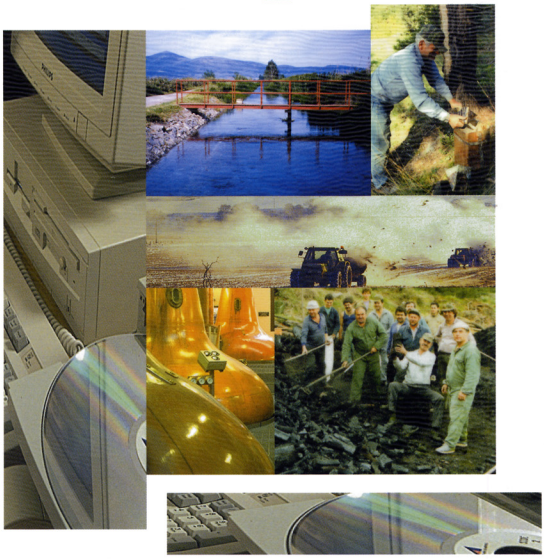
Euracademy

THEMATIC GUIDE TWO

INFORMATION SOCIETY AND Sustainable Rural Development



Leonardo da Vinci

EURACADEMY THEMATIC GUIDE SERIES

European Summer Academy
for Sustainable Rural Development

EURACADEMY

THEMATIC GUIDE TWO

Information Society and Sustainable Rural Development

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Information Society and Sustainable Rural Development

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C O N T E N T S

PREFACE

Euracademy is the acronym of a 3-year project co-funded by the European Commission (Directorate General Education and Culture, LEONARDO da VINCI Programme) aiming to promote capacity building in rural areas through the set up of Summer Academies, e-learning and publication of Thematic Guides, complemented by wide networking between individuals and organisations that have an interest in sustainable rural development. The project activities led to the formation of the Euracademy Association, a non-profit organisation which brings together planners, researchers and practitioners of rural development with the remit to continue and expand the capacity building efforts of Euracademy, for the benefit of rural Europe.

This is the second Thematic Guide in the Euracademy series. It has been used as a reference tool in the 2nd Summer Academy held in Ioannina, Greece between 12-21 July 2003 and has been revised in the light of the discussions there and enriched with examples brought by participants.

The Thematic Guide is offered to you, the practitioner- learner, as a provocation. It is not a text-book. Nor is it a definitive Guide to how to bring the benefits of Information Society to the European rural areas. Rather, it is a collection of ideas and examples brought together under one binder, which may help you, and stimulate you indeed, to think round the whole subject of Information Society and its relation to Sustainable Rural Development. You may ask yourself:

- What is Information Society?
- What is its relevance to the well-being of rural areas?
- What can Information Society do for entrepreneurs in my area?
- How can it help the providers of public services?
- How can it help the ordinary citizen?
- What action is needed from the providers of Information and Communication Technologies?
- How should we plan, manage and facilitate the participation of rural areas in the Information Society?

To make the best of it, we invite you to:

- Read the Guide carefully and think about the questions at the end of each chapter
- Think of case studies drawn from your own experience and work, which illustrate -or refute !- the principles suggested in the Guide
- Pursue some of the further reading that is suggested

Good reading!

The Euracademy Partners

ACKNOWLEDGEMENTS

The Euracademy partners are indebted to the following sources from which several case studies have been drawn:

- Information and Communication Technologies and Rural Development, OECD, 2001. More specifically case studies 3.5, 3.6, 4.3, 5.2, 6.2, 6.4, 6.5, 7.5.
- www.beepknowledgesystem.org. More specifically case studies 3.1, 3.2, 3.3, 3.4, 4.4, 5.1, 7.1 and 7.2.
- European Commission, Telematics Technologies Programme, EU-TeleInViVo, case study 4.2.

Also, valuable reference material was obtained from the following publications:

- OECD, *Information and Communication Technologies and Rural Development*, OECD, Paris, 2001
- Ranald Richardson, *Information and Communications Technologies and Rural Inclusion*, Centre for Urban and Regional Development Studies (CURDS), University of Newcastle, 2002.

INTRODUCTION

Part I

For us in Euracademy, the application of Information Society to rural areas does not stand alone. It is part of a larger theme -sustainable rural development. In this Guide, we try to show why we take that view.

Briefly summarised, we believe that Information Society will only bring real benefit to the people and the economy and the environment of rural regions if it is "integrated" with other aspects of rural life. Without that integration, there are real dangers that an excessive concern with the technical marvels of Information and Communication Technologies (ICT) will blunt the social vitality of rural communities. We explain this later.

Therefore, we begin (chapter 1) by offering brief ideas on Rural Development, in order to show how important the Information Society may be, as a factor which can encourage economic growth and facilitate service provision in those rural areas where such growth and provision are greatly needed. We then (chapter 2) offer a broad definition of the Information Society, and show how it can relate to sustainable rural development.

"Open space" session and role-playing during the 2nd Summer Academy in Ioannina, Greece

CHAPTER 1.

Sustainable Rural Development

The changing scene in rural areas

1.1 This is a time of rapid change in the character of rural areas throughout Europe, and in the policies related to them.

1.2 Rural areas vary enormously in character -from the peri-urban areas around the cities to the high mountain pastures; from the Mediterranean lands of olive and wine to the reindeer grazing areas of Lappland; from the puszta of Hungary to the green fields of Ireland. There are no standard problems, no standard answers, in the rural development that they need. But they are all affected by change.

1.3 Many of the more remote, marginal or mountainous regions of rural Europe have been losing population over long periods of time, and this process is still continuing. In such places, the local economy tends to be fragile and narrowly-based: it is difficult to sustain the public services: young people tend to move away from the area. By contrast, many rural regions near the cities are changing rapidly in character, as city workers look for new homes there or urban enterprises move out onto green-field sites. In such places, rural people may be tempted away from jobs in farming or may be unable to buy houses at inflated prices.

1.4 The whole of rural Europe, moreover, is affected to greater or lesser degree by the radical changes in agriculture. Until the 1980s, the primary role of the rural areas was seen (by the public and by politicians) to be the production of food; and the thrust of rural policy was to encourage the production of more food, at low prices. Then came two major events which radically altered the picture. First, in the early 1980s, the success of the Common Agricultural Policy produced (for the first time) a surplus of milk, meat, wheat, wine and related products within the European Union. Second, in 1989 came the collapse of the Iron Curtain and of the Soviet Union, which removed at one blow the Soviet market upon which Central European farmers had depended.

1.5 European policies related to agriculture have been changing, quite fast but painfully, in the face of these two great events. Other factors also are forcing a change in policies. World trade negotiations may oblige the European Union to reduce its financial support to farmers and its export subsidies on food, and to open the European food market to outsiders. There is growing public concern about animal welfare on farms; about livestock diseases and their potential impact on human health; and about the impact of intensive agriculture upon the environment.

1.6 For these and other reasons, the emphasis in rural policies has shifted away from "more food at low cost" to a wider concern with the well-being of the people, the economy and the environment of rural areas. In particular, there is a concern to strengthen and diversify the economy of rural regions. Farming is no longer the only, or even the dominant, sector in that economy. The role of farmers is changing in many regions. They may still have importance as producers of food: but they are also perceived as (and sometimes supported from public funds to be) entrepreneurs in other fields, producers of resources to which value can be added in the local economy, providers of space for recreation or leisure activity, guardians and maintainers of the natural and cultural heritage.

1.7 This is indeed a fertile context for innovation; and there is no area of innovation more striking than that which is embraced in the phrase Information Society. We shall show that, if wisely exploited, this innovative force can both help to sustain existing parts of the economic and social structure of rural areas, and bring in valuable new elements.

View of Wedmore in England, where the "Information Technology for the Terrified" project was launched by the local community in order to introduce ICT to elderly residents

The policy framework

1.8 In all rural development, there is a tension between the global and the local -between (on the one hand) what local people and entrepreneurs would like to do, and the potential offered by local resources, and (on the other hand) the market conditions, policies and regulations imposed, or the support offered, from outside. That is why you may need to understand the policy framework which affects rural development -including, as we shall see, the application of Information Society to rural areas.

1.9 We describe above the shift in policy over the last twenty years, from "more food at low cost" to a wider concern with the well-being of rural areas. In the European Union, this shift in policy was crystallised in a few key policies or initiatives:

- The report on 'The Future of Rural Society' in 1987
- The LEADER Initiative, launched in 1991
- The Review of the Common Agricultural Policy, in 1992
- The Cork Declaration on Rural Policy 1995

(see references in Further Reading, chapter 9)

1.10 These moves all applied to policy within the EU, with its 12 member states increasing to 15 after the accession of Austria, Sweden and Finland in 1995. But the prospect of eastward enlargement pushed the Union towards a further significant shift in policy, which is reflected in Agenda 2000, the major policy statement agreed at the Berlin summit of March 1999.

1.11 Agenda 2000 has a broad concern with enlargement of the Union and re-allocation of EU funds. Its policies cover the period 2000 to 2006. Here, we emphasise only its provisions relevant to rural development. Briefly stated, these are:

- A gradual reduction in funds for support of production, processing and export of food;
- The creation, within the Common Agricultural Policy, of a "second pillar" related to rural development;
- The Rural Development Regulation, under which EU member states produce and implement their own rural development programmes, with features drawn from a "menu" of possible activities set by the regulation;
- The LEADER+ initiative, aimed (like its predecessors LEADER I and LEADER II) at promoting action by local partnerships to pursue integrated rural development in many regions of the EU; and
- The SAPARD programme (Special Aid for Pre-accession in Agriculture and Rural Development) offered by the EU to the 10 Central European countries which are new member states of the EU and candidates to join the Union. Under this programme, the governments of these countries are launching national programmes of rural development. These national programmes have a strong emphasis on meeting the EU standards in key fields such as food processing and animal welfare, as part of what is known as the acquis communautaire.

1.12 Agenda 2000 is thus prompting a new generation of rural development programmes, both within the existing EU and in the accession countries. These programmes are not standardised, in that governments are free to choose the features within the EU "menu" that they wish to pursue. Moreover, many of the governments have their own rural development programmes, in addition to those which are part-funded by the EU.

1.13 This element of discretion, retained by the member states or candidate countries, is not only a commonsense reaction to the impossibility of controlling everything from Brussels. It reflects also the principle of 'subsidiarity', which implies that decisions should be taken at the lowest appropriate geographic level. What this means in practice is part of an evolving debate within Europe.

1.14 In this debate, there is a growing empha-sis upon regions, which are geographic units smaller than most states, and which some people see as the right level for making decisions about broad issues of regional and rural development. There is also growing emphasis upon action and initiative at local level. Many people believe that rural development programmes will be more effective if they are actively supported -indeed, preferably, initiated- at local level. There is much talk about local partnerships, local action groups, and "bottom-up" or "grass-roots" action. Later in this Guide, we offer examples of what this can mean.

In Malechowo, Poland, the Malechowo Community Development Strategy of 1999 included the creation of a network of telecottages in existing school buildings

Concepts and principles

1.15 To complete this brief scene-setting before we move into the subject of Information Society, we offer some concepts which may help you to understand the challenge of rural development.

1.16 Rural Development. There have been many definitions of rural development. The following is one of the most useful:

> Rural Development is a deliberate process of sustained and sustainable economic, social, political, cultural and environmental change, designed to improve the quality of life of the local population of a rural region.

1.17 The key points in this definition are:

- the emphasis on a deliberate and sustained process: rural development is not a short-life affair: it needs to be pursued over a long period of years and in a deliberate way.
- the inclusion of sustainability: see further comment below.
- the five other adjectives -economic, social, cultural, political and environmental- which show the width of the subject and the need to keep and take an integrated view (see further comment below): the word "political" is included not in the sense of party politics, but because any effective rural development involves a growth of public awareness and confidence at local level and hence a subtle change in power relationships.
- The word change: rural development is not about protecting the status quo: it is about deliberate change in order to make things better.
- The focus on improving the life of the local population. Too much so-called "rural" (or "regional") development in the past has been motivated by national needs (e.g. for electricity, water, defence, or for contribution to the national balance of payments from tourism), rather than the needs of the rural people themselves. National needs may indeed be met in rural development, and any successful meeting of local needs will contribute indirectly to national well-being. But the modern concept of rural development has a prime emphasis on the needs of the local population.

1.18 Integrated rural development. In both the developed and the developing world, there has been a growing emphasis on the need for an integrated approach to rural development. What does this mean? It indicates four things:

- the focus should be on society and economy and environment;
- the development should be both "top-down" and "bottom-up": it should embrace the policies, money and support of government (at all levels) and the energy, resources, and commitment of the people;
- it should involve all sectors -public, private and voluntary;
- it should be based on partnership and collaboration.

1.19 Four "legs" or "pillars" of rural development. To illustrate and dramatise the idea of an integrated approach, we offer the concept of four legs or pillars of rural development, which -like the legs of a horse, or the pillars of a building- need to be kept in balance with each other. The legs or pillars are:

- The people, with their skills;
- The economy;
- The environment; and
- Ideas, institutions and power structures.

1.20 Community-based development. Rural development should be based on the interests, and the involvement, of the community living in the area. By "community", we mean all the people living in a given rural area. They are the basis for sustainable rural development because:

- they know best what are their problems and needs;
- they control many of the resources -land, buildings, local products- upon which development is based;
- their skills, traditions, knowledge and energy are the main resource for development;
- their commitment is vital (if they do not support an initiative, it will die).

Moreover, the more lively and active a community is, the more likely it is to attract people to move into the area, and to keep people from moving away. However, involving a local community in crucial decisions about their own future is not an easy task: the individual stakes are often in conflict with the interests of the community. It is therefore important to work towards the reconciliation of interests through negotiation and avoid or resolve the conflicts that might occur. The Information Society offers practical solutions to help set up participative decision-making, as discussed in chapter 5.

1.21 Sustainable development. All public bodies, and many private companies, are now applying the word "sustainable" to their programmes or products. What they mean by the word is not always clear. We need to be as clear as possible if we use it about rural development. It is not sufficient to refer to the famous Brundtland definition of 1987, that sustainable development is:

> Development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs

because that definition provides no basis for assessing whether a particular programme or project is truly sustainable. We need a definition which assists such assessment, and which reflects the emphasis (above) on an integrated and community-based approach. The next paragraph offers such a definition.

1.22 Sustainability in rural development. Sustainability is not simply a matter of respect for the environment. It relates to all four of the "legs" or "pillars" of rural development -people, economy, environment and institutions.

People. To be sustainable, development must promote:

- Democracy and security;
- Fairness, equity, and social inclusion including special help for the poor and a concern for women, children and ethnic minorities;
- Quality of life for all the people;
- Leadership by the people, in partnership with government; and
- Respect for the memory of ancestors, and for the rights of people not yet born.

Economy. To be sustainable, development must:

- Help to strengthen and diversify the economy of rural areas;
- Ensure that local people gain substantial benefit from the local activity;
- Look to the long-term prosperity of rural areas, rather than simply their short-term benefit; and
- Avoid harmful side-effects elsewhere in the national, regional or local economy.

Environment. To be sustainable, development must:

- Respect natural systems and the integrity of the environment;
- Minimise the use of non-renewable resources;
- Consume renewable resources no faster than nature can renew them;
- Make efficient use of all resources used; and
- Avoid causing pollution and other adverse impacts on the environment.

Institutions. To be sustainable, development must:

- Be within the capacity of human institutions to control and manage, in a way that meets the other criteria stated above; and
- Not be the source of unsupportable costs in the future.

1.23 This view of sustainability makes it clear that rural development is a dynamic process, which should be built on a vision for the future, owned by the local community, who set the objectives and who -ideally- should also control the policies that realise development.

Sustainable forest management can be substantially facilitated through the use of ICT

Questions arising from chapter 1 to reflect on

1. What kind of rural region do you live in or work for?
2. Do you recognise the description (paragraphs 1.4 to 1.7) of the broad changes affecting rural areas?
3. Are there other events or processes that have affected development in your area?
4. What impact have these and other changes had upon your region?
5. What policies and programmes are in operation which affect rural development in your region?
6. At which geographic level -European, national, regional, local- are these policies and programmes being decided? How do these policies formulated score with the features described in paragraph 1.19?
7. What do you think of the principles and concepts stated in paragraphs 1.15 to 1.22?
8. Do they ring true when you think about your own work in, and experience of, rural development?
9. Can you improve upon the criteria for sustainability stated in paragraph 1.22?

CHAPTER 2.

Information Society and Rural Development

The nature of Information Society

2.1 This chapter focuses on the nature of Information Society, its relevance for rural development and discusses models of intervention regarding policies, strategies and approaches for promoting the participation of rural areas into the Information Society.

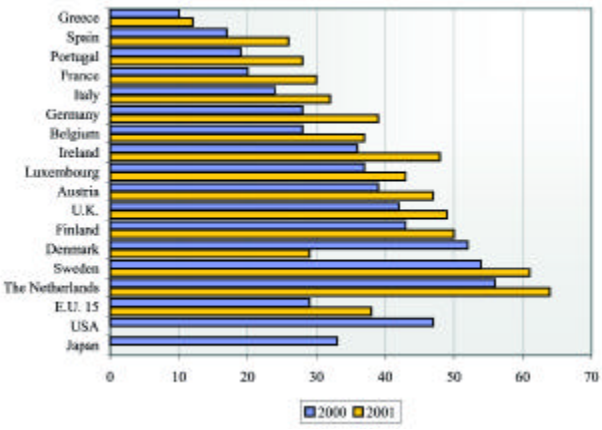
2.2 A new economic cycle. Information Society can be seen as a technological and socio-economic development that heralds the beginning of a new cycle, in a series of long wave cycles of economic activity, known by economists as Kondratieff cycles. Previous cycles include the industrial revolution of the 18th century, the construction of the steam engine, the discovery of electricity, the introduction of mass production methods. These cycles are sparked by major successive technological innovations and have been occurring up to the present day at regular intervals of 50 to 60 years. Each innovation represents a new source of dynamism, which shapes in a step-like fashion the form and pace of economic activity and social organisation, until its effect wears out and a new innovation appears and a new long wave cycle begins.

2.3 ICT and the New Economy. Information Society can be understood as the meeting point of two distinct but related sets of developments. First, technological developments in Information and Communications Technologies (ICT), the gradual blending of the hitherto distinct industries of telecommunications, computing and broadcasting, and the advent of the Internet (see diagram). Second, the changes in the structure of economic activity, and in particular the growth of the services sector, the increasingly pivotal role of information in all aspects of economic activity, and the emergence of knowledge and innovation and of the so-called New Economy as the driving force for economic development.

2.4 Computing. On the technological side, there are two particular driving forces. The first is computing, that is the power to process information. In this field, there is exponential growth, with the capacity of the microchip (defined as the number of processors in a single microchip) doubling every 18 months. As a result, there has been sustained increase in computing power and in the software applications and facilities offered by the computers available in the market, whilst the relative cost of this computing power has been continuously falling.

2.5 Networking. The second driving force is the linkage

Households with Internet Access (% of total households) 2000-2001



Source: Eurostat

of computers into networks and the ability to share information, applications, as well as computer power, across an office or an organisation or across the globe with more or less the same ease. A major force in this process has been the creation and spectacular growth of the Internet. Telecommunications have been transformed in the last decade from a medium that was used basically for voice telephony to one that is increasingly used for the transfer of data, with digital technology replacing analog technology. The volume of data communication has grown exponentially and now exceeds the volume of voice communication in many countries. Data transfer speeds have increased dramatically, from 56Kbps using a modem attached to a computer and analog technology, or 64/128Kbps using digital technology and ISDN, which is now widely available in most developed countries, to speeds of up to 1,5Mbps using ADSL which is becoming commonplace in some countries.

2.6 Information Society. Information has always been a central component of economic transactions. But two developments have contributed, along with the technological developments outlined above, to the shift from the notion of information to the concept of Information Society. The first is the dramatic increase of the amount of economic activity that is directly related to the creation, processing, storage and dissemination of information. This is shown both in the growth of the

The advent of Information Society in Finland allowed rural people to communicate even from bus stops

services sector, where the component of information is often dominant, and in the increasingly pivotal role of information in the production and business processes in all economic sectors. The ICT sector itself (hardware, software and services) is a leading sector of economic activity and produces 5% or more of the GDP of some countries (i.e. in Europe, Japan and North America). The second development is the increasing importance of innovation and technological change in economic development and the emergence of knowledge as the basis for growth.

2.7 In this context, the nature of information and its relation to economic activity is changing:

- "information is produced, transmitted and transformed continuously and cannot be completely stored;
- information is hyper-mobile, transforming relationships of distance and time;
- if information flows slow down, transformation is reduced and usefulness declines;
- information cannot be codified completely -transfer also involves a relational ability between actors with some know-how and knowledge base, including sharing a technical culture and codes;
- utilisation of this relational activity creates synergies-reformulation of initial components into a new synthesis."

(Source: report on the 1st ERIS@SME working group meeting, 1998)

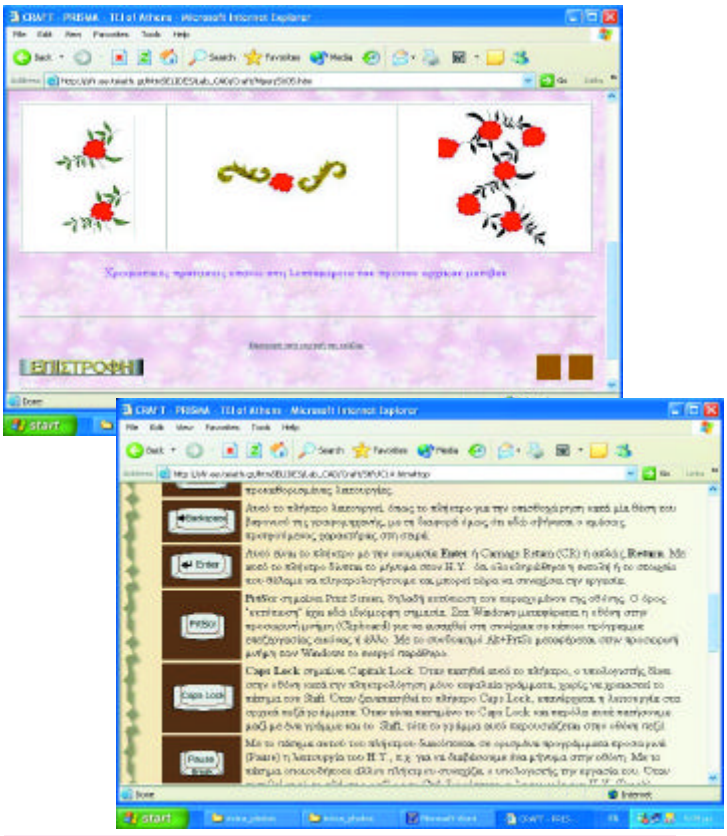
2.8 The removal of geographic constraints. These characteristics of information, and in particular its hyper-mobility, mean that economic activity based on information is also potentially hyper-mobile. As a result, markets are becoming increasingly global. This applies not only to markets dealing primarily with information, such as those related to capital, finance and commodities, but also to markets across all sectors of economic activity. The ease of moving information around the world means that territorial proximity of company operations is much less essential than it was in the past. Geographic distance has decreasing importance for virtually all aspects of business activity. The relocation of productive activity is becoming much more easy than in the past, aided by other aspects of political and economic globalisation with all the consequences, positive or negative, that this implies for regions that win or lose economic activities.

2.9 The global economy. For the reasons described above, the Information Society has become a major force in the world economy. It is dramatically changing the dynamics and forms of economic competition and has become a key driver for economic globalisation. Moreover, increasing data transfer volumes and speeds allow for faster and more effective interactivity, i.e. two-way communication between individuals and businesses. In the New Economy all are senders and receivers in a value-added network. Competition is no longer restricted to a local territory, region or country, but may extend to the other side of the globe. The development of local territories and regions increasingly depends on whether they will be able to compete effectively in a emerging transregional, transnational or global economic environment: this is called the networked economy. Will they be able to adapt to new economic conditions brought about by the Information Society, to exploit to their benefit the opportunities it can offer, and to neutralise the threats it may present?

2.10 Social and cultural impacts. The impact of Information Society is not limited to economic activities. It encompasses increasingly all aspects of social organisation, where in the longer term its impact may well be dramatic. Computers are gradually becoming standard household articles; the Internet is a part of domestic life; ICT are increasingly used by governments in all aspects of public policy and service provision; and the process of cultural globalisation is accelerated.

2.11 Danger and risks. The impact of the Information Society, whether in relation to economic activity or to social organisation, is not always positive. It is not a blessing for everyone. There are benefits, but there are also dangers and risks. Participation in the Information Society does not come naturally for all. There is a risk of "digital exclusion" for certain social groups and territories that do not possess the capacity and the competitive qualities to participate on equal terms with other groups or territories. The experience of the last few years provides ample evidence that digital exclusion is already affecting rural and remote territories (and also some social groups in urban areas). Combating digital exclusion for such territories and groups is already an important part of Information Society policy at national level and at the level of the European Union. In an era when ICT remove geographical constraints and make people practically "digital nomads in a global village", one realises in a philosophical mood that the more global we become the more we need to be local.

2.12 Serious concerns are also being voiced about the effect of Internet on cultural globalisation and the side effects of Information Society on other aspects of social organisation, such as alienation. There are people who think Internet may become a damaging substitute for traditional forms of communication and human contact, for instance in the case of teleworkers who miss the social contact provided by traditional forms of work organisation. On the other hand, there are those who believe that Internet can expand the scope for communication. Last but not least, as the experience of the last few years suggests, there should be caution against excessive enthusiasm for ICT and the prospects of the Internet industry. There was a head start of the industry at the end of the nineties with big increases in the value of telecom operators, software companies, gigantic mergers and many new innovative companies (Internet start-ups). Some of these have survived and are expanding (e.g. Yahoo, Amazon), but many others have disappeared (dot.com start-ups). The "burst of the Internet bubble" may have been a forerunner or manifestation of the economic recession the world is currently going through, but either way it should moderate our expectations for ICT and the Internet.



Web pages of a Distance Learning ICT course for Crafts Artisans and SMEs, developed in the context of the Leonardo Project "CRAFT", 1998

Information Society and rural development

2.13 The role of the Information Society and its impact on economic activity and social life is felt, and is expected to be felt more strongly in the future, in all types of territories -urban as well as rural. But the shape of its role, and the form of its impact, differ significantly between urban and rural areas (as well as between different social groups). The basic source of difference is the geographical remoteness of rural areas, with the differences being often more marked the more remote a rural area is from urban centres.

2.14 Distance, and sparsity of population. The social and economic vitality of rural communities has been affected, over the centuries, by two key characteristics, distance and sparsity of population. Distance has blunted the ability of rural populations to gain easy access to urban services, to serve urban markets, and to maintain contact with metropolitan cultures. Sparsity of population has affected the quality of services which are easily available to the rural populations. Decisions by service providers, both public and private, have seen a progressive withdrawal of many services from the rural areas into towns and cities. These effects have reduced the quality of life in many rural areas, and have impelled people -particularly young people- to move away from these areas.

2.15 Communications as the answer? Over the last two centuries, these disadvantages of rural areas have been offset, to some degree, by improved communications -better roads, railways, public transport services, universal postal services, and (in the last century) widespread telephone services, a precursor of the Information Society. Now we have the ICT revolution, the full emergence of the Information Society. Can this be the force which finally removes the disadvantages of distance and sparsity of population? Does the new ease of moving information to any corner of the world mean that rural areas can compete on equal terms with the cities? Does the computer, already as familiar in many rural homes as the radio and the telephone, mean that rural people can connect as readily with markets, services and global culture as their urban counterparts? We shall see from later chapters that the answer to these questions is "Perhaps, yes". This conditional answer is prompted by the very character of rural areas that was implied above.

2.16 The digital divide. Geographic distance from urban centres, and sparsity of population, tend to be associated with cultural conservatism and resistance to innovation, limited access to information and lower levels of awareness regarding technological innovations and ICT in particular. Moreover rural areas, unlike urban areas with a concentrated and sizeable industrial and economic activity, may not be able to muster the level of demand for ICT that could attract investment in advanced telecommunications infrastructure, which is necessary in order to exploit ICT at a reasonable, affordable cost. This is what is known as the "digital divide" between rural and urban areas.

2.17 Digital exclusion. In other words, rural areas may be faced with tangible and intangible barriers which affect their natural capacity to participate in the

Information Society on a par with urban areas. These barriers are socio-economic, technical and financial, and may differ from one rural territory to another, according to its socio-economic profile and degree of remoteness: but they represent a real and critical gap in development capacity between urban and rural areas. This gap, if there are no proactive policies to bridge it, is likely to accentuate the gap in overall economic and social development between urban and rural areas. Rural areas will run the risk of what has been called 'digital exclusion', i.e. being excluded from participation in the Information Society.

2.18 The digital divide in England. The severity of the digital divide is illustrated by figures published in June 2003 by the Countryside Agency, the body responsible for advising the government on rural development in England. It reports that:

''New technologies, such as broadband, can offer residents access to essential services that no longer have a physical presence locally. In particular, young people living in remoter areas need the same access to the latest entertainment, education and training, delivered through broadband, if they are not to feel disadvantaged compared to their urban counterparts."

"However, new data shows a widening digital divide in England. While 95% of the urban population can get affordable broadband, this drops to 26% in market towns, 7% in rural villages and only 1% in remote rural areas."

"90% of urban households, but only 54% of rural households, are within 2 km distance of a Public Internet Access Point."

"85% of rural businesses access the Internet and 81% of rural businesses use external email, compared with 92% and 89% of urban businesses respectively."

"Countryside Agency Chairman Sir Ewen Cameron said: 'Our countryside is a hive of economic activity that plays a major part in driving the national economy, but this report shows that restricted access to broadband is putting rural businesses and residents at a disadvantage. I know the Government is working with others to address this issue, and I urge them to set a realistic target for reaching the whole rural population with broadband, making it easier to monitor and identify where further action is needed'."

(Source: "The state of the countryside 2003" Countryside Agency, Cheltenham)

2.19 Recognition by governments. The problem of the digital divide and the risk of digital exclusion for rural areas have been documented by many studies in Europe and North America. The need for policies that will help rural areas to participate in the Information Society has been recognised by governments. Most developed countries now pursue national policies in the field of Information Society that recognise the particular situation of rural areas. In the European Union, Information Society has been a key pillar of development policies and has guided national policies of member states. At the level of action, there is a growing number of territorially-based initiatives and projects that promote the participation of rural areas in the Information Society. Many of these initiatives and projects are co-funded by the European Union. They provide a rich learning ground for identifying good practices and approaches to strategy and policy regarding participation in the Information Society that can be effective in rural environments.

Models of intervention: policies, strategies and approaches

2.20 Public policies for the Information Society. Information Society is having a significant effect on all aspects of economic and social development. It has increasing importance as a key economic sector and as a driver for the development of the New Economy. Technological development and innovation in ICT are evolving rapidly. The benefits which may flow from the Information Society are increasingly recognised: but so also are dangers and risks, including digital exclusion, the risk of alienation, and threats to privacy. All this has led to the emergence of Information Society as a central policy field, and as an key element in many other policy fields where ICT applications are used.

2.21 Policies are being developed at supra-national, national, regional and even sub-regional or local level, depending in each country on the levels at which powers and resources lie. Thus:

- Information Society is among the key fields of European Union development policies. This is reflected in a succession of Union policy decisions and initiatives regarding Information Society; in the existence in the European Commission of a Directorate General for Information Society; in references to Information Society in many EU programmes and policies not directly related to it; and in the substantial proportion of the Structural Funds that are specifically directed to Information Society.
- At national level, most developed countries put Information Society at the forefront of their development policies: they put substantial public funds into actions designed to exploit the opportunities offered by the Information Society and to contain any dangers posed by it.
- At the regional level, Information Society is becoming an important element of regional and sub-regional development policy across the European Union. This follows the emergence within the EU of the region as the key level for planning and managing territorial development, and the belief that Information Society should be an integral part of it. Information Society policies at the regional level began to appear systematically in the late 1990's with RISI (Regional Information Society Initiative), an EU programme which funded 22 regions to formulate regional strategies for Information Society and to initiate actions and projects. In the current period of the Structural Funds (2000-2006), most regional operational

programmes include Information Society strands, whilst more than half of the EU regions are being funded directly from Brussels to implement regional innovation programmes that include Information Society as a central plank.

2.22 Inter-dependence of policies. Policies and interventions at different territorial levels may be distinct: but they are inter-dependent and should be purposefully coordinated if they are to be effective. Policies and interventions at each level "require" the support of policies and interventions at higher or lower levels in order to be successful. The scope for Information Society interventions at regional and local level depend greatly in most countries on national policies and funding. There is also a need for "horizontal" coordination of policies, e.g. between regulatory policies and funding policies, within each level. Thus:

- Regulatory policies for the telecommunications industry at supranational and national level will establish the environment for the crucial provision of ICT infrastructure and services at regional or local level in rural areas.
- Regulations concerning formal aspects of Information Society, such as the introduction of the electronic signature and the legal validity of electronic documents, may affect greatly the scope of exploiting ICT for delivering public administrative services to rural regions.

2.23 The need for proactive policies in rural areas. Policies and interventions cover urban as well as rural areas, but the context and the approach are different. As already pointed out, urban areas possess an inbuilt advantage: they can exploit the opportunities offered by ICT and enjoy the benefits of participation in the Information Society to a large extent through the market process. The high concentration of population and business users establishes a demand base that attracts ICT infrastructure and services. Of course, there is scope in urban areas for proactive policies and interventions but their role is complementary, if not secondary, to the role of the market. By contrast, in rural areas there is a much greater need for proactive policies and interventions that can substitute the role of the market process.

2.24 There are no single best strategies and approaches for promoting the Information Society in rural areas. The experience of the last few years in Europe, including the RISI programme mentioned earlier, provides a rich menu of options regarding strategy and approach. But it also suggests that there are certain basic conditions that represent essential prerequisites (pre-conditions) for participation in the Information Society, regardless of the strategy and approach used.

2.25 Optional strategies. Strategies for promoting Information Society in rural areas may reflect the form of the link that is desired between the rural (or peripheral) regions and their related urban (or core) region. This link may be *exogenous*, i.e. originating in the core region, and thus outside the rural regions; or *endogenous*, i.e. originating in the rural regions. This distinction may be expressed in terms of two different development models.

- The exogenous model places the emphasis on the propensity of enterprises and service providers in core regions to use advanced communications networks to gain access to assets in peripheral regions, such as labour supply or customers. This model implies what can be described as *subordinate incorporation* of peripheral and less developed regions into the Information Society, with core regions retaining their primacy in economic power and their advantages over the peripheral regions.

One of the many telecottages created through the initiative of the Hungarian Telecottage Association

- In contrast, the endogenous model places the emphasis on the way in which enterprises or householders in peripheral regions can use advanced communications to get access to markets or services in core regions. This model implies what can be described as *active incorporation*.

2.26 The two models are not mutually exclusive and may coexist in practice. They can complement and reinforce each other; but their respective weight depends to a large extent on the characteristics of a region but also on circumstances outside the control of that region. Available experience from Northern Europe suggests that subordinate incorporation is more in evidence than active incorporation, but that subordinate incorporation may represent a first stage of a cycle that will in due course facilitate the emergence of active incorporation. This may well not be the case in the less developed regions of South or Eastern Europe. The prevalence of subordinate incorporation in Northern Europe may be the result of the existence of certain factors that can attract companies to locate some of their operations in a rural area. These factors may include ICT literacy and computer skills; advanced telecommunications infrastructure (eg. broadband); and other aspects not related to Information Society such as good transport facilities, competitive land prices and good public services. A good example of this situation is the case of Highlands and Islands in Scotland which is described in Case Study 6.2, Chapter 6. These factors may account for the growth of

telebusiness, call centers and some forms of telework in the North of Europe. By contrast, the relative absence of these factors may explain the weak development of telebusiness and teleworking in some of the countries of Southern Europe.

2.27 Optional approaches. The approaches that can be used to pursue the desired strategy may also be based on two different models:

- The *top down approach*, where participation into the Information Society typically is *infrastructure led* and driven by *technological push*.
- The *bottom up approach*, where participation into the Information Society is typically content and service led and driven by social pull.

As with the endogenous and exogenous models described above, these two basic types of approach are not mutually exclusive. They may complement and reinforce each other but their appropriateness depends on the characteristics of the region and on circumstances external to it. The bottom up approach is typically more relevant at sub-regional or local level.

2.28 Combining the dimension of strategy with that of approach makes up a two-by-two menu of four combinations (boxes I, II, III, IV) or options as depicted in the figure below:

		Approach (how)	
		Bottom up, content and service led, driven by social pull	Top down, infrastructure led, driven by technological push
Strategy (what)	Endogenous (active incorporation)	??? ?	??? ??
	Exogenous (subordinate incorporation)	??? ??	??? IV

2.29 These four boxes should not be considered in principle as being, mutually exclusive, although in practice emphasis might be directed to one or two particular options. It is very difficult to find real life examples of territories that reflect exclusively any one of the four boxes or any one of the strategy or approach options. But there are two well known cases that can be used to illustrate the options presented. These are the cases of the so-called digital towns, Ennis in Ireland and Parthenay in France, which are described in detail in the Case studies 6.4 and 6.5, chapter 6. They are broadly typical, respectively, of the top-down and bottom-up approach.

- In Ennis, the initiative came from the national level. A competition was organised by Eircom, the national telecoms operator for Ireland. The town of Ennis was selected among 46 contenders. Eircom financed the laying of the telecommunications infrastructure and the acquisition of PC equipment by the households and enterprises in the town. This case is clearly typical of the *top down*, *technology driven* approach. On the other hand, the positive response of the population of the town to the initiative reflects the gradual emergence of a bottom up, social pull approach.
- In Parthenay, the initiative came from the town itself, with the mayor as the driving force. From the start, the town's policy was to involve the local population as much as possible. Funding assistance came from the European Union, but the town committed its own resources to the project. The focus was on finding out what local people expected in relation to ICT, assessing the level of awareness, and building a strong human network by involving all the community associations of the town and raising local democracy as a central issue for the project. This case is clearly typical of the *bottom up*, *social pull* approach.

2.30 This discussion about models of intervention for the development of Information Society in rural areas was summarised during the 2nd Summer Academy in the following five points :

- technology and infrastructure led projects are top-down and must evolve towards social pull to succeed;
- a region with sound ICT strategies and policies will favour inward investment and value added activities, thus evolving from exogenous to endogenous development models;
- a territory in the knowledge based networked economy should have a mix of access points for the public and SMEs, and technological parks for new businesses irrigated by academia and research;
- indicators must be developed in order to square up to the shortage of comparable data on ICT in rural areas, monitor progress, identify difficulties, define best practice criteria and disseminate them; and
- awareness, motivation, support and involvement of population are absolutely necessary.

Moreover, successful rural ICT projects require an horizontal approach combining investment in telecommunication infrastructure with highly visible and useful initiatives that encompass all the above mentioned aspects.

2.31 The issue of strategies and approaches is taken up later in this guide, after the descriptions in Chapters 3 to 5 of what the Information Society can do for different aspects of rural economy, rural life and rural governance. Chapter 6 examines Information Society from the perspective of the strategic planner or ICT provider. Chapter 7 takes the perspective of the animator or implementer, who wishes to make good things happen at the regional or local scale.

Questions arising from chapter 2 to reflect on

1. What is your own knowledge of, and experience of using, ICT?
2. Do you think that the advent of the Information Society is wholly a force for good in the world? Does it contain dangers and risks? If so, for whom? How should these dangers and risks be avoided?
3. Do you have direct experience of the "digital divide" between rural and urban areas? Has this digital divide been exaggerated in the Guide?
4. Have you had direct experience of policies and approaches to the promotion of Information Society in rural regions? Do the ideas in chapter 2 appear useful?
5. What is your opinion on the view mentioned in paragraph 2.11 that the more global we become the more we need to be local?
6. Do you recognise any of the fundamental issues mentioned in paragraph 2.30 in a rural area where you work or are familiar with?

INTRODUCTION

Part II

Having set the scene in Part I, we now offer in the next five chapters, a series of perspectives which may be seen as facets of the complex prism of how Information Society may relate to rural development. These perspectives are those of the different major players in Information Society, namely:

- The entrepreneurs (chapter 3)
- The providers of public services (chapter 4)
- The citizens (chapter 5)
- The planners and providers of ICT (chapter 6)
- The animators (chapter 7)

Each of these chapters includes case studies. These case studies are focused mainly on the theme of the chapter in which they sit: but inevitably they relate also to other themes, and we refer in many places to these links between chapters.

You -the reader- may well "wear one of these hats" or more than one. You may be a planner or an animator of rural development. Or you may be a service provider, an entrepreneur or an ICT provider. You may also be a citizen, a rural dweller, one who seeks effective service from your local authority, your doctor or your local school or college.

Whatever your role, and therefore your personal interest in the Information Society, it will be good if you can understand also the interest that others have. In that way, you will "see round" the subject, and be able to understand the wider impacts of the Information Society and how it works.

A lively study-visit presentation by a group of participants to the 2nd Summer Academy in Ioannina, Greece

CHAPTER 3.

The Entrepreneurs:
eBusiness for economic development and jobs

3.1 This chapter is about Information Society and entrepreneurship. It focuses on how entrepreneurs can exploit the opportunities offered by ICT. It shows how Information Society in rural areas can contribute to economic development and jobs, and how it can help a rural area or a region to attract inward investment. There are two distinct, but complementary, ways to achieve this:

- through the adoption of ICT by small and medium-sized enterprises (SMEs), in all aspects of business activity, from production to marketing and sales, including the opportunities offered by eCommerce;
- by the introduction of new activities or new forms of work organisation, based on the use of ICT, including telework and the creation of new technology and knowledge-based jobs.

3.2 This chapter focuses on the two main issues stated above. But it may be said, in addition, that the adoption of ICT in all areas of social and economic life in a rural area can contribute indirectly but decisively to economic development. It makes the area more attractive for new businesses in all areas of economic activity, not only those which are related to ICT. Increasingly, the level of participation in the Information Society is becoming a key criterion for business location decisions, at a par with traditional criteria such as good transport facilities or industrial parks. The ability of rural areas to attract new business and inward investment can be greatly assisted by the presence of advanced telecommunications and services, the availability of computer skills and the level of ICT literacy in the population, and the coverage of the territory by eGovernment services. These aspects are discussed in later chapters.

ICT and SMEs

3.3 SMEs, and in particular small companies and the self-employed, including farmers, represent the majority of private economic activity and the main source of jobs in rural areas. Larger enterprises are sometimes found in rural areas, in the vicinity of small towns or agri-food enterprises, but these are exceptions. Small companies and entrepreneurs in rural areas typically face a range of obstacles stemming from their location, notably their remoteness from urban centres and their limited access to markets, services and personnel. These obstacles represent crucial barriers for their capacity to innovate and compete and to sustain economic activity and preserve jobs in these areas.

The obstacles may include:

- the small size of local markets;
- distance from larger business and consumer markets;
- limited participation in business networks;
- distance from banks and public services;
- distance from business services;
- limited competitive pressures;
- shortage of skilled staff.

3.4 Obstacles such as these can stifle business competitiveness and the capacity of companies to innovate. Skilful use of ICT may help SMEs to overcome some of these obstacles by eliminating or reducing the barriers of distance and fostering innovation in technology and work organisation. Full exploitation of opportunities offered by ICT can provide SMEs with:

- access to national and even international markets;
- access to public and business services;
- access to information regarding technology and markets;
- improved competitiveness through better organisation of internal operations, higher productivity and market responsiveness.

3.5 Available evidence on the level of ICT adoption by SMEs suggests that they lag considerably behind larger enterprises. SMEs, and especially small companies, may face technical, financial and cultural barriers to full use of ICT. Some of these barriers apply equally to small companies in rural and urban areas, but they tend to be more significant in the case of rural areas.

- Smaller companies may have severe difficulties in comprehending the complexity of ICT and what it involves for their business in terms of costs, benefits, work organisation and management. Typically they may not possess the necessary internal expertise and may not have access to, or be able to afford external expertise.
- They may be reluctant to commit funds for the initial investment required, which is proportionately higher than for larger enterprises, or for the ongoing operation of ICT. They may be wary of investing in an area where returns are not likely to be quickly realised.
- The culture of many small companies, whether urban or rural, is not conducive to the take-up of ICT and its implications for business strategy and innovation. Most small companies are family run; lack an entrepreneurial culture; are not used to rapid change; and are not much involved with training and information.

➢ In rural areas the level of ICT usage by customers is lower than in urban areas and that further discourages the use of ICT by local companies.

➢ Lack of appropriate ICT infrastructure can present a barrier for SMEs located in rural areas.

3.6 The use of ICT by SMEs is increasing. However, for all these reasons stated above, the gap persists between larger and smaller companies, as well as between companies based in urban and rural areas. This gap is likely to grow unless there are positive policies to encourage the adoption of ICT by smaller companies. These policies should be multifold.

They may include one or usually more of the following measures:

- financial incentives for companies to acquire or upgrade ICT hardware/software and insert Information Society into their business strategy;
- awareness raising regarding the benefits and implications for using ICT, including the dissemination of best practice and the identification of "ICT business champions";
- training in ICT skills;
- access to ICT facilities, e.g. through public access points in the form of telecentres or telecottages (see chapter 5);
- access to ICT services through portals and websites;
- upgrading the telecommunications infrastructure, e.g. through the introduction of ISDN or broadband services.

3.7 Of course policies and measures that target SMEs indiscriminately, regardless of whether they are located in urban or rural areas, are likely to have a limited effect in the case of rural areas. Benefit to rural areas may only come from pursuit of a strategy to foster participation in the Information Society at the local or regional level: this strategy must take into account the broader spectrum of barriers to Information Society that affect rural areas and may need to be well integrated with national initiatives. This issue is explored further in chapter 6.

3.8 The box below provides an example of a national initiative to support the use of ICT by SMEs.

ICT is often used in fairs aimed to entrepreneurs

National initiative: the case of the United Kingdom

In the United Kingdom, the Information Society Initiative (ISI), launched in 1996, comprises an SME action plan placed under the responsibility of the Department of Trade and Industry's Programme for Business. The main feature of this programme consists in the creation of a national network of local support centres, numbering 80 at the end of 1998. These centres are situated in various locations, ranging from Development and Enterprise Agencies, Technology Centres and Chambers of Commerce and Industry. They provide initial and specialised training as well as advice, support and financing for SMEs within several national projects. Multimedia Demonstrator Awards is a competitive funding mechanism designed to encourage the adoption of such technologies in small firms. Industry Sectors On-Line and Export On-Line support the work of trade associations and offer access to useful information on different markets. A national programme of training and accreditation for business advisors and an ICT financial management programme support these. A specific portal (ukonlineforbusiness.gov.uk) keeps small businesses abreast of most recent developments in ICT, training opportunities and eCommerce perspectives.

3.9 eBusiness. ICT can improve the way companies work in a variety of ways in all their functions, i.e. marketing, sales, purchasing, exporting, operations, design and production, management of information, customer service, training. Technical tools include the Internet, e-mail, Electronic Data Interchange (EDI), CD-ROM and Electronic storage, video conferencing, mobile communications, networking. The ways in which these tools can be used for the various business functions is illustrated in the table that follows.

3.10 There are many examples of SMEs who improve their competitiveness and overcome the barrier of distance from markets that stems from their rural location through the use of ICT and eCommerce. Examples are found in all the main sectors of the economy -the secondary sector, especially small industry and handicraft work; the services sector, especially tourism; and agriculture. Usually, they are the result of the initiative of the entrepreneur, who may be supported by policies and measures such as those described above in the United Kingdom. Through eCommerce, companies can sell their products and services anywhere in the world. For companies that are located in a rural area where the local market for their products is very small or virtually non-existent, the ability to access distant markets may make a great difference and in many cases is a necessary condition for survival. By fully exploiting ICT in the internal organisation and productive processes of their business, companies located in rural areas can become competitive and secure a much greater market than their location would otherwise permit.

3.11 eCommerce refers to electronic data interchange

	The Internet & the World Wide Web	E- Mail	EDI (Electronic Data Inter-change)	CD-Rom & Electronic storage	Video conferencing	Mobile communications	Networking
Marketing	Global promotion & advertising Targeting potential markets	Automated mailing		Electronic catalogues/ brochures/ presentations			
Sales	Financial transactions Taking orders	Quotes Product detail Order taking	Business transactions Sales processing	Sales presentations Information kiosks	Sales presentations	Sales forces support	
Purchasing	Global production sourcing International tenders	Obtaining quotes & specifications	Business transactions Order processing				Planning "just-in-time deliveries
Exporting	Direct access to markets & agents	International communication	Business transactions	Interactive product manuals	Face-to-face meetings	Rapid world-wide access	
Operations	Research sources Recruitment New ways of working	Document transfer Internal communication	Stock control Order processing	Electronic storage	Teleworking Controlling overheads	Delivery support	Group working Management information systems Project management
Design & Production	Research source	Collaborative working		Data storage for production processes, e.g. parts catalogues	Team working Client liaision		Team working Shared resources
Managing information	Electronic publishing Business research	Sharing & trans-mitting data Team making	Management of information	Data storage Archiving		Remote access	Collaborative working Shared resources Organising informatio
Customer service	Customer information Collecting customer feedback	Response handling	Exchange complex information	Information provision	Face-to-face meetings	Rapid response Information access for field staff	Shared customer databases Customer helplines Tracking "work-in-progress"
Training	Interactive training delivery	On-line training		Interactive learning	Distance learning		Group learning Staff training

and transactions between a company and its suppliers or customers. It falls into two categories: business-to-business (B2B) and business-to-customer (B2C). Companies usually enter the world of eCommerce in a gradual way. They may start from setting up a web page to present the company activities and products: they then may move in to use the Internet for buying and selling, i.e. putting orders to their suppliers and receiving orders from their customers: the last stage is to conduct financial transactions over the Internet. eCommerce is expanding rapidly, but has not fulfilled the inflated expectations that were popular a few years ago. Security of financial transactions over the Internet and lack of confidence by consumers has moderated its expansion, especially in the B2C category.

3.12 ICT in commerce and manufacturing. Three case studies presented at the end of this Chapter represent examples of small companies that have used successfully B2C eCommerce to reach a global market. They are:

- Barrabes (case study 3.1), a shop located in a small Spanish village in the Pyrenean mountains that sells skiing and mountaineering equipment. They went digital in 1996 and run a full service on-line shop through their website. By 1998, one sixth of their sales were arranged through the Internet with 70% of these sales coming from outside Spain.
- West Country Violins (case study 3.2), a handicraft business run by a husband and wife in rural England. They buy, restore and sell old violins. 95% of their business is conducted on-line, with customers from all over the world.
- Roundstone Musical Instruments (case study 3.3), a small family business, located in a small fishing village in Western Ireland, which manufactures the traditional Irish drum. In 1995 they decided to invest substantially in e-practices, including an on-line website. This has enabled them to penetrate foreign markets, so that exports now account for over 70% of their sales.

3.13 Case study 3.4 presents a successful example of a manufacturing firm which uses ICT in an all-inclusive way. This is Chasestead, a prototype engineering company located in rural Hertfordshire in England. They have introduced ICT throughout the company operations and in their relations with suppliers and customers: this has dramatically increased their competitiveness.

3.14 ICT in tourism. Tourism is a sector which makes extensive use of ICT. All types of tourism enterprises - hotels, travel companies, leisure enterprises, attractions, services such as car hire, cultural institutions- increasingly use the Internet to advertise their services and to present information to their customers. Many hotels and travel agencies accept electronic booking of accommodation or travel, and in some cases accept payment over the Internet. For customers located in rural areas, this has obvious advantages. But it has also considerable advantages for tourism enterprises located in rural areas, such as small hotels or farm guesthouses. For them, the Internet can offer direct access to a potential clientele anywhere in the world, and may eliminate or minimise the cost of intermediaries such as travel agents. A vivid example is provided by the case of a small dairy farm in the Peak District, in Northern England whose farming economy was declining (case study 7.3, at the end of chapter 7). They joined a Farm Holidays Association, set up a website and used it successfully to market farm tourism.

3.15 Not only individual tourism enterprises, but also

complete tourism destinations, can benefit from the use of ICT. This is fully explained in the Euracademy Thematic Guide One on Sustainable Rural Tourism, produced for the 1st Summer Academy of 2002 and now available on the Euracademy Website. Rural tourism is a highly competitive business, with rural regions throughout Europe (and indeed throughout the world) competing for trade. Potential customers increasingly use the Internet to find out about the alternative places that they can visit, and they may base their decision not only on the individual enterprise whose accommodation they may use, but also upon the "feel" and the quality of the overall destination region. That is why many chambers of commerce, tourist associations and Syndicat d'initiative now have their own websites, and can handle inquiries on a full electronic basis. The members of these groups can also use ICT to communicate with each other, for example in order to hand on inquiries which they cannot individually meet. A successful example is shown in case study 3.7, where the initiative and insistence of one man to flourish his business through collaboration with others to provide a "fuller tourist product", resulted in a successful bid for an EU financed project.

3.16 ICT in Agriculture. Farming is another economic sector that can also exploit the opportunities offered by ICT. This can take several forms. Farmers can gain important information through the Internet, ranging from weather forecasts to technical advice, for example related to cultivation methods. Case study 7.4, in chapter 7, provides an example of such use of ICT by farmers. This is Ekoweb, an Internet-based news service run by the Swedish National Farmers' Association and the Swedish Board of Agriculture. The service is targeted to farmers and others interested in organic farming, and provides not only information but also various services for planning and managing farm operations.

ICT offered an invaluable tool to farmers in Finland

3.17 Farmers can also use ICT directly to improve their farm production, making use of what is called "Precision Farming". For example, many farmers in Western Europe now plough their land or reap their crops with machines which are highly computerised; control the feed supply to their dairy cows through hoppers which respond to electronic tags on the ears of the cows; and register their new-born animals though text messages from their mobile phones to the record centre. They can use the Internet to handle effectively their purchase of supplies and the marketing of their products. Like any business, they can use standard software to complete their farm accounts and tax returns and access on-line EU forms and information on CAP.

ICT and new economic activities: telebusiness and telework.

3.18 In many rural areas, economic activity and employment have been steadily declining because of the loss of jobs in agriculture or in traditional industries (such as coalmining or textiles) located in rural areas. This decline has been especially felt in remote, mountainous or island areas, where it has led to severe depopulation. The steady loss of jobs in rural areas cannot be made good simply by strengthening the competitiveness of existing SMEs, through ICT or other means, although that is itself very important. If jobs are to be sustained, new economic activities have to be attracted into rural areas. ICT offers opportunities to create new jobs. It makes it possible for economic activities, including provision of services, to be conducted on a decentralised basis. The two major examples of this are:

- telebusinesses, including call centres
- the expansion of telework,

These are described in the next few paragraphs.

3.19 Telebusinesses are enterprises based wholly upon the use of ICT, and taking advantage of its ability to overcome distance. They are often subsidiaries of, or act as contractors to, major firms based in cities who wish to 'out-source' work which does not need to be done in the city. For example, many telebusinesses undertake processing for information-intensive services such as accounting, insurance, secretarial or translation services. Others act as Call centres, which handle customer services for companies in the financial or transport sectors (e.g. banks, insurance companies, airlines, railways, etc) or in more recent years telemarketing or telesales services.

3.20 Because telebusinesses maintain their contact with customers (whether these are large firms or the general public) wholly by electronic means, they can be located anywhere. They tend to be placed where there is a source of well-educated but relatively cheap labour, coupled with good access to telephone or other electronic services. The result is that some work which originates in Europe is in fact handled in India and other developing countries. But call centres are flourishing in many non-metropolitan regions of Europe, and this

includes places in more remote rural regions such as southern Ireland and the Scottish highlands. The number of people employed in call centres in Europe has increased four times between 1995 and 1999 (from 0.3 to 1.25 million jobs), with the United Kingdom leading with 0.4 million jobs.

3.21 Most telebusiness operations employ large number of people (100 to 1000) and therefore tend to be located in, or near urban areas. There are also cases of telebusiness operations being established in more remote rural areas: but with few exceptions the potential for attracting telebusiness into rural areas or regions is not systematically exploited. A notable exception is the region of the Highlands and Islands of Scotland, where the Regional Council has a systematic policy to encourage the creation of telebusinesses. In that region, there were 160 telebusiness firms in operation in 1999, employing 21,000 people: of these employees, 2,300 people were located in the more remote areas of the region (see case study 6.2, at the end of chapter 6).

3.22 Telecenters or telecottages represent one of the earliest initiatives for bringing computers and ICT to rural areas (and in some cases to urban deprived areas). Their main function was from the start, and still remains, a social one, i.e. to combat social or economic disadvantage and serve as public access points. They are described in Chapter 5, as part of the eGovernment discussion. However, there are conditions under which they can become financially viable, orient their activity towards business support work and contribute to the creation of jobs. A successful example of this kind, described in case study 3.5, is East Clare Telecottage in Ireland. It has managed to develop a viable business providing services to private and public sector clients on a commercial basis.

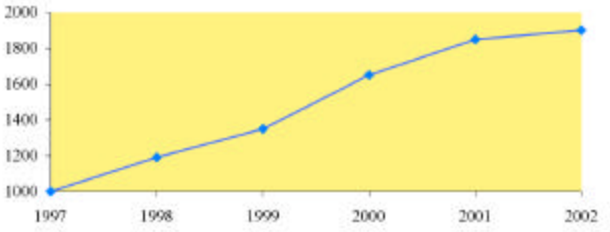
3.23 ICT-based businesses set up in rural areas represent, along with telebusiness, the entry of rural areas into the New Economy. These businesses may be new-starts or off-shoots of existing companies. They may be created in response to new service needs arising from the permeation of ICT in the local economy, or from the opportunities offered by advanced telecommunication infrastructures to work for clients at a distance. Their activities range from web development and hosting services to computer services and outsourcing for local organisations, or more specialised ICT work such as multimedia and software design. Their presence, beyond covering essential local needs for services and creating jobs, can also act as a flagship for innovation and new technology and prepares the ground for the entry of a rural area into the New Economy.

3.24 Many regions recognise the strategic role of this type of business and encourage their creation through grants and the provision of office space in business parks, as well as by making available the necessary telecommunications infrastructure. Well-known examples of this policy include the Highland and Islands in Scotland, Shannon in Ireland, Northern Karelia in Finland and Blekinge in Sweden. Often this is part of a purposeful strategy to push a rural area into the New Economy by funding new ventures, setting up business incubators and promoting links between University research and development work and the local economy. The Vaga Business Garden (case study 7.1, chapter 7) is a good example of this strategy. It was established in 2000 by the Vaga municipality, central Norway, in collaboration with the Norwegian Industrial Development Corporation and local companies. Within the space of two years it has managed to attract 7 new knowledge-based companies to the area.

3.25 Telework represents a new form of work organisation for service activities, where an individual works from a distance, using ICT, for his or her employer or clients. Telework can be full-time or part-time. It requires basic office space, computer equipment and access to the Internet, and can be conducted from home or from a telecentre (see chapter 5) or similar organisation that offers the required facilities.

Teleworking in the UK

Teleworkers (1000s)
Is telework economically significant?
Now 2m - 7.5% of working population - potential 23% in 2020?



Source: "The State of the Countryside 2020", Countryside Agency 2003

3.26 Typically, salaried telework for an employer involves dividing work time between home and office. This form of telework is mainly found in suburban areas or rural areas with good commuting facilities to a town or city where the offices of the employer are located. Independent telework, by self-employed people, may more often be based in more remote rural areas. It includes a variety of service activities at different levels of qualifications: secretarial work; editing and translation work; graphic design and multimedia work; or consultancy.

3.27 Telework represents in total a substantial and rapidly increasing activity, with the Scandinavian countries leading in this field. Most teleworkers are telecommuters who live in urban or suburban areas. But the number of teleworkers who live in rural areas appears to be growing. This is a significant social phenomenon. It means that a growing number of people, who wish to stay living in the countryside, or to move out of the

cities to find a rural life, are able to earn an income there. This may permit the main "breadwinner" of the family to work full-time or part-time from home, and thus to take a fuller part in the life both of the family and the village; or may allow other family members, such as wives who must stay at home to care for children, to have rewarding work while based in the home. It can enable better-educated people, who in the past have tended to leave the rural areas, to stay there and play their part in social life.

3.28 Many regions systematically encourage telework as part of their Information Society strategy for maintaining and creating jobs in their rural areas and for attracting city dwellers who can strengthen the skill base of a rural area. An example of a successful policy to promote telework is that of Western Isles, in North West Scotland, described in case study 3.6. Their teleworking initiative was launched in 1994. It exploited two comparative advantages of the area, a highly educated work force and an advanced telecommunications infrastructure. By the year 2000, the initiative had created more than 150 jobs.

Questions arising from chapter 3 to reflect on

1. Where do you place yourself in the spectrum of "players" in Information Society?
2. Have you got good personal or professional contacts with other people who play different roles from yours, in relation to Information Society?
3. In your region, or a rural area with which you are familiar, what is the general level of use of ICT among entrepreneurs of all kinds? What attitude do entrepreneurs take to the use of ICT?
4. In that region or rural area, is there a significant amount of telebusiness and telework? If so, how did this happen? If not, what is inhibiting it?
5. What is your opinion on eCommerce and the opportunities it offered to the businesses described in case studies 3.1, 3.2 and 3.3? Are you familiar with any businesses that could benefit from following these examples?

Case Study 3.1

Barrabes -online sales & services, Spain

Barrabes is a shop specialising in all kinds of skiing and mountaineering equipment, located in Benasque, a small village in Spain at the heart of the Pyrenean Mountains. It was founded in 1987 by the Barrabes family, who have a long tradition in mountain activities. Nine years later, the business had grown into a successful venture, with a 5-storey retail shop.

In 1996, the family decided to "go digital", in order to increase their commercial viability and opportunities. They set up a website which incorporates B2C (Business To Consumer) selling techniques. Their ambition has been to become a worldwide reference point in the field of mountain and snow sports, offering an "encyclopaedia" constantly updated with the latest products, techniques and materials. Their motive was that high-quality skiing and mountaineering equipment is produced in several European countries at very competitive prices for overseas markets, and the realisation that the USA, with its very high Internet penetration, presents the biggest market for European exports via eCommerce.

The Barrabes eCommerce scheme is operated by a team of five professionals, supported by a graphic design company and a software company that specialises in complex eCommerce applications. The whole system integrates modules for payment, follow-up of deliveries and internal management issues, such as invoicing, stocks, orders, etc. At the beginning, the website did not feature direct purchasing but customers could browse through the on-line catalogues and then send their orders via e-mail, normal mail or telephone. In 1998, Barrabes made 17% of all their sales (800,000 Euros) to customers who placed their orders through Internet or after consulting the website catalogues.

Since 1999, the website offers a full service on-line shop, which features a virtual basket for bundling orders, optional help from a virtual sales clerk, and direct bank connection for secure payments. Since the aim is to promote sales all over the world, the site can be browsed both in Spanish and English, and a conscious effort has been made to fix customers' interest in repeatedly visiting the website. To do so, the site now includes free services such as a magazine, weather forecasts, forum pages and a range of information and contacts for expert advice on snow sports and climbing. Business has greatly increased: the website now receives about 1200 visits a day, and 70% of all remote orders came from abroad. Barrabes now employs 35 people and is considered as the most successful specialised shop of its kind in Spain. Its activities have also expanded to organising training courses and mountain expeditions.

In early 1999 Barrabes made an alliance with Banco Central Hispano, Hewlett-Packard, Intel, Microsoft Iberica, Retevision and UPS aimed at promoting the Barrabes website as the biggest export service for skiing and mountaineering equipment, mainly to Europe, USA and Latin America. All partners consider that the success of the Barrabes initiative will push the development of eCommerce in Spain and elsewhere. However, Barrabes' experience has provided two cautionary lessons: firstly, that in Spain there is still suspicion on the security of on-line payments; and secondly, that most of the suppliers are reluctant to integrate eCommerce in their supply chain.

***Contact**: http://www.barrabes.com*

Snowmobiles in an imposing winter scenery

Case Study 3.2

West Country Violins, England

West Country Violins is run by a couple in Devon, England, who purchase and restore violins that are mainly of 18th to early 20th century and of either French, German or Italian origin, and then sell them to individuals, teachers, dealers and private buyers. A few months after the company was established in 1999, they decided to use eCommerce to enable them to reach a worldwide market without a radical increase in overhead costs. They now use eCommerce as the major sales outlet and method of communication with customers.

Central to the company's activity is the understanding that a violin is personal and unique to every owner. The website is therefore supported by sophisticated recording equipment, sound card technology and high quality images, to allow customers to preview the individuality of workmanship for each instrument. High quality photographs accompanied by sound files and detailed descriptions of the violins are used as key selling tools.

To ensure that customers feel secure when purchasing online, the personal details and credit card payments are received through a secure server. The management of customer relations has further improved through the creation of a feedback page.

West Country Violins is a fine example of how ICT has enabled a very small company to improve its business and to serve a global market. The company has now a thriving export business with sales all over the world including Europe, the USA and Asia-Pacific regions. They do 95% of their business online. The venture has also encouraged them to examine other aspects of eCommerce: as a result, they have now ventured into online procurement, establishing relationships with a number of international suppliers and specialised craftspeople.

***Contact**: http://www.westcountryviolins.com*

High quality detailed images of violins are illustrated in the company's website for marketing reasons

Case study 3.3

Roundstone Musical Instruments, Ireland

Roundstone Musical Instruments is a manufacturer of the traditional Irish instrument known as the bodhran (Irish drums). The firm was established in 1978 by a couple in Roundstone, a small fishing village in County Galway, in western Ireland. They had a very small but growing niche market, and have now succeeded in becoming leaders in the field.

However, the owners did not have much money to spend on marketing and advertising in order to reach foreign markets. Internet represented a vital opportunity for them to open up new markets in North America, Europe, Australia and Japan, by cutting through the barriers of distance, time and language.

In 1995, they decided to put about 60% of their marketing budget into developing a website and to adapt e-practices. This investment was about 60,000 Euro, including 15,000 Euro for software and 15,000 Euro for specialist skills: some financial support was received from Enterprise Ireland. The website was placed online in 1996 and most of its features, including eCommerce, were set up in its initial version. This has proved to be a sound investment. The website now appears in Irish, English, French and German; online business accounts for 20% of the firm's business; the firm has succeeded in penetrating foreign markets, with exports accounting for 73% of sales; and the company has received numerous awards in recognition of its success on the web.

Roundstone Musical Instruments is an interesting example of how a small businesses can use ICT to overcome barriers of small size and remoteness. The owner of the firm had no ICT skills at all, but he quickly acquired a good understanding of the business potential of ICT. The firm now employs 14 people, mainly instrument designers and makers and skilled artists who hand-decorate the bodhrans. The owner hired an ICT specialist to develop and maintain the website and eCommerce, and also to teach his colleagues in the firm how to use computers and the Internet. There was no resistance to the adoption of e-practices in the firm, as the employees were open to learning new skills.

Animal designs full of intricate entwining knitwork and vibrant colours are often used in bodhrans

The most important discovery for Roundstone was that the Internet, instead of being an impersonal means to communicate with customers, has "become a friend and a good business partner, 24 hours a day, 7 days a week".

***Contact**:*

http://www.bodhran.com

Case study 3.4

Chasestead, use of ICT in manufacturing, England

Chasestead is a Prototype Engineering Company, established in 1963 in Letchworth, a small town north of London. It produces and assembles low-volume sheet metal parts, specialising in subframes and under-structure components for cars. The company, looking ahead and seeking ways to collaborate better with customers, started to use Extranet technology in order to simulate the production processes, and to keep costs down.

The 3,700 m² Chasestead factory

The opportunity came through a Supplier Development Programme introduced by one of their large customers, Krupp Camford Ltd. That firm encouraged Chasestead to build its system capabilities as much as possible, and the two companies now have a range of strategic partnership agreements. This helped Chasestead to collaborate better with customers on specific projects, to introduce more effective management mechanisms and to reduce costs.

The company uses different aspects of ICT for many parts of their production and management processes. These include:

- LAN computer system to run financial accounts, database and other software.
- Project-based extranets, job barcoding and staff clock onto-off each job, in order to keep track of how much time is spent on each job, how profitable a job is, thus providing accurate management information.
- CAD (computer-aided design) system and Odette (the standard electronic messaging system used by the automotive industry), which have helped their customers to upload requests and design specifications directly. Using the CAD data in the manufacturing processes is far more efficient than the previous methods employed, as it saves time, money and effort which would previously have been spent on marking out work from detailed drawings.
- A state-of-the-art telephone system, through which Chasestead's telephones are linked to the computer database. Incoming calls are identified using caller line identification, allowing Chasestead to personalise its responses to customer calls through displaying customer and order details automatically on-screen.
- Most quotations are made on the basis of e-mailed details, which can include small drawings and digital photographs. Inspection reports and project queries, again incorporating digital photographs, are also sent to customers electronically. E-mail has reduced telephone and postal costs, and enabled Chasestead to respond more quickly to customers.
- Extranet is used to facilitate internal management. Team members have password-controlled access, letting them upload and download files, minutes of meetings, timing plans, contact lists, photographs and prototype sketches. An online message board is used for project queries and troubleshooting. Moreover, the website is invaluable for international marketing, cutting costs further since brochures are no longer required. There are also on-going plans for developing eCommerce through the website.

In these ways, ICT has enabled Chasestead to revolutionise the way it works with its suppliers and customers, by reducing considerably the time and cost of product design, manufacture and management.

Contact: *http://www.chasestead.com*

A Chasestead employee viewing one of the CAD Systems

Case study 3.5
East Clare Telecottage, Ireland

One telecentre which has taken a commercial stance since its inception is East Clare Telecottage based at Scariff (population 1,200) in County Clare, Ireland.

East Clare Telecottage was established in 1991 to provide a wide range of ICT based services to businesses as well as the local community. It has developed along a particular business model, in that it is effectively acting as a broker between clients wishing to outsource work and "e-teams" which are drawn from a pool of workers living in the region. The telecottage sources and manages these e-teams and takes a fee for doing so. This approach was initially underpinned by research into what skills were available in the local labour market in order that they could be matched to market demands. Subsequently workers were also drawn from farther afield. Employees are now drawn from other parts of Ireland and beyond.

The telecottage provides a variety of services to a range of clients. This diversity is seen as a strength by the organisation, because work in any particular service area is likely to fluctuate. The telecottage describes its main role as "managing e-work". At any time it is likely to have two or three projects running. It has build up a network of clients through "hard work", responding to tenders and chasing work. Areas of work include:

- Call centre work, mainly short-term work, such as outbound market research, for organisations such as the regional development agency. It was envisaged that call centre work would be a more central component of the telecottage's portfolio, but it has been difficult to attract long-term in-bound work or overflow traffic from commercial call centres, notwithstanding investment in call centre technology, though the centre would welcome such work and claims to have the capacity to do it;
- Translation services for public and private sector clients, drawing on a wide range of languages, but including translating documents from English into Irish: translation is said to be a key growth area;
- Designing and developing course material for delivery over the Internet: this employs graphic designers and instructional designers.

In the summer of 2000, eight core workers were based at the East Clare Telecottage. The numbers employed on an outsourced basis through the telecottage vary over time, but over 60 people have been employed at particular periods. Those engaged in telephone work tend to be married women. In other areas the workforce is more diverse. Workers in translation and design all have third level educational qualifications. Most of these are incomers or returnees to the area, who have developed their skills elsewhere: they have relocated to the area for quality of life reasons, may not want full-time employment, and are not prepared to commute long distances to obtain such work. The telecottage plays a key role in finding work and managing the work process in a way in which allows the skills of these people to be used.

Contact: *http://www.bealtaine.ie*

View of Derg House, Bealtaine Ltd's premises

View of Scariff Bay, Lough Derg

Case study 3.6

Western Isles-bringing jobs to a skilled workforce in a remote area of Scotland

The Western Isles lie at the very edge of Europe, 50 kilometres from the North West Coast of Scotland, and extend 210 kilometres from north to south. The islands suffer from the problems often associated with remote, peripheral rural areas -depopulation, high transport costs, lack of employment opportunities and a narrow economic base. However, they have the highest number of graduates per capita in the UK, and a very intensive investment in training. They also have first class telecommunications infrastructure. As a legacy of the cold war, the Western Isles is one of the most "wired" parts of the UK. In addition to this, a large investment programme has brought the digital infrastructure to a very high standard, implementing special solutions where needed, such as the call centre which uses "seamless" electronic switching.

In this context, a teleworking initiative has evolved since 1994, aiming to put the highly qualified workforce of the islands in touch with potential employers and clients through teleworking and call centre activities. It started with a one-year experimental research project to assess needs. This was followed by the setting up of a limited liability company to manage contracts; and then by the implementation of the project in two development phases, 1995-1998 and 1998-2001. The company serves a partnership called Western Isles Information & Communications Technology Advisory Service (WI-ICTAS). It runs a facilitation service, called Work-Global, which seeks out worldwide teleworking opportunities, attracts inward investment and seeks to match the workforce skills to the needs of clients both nationally and internationally through pro-active marketing programmes. There is no charge for this facilitation service. The only costs required typically are for worker hours contracted and any specialist software or support services that may be needed.

In 2000, the direct efforts of WI-ICTAS created over 150 jobs and ensured that more than 50 people were employed in either home-based or office-based teleworking at any one time. The initiative thus created jobs for well-educated islanders, who had been unable to find work matching their skills: it also enabled people, who lived outside the area but who wished to return, to do so.

This case clearly demonstrates the importance of a committed "champion" able to drive forward a vision, galvanise local support and get things done, without bothering the client with the details of teleworking. The company was lucky to inherit an existing, high quality infrastructure. Other factors have contributed to the success of WI-ICTAS, including a highly flexible, qualified and adaptable workforce, the strong regional identity of the islands, the work of Work-Global which ensures a single point of contact to potential customers and develops links around the world, as well as partnerships between community organisations, the public and private sectors.

Contact: *http://www.work-global.com*

Scenic and remote rural settings in Scotland

Case study 3.7

The Middle Path[1] - leading towards sustainable rural tourism, Sweden

The county of Vasternorrland lies on the east coast of Sweden, about 400 km north of Stockholm. The region is characterised by its culture and quietness, its tradition in farming, fishing and industry and its rich natural resources, such as wild forests and rural landscapes. Although the area has the potential to attract tourism, development has been slow. This is down to the fact of the limited experience on tourism in the area, coupled with long distances between attractions and entrepreneurs, long distances to the market and inefficient and uncoordinated marketing for the promotion of the tourist product of the area.

The idea for the EU financed project "The Middle Path" was based on the vision of an entrepreneur with long experience in tourism in Sweden and Ireland. His conviction has always been that the really big potential for tourism development lies with rural tourism. He leased in the mid 1990s an old manor house in the countryside of Ljungaverk, with a restaurant and hotel, but he soon realised there was no cooperation among local tourism entrepreneurs to create an attractive tourist product. He looked for partnerships with other local entrepreneurs offering tourist activities that could complement his business. He found someone who organised horse trekking for tourists and another one running an "adventure" house. These enterprises, together with his hotel and a golf club nearby, could offer an attractive "package" to tourists, to entice them to stay longer in the area. They decided to cooperate, so that they could share advertising costs and be more effective in their marketing strategy. They also shared other administrative services and costs and tried to form a larger informal group of tourism entrepreneurs from the wider region.

At that point, they approached Mid Sweden Tourism, an organisation owned and run by the Chamber of Commerce, the County Council and seven municipalities, with the remit to develop and promote the region as a tourist destination. With the organisation's help the "Middle path" project was started, aiming to develop an official regional web site for tourism through the LIGO-system. LIGO is a database available in 3 languages, offering tourist information for the whole county, including various user-friendly functions such as "Print your own brochure" with selected information, printing local maps, a calendar with events transferable to a PC-diary, on-line booking system etc. Mid Sweden Tourism and all local tourism entrepreneurs may upload information on the web site. All authorised tourism information offices have access to the database, as the system is connected to the national information system.

The project gave a boost to rural tourism entrepreneurs in the area, who obtained access to low-cost professional advertising to build a lasting tourist profile for the region. Development has been very positive, with increasing number of tourists coming into the area, effective networking through Internet and the building up of an award winning profile on the slogan "Balm for the soul". However, resources must be secured for the future and an effective monitoring and management system must be brought into place so that the project does not end up developing high tech systems only for the sake of it, but become a true tool for connecting the market to the local tourist product and for making the job of the local tourism entrepreneurs and tour operators easier.

Hunting and fishing tourism has a large development potential in the area

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http://www.upplevmittsverige.nu

1. *"The Middle Path" is the name of a path stretching through the region leading to Trondheim, Norway, used by pilgrims.*

CHAPTER 4.

The Providers of Public Services: eHealth and eLearning for improving the quality of life and strengthening competences and skills

4.1 This chapter focuses on the providers of public services in two fields where services are crucial for the social and economic well being of rural areas -health care; and education and training. It concentrates on how Information Society can be exploited to enhance access to these services and improve their quality. The improvement of these services can improve the quality of life for those living in rural areas, strengthen their competences and skill base, improve business competitiveness and make these areas more attractive for economic activity and inward investment.

eHealth for health care services

4.2 eHealth refers to the use of ICT in the provision of health care services. ICT is now used extensively at all levels of health care services (primary, secondary and tertiary) for organising, processing and exchanging medical information and data regarding all aspects of health care. It involves the computerisation of data related to the medical history and treatment of patients; of data on laboratory and other medical tests, which is increasingly available in digital form; and of operational and administrative data and procedures.

4.3 Telemedicine. One important use of ICT in health care, that is especially relevant to rural areas, is telemedicine. Telemedicine applications potentially cover a very broad area of medical and paramedical services, from cardiology and dermatology, to dentistry and psychiatry. Telemedicine has two broad aspects, both of which can bring benefit to medical services in rural areas, namely:

Telemedicine applications allow for quick diagnoses and specialist medical advice (TeleInViVo workstation)

- specialist medical support, and training of medical staff, supplied from a distance
- electronic contact between patients and the medical services.

These two aspects are briefly described below.

4.4 Specialist medical support. Telemedicine permits the exchange of medical information and advice, through the Internet, between a specialist and a doctor who needs expert advice for making a diagnosis and prescribing treatment for his or her patient. Typically, the specialist is located in a general or specialised hospital, while the doctor may be in a surgery or health centre or in another hospital that does not possesses the necessary expertise. Usually, telemedicine links medical personnel in the same country, but there are cases where the expert advice required may come from a specialised hospital in another country. Telemedicine thus enables specialists located in a hospital to provide, on a regular basis or in emergencies, expert advice to general practitioners or to less experienced specialists for diagnosing the medical condition and choosing the appropriate course of action for a patient in a remote clinic or local health centre. This is done through video-conferencing and the transmission of images and medical data from tests conducted locally to the hospital where the specialist is located. The records of patients can be accessed from hospital data bases and tests can be prescribed from a distance.

4.5 Medical training. Telemedicine contributes to the upgrading of medical competence of less experienced doctors through the provision of specialist medical advice, which is its main operational use. It is also used to provide distance training through video-conference to medical personnel located away from hospital facilities, and is becoming increasingly part of the mainstream training policy of public health care systems in many countries.

4.6 Electronic contact for patients. More recent applications of telemedicine allow patients to communicate with their doctor from their home, through the Internet. Telemedicine equipment has been developed for use by patients, in the form of a light portable medical appliance combined with a PC and Internet link (an example of such equipment is described in more detail in case study 4.2). The patient can use the appliance to monitor certain medical conditions and to conduct medical tests: these tests are produced in digital form and are transmitted electronically via the Internet to

the patient's doctor at the local clinic, health centre or local hospital. An alternative is for a health visitor or nurse to carry the medical appliance to the patient's home, administer the necessary medical tests and transfer the data electronically to the patient's doctor. Either way, this form of telemedicine is suitable for monitoring the medical condition of a patient with a chronic illness or during a post-surgery period. It is applicable in urban and rural areas alike, but it offers particular benefits to rural patients who live at some distance from their doctor. The doctor also benefits because he has to make fewer journeys.

4.7 Telemedicine is not exclusively used in rural areas: but it is in these areas that it can add significantly to the level and quality of health care services. In many rural areas, especially the more remote areas, the local health service may be limited to a local health centre, a health surgery or even simply a general practitioner working on his own and trying to cover a very large area. The nearest hospital may be many tens, or even hundreds, of kilometres away. Telemedicine enables the doctor or local health centre to gain speedy and detailed support from specialists based elsewhere, for example at the regional hospital.

4.8. Telemedicine applications vary in their sophistication. A relatively basic example of telemedicine is described in case study 4.1, at the end of this chapter. It is part of the Greek National Health Service and supports health centres located in remote areas of the Greek mainland and islands. It uses basic grade equipment and can work over ordinary telephone lines, which form the only telecommunications infrastructure available in some remote areas. Its value is greatest in the islands, where physical access to specialist medical personnel or to hospital facilities can be difficult and expensive, and where transport of sick patients can involve risk to life.

4.9 Technical requirements. Regarding technical requirements for telemedicine, an ISDN line, or for many types of medical data even an analog voice telephony line which is still the only telecommunication infrastructure in some remote rural areas, is adequate for the transmission of medical data and the communication between the expert and the local doctor. Most modern medical equipment uses ICT, so that the results of laboratory or other medical tests are available in digital electronic form or in the form of images and can be transmitted over the Internet. Typically, telemedicine is organised on a regional basis, so that local clinics and health centres in a region gain access to expert advice and support through telemedicine from the regional hospital or specialist hospitals of the region; or when needed from specialist hospitals in another region or even in another country. Telemedicine applications are increasingly taken-up by public health systems as well as by private healthcare providers (see table).

Use of eHealth tools by General Practitioners

	2000	2001	2002
GPs with Internet connection	44%	77%	78%
Use for continuing education	34%	70%	72%
Use for transferring patient medical data	9%	37%	46%
Use for offering telemedicine services	5%	7%	12%

Source: Eurobarometer surveys

4.10 In many countries, telemedicine is now an integral part of the national health policy and embedded in the structure of public and health systems. This is illustrated by the national example from France in the box below. Public telemedicine policies tend to be national in scope and cover the whole public health system and benefit rural as well as urban areas. However the impact of telemedicine is strongest in rural areas where it can be a critical element of the health service function.

National initiative: the case of France

In France, telemedicine applications identified in 1996 numbered close to 300 and covered all regions. One third concerned neuroradiology and radiology, followed by surgery and pediatry. National and regional policies have been implemented to further their development. At a national level, telemedicine strategy, monitored by a high level group, has laid down guidelines in the field of perinatal medicine, emergencies, prototyping of various applications, pluridisciplinary hospital networks and methods for transfer of best practice. A national initiative in the field of perinatology, supported by DATAR, with funding allocated for an amount of 3 million Euros (to be matched by at least equivalent sums from regions) was launched in 1999. The objective is to encourage co-operative projects between maternities using video-conferencing and electronic transfer of medical information. Further detail on French policies can be obtained at the Website: www.sante.gouv.fr. France is also and active participant in European telemedicine projects that are monitored through the European Health Telematics Observatory (www.ehto.org).

4.11 The benefits of telemedicine. The regular use of telemedicine can increase substantially the scope and quality of local health care services, upgrade the skills of medical personnel located in rural areas, and enhance their confidence and their preparedness to practice outside urban areas. Telemedicine can save costs for the public health service as well as for the individual patient who otherwise is forced to travel to a health centre or hospital facility that may be located hours or days away, as is often the case for island communities, at considerable cost and personal inconvenience.

4.12 In the case of health emergencies, where a local doctor is uncertain about the medical condition of a patient and whether there is a need for surgery or other forms of emergency medical treatment for which there are no local facilities available, telemedicine can

save lives and eliminate unnecessary costs. Through telemedicine, the right decisions can be taken as to the type of emergency treatment to be applied, whether a patient should be transported to a hospital, which particular hospital to use, what kind of medical care to provide to the patient while in transport, and what preparations should be made at the hospital where the patient will arrive.

4.13 For people living in rural and remote areas, telemedicine can improve dramatically the quality of life and make such areas more attractive as places of permanent residence or as tourist destinations. At a time when rural areas lose population and local public services become increasingly uneconomic to run, preserving and improving the level and quality of healthcare services through telemedicine represents an important contribution for sustaining the social fabric and the economies of rural areas.

4.14 At the policy level there is also a need to:

- reduce regulations to achieve an open and transparent competitive healthcare system;
- achieve a reasonable balance between data privacy regulations and efficient data exchange;
- create a legal environment for trans-European healthcare delivery;
- use proven international technical industry standards; and
- establish European benchmarks and promote the sharing of best practices.

eLearning for education and training services

4.15 Information Society, notably the use of ICT and multimedia for teaching purposes, has opened new possibilities in the field of formal education and lifelong training that are particularly important for rural communities. As with other public services, rural communities have always been at a disadvantage regarding access to education and training services, and their position is becoming worse as a result of depopulation and economic cutbacks in the public sector in many countries. Moreover, for many rural communities that have to restructure their economic base following decline of their agriculture or other traditional activities, the acquisition of new skills and the strengthening of the competences of local people are key conditions for economic development.

Face-to-face ICT training in Poland

4.16 Computer literacy. The ability to use computers is a crucial pre-condition for the inclusion of rural and urban communities alike into the Information Society. It is also essential if ICT is to be used effectively for education and training purposes. For these reasons, computer literacy and the use of ICT for education and training has emerged in the last few years as a first priority of educational policy in most countries.

4.17 Most governments have introduced ambitious programmes to bring computers and Internet into the classroom at all levels of education, and to introduce eLearning as an important element in the education process. These programmes are not limited to the level of tertiary education, where computers have been used for research purposes for a long time, but apply also to secondary and even primary education. Teaching methods that use eLearning can greatly enhance the potential of traditional classroom training, and can open up opportunities for distance training and self-training. At all these levels, computer literacy is not only seen as a skill which is indispensable for the labour market, but also as a basic skill for education and training through eLearning.

4.18 Case study 4.3, eLearning at primary school level, describes a successful example of the use of eLearning by the community of a commune in rural France, as a means to improve the quality of learning and keep intact their primary school. Case study 7.5, the UHI Millennium Institute in the Highlands and Islands is a successful example of use of ICT to offer university level studies in a remote region.

4.19 For rural communities, computer literacy and access to education and training with the use of ICT can make the difference between inclusion and exclusion from the Information Society. Case study 4.6 presents Brading, a remote small town in the Isle of Wight, where a survey conducted by the Town Council in 2002 indicated that 89% of the local residents opted for more ICT access and learning opportunities to address remoteness and deprivation. Indeed, ICT can help rural communities to redress their traditional disadvantage vis-a-vis urban communities regarding access to education and training. Distance training and self-training may be combined with traditional teaching methods in the form of classroom training and/or face-to-face tutoring, in what is known as blended learning. Educational courses and materials, and the skills of teachers, can be shared between different localities or

regions at marginal additional cost. This can enable rural communities to improve significantly the level and quality of the formal education services available locally, and to gain access to training which would otherwise be out of reach or uneconomic to provide. There are many examples of bringing computer literacy to the population of rural areas. Case study 4.4, IT for the Terrified, describes an initiative in rural Devon that offers computer literacy to everybody, but is particularly targeted at older people.

4.20 Lifelong learning. eLearning can also make a valuable contribution to lifelong learning outside the formal education system. Adult learners can benefit from the basic qualities of eLearning, such as flexibility and personalisation of training programmes and the ability to learn at one's own pace and time from home or from work. Euracademy itself is an example of using eLearning in the context of adult training. Case study 5.4, the telecottage in Malechowo, Poland, provides an example of how adults can benefit from easy, personalised introduction to ICT.

4.21 The use of ICT for enhancing the access of rural communities to education and training is steadily expanding following technological developments such as multimedia, and improvements in telecommunication infrastructures such as broadband. Traditional education and training systems are to adapt their organisation and teaching methods to exploit the opportunities offered by ICT. Most countries now have national policy initiatives for introducing eLearning in the mainstream of formal education and lifelong learning. As with other policies for Information Society, national initiatives in this field do not discriminate between urban and rural areas: but they tend to bring most benefit to rural areas, where access to education and training is much more difficult. The box that follows describes the national initiatives in Sweden.

National initiatives: the case of Sweden

The National Action programme for ICT in Schools (ITiS) was launched in 1999. It is the biggest school development programme in Swedish history. It reflects an integrated view of skills development, bringing together technology and education; it focuses as much on the development of schools as on ICT. It covers all school levels including municipal adult education and folk high schools. It took the form of an extra government grant offered to the country's municipalities for a limited period to encourage and facilitate their efforts to promote development in schools.

- 1.7 billion SEK (Euro 150 million) were invested between 1999 and 2002.
- ICT training was offered to 75,000 teachers. Every teacher and pupil in Sweden was offered computer and Internet access, plus an e-mail address. The newly established Institute for School Development, which was given the responsibility for IT in schools in March 2003, is to offer the StarOffice programme to all schools, free of charge.

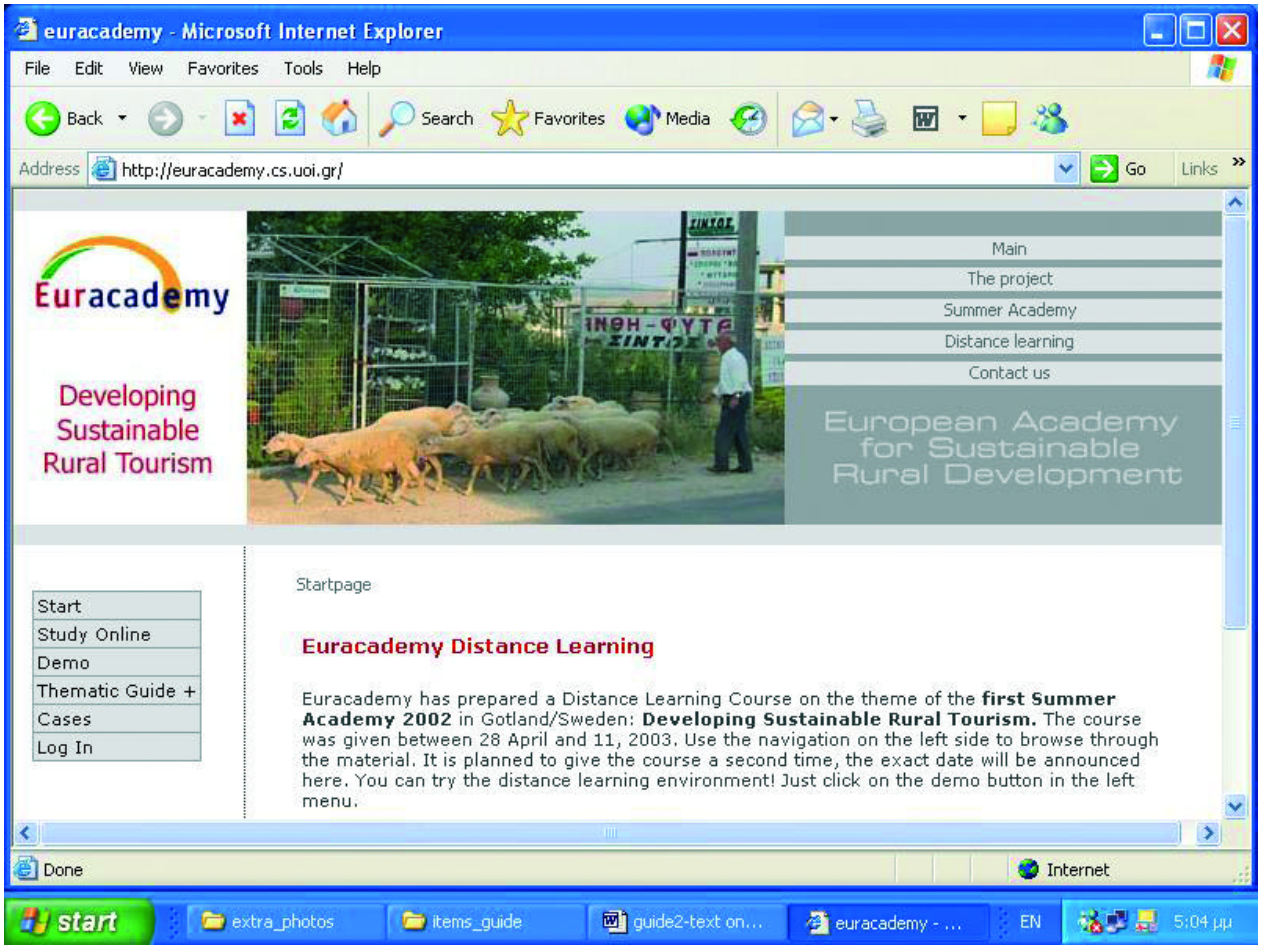
ICT for adult learning

In 1998, the Swedish government launched an initiative for developing new methods of distance education for adults, based on ICT. The SSV (National Schools for Adults) were part of the task force responsible for launching projects to develop new methods and support for flexible learning. These projects included:

- Training courses in methodology for trainers involved in adult distance education;
- A catalogue of distance learning resources, including an inventory of what is available at local level and could be more widely used;
- Advanced distance learning tools based on ICT;
- A network of local study centers, with methods of cooperation between different training providers to broaden the availability of adult training;
- Updated models of distance courses, with a variety of forms suited to different styles of student learning, and cooperation between teachers and technical experts to develop personalised learning strategies;
- Language courses for young deaf people: production of courses in English and Swedish to help them become familiar with distance learning;
- Access via an Internet address to information concerning all projects in this pilot programme and the creation of a common platform for national resources in distance education.

Questions arising from chapter 4 to reflect on

1. Do you have direct experience of telemedicine, or of its marked absence?
2. Does telemedicine appear to be being used in the region where you work or a rural area with which you are familiar? If so, how did this happen? If not, what is inhibiting it?
3. In the region where you work, or a rural area with which you are familiar, is ICT widely used in education? If so, how did this happen? If not, what is inhibiting it?
4. What is your opinion on the policies suggested in paragraph 4.14? Do you recognise any of these in the region where you work or a rural area which you are familiar with?



Case study 4.1

Telemedicine services for remote areas and islands in Greece

In 1992, the shortage of specialist, locally based health services in remote areas of Greece prompted the National Health Service to introduce telemedicine facilities. The outcome of this initiative is a telemedicine network which now serves 2 regional hospitals, 30 health centres and 8 rural surgeries in rural and island regions across Greece. Many other health centres have applied to join the network, and several new connections are currently being planned.

The network is focused upon the Telemedicine Unit in the Sismanoglio General Hospital in Athens. The Unit provides specialist advice on a wide range of medical disciplines, plus a 24-hour service for emergencies. It is backed up by the specialist, administrative and technical services of the Hospital. It uses basic grade equipment and can work over ordinary telephone lines, which form the only telecommunications infrastructure available in some remote areas.

The Unit also supports, mainly through fax, other rural surgeries that are not part of the network, offering specialist advice on emergencies and chronic illnesses. Emergencies are treated immediately by the medical personnel of the General Hospital. Chronic illnesses are handled by a special subunit, called "Regular Telesurgeries", which enables patients suffering from chronic illnesses to consult with a specialist doctor on regular appointments.

The Telemedicine Unit plays a vital role in the development of preventive medicine, and in the delivery of programmes of Health Education, throughout the network. It promotes continuous learning among the medical and nursing staff of the connected health centres, by organising annual training programmes.

The programme has been successful in reducing unnecessary transport of patients, offering timely diagnoses and cures, and increasing the confidence of the local health services. Its value is greatest in the islands, where physical access to specialist medical personnel or to hospital facilities is particularly difficult and expensive, and where transporting patients may involve risk to life.

***Contact**: telemedicine@ath.forthnet.gr*

The Health Centre in a Tzoumerka village, where telemedicine is being introduced

Case study 4.2

3D Ultrasound Telemedical Workstation, Portugal

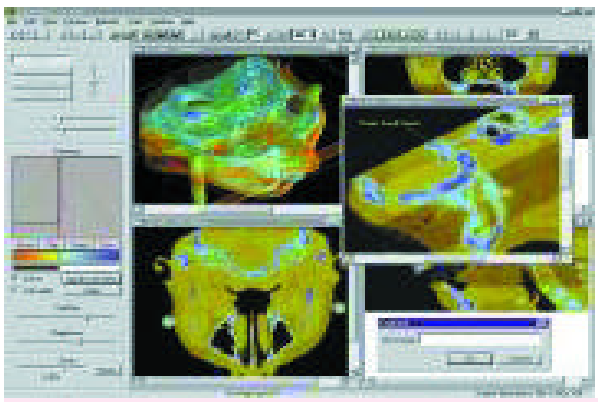
The aim of this project, which was the Winner of the European 1st Grand Prize was to set up a transportable telemedicine workstation to be used in isolated areas such as islands, rural areas and disaster areas. It integrates in one custom-made device a portable PC with telecommunication capabilities, and a light, portable 3D ultrasound station. The device has low price, low weight, is transportable and non radiating. It uses advanced software techniques to collect 3D ultrasound images of a patient: these images can range from gynaecology and abdominal scans to cardiological images. The doctor in the field scans the patient and transmits the acquired 3D data via Internet, ISDN, telephone line or mobile phone to the distant expert.

Such data transmission can be done online (i.e. while both doctors are connected), or offline e.g. overnight even through narrowband channels. During online transmission, additional scans can be requested by the remote expert during the tele-consultation, in order to fine-tune the diagnosis. The system is innovative, in that after the transfer of the 3D ultrasound data and during the on-line cooperation, only control signals (e.g. position of mouse, activation of buttons, etc.) are transmitted over the network. Only the actions introduced by one user are transferred to the remote location, where the second workstation locally calculates the corresponding image. Therefore, no bulky image data have to be transferred over the network, only a few bytes of control signals. Nevertheless, the two doctors see exactly the same image on their screens. The delay between two locations depends only on the latency of the intermediate network, which can be as low as that of a telephone line or even a mobile phone.

The device is now ready to be tested in different socio-economic conditions and adjusted to meet the needs of developing countries and countries in transition. It currently comes in two versions, one fully portable, self-containing device, and a workstation version (PC attached to an ultrasound scanner for internal hospital use). A fixed station for expert diagnosis support will be situated at the Coimbra University Hospital in Portugal. The field test sites include the Azores and Canary Islands: UNESCO will also evaluate EU-TeleInViVo in Uganda and Kazakhstan at two different sites for each country (results so far in http://www.igd.fhg.de/igd-a7/awards/teleinvivo_unesco.PDF).

At the end of the project a medical teleconference emergency workstation will be available, to be used in Europe and in other regions of the world. This will enable health care services to be provided in places where these are not normally possible, such as ecological disaster areas, remote rural areas or isolated islands.

Contact: *http://www.igd.fhg.de/teleinvivo*



TeleInViVo: Graphical User Interface allow for on-line consultation and delivery of timely specialist medical advice

Case study 4.3

eLearning at primary school level, Moussac, France

The town of Moussac in Vienne, France, is a small rural commune with 500 inhabitants. In 1995, the council of the commune realised that its primary school, with only 19 pupils, was at risk of closure, and decided that it must seek co-operation with other schools in the area, in order to strengthen the teaching skills that were available to the pupils. This cooperation was achieved by creating an active network, using ICT, to link the teachers and pupils in a number of schools in a common teaching project.

With support from the departmental authorities, Moussac and its neighbouring communes created the Vienne-Gartempe network, embracing eight rural schools. Each school was equipped with a multimedia computer, and the teachers were trained in the use of these computers. In 1997, the schools were linked by e-mail and Internet, and the teachers began to use video-conferencing to prepare common projects. In 1998, NetMeeting software was installed, allowing the creation of a wide area "electronic paper board" which is regularly used for "extended classes".

The project, launched before schools in France started receiving basic computer equipment and Internet access, is now fully integrated into the teaching methods of the eight schools. The main benefit is felt by the population of 200 primary school children; but the system has also contributed to computer awareness and training in the villages concerned, since the computers are used after class hours for training the adult population in use of ICT.

Contact:

http://www.marelle.org/users/fner/reseaux.htm#r1

Training of adults in the use of ICT is organised during the after class hours

Case study 4.4
IT For the Terrified, Wedmore, England

Wedmore is a small village in a rather isolated and remote rural area in south west England. It has a population of 3,200, including many pensioners and many people with low income. It has very little public transport, so that the village people cannot easily gain access to educational and information services offered in nearby towns.

The County Council suggested that access to such services might be assisted by an ICT project. The result was the "IT for the Terrified" project, launched by the local community. The project's Centre is based in a converted hayloft at the local pub, and is equipped with 12 PCs with flat screen monitors, printing facilities, software and Internet access. The Centre is non-profit making, and financial support was provided to maintain low charges and where necessary to offer free training, so as to make it affordable to all. It is open throughout the year and offers 2-hour training sessions on six days each week. The training includes introduction to basics, software applications, use of Internet and e-mail, and is delivered in one-to-one sessions focusing on what the customer needs as an individual. The particular needs of disabled users have been met where possible.

The project committee consists of 6 people, whose vision and commitment have been vital for the success of the project. There are about 30 volunteer trainers who are fairly familiar with ICT and who recognise the needs of those who have little or no knowledge of computers. The focus is on sharing knowledge rather than creating a formal learning environment (for example, trainers and learners often learn together), and on using skills within the community.

The Centre has been a huge success, attracting constant attention within the local and national media. Over 450 people, many of them elderly people, have used the training services. The project has succeeded in introducing ICT skills in a rural area, within an informal environment where people can feel comfortable in discussing their apprehension about the use of ICT. Partnerships have been formed with other organisations in order to exchange information, share resources and provide services for the benefit of the local community. Moreover, a "citizens' panel" was set to assist feedback from user and support the involvement of local people in the project.

Contact: *http://www.itfortheterrified.co.uk/*

The local community project had tremendous success with the elderly in Wedmore

Case study 4.5

"Nelly's parlour" - involving rural women in ICT, Finland

Jalasjarvi is a small village in North Finland with 9,000 inhabitants, mostly farmers. The Jalasjarvi Adult Education Centre (JAKK) has co-operated in many EC projects in the fields of rural tourism, development of small enterprises and mental well-being. With the collaboration of Carrefour West Finland, they introduced a project aiming to improve knowledge of ICT among farm women and also to serve their mental well-being.

JAKK carried out a preliminary survey of farms, which number about 600 in the area, to assess the extent to which they use the Internet. They interviewed farmers, farm women, rural officials, developers and others. They found that, in recent years, many male farmers began to improve their ICT knowledge and skills, but that the participation from women was much lower. The project coincided, in time, with a review of future plans from local farmers' organisations, who decided to emphasise the use of ICT on farms.

The JAKK project, however, focused on the rural women. The aim was to help women to overcome their apprehension about computers and ICT. Many of the women saw computers as a useful tool for their husbands and children, but not for themselves; moreover, they were often so busy that they had no time to practice anything which did not appear necessary. The project team therefore tried to promote a feeling among the women that they owned the project. JAKK created an eLearning platform (OppiNetti); and, within it, a virtual classroom called "Nelly's Parlour". Participants pay a license fee which gives them access to the OppiNetti platform for the whole project period. There are different courses on offer, such as how to use Office software, how to repair computers, how to use on-line services for farmers; participants may choose the course that is most suitable to them. In addition, the project offers social activities such as excursions, lectures, stylish dressing and gardening, which may directly contribute to the mental well-being of the women.

The most important thing, however, is "Nelly's Parlour", which is the virtual space reserved for rural women, where they can "meet" and share their thoughts and feelings. In the course of seven months, some participants logged in about 300 times.

JAKK feels that "Nelly's Parlour" has been a huge success story. In August 2003, they plan to expand their project to cover a larger region: seven more municipalities will be reached to add "new members, new winds and feelings". However, the project team has realised that a more sustained effort is needed in order to involve elder women or women who do not own a PC at home. They also plan to collaborate with other projects for adding value to "Nelly's Parlour".

Contacts:
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www.jakk.jalasjarvi.fi
Auli Toivonen at auli.toivonen@jakk.jalasjarvi.fi

Another successful story: overcoming rural women's apprehension towards computer use in Finland

Case study 4.6

Brading Centre IT Project - IT training, Cyber Cafe and Home work Club in the Isle of Wight, UK

The high street facilities have been complemented by Internet shopping in Brading

Brading is a small Historic town in the east of the Isle of Wight. The resident population of Brading counts 2017 inhabitants, while the area covered by Brading Town Council is one of the largest on the Island and includes remote rural territories such as Adgestone, Carpenters, Ashey, Nunwell and Hardingshute. The majority of residents live in the centre of Brading, which has a reasonable bus and train service to neighbouring towns (Ryde and Sandown). The 1991 census showed that 30.5 % of households in Brading do not own a car; although this should have gone down, it still is a high proportion. One of the most important transport problems for the residents of Brading is that there is no direct transport link to Newport, one of the major towns in the Isle of Wight. People have to travel to Newport through Ryde or Sandown whilst transport facilities are available only to two of the more remote rural areas lying in Brading Town Council's boundaries (Adgestone and Carpenters) but are rather poor. The Town Council has recognised this deficiency for several years and has joined forces with Bembridge, which suffers from a similar problem, to put pressure on competent authorities to solve the problem, but to no avail.

Brading is a rural area with a high index of deprivation, ranked 2128, approximately halfway, in the ward indexisation of deprivation. Unemployment is around the national average, but much of local employment is seasonal and low paid and consequently does not provide residents with a secure, reasonably high standard of living. During 2002 the Town Council undertook a consultation exercise posting a questionnaire to all 960 homes. 89% of the responses received indicated that more IT access and learning opportunities were desired in the town.

Through Leader+, the Brading Centre accessed funding to undertake a project to provide IT training to the residents of Brading. The aim of the project is to provide residents with the opportunity to learn about and become familiar with the use of Information Technology. People attending the IT courses at the Centre so far have been retired persons and young mothers. The latter wish to learn IT to enable them to pursue permanent employment opportunities. The Leader+ proposal included setting up a homework club and cyber cafe sessions for nine to eighteen year-olds. The Brading IT Project addresses the transport problem by providing locally those services which residents usually travel to Newport or Ryde to get. Disabled residents or those unable to make the journey to the Centre but wishing to learn IT skills are visited by the IT Project Manager who offers them the use of a lap top computer .

The Brading IT Project and its parent project are the first of their kind undertaken on the island. A building that houses the Town Council Office, the Isle of Wight Council Help Centre, various surgeries, a book swap project and IT learning facilities is at present unique on the island. The fact that these services can be delivered from one building which hosts many organisations may give rise to further partnerships. This in turn will benefit the community and bring more services to Brading. One idea that has already been explored successfully since the opening of the centre in September 2002 is the use of IT facilities to do Internet shopping. Brading has no greengrocer, fishmonger or butcher but has now the facility to purchase all of these goods via the Internet. Contact has been made with big supermarket chains and with the Farmers Market and it is expected that e-shopping will be introduced during 2003.

Contact:

Cliff Bell at cliff.bell@iwpartnership.com (participant to the 2nd Summer Academy)

CHAPTER 5.

The Citizens: eGovernment for better access to public administration services and the improvement of governance

5.1 This chapter focuses on citizens as users of public administration services and in their civil society role. It concentrates on two main ways in which Information Society can contribute to the upgrading of the quality of life of rural areas, their attractiveness for economic activity, and the strengthening of social cohesion and good governance, namely by:

- improving access to public administration services,
- providing opportunities for public participation and for the strengthening of accountability and of the democratic process.

eGovernment and access to public administrative services

5.2 A major problem in many rural areas has been lack of easy access to administrative public services. Rural areas with a dispersed and declining population had always suffered from the absence of local public administration offices compared with urban areas. As a result, citizens and entrepreneurs alike may have to travel to the nearest city or the region's capital that may be located hours or, in the case of islands, days away, in order to get information and to conduct routine administrative transactions regarding their personal or business dealings with public administration services, such as tax, social security or local government services. In countries with a highly centralised public administration system, some administrative transactions may require travelling even further to the country's capital.

5.3 This problem has become more acute in recent years following the depopulation and economic decline of many rural areas. Moreover, cost-cutting government policies in many countries have led to the closure or amalgamation of public administration offices and the deterioration of access to services. ICT offers a solution to this problem through the electronic delivery of services. Technically, electronic delivery of administrative services can be quite simple.

A citizens service centre in Epirus, Greece, where administrative transactions are handled via ICT

5.4 In principle, under certain technical and legal conditions, virtually all the phases of an administrative transaction can be conducted from a distance, through the Internet:

- the information required by the applicant can be accessed through the Internet;
- official forms that have to be submitted to the public authority can be downloaded;
- applications and other official forms can be filled, signed electronically and submitted through the Internet to the public authority;
- where other official documents have to accompany the application, they can be accessed by the public authority itself through an electronic government network;
- the application can be processed and the transaction can be completed by sending to the applicant through the Internet the document required, with its official status being electronically validated; or,
- in the case of documents that cannot be transmitted electronically, e.g. passports, these can be sent to the applicant by post.

5.5 The initial step in electronic delivery of services has been to provide the necessary information over the Internet, with different government departments and agencies setting up their own separate websites: many countries are still at that stage. The next step, already taken by some governments, is to integrate electronic service delivery across government departments and to expand the scope of the service by setting-up procedures for conducting administrative transactions over the Internet, on the basis of the electronic portal model. Portals work as one-stop-shops by

bringing together many administrative services, and are organised not along official divisions of responsibility but in a way that makes access easy for citizens. The box which follows describes the portal created in the United States. Government portals of this kind tend to cover the whole of a country and cannot discriminate between urban and rural areas, but they clearly bring particular benefit to rural areas. Where government policy can discriminate in favour of rural areas is through public access points (see later sections of this chapter), which can provide access to such portals for the rural population.

National initiative: the case of the USA

In the United States major action has been taken in the year 2000 to develop eGovernment, stated as a priority management objective (PMO) in the Federal budget. This PMO calls for a certain number of actions including:

- Establishing a one-stop gateway to government information (Federal and State) available on the Internet, with information organised by type of service. This Internet portal (firstgov.gov) was launched at the beginning of the third quarter of 2000.
- Identifying forms for the top 500 government services used by the public and making them available by the end of the same year.
- Implementing the Government Paperwork Elimination Act by gathering and making information available electronically.
- Building good privacy practices into Federal Websites.
- Creating public E-mail addresses for citizens to contact agencies.
- Ensuring accessibility for the disabled.
- Using the Web to improve procurement.
- Fostering the use of digital signatures by agencies and the public.
- Developing a strategy for Internet use that enables agencies to become more open, efficient and responsive.

5.6 There are services where all or part of certain administrative transactions can be conducted electronically in certain countries. However, in practice, there are considerable technical as well as organisational and institutional obstacles that restrict the scope of electronic delivery of administrative services. Firstly, only a proportion of the population and business community has access to Internet and possesses the skills required to use it for this purpose. This proportion is smaller in rural than in urban areas, and virtually nil in many remote rural areas. Moreover there are many people, e.g. older people or those with limited education, who cannot conduct their part of an administrative transaction without the help and guidance of an administrator. They may not be able to fill a form properly, or to understand how a transaction is conducted or what it will mean for them. Such people are found in greater proportion in some rural than in urban areas, and for them the absence of a local public office to get assistance exacerbates the problem.

5.7 Secondly, in many countries, there is no legislation that gives official status to electronic transactions between citizens and public authorities, i.e. regarding the legal validity of the electronic signature on both sides of the transaction. There is progress in this direction but there is still a long way to go in most countries before this institutional barrier to the electronic conduct of administrative transactions is removed.

5.8 Thirdly, for many public administrations it can be a monumental task to bring most of their administrative transactions into an electronic system and to keep such a system up-to-date. Nor is it easy to make electronic links between different public administration services.

Fourthly, in many countries, administrative transactions are extremely bureaucratic. Regulations and procedures have often been designed on the basis of a model of public service that took for granted the physical presence of the applicant in a public office and did not recognise the costs that this incurs to the individual citizen or business. Electronic delivery of public services requires in many cases the simplification of regulations and the re-engineering of administrative procedures.

5.9 Many countries are tackling the institutional and organisational obstacles described above. Moreover, use of the Internet by the general public is growing at an increasing rate. However these obstacles remain, and will continue to remain for the foreseeable future, thus limiting the full use of ICT. These limitations are more prevalent in rural areas, and more so in rural remote areas, where rates of growth for Internet usage are slow and where distance from public administration offices remains the major problem. These obstacles can be dealt with by a combination of two strategies:

- by careful choice of priorities for electronic delivery of services and combining electronic delivery with traditional delivery methods; and
- by facilitating access to ICT mediation through what is known as *public access points*.

These points are briefly outlined in the next few paragraphs.

5.10 Priorities for electronic delivery. Regarding the first strategy, priority is given to those transactions where the whole of the transaction can be incorporated in an electronic delivery procedure and where the volume of transactions and the corresponding population of users who will benefit are large. A typical example of this case is electronic submission of tax returns. Where the whole transaction cannot be included, the use of Internet may be restricted to certain phases of a transaction. In this case, the Internet can be used for accessing the information required and for downloading forms that have to be filled. Then the transaction is completed in the traditional way: the applicant fills the form and sends it by post, or submits it in person, if regulations require it, together with any necessary doc-

umentation, to the public service office involved; then the official document requested can be collected in person or sent by post, if regulations allow it. A typical example of this case is the issuing of passports. In other cases, where no accompanying documents have to be submitted, such as for the issuing of a birth certificate, elementary forms of ICT, such as the telephone or fax, can be used instead of the Internet to order an official document. In this way, one or more personal visits to a public office by the citizen or the businessman can be avoided.

The interior of a telecottage in Hungary: the telecottages movement made ICT accessible to the wider public

5.11 Typically, electronic delivery of public administrative services is implemented at the level of a country as a whole, except for local government services which in some countries develop their own electronic service delivery systems. In countries with a strong regional system of powers, there may be electronic service delivery at the level of a region. In any case, this is a strategy that applies across different types of areas, rural and urban alike. The benefits that rural populations gain will depend upon the extent of their access to Internet, or at least to a post office.

Public access points

5.12 Public access points can help people who live in rural areas to benefit from electronic service delivery. They take the form of multi-purpose facilities whose function is to facilitate access to administrative services and to help in bridging the digital divide between rural and urban areas described in chapter 2. To fulfil this broader role, public access points provide free or very cheap access to computers and the Internet and also offer training in the use of computers and Internet. Typically they are run, and either funded or co-funded by public authorities, sometimes with the cooperation of the local business community or civic organisations. Many of them are open to citizens as well as to businesses, and offer specialised ICT services and training using eLearning methods.

5.13 Public access points are seen as having a strategic importance for raising the awareness of rural communities and bringing the benefits of ICT to the population and economy of these communities. At the same time, they can serve as points of access for citizens and business to conduct administrative transactions from a distance, without having to travel to a public office. They are found in many European countries. They do not follow a standard organisational form, nor do they offer a standard set of services. They may be located in purpose-built facilities or in places frequented by the public, such as post offices, municipal offices, community centres, schools and libraries. They are known under a variety of names, including public digital spaces, telecentres and telecottages (the original name adopted in Scandinavian countries for public access points).

5.14 Telecottages. The first public access points were created in the mid-1980s in the Scandinavian countries, under the title of "telecottages" or "telecentres", with public funds from national telecom companies, local authorities and elsewhere. Their aim was to provide access to ICT resources to citizens in rural areas (and sometimes in urban deprived areas), to combat some form of social or economic disadvantage. They enabled people who did not have computers, and indeed in many cases were afraid of computers, to lose that fear, to handle the machines confidently, and to use them for finding information, preparing their tax returns, undertaking distance learning courses and many other purposes. Many of the people who had benefited in this way then bought their own computers, and in some cases became teleworkers, operating from their own homes. The telecottages changed as the years went by, often becoming enterprises offering business support or even full telebusinesses of the kind described in chapter 3.

5.15 Other countries have followed the Scandinavian model of telecottages, notably the United Kingdom and Ireland (which together now have about 160 viable telecottages), Germany and Hungary - see National Initiative. This evolution suggests that telecottages can have great value in the early phases of raising awareness of ICT in a rural area, and in providing access to computers, desk-top publishers, fax machines etc during the time when individual enterprises and households cannot afford such machines. This may be of high relevance to many regions in central Europe, and to less developed rural regions in the EU 15. Case studies 5.3 and 5.4 describe telecottages in Hungary and in Poland.

National Initiative: Telecottages in Hungary

The Hungarian Telecottage Movement began in 1994 as a result of an enthusiastic civic initiative and the support of the government along with international and local organisations (public, private and NGOs). The movement offered rural communities increased opportunities to access Information Society, and resulted in combating remoteness and the "digital divide" between people living in rural peripheral regions and urban dwellers. The movement also coincided with the country's attempt to synchronise with the European mainstream after the transition.

The first telecottage was set up in a small mountain village, Csakbereny (1993), as a grassroots, spontaneous reaction of volunteers to the need for integration of ICT in everyday life and business practice; they were supported by the local government and the Welfare Ministry. The Hungarian Telecottage Association was set up on the initiative of 15 professional individuals in 1994, who wished to turn the Csakbereny's initiative to a national movement. The beginning was hard and it was not until central government and EU resources were secured and know-how transferred from nation-wide or international organisations, that the Association took off. In 1999, there were 100 telecottages across Hungary, providing access to ICT and training; but most importantly perhaps acting as the information and services "middlemen", counterbalancing serious shortages due to the large number of small villages in Hungary and the overall lack of public service delivery institutions. At the time, telecottages were offering about 50-60 local services, cheaper and more efficiently.

The secrets of success of the telecottages movement in Hungary seemed to have been the co-ordination of all stakeholders, citizens, public and private sectors and all tiers of government; a very successful marketing strategy; and nonetheless, the will to spread the experience exposing both failures and successes.

eGovernment for participation and accountability

5.16 ICT can contribute to good governance and social cohesion in a variety of ways:

- it can strengthen the democratic process by promoting transparency and accountability in the public arena and by facilitating public participation in decision making;
- it can enhance the quality of the local development process by strengthening the managerial and planning capacity and the information base of the local and regional organisations involved in local development;
- it can enhance social cohesion and ameliorate the danger of exclusion.

This role of ICT is applicable to urban areas as well as to rural areas, but it can bring particular benefits to rural communities because of their socio-economic structure and territorial characteristics.

5.17 Strengthening the democratic process. ICT makes it possible to assemble, process, organise and diffuse to the public up-to-date and detailed information regarding all aspects of public affairs and decisions affecting the citizens and the businesses of a rural area or region. At the same time, ICT can enable citizens to share such information, and to interact with each other and with public authorities. It can foster the social fabric by bringing citizens and community groups closer together and enabling them to influence public policy and decisions. Initiatives in this direction are becoming known under the term of eDemocracy. They range from the rare, as yet, case of using the Internet for voting to a variety of new forms of social interaction, consultation and participation such as electronic forums, access to political debates, e-mailing local officials and politicians.

5.18 Enhancing the quality of the local development process. ICT can make a significant contribution to the process of local development. It can help in the harnessing and processing of information, which is crucial to that process; and it can enhance the quality and depth of public participation in the process. The handling of information is vital, since the development process includes taking stock of the socio-economic position of an area, analysing its strengths and weaknesses, mapping trends and future prospects, identifying options and making choices, formulating strategy and action plans, managing their implementation, conducting projects, harnessing their benefits. ICT can assist in the handling of all this information.

5.19 Second, ICT can assist public participation. ICT can enable a broad range of interested actors, and the public at large, to see the assembled information and to debate emerging ideas within the development process. This is very easily done through the Internet and the kind of public access points referred to above. In this way, the use of ICT may have radical impact upon the process of development. In some countries or regions, there has been no tradition of widespread public consultation on development plans, and decisions have been made behind closed doors. The openness which ICT permits may have not only a technical, but also a political impact, since "information is power". Governments and peoples need to decide whether to take advantage of this openness. They should recognise that such openness will change the nature of the development process, perhaps slowing it down but also helping to ensure that it is more effectively related to the needs and wishes of the people and therefore more likely to be successful and durable in its results.

5.20 Enhancing social cohesion. Participation in the local development process contributes also to social cohesion. The ties within communities are strengthened by communication among organisations and groups, exchange of information, working together, debate about matters of common interest or differences in interests. But ICT can contribute to social cohesion in a much broader way. The key concept is the networked society, which may be seen as the equivalent of the

networked economy. The two digital towns referred to in Chapter 2 and in case studies 6.4 and 6.5, Ennis and Parthenay, represent large-scale examples of this concept. But there are many more cases at a smaller scale where ICT has contributed to the strengthening of community ties across an area and to the ensuring of social inclusion for marginal and minority groups and for groups of people in need for social support. Terms such as "electronic village" or "wired community" are used for these cases: what they have in common is the concept of the networked society.

5.21 From a technical point of view, all that is necessary to achieve a networked society is widespread access to the Internet, and the existence of relevant local information relating to varied aspects of community life. These may range from the sharing of information about social events and meetings to the exchange of goods and services, or to the involvement in the political affairs of the community and the local development process. Usually, an individual or a group has to take the initiative, some funding may be of help in the start-up phase and there has to be a minimum of community culture on which to build. The existence of a volunteer culture and the presence of grassroots community groups can help to ensure that such initiatives include people who are at risk of social exclusion.

5.22 There are numerous examples of ICT being used to provide better services to citizens and at the same time to strengthen the democratic process participation in local affairs and social cohesion. Individual initiatives may focus more on any one of these objectives, but tend to have an effect across the board. Case studies 7.2, 5.1 and 5.2 represent typical successful examples of this kind. They include two Danish projects, the digital services to the citizens of North Denmark (case study 7.2) set up by a group of rural municipalities in order to improve municipal services for citizens; and Democracy on the Web (case study 5.1), of which main aim is to enhance the democratic process in the county of North Denmark. The third example is Craghead Electronic Village Hall (case study 5.2) in a former mining village in northern England, of which the aims have been to revitalise the local community and to tackle the problems of social isolation and unemployment. Of a different scale is the example of Parthenay Digital Town (case study 6.5), where the primary objective was to mobilise and empower the community.

Questions arising from chapter 5 to reflect on

1. As a citizen, what use do you make of ICT? Do you use it as a consumer? Do you use it to find out about public services, and to apply for documents etc? Do you use it as a voter?
2. What steps has your own local authority taken to provide electronic access to public services?
3. What public access points can you and your fellow citizens use, for ICT purposes?
4. Does your local authority use ICT to promote the participation of citizens in municipal decision-making, and to enhance its own accountability to its citizens?
5. What do you think should be done, in the area where you live, to strengthen eGovernment?

Case study 5.1

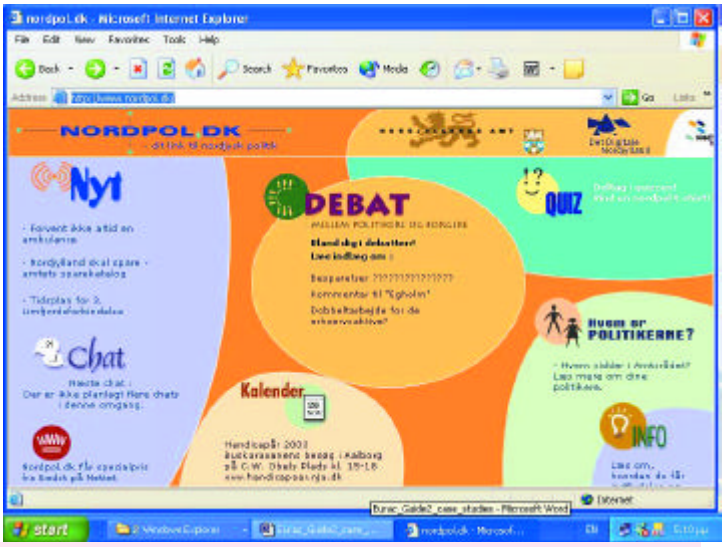
Nordpol.dk - Democracy on the Web, Denmark

The County of Northern Denmark is the largest County in Denmark, with a population of almost 500,000 inhabitants. The democracy website www.nordpol.dk was launched during the election campaign in the end of 2001 in order to promote, support and facilitate e-democracy in the County. This initiative was taken because of the low turnout, about 70% of voters, at elections for the county administration, as compared to 85% for national elections. The website offers the opportunity to everyone who is registered to vote. Special attention is paid to young people and first-time voters, as they appear to be the most difficult to engage in the regional democracy process.

The project was carried out in co-operation between the Municipality of North Denmark and a Danish private ICT consulting firm, KMD. The primary objective was to create a discussion forum on the Internet, which would facilitate the democratic process and increase the level of interest in the political system and the process of political decision-making. It also aimed to provide information on the County administration and its work, and to create an active dialogue between politicians and citizens. The design of the website placed strong emphasis on the needs and wishes of the potential users. For this reason, focus groups were consulted on a regular basis during the entire development phase of the website. Finance came from the County of North Denmark (174,643 Euro), the Digital North Denmark project (which encouraged a bottom-up approach in exploring the potentials of the network society, 48,734 Euro) and KMD (29,928 Euro).

Generally, the project has succeeded in the very difficult task of creating an on-line democratic process. Evaluation has shown that citizens, especially those with little knowledge of regional democracy, find the website useful. The website now functions as a democracy tool for the County Administration. The most important aspect, which makes the nordpol.dk discussion forum stand out from many other Internet discussion forums, is the fact that politicians (especially well known central politicians) respect the initiative and take part in the debates. The case study has shown that the secret of success lies not in making space available for discussion, but in being available for discussion.

***Contact**: http://www.nordpol.dk/*

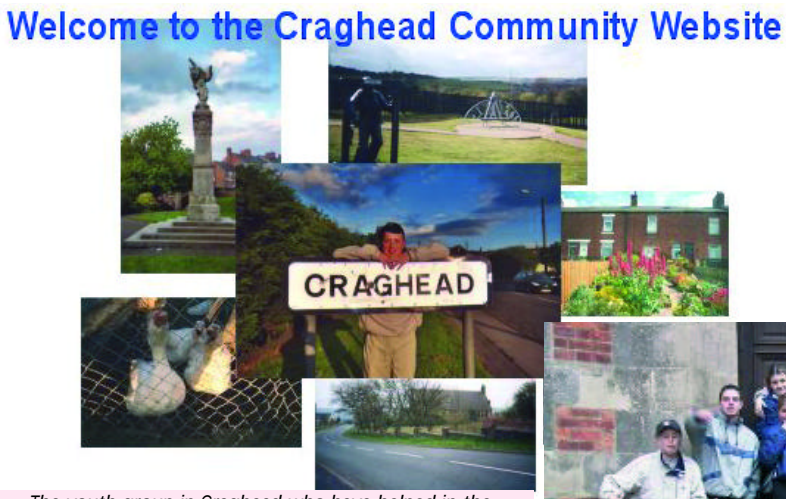


The www.nordpol.dk website includes many functions that promote e-democracy in Denmark

Case study 5.2

Craghead Electronic Village Hall, England

Derwentside District Council, in County Durham, England, has established five e-gateways in rural Derwentside to support and revitalise rural communities. Four of these are housed in "Electronic Village Halls" (EVH). The EVH initiative aims to help revive the community, by providing a focal point to all residents for beginning to address such problems as social isolation, skill shortages and unemployment. It is recognised that addressing these problems is a long-term process, but ICT are seen as a useful tool in reviving the confidence of a rural community.



The youth group in Craghead who have helped in the creation of the village's website

The EVH at Craghead provides an example. Craghead is a small village with a population of 2,200 inhabitants. It was created to serve a coal mine, which is now closed, and it suffers from high levels of unemployment and social deprivation. The old village hall, which had become neglected and little used except by older people, was used to house the EVH. It was thought that ICT would attract young people to the revived village hall. This has proved to be the case, in that Craghead's EVH has almost doubled the number of people who use the village hall, from 230 to 430. Most of the new members are young people who come to use the computers.

Craghead's EVH has 11 networked PCs, each with Internet access and e-mail facilities. The PCs are linked via broadband to the Council server in Consett, which gives fast and easy access to the Internet. Users can gain direct access to the services of the District Council and other public agencies. The EVH also has a number of Dreamcast games machines, and a DVD player with a large screen which provides a "local cinema" to the villagers. These technologies are seen as crucial for attracting people into the centre and for awakening or stimulating an interest in the benefits of ICT.

The EVH runs a young persons' computer club each week after school. The intention is that the EVH will be linked to schools, which will enable students to gain access to material and their own files remotely over the District Council's telecommunications infrastructure. This is important, because most pupils have to travel to schools at a distance (there is only one junior school in Craghead and no secondary school) and they cannot easily take part in after-school clubs away from the village. Recently, a youth group was formed in Craghead: they have created a Website for the village, with funds from Derwentside District Council and Northern Arts.

A further aim of the EVH is to improve educational attainment. It is perceived that people would be put off by formal training oriented towards qualifications: for this reason, informal training is offered, in the form of short courses and one-to-one tuition by "Pathfinder" volunteers. A local college has also been contracted to offer "taster" courses at the EVH, demonstrating what would be available through the college. It is expected that any longer-term training which results from those "tasters" will be offered locally, through outreach schemes involving ICT where appropriate, as people will be unwilling or unable to travel to the college until they are more experienced and confident.

***Contact**: http://www.cragheadinfo.co.uk/ and http://www.derwentside.org.uk/*

Case study 5.3
Jaszkiser Telecottage, Hungary

Telecottages have helped to promote the penetration of ICT in many local communities across Europe, and to decrease the digital divide between urban and rural areas. This digital divide was quite marked in the central European countries, because of the low level of investment even in basic telephone services in rural areas during the socialist period.

In the period since 1995, the rural regions of Hungary have befitted from the creation of a network of telecottages. This network is now linked through the Hungarian Telecottages Association (Magyar Telehaz Szovetseg). But in the early days of the movement, the initiative was often taken at local level. An example of this is provided by Jaszkiser, a small town of about 5,000 people in Jasz-Nagykun-Szolnok County.

The telecottage at Jaszkiser was established as a civil institution in 1997. The initiative came through the Fund for the Children of Jaszkiser and the EU's Phare programme, which supported a project for the development of democracy skills among children in the village. The telecottage was opened with the assistance of Dem Net, together with local resources. It provides information about economic, cultural, educational and public utility activities of the village. It gives organisational and technical support during festivals and social events, such as the preparation of journals to advertise folklore events, feasts in the village and the World Meeting of the Jasz People. It offers training programmes, through which about 200 people have gained OKJ elementary and ECDL certificate in operating computers. It helped to establish a civilian database, and a CD-Rom which evaluates the development potential of agriculture, infrastructure, human resources and the economy in the village.

ICT training is offered in telecottages in Hungary

In these ways, the Jaszkiser telecottage has become a significant centre for local community development. The experience in Jaszkiser, together with the findings from several scientific research carried on the functioning of telecottages, point to the conclusion that alleviating the digital divide requires the commitment and resources of the state. Other key elements for the successful operation of telecottages are regional development in terms of new ICTs and local value systems, as well as the need to match infrastructure with local human resources.

Contact: http://www.telehaz.hu

Case study 5.4
Telecottage in Malechowo, Poland

Malechowo is a rural community situated not far from the Baltic Sea, between Szczecin and Gdansk. Until a decade ago, agriculture was the main activity in the village, but the collapse of the socialist regime and the closure of some industries in the region led to high unemployment.

The Malechowo Community Development Strategy of 1999 identified, as one of the development opportunities for the community, the creation of a network of telecottages in the existing school buildings, in order to achieve "activation of schools". There are four primary schools and one grammar school in Malechowo: the strategy proposed that they be equipped with computer studios in order to enhance the development prospects of the village.

The first telecottage was opened in September 2002, at the Malechowo grammar school. It is much used by school children and by adults within the community.

The grammar and elementary schools use the facilities of the telecottage to promote projects. Two projects have been realised. The first is called "Creative people have a chance - Jugglers' school" and is supported by the Polish Children and Youth Foundation. It aims to enhance creativity, organise festivals and promote exchanges with other jugglers' clubs around the world. Internet has greatly facilitated collection of information and project promotion. The second project is called "Tradition for the future" and uses the experiences of the "Nida" foundation in Nidzica. The central aim of this project is the "discovery of craftsmen" and the creation of a database for marketing them through the Internet. Both projects have been invaluable for the "smooth entrance of Polish pupils into the Information Society era".

As for the adult use, the telecottage is open to inhabitants of the village from Monday to Saturday, from 2 pm to 8 pm. Every day about 30 people use the services of the telecottage. The main attraction to users is the Internet connection on the ten PCs. The users are mainly young people: however, the number of adults has been increasing, and 65% of these are women. An increasing number of people use the telecottage for professional reasons. For example, blacksmith Mr Jacek has found the Internet a source of inspiration, where he may see the work of other smiths and compare skills, prices and technologies which they use. Similar opportunities have been explored by farmers in Malechowo. The telecottage also offers ICT training: a group of 40 adult trainees, more than half of whom are women, was formed in March 2003.

***Contact**: http://www.malechowo.pl/*

Nicolaus Copernicus University in Torun, Poland plays a vital role in the promotion of ICT in the surrounding rural areas

Case study 5.5

BygdeNet, a well-established voice in the field of rural development, Sweden

Sweden is a vast, very sparsely populated country. Most of its nine million inhabitants live in the cities. Much of the countryside suffers from depopulation and from decline in social infrastructure. This process of decline has lasted for many years, and is still continuing. For example, 117 communities lost their only food store in the course of the last year.

In the 1980s, a remarkable campaign was launched under the slogan "All of Sweden shall live". It addressed the degeneration of rural regions in Sweden, and demanded that national politicians find means to halt the negative trend. The campaign was successful in as much as it led to a popular movement, which organised itself through the constitution of a Popular Movements Council (PMC) in 1989. The PMC was an umbrella organisation, formed by more than one thousand Local Community Groups (LCGs), which had evolved in the eighties.

From 1994 onwards, financial resources were gathered to develop an Internet platform. In 1996 "BygdeNet" (bygd means district) was introduced as a system for information exchange (First Class) among registered users. Its vision was "a living dialogue among those persons active in the local development work". To make sure that the platform was actually used, the PMC invested substantial resources in training for its own stuff, for members of LCGs and others. The development was also accompanied by a research project which mapped the activities of the LCGs. The results of the research project provided the basis for a learning database (Bygdenetbanken, meaning BygdeNet-Database), which is best described as a storehouse of knowledge and experiences. This greatly helped the exchange of information among LCGs, but it was not easy to keep the database up-to-date.

In 1999 BygdeNet was redesigned into a normal, open website offering news coverage, a discussion forum, a collection of facts and figures on rural development and much more. By then, the number of LCGs had risen to 4,000, many of which had a website of their own. The BygdeNet-database, which is the heart of BygdeNet, offers descriptions of about 1800 LCGs and a total of about 13,000 activities, divided into different categories. Through a search function, one can find (for example) all village activities aiming at halting the closure of a local school.

Today BygdeNet is a well-established voice in the field of rural development. The website has made it much easier to reach the media, authorities and researchers. But the road to BygdeNet was not easy: it took a long time to develop and introduce Internet applications to the rural communities. Moreover, it should not be forgotten that many LCGs and individuals do not have easy access to the Internet; for this reason, "double information systems" are often necessary.

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http://www.bygde.net, information in English

http://www.abdn.ac.uk/arkleton/npp/pdf/sweden4.pdf

Bygde brochure: Sweden lives - Popular Movements Council's presentation of the Village Movement in the Swedish countryside with 25 examples of activities undertaken by local community groups

CHAPTER 6.

The Planners and Providers of ICT: setting the strategic framework for Information Society in rural areas

6.1 This chapter focuses on the issue of the strategic approach which is needed to address the digital divide, and to equip rural areas to take advantage of the benefits of the Information Society. It includes the place of Information Society in regional development planning, and the action which is needed to bring telecommunications infrastructure and access to advanced services into rural areas.

The digital divide

6.2 If rural areas are to benefit from the opportunities offered by ICT, they need telecommunications infrastructure and access to advanced services. In this respect, as explained in chapter 2, many rural areas suffer from the rural deficit or digital divide in advanced telecommunications infrastructure investment. Virtually, all rural areas in developed countries have now access to voice telephony service. This is the first and basic level of telecommunications service and has come to be considered as an essential public commodity just like electricity and water. Moreover, increasingly, under the universal service provision for voice telephony, rural areas are not discriminated against regarding price vis-a-vis urban areas. The universal service represents a central provision of the process of privatisation of the telecommunications market and ensures the equal treatment of rural areas for this basic level of service.

6.3 However, this concept of universal service has not accompanied the leap in telecommunications technology from analog to digital technology. Analog technology is satisfactory for voice telephony and can also support the transmission of data at low speeds, such as 56 Kbps. Digital technology was developed in the 1980s and offers increasingly higher transmission rates. The first step was ISDN (Integrated Services Digital Network), which can use the same copper lines as voice telephony, but with new switch centers. ISDN is increasingly becoming a widely available service in most developed countries. It offers access at 64 Kbps or 128 Kbps which are suitable for data and image transmission, video-conferencing and other advanced services. Other digital telecommunication technologies include mobile telephony, wireless networks and satellite systems, and optic fibre, which are now being developed and which offer broadband with transmission speeds up to 2 Mbps+.

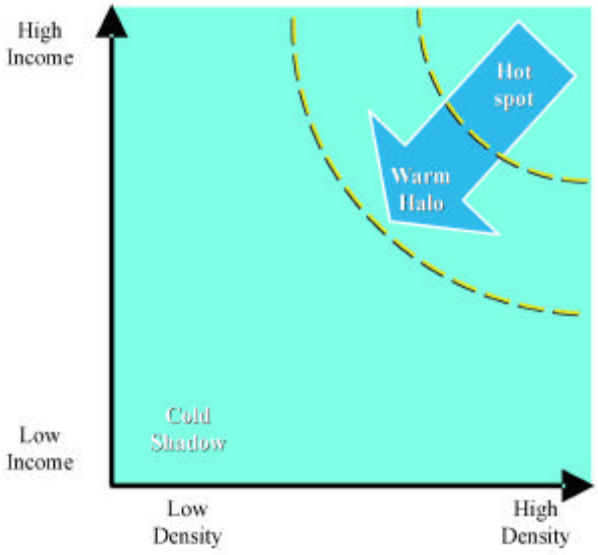
6.4 The advantage of ISDN compared to analog telephony stems more from its higher reliability rather than from its higher transmission rates. Quite advanced applications, such as telemedicine, can be conducted over analog technology without any serious problems. For simple uses of the Internet by individual citizens or small companies, voice telephony is perfectly suitable for data transmission. Nevertheless, with the emergence of Internet as a strategic tool for business development and the advent of higher data transmission speeds and bandwidth through broadband and ADSL (Asymmetrical Digital Subscriber Line), this position is rapidly changing. In an era where knowledge-based activities and eCommerce are becoming central elements of economic activities, the digital deficit of rural areas regarding telecommunication infrastructures is becoming increasingly important, just as the issue of road and rail infrastructures was important for rural areas in the past.

6.5 ISDN and other digital technologies are not subject to the universal service obligation and are thus not available in many rural areas. Of course, in principle, access is possible but at a cost that is prohibitive to the user. Getting rural areas onto a par with urban areas in this respect is now considered essential, in the more developed countries. As was argued in an article entitled "Closing the digital divide in rural America":

> "There is a substantial body of economic research evidence demonstrating significant improvements in the economies of counties, states and counties resulting from investment in telecommunications infrastructure in their regions. Furthermore, the payoffs are greater the more rural the location of investment. This is not surprising because the two major barriers to rural economic growth are distance and lack of economies of scale (because of smaller market sizes). Telecommunications infrastructure, particularly broadband data communications in the age of the Internet, can neutralise both of these problems and level the competitive playing field between urban and rural businesses."

6.6 The problem with broadband, as with other advanced infrastructures and services, is that investment costs are high. For this reason, in a deregulated telecommunications market, telecommunications companies will concentrate their investment on urban areas where there is concentrated demand, especially demand from business users, and where they can expect competitive rates of economic returns. The result is differential growth in telecommunications provision and the emergence of what have been described

by researchers as "hot spots" of provision in core urban areas, surrounded by "warm haloes", but with "cold shadows" in rural (and in socio-economically deprived urban areas), where incomes and/or population densities are low. The diagram below illustrates this point.



Source: Gillespie, A, et al (2001)

6.7 Research evidence from the USA and Northwestern Europe supports this view and suggests that advanced telecommunications infrastructure is unlikely to extend to rural areas without public assistance of one form or another. As a recent research report (Parker, 2000), based on evidence from the UK, Ireland, and France, concluded:

"...many rural, and all deep rural, areas will be left with telecommunications services well below those available in urban areas. Seen from this perspective, two problems are compounded. First, concentration of advanced broadband infrastructure and services in urban areas is inclined to attract private investment, thus adding to the agglomeration effect and its consequences (congestion, higher land/premise costs etc.). Second, it exacerbates the rural-urban divide and risks reinforcement of a rural-urban imbalance, deepening the digital divide between rural and urban areas."

Bridging the digital divide

6.8 For most governments, the digital divide affecting rural areas is only part of the broader issue of bringing the benefits of the Information Society to the whole of their nations. For this reason, we must first deal here with the broad policies.

6.9 The eEurope initiatives. The salience of Information Society as a central plank of development policy is reflected in the production by the European Union of a sequence of action plans related to the harnessing of the Information Society, as follows:

- the eEurope initiative put forward by the European Commission in November 1999;
- the eEurope 2002 Action Plan endorsed in 2000 at the Feira meeting of the European Council;
- the eEurope 2005 Action Plan that was endorsed in 2002 at the Seville meeting of the Council;
- the eEurope 2003+ Action Plan that was prepared for the (then) candidate countries in 2001.

6.10 These policies have set quite ambitious targets and are supported by substantial funds through the Structural Funds and other initiatives of the European Union. The aim is for Europe to catch-up with its main competitors, the U.S.A. and Japan. To quote from the most recent policy document in this field, "Towards a knowledge-based Europe - the EU and the Information Society".

"Digital technologies have proved to be a powerful engine for economic growth and competitiveness. In the United States, business and consumers were quick to take advantage of this 'digital revolution'. As a result, American businesses became much more competitive and the US economy enjoyed spectacular and unprecedented growth... Europe too must become a much more 'digital economy'.... it should become the most competitive knowledge-based economy in the world by 2010."

6.11 eEurope 2005 is built around two strands of action that complement each other. The first concerns services, applications and content that would cover the public domain with on-line public services, parallel to those in the business domain. The second concerns telecommunications infrastructure, and in particular broadband, and security. These aspects represent essential requirements on which to base the development and use of services, applications and content. The targets set can be summarised as follows:

- modern on-line public services
- eGovernment
- eLearning services
- eHealth services
- a dynamic eBusiness environment

and as an enabler of these

- widespread availability of broadband access at competitive prices
- a secure information infrastructure.

6.12 eEurope 2005 and other policy documents specify in detail these targets and set benchmarks through which progress against the targets is monitored for every member state. Targets have also been set for the accession countries in eEurope+ 2003 and these are also monitored with a similar benchmarking process. Notably, there are no direct references in these policy documents to the rural and remote areas that are most exposed to the risk of digital exclusion. Concern with digital exclusion is expressed in terms of development differentials between member states, particularly in relation to the accession countries and the issue of

social and economic cohesion across the Union. Similarly, it is expressed in terms of gaps that are observed in levels of participation in Information Society between more and less developed regions. Nevertheless digital inclusion represents a very strong policy priority that is commensurate with the weight given to the broader concept of social inclusion.

6.13 European Union funding. Policies for the Information Society are backed by substantial funding. The Structural Funds, which represent the European Union's main instrument for socio-economic development and cohesion, devote a substantial proportion of their resources to measures that promote the Information Society. There are also numerous initiatives that promote participation in the Information Society through funding paradigmatic and innovative approaches and projects. They include the current (2000-2006) Regional Innovative Actions programme or sectoral initiatives such as Ten-telecom and eContent.

A more specialised example is the POSEIDON system, described at case study 6.1. This was the outcome of a 3-year project funded by EFTA (Financial Mechanism of the European Economic Area) and the Greek Ministry of National Economy. It consists of a network of observation buoys and a specialised operational centre for processing the data collected in order to produce weather forecasts.

6.14 The Regional Information Society Initiative. The most substantial EU initiative dedicated specifically to the Information Society is the the Regional Information Society Initiative (RISI). Through this initiative, 22 European regions were funded to produce regional strategies and action plans and to implement pilot projects between 1998 and 2000. Most of these regions would be classified by European Union standards as less favoured regions. They included many of the Union's rural and peripheral areas, where the risk of the digital divide is greatest and the need for public intervention is most pressing.

6.15 The approach used can be summarised under four headings: principles, core structures, key actions, basic outputs.

During the study visits, participants met local people and discussed plans for the area

Principles

➢ Develop policy (strategy and action plan) through a bottom-up approach, which responds to the needs of the region's citizens and organisations.

➢ Use an inclusive approach, which engages the participation of representatives of all social groups and the key economic players.

➢ Use an evolutionary approach: regions should not search for complete answers from the beginning, but should learn by doing.

➢ Strive to build partnerships; to secure the commitment of key actors to long-term visions, strategy and priorities for action; and to establish consensus.

➢ Stimulate wide public debate and engage in networking to build partnership and consensus.

➢ Bring about organisational learning and change through awareness raising, partnership and consensus.

➢ Integrate Information Society policy into regional development as a whole.

Core structures

➢ Establish a regional steering committee representing key actors from the public sector, telecommunications providers, the economic community and users.

➢ Set-up a management unit to operate as a resource group for the steering committee and to coordinate, monitor and animate the implementation of the strategy and action plan.

➢ Form and run working groups on a territorial and/or sectoral basis to tap ideas and expertise and broaden participation.

Key actions

➢ Conduct a baseline audit of the region's position in relation to Information Society regarding existing and planned infrastructure, applications and services.

➢ Undertake a benchmarking exercise of the position of the region relative to competitor regions.

➢ Run an awareness raising campaign to stimulate participation in the public debate.

➢ Prepare scenarios of options for the region's future position in the Information Society as a basis for the public debate and policy choices.

➢ Create and support partnerships and networks to facilitate public debate and secure support for the implementation of policy.

➢ Develop a strategy and action plan based on consensus about priorities arisen out of the public debate.

➢ Work with the regional authority to integrate the strategy and action plan into the regional development strategy and its action priorities.

➢ Develop pilot ICT applications and services as a preparatory step before Information Society becomes a fully fledged part of regional development policy.

➢ Monitor and evaluate pilot projects.

Basic Outputs

➢ Establish a comprehensive inventory of the region' position in relation to Information Society and set up a mechanism for a periodic preview.

➢ Draw up an Options Paper that presents and assesses the position and prospects of the region through a SWOT analysis, and put forward alternative courses of intervention.

➢ Elaborate the Options Paper into a Strategy Document and an Action Plan that specifies measures and methods with which to implement the strategy.

6.16 Combining these requirements into an organised process of activities is a complex and difficult but necessary task, as the experience of RISI demonstrated. In practical terms the activities involved fall into three groups: research, social and organisational interaction, collective action. These groups are elaborated in the table that follows:

Research	Social & Organisational Interaction	Collective Action
Analysis	**Awareness**	**Exploration**
Identify the relevant issues: ♦ Socio-economic change & technological development ♦ Physical and social infrastructures ♦ Organisational capabilities	Raise awareness and promote participation: ♦ Disseminate information ♦ Get people involved ♦ Get key players and regional actors in-board	Detect existing "strategy(ies)": ♦ Explicit & latent roles, attitudes, behaviour & actions of key players ♦ On-going actions, programmes, projects and applications.
Describe and compare baseline situation: ♦ "Needs audit" ♦ "Technology audit" ♦ Institutional and human resources audit"	Promote collective thinking: ♦ Search for diversity ♦ Get new ideas and check different ♦ approaches ♦ Provoke "cultural shock"	Explore the scope for action: ♦ Concentrate on the most relevant issues, i.e. ICT relevant to growth, competitiveness, employment ♦ Develop visions & scenarios
Assess and benchmark regional situation: ♦ Strengths ♦ Weaknesses ♦ Opportunities ♦ Threats	Organise debate: ♦ Discussion groups ♦ Thematic workshops ♦ Policy workshops ♦ Public debate & participation	Identify & compare solutions: ♦ Assess existing policies ♦ Check alternative approaches with new priorities, i.e. employment, social inclusion ♦ Think short, medium & long term; think global & local
Assessment	**Involvement**	**Choice**
Match options with resources: ♦ Identify & document projects ♦ Organise projects into programmes ♦ Quantify programmes ♦ Prepare and evaluate alternative plans	Organise partnership, melding together: ♦ Users, suppliers & technological partners ♦ Facilitators/catalysts ♦ Key decision makers, i.e. CSF Monitoring Committees	Set priorities: ♦ Filter options against key criteria, i.e. ♦ employment, regional development, ♦ cohesion/inclusion ♦ Assess opportunity & viability of new ♦ approaches
Analyse feasibility: ♦ Assess projects & programmes ♦ Assess & compare alternative actions plans ♦ Prepare feasibility studies	Combine existing and possible resources: ♦ Exploit "interest chains" ♦ Look for "synergy" ♦ Build "critical mass" ♦ Public-private partnerships	Organise action & prepare action plan: ♦ Select strategic building blocks ♦ Select programmes & projects ♦ Assign resources ♦ Adopt strategy & action plan
Monitoring	**Networking**	**Implementation**
Get the right information & maintain information system: ♦ Survey & benchmark periodically ♦ Check key indicators, i.e. awareness, employment effects ♦ Organise knowledge management	Organise interaction & information channels: ♦ Information & awareness system ♦ Instrument periodic collective reflection & debate ♦ Provide networking platforms	Develop strategy & action plan: ♦ Implement programmes, projects & ♦ applications ♦ Mainstream to other programming & budgeting activities, i.e. Structural Funds
Instrument technical assistance & training through: ♦ Projects & contacts databases ♦ Preparing & presenting projects ♦ Producing feasibility studies ♦ Assisting in project implementation ♦ Assessing & evaluating actions	Develop the "networked society": ♦ Network academics, research & industry ♦ Network software producers, media & education & residential users ♦ Provide support for the social & voluntary sectors	Financial/organisational engineering: ♦ Make better use of existing resources: CSF, venture & seed capital ♦ Improve links with other policies, i.e. ♦ employment, social inclusion, sustainable development

6.17 The RISI experience provides a rigorous and tested methodology that has been evaluated for formulating regional strategy and action plans for Information Society and for managing their implementation. The lessons learned are particularly relevant to rural areas and have contributed significantly to the process of policy formation at the European level and to the planning of funds for Information Society in the structural funds of the period 2000-2006 across the Union. In the regions covered, RISI has strengthened planning capacities and competences at regional and sub-regional levels and paved the way for the exploitation of the structural funds allocated to Information Society in the 2000-2006 period.

6.18 At the same time, RISI identified certain important obstacles. The chief obstacle concerned the limited capacity of regions to fulfill the conditions set out above and to manage effectively the process of planning and managing participation into the Information Society. A common fault has been the failure to involve in a genuine way relevant actors and stakeholders throughout the pyramid of territorial levels and to build consensus and commitment. This failure is partly caused by the complexity of the planning and managing process itself, and of the actor and stakeholder structures at the level of the region. RISI also revealed more basic limitations concerning the development competences of regional and sub-regional public

administration structures and the institutional framework in which they function, e.g. their degree of political and financial autonomy. It also showed how dependent regional development in the field of Information Society is on national or supra-national policies, regulations and funds.

6.19 Prerequisites for success. The experience from the RISI initiative suggests that there are certain elements of methodology which are crucial prerequisites for success in striving to equip a region to take full advantage of the Information Society. These elements can be summarised as follows:

- Having a development strategy at the regional and sub-regional territorial level; and treating Information Society as an integral element of this strategy, i.e. treating it as a means to an end and not as an end in itself.
- Developing a strategy and a plan of action for Information Society in the region.
- Using the level of the region as the apex of the planning and managing process but also incorporating the sub-regional and community levels in the process of preparing and implementing the strategy and action plan.
- Building public-private partnerships at the strategy and action levels, establishing consensus among the principal actors and stakeholders, and securing their commitment for their active involvement in the planning and managing process.

Penrhyndeudreath, located amidst a very attractful rural scenery, became an on-line village through the "Deudraeth 2000" project

6.20. National initiatives. In many of the EU countries, the national structural fund programmes include operational programmes devoted exclusively to Information Society. Similar emphasis on Information Society measures is increasingly found in the accession countries. There is growing emphasis in national policies on reversing or at least arresting the growth of the digital divide between urban and rural areas, as part of the broader aim to sustain the social fabric and economic base of rural communities. Initiatives at national level to develop what in effect amounts to advanced services provided under a universal service mode are very expensive. France, Sweden and Canada are all proceeding in this direction -see the box below- and there is debate in the USA about extending the universal service provision into advanced services.

National initiatives: the cases of France, Sweden and Canada

France has taken measures at the end of 1999 to offer access to a 2 Mbps link to all citizens and businesses by the year 2005. The cost of additional nation-wide infrastructure is evaluated at 2.5 billion Francs: of this total, 500 million will be allocated by DATAR, the public body devoted to regional development, and the rest by various ministries and the regions.

Sweden's broadband initiative will roll out in several stages, for a total cost of SEK 8.3 billion. A commercial backbone network to all municipal centres is planned by the end of 2002, for a total investment of SEK 2.5 billion. Government funding will cover regional line connections from 2000 to 2004 at an additional cost of SEK 2.6 billion. A government grant to local authorities and tax relief to subscribers over the same period will amount to SEK 3.2 billion. These last two measures are designed in particular to facilitate access to the broadband network in sparsely populated areas.

Canada announced in October 2000 that highspeed broadband access would be available to all communities by the year 2004, leaving to a task force the responsibility of making recommendations on how to attain this goal. Referring to remote and rural communities, the announcement specifically refers to "the needs and characteristics of communities which without government involvement will not likely gain access to private sector delivered high speed services by 2004".

6.21 Regional and local initiatives. National initiatives may provide a fertile ground for local or regional initiatives to flourish. They provide funds and establish the legal and regulatory conditions that are necessary to allow the intervention of local or regional authorities to set up advanced telecommunications services, if telecommunications companies will not provide them. Such initiatives vary in conception and focus but fundamentally they are driven by two kinds of concern -to improve the quality of public services to the citizens; or to foster economic development, with a focus on the business community. Sometimes there is a mixture of both these concerns. Regardless of the initial objective, the introduction of advanced services tends eventually to benefit all types of user in a rural area.

6.22 The region is considered as a key level for planning and managing participation in the Information Society. This is in line with the EU development policy, in which the region is seen as being the key territorial level for planning and management of socio-economic development. This regional emphasis fits with the nature of Information Society. A very successful regional initia-

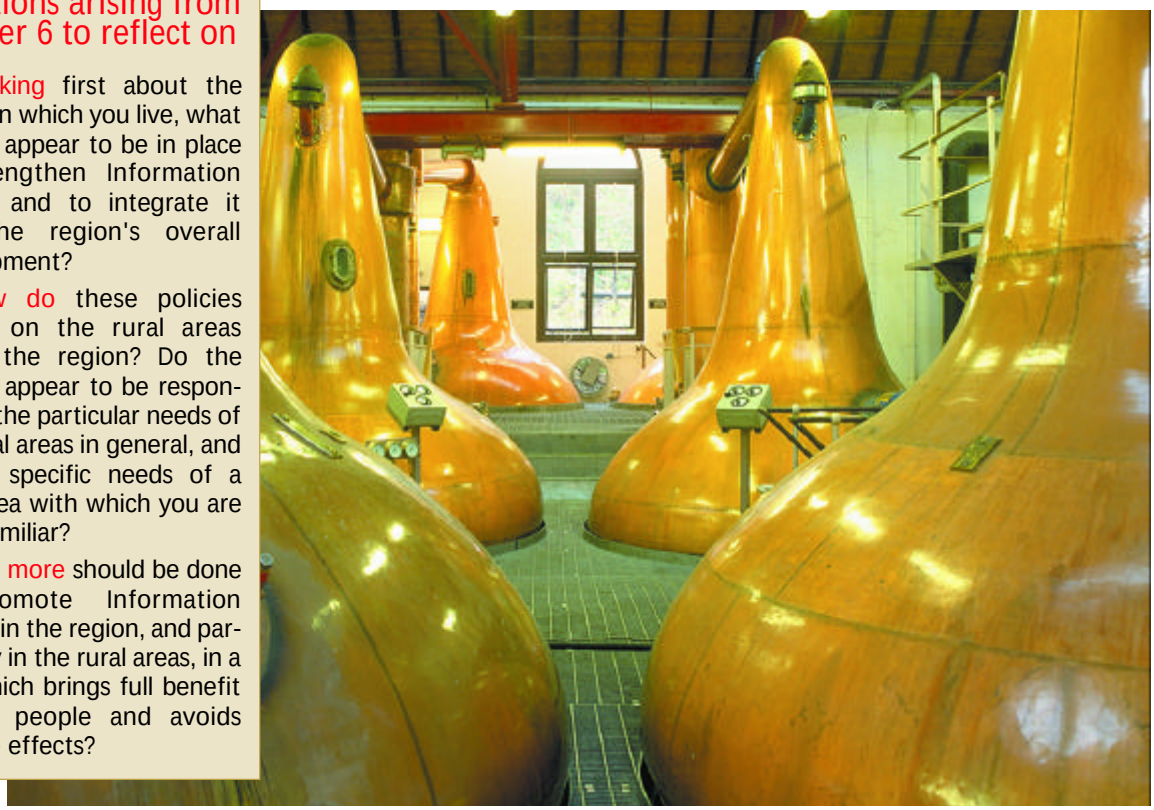
tive, aspects of which have already been referred in earlier chapters, is that of Highlands & Islands of Scotland, described in case study 6.2. Since 1989 the region through its Development Board has systematically invested in advanced telecommunications infrastructure as a policy for economic development and regeneration, with very positive results. Another example is the eOstrobothnia initiative in Finland, described in case study 6.3. The aim of this initiative is to promote networking and co-operation, among different actors in the South Ostrobothnia region, in the overall development of Information Society.

6.23 The "smart community" model. At local level, there are some striking examples of comprehensive attempts to realise the advantages of the information Society. Notable are the "Information Age Town" of Ennis in Ireland (case study 6.4) and the "digital town" of Parthenay in France (case study 6.5). These initiatives are very broadly based in their objectives. They pursue the full coverage of both types of concern referred to earlier, namely improvement of public services and economic development, and have as their final goal the full reversal of the digital divide between rural and urban areas. They represent somewhat different approaches to promoting the Information Society. Ennis reflects a top-down, technology driven approach, and Parthenay a bottom-up, social pull approach: these terms were defined in chapter 2. The Ennis example inspired also the project "Deudraeth 2000" to introduce computers into homes and businesses within the rural villages of Penrhyndeudraeth, Gwyned, North Wales and develop an on-line village. Although, of a much smaller scale, the project which started with a 30,000 pounds per annum grant from the Welsh Development Agency has now a budget of over one million pounds creating a sustainable community regeneration organisation. Finally, a more limited initiative, in the Swedish town of Nora, is described in case study 6.6: the primary objective was to provide wireless Internet communication in all public places.

6.24 Last, but not least, there are examples of genuine grass roots initiatives that are based on the enthusiasm of individuals. This is what happened in Buckfastleigh, a small community near Plymouth, South UK, in 2002, where two frustrated local entrepreneurs won a 2-year 0.7 million Euro grant from the Department of Trade and Industry to introduce broadband technologies in remote rural areas. Their action plan concentrated on the identification of digital divides in Buckfastleigh and the procurement of the appropriate technology mix that fits the specific needs of the community. The major lessons learnt were that, on the one hand, a significant lead in time is required to involve and not just consult communities; and on the other hand, that a lot of demanding work and consistent networking with many different types of people is needed for local capacity building. These are essential ingredients for involving a local community and ensuring that an initiative is sustained beyond the end of the funding period.

Questions arising from chapter 6 to reflect on

1. Thinking first about the region in which you live, what policies appear to be in place to strengthen Information Society and to integrate it into the region's overall development?
2. How do these policies impact on the rural areas within the region? Do the policies appear to be responsive to the particular needs of the rural areas in general, and to the specific needs of a rural area with which you are most familiar?
3. What more should be done to promote Information Society in the region, and particularly in the rural areas, in a way which brings full benefit to the people and avoids adverse effects?



Case study 6.1

POSEIDON System for on-line weather forecasting, Greece

Sea and sun represent an invaluable asset for business practice and everyday life in many countries. This is especially true in Greece with a coastline stretching along more than 16,000 kilometres. In this context, timely and reliable information on weather forecasts and sea conditions are of strategic importance for tourism development, shipping and fishing activities, management and protection of the coastal zone, and even for many citizens.

This was the impetus behind the introduction in 1997 of the POSEIDON system, a 3-year project funded by EFTA (Financial Mechanism of the European Economic Area) and the Greek Ministry of National Economy. POSEIDON provides an infrastructure at the leading edge of modern oceanography in Europe. It has established a network of observation buoys and created a specialised operational centre for processing the data collected in order to produce weather forecasts. The network of observation buoys provides continuous records of the physical, biological and chemical parameters of the Greek seas. Those data are then transmitted to the operational centre where they are sorted and fed into forecasting models. The system can provide immediate, on-line and reliable weather forecasts for the next 1 to 3 days, as well as long-term operational forecasts, through the Internet and SMS. It also provides primary data in real time (on-line), including data transmitted from the observation buoys, and historical data, time-series, statistical analyses and data produced by "hindcasting".

The information offered through POSEIDON is a necessary tool for entrepreneurs, policy makers, tourists and residents in coastal regions. Beneficiaries from its applications include central and local authorities, shipyard and shipping companies, aquaculture, watersports, resorts, research centres and farmers. The system has succeeded in increasing security in marine transport, controlling pollution, assisting many productive sectors (tourism, fishing, farming, etc) and promoting efficient planning of marine infrastructure, research and technology development.

POSEIDON system has been a pioneering project in the development of operational oceanography, placing Greece among the leading countries in the field. It has proven a unique planning tool in the endeavour for the protection of the marine environment. It also provides a competitive advantage for the development of business activity, the prevention of disaster, and the safeguarding of human life.

***Contact**: http://www.Poseidon.ncmr.gr/*

The newly established Science and Technology Park in the University of Ioannina campus

Case study 6.2

ICT infrastructure, Highlands and Islands region, Scotland

The Scottish Highlands and Islands, as discussed in case study 3.6, are one of the most peripheral regions in Europe. However, they have accumulated more than ten years of experience in the field of telecommunications investment, through the successful implementation of a policy to promote direct economic development. In 1989, the Highlands and Islands Development Board (HIDB) decided to upgrade the area's infrastructure to the latest digital standards, including ISDN.

This was a direct consequence of the fact that the main telecom operator (the privatised British Telecom) was initially planning to bring such technology only to Inverness, the regional capital. But the local authorities realised that the whole region was in need of new economic activity, following the decline of traditional agricultural and industrial activities; and that to limit ICT infrastructure to Inverness only would not meet that need. They therefore pressed for that infrastructure to be more widely created. Negotiations with the United Kingdom Treasury led to the implementation of a 32 million Euro project, including a 25% share of public investment through the HIDB, the rest mainly from British Telecom.

The effect of this major investment was that, by 1992, 70% of businesses and 75% of the population of the Highlands and Islands were within reach of ISDN. An extra 8 million Euro were allocated (around 3 million Euro from public and European funds and 5 million Euro from British Telecom) to bring ISDN to the most remote areas, particularly in the Islands, before the end of the year 2000. The availability of such infrastructure, continuously upgraded, coupled with a highly educated and skilled workforce as well as attractive packages for investors, has attracted inward investment to these rural areas and generally reversed the negative demographic trends.

Today there are more than 2,300 employees in 17 telebusiness locations in the Highlands and Islands, including call centres servicing world-class companies. Also, numerous ventures in biotechnology, industrial application software development, marketing and design, web authoring and many other forms of business have been introduced and have been able to expand their horizons through the telecommunications investment of the last decade. Since the initial investments were made, for instance, a call and contact centre industry has been set up which now employs about 4,000 people throughout the Highlands and Islands. The robust infrastructure has also made possible the University of the Highlands and Islands (UHI) Millennium Institute project, described at case study 7.5. Finally, the successor of HIDB, Highlands and Islands Enterprise, has recently deployed a strategy to ensure that the area enjoys maximum benefit from broadband telecommunications services.

Contact: *http://www.hie.co.uk/*

the brief

Highlands & Islands Enterprise

Developing Skills Special Edition

Skills programme hits record numbers

Regular publications and special editions of the HIDB journal "the brief" are delivered through the Internet

Case study 6.3

eOstrobothnia - ICT links within a region, Finland

In 2001 the Finnish Ministry of the Interior invited Regional Councils to submit plans under the Regional Centre Programme. This programme, which runs until the end of 2006, was designed to create in each region a close co-operation between a core city and the surrounding municipalities, in order to achieve more effective organisation of services, employment, social development and environment protection for a large functional area.

eOstrobothnia was one of the 25 programmes selected. The programme aims to promote networking and co-operation, among different actors in the South Ostrobothnia region, in the overall development of Information Society. Seinajoki is the biggest city in the region with 30,000 inhabitants and is surrounded by 26 smaller municipalities: in total, the region has about 200,000 inhabitants. The biggest problems have been the decreasing population, low level of education, and a narrowly-based economy dominated by farming.

Funding for the eOstrobothnia programme, to the tune of 970,000 Euro, was provided by the State. The programme is administered by the City of Seinajoki, and co-ordinated by the Seinajoki Technology Centre. Other municipalities, development organisations and institutes in the region, as well as industry and enterprises, are represented on the committees responsible for delivery and monitoring of the programme. The programme is designed to promote innovation, capacity building, multi-faceted networking and better quality of life in the region; and, in pursuit of these purposes, to make efficient use of the possibilities which ICT offers both in the everyday lives of people and in business practice.

Different actors in the public and private sectors are encouraged to plan and run projects together. The projects concentrate on the development of ICT, metal industry, food producing and processing, wood and furniture, and welfare services. The projects approved must strengthen the ICT branch; elaborate the co-operation between enterprises, education providers and development organisations; support enterprises and help to establish new ones; and strengthen the Regional Centre. The biggest effort of the programme so far has been to support the Seinajoki Technology Centre and the TeleMedicine Centre to receive university status.

Traditionally, the actors in the region have been very independent and acted separately: South Ostrobothnia has a greater number of small enterprises than any other region in Finland. The eOstrobothnia initiative has shown that networking and co-operation are essential preconditions for prosperity in the region. The benefits achieved so far include a fall in the unemployment rate, which is now one of the lowest in Finland; an increase in the population; and the granting in 2003 of University status to five provincial institutes of different universities located in the city. So, South Ostrobothnia is not the region of sunset anymore.

***Contact**: http://www.sjk.fi/Ako/yhteystiedot.htm*

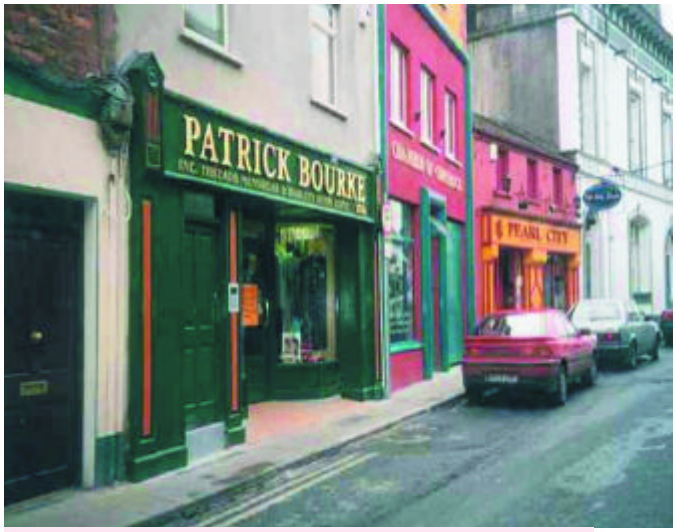
The new Technology Centre in Seinajoki is almost ready for moving in

Case study 6.4
Ennis "Information Age Town", Ireland

Ennis is a town of 18,000 people, located in County Clare in Ireland. In September 1997, it was selected as the "Information Age Town of Ireland" in a national competition launched by Eircom, then the sole telecom operator in Ireland. The selection criteria were basically how the town could benefit from Information Society, and the capability of the community taskforce that would oversee the project. The objective of the project was to introduce ICT in all households, businesses and educational institutes in Ennis and carry out an on-going analysis of the effects brought about by such a major change. The award presented to Ennis was about 20 million Euro to be spent over 5 years (plus 1.3 million Euro since allocated to the project by the Ennis Urban District Council).

The results of this ambitious project have been spectacular. Telephones are now owned by over 90% of households, the highest of any town in Ireland. More than 4,600 PCs are installed in homes, representing 82% of the population. Subsidised ICT training has been offered to a member of every household that has a PC. An SME programme was launched in April 1999 offering training, consultancy, hosting services, ISDN connections and in some cases subsidies to small and medium-sized enterprises in the town. 350 people from SMEs have taken ICT training courses at different levels. A "business champion" programme was launched, to identify 20 companies that could substantially benefit from ICT: these companies will serve as basis for case studies, to be widely disseminated through the Ennis Internet site. Moreover, substantial resources have been allocated to schools, because Ennis has a very young population (40% under the age of 24). About 500 multimedia PCs (1 computer per 7 students) were installed in Ennis's 12 primary and secondary schools. Individual e-mail accounts were provided to all the 5,200 students and to their 300 teachers, who received specific training. Big efforts have also been made to reach marginalised communities (early school leavers, long term unemployed, handicapped people). eGovernment and eCommerce are also planned to be delivered through the Intranet site. Lastly, a six-year strategic plan for the town is being discussed, through an electronic consultation which enables all citizens to air their views and amend the project.

Being the Information Age Town, Ennis is both a living laboratory and a showcase for Eircom. It is too early to make a full evaluation of such an ambitious project. Usage patterns, both quantitative and qualitative, are being closely monitored so that an overall assessment



O'Connell Street, a typical street in Ennis

can be made. But it is already apparent that Internet usage in Ennis is four times higher than that of many other Irish towns with a comparable population. This, and other positive indications, suggest that usage and full integration of ICT will develop. If this happens, it will show that a technology driven, top-down approach could very well transform to a social pull and bottom-up model. The proof of this will depend not only on quantitative measurements of participation in IS, but also on a clear commitment of inhabitants in community aspects of the project, particularly in eGovernment and eDemocracy. No judgement on this can be made at this stage, since the local Intranet, focal point of such activities, was only launched at the end of the year 2000.

Contact: *http://www.ennis.ie*

Case study 6.5

Parthenay digital town, France

In Parthenay, a district of Deux-Sevres in France with 18,000 inhabitants, the introduction of ICT was seized in 1996 as an opportunity to reorganise the municipality in order to create a "digital town", bringing citizen and local government closer. The Parthenay project aimed to improve access to local government services, to facilitate initiatives among associations, and to strengthen social cohesion. It was based on the principle that the digital town would only work if a dense fabric of human relations was in place.

Well before the digital town concept was launched, the municipality had supported initiatives and training programmes to help citizens to create projects and to organise associations, activities and events. In 1996 it created the In-Town-Net, a website providing a wealth of information -24,000 pages !- on the economic, social, cultural, administrative and tourist resources of Parthenay and its surrounding area. Active contributors to the content of the website are all the municipal departments, most of the companies and associations in the town, many individuals and the local radio station. The website was deliberately designed to facilitate the participation of citizens and interactive communication. Citizens can use the website to apply for official documents or identity cards, even if for legal reasons (eg. signature) the entire procedure cannot always be carried out on-line. The website gives access to the municipal council's deliberations; provides the e-mail address of every councillor; and includes a forum in which councillors and the public can engage in dialogue.

The project is based upon partnership between the municipality and the citizens. The municipality is the enabler, providing help (premises, equipment or financial aid) and encouraging cooperation; the citizen becomes a genuine actor in all kind of town affairs. Individuals and social actors are constantly invited to experiment on-line with applications relevant to everyday life. Voluntary bodies of all kinds are encouraged to participate in the life of the town; this is reflected in many successful initiatives in the fields of architectural heritage, music and local traditions, and social services such as those related to youth and the handicapped.

The system has evolved so as to promote greater efficiency and accountability, consistent with the idea of a rapid and guaranteed response within reasonable time. A further step was taken in September 2000 with the commissioning of the electronic "hot-line" for the use of citizens. The municipal social services department, aiming to facilitate contacts between all age groups,

The Parthenay Website: the Municipality has invested heavily in advanced ICT infrastructure to create a "digital town"

provides a directory of e-mail addresses in the town, a database of personal information to discover like-minds (voluntarily uploaded by each internet user) and a "local exchange service". The latter is used for swapping goods or services on the basis of a scale of equivalent value, freely determined by the two parties, using an accounting unit called a "PES" (Parthenay Exchange Service). The goods or services available are classified by type in a list of small advertisements, indicating both offers and requests. Parthenay is a member of the Villes Internet, an association of 568 towns aiming to support civic life through ICT.

Contact: *http://www.district-parthenay.fr*

Case study 6.6

Enhancing Internet access through NORA WIRELESS, Sweden

Nora is a Swedish town of 10,000 inhabitants, located 230 km east of Stockholm. In 2001 a group of ICT-interested people decided to put Nora on the map in the field of wireless communication. The project launched is called "Nora Wireless" and has the primary objective to provide wireless Internet communication in all public places. The vision is that anyone should be able to "surf" the Internet from cafes, the library or the benches in front of the church in Nora square, something that could become a reality through a wireless LAN (local area network).

The project built on the interest of those inhabitants who already had broadband connections: it was hoped that they would be willing to share unused capacity and "feed it" into the network, so others could surf the Internet for free. The idea was that, at strategic locations (access points) around Nora, one could connect a computer with broadband and have wireless Internet access. On the technical side, open-source technology (open for others to copy), a Linux operating system and a license free communication protocol (please check the websites below for details) were used, in order to keep the costs as low as possible.

The project achieved its goal of providing wireless access to Internet for free, yet on a rather small scale. A school was connected to the network and about 40 people, mainly young pupils and students, used the opportunity to surf wireless on a regular basis. They did so quite excessively (downloading music and films), so after a while the bandwidth was exhausted. In combination with recurring technical troubles, the insight gained was that offering "Internet for free" is not feasible in the long term. However, after having been faced with this situation, the project group did not give up but strengthened its effort to become more realistic.

To this effect, a non-profit organisation, called "Nora 4U" (4U stands for Development, Education, Entertainment and Youth - in Swedish, *Utveckling, Utbildning, Underhallning, Ungdom*), was created in order to provide wireless Internet on an economically sounder basis. Today, Nora 4U offers broadband services at about half the price of regular Internet providers. Moreover, to the excitement of Nora's inhabitants, the service offered is still wireless.

Nora 4U wants to create and realise projects like Nora Wireless, which encourage people in the town to co-operate towards a common goal and learn something in the way, thus building what is usually referred to in Sweden as a Community Network. The organisation is run by citizens and looks for support locally from companies and organisations. Its ambition is that Nora, a beautiful culture town, can also become a first class ICT-town, using the latest technologies available.

***Contact**: Stefan Baath at info@nora-wireless.org, http://www.nora-wireless.org*

Info in English:

http://www.nora-wireless.org/nw/pressrelease/26072001en.html (press release)

http://www.elektrosmog.nu/#en

Wireless Internet communication is provided anywhere in Nora

CHAPTER 7.

The Animators: facilitating the participation of rural areas in the Information Society

7.1 This chapter focuses on the process of facilitating the process of participation of rural areas in the Information Society. It is not enough to have the national programmes, the regional plans and the telecommunications infrastructure that are described in chapter 6. Individual, householders and businesses will not automatically move into active use of ICT, or gain the benefits of the Information Society, simply because broadband arrives in their community or the regional authority promotes the idea. Stimulus and action may be needed at local level.

Factors affecting participation.

7.2 The points of leverage. Before we look at examples of the stimulus and action that can be taken, we review some of the key factors which affect the participation of people in rural areas in the Information society. These factors are explored in a comparative study which examined the social and economic cohesion aspects of the development of Information Society in Europe (NEXUS Europe and CURDS 1996). They may be seen as prerequisites for the full exploitation of Information Society in a rural region, or as points of leverage for those who wish to stimulate particular steps on the road to that full exploitation.

7.3 The study looked at the gap between "cohesion regions" (i.e. less developed regions) and "non cohesion regions" (i.e. more developed regions)* of the European Union, regarding their capacity to participate in the Information Society; and analysed the process whereby less developed regions can move towards the Information Society and catch up with more developed regions.

7.4 The study concluded that the more developed regions have comparative advantages -in the form of economic and technological resources, skills, industrial tradition and organisation- for exploiting the opportunities offered by Information Society, although there are obstacles that have to be overcome. The less developed regions face many more obstacles, and the problems are compounded. Such regions cannot simply leapfrog into Information Society. They must make special effort if they are to catch up with, or get closer to, the more developed regions. Without such effort, the gap regarding participation in the Information Society may become larger, with dire consequences for their development and the goal of socio-economic cohesion.

Conferencing can be greatly facilitated through ICT

7.5 The study identified two sets of elements that determine the capacity of a region to participate in Information Society. These two sets of elements represent prerequisites (i.e. necessary but not sufficient conditions) for participation in the Information Society. The first set of elements represents what can be described as enabling prerequisites. These are essentially socio-economic in nature and extend well beyond the telecommunications sector. Four distinct elements are identified:

- *Educational level and skills* including literacy in ICT. This is a crucial factor for the development, implementation and usage of advanced services that have to be tailored to specific user needs. The skills needed go beyond basic ICT literacy, which is important of course: they include specialist skills in computers and systems analysis as well as in re-engineering and other aspects of management.
- *Private sector orientation and active involvement* in Information Society. Positive involvement by the private sector means that the business community takes a lead and actively participates in the promotion of Information Society, rather than adopting a role of passive recipient of the technology and services available.
- *Positive public sector orientation* towards Information Society. As with the private sector, this means taking a lead and actively participating in the promotion of Information Society, rather than being simply a user of services.

** Cohesion countries (or Objective 1 countries) included at that time Greece, Italy, Spain, Portugal and Ireland. These were countries with per capita GDP less than 75% of the Union's average.*

➢ *Public awareness*. This involves active debate of Information Society in the public domain, including the mass media, as a central issue for regional development and economic competitiveness.

7.6 The second set of elements represents what can be described as central prerequisites for participation. These are essentially techno-economic in nature and relate to the telecommunications sector. Four distinct elements are identified:

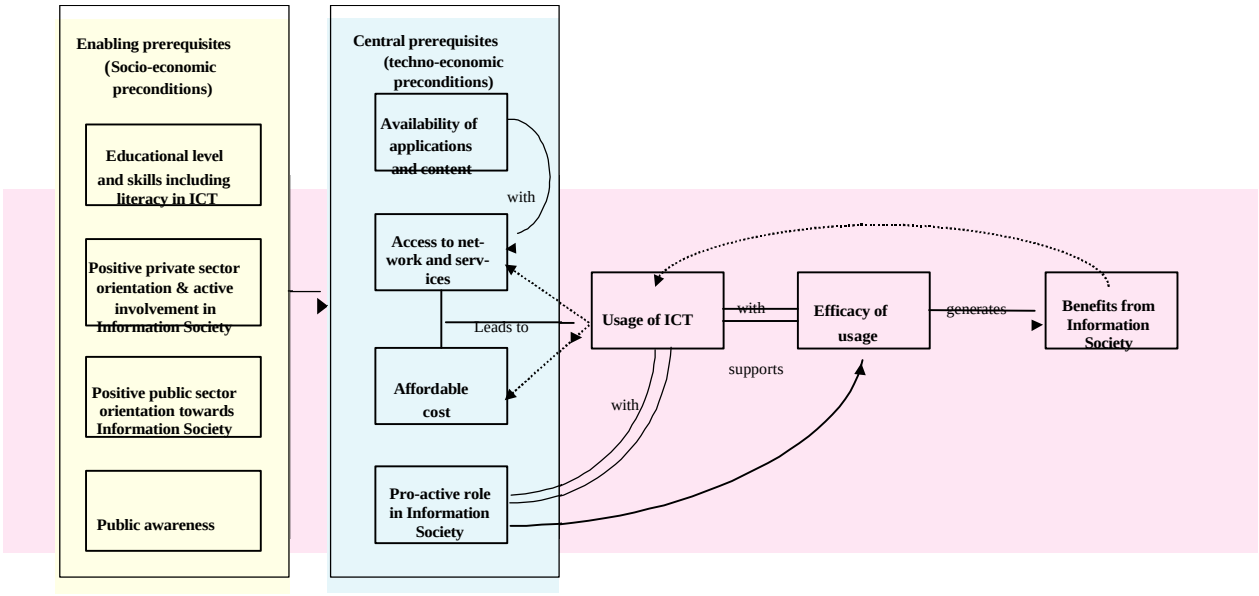
➢ *Access to networks and services*: The most fundamental prerequisite is that certain basic services are currently available.

➢ *Affordable cost of services*: Access counts for nothing if the bulk of users, especially local businesses cannot afford to use them.

➢ *A pro-active role* taken by the region in Information Society, for example through active use of ICT in provision of services.

➢ *Availability of applications and content*, as distinct from basic services.

7.7 The diagram that follows presents these two sets of elements, the way they relate to each other and their role in the process that leads to the take-up of services and usage of ICT and eventually to the generation of benefits from participation in the Information Society.



7.8 This route to participation is by no means an automatic process. For example, affordable cost of services does not guarantee high levels of take-up, whilst usage of ICT does not guarantee that such usage is efficient and can bring the benefits expected. It is a process that has to incorporate all these elements and be driven by a strategy and approach that is tailor-made to the characteristics of the territory concerned and is an integral part of the overall development strategy for the territory. This is where the different options for strategy and approach described in chapter 2 come in. The above elements provide a structure for benchmarking, i.e. assessing the relative position of a region, sub-region or local area in relation to Information Society, and determining the size and type of Information Society gap that has to tackled. This is what is known as base-line assessment and represents the starting point for the formulation of strategy and approach.

7.9 But the elements also represent points of leverage which may be used by those who wish to stimulate particular steps on the road to that full exploitation. For example, the references to the active involvement of the private sector, the positive orientation of the public sector, and the importance of public awareness, all provide hints as to where action or leadership may be focused.

The Animators

7.10 Initiative within the community. We emphasised in chapter 1 that rural development should be "community-based". The people living in a given rural area are the basis for sustainable rural development because (as described in chapter 1):

➢ they know best what are their problems and needs;

➢ they control many of the resources -land, buildings, local products- upon which development is based;

➢ their skills, traditions, knowledge and energy are the main resource for development;

➢ their commitment is vital (if they do not support an initiative, it will die).

Moreover, the more lively and active a community is, the more likely it is to attract people to move into the area, and to keep people from moving away.

7.11 The implication of this is that the application of

Information Society in a given area is likely to be most durable and beneficial where the local people are actively involved in shaping that application. We have shown in previous chapters how varied are the people who can benefit from the Information Society. They include:

(Chapter 3) Small and medium-sized enterprises, including manufacturers, traders, farmers, tourism enterprises

(Chapter 4) Doctors and their patients

Teachers and students, both children and adults

(Chapter 5) Citizens, both as users of public and other services, and as voters

Public authorities, through ease in delivering their services and through the greater insights which public participation brings.

Just as the benefits are widely felt, so the initiative can come from any part of the social structure. In the rest of this chapter, we offer examples of how initiative can be taken by different people.

7.12 Local authorities. In chapter 6, we offered the dramatic examples of the "Information Age town" of Ennis, and the "digital town" of Parthenay (see case studies 6.4 and 6.5). These ambitious projects were both initiated, and have been guided, by the local authority. They have attracted substantial help from national or European funds, and have accrued also a remarkable and sustained energy from many private, commercial and voluntary organisations in the towns and from the citizens. But the credit for the initiative rests with the local authorities.

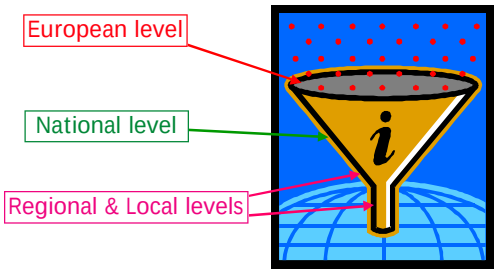
7.13 Many other local authorities, in different parts of Europe have taken action to promote the Information Society in different ways. Case study 7.1 describes the Vaga Business Garden in Norway, which was established by the city council, working with the Industrial Development Corporation of Norway and a number of local companies. The aim of this initiative was to create an attractive location which would bring new knowledge-based companies into the town. Other initiatives by local authorities which have already been described in case studies are the educational network among primary schools in and around Moussac in France (case study 4.3); and the project of "Digital Services to the Citizens of North Denmark"(case study 7.2).

7.14 Associations. Europe is very rich in associations representing different interests. They include chambers of industry and commerce, business associations, farmers' unions and others who represent the business community of the region; and civil society organisations, representing particular user groups or communities. Such associations can take initiative on behalf of their members. A striking example is provided by the Ekoweb project (case study 7.4). This is an internet-based news service, aimed at farmers and jointly initiated and funded by the Swedish National Farmers' Association and the Swedish Board of Agriculture. Case study 5.3 describes the activity of the Telecottages Association in Hungary, in promoting the creation and supporting the work of the network of telecottages in that country. A similar role is played by the Telecottages and Teleworkers Association of Great Britain and Ireland. Case study 5.5 describes the nationwide BygdeNet network, created and run by the Swedish Popular Movements Council for the benefit of the 4000 local action groups who strive to protect the well-being of their local communities.

7.15 Community. Sometimes, an initiative is taken by a local community, without any formal structure at first. An example is the "IT for the Terrified" project in the village of Wedmore in south west England, described in case study 4.4. Here the initiative was taken by a group of 6 people, who now form the project committee and who are supported by 30 other local people who act as volunteer trainers. The project is based in a converted hayloft at the local pub, which is symbolic of the local roots which have inspired this project. Similar local enthusiasm underlies the "Nora Wireless" in Sweden, described in case study 6.6. This was initiated by a group of local people who were interested in ICT.

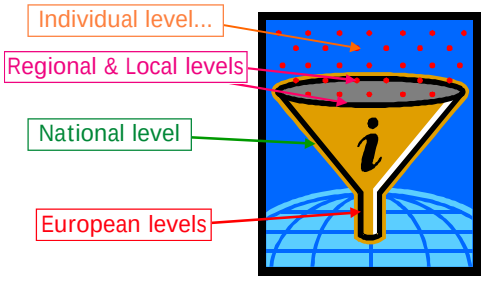
7.16 Individuals. An initiative by an association or a community may depend upon a particular individual, who chooses to grasp an opportunity or to pursue a particular idea. A graphic example if this is provided by

Policy responses to these divides...



Top-down approach

A different view...



Bottom-up approach

the initiative to bring the benefits of ICT to the farmers' wives who form the Peak District Farm Holidays Association in England, see case study 7.3. One enterprising member of this association became persuaded of the benefits of computers, and put over a year of strenuous effort into securing a large grant from the Government's rural development agency and the EU's Objective 5b programme. Part of this grant was used for marketing, part for physical improvements to farm tourism premises, and part for buying computers for the members and setting up a Website for the Association. This is now bringing in a large part of the trade to the farm guesthouses, and the computers have transformed the lives of the members. Another example is offered in case study 7.6 where the initiative of an enthusiastic person in a small rural community in Western Finland resulted in a group of activists, who with the assistance of a regional ICT project manager and the Municipality's decision to subsidise ADSL connection, succeeded in facilitating the participation of their rural community in the Information Society.

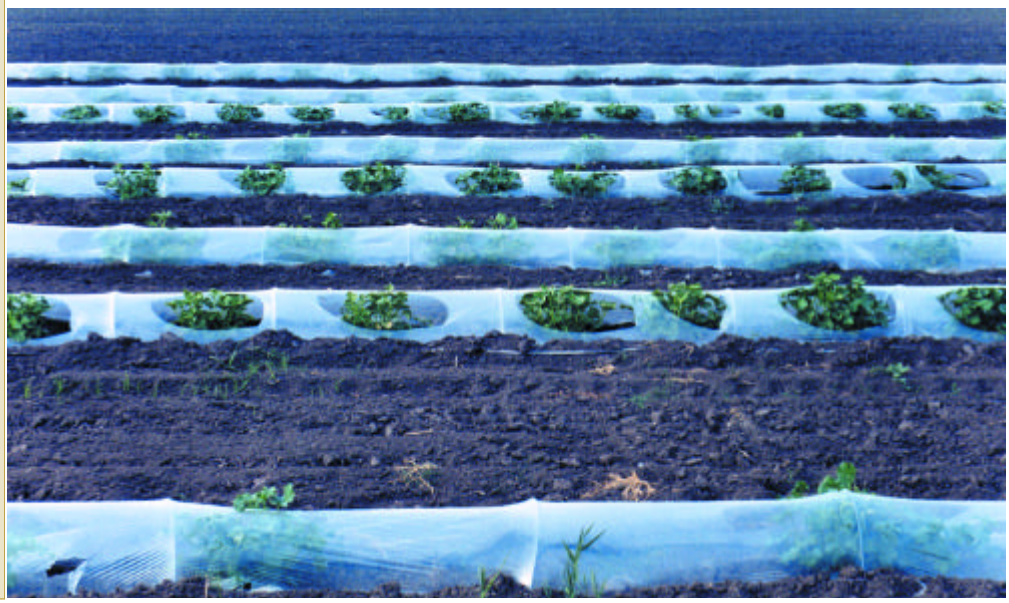
7.17 Educational bodies. Educational bodies, which can themselves benefit greatly from the use of ICT, are often well-placed to take the initiative in promoting the Information Society. An ambitious example is the Millennium Institute of the University of the Highlands and Islands in Scotland, described in case study 7.5. This Institute was created by a number of colleges and educational institutions in the Region, who wish to provide education on an outreach basis to all the widely-disperse rural communities in this remote and sparsely populated region. The Institute makes extensive use of ICT in its diversified and flexible programme. It has outreach learning centres on the 12 main islands and on the mainland, which allow it to extend the physical presence of the educational network to smaller communities and under-served areas. A further example of educational initiative is provided by the "Nelly's parlour" project, created by the Jalasjarvi Adult Education Centre in Finland, see case study 4.5. This project is designed to improve knowledge of ICT among farm women and to serve their mental well-being.

7.18 Bottom-up and top-down. These examples suggest that the initiative in animating the creation and strengthening of Information Society in a rural area can come from many different directions. There is no standard pattern, no need for a formal animator. Progress can be made by bottom-up initiative, as described in one of the models stated in chapter 2. But this is not to deny the validity of the set of prerequisites listed earlier in this chapter. It is very much easier to strengthen the Information Society in a given area if it does have the telecommunications, infrastructure, and supportive policies at national and regional level. "Bottom-up" and "top-down" should support each other.

7.19 A ring of partners. The Information Society, with the benefits which it can bring to rural areas, will be more quickly realised if all of those who may seek those benefits work together to pursue that result. We need to create a ring of partners -craftsmen, industrialists, traders, farmers, tourism entrepreneurs, doctors and their patients, teachers and students, public authorities, ICT providers. We are all citizens, we are all part of the problem and part of the solution!

Questions arising from chapter 7 to reflect on

1. In your region, or the rural area with which you are most familiar, who is trying to do what to promote Information Society, or the beneficial use of ICT, at local level?
2. What support are these animators getting from the public authorities, from other organisations and from the general public?
3. In the same area, what new initiatives do you think are needed and at which level in order to promote Information Society, or the beneficial use of ICT? Who is best placed to lead those initiatives?



Case study 7.1

Vaga Naeringshage -a regional business garden, Norway

Vaga municipality lies in Oppland County, in the central part of Norway, about 200 km from Oslo. The municipality has a low population density: 50% of the population lives in the countryside, whilst the population is characterised by a relatively low educational level and a slight decrease during the last decade.

The Vaga Naeringshage ("Business Garden") was established in June 2000 in order to attract new firms to the region without upsetting the established local firms. The concept was to create a professional, technical and social environment for small knowledge-based companies with the aim of contributing to knowledge, economic growth and innovation in the region.

The Business Garden was established in co-operation between the Industrial Development Corporation of Norway (SIVA), the local city council and a few local companies; these partners put up "seed money" totalling 41,000 Euros. The Business Garden includes an 800m^2 office building with a meeting room, which offers audio-visual facilities such as video-conferencing so that entrepreneurs and students can take part in courses without having to travel to the University.

Since its opening the Vaga Business Garden, which benefits from a tax reduction incentive offered to Business Gardens located in remote regions, has succeeded in attracting 7 new companies to Vaga. Among these are the accountancy department of a Scandinavian chain of grocery stores, a telemarketing company, the office of a group of education associations and a regional media company.

A decisive factor for the success of Vaga Business Garden has been the promotion of synergy and complementarity to the existing business life in the region. Otherwise, the opportunity offered through the Business Garden would have been perceived by local entrepreneurs as a threat to their own vitality.

Audio-visual facilities, such as video-conferencing, are offered in the meeting room of Vaga Business Garden

***Contact**:*

http://www.vaga-nh.no/ and http://www.siva.no/

Case study 7.2

Improved municipal services for the citizens of North Denmark

Six municipalities in North Denmark (Broenderslev, Dronninglund, Frederikshavn, Sejlflod, Sindal and Stoevring), with a total population of 102,000 people, participate in the project "Digital Services to the Citizens of North Denmark". The central aim of the project, which was launched in January 2001, is to produce an interactive website, an extended call service and a common information database in order to provide better services to their citizens.

The project is carried out in co-operation with KMD, a limited liability company which is one of Denmark's major ICT providers for the public sector. It was granted 105,000 Euro from the project funds. The project rests on the development of solutions which offer flexibility and value in the daily life for the individual citizen and which make the Internet a simple and safe place to navigate. It is focused on the requirements of the citizens and their access to municipal services, even in the evenings.

Working groups were set up to examine three themes: Service for Citizens, Longer Opening Hours and Regional Portal. Telephone interviews were also carried out in order to determine the usage of, and need for, municipal ICT services. As a result, brand-new interactive and news-orientated websites were developed for the municipalities. A shared information desk was set up, which allows citizens to call the municipalities from 7:00 am to 23:00 pm. This desk also functions as a tool for sharing information in the administrations of the six municipalities. A database (ComBase) was developed, holding the information required for this shared desk.

The Website offers basic social information, such as answers to 80% of the questions most frequently asked by citizens. It provides a simple, user-friendly entry to all municipal information via a shared regional portal, which enables citizens to find what they are looking for and to compare services across the municipalities. Citizens are also able to gain access via Internet to a wide range of services, such as applications for building permits; calculation of housing allowance; recording of meter readings; changing one's doctor; or checking on waiting lists e.g. for children's day-care centres.

The municipalities see the project not only as an efficient way to provide services to their citizens, but as enabling them to find out what their citizens want by way of services. The municipalities will invest time and money in researching further the needs of the citizens and developing their communication strategies.

The project offers an annual publication of the "Report of Activities" via its web site

***Contact**: http://www.detdigitalenordjylland.dk/*

Case study 7.3

Website marketing for farm guesthouses, Peak National Park, England

This year's Gold Award for the best Tourism Website in England, awarded by the English Tourism Council, went to a small dairy farm in the Peak National Park, which has room for only 14 staying visitors at any one time. To win the award, Beechenhill Farm beat four of the most famous tourism sites in England -Leeds Castle, The Mersey Partnership and the Tate Gallery. Behind this remarkable coup is a creative and determined woman, Sue Prince, supported by her resourceful farmer husband. Her energy has not only transformed the economy of their own hill farm: it has also promoted the fortunes of 34 other farms in the National Park, who have together harnessed the Information Society to their fight for economic survival.

The Peak District is a large upland area in northern England, with limestone hills which are divided into small livestock farms, producing sheep and cattle. Since 1984, when milk quotas were introduced, these farmers have been fighting for survival. The farm families have needed to diversify their sources of income. Terry and Sue Prince decided that, in an area of high landscape value, they were well placed to offer bed-and-breakfast accommodation, and then to convert redundant barns into two self-catering cottages. Some other farms in the district were already doing the same, and in 1976 the farm wives had formed a Farm Holidays Association, to undertake joint marketing and give mutual encouragement to each other.

In 1990, Sue Prince bought a computer, and started to use it for her paperwork and artwork. She soon realised how powerful a tool it was. She used it to design publicity material for her own enterprise and for the Association. The following year, when the Association started training courses for its members with help from the University of Derby, the use of computers was put on the training agenda alongside cooking, housekeeping and legal aspects of running the tourism enterprises. Most of the women had left school at the age of 14 or 15, and the use of computers was completely novel to them. But several became skilled at it, and wanted to buy their own computers.

Sue Prince then took the lead in preparing an ambitious application for funds from the Government's rural development agency and the EU's Objective 5b programme -a process which stretched over a year of strenuous and frustrating work. They secured £420,000, of which part was used for marketing, part for physical improvements to farm tourism premises, and part for buying computers for the members and setting up a Website for the Association.

Today, the 35 members of the Association gain a large part of their business through their Website, which has links to the websites of Tourist Boards, the national Farm Holidays Organisation, the Peak National Park and others. All the farm wives have their own computers. Most of them have their own Websites or pages on a collective site. They use e-mail to keep in frequent touch with each other. When one receives an inquiry for accommodation which she cannot meet, she immediately offers to circulate the request to the other members.

In this way, Websites have transformed the marketing of these farm tourism enterprises. But in a wider sense, the computer, the Website and the cooperative spirit of these farm wives have transformed the economy of their hill farms and the quality of their own lives, by raising their business skills and their self-esteem and strengthening their daily contacts with each other and their mutual support.

***Contact**: Sue Prince at beechenhill@btinternet.com, http://www.beechenhill.co.uk*

A meeting of the Peak District Farm Holidays group at Sue Prince's farmhouse

Case study 7.4

Ekoweb, ICT support for organic farming, Sweden

Organic farming is growing fast in Sweden. Jordbruksverket, the Swedish Board of Agriculture, has decided to support an ambitious goal, namely that 20% of the national farming area should be certified organic by 2005. The rapid development in organic farming is publicised through Ekoweb, an internet-based news service which is funded by Swedish Board of Agriculture and the National Farmers/ Association.

Eco-friendly products promoted in a regional fair

The Ekoweb website is updated almost every day. Its primary target group are farmers, both organic and conventional, but also other people interested in organic trade, processing, consumer interests and other agriculture-related fields. Ekoweb covers market-related news mainly in Scandinavia, but also in Germany and England, which are important agricultural trade partners for Sweden. About 700 people subscribe to Ekoweb's biweekly e-mail newsletter.

The website offers other interesting services, which are best described as "interactive calculators" for the field of pig and crop production. The calculators are fed with up-to-date market prices and help the farmer to estimate the profitability of pig raising and crop cultivation (e.g wheat, beans, rye, etc). An even more exciting tool is the "crop rotation optimiser", which offers online help to identify the best mix of crops on the field. For example, if a farmer wants to find out whether growing wheat on half the acreage and beans on the other half is a good idea, he/she may enter these data into the optimiser (which takes market prices, labour time and EU area subsidies for agricultural land into consideration) and calculates the profitability of the chosen mix. EU support schemes differ depending on the cultivation, for example subsidies may range from around 100 Euro per ha of an "extensive" cultivation, such as grass growing, to nothing for "intensive" cultivation, such as wheat.

Ecoweb offers many interesting services to farmers in Sweden, including statistics and the innovatory crop optimiser

***Contact**: Olle Ryegard (editor of Ekoweb) at*

olle@agroide.se.

http://www.ekoweb.nu

Case study 7.5

UHI Millennium Institute, Scotland

The Highlands and Islands region occupies over half the area of Scotland. As was discussed earlier, it is a peripheral region, one of the most sparsely populated areas in Europe. Its economy is over-dependent on agriculture, fishing and tourism. Until recent years, it had no University.

In 1993, a number of colleges and research institutions in the Region came together in a project to create the University of the Highlands and Islands (UHI). This is conceived as a federal collegiate university, which may bring major and lasting economic, social and educational benefits to the region. The University is not yet formally created, but its partners work through the UHI Millennium Institute, with degrees which are validated by the Open University.

The Institute is based on a partnership of 15 colleges and research institutions, plus several outreach learning centres on the 12 main islands and on the mainland. These outreach centres extend the physical presence of the educational network to smaller communities and under-served areas. They enable young people and mature students to gain access to higher education within their home area, and that can also attract people into the area to study.

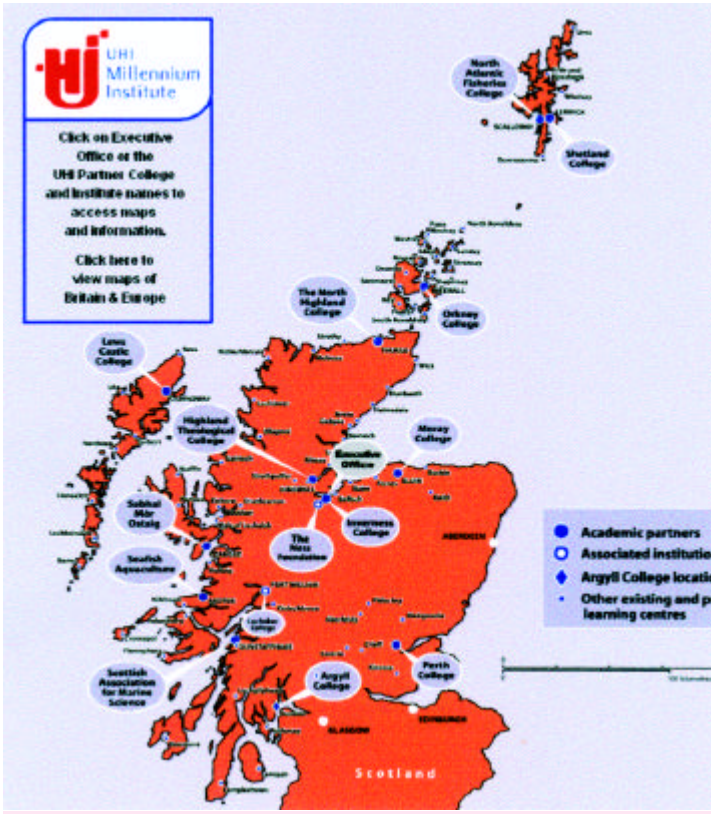
The Insitute's approach to teaching and learning takes full advantage of the possibilities offered by ICT. Each location has access to shared information sources through a broadband electronic communications network. Video-conferencing, and other methods of distance teaching, are used, so that students can learn where they live. Other services include library, learning resources and student services, as well as technical and user-support systems and procedures. A wide range of higher national, degree and postgraduate courses are available, on either a full-time or part-time basis.

The scale of this regional initiative can be judged from the student numbers. The UHI Millennium Institute currently has 22,500 students (8,900 full-time equivalents), of which 37% are involved in higher education courses.

The Institute's programme incorporates contemporary good practice from around the world. Its distinguishing features include student-managed learning; mass access; flexible entry and exit; multiple partnerships; stakeholder consultation and accountability; a competencies-based curriculum oriented towards regional economic and social development; substantial investment in ICT; and lifelong relationship with learners. Recurrent funding is received from the Scottish Higher Education Funding Council and from student fees. Capital development funds have been contributed by proceeds from the national lottery, the Scottish Office Education and Industry Department, the European Union, the Highlands and Islands Regional Council, and local authorities. The project has created over 800 high-quality permanent jobs and a further 1500 during the construction phase, resulting in the biggest single jobs boost to the Highlands and Islands for decades.

UHI Millennium Institute is progressing well, as its partners continue their efforts to create a fully-fledged university, with its own degree-awarding powers and with all the educational and economic benefits which can come from University status.

Contact: *http://www.uhi.ac.uk/*



The partners of UHI are dispersed throughout the Scottish Highlands and Islands

Case study 7.6

Web site for a Finnish village: the role of animators in facilitating the participation of rural areas in the Information Society

The Tiistenjoki region lies in Western Finland and consists of three adjacent villages with a total of 1000 inhabitants. Tiistenjoki is the main village but the common name for the area is "Kasvun Kylat" (Villages of Growth), which is also the name of the local development association (KKK).

The idea for constructing the village's own web site came from an enthusiastic resident. Being himself an entrepreneur in one of the villages, he had already set up his own web site but he needed a faster Internet connection. He contacted the manager of a regional ICT project "eKylve" (Electronic Village Net) and found out that the easiest way to get a faster connection would be to gather a group of local people together so that the regional telephone company would take an interest in them. During discussions he also got the idea of getting more local people interested in the Internet by developing a web site for the village.

He started the process by collecting all the e-mail addresses he knew in the area and by sending out an "activation letter" to explain his idea. He received encouraging replies and also found out that in a neighbouring village lived a woman who had the previous winter attended a course on designing web sites. After the first meeting of a few "activists", she began independently to design the contents and the front page of the web site. Meanwhile the local enthusiast made a contact through "eKylve" with a polytechnic student who was looking for a topic for his thesis. The student showed an interest in the project and started work on several technical applications for the web site as part of his thesis. The entrepreneur made contact with the associations of the village to gather material for the web site. After about two months the web site was ready (http://tiistenjoki.ekylve.fi). As a result of setting up the web site, a new job was also created: a former electrician, who had been re-trained in ICT, was encouraged to set up his own enterprise offering ICT services to local people.

An essential contribution to this process has been made by the "computer recycling" initiative. Through "eKylve" the village development association KKK was able to acquire more than 50 old PCs from the Finnish Tax Office and deliver them to the people in the villages at a low price (180 Euro). Some of the PCs were placed in the village school for educational purposes. The "community college" of Lapua is now offering courses on PC use including e-mail and Internet, using the recycled PCs. It has been a delightful surprise that older women in the villages have become interested in the Internet. It is expected that in the future, people living in these villages will be able to update the web site themselves.

Another element that had facilitated the process of participation of the rural community in the Information Society was a decision made by the Municipality of Lapua, where these villages belong. The Municipal Council decided to offer to the inhabitants of the municipality the opportunity to acquire fast Internet connection (ADSL) from the regional telephone company in a subsidised price. This offered people in the villages an additional incentive to get connected to the Internet.

This case study shows how important an animator's role is in triggering a rural community's interest in the information society. The role of the entrepreneur, as described above, to start this process was crucial, and he was lucky to secure help and support from the regional "eKylve" project, the student working for his thesis and the woman possessing the skills to design web pages. The decision made by the Municipality to subsidise ADSL connection and the enthusiasm of some other residents of the villages helped to complete the process. The challenge now is to get more material in the web site and boost its use by and for the villagers.

***Contact**: Asko Peltola at asko.peltola@seamk.fi*
(participant to the 2nd Summer Academy)

ICT training is offered using recycled PCs.

CHAPTER 8.

Further reading

We offer below a reading list, which may help you to go deeper into the background of the subjects covered in this Guide.

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Useful Internet links

http://www.euracademy.org

http://www.accespublics.premier-ministre.gouv.fr

http://www.aecom.org

http://www.calnet.it/RISI

http://www.cyber-rural.org

http://www.databank.it-dbc-fair-index.htm

http://www.digital divide.gov

http://www.ecommerce.gov

http://www.edc.eu.int

http://www.edenproject.gr

http://www.educause.edu/ir/library/

http://www.eeurope@cec.eu.int

http://www.ehto.org

http://www.elementk.com/

http://www.e-region.ie

http://www.erisa.be

http://www.europa.eu.int

http://www.ework.ie

http://www.firstgov.gov

http://www.irisi.org.uk

http://www.isc.ie

http://www.ispo.cec.be

http://www.malopolskie.pl

http://www.ncl.ac.uk/curds

http://www.netg.com/demosanddownloads/

http://www.niaa.org.uk

http://www.ovsi.com

http://www.rural.gc.ca

http://www.rural-europe.aeidl.be

http://www.sante.gouv.fr

http://www.smartcommunities.ic.gc.ca

http://www.tca.org.uk

http://www.telecomville.fr

http://www.telehaz.hu

http://www.uhi.ac.uk

http://www.ukonlineforbusiness.gov.uk

http://www.work-global.com

Glossary and abbreviations

Acquis communautaire

Common statutes and policy framework adopted by EU members

ADSL

Asymmetrical Digital Subscriber Line

B2C

Business to Consumer

B2B

Business to Business

Barcoding

A sequence of numbers and vertical lines identifying an item

Broadband

A type of data transmission of very big capacity in which a single medium can carry several channels at once

Call centre

Establishments handling customer services for companies in financial, transport or marketing sectors through ICTs

CAP

Community Agricultural Policy

DDC

Display Data Channel

Digital divide

The unequal pattern of ICTs permeation in urban and rural areas

Digital exclusion

Being excluded from participation in the Information Society

EDI

Electronic Data Interchange

Electronic portal model

One-stop-shops using ICTs to encompass many administrative services, organised so as to make access easy to citizens

Extranet

A buzzword that refers to an intranet that is partially accessible to authorised users

ICT

Information and Communication Technology

Intranet

The network of an organisation which is accessible only to the organisation's members

IS

Information Society

ISDN

Integrated Services Digital Network

Kbps

Kilobytes per second

LAN

Local Area Network

Mbps

Megabytes per second

Networked economy

A global economic environment, interlinked economic activities

Networked society

A society where community members use ICTs to enhance social cohesion

Prototyping

The process of producing models-prototypes

Outsource

Spreading out productive activities

Seamless connection

User-friendly connections that do not show cable connections

SMEs

Small and Medium sized Enterprises

SMS

Short Message Service through mobile phones

State-of-the-art

Innovatory methods or processes

WAP

Wireless Application Protocol

WiFi network

Wireless Fidelity network

3D

Three-dimensional

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