# CASE STUDIES

## A. Launching a Futures Exercise

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## B. Regional Sub-Projects

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A. Launching a Futures Exercise

Case Study 1: Milanese SME Internationalisation 2012

Sponsors: Provincia di Milano and the MIUR (Ministry of Instruction, University, Research)

Type: A regional foresight exercise focused on the socio-economic system of the Province of Milan and covering all local industrial systems

Organiser: Fondazione Rosselli

Duration: Sep 2002 to April 2004

Budget: Approximately €150,000

Time Horizon: 10 Years

No. of Participants: N/A

Diversity of Participants: Wide

Futures Tool: Scenario Building

Place of Formal Techniques: Founding basis of the Exercise

Direct Action-Orientation: Input to Strategic Planning

Purpose: The purpose of the initiative was to develop a vision and to achieve consensus among local stakeholders on the internationalisation processes acting upon the socio-economic systems of the province of Milan to understand how Milanese SMEs were coping with the challenges of internationalization and EU enlargement and to assist local government bodies with their policy related priority-setting.

The Context of the Exercise: This foresight exercise was initiated by the head of the Department of European and International Co-operation of the Provincia di Milano, who recognized the need for a regional strategy and a common vision in order to harness the internationalization processes at work in the local economy. The motivation for this came from the observation that local industry in general and SMEs in particular, did not fully exploit the opportunities offered by the process of globalisation and more specifically by EU enlargement.

The Main Objectives: The exercise was intended to make regional stakeholders aware of the consequences of globalisation and enlargement for Milan’s economy. The intention was to point out and raise awareness of the need for further internationalization of local industry and to prompt decision makers to take action.

Methodological Approach: A task-force composed of researchers from the Fondazione Rosselli was responsible for carrying out the project. A steering group known as the ‘Comitato di Riferimento’ was set up in order to establish and maintain contact with important local stakeholders. Twelve members represented the main sectors of the local socio-economic system. A panel composed of 19 experts representing the main areas of the socioeconomic and industrial system of Milan came together in three workshops in order to elaborate on the scenarios. The themes that were analyzed involved many interrelated processes with many variables and a high degree of uncertainty.

Due to this complexity it was envisaged to carry out the foresight exercise in a step-by-step sequence, involving experts and stakeholders in order to identify relevant processes and critical drivers, allow the building of scenarios and provide the Provincia di Milano with guidelines for policies suitable at implementing measures that would favour the emergence of the most attractive and feasible scenarios for the region.
The following five project-phases can be identified:

1. Description of the area’s economic system focusing on the role of manufacturing and SMEs.

2. Definition of a conceptual model that links the evaluation of the Milan area’s industrial system with critical factors concerning the structure and organisation of the manufacturing industry, the governance system at different territorial levels, and the behaviour of individuals and society.

3. Analysis of possible evolution paths of four important sectors in the Milan area’s manufacturing industry:
   - Software
   - Machine tools
   - Furniture
   - Clothes

4. Design of possible scenarios of the development of industry in the Milan Area.

5. Elaboration of policy guidelines for the Milan Province based on specific preferred scenarios.

The scenario-workshop method was chosen because it supported wide participation of, and the development of a shared vision with, the main regional stakeholders. The project was supported at the highest political level. This made it easier to identify to involve the most influential people in the region and to convince them to take part.

Case Study 2: Technology Delphi Austria

Sponsors: Austrian Federal Ministry for Science and Transport.

Type: Foresight exercise to determine Austria’s potential in selected future-oriented technology fields as well as to identify the most important measures to realise this potential

Organiser: Institute of Technology Assessment, Austrian Academy of Sciences.

Duration: May 1996 - January 1998

Budget: €700,000 in total for both Technology Delphi and Society and Culture Delphi, including dissemination of results

Futures Tool: Delphi

Direct Action-Orientation: Input to Strategic Planning

Time Horizon: 10-15 Years

No. of Participants: 1,600

Diversity of Participants: Wide

The exercise focussed on seven thematic fields:

1. Environmentally Sound Construction and New Forms of Housing
2. Lifelong Learning
3. Medical Technologies and Supportive Tech. for the Elderly
4. Cleaner Production and Sustainable Development
5. Organic Food
6. Mobility and Transport
7. Tailor Made New Materials
**Formal Objectives:** Inform a more long-term oriented technology policy with Foresight tailored to the specific needs of Austria

**Rationales**
- to use Foresight as a modern ‘search tool’ to identify future-oriented, success-promising target areas and required measures for technology- and innovation policy;
- to take a demand- and problem-oriented approach, i.e. start with what are societal problems that could be solved with innovative technology;
- to couple a Technology Delphi with a Society and Culture Delphi;
- to combine economy- and society-oriented objectives;
- to identify innovation potentials and niches within world-wide technology trends where Austria might have opportunities to achieve leadership;
- to concentrate on a selection of instead of a comprehensive exercise

**Organisation:** A small steering committee led by Science Ministry. Expert panels for each foresight field established. Pre-foresight phase for exploratory research and selection of priority subject fields for main foresight phase.

**Links with other Foresight related activities:** Analysis of existing major Technology Foresight reports. Combination with parallel Society and Culture Delphi by another institute (ITK). Background information from Technology Assessment as core activity of ITA (focused on ICT, biotechnology, medical technology/health technology assessment, environmental technology)

**Knowledge Management:** Managing organisation organised expert panels and provided information to explain goals of foresight exercise. Panels developed content for large Delphi survey among wider group of experts. Survey results were analysed by managing organisation and fed back to panels for discussion of draft report. Their comments flowed into the final report with policy recommendations written by the managing organisation ITA.

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**Case Study 3: The Polish Foresight Pilot – Health & Living 2013**

**Sponsors:** Ministry of Science and Information Society Technologies  
**Type:** A National foresight on health and life-science research  
**Organizer:** Ministry of Science and Information Society Technologies  
**Duration:** 2004-2005  
**Budget:** €190,000  
**Time Horizon:** 2013  
**No. of Participants:** N/A

**Diversity of Participants:** Wide  
**Futures Tool:** Scenarios  
**Direct Action-Orientation:** Input to Strategic Planning

**Purpose:** this pilot Foresight project in the area of Health and Living was aimed at speeding up the process of predicting development paths that would lead to improvement in the health and quality of life of Polish citizens. This activity provides a basis for determining the paths of science and technology policies that support economic priorities and for building broad consensus on complex social issues. The ‘Health and Living’ area was selected for analysis due to the widespread perception that the biological and medical sciences develop
very fast nowadays and this pace of change poses new challenges for policy makers across a range of domains.

**Methodology:** The Foresight Programme was developed on the basis of discussions with various actors who provided advice on issues such as the time, extent and methodology to be adopted. The field of ‘Health and Living’ was chosen as the topic for the pilot phase.

Due to time and cost restrictions the methodology of the Pilot Foresight Project was based on the following foresight tools and techniques:

- **A Steering Committee** nominated by the Minister of Science was set up in order to coordinate all activities. Subsequently this committee appointed the **Main Topic Panel** to coordinate the Pilot Foresight Project. A group of four experts was chosen from the scientific groups of The State Committee for Scientific Research. This committee was a central administrative body whose members were representatives of scientific circles and government officials. The task of the four experts was to nominate experts to the Pilot Foresight Project.

- Eleven **thematic panels** in the health area were selected based on nominations of institutions and organisations authorised to name the candidates. This stage of the work involved the completion of a questionnaire by nominees and a process of co-nomination. Each panel was composed of a group of 10 to 18 experts coming from science, industry and public policy.

- **Identification of Key Technologies** using specifically selected criteria and developed by the **Main Topic Panel** experts. This work makes it possible to determine priorities for a country’s science, technology and innovation policies on the basis of future needs of the economy and society.

- **SWOT Analysis** was applied to each segment of ‘Health and Life Science’.

- **Expert Panel Discussions** involving groups of 10 to 15 experts were very effective in providing measurable results in relatively short time and made it possible to increase the number of actors involved representing various interests and social groups.

- **Social Consultation** was employed not only to optimise and substantially motivate the choice of priorities but to enable a broader group of stakeholders to express their views on priorities to ensure the country’s development. The aim was to involve a cross section of society to help achieve buy-in to the results eventually obtained.

The following project-phases of the project can be identified:

- All thematic panels gathered the data and prepared SWOT analyses.
- A set of criteria to select priority research areas was established.
- First lists of priorities were prepared by panels.
- Members of thematic panels described weaknesses and strengths of represented area and after the discussion critical areas were identified and final reports based on these activities were prepared. The ‘social consultation’ was carried out by an organisation which specializes in public opinion surveys. With their help four Focus-group interviews were conducted, 20 in-depth interviews were undertaken and a survey with 120 experts was carried out. The final report was based on the findings of the surveys as well as reports from each of the thematic panels.
Case Study 4: Foresight for Mobile Radio Spectrum 2020

Sponsors
IPTS (Institute for Prospective Studies) in Seville
The European Commission Directorate General for the Information Society
International single issue foresight exercise on European spectrum demand up to 2020

Organiser: SCF Associates Ltd
Duration: 2004 to 2005
Budget: €100,000
Time Horizon: 2020

Futures Tool: Scenarios
Direct Action-Orientation: Input to Strategic Planning

Purpose

• To provide a robust and realistic understanding of future demand for radio spectrum for mobile services up to 2020.

• The first challenge was to formulate a new method to assess demand within the framework of the current ITU methodology that is based on socio-economics. Traditionally this field had been dominated (perhaps wrongly so) by the technology driven visions of operators and suppliers rather than by the reality of affordability and the motivation provided by utility to consumers and business users.

• A further challenge was to provide a realistic conceptualisation of new types of services through an examination of the business model for innovative mobile services termed 4G or fourth generation mobile. The final major challenge was verification to be carried out through an industry survey on prognostications as well as workshops.

Methodology

First the project needed to research and develop a robust methodology, which could start with scenarios of possible alternative trajectories of economic development and go to types of users. It would then continue right down to minutes of usage of specific services, at specific points in the future.

Also it had to give the characteristics of services and traffic in ITU parameter terms. This required the project team to concentrate on a logical series of delivery goals:

• Scenario creation in a formalised and repeatable way
• Comparison of scenarios
• Characterisation of users and their uses
• Identification of future mobile services and their characteristics for spectrum usage (over 130 were specified)
• Projections for the adoption of services
• Projection over time of traffic volumes
• Projections of behaviour based on motivation and need
• Verification of early findings and scenarios with a structured questionnaire and form of Delphi analysis, a major survey exercise of industry experts
• Analysis of findings of the industry survey
• Business models for a new type of network architecture envisioned (4G)
The next step was to evangelise the methodology through:

- Identification of key stakeholders and decision points
- Presentation to key groups such as the European CEPT
- Public workshops with a large, diverse audience with invitations going out worldwide and invited speakers from Europe and the USA
- Companion EC projects with a technical focus such as ‘Winner’ including visits to their workshops.
- Questionnaires on spectrum demands and mobile markets were sent to its member country delegations provided the basic information on demands, services, spectrum requirements and traffic volumes by service. The overall approach exploited scenario forecasting to show needs and motivations.
- From these data types of demand against disposable income under the impacts of the various economic scenarios could be identified. This whole methodology was aimed at producing a socio-economic approach to demand forecasting.
B. Regional Sub-Projects

Case Study 1: Strategic Futures - Futures Techniques for Medium-Term Business Planning
The Countryside Council for Wales, UK

Author: Gethin While, The Observatory of Innovation whileg@cardiff.ac.uk
Regional Actors / Organisation: Martin Parkinson M.Parkinson@ccw.gov.uk, The Countryside Council for Wales www.ccw.gov.uk
Futurreg Partner: The Observatory of Innovation, Cardiff University Business School
Type: A strategic futures exercise designed to help produce a new strategic plan for the Countryside Council for Wales
Duration: 18 months 2006-2007 Budget: N/A Time Horizon: 2012

PURPOSE
The Countryside Council for Wales (CCW) is the Welsh Assembly Government’s (WAG) statutory advisor on sustaining natural beauty, wildlife and the opportunity for outdoor enjoyment in Wales and its inshore waters. In order to improve the quality and breadth of the preparations for its Corporate Plan for the period 2008 - 2012, CCW decided to innovate and undertake a futures exercise introducing the concepts of futures and scenario planning to the organisation.

CONTEXT & CHALLENGES
Hitherto there had been little history of futures or Foresight practice at CCW, apart from a pilot exercise in 2005 to identify key policy drivers. CCW was required to submit a Corporate Plan to the Assembly during the autumn of 2007, the previous Plan having been submitted in July 2004 for the period 2005-08. On that occasion CCW was required to submit a Plan annually for a period of 3 years. Reporting requirements had since changed with CCW having to submit a Plan every four years broadly in line with the National Assembly of Wales’ election cycle. The Plan would essentially be CCW’s response to the new Assembly Government’s strategic agenda.

OBJECTIVES & METHODOLOGY
In early 2006, the consultancy Bute Communications completed a futures exercise for CCW that introduced the concept of futures and scenario planning to the organisation. The aim of the work was to help the organisation to develop informed long-term objectives, based on an understanding of issues that may arise. The research tested the usefulness of using the futures approach in CCW’s Corporate Planning and Budgeting processes and sought to increase awareness of events on the horizon that could affect CCW’s work, making CCW more aware of the need to ensure that appropriate mechanisms are put in place to deal with the impact. Whilst the work was considered a useful exercise, it was suggested that the findings were biased towards ‘policy’ developments, resulting in an incomplete coverage of CCW’s remit. It was felt, however, that the approach could be used to support the development of the next Corporate Plan.

The subsequent fuller futures exercise in question was therefore focused on the Plan period, building on what was achieved previously, but developing scenarios and identifying
key drivers relevant to CCW’s whole remit to help develop a thorough understanding of how the environment in which it operates might change over the Corporate Plan period.

To this end a panel of experts was selected from CCW staff and its external stakeholders and took part in a Delphi process over two rounds of future scenario development. The second round enabled identification of the forthcoming issues and events of most interest or concern to the panel. A Futures Seminar was held to consider and to test the draft scenarios developed following the second round survey and to begin consideration of their impact on CCW’s planning. The Seminar also stimulated work on identifying the key external drivers on which the development of the Corporate Plan should focus.

The individual steps or phases of this futures exercise were sequenced thus:

Step 1: The Expert Panel - The panel was selected by the CCW project steering group. The panel was designed to include a cross-section of people from different parts of CCW as well as some its key external stakeholders. The selection was completed in November 2006.

Step 2: The Emerging Drivers - These were proposed by the consultants, considered jointly with and approved by the CCW Senior Management Team and “framed” the Delphi exercise.

Step 3: The First Round Questionnaire - This was developed and based upon the agreed drivers and trends. The questionnaire was designed to be open-ended and to gain as much information and opinion as possible from participants. It included a series of structured questions and statements developed by the researchers. Participants ranked items in three ways – by priority, impact and likelihood. Each participant was also invited to comment on his/her rationale for the rating and to add additional items.

Step 4: Analysis of the First Round - This was completed immediately upon receipt of all panel members’ responses and sought to identify the key issues and views emerging from the panel.

Step 5: Second Round Questionnaire - This was developed using information collected during the first round and was sent out in early February 2007. It followed the same structure as the first round questionnaire, but presented a narrower range of scenarios for consideration.

Step 6: Analysis of the Second Round - This analysis sought to identify the panel’s ‘independently collective’ view of the most likely scenarios facing CCW, as well as the most important and those with biggest potential impact upon the organisation.

Step 7: Futures Seminar - This was held on 28 February 2007. The seminar comprised members of the expert panel, CCW Directors Team and other key staff with the opportunity to discuss the proposed scenarios identified by the panel and to begin consideration of their impact on planning. Discussion also took place on key drivers for the Corporate Plan period.

Step 8: Key Drivers - following the seminar, internal specialists were asked to carry out a detailed analysis of their area of expertise, looking forward to 2012 and beyond. This knowledge base was then pulled together and the
information formulated into a series of high level drivers – on which the development of the Corporate Plan would subsequently focus.

Step 9: **Presenting the findings** - This Futures report, and the work on high level drivers, was submitted the CCW Council in April 2007. This was the final output of the research project and described the scenarios and the information gained through the Delphi process and the analysis of high level drivers.

Within each phase or step different processes and analytical tasks were accomplished:

- **Analysis of Drivers**
  The first task in this project was to update an earlier analysis of CCW’s drivers for change. The update also captured drivers emerging from the CCW’s wider operating environment - an important expansion of focus given the new aim of informing the organisation’s forthcoming 2008-12 corporate plan.

- **Developing the Drivers for the Delphi Exercise**
  A range of drivers was identified to frame the scope of the research exercise and presented to a CCW Senior Management Team (SMT) meeting at the end of November 2006. Members of SMT made some additional suggestions and proposed some additional drivers. These were, by category:

  **Policy and Governance**
  - The potential impact of the Government of Wales legislation
  - WAG’s “Making the Connections” > an increased localisation of service delivery
  - The WAG Spatial Plan
  - Major reform of funding programmes at a Welsh, UK and European level

  **Economic**
  - Escalating energy prices and overall economic impact of higher prices
  - Changes in agricultural markets > a greater emphasis on organic production, food self-sufficiency and a reduction in “food miles”

  **Social and Public**
  - Greater public awareness of environmental issues
  - Socio economic factors e.g. ageing population, economic inactivity and the different demands of a changing population
  - Public behaviour change as a result of policy imperatives (especially in health and well-being, and education)

  **Environmental**
  - WAG environmental strategy
  - The Stern Report re climate change
  - Development of a climate change adaptation strategy specific to Wales

- **Analysis of the Delphi Questionnaires**
  The expert panel provided detailed responses to two rounds of questionnaires on future scenarios. The analysis of both rounds then informed the development of the final scenarios presented in the next chapter. Analysis of the second round questionnaire responses in particular revealed several developments on the themes identified in the first round of the process. In this round the panel was asked to score and list their priorities. The panel was asked to score the statements on the basis of their priority, impact upon CCW and probability. At the same time as scoring for priority, panel members were asked to allocate scores for probability and impact. The mean scores of the panel’s weighted
priorities were calculated by multiplying the means of probability by impact by priority. The weighted priorities showed little change in the panel’s emphasis and indeed revealed the same top five scenarios as the analysis of priorities alone. The fourth and fifth scenarios swapped position but otherwise the Panel selected the same priorities as the most important. Lower down the list of priorities, greater differences emerged. “Other” issues were also analysed in the same fashion, with a probability x impact score for each proposition. The second round broadly confirmed the findings of the first. The Futures Seminar held on 28 February identified the need for thorough and systematic analysis of all external drivers, with a costed assessment of CCW’s likely response, as necessary preparation for the development of the Corporate Plan. This work was beyond the remit of the Futures research contracted to the consultants, which meant that it was carried out by internal CCW specialists simultaneously with finalising of the futures report. The complete package was then presented to CCW’s Council in April 2007.

**CONTENT AND FINDINGS**

Scenarios to inform CCW corporate planning emerged from analysis of the two rounds of questionnaires and the information gathered during the process. The two determining axial factors in CCW’s future planning were those of funding/resources and operating flexibility. These themes emerged from the research and underpinned aspects of the decision-making and context for CCW’s work in the next planning period.

The 4 resulting scenarios all paid particular attention to the nature of the relationships between CCW and its partner organisations, including other environmental organisations. The scenarios produced focused on the environment within which CCW must operate, whatever its priorities for work. They set the context for CCW’s work and can be used to test and rehearse CCW’s response to changes in the environment within which it operates, to ensure that the organisation has considered how best to achieve its objectives in each of these circumstances.
THE SCENARIOS

SCENARIO 1 - this operating environment would mean that CCW is well funded and has a high degree of autonomy in setting its own priorities.

SCENARIO 2 - this represents a situation whereby CCW is well resourced, but is seen by central government as a tool to deliver its remit.

SCENARIO 3 - this represents a situation where CCW’s budget is under pressure, but it still possesses a degree of autonomy.

SCENARIO 4 - this is a challenging operating environment for CCW, in that there are pressures on its budget and it has little autonomy. It is in the position of having to make hard choices on which priority areas of work to resource.

Each scenario was tested against four pen picture case studies, representing elements of work from across the breadth of CCW’s remit. These case studies illustrated in more practical terms the issues facing CCW in each scenario. The case studies were:

- Dealing with development pressure
- Meeting our obligations under EU legislation
- Rural land-use and ecological connectivity
- Connecting the public with the natural environment

THE DRIVERS

This work also produced a set of high level key drivers. It was agreed that CCW’s direction, and the process of identifying priorities for the Corporate Plan period, should focus predominantly on its response to these seven key drivers in tandem with known commitments such as meeting environment strategy targets. The drivers are:

- Preparing for and responding to climate change, on the land, the coast and in the sea, through habitat improvement.
- Preparing for and coping with radical changes in rural land-use/sea-use such as CAP reforms and a new era of forest harvesting.
- Social and economic changes (including globalisation, demographic changes in Wales)
- Increasing emphasis on spatialised policy and planning on land and at sea
- Continued growth and diversification of recreational use of the environment and its importance to the economy.
- Responding to the drive for inclusion, participation, engagement and the emphasis on citizenship - both from a political and social perspective
- Public sector reform - the challenges and opportunities generated

In Summary

This work proved useful in challenging CCW to take a longer-term view and was successful in pulling together a repository of valuable information that was used in the construction of the Corporate Plan. The project also became a catalyst for other work within the
organisation and the techniques used in this project will be used in future policy work and it is intended that key policy staff will be trained in these techniques to ensure that these skills are available within the organisation.

This work provided CCW with information about how its future is perceived by a number of internal and external stakeholders. The four scenarios attempt to synthesise these different views into a coherent and understandable form, whilst at the same time creating a context for debate on these futures.

The exercise and research contributed towards the development of the corporate plan and the information gathered can be used as the basis for further consideration of the evolving changes to CCW’s operating environment. Put succinctly - the scenarios will describe possible operating environments for CCW, whilst the key drivers will determine the priorities that the organisation needs to focus on.

SOURCES AND REFERENCES

- The Countryside Council for Wales www.ccw.gov.uk

**Case Study 2: Digital Thermi - Networks & Digital Applications for Citizens**

**Central Macedonia, Greece**

Author: Panagiotis Tsarchopoulos, patsar@auth.gr
Regional Actor/Organisation: Municipality of Thermi
FUTURREG Partner: URENIO Research Unit, http://www.urenio.org
Type: Futures in Places - Scenario Building application
Duration Period: July 2006 - Nov 2007
Budget: Not available
Time Horizon: 2010 - 2012

**PURPOSE**
The purpose of the sub-project was to support the Municipality of Thermi during the design of its “Digital City”. Digital Thermi was conceived as a combination of a broadband Wide Area Network (WAN) with a web-based application platform. This combination of network and services was planned to assist the operation of the municipality of Thermi, established enterprises, the citizens and visitors. The scenario building technique was used in order to help the authorities of the municipality of Thermi to choose between an infinite number of options and possible configurations in: 1) Communication infrastructures, 2) Computing infrastructures and 3) Web applications.

**CONTEXT & CHALLENGES**
The Municipality of Thermi is located in the eastern region of Thessaloniki, 15 km distance from the centre of Thessaloniki. It covers an area of 100,200 acres. The total population of municipality, according to the 2001 census, is estimated as 16,546 inhabitants. In relation to the previous census (1991) it has grown by 76. 2%. Thermi has been transformed into the managerial, cultural and athletic centre of the eastern region and a recreational magnet for the whole Thessaloniki area. This is largely
characterised by the new and more prominent role of the tertiary sector and new kinds of internationalised services. The National Centre of Agricultural Development, faculties of the Aristotle University of Thessaloniki, the Thessaloniki Technological Park, the Thessaloniki-Macedonia Airport and an important amount of private schools are also situated there. Moreover, as result of the rapid development of the region an increasing number of bank branches, private investments, departments of public organizations, etc. have been located there. To better serve its citizens, businesses and government, the Municipality of Thermi is endeavouring to design and develop the “Digital City of Thermi” - a “connected” city that combines a broadband communications infrastructure, a flexible and service-oriented computing infrastructure combined with innovative services. The creation of the Digital City will benefit the region greatly:

- Government agencies will improve the efficiency of their services while decreasing costs
- Democracy will be enhanced
- Citizens will be more satisfied with government services as well as with their community life
- Businesses can be more competitive and profitable
- Working models can be more flexible
- The “image” of the municipality and the region will be improved

OBJECTIVES
The objective of the current sub-project was to justify any further actions regarding the transformation of the Municipality of Thermi into a Digital City. This justification has been achieved by applying the “scenario building” technique in order to choose between an infinite number of options and possible configurations for:

- Communication infrastructures (wire or wireless network, private or public network, etc.)
- Computing infrastructures (security system, format of spatial data, web services, RFID, sensors, smart objects, etc.)

METHODOLOGY/APPROACH
The Scenario Building Technique was used for the evaluation of the selected scenarios. According to the FUTURREG toolkit this technique can be implemented in 12 steps: 1: Identify the focal issue or decision, 2: Key forces in the local environment (microenvironment), 3: Driving forces (macro environment), 4: Rank by importance and uncertainty, 6: Fleshing out the scenarios, 7: Implications, 8: Selection of leading indicators and signposts, 9: Feed the scenarios back to those consulted, 10: Discuss the strategic options, 11: Agree the implementation plan, and 12: Publicise the scenarios. These steps were adapted to the project’s particularities.

For the creation of the scenarios the following core components were taken into account:

- Socio-economic parameters (Citizens, Government, Business, Environment)
Networking technologies - computing infrastructures
- Web application development parameters (Open Source, Propriety)
- Services

The mixture of these components is illustrated in the following table:

<table>
<thead>
<tr>
<th>Networking</th>
<th>Target group</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSL</td>
<td>Core of the Municipality of Thermi</td>
<td>Set of Services (?)</td>
</tr>
<tr>
<td>WiFi</td>
<td></td>
<td>e-Government and information dissemination module</td>
</tr>
<tr>
<td>WIMAX</td>
<td></td>
<td>Set of Services (?)</td>
</tr>
<tr>
<td>Fiber Optics</td>
<td></td>
<td>Enterprises</td>
</tr>
<tr>
<td>3G / UMTS</td>
<td>The whole of the Municipality of Thermi</td>
<td>Set of Services (C)</td>
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<td></td>
<td></td>
<td>Special services</td>
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</table>

The implementation process consisted of the following phases:

- Global Best Practice on “Digital Cities” identification and evaluation (>100)
- Detail mapping of the current situation in the Municipality of Thermi
- Identification of requirements (10 interviews based on a structured questionnaire)
- Analysis of networking technologies
- Scenarios for networking
- Scenarios for the services in the following fields: E-government, E-services, E-markets and City’s e-promotion
- Evaluation of the different scenario matrices

The scenarios have been evaluating using the following criteria:

- The Municipality’s needs and future directions
- Technical feasibility
- Commercial viability
- Existing circumstances (infrastructures, human resources, etc)
- Total cost and financing opportunities
- Medium and long term community effects

The time period was defined as 3 years, due the technological characteristics of the project.
PARTICIPANTS/STAKEHOLDERS
The major stakeholder for the application is the Municipality of Thermi.

CONTENT AND FINDINGS
The outcome of the sub-project was a study/report. This study focused on the main components for the implementation of Digital Thermi. It includes an estimation of the implementation and operational cost for the proposed solution as well as the conditions for the financial and operational viability of Digital Thermi. The proposed solution has three main sections: (a) The telecommunications network i.e. fibre optic, wired and wireless WAN, (b) the applications and services that can be provided to the citizens of Municipality of Thermi and (c) a description of the Operational Centre of Digital Thermi.

The proposed scenarios finally were organized according to three pillars:

a. Network
The backbone network as well as the user access network is based on Wi-Fi protocol. Total estimated implementation cost €68,430.
The backbone network is implemented using fibre optics, while the end user accesses network through Wi-Fi protocol. Total estimated implementation cost €18,176,580.

b. Target Groups
The whole area that the municipality covers which is wired by the proposed network. Central area points in the different settlements covered by Wi-Fi networks, while all the citizens have access to the applications via their domestic Internet connections.

c. Services
Implementation of all the rest proposed applications. Total estimated cost €1,866,039.
Initial development of five core applications each of them covering a basic component of the municipality, such as democracy, governance, business operations, information and tourist promotion. Total estimated cost €609,400.

The following diagram illustrates the proposed solution.
The following application modules will be implemented:

**e-Democracy** The module provides information regarding the activities of Local Government or Municipal Authorities and allows the on-line attendance at the Municipal Council’s or committees’ meetings (webcasts). The citizens’ participation in the decision-making process is achieved through their contribution to an on-line discussion forum and to public opinion polls.

**e-Governance** The module provides information regarding the services and processes of the City. Citizens can report a problem or query and apply for council services & opportunities (i.e. marriage certificate, birth certificate, etc).

**e-Entrepreneurship** The module provides companies with on-line tools (such as a business planning tool, a marketing plan tool and a market research tool) aiming to enhance their efficiency. Furthermore, the module supports e-commerce services by permitting the promotion of their products through the City’s electronic marketplace.

**Information** This module provides updated information about the developments in selected sectors of interest, depending on the particularities of each city. The information applies to the residents as well as to the entrepreneurs that are activated in the city. It also covers the city’s events.

**e-Promotion and Culture** This module provides a virtual tour to the city, with the use of digital maps and panoramic images. Furthermore, contains information about the city’s culture (e.g. monuments, places of interest, events etc.) that help residents or visitors organise their spare time according to their special interests.

**CONCLUSION & POLICY IMPLICATIONS/IMPACT**

The solution is considered to be a viable plan as it consists of a number of drivers that:

- Enhance the municipality’s operations
- Improve citizens’ satisfaction
- Boost economic development
- Bridge the digital divide

The Municipality of Thermi has started to implement the proposed solution. The following diagram illustrates the way that each driver affects the solution’s viability.
Case Study 3: Molinay 2017- Futures in an Urban Context
Wallonia, Belgium

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Type: Futures in Places - a futures exercise undertaken with a territorial/spatial focus
Duration: March- December 2007 Budget: 40,000 Euros Time Horizon: 2017

PURPOSE
The Molinay district is part of Seraing, a city of 61,000 inhabitants near Liège, in the Wallonia region of Belgium. It is heavily marked by industrial history (steel industry) and has not yet recovered from an industrial crisis. Poverty, insecurity, empty shops, black spots and other glaring signs of decline are common sights. The primary purpose of the project was therefore to develop a mobilising project for the area, for and with its inhabitants and local actors (a bottom-up approach) in order to support a regeneration process. A second ancillary purpose was to convince the city regarding such urgent and long term actions that thus need to be taken.

CONTEXT & CHALLENGES
Some 600,000 people live in the Liège area, often presented as the economic heart of Wallonia. The Molinay district within this has been declining for 30 years. It is heavily affected by its industrial history (largely steel industry, which is currently owned by Arcelor-Mittal) and has yet to recover from industrial crisis. The social deprivation, high crime levels, lack of small scale retail and general urban blight are commonly depicted in award-winning feature films of the Dardenne brothers.

Two parallel and major issues affect the future of the Molinay district:

1. The City Master Plan
Since 2001, the local authorities have been at work on a Master Plan for the whole industrial valley. The aim is to transform the city’s image and to improve living conditions through various means: redevelopment of land, green investments, attracting investors, developing PPP etc. The Molinay district will be marginally - possibly negatively - affected by this plan.

2. Re-opening of the local steel foundry
In 2007, the economic recovery is spluttering and the demand for steel is increasing. Arcelor-Mittal has decided to reopen the Seraing Blast Furnace n°6 in November 2007. This industrial unit is located very near the Molinay district and various sources of disturbance can be felt directly in the streets.

Prospects are not bright for the area: investments occur outside its limits, pollution and noise have returned, there is a declining commercial environment, an impoverishment of the population. There is thus a need to transform this undesired scenario of the future. The purpose of the project was therefore to develop a mobilising project for the area, for
and with its inhabitants and local actors (a bottom-up approach) in order to support a regeneration process.

**OBJECTIVES**

The objectives of the project were therefore:

- to propose a mobilising project for the area, for and with its inhabitants and local actors (a bottom-up approach) in order to support a regeneration process.
- to mobilise local actors and citizens around a territorial project based on the participation of all the citizens to the management of the city
- to promote democracy, freedom of thought, multiculturalism and tolerance as essential values of local communitarian development

**METHODOLOGY**

The project was mainly based on qualitative inputs such as expert panels and focus groups. A SWOT analysis was realised in the diagnosis phase.

A specific feature of the methodology was its participatory character, supported by the World Café method - the World Café is a creative process for facilitating collaborative dialogue and the sharing of knowledge and ideas to create a living network of conversation and action. In this process a café ambiance is created, in which participants discuss a
question or issue in small groups around tables. At regular intervals the participants move to a new table. One table manager stays and summarises the previous conversation to the new table guests. Thus the proceeding conversations are cross-fertilised with the ideas generated in former conversations with other participants. At the end of the process the main ideas are summarised in a plenary session and follow-up possibilities are discussed.


The exercise involved the following types of participants/stakeholders:
- Local associations, NGO’s
- Citizens
- Local authorities (civil servants, the police officer, the childcare service)
- The urban planning agency (ERIGES)
- Local enterprises
- University and field experts.

In total, more than 50 actors and 100 citizens (inhabitants from the area) were mobilised in the process.

CONTENT & FINDINGS
1. Identified socio-economic or cultural trends/trend breaks

The Molinay area : SWOT (snapshot

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Opportunities</th>
</tr>
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<tbody>
<tr>
<td>- Compact urbanism</td>
<td>- The city project for redevelopment</td>
</tr>
<tr>
<td>- Strong cultural diversity</td>
<td>- A new mayor</td>
</tr>
<tr>
<td>- Will of the actors</td>
<td>- The trend towards sustainable development</td>
</tr>
<tr>
<td>- historical patrimony</td>
<td>- A regional will to develop the Liege</td>
</tr>
<tr>
<td>- The geographic situation</td>
<td>- A stronger media interest for local</td>
</tr>
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<td>- ...</td>
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</table>

<table>
<thead>
<tr>
<th>Weaknesses</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>- The industrial pollution</td>
<td>- The housing policy / Risks of ghettos</td>
</tr>
<tr>
<td>- The negative image of the area</td>
<td>- The economic context</td>
</tr>
<tr>
<td>- Insecurity problems and feelings</td>
<td>- The Move of the public services (o the area</td>
</tr>
<tr>
<td>- The commercial decline of the area</td>
<td>- ...</td>
</tr>
<tr>
<td>- Difficulties with the teenagers</td>
<td>- ...</td>
</tr>
<tr>
<td>- A nostalgia of the past</td>
<td>- ...</td>
</tr>
<tr>
<td>- A weak accessibility</td>
<td>- ...</td>
</tr>
</tbody>
</table>
2. The set of technological and sectoral trends/trend breaks that are anticipated in the exercise

- Environmental / public health constraints attached to socio-economic development
- Renewal of the housing stock
- New mobility strategies
- Renewal of practices of local governance
- Crisis in local participation together with a call for social reliance from the inhabitants
- Migration and communitarian attitudes

3. Opportunities and Challenges that might arise from the trends/trend breaks

i.e. The need for investing local people in their future. A festive meeting was organised on Sunday 9 September 2007 inside the cultural centre of Seraing, which is located in the Molinay, with the following factors considered:

- Objective : contact 100 persons from the area
- Outputs : a desired future for the area
- 5 Spaces:
  - Imaginative with the help of pictures of the Molinay, symbols (street furniture, greener etc), scissors and glue, how can one imagine the future area...?
  - Memory - the work of the CAL during 10 years is presented.
  - Discovery - examples of other urban declining areas that have been transformed
  - Reflection - a futures workshop (with translation and recording): “In 2017, you go out from your home, could you describe what you see, what you hear?”
  - Practical - a crèche and a convivial buffet dinner.

CONCLUSION & POLICY IMPLICATIONS/IMPACT

1. Key issues raised with particular relevance for policy-making

This first attempt at practicing Futures at a very local level has delivered some interesting lessons on governance, participation and local democracy. One can thus emphasise that:

- Small territorial size does not mean less complexity: the deeper you dig in reality, the more complex and multidimensional the situation becomes.

- Small territorial size allows the mobilisation of almost all relevant stakeholders (and might impact on their work): this exhaustive approach increases the involvement of people but local competition must also be managed.

- This small scale approach (and possibly concrete solutions) gives another viewpoint to large scale problems: the fact of having Arcelor Mittal in its back yard and suffering from polluted air or noise is a strong incentive to invest the actor in the problem and in possible routes to solving it.

- The approach is a nice way to speak about Europe with Mr and Ms Smith, in layman’s terms given the capacity of the local populations to understand and integrate the multiple dimensions of the issue affecting them. The same goes for the local authorities, far away from Brussels or other decision-making places.
Local futures exercises or Foresight challenge the “defensive” attitude of public authorities who instinctively tend to preserve immediate interests and are forced, in this case, to adopt a long-term perspective that goes beyond the electoral mandate.

A bottom-up process must not forget to integrate top down aspects and must attain political legitimacy: the voice of the citizens and/or local association is not everything and if decision is needed at the end of the day, local authorities must, at some stage, be involved in the process. At this level, something must happen! One must not disappoint the expectations of the citizens. It’s not just a question of means, but also of results.

2. The solutions and/or adaptations that will be required to tackle challenges and benefit from opportunities

- There is a need for renewed strategy in the field of urban planning in densely populated areas, of access to culture for underdeveloped areas and for reinvestment of these areas by local service facilities.

3. Identified priorities and focus for action

- Urban planning
- Local coordination of action from the viewpoint of associations and NOGs
- Housing policy
- Education and culture

4. Identified critical factors and key players in shaping the future

- Remittance of the past: the backward looking reopening of the blast furnace is somehow delaying a new approach to the city’s development
- Emergence of environmental and public health constraints can counterweight this difficulty of looking forward

Key Players:

- Local authorities
- Local associations
- Private sector priorities

SOURCES & REFERENCES

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- www.institut-destree.eu
- www.calliege.be
- www.intelliterwal.net
- Prospective territoriale et gouvernance, Intervention de Philippe Destatte, directeur de l’Institut Jules-Destrée au séminaire Prospective-info La prospective territoriale, outil d’aide à la planification spatiale, outil de gouvernance ? Paris, le 18 septembre 2003
- AREBS, Plan stratégique de la Ville de Seraing, V2 - 19/08/03
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Case Study 4: Trends in the Regional Agri-Food Industry and Development of a Strategic Plan for the Centre for Food Innovation & Technology

La Rioja, Spain

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FUTURREG Partner: Agencia de Desarrollo Económico de La Rioja (ADER) joseramon.ibanez@ader.es
Type: Sectoral Futures/Innovation Futures - a futures exercise addressing specific regional sectoral strengths or weaknesses, and the use of futures in developing innovation strategies
Duration: December 2006-October 2007 Budget: Euros N/A Time Horizon: 2020

PURPOSE
The study aims to serve as a stimulus for the different parties involved in the sector, from public authorities to companies, by informing professionals of the technological and organisational trends that will form part of the everyday scenario of their business field in the near future. The objective is to project the position of the Range 4 and 5 food sub-sectors in relation to future national and international trends in technology, the economy and industry over a timescale of ten to fifteen years. This information will also be very useful when it comes to defining the strategy for the Centre for Food Innovation and Technology of La Rioja and the development of new RDI projects.

CONTEXT & CHALLENGES
The tinned and bottled fruit and vegetable sector in La Rioja has an annual turnover of over 375 million euros, which makes it the second agri-food industry of the region, second only to the main industry of La Rioja, wine. It also makes an important contribution in terms of the employment it creates and the way it maintains the economic activity and prosperity of many towns and villages. These positive factors cannot and indeed must not be used to hide the difficulties faced by the sector at the present time which pose a real threat for the future of part of the sector. The Rioja tinned and bottled food sector shows great diversity in terms of the size of its industries, diversity expressed not only in terms of turnover, but also in terms of their capacity for innovation and the launching of new products. We find therefore that there are large companies in the top positions in the national ratings which have managed to diversify their product portfolio and have made progress in Range 4 and 5 products, which respond to current social demands. At the same time however La Rioja also has a multitude of small companies working in traditional tinned and bottled vegetables and fruit (Range 2) and in frozen foods (Range 3).
Range 4 products such as salads and sautés of fresh vegetables in bags and Range 5 products which are short-life, pre-cooked products ready to eat, have become increasingly popular among consumers making them a clear opportunity for many companies. The constant challenge of commercialization and the appearance of aggressive overseas competitors make innovation more necessary than ever.

In view of this situation, the Centre for Food Innovation and Technology of La Rioja (CITA La Rioja), situated in Calahorra, is being set up with the aim of becoming a technological complex that will provide a national reference for research into Range 4 and 5 products. The aim of the CITA is to promote and encourage research within companies, so as to increase the competitiveness of their products and facilitate their adaptation to new market demands. In this context the CITA has signed an agreement with AINIA (Association for Research in the Agri-Food Industry) to get the Centre underway. The main objective of the collaboration between the Centre for Food Innovation and Technology of La Rioja (CITA) and AINIA is to produce a prospective study aimed at getting the sector involved, identifying future trends and laying down the bases on which to develop a strategy for the CITA.

METHODOLOGY

The methodology used was to hold a series of events and workshops on technology and prospects for the agri-food industry, and Range 4 and 5 products. All the companies from the sector and the scientific world of La Rioja were invited to present and debate the critical technological trends on which the companies from La Rioja must focus their efforts. The conclusions obtained and the information as to the situation of the companies in the sector will serve as support for the CITA strategy.

The other aim of these events was to get the companies involved in the activities of the Centre. In 2007, Futures Workshops were held on 26 June and 20 and 27 September respectively to discuss the following subjects:

Development of Range 4 and 5 products
The knowledge of the current situation as regards trends in the development of Range 4 and 5 vegetable and fruit products is a very useful tool when it comes to deciding where to make the technical and commercial efforts that will allow the companies to offer a wide range of high quality products.

This question was discussed during the Open Doors Event with the following important aspects being analysed:

Development of Range 4 products
- Strengths and weaknesses of Range 4 products
- Profile of the consumer of Range 4 products
- Current situation of Range 4 products
- Progress in consumption of Range 4 products
- Current situation of the world market for Range 4 products
- Situation of the Spanish market for Range 4 products
- Innovation in Range 4 products
- Examples of Range 4 products recently launched on the world market
- General manufacturing process for Range 4 products
- Examples of industrial implementation and development of Range 4 products
Development of Range 5 products
• Strengths and weaknesses of Range 5 products
• Current situation and consumption trends in Range 5 products:
  o Socio-demographic factors behind the trends
  o Current situation of pre-cooked dishes
  o Current situation of Range 5 products
  o Trends in the consumption of Range 5 products
  o Distribution of trends at a world level
  o Distribution of trends within Spain
  o Innovation in Range 5 products
  o Examples of Range 5 products launched recently on the world market

• General manufacturing process of Range 5 products
• Examples of industrial implementation and development of Range 5 products

Technological Self-diagnosis Workshop
The participants in this workshop carried out a collective exercise of technological self-diagnosis, in which each company was able to identify, through a common methodology, what their potential needs and capacities were and how to meet them or take advantage of them. The workshop was aimed at fruit and vegetable producers and the bottling/canning industry.

Audit of the Sector by Agri-Food Companies
Taking the results of this analysis as a reference, alternatives were proposed that would update the sector in a progressive, viable way, with new processes and/or technologies to adapt the production structures to the immediate or future needs of the legislation and the market.

CONTENT & ACHIEVEMENTS

Technological and Socioeconomic Trends Identified
In the tinned and bottled fruit and vegetable sector in La Rioja there are a lot of small companies which typically have:
• Outdated facilities
• Relatively uncompetitive products
• A lack of interest and enthusiasm for making the investments required to adapt the company to the new market situation (owners reaching retirement age).
In recent years there has been a decline in the volume of fruit and vegetables produced in our region which has had a negative effect especially on small companies that have found it more difficult to obtain supplies at good prices. In addition, the globalisation effect of the processed fruit and vegetable market has dealt a sharp blow to the tinned and bottled food sector, which has seen its products suffer from the competition from imports from China and Peru. This is because labour costs have a very strong impact on production costs and in these developing countries labour is still very cheap. A strongpoint which must however be emphasised is the image of the La Rioja agri-food sector, at both a national and international level, which is associated with high quality products, and the fact that there are gaps in the market which have yet to be filled such as the new demand for new Range 4 and 5 products which with a minimal transformation of the manufacturing processes may be met by established companies in the sector.

The small size of some companies may be an advantage because they have more flexibility when it comes to making the necessary changes to adapt to the new demands of the market.

**The transformation required to make the sector more competitive will involve:**
- The development of new products that meet the new needs of consumers.
- New ways of conserving the products.
- A move towards minimally processed fresh products, Range 4.
- A move towards pre-cooked dishes, Range 5.
- Modernization of production lines and manufacturing facilities.
- Technological development of the sector.

**CONCLUSIONS & IMPACT/IMPLICATIONS.**
The identification of these trends and the analysis of the companies are very important when it comes to deciding what actions should be taken by the Centre for Innovation and Technology of La Rioja (CITA-La Rioja) in its role as a technological complex providing a national reference point in research into Range 4 and 5 processed fruit and vegetables (fruit and vegetables packed in bags and short-life pre-cooked foods).

The specific purpose of this exercise was to serve as a guide for activities to be carried out aimed at:
- Promoting and publicising the research carried out in agri-food companies.
- Enhancing the competitiveness of the products offered by the sector and facilitating their adaptation to the new demands of the market.
- Offering highly specialised technological services, aimed at promoting research and development of different processing techniques and the way these affect food quality and safety, questions of vital importance for both businesses and society in general.
- Technical assistance and knowledge management which reveals the potential for development of different production lines that allow companies to access new markets and become more competitive.

**SOURCES & REFERENCES**
- The AINIA Website - [www.ainia.es](http://www.ainia.es)
Case Study 5: Technological Trends - Futures and the Region’s Footwear Sector
La Rioja, Spain

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FUTURREG Partner: Agencia de Desarrollo Económico de La Rioja (ADER)
Type: Sectoral Futures/ Innovation Futures - a futures exercise addressing specific regional sectoral strengths or weaknesses, and the use of futures in developing innovation strategies
Duration: June 2006- November 2007 Budget: 53,000 Euros Time Horizon: 2011-2020

PURPOSE
The prospective study being presented here entitled “The future of the footwear sector in La Rioja” aims to serve as a stimulus for the different parties involved in the sector, from public authorities to companies, by informing footwear professionals of the technological and organisational trends that will form part of the everyday scenario of their business field in the near future. The aim is to project the position of the footwear sector in La Rioja, in relation to future national and international trends in technology, the economy and industry over a timescale of ten to fifteen years.

CONTEXT & CHALLENGES
In recent years, technological development, the liberalisation of markets and the arrival on the stage of newly-industrialised countries have substantially changed the basic rules governing all business activities. The big challenge faced by businessmen in the first decade of the 21st Century is how to cope with the effects of globalisation, not only because of the need to carry out important organizational restructuring, but also because of the advantages that can be gained from a sufficiently in-depth knowledge of the business opportunities presented by this new economic model.

As is the case in other mass consumption sectors, the footwear sector in Spain is currently in a very delicate position because of competition from countries with significantly lower production costs, and high levels of uncertainty due to changes in the preferences of the final consumer in a market in which the fashion factor is becoming increasingly important. In a context like this, all companies must embark on complex organisational changes, such as restructuring and modernising their production processes, so as to be able to remain competitive at an international level. All of this will inevitably require increased levels of innovation, design and quality.

In view of this situation, our objective was to carry out a prospective study which would highlight the most important future trends to affect the footwear sector in the coming years. For this task, the Fundación OPTI (OPTI Foundation) received both the sponsorship and the collaboration of the La Rioja Economic Development Agency (ADER), and this study is the product of a collaboration agreement between the two organisations.
The work proposes to cover a 15-year timescale, and aims to provide food for thought for all those who in their different ways are involved or work in the field we are studying and especially the companies whose future is being discussed here.

**OBJECTIVES**

The study had the following specific objectives:

- Identify the future trends that will influence the technological and industrial development of the footwear sector in La Rioja in the coming years.
- Identify the needs for innovation and associated critical technologies.
- Define the future strategies and frameworks that are most relevant for the region and select those which appear most promising, so as to focus our efforts and investments on them.
- Offer a useful consultation tool for taking decisions regarding R&D policies.
- Serve as support for the business planning of the sector, providing help for the establishment of paths of action based on the scientific and technological documentation provided by the study.

**METHODOLOGY**

We used the following work methodology in the preparation of this study.

*Work Phases*

*a) Documental synthesis*

As a basis on which to prepare the study we analysed the recent trends and studies at a national, European and international level, identifying technologies currently in use, the main economic indicators for the sector, and the scientific/technological and management questions considered of key importance for the future of the footwear sector in La Rioja.

*b) Panel of Experts*

This prospective study has been carried out with the advice and guidance of a select Panel of Experts made up of professionals from the region. The role of the panel is both to lead and to validate the study. The functions of the panel are to propose the issues to be discussed in the survey and to draw up a list of the experts to be consulted. The 8 members of the Panel of Experts who have taken part in this study come from industry, technological centres, the Public Authorities and the Universities. We have tried to make the panel as diverse as possible in terms of the professional background of its members, so as to ensure that it represents the opinions of the sector as broadly as possible and takes in all its various different aspects. The Panel of Experts is one of the main keys to the success of this prospective exercise.

*c) Questionnaire*

The questionnaire contains the 25 hypotheses for the future identified by the Panel, which are drafted in a standard format. These hypotheses are crossed with a row of variables, about which the sample population was asked to give their opinion. For each hypothesis we assessed parameters such as the importance, the competitive position of La Rioja, the limitations and measures recommended for the development of the sector and the schedule for this to come into effect. The questionnaire was sent to all the experts (97 in total) proposed by the Panel. As with the Panel, the aim was for the sample group of experts to be as broad-based as possible taking in all possible profiles across the sector from researchers and manufacturers to end users. This means that the results obtained have greater validity at a territorial level as they include the opinions of different parts of society that are often poorly linked (industrial sector, research, academic field, etc.).

*d) Analysis of the results of the survey*
Once we had collected the results of the questionnaire, we then began to analyse the global statistical parameters and the parameters for each hypothesis. We obtained averages, modes and indices for the variables we defined, so as to be able to compare the results obtained for the different hypotheses and identify those that should be given highest priority.

**e) Conclusions and drafting of the final report.**

By sending out the questionnaire and later analysing the results our aim was to evaluate the degree of importance of the selected technologies and applications, estimate when they will come into use and determine the capacity of the region when compared with that of the rest of Spain and Europe.

The following figure shows the procedure we followed in this prospective study.

**Diagram of work procedure**

**TRENDS & FINDINGS**

**Trends:**
The force of the competition from Asian countries in terms of costs is causing a complete review of the sector.

**Business Model:**
The trend is for the parent company to carry out the conception and execution work (new activity of coordination-links between the parent company and relocated producers), while the manufacturing is done by subcontracted producers in countries with lower production costs.

**Product Development**
The macro-trend that will guide this activity will be an expansion in the variety and quality of the products.
Technology
The aim of new technology will be to meet the demands of the customer as efficiently as possible. Progressive implementation of rapid prototyping, 3D digitalisation or the obtaining of the morphological parameters of the foot will provide a means of achieving total personalization of comfort conditions. Technology will also seek to bridge the distances between the parent company and the manufacturer. Implementation of ICTs in the form of networks made up of companies involved in the same production process, and corporate networks that integrate all company information relevant for the process.

Recommendations
• Strengthening of integrated digital platforms

• Creation of a business portal for the sector

• Strategic alliances, networks of companies

• Provide advice and know-how to companies that wish to relocate part of their production.

• Alliance between footwear production companies and companies that supply technological solutions.

• Provide high level advice and consultancy services that help companies to switch to a knowledge-intensive business model.

• Permanent monitoring and information to companies as to new gaps in the market emerging at a global level.

• Promotion of research for the development of technical footwear.

• Train and inform people about the possibilities offered by ICTs.

• Reverse Engineering.

• Monitor developments in technology and inform all the companies.

• -Complete advice and information service regarding new developments in product design and processes (Rapid and virtual prototyping, simulation, 3D digitalisers…

• Penetration of technologies aimed at the personalization of the product and the development of ergonomic criteria.

• Advice for the installation and demonstration of electronic applications incorporated into the product and the process. Implementation of RFID technologies.

Key Technologies Identified.
For the ten hypotheses which the experts believe will be of most importance, we have highlighted the technologies that could be developed or implemented so as to help achieve the objectives set out in these hypotheses.
• Management and integration of information on a base provided by digital platforms.
• Implementation of digital tools - hardware for rapid prototyping.
• Development of sector-specific tools for technical design and simulation in products and processes.
• Development and implementation of methodologies for product design.
• Electronic applications built into the product and the process.
• Development of technologies for the personalisation of the product.
• Creation of systems that can reproduce the morphometric characteristics of the foot, using 3D vision techniques
• Development of specific systems to discover the needs of the final consumer.
• Reorientation of business processes in companies. Reverse Engineering.
• Creation of a business portal that enables fluid and flexible communication between internal and external parts of the company.
• Promote the creation of businesses based on networks of companies in the sector.
• Provide high level advice and consultancy services that help businesses through the transformation process.
• Promote contacts between companies in the sector, so as to create strategic alliances between them.
• Train and inform managers and directors as to the possibilities offered by ICTs.
• Make the production process more flexible and establish better links with market demands.
• Implement marketing tools aimed at specific customers or groups of customers with similar profiles.
• Advertise to customers the advantages of the high added value products manufactured in La Rioja.
• Emphasise the value of products manufactured in line with environmental legislation.

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Case Study 6: Futures for Higher & Further Education

Malta

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Futurreg Partner: Malta Council for Science and Technology - Jennifer Cassingena Harper Jennifer.harper@gov.mt
Type: Strategic Futures - a futures exercise undertaken to improve strategic and organisational development capacities in higher and further education in Malta.
Duration: Jan-Nov 2007
Budget: Euros N/A
Time Horizon: 2028

PURPOSE
The main aims of this initiative was to promote more long-term futures and evidence-based approaches to governance, strategies, and policy development in the higher and further education in Malta under the aegis of the INTERREG IIIC FUTURREG Project. The FUTURREG Project (2005 – 2007) was designed to ensure that regional policies and regional development organisations were informed by high-quality futures tools and participatory processes with significant long-term impacts. This particular FUTURREG sub-project/exercise focused on an urgent need to build up the strategic and organisational capacities of institutions in the higher and further education sector and to support them in using futures approaches and foresight tools in developing their strategies in Malta. The results of this work are being used by the Maltese National Commission for Higher Education to define a framework for future-oriented higher and further education strategies using futures approaches.

Reform of the Higher and Further Education Sector
The Higher and Further Education sector in Malta has in recent years been the focus of attention on the part of Government in Malta as part of a concerted effort to gear up the country for the knowledge-based society and the innovation-driven economy. This approach reflects Government’s awareness of the importance of sound investments in higher education, research and lifelong human resources development as the drivers for sustaining wealth generation, competitiveness and quality of life.

There was also recognition that progress in this sector could only be achieved through institution-building and capacity-building efforts aimed at bringing about much-needed sector-wide reforms. These reforms are not unique to higher education since they go hand in hand with similar change processes underway in research and innovation.

In 2006 the Government set up the permanent National Commission for Higher Education (NCHE) in an effort to spearhead the reform process, especially to make recommendations regarding the required changes in the Education Act. The NCHE after consultations with all stakeholders has identified the following issues:

i. Vision and strategic oversight
ii. Expansion of higher education to meet future requirements
iii. Funding and accountability
iv. Quality assurance and accreditation
v. Student choice and fair access
In this context, the NCHE identified a clear need to strengthen the strategic capacities of key organisations within the higher and further education sector to ensure an effective input on their part both to the national strategic plan for the sector and in developing their own long-term strategies. The NCHE was quick to recognise the importance and value of futures approaches in addressing this concern and in ensuring the development of a more coherent and robust national strategy. This lead to the development of a strong collaboration in 2007 between NCHE and the Malta Council for Science and Technology (MCST) through the Interreg 3C Futurreg project to introduce the use of futures approaches in the sector.

**OBJECTIVES**
In July 2007, the NCHE through support provided through the MCST Futurreg project embarked on an exercise aimed at promoting more long-term futures and evidence-based approaches to policy and governance in the higher education sector in Malta.

The main objectives of the exercise were:

- To promote more long-term futures and evidence-based approaches to governance, strategies, and policy development in the higher and further education in Malta;
- To support institutions in the higher and further education sector in using futures approaches and foresight tools in developing their strategies;
- To encourage students to play a more proactive role in the higher and further education strategy process through enhanced awareness and use of futures approaches;
- To create a shared understanding of emerging trends and drivers of science-society and science popularisation futures;
- To share inter-regional experiences on futures methods and approaches for tackling future and emerging science-society challenges, namely gender, privatisation, lifelong learning;
- To define a framework for future-oriented higher and further education and science popularisation strategies using futures approaches.

To kick-start this initiative, a training event for the development of futures skills in policy was organized at the end of July for key stakeholders in the higher education sector. Those responsible for strategic policy development within higher and further education organizations were particularly targeted as it was expected that this training would benefit the development of the organisation’s long-term strategic plan. As a result of the feedback from this event, three key groups of stakeholders were identified for follow-up action, namely educational institutions in Gozo (the sister island), the vocational college (Malta College for Arts, Science and Technology) and student bodies.

**Adapting Futures approaches to the HE Sector**
The futures approaches used in this exercise were adapted to the needs and understandings of the different stakeholder groups. Three one-day futures workshops were organised for each stakeholder group: Gozo, MCAST and students. All three workshops adopted a broadly similar approach of creating a shared awareness and understanding of emerging trends and drivers of change and their implications for the sector. The Gozo and MCAST workshops followed scenario-building approaches and produced superlative
sentences describing the organisation’s achievements by 2028. The student workshop focused on the development of a mini-vision for the HE sector.

The following stepped approach was used in the three workshops organised:

<table>
<thead>
<tr>
<th>Warm-up: a time-line for Gozo and GPSS 1977-2007</th>
<th>Goal: to heighten awareness of past change, and past watersheds / transformations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reversing the Negative</td>
<td>Goal: to move from worries to transformative goals.</td>
</tr>
<tr>
<td>Emerging Issues of change</td>
<td>Goal: heightening awareness of oncoming change.</td>
</tr>
<tr>
<td>Briefing on emerging issues</td>
<td>Goal: increasing awareness of emerging changes and implications.</td>
</tr>
<tr>
<td>Stakeholder / potential partner Identification</td>
<td>Goal: identifying network of support for positive change.</td>
</tr>
<tr>
<td>Sentence Completion</td>
<td>Goal: creating concrete goals for transformative change.</td>
</tr>
<tr>
<td>Strategy Working Groups</td>
<td>Goal: draft initial strategies for positive change.</td>
</tr>
<tr>
<td>Reviewing Strategies</td>
<td>Goal: share brainstormed strategies, add more concrete details, understand how the strategies might work in concert.</td>
</tr>
<tr>
<td>Creating Change</td>
<td>Goals: to add more concrete details, resources, and allies to each strategy; to create a list of possible next steps; to commit to creating change.</td>
</tr>
<tr>
<td>Debrief; next steps; close.</td>
<td>Goals: to identify biggest opportunities within grasp, hazards to avoid and desired next steps.</td>
</tr>
</tbody>
</table>

**CONTENT AND FINDINGS**

The main findings of each workshop are presented below and these take the form of success scenarios or visions for the organisation and sector:

1. **Giovanni Curmi Higher Secondary School Gozo - Strategic Foresight Workshop**

   **Exercise: ‘Superlatives’ Sentence Completion**

   In 2028, GOZO POST-SECONDARY is a futuristic school because ... all the staff are intrinsically motivated and work together to provide a service of excellence and a climate of collegiality. Because of this, students are happy to be part of this Centre.

   In 2028, GOZO POST-SECONDARY is historic among all other schools because ...
   - We will be considered the major educational institution as regards proactive change in Malta.
   - It will be a state-of-the-art institution.

   In 2028, GOZO POST-SECONDARY was the first school to ... introduce entrepreneurship and collaborate with private entities offering employment and training using EU funds.

   In 2028, GOZO POST-SECONDARY is unique among all other schools because ... of its high rate of success - students achieve good results for tertiary education.

   In 2028, GOZO POST-SECONDARY is truly great among all other schools because ...
   - It is a school that caters for various disciplines.
   - It has a great past from which it has learned to project itself into the future.
In 2028, GOZO POST-SECONDARY is a leader among all other schools because ...

• All its teachers are themselves convinced learners.
• All its teachers are themselves catalysts of change.
• It will be the key institution leading to further education and life-long education.

In 2028, GOZO POST-SECONDARY is the first school to ... prepare students to adjust themselves to cultural changes.

2. MCAST - Strategic Foresight Workshop
   Exercise: ‘Superlatives’ Sentence Completion

In 2028, MCAST produced a breakthrough when it ... inaugurated its state-of-the-art campus catering for new frontier areas of vocational expertise.

In 2028, MCAST is a futuristic school because ...
• It has several institutes abroad and an international student profile.

In 2028, MCAST is truly remarkable among all other schools because ... it is everywhere, anytime.

In 2028, MCAST is historic among all other schools because ...
• It will self-fund all its educational programs and related resources.
• It was the first school to offer a chance to students who were drop outs at secondary education and to offer courses that were totally new to Malta.

In 2028, MCAST is famous among all other schools because ... it will be leading in creating career opportunities rather than satisfying existing and emerging industry requirements.

In 2028, MCAST was the first school to ...
• Utilise nuclear energy to generate its own technological systems - next step, send a student to Mars!
• Perform the retraining of all workforce.

In 2028, MCAST is special among all other schools because ... it is the foremost, leading VET College in all Europe due to its responsiveness to many educational, social, and cultural changes, all of which make it a place which students - youngsters and adults - cannot do without.

People who in 2028 visit MCAST say “WOW!” because ...
• MCAST graduates are reaching excellence while keeping the social intelligence aspect as the core of the curriculum.
• It is providing to thousands of students the best standards of education and courses relevant to economic needs in a state-of-the-art campus

In 2028, MCAST is unique among all other schools because ... it is able to accommodate all students with learning difficulties and disabilities.

In 2028, MCAST is truly remarkable among all other schools because ... of the positive perception of the students, the public, and industry in Malta’s goal of becoming a centre of excellence in the Mediterranean region.
In 2028, MCAST is truly great among all other schools because ... it endeavours to cater for the needs of industry and the economy.

In 2028, MCAST is special among all other schools because ... its programmes of study are a guarantee to the individual student’s future.

3. Student Councils and Organisations - Strategic Foresight Workshop
The Mini-Vision developed by students identified the following significant changes required in the higher education sector in Malta:

**Introduce more hands-on learning**
- In 6th forms and Universities, students should be given more time to experience new things, such as hands-on experience, rather than studying and lectures only, because it’s the practice and experience that count. More hands-on experience both for self-development, quality, and employability.
- A change in the syllabus, by a decrease in syllabus content, and an increase in voluntary and practical work of what one is studying.
- To bridge the gap between the school bench and future work through a revision of curriculum and on-site / specific training.
- To teach entrepreneurship in University courses, eg: Pharmacy, Law, BA, etc.
- Integrated work placements during university courses.

**Introduce alternative education**
- A change in the curriculum to include necessary skills that are conducive to character formation and development - so that students will not [merely] accept jobs but CREATE them.
- New courses for holistic education to learn skills such as reporting, analysing, and other soft skills
- Development and sustainability of VALUES in society for the grassroots of tomorrow’s society.
- A more social conscience for developing the student as a fulfilled being / person
- Not only academic subjects are important. Post-secondary schools for arts such as dancing, singing, acting, etc. should be opened. Courses to prepare for change and advancements, for example cybernetics, and spread awareness for a better future - including performing arts.
- Additional extracurricular courses (not compulsory) to provide general knowledge, better preparation for future jobs and to make important lifetime decisions. (If already available, improving awareness of such courses should be considered.)

**Communication platforms**
- Need to improve use and availability of internet and e-learning in the curriculum.
- Students should have a platform for commenting without the fear of being penalised.

**Revision and updating of curricula**
- Revision of curriculum (recognition of informal education). A change in the syllabus to an up-to-date one. Removing invalid information from the syllabus to be studied, giving students more time to focus on important topics, e.g, physics or geography.
- The systems of knowledge course needs to be revised. It should be modular, with students choosing areas they want to study. Systems of knowledge should NOT be a compulsory subject; this is NOT a requirement for entry in university.
• Career and work possibilities that can be offered after post-secondary / university courses. Course options are often too stylized.
• Flexible and competence-based curriculum design.

More university course options and opportunities
• More variety of course options at university
• Specialisation in topics, for example specialisation in surgeries, cybernetics, etc.
• More gap year and overseas opportunities for higher education institute students, thus making it easier to travel and learn / experience new things.

Improving Quality Assurance
• QA and recognition structures that involve teachers, employers, students, and social partners should be improved. Internal efficiency, quality assurance, and revision of curriculum. Strengthening national quality assurance agencies through increased funding and legal authority.
• allowing stakeholders an opportunity to form or revise and voice openly their opinions;
• jointly reviewing current pathways emerging from past decisions and actions and ways of escaping future lock-ins;
• prioritising key challenges and next steps for joint action.

CONCLUSION & POLICY IMPLICATIONS/IMPACTS
The main conclusions to be drawn from the exercise is that in a fast-evolving sector of higher and further education, representing a range of diverse interests and needs, it is the stakeholders who are best placed to advise on and support the development of long-term strategies. The insights and lessons learnt from these workshops highlight the fact that foresight exercises are vital tools to support the strategy development process for the following reasons, by :
• allowing stakeholders an opportunity to form or revise and voice openly their opinions;
• jointly reviewing current pathways emerging from past decisions and actions and ways of escaping future lock-ins;
• prioritising key challenges and next steps for joint action.

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• Luke Georghiou and Jennifer Cassingena Harper

Acknowledgements
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Case Study 7: The Loimaa Futures Club
South West Finland

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Futurreg Partner: Turku School of Economics/Finland Futures Research Centre
Type: Futures in Places - a futures exercise undertaken with a territorial/spatial focus

PURPOSE
The Futures Club is an innovative futures tool especially designed for developing the economic life of the region. At the same time it is a practical Foresight process and a cooperative network of various regional actors. The purpose of the application was to define the central driving forces faced by the region, formulate the preferred future for the region and choose and define important issues and actions to be done in order to attain the desirable future actors want to happen and formulate draft ideas of future projects.

CONTEXT & CHALLENGES
There was a clear need for a futures approach and policy: a special situation in the region after the merger of two municipalities, inner tensions in the region (one sub-region heading for Turku area), the location of the region between two bigger cities (Turku and Tampere), the interface of urban and rural forms of living, the Finnish Agricultural Museum Sarka, a new centre of expertise started operating in the region.

OBJECTIVES
By applying a practical Foresight process together with a cooperative network of various regional actors, develop the economic life of Loimaa region to become economically strong, individual, internationally oriented and a forward looking region.

METHODOLOGY/APPROACH
The Futures Club creates visionary leadership and governance by exploiting multiple futures research methods and practices like Foresight (forecasting and backcasting), futures images, scenario building, futures workshops, seminars and questionnaires. The Futures Club was organized by the Finland Futures Research Centre together with Loimaa Regional Development Centre, the Finnish Agricultural Museum Sarka and Turku University of Applied Sciences (Loimaa office). Participants/stakeholders were:

- Universities and public research bodies
- Interface bodies (Regional developers)
- Technology centres
- Business (Entrepreneurs and Business people)
- Public Administration (Municipal officials and Representatives of educational institutes)
- Non-profit organization (Registered Associations)
- Congregation
CONTENT AND FINDINGS

Identified socio-economic or cultural trends/trend breaks:

- Aging population in the region - Loimaa region is becoming a reservation of old people. The workforce is also retiring. The question follows: How can the region maintain welfare services?
- An Urbanising World - Well educated young people move out to towns and city areas. Another crucial question is how to attract a highly educated workforce and their families to move into the Loimaa region.
- Lifelong and lifewide learning - A challenge for the educational system in the Loimaa region.

The set of technological and sectoral trends/trend breaks that are anticipated in the exercise:

* The Service sector is growing in the region (wllfare, leisure and freetime, KIBS)
* Sustainability in energy production - biofuel plants and other renewable local energy (peat, straw, industrial and farm waste) is now an acute question for the region.
* An "Antitrend" of trendTechnology diffusion - the basic and wide spread metal industry in Loimaa region is getting old (entrepreneurs and technology). There is an acute need for renewal of the whole industry.
Opportunities and challenges that might arise from the trends/trend breaks:

- Keeping rural areas alive - the Loimaa region has the potential to develop entrepreneurship in the region (new forms of rural entrepreneurship assisted of the know-how of traditional and developing new farming, the Finnish Agricultural Museum Sarka, a vital local business life and regional developers).

- Low investment rate in R&D at the moment

- Natural environment and housing provides potential for activating the region (tourism, nurturing business, peaceful housing etc.).

CONCLUSION & POLICY IMPLICATIONS/IMPACT

1. Key issues raised with particular relevance for policy-making were:
   a) Exploitation of the regional location
   b) Regional working life based education, training and development
   c) Regional attraction power
   d) Quality of habitation, services and environment
   e) Cultural supply and events in region
   f) Regional atmosphere and spirit related to development actions
   g) Financing and funding research and development in region
   h) Producing bioenergy in region
   i) Durable development in agriculture and farming - new farming

2. The solutions and/or adaptations that will be required to tackle challenges and benefit from opportunities:
   - Keep up constant and open dialogue with public and private sector.
   - Networking actors to work with and spread common understanding of vital questions.
   - More specialisation in every field (get rid off overlap and bureaucracy)
   - Do something (even small things, projects) together

3. Identified priorities and focus for action
   - All items in question 1. (this section), especially b, c, e and g.
   - Identified critical factors and key players in shaping the future are
     - Universities and public research bodies
     - Interface bodies (Regional developers)
     - Business (Entrepreneurs and Business people)
     - Public Administration (Municipal officials and Representatives of educational institutes)

SOURCES & REFERENCES

Finland Futures Research Centre - www.tukkk.fi/tutu/
Loimaa Futures Club http://www.tulevaisuusklubi.fi/?id=928E1AB1-709F4EA7A8F3-42A1825F1F8B
Case Study 8: A New Strategic Plan for the Sligo Institute of Technology
Borders, Midland & Western Region, Ireland

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Futurreg Partner: Border, Midlands and Western Regional Assembly
Type: A strategic futures exercise designed to help produce a new strategic plan for the Institute of Technology in Sligo.
Duration: 18 months 2005-2006 Budget: c. €25,000 Time Horizon: 2016

PURPOSE
Given uncertainties in the funding mechanisms, changing demographics, and concerns with traditional rational planning approaches *inter alia*, any HEI must give careful consideration to the process adopted in the preparation of a new strategic plan. In preparation for the discussion on the approach to be adopted in IT Sligo, three options were prepared for consideration including a traditional, rational approach, an approach that envisaged full use of Foresight methodologies and a modified Foresight approach. The Governing Body of the Institute, following consultation with staff, trades unions and Academic Council and on the formal advice of the Academic Council, agreed to a modified Foresight approach in which future possible scenarios (based on a fifteen to twenty year time horizon) would be developed, a decision taken as to the most likely scenario and then a traditional plan (specific objectives with targets, etc) built to meet the scenario. It was felt that this approach would more easily ‘engage the academic heartland’ and get institutional ‘buy in’ to the process.

CONTEXT & CHALLENGES
Central to the Foresight exercise was establishing a Steering Committee that was representative of the stakeholders across the institute. Each of the following groupings was asked to nominate representatives to sit on the steering group:

- Partnership Committee (Trade Unions)
- Senior Management Team
- Executive Committee
- Academic Council
- Student Union
- Local Employers (External Stakeholders)

This consisted of twelve members and was chaired by a member of the Executive Committee but deliberately not by the Institute’s Director. It was of vital importance that the meetings were facilitated, and every meeting of the steering committee (and later meetings of sub-committees) used a skilled facilitator. This was essential to ensure that innovation and creativity were maximised; an absolutely essential aspect of the Foresight approach. The first meeting was used as a briefing session. A member of the
executive of a Government agency, the Border, Midlands and West (BMW) Regional Assembly, was invited to outline the process and experience of taking part in Foresight planning; the strategic vision for the BMW Region (2005) had recently been published and the methods used demonstrated good practice of Foresight planning.

THEMES
A key element of Foresight planning is to identify themes that are core components of influence on the Institute. The process of theme development, through the facilitator, used various well known techniques (brainstorming, etc.) to identify five key themes. These were:

- Scholarship
- External Environment
- Internal Organisation
- The Student
- Institute Identity

The second aspect of this stage of the planning process was to identify named individuals who would chair each of the subgroups. These individuals were approached and asked to form a sub-group that, over the course of three or four facilitated meetings would report back in writing to the steering committee. The terms of reference for each sub group included a specific requirement to take a long term perspective, to use creative thinking techniques and, finally, to propose a limited number of specific objectives for inclusion in a final plan. The last theme on Institute identity was retained by the steering group but for the other themes the chair was invited to sit on the steering group and was thus able to give interim oral updates on progress. The remaining meetings of the steering group became dual purpose; firstly facilitating sub-group feedback and secondly dealing with the issue of Institute identity. This eventually filtered into the final plan as objectives relating to marketing, identity and branding.

SCENARIO BUILDING
In order to work within the extended timeframe of Foresight planning it was necessary to build future scenarios. The external environment sub group undertook the role of scenario building. The process was driven by trying to answer the question ‘who will be the users of IT Sligo in 2016?’. There were considered to be two overarching factors, the Irish (and by implication the World) economy and the level of independence and autonomy given to IT Sligo during the restructuring of Irish Higher Education noted above. This gave four possible scenarios. The scenarios were written as drama pieces and acted by members of the faculty. The four characters, typifying the scenarios, (‘Sad Paddy’, ‘Independent Ingred’, ‘Mick-Hail 24/7’, ‘Disillusioned Deirdre’) were developed by four breakout teams from the external environmental group. These characters were presented back to the full group in the form of a story board depicting each of the characters. The facilitator took these and worked them up into the written versions of the scenarios that were intended to reflect a perspective of the life and times of each character. Although there were no specific forecasts developed for each of these characters, the description of the ‘students’ and the written scenarios were useful in helping to envision the future. Each of the groups was heavily facilitated and all the groups used a wide range of facilitation techniques designed to allow creative thinking including, brain storming, brain writing, mind mapping, use of ‘what if?, ‘if only’ and ‘why not?’ sessions and mood mapping.

CONTENT & FINDINGS
The main ‘product’ of the exercise was a new strategic plan that incorporated a revised mission and a new vision and set of values for the Institute.
CONCLUSION & POLICY IMPLICATIONS/IMPACT

In order to obtain feedback on the experience of those who took part in the process and, thus to gain organisational learning, a survey was undertaken of the people involved in the project. The survey included both a 'tick box' element, and the opportunity to comment textually on the questions asked. Of the c. 100 people who took part in the various groups 50 responded to the survey.

In relation to usefulness and appropriateness of the approach the responses to questions on these aspects show that 76% of the respondents thought the approach was satisfactory or very satisfactory and 96% of respondents thought the approach was appropriate, very appropriate or essential for the Institute. The ability to participate was also high (59%) noting they were able to participate fully compared to 41% who felt they were not. In terms of the final report 86% of the respondents felt that the report reflected moderately or well their input.

Whilst these results are encouraging the textual responses provided additional information and, in particular highlighted, inter alia, the need for better preparation for participants before embarking on this approach to strategic planning, a longer time frame to allow the process to take place and a more formalised approach to translating the results into the final plan.

Anecdotally, the development of the characters appears to have enabled better visualisation of the potential life of a student and thus a more 'human' envisioning of the future through the character. It was also apparent that this approach was more enjoyable than SWOT analysis.

Whilst this evaluation has provided some evidence that the approach was a positive and inclusive way to develop a strategic plan the results cannot be benchmarked against other processes for developing a strategic plan. In this regard, one of the authors (Thorn) as part of a larger team, has received funding to undertake a study of the effectiveness of different strategic planning approaches and the results of this study will be included in the larger investigation.

SOURCES & REFERENCES