a score (+2, +1, 0, -1, -2) depending on whether the assumption will have a positive, negative or null impact. When the cumulative score is calculated, it should give an indication of how well prepared the company is to compete in the future. This methodology is known as "cross-impact' matrix and tends to be very popular with industrial companies.

Sector panels, consultation groups, industry-education projects, technology and skills observatories are all mechanisms which can be used to explore future possibilities. Good foresight methods such as these not only provide a challenge to existing plans but also help to build committment through developing and sharing a collective vision.

Step 12 What process will we use to decide on the detailed plan? (with reference to a specific region)

Within its assignment, the UPGRADE working group designed a plan for implementing regional foresight, with special reference to one of the participating regions (Mecklenburg-Vorpommern) but for practical use by any region. At its meeting in Sunderland (March 2004), the group designed a generic template that was subsequently modified and populated with data during the Greifswald meeting (June 2004). The result is a very attractive template and supporting methodology described below.

The template itself consists of a series of boxes describing the inputs, key processes and outputs of a regional foresight programme. Inputs include the issues that are of most concern to the region within the broad areas of government, economy, technology, society and environment. Another set of inputs are the resources which the region has at its disposal to address future needs - principally related to money, skills and infrastructure.

The middle part of the template includes a box for methodology and a box for applications. These are the key processes whereby foresight tools and techniques (delphi studies, scenario planning, technology watch, thematic panels etc) are focused on regional issues in order to define what practical applications will be included in the plan. The term 'applications' refers to those follow-on activities which will form part of a continuous foresight programme to meet the needs of the target groups. In an UPGRADE region, industry is widely regarded as the most important target group (see step 13) but a balanced programme should include some activities specifically designed for public sector institutions and individuals within education and society.

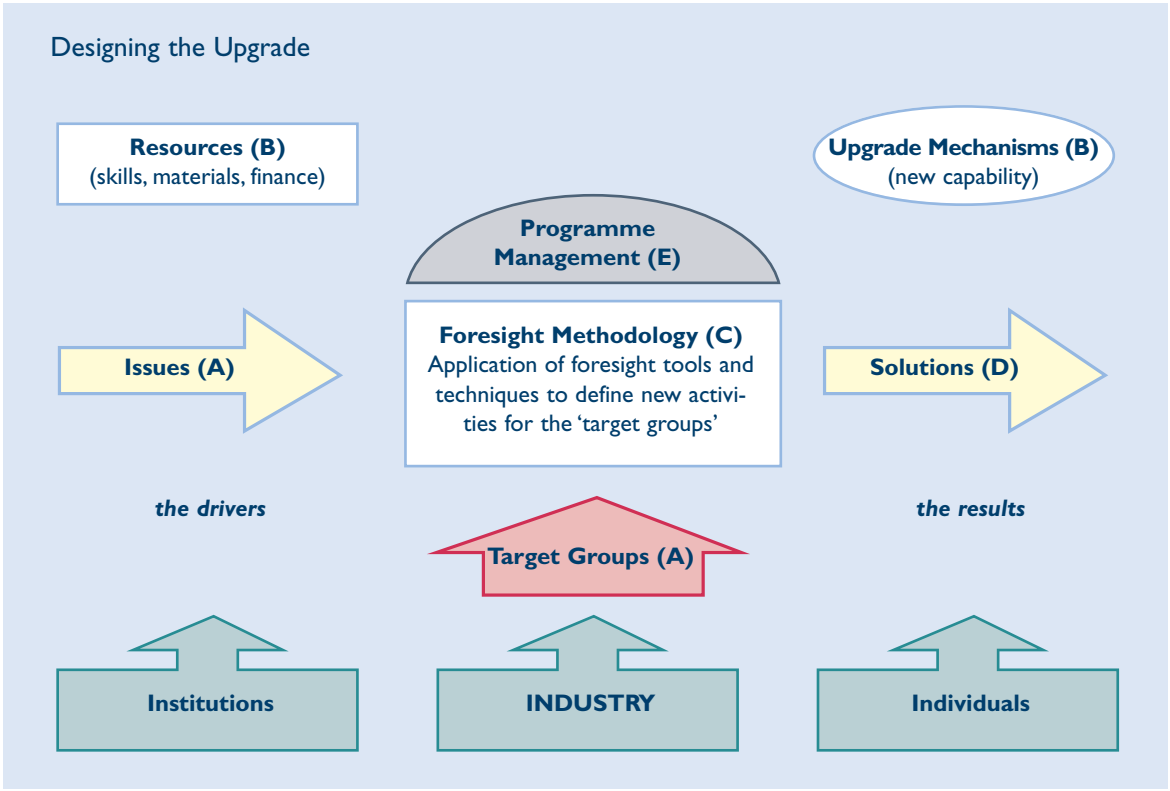
Finally, the right hand side of the template is used to identify outputs. These consist of the desired solutions or results of a successful foresight programme. In most cases they will directly equate to the list of issues identified earlier. However, the model also identifies a set of benefits called upgrade mechanisms that refer to new capability acquired during the course of undertaking regional foresight. These benefits operate both as inputs and outputs to the process since they develop interactively over time and become resources.

Note - Each box within the template diagram is referenced to one of the five foresight elements (A-E) around which this whole blueprint document is structured.

Using the UPGRADE template

Each of the six main boxes in the template is discussed in turn and broken down into a much larger number of component elements upon which participants all agree. This can be done in brainstorming mode, using post-it stickers on a projected image, and then refined at a later stage. The table below the diagram overleaf is a result of two discussions by the UPGRADE group with some post-hoc editing by the author of this report.

A further refinement is to assign scores to each of the elements. This helps to prioritise their individual importance and to help decide how resources are allocated. For example, the nine issues listed can be divided into three sets of three according to whether they are (i) a necessity (ii) an opportunity or (iii) a threat. Current upgrade mechanisms could be similarly scored as weak, average or strong. The scoring system does not matter provided the assessment is realistic. Each set of elements should be assessed independently and then cross-referenced.



Issues (concerns)	Target Groups	Solutions (results)
Government bureaucracy	Policy makers, civil servants	Anticipative policy making
Communications revolution	Business, commerce, general public	Sophisticated ICT infrastucture
Emerging technologies (Medical)	Research staff, professional services	More rapid exploitation of R&D
Traditional industrial structures	Large companies & supply chains	More knowledge based production
Global competition / markets	Business and commerce bodies	Higher value trade relationships
Workforce development	Manufacturing, colleges, schools	Increased industrial productivity
Shortage of entrepreneurs	Individuals, young people	Higher rate of company formation
Degradation of Environment	Local councils, development bodies	Cleaner physical environment
Security and quality of life	Hospitals, police, utility workers	Efficiency in public services

Resources	Methods and Actions	Upgrade Mechanisms
EU, national and regional grants	Regional Innovation strategies	Long term funding / towards FP7
Excellence of (Medical) Research	Selective investment in R&D	Technology transfer facilities
Traditional craft industries	Scenario planning workshops	Creative design capability
Cutting edge competences	Technology roadmapping projects	Business support infrastructure
Tradition of basic manufacturing	Grants for in-company projects	Industry involvement in R&D
Labour - skilled and unskilled	Industry facilitator training	Flexibility in skills / training
Culture and educational potential	Young Foresight in schools	Enterprise and science awareness
Relations with neighbouring regions	Searchlight events / studies	External best practice transfer
Potential marine, oil & gas reserves	Support for strategic clusters	Product & process innovation

Application to the Reference region: Meckenburg-Vorpommern

Mecklenburg-Vorpommern is a classic example of a region in transition, struggling to upgrade its economy and with very limited resources at its disposal. It has a large land area located close to the Baltic Sea but a relatively small population. The above table has been prepared to highlight some priorities for a foresight programme in that region. It is only intended as an outline example and has not been endorsed by any regional authority. However, some interesting observations are as follows:

- On the positive side, there are real strengths in the medical research sector. These technological strengths have not yet been converted into economic benefit for the region and this must be a major area of focus for the forthcoming foresight programme.

- Workforce development is a major concern. Unemployment is very high and the outflow of skilled labour to other parts of Germany and Europe is worrying. However, there is an industrial and crafts working tradition that could provide a platform for upgrading human capital.

- Because of its East German history, Mecklenburg-Vorpommern still displays characteristics of that period. These include higher levels of bureaucracy and less efficient public services than in Germany as a whole. Transport infrastructure is also relatively weak.

- Relations with neighbouring regions offer major potential for future development. In the first place, integration with western Germany has already brought significant advantages. Secondly, its position on the Baltic Sea creates opportunities for international trade, marine technology and involvement in the oil and gas sector.

- Poor rates of company formation and low propensity to innovate are serious problems and should rank highly in the list of priorities. Attitudes towards entrepreneurship need to be improved particularly among young people. This would favour a foresight approach which emphasised enterprise, team building and design technology in schools and colleges.

Note: A regional foresight exercise has recently been initiated in Mecklenburg-Vorpommern following satisfactory involvement in the UPGRADE working group (see postscript).

4. Practical Applications

Element D gives practical examples of foresight actions observed by the UPGRADE working group. These may not be directly transferrrable but can be a source of ideas for those involved in the planning process.

- Which actions to **upgrade** industry sectors & companies?
- Which actions to **upgrade** the science and knowledge base?
- Which actions to **upgrade** human capital and skills?
- Which actions to **feedback** and inform regional strategy?

Step 13: Which foresight actions will we use to upgrade industry sectors and individual companies?

Industrialists are probably less interested in foresight than academics or policy makers are. It is also probable that large companies are more willing to take a longer-term view than small ones. Several multinational corporations undertook well-documented business foresight exercises in the 1990s for which the time scales were in excess of 20 years. Much shorter time scales need to be applied at regional level and particularly so in the context of enterprise support. The typical SME business plan covers a three-year period and is often not substantially revised until that time period expires.

However, large companies can be used to attract their smaller suppliers into foresight activity, particularly in the context of industrial sectors. This works particularly well when fundamental changes are occurring within a particular industry – perhaps as a response to new technology processes, market shifts, major outsourcing decisions or external procurement opportunities.

The lesson here is that timing can be key to successful promotion of a foresight exercise. A highly publicised government decision to purchase an aircraft carrier or battleship is an ideal time to work with the defence sector. Recent terrorist actions have heightened interest in sensors and security equipment thus creating new opportunities in electronics companies. Sectors under threat may also be a good subject for foresight in UPGRADE regions (see below).

Typical tools: Sector mapping, scenario planning, cross impact matrix. Monitoring global trends within clusters and sectors is facilitated by accessing internet portals.
Web-reference: http://www.nof.co.uk/
Information about Northern Offshore Federation

UPGRADE Case Study – The North Sea Oil and Gas Sector

This is a typical example of a traditional industry under threat. Foreign competitors were employing new technology and sub-sea extraction more effectively. A foresight exercise was carried out with 20 managing directors of marine/offshore companies in NE England. The methodology was as follows:

Activity Steps	Outputs
• Produce template appropriate to sector	Map of existing regional conditions in the industry
• Compare global and regional issues	SWOT analysis based on current conditions
• Predict changes over 10 year	Alternative scenarios of global energy production
• Produce regional and global maps	SWOT analysis based on scenario assumptions
• Identify potential 'hot spots'	Priority list of specific industry cluster opportunities
• Establish regional priorities	Sector plan linking actions, organisations and time

The work was carried out during six workshops in the year 2000. Maps and plans for a 10 year period were produced for the Northern Offshore Federation. A halfway stage assessment is planned for 2005.

Clusters are supported by most regional development agencies and foresight workshops can be an excellent early activity to establish objectives and to bind the membership together. One simple but effective approach is to carry out two half-day workshops in consecutive weeks.

(1) At the first workshop foresight principles are explained by invited experts and then sector scenarios are developed in group sessions, each with a skilled facilitator.
(2) In the days between the two workshops, delegates are asked to use the 'cross-impact matrix' technique to evaluate the impact of scenarios on their existing business plan.
(3) At the second workshop delegates present their individual results and then work in groups to consider a collective strategy for 'future-proofing' the sector.

Embedding Foresight in SMEs

Working with clusters is a useful way to access groups of companies but it remains very difficult to convince individual SMEs about the business benefits of foresight. Nevertheless, activities and events that promote core skills, new products and market share as a consequence of futures thinking are likely to attract attention. In some cases manufacturing agility rather than manufacturing foresight may be a better marketing slogan.

Experience shows that groups of unaffiliated companies can be attracted to the types of support action described below, provided the business benefits are clear:

- Single company audits: Offsite sessions (half day or full day) with several decision makers from the same company focusing on topics such as long term business planning, product futures, marketing strategy. One technique predicts a future achievement and then works backward to the present to define reasons for success.

- Multi company workshops: One day events, similar to the above in terms of content but involving circa 10 participants from circa 3 companies and allowing SMEs to compare detailed experience. Companies are encouraged to define their identity in terms of core skills rather than current products.

- Succession planning: Customised projects devised for family-run companies concerned about generational change. Pioneered in Denmark, this type of foresight provides assistance via independent 'industrial board members' and external advisors to cover specialist topics.

- Foresight training: Short courses designed to give companies the 'internal capability' for technology watch, knowledge management and scenario planning. This is usually a mixture of evening workshops and assignment work spread over 8-12 weeks.

All the above case studies and examples are based on services provided by existing, publicly funded foresight programmes. They are not intended to be a prescription or a recipe - simply an illustration of what works elsewhere in UPGRADE regions.

Step 14: Which foresight actions will we use to upgrade the science and knowledge base?

History tells us that scientific achievement is no guarantee for economic success. What is more crucial is the degree to which science is converted into useful technology that creates wealth and quality of life. The task for foresight in UPGRADE regions is, therefore, to reduce the time lag between the development of technology and its exploitation.

Technology transfer is so important that a separate blueprint (TECHTRANS) has been commissioned to provide guidance for foresight planners and practitioners. However, UPGRADE regions have special problems in this area which must be addressed in their own context. Typically, they do possess sufficient R&D resources but these are out of step with the economy. This is true both in:

- Former communist regions which have been dominated by state planning
- Old industrial regions with a history of mining, steel, and heavy engineering

In CEE countries, for example, it is very difficult to integrate science and industry effectively because there is no tradition of consultation and free enterprise. The situation may be better in the old industrial regions of Western Europe, but R&D expenditure remains low and the rate of new company formation is insufficient to replace declining industry. Both types of region can attract inward investment, which provide employment in the short term at least, but are normally pure manufacturing sites without any R&D or knowledge creation capability.

Three examples of foresight projects, which might help stimulate knowledge creation and transfer in UPGRADE regions, are suggested below:

- Future Technologies: Short bursts of activity focused on very specific technologies, such as microsystems or bio-engineering. The process would begin with a "show-me" day featuring advanced technical demonstrations by experts and practical applications utilised by leading local companies. A menu of follow-up activities is then offered to participants perhaps including subsidised consultancy, B2B (business to business) mentoring and trade missions. In the case of microsystems, experts from Switzerland where these technologies are very advanced might be invited to participate in the event and subsequent trade mission.

- Foresight Convoys: Well structured innovation projects in which groups of organisations, from both industry and R&D, combine to assist each other in achieving a common performance goal. Convoy groups will be initiated by earlier events at which foresight methodology was used to define such goals. Participants will commit to share resources and knowledge for a fixed period of time in return for logistical support and a stake in any business and intellectual benefits.

- Searchlight Awards: A system of incentive grants for pilot projects within SMEs. Applications with a genuine foresight content (eg, related to future product options, market projections, skills profiling, high-tech joint ventures) can be assessed by a technical panel and processed very rapidly. Grants of 15,000 to 25,000 euros per company. Up to 10 grants per year, paid from structural funds and matched by company resources.

Step 15: Which foresight actions will we use to upgrade human capital and skills?

In his paper for the UNIDO technology foresight conference in 2002, Jan Kozlowski stated that CEE countries lagged far behind the so called western nations in the subject of **foresight**, which could be interpreted as an illustration of the advancement of meta thinking (techniques of thinking) and thinking about doing (techniques of management).

> *"Up to the end of communism the 'know what', 'know that', and 'know what for' training and literature prevailed over the 'know how' approach while in western countries there are currently thousands of courses and training sessions to teach how to think, decide, manage and behave in thousands of different situations"*

Generating an enterprise culture among the young is essential for long term success in a market economy and is a key objective for foresight all UPGRADE regions (both east and west). There are many good examples of foresight programmes targeted at schools and colleges. Some of these appear to be very effective in generating confidence and fostering interest both in technology and business. Naturally the 'payback period' of such activities is long term but the cultural influence should not be underestimated.

Methods for introducing foresight to young people include the following:

- Teaching in Schools: In a number of countries, foresight materials have been developed at a national level and distributed for use in secondary schools. The most common approach is to integrate learning modules within a conventional subject area, such as 'design & technology'. Alternatively, thematic coursework may form part of a separate 'enrichment programme' as is the practice in the Magnet Schools of America (see case study below). Involvement of industry is very important as this encourages an interest in enterprise and the practical application of creative ideas. Ideally each participating school will be twinned with a company and initial training in foresight will be provided to both teachers and company mentors.
- Organising Competitions: Individual or team competitions are an effective means of stimulating young peoples interest in future technology. These differ from traditional science competitions in that they are less about model building and more about concepts. They also help to link imagination with wealth creation and channel competitive behaviour in young people towards positive solutions. Again it is important to involve industrial companies both as sponsors and participants. Competitions can be organised on a staged basis so that blue sky or 'whacky' ideas can be refined and made more practical round by round. Winning individuals can be organised into teams to work on real problems set by companies.
- Upgrading Further Education: Foresight and other creative techniques are increasingly being used in vocational colleges, for example in the training of engineering apprentices. Manufacturing industry is becoming much more complex and knowledge intensive. Consequently, higher levels of skill and initiative are required in the workforce and urgent action is needed to halt the decline in the status of engineering as a profession. It is therefore, a valid task for regional foresight in UPGRADE regions to promote the use of lateral thinking, decision making techniques and team management tools in this environment.
- Working with Universities: Although academics have shown a consistent interest in foresight as a novel subject for research, it is not very prominent in university degree courses either at graduate or post graduate level. Few universities offer foresight as a subject in its own right, although many business schools do offer some elements of it within their management courses. Nevertheless, there would appear to be a great deal of scope for developing future technology modules for science and engineering degrees as well as short courses for industry and business support professionals. This ought to be another objective for the regional foresight programme.

International Best Practice from USA

Magnet Schools of America

Educational pioneers in USA have long recognised the need to modify formal schooling to serve regions or communities in transition. Magnet schools are based on the premise that not all students learn in the same way. Finding a unifying social or scientific theme, even it seems quite narrow, can help them to learn more in all areas. This appeals to students and teachers who want to be there because they have similar interests. The term was first used after the successful School of Performing and Visual arts in Houston was said to be attracting students like a magnet. The biggest single influence, however, was desegregation. Magnet schools were introduced along with 'special enrichment programmes' to overcome the effect of past discrimination.

FLC Outreach Programmes

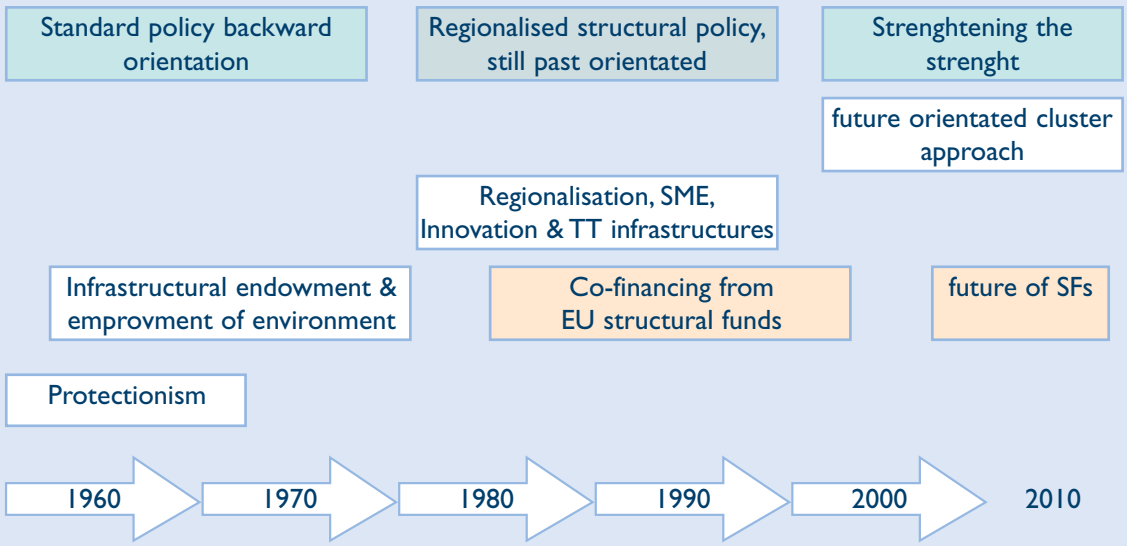
The Federal Laboratory Consortium includes approximately 700 laboratories across USA many of them linked to the defence and space industries. Out of concern for a declining interest in science among young people and also for resons of social inclusion, many of these institutions have developed creative outreach programmes. A fine example is the Mount Wilson observatory near Los Angeles which is a scientific grade space telescope exclusively available to school children. FLC also sponsors the 'First Robotics' competition in which 10,000 schools take part in design and build competitions. A third example is the National Centre for Simulation in Florida which draws in resources from Disney, Cape Kennedy and the US Navy to support the study of simulation technology by schoolchilden.

Step 16: Which foresight actions will we use to feedback and inform regional strategy?

One of the common characteristics of previous regional foresight exercises is the fact that they have almost all been driven by policy makers and public funding. Very few programmes have been truly successful because they were designed by and too strongly oriented towards the supply side.

In Nordrhein-Westfalen – perhaps the largest UPGRADE region in Europe – recent exposure to participatory policy making has made a major impact on economic policy. As a result there has been a shift from "overcoming weaknesses" towards "strengthening the strengths". Foresight exercises are being regarded as an interesting policy tool to further develop and to optimise technology and innovation policy in this major old industrialised region.

Evolution of innovation policies in Nordrhein-Westfalen



Developing the practice of 'participatory policy making' may be the most important single contribution that foresight can make to an UPGRADE region. At an early stage it is essential to design **feedback mechanisms** which enable the 'demand side' to engage directly with policy makers and planners. Such mechanisms might include:

- Proactive and visible dialogue with industrial sector and cluster groups
- Prioritisation of specific emerging technologies or competence fields
- Investment in future skills needs related to key sectors of the regional economy
- Strategic futures at city and sub-regional level – focusing on local area needs
- Consultation exercises regarding public services – health, transport, security
- Funding of fixed term task groups to address clearly defined problems
- Personnel exchange between policy makers and foresight stakeholders
- Social dialogue via regional and sub-regional conferences

5. Programme Management

Element E provides guidance in setting up organisational structures to support foresight. These will vary according to local conditions but, in every case, certain key questions will have to be answered.

- How can we select and support the central focal point or host organisations for foresight?
- How can we build a network of partners to help deliver foresight?
- How should the regional programme be managed and marketed?
- How will we measure success and ensure sustainability?

Step 17: How can we select and support the central focal point or host organisations for foresight?

A focal point is needed to drive the programme at the regional level. Although foresight must be seen as inclusive - and will fail if it is not - a single host organisation should take the lead role. This organisation will not own foresight but will be empowered to set up the central focal point and manage its many activities.

Responsibility for identifying the host organisation belongs to the strategists. In some cases there might be an obvious candidate, which has already been involved in similar programmes and has significant resources at its disposal. In others there may be a number of options and it might be decided to issue a competitive tender. Another possibility would be to create an entirely new organisation for this specific purpose. As a general rule the latter solution carries a high degree of risk and is likely to slow down the implementation process.

Implementation Survey - The UPGRADE working group circulated a questionnaire among its own members about implementation. Seven regions that were either running or setting up a foresight programme provided answers to the three key questions below.

Implementation Survey - Who will take responsibility ….?

Organisation Types (named in the survey questionnaires)	*To 'kick start' the foresight process*	*To act as prime agency for delivery*	*To be major partners in the network*
Government departments	▲▲▲▲▲		■■■■■■■■■ ■■■■ (13)
Public controlled development bodies		●	■■■■■■■■■ ■■■■■ (14)
Independent Support Agencies (non-govt)	▲▲	●●●●●	■■■
Education or R&D Institutes		●	■■■■■■■■■ ■■■■■■■ (16)
Commercial companies			■■■ (3)
Industry body, cluster or association			■■■■■■■ (7)

Five out of seven regions said that the initial stimulus must come from government. However, two (Nort East England and Bergslagen) believed that independent agencies might kick-start the process - even before funding was available. All seven recognised that a single agency had to be identified to act as the focal point and central project manager. Most agreed that the focal point should be a non-government agency with good contacts and professional skills.

The actual organisations named varied greatly from a patent advisory centre (Mecklenburg-Vorpommern) to a technology park management company (Iasi County, Romania). Only the Troitsk region of Russia identified an academic organisation (Moscow's Higher School of Economics) to be the central focal point. Donbass region in Ukraine believed that the publicly controlled regional development agency was the appropriate body.

Past experience suggests that the prime agency role in foresight should be allocated to a non-government body or professional service provider. Wherever regional foresight has been administered directly by government bodies, the programme has tended to be short-lived. Commercial consultants, on the other hand, may be very effective in fulfilling certain parts of the programme, but it is questionable whether they should take the lead role. Research institutes may also be deemed unsuitable on the grounds that too much emphasis will be placed on science itself and connections with industry will not be credible. Ideally foresight should be delivered by an independent, not-for-profit organisation with significant in-house marketing capability, a broad customer base and the experience of managing key public projects.

Step 18: How can we build a network of partners to help deliver foresight?

The inner network: Effective implementation requires a delivery network at several levels that will multiply the work of the prime agency and provide a practical means to convert policy into action. Most importantly there needs to be an 'inner network' of major partners who will be financially or functionally committed to the project. These will act as the champions of regional foresight. Composition will partly depend on the objectives and scope of the programme and partly on local conditions and infrastructure.

The UPGRADE group survey identified 56 organisations that are (or will be) major partners in the 7 regional foresight programmes considered. Approximately 75% of these were public sector bodies within government, economic development or education. However, there were

significant differences between regions. In the Russian model, which reflects a very large region, most partners were drawn from different tiers of state and local government whilst in Romania and Eastern Germany the importance of universities was strongly emphasised. The table shows that very few partners were drawn from commercial companies or from independent support organisations (NGOs). Involvement of industry was almost entirely confined to the models presented by western European regions. This is achieved in NE England via employer associations and industry sector representatives. Nordrhein-Westfalen proposes a similar approach in which four key clusters are nominated as major partners.

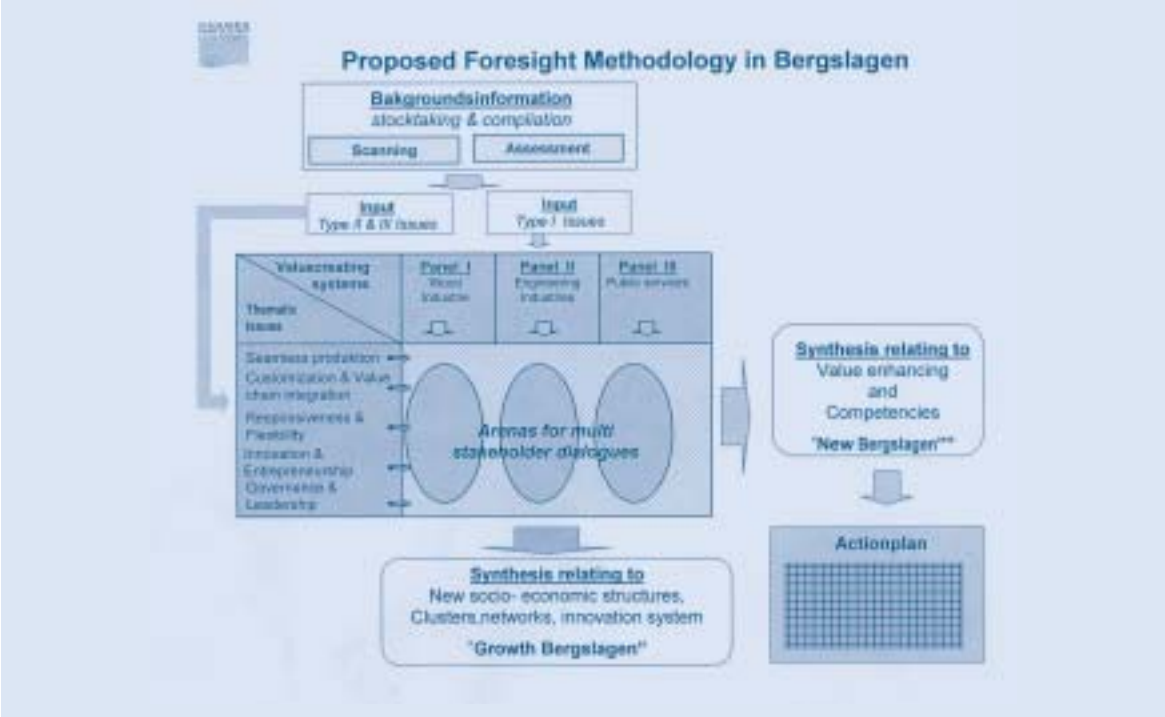
The outer network: Foresight can only be truly successful at regional level if it becomes a mass-participation activity involving individuals as well as organisations. Below the 'inner network' of foresight champions there also needs to be 'outer network' of foresight promoters operating in key areas such as education, industry, business support and public services. Dissemination strategy will differ from region to region but it is important to extend foresight skills (not just data) to organisations that can best exploit the knowledge.

Facilitator training: In the early stages the central foresight agency will provide professional leadership in events but – as time goes on - it should train other agencies to facilitate their own events and become familiar with foresight tools and techniques. Creating an accredited facilitator network can be an effective means of dissemination. Individuals are selected from a cross section of organisations, trained in facilitation techniques and provided with professional materials. In return, they act for an agreed period as a 'foresight facilitator' spreading foresight skills to other individuals within their own businesses or communities.

Case study of Network Building - The DahménInstitute, Sweden

By far the most complex networking arrangements were proposed by Bergslagen in Sweden which included the DahménInstitute, based outside the region, and an internal network of 19 major partners. Networking is a major issue in Sweden because of the tensions that exist between national agencies and the highly influential local municipalities that collect taxes and provide public services. The political influence of regions is, therefore, quite weak and foresight has a potential role in improving governance structures.

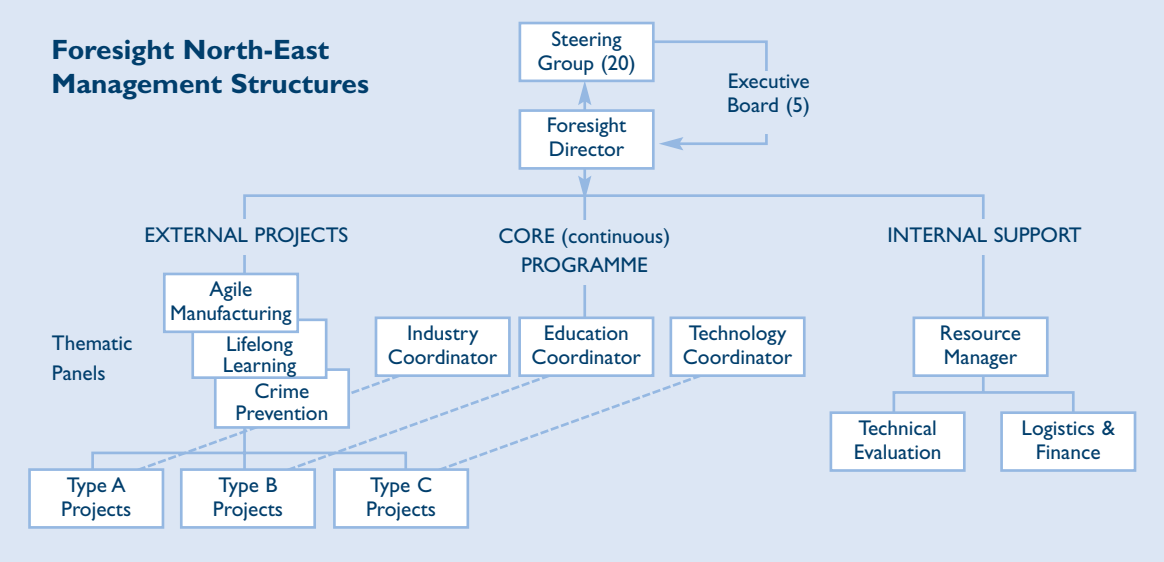
Name	Function	Role
VINNOVA (1)	Swedish agency for innovation systems	a) major funding provider b) participation on the steering group c) expertise on innovation systems
NUTEK (1)	Swedish business development agency	a) major funding provider b) participation on the steering group c) expertise on business support
Länsstyrelser (5)	County Administrative Boards	a) some funding commitment b) regional experience and expertise
Universities (5)	Higher Education & Research	a) providing funding in kind b) background information / specialist knowledge
Landsting (5)	County Councils	a) coverage of welfare issues b) some regional development issues
Bergslaget (1)	Regional partnership organization	a) promotion and dissemination b) direct access to 30 communities
Industry (2)	Two private consulting companies	a) Industry and commercial expertise b) experience of managing foresight projects



Step 19: How should the regional programme be managed and marketed?

In regional foresight, the central focal point must be managed by the host or a contracted organisation but governance of the wider programme is a matter for all stakeholders. These will almost certainly include the funding bodies and representatives from industry and the research community. Whatever type of executive body is selected, it should be responsible for overall strategy or direction; but not necessarily for detailed operations.

Most of the key issues of management are illustrated in the chart below. According to this model, overall responsibility lies with a steering group consisting of 20 stakeholders, which meets quarterly and is responsible for strategic direction. Its wishes are transmitted via a small executive board, which meets the foresight director on a monthly basis. Responsibilities of the executive are to monitor operational activity, expenditure and new business development.



The above model is based on the experience of North East England where each programme area has its own co-ordinator and other personnel look after resources and external networking. Technical experts are used on a contract basis for facilitating events and evaluating funding applications. External committees or panels are formed to supervise thematic projects. These are generally of fixed duration and receive logistic and financial support from appropriate staff within the core programme.

Day to day management and operations are located at the regional technology centre (RTC North) where the foresight team of eight specialists benefit from working alongside a large number of other business support, academic and technology transfer personnel. This helps to provide contact with industrial companies and other target groups.

Step 20: How will we measure success and ensure long-term sustainability?

There are two important elements of sustainability. One is about demonstrating benefit to stakeholders and the other is about securing long-term financial support. Of course the two are closely linked since continuation funding will depend on the host organisation being able to identify benefits which can be genuinely attributed to foresight intervention.

Strong orientation of services towards client needs, or the demand side, is especially important in the early stages of a foresight programme. When new services are first implemented high priority should be placed on designing analytical systems of measurement including 'expectation versus exit' questionnaires, stage-post telephone surveys, ROI (return on investment) calculations etc. Inputs will be of three types:

- *Process measures* - the degree of activity generated in delivery of the service
- *Participation measures* - the extent of interest or response showed by the target group
- *Benefit measures* - the resulting improvements experienced by the client

None of these should be disregarded. Higher levels of activity (mailings, visits, events) are likely to attract more response (replies, meetings, attendance) provided that the activity is well targeted. Higher levels of participation should in turn lever in greater client benefits (eg, earnings, products, new skills) provided that quality standards are maintained in areas of real need. Keeping these three types of metric in proportion to achieve the best results is, probably, more important for foresight than for standard business support processes.

TYPE OF FORESIGHT	BENEFITS TO BE MEASURED
Strategic foresight	01-Improved consultation/public satisfaction
	02-Better intelligence/information systems
	03-Flexible and forward looking policies
Scientific foresight	04-Better knowledge of future markets
	05-Improved targeting of R&D funding
	06-Better exploitation of research results
Industrial foresight	07-Improved profits in existing industry
	08-Better rates of new business start-up
	09-Greater engagement in new technologies
Educational foresight	10-Industry satisfaction with workforce
	11-Individual interest in life ling learning
	12-Greater propensity to innovate
Social foresight	13-Improved quality of life indicators
	14-Better infrastructure and utilities
	15-Improved response to emergencies

The above table is self-explanatory and illustrates some of the benefits that a well-balanced regional foresight programme should seek to achieve. Most of these things can be quantified and the cross cutting approach applies well in UPGRADE regions because of the need to strengthen mutual dependencies between industry, research and the community.

The second element of sustainability is concerned with money. Foresight programmes are almost always initiated by public funding, usually of fixed duration and for not more than three years. Within this period it is up to the operating organization to replace at least some of the grant money with alternative sources of income via commercial fees, industry sponsorship etc. After all the willingness of customers to pay for services is by far the best evidence of demand.

The starting point for introducing a charging policy is to divide services into categories according to whether their potential for generating income is low medium or high. For example, basic information services and promotional events have low potential. Focused activities, such as scenario planning workshops are in the medium category and clients should bear a proportion of the costs. In depth consultancy projects benefiting private sector clients should ultimately aim to attract fees at full market rates.

The table below shows how the manager of a well established programme might prepare a 'price list of free, subsidised and commercial services. The figures are quite meaningless in themselves but for illustrative purposes they calculate costs per unit of service delivery. These are a compound of time (10 units = 1 man/day) incremented by overhead (usually time + 50%) and direct expenditure (variable according to service). The important thing is that the customer is given some indication of the true value of the services provided.

Exemplar 'Price List' of Foresight Services

Service	Target Group	Cost per unit (T+O+D)	Grant %	Cost to Client
1) Enquiry handling	General public	3	100%	0
2) Awareness event	Special interest groups	125	100%	0
3) Foresight award	Schools and colleges	550	100%	0
4) Diagnostic visit	Small companies	12	75%	3
5) Scenario workshop	Industry sectors	240	75%	60
6) Information audits	All organisations	80	50%	40
7) Facilitator training	Support agencies	300	50%	150
8) Technology watch	High tech subscribers	120	20%	24
9) Change consultancy	Management teams	225	0%	225

Of course it is not realistic to expect foresight to become entirely commercial, especially in UPGRADE regions where there is no tradition of fee-paying consultancy. Whilst commercial income is desirable, it is likely to be in short supply for some time to come. This is especially true in the regions of Central and Eastern Europe that face enormous additional difficulties in terms of modernising their economic and social systems, including attitudes towards enterprise. It follows that these regions must initially seek to make the most efficient used of pump priming finance by transferring knowledge and best practice from outside and by concentrating on a skills-based approach which produces practical results in the shortest possible time scales.

Concluding Observations

Some important observations which have been made within this document, and which are based on practical experience and knowledge of foresight applications are summarized below :

1. Clarity of purpose is a pre-condition for committed participation. UPGRADE regions are in a hurry for economic progress and foresight exercises will not be supported without convincing arguments for how proposed actions will impact on current priorities.

2. Leadership should given to individuals who combine great influence with specialist knowledge in the target area. Committed participation will come from those with a belief in the process and a high stake in the outcome. Avoid the 'usual suspects' belonging to divergent public initiatives.

3. For cultural reasons, foresight will only succeed in UPGRADE regions, if it is rapidly converted from a top-down to bottom-up activity. In the process it should aim to become a 'mass participation activity' empowering people to influence their own future prospects.

4. Technology trends may be predictable but their long term applications are not. Foresight is relevant to all aspects of social and economic development. A balanced work-programme will contain cross- cutting activities bringing industry, education and public services together.

5. Foresight is not a blanket solution. It provides a set of innovative tools which should only be applied when and where appropriate. In all cases systems should be devised to measure practical benefits for the region – this is the key to sustainability.

6. Greater impact may be possible in poorer, less confident regions, because foresight makes people think creatively and takes them out of their current environment. But practical foresight action is not in itself creative. Like all of innovation it is hard systematic work.

A successful regional foresight programme will take many years of time and effort to establish. It normally requires a 'champion' or lead agency with good contacts and resources, supported by government and delivered through a complex network of external facilitators, expert groups and intermediaries. If the process is well managed, foresight will produce remarkable results and in time, will come to be regarded, not as the exotic pastime of an intellectual, but as a perfectly natural way for ordinary people to solve problems and exploit opportunities.

Postscript

Mecklenburg-Vorpommern was one of ten regions participating in the UPGRADE working group. It was chosen to be the "Reference Region" which all members might consider for the testing of their ideas. Since the completion of this report implementation has already begun and those responsible recognise the value of the experience exchange that took place.

"My work in the UPGRADE-Group was for us the basis for our "real", structured foresight-process. Though we made some attempts before, our new approach, making the twenty steps of the blueprint, gives us the chance, to improve the competitiveness of our region by bundling our resources to a critical mass. Then we have a much better chance to fight unemployment and migration. The discussion in the group made it possible for me, to find out my own standpoint and develop my own idea of the right, suitable foresight approach, to solve our specific regional problems. Because we learned a lot from best practice examples of regional foresight, we are now able to make the next, right steps and to save a lot of time and money. The experience of seeing a working programme in NE-England encouraged us, to start a region-wide foresight-process for the whole land of Mecklenburg-Vorpommern".

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