INFORMATION SOCIETY AND RURAL DEVELOPMENT

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PRELIMINARY CONSIDERATIONS: A NEW ERA

Historically, the economy and hence society were characterised by successive cycles:

- Agriculture, Industry, Services
- And now, Information:

  Convergence of print media, broadcasting, telecommunications and computing = data+voice+pictures (still and movies) = Information and Communication Technologies (ICTs) = towards the Information Society

  Today around 400 000 000 Internet users world-wide.

CONVERGENCE = A REVOLUTION

- The ICT sector represents an increasing share of GDP in most OECD countries.
- The « New Economy » is part of that sector (start-ups, multimedia application firms, e-commerce).
- But it is also a way of streamlining production processes and delocalising activities based on knowledge and information (call centres…).
- Interactivity: two-way active communication for individuals and businesses. All are senders and receivers in a value-added network.

THE VALUE OF INFORMATION AND ORGANISATION

ICTs are not neutral, they can change ways of work and lead to restructuring of organisations, whether public or private.

An ICT project usually starts with an audit:

- Who holds strategic information?
- What are the information flows, their volume?
- Are structures adapted to information exchange?
- Are existing management techniques relevant?
- Is information up-dated, through which channels?

THE GLOBAL VILLAGE: RISKS AND CHALLENGES

- Forget geography,we are digital nomads.
- But the more global we become the more we need to be local.
- English is more and more a *lingua franca* but many people and cultures are accessible through the Internet.
- The digital divide is social, educational and economical: Tokyo has more telephone lines than Africa, ICT penetration is low in DUAs and rural areas remain behind urban ones.

I.S. AND RURAL DEVELOPMENT

INTRODUCTION:

ISSUES & PERSPECTIVES:

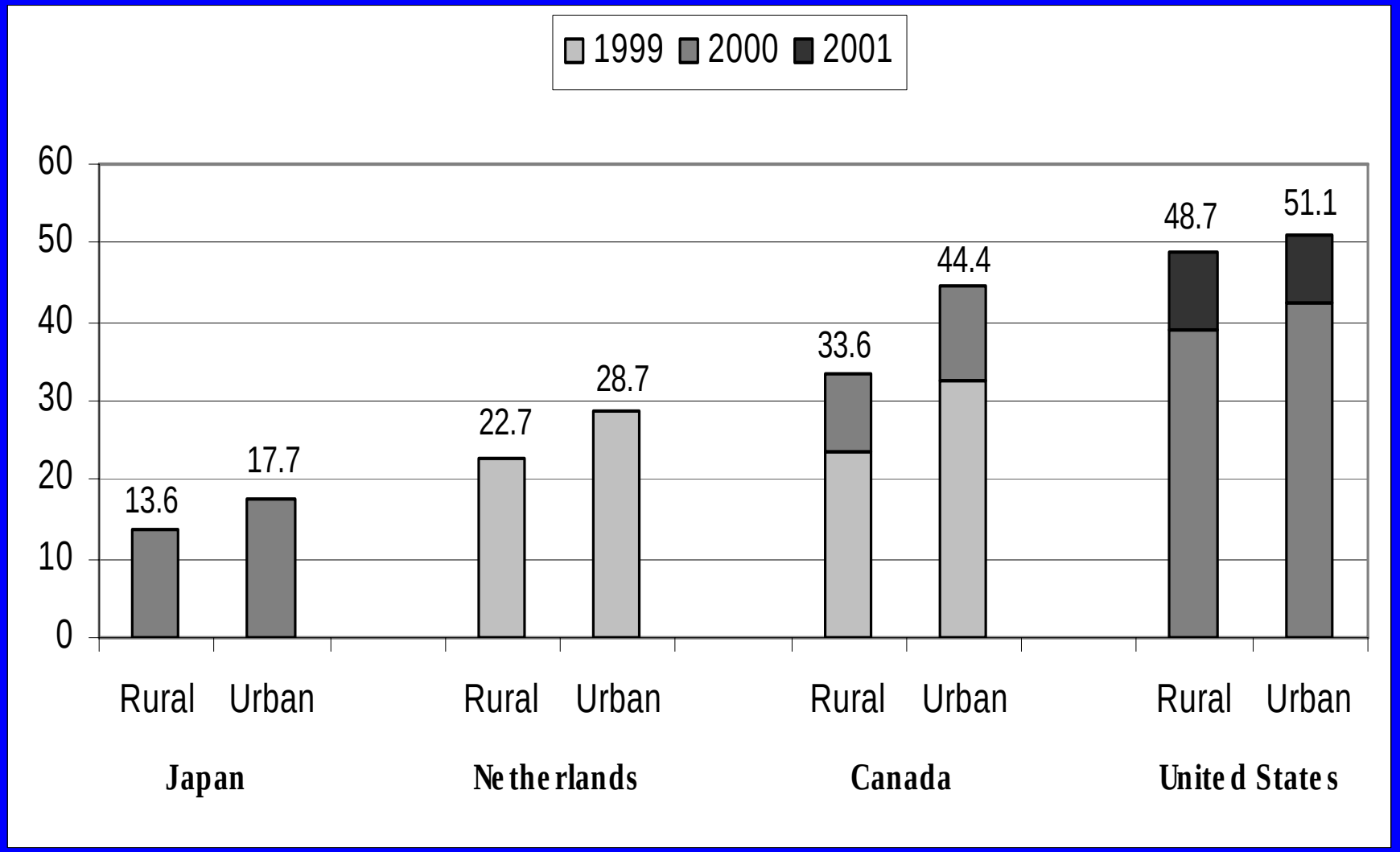
- **Networked economy and society**

  ICT = often 5% of GDP in Europe and North America, high growth rates, new job creation
- **Unequal spread, rural areas lag behind urban**

  cost of infrastructure

  lack of awareness
- **Digital divide is social and territorial.**

Internet Access among rural and urban households, OECD/DSTI



I.S. AND RURAL DEVELOPMENT

INTRODUCTION:

RISKS FOR RURAL AREAS:

- Slow rhythm of dissemination + low level of appropriation = continued decline of traditional activities, little innovation, outward migration.

OPPORTUNITIES FOR RURAL AREAS:

- More performing SMEs, access to new markets
- Job creation, inward investment in service sector
- Better access to public services

I.S. + ICTs = RURAL AREAS RENEWAL

I/ FUNDAMENTAL ISSUES:

- Telecommunications infrastructure and services
- I.S. development model
- Indicators, best practice criteria

II/ SOCIETAL ISSUES:

- Digital divide
- Public access points
- Public services
- Local governance

III/ ECONOMIC ISSUES:

- Small businesses
- New activities

IV/ BRINGING IT TOGETHER: CASE STUDY LESSONS

- A broader vision
- A cross-sector view

I.S. AND RURAL DEVELOPMENT

I/ FUNDAMENTAL ISSUES

- **Telecommunications infrastructure and services**
- **I.S. development model**
- **Indicators and best practice criteria**

FUNDAMENTAL I.S. RURAL ISSUES

TELECOMMUNICATIONS INFRASTRUCTURE:

- High infrastructure cost with capacity/speed for data transmission (ISDN, broadband more costly).
- Too limited customer base for telecom operators
- Universal service principles and mechanisms not easily applicable (cost, complexity) but some forms of subsidies exist for public services
- Evolving regulations authorise towns/communities to invest in infrastructure if private initiative absent
- Some ambitious national plans.

TELECOM INFRASTRUCTURE

BASIC FACTS

- Rural areas at disadvantage for telecom infrastructure lay-out of adequate bandwidth and speed. Satellite solutions under test (SW Ireland)
- Was the case for ISDN (128 Kbps), now for ADSL broadband (2 Mbps and higher).
- Telecommunications operators first service urban areas, concentrating most economic activity and potential customers (firms and households) because of high investment costs.
- Rural area's servicing requires specific policies.

TELECOM INFRASTRIUCTURE POLICIES

UNIVERSAL SERVICE

- Not adapted to high costs of deployment:

  "historically founded on basic principle that majority of consumers using a telephone service can afford to cross-subsidise the limited basic needs of a small minority…That principle does not translate easily to the provision of expensive new technology at affordable prices…" *(OFTEL)*
- Complex financial mechanisms, difficult to translate into a deregulated market.
- Application of principles for delivery of public services:

  "e-rate" in the United States.

TELECOM INFRASTRUCTURE POLICIES

INVESTMENT BY LOCAL AUTHORITIES

Authorised by law in some countries but few have the financial leverage to do so.

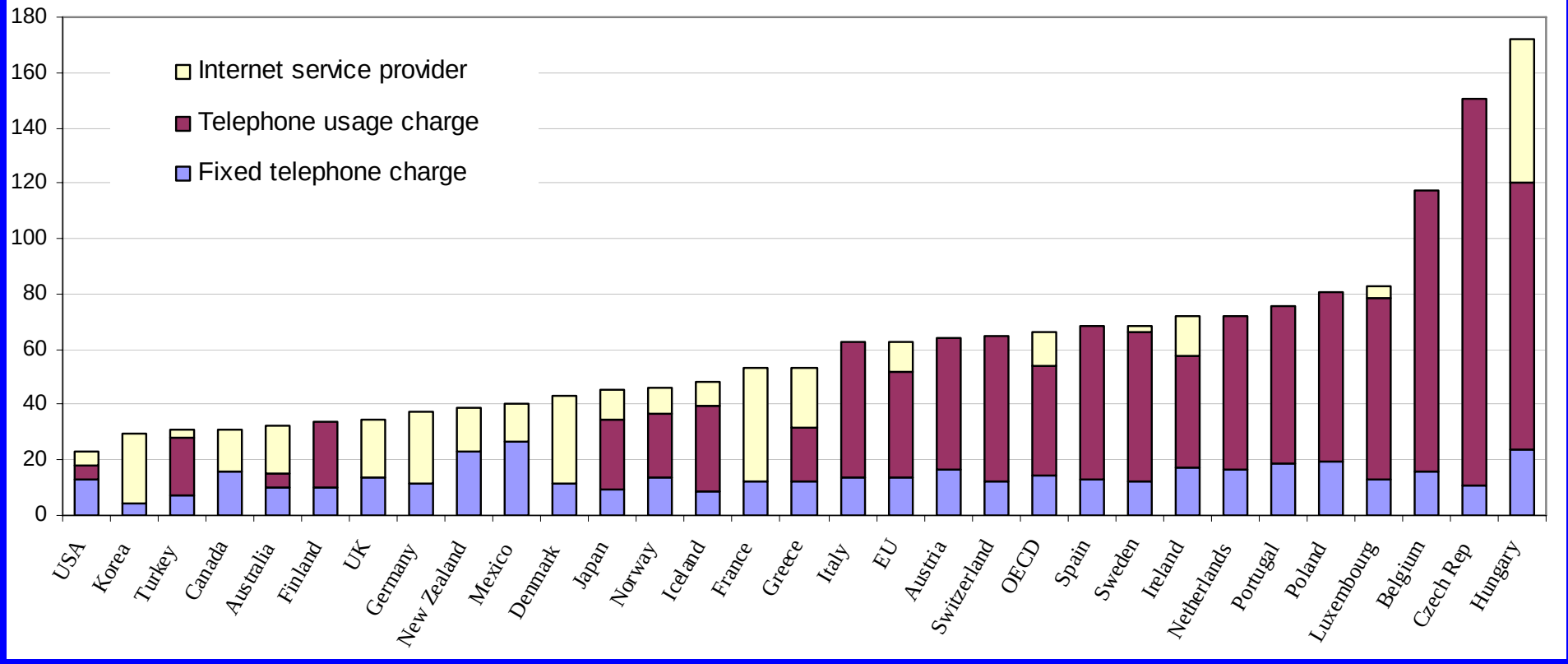
- In the United States (Telecommunications Act of 96), if market does not supply expected (level of) service. Local conditions vary from State to State.
- In France (Law of June 1999), “if offering of broadband services or infrastructure cannot be supplied by market at reasonable price or does not comply with technical or quality requirements”. Local authority must lease to an operator following competitive process and public expenses to be recovered over 8 yrs.

TELECOM INFRASTRUCTURE POLICIES

NATIONAL PROGRAMMES

- **Sweden**: at cost of 800 million $, commercial backbone network to municipalities > 3000. Government funding for regional lines, grants to smaller local authorities, tax relief to subscribers. Private sector: 50% investment cost.
- **France**: 2 Mbps link for all towns > 7000 and half of those > 5000 by 2007 using high power electric grid to lay extra fibre optic cable at cost of 400 million euros.
- **Canada**: broadband plans for the year 2004, 4.6 billion C$ investment, including close to 4 billion for connection of remote communities and “last mile” within others….

Internet Access Basket, Peak Times, PSTN discount, end 2001, PPP, USD including VAT, source OECD (DSTI)



FUNDAMENTAL I.S. RURAL ISSUES

DEVELOPMENT MODELS

- Technological push versus social pull
- Top down versus bottom up
- Infrastructure led versus content led
- Technology and infrastructure led projects are top down; must evolve towards social pull to succeed
- Awareness, motivation, support and involvement of population are absolutely necessary
- Digital age towns/ smart communities are proof
- EU initiatives (RISI…) integrate this factor.

FUNDAMENTAL I.S. RURAL ISSUES

DEVELOPMENT MODELS

- Endogenous/exogenous regional models:

  a region with sound ICT strategies and policies will favor inward investment and value added activities, thus evolving from exogenous to endogenous development modes.

- Spatial policies:

  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.

FUNDAMENTAL I.S. RURAL ISSUES

INDICATORS AND BEST PRACTICE CRITERIA

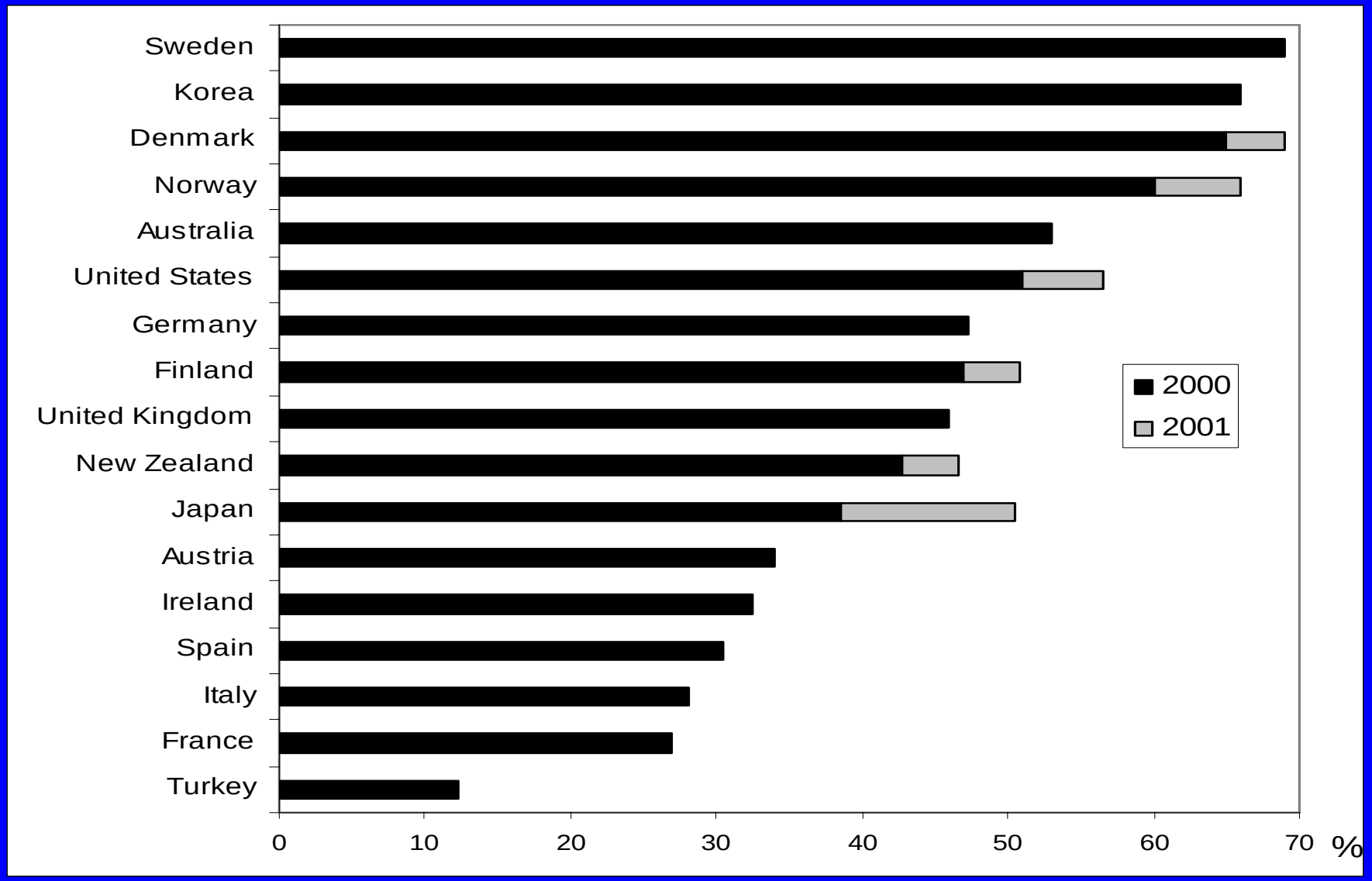
- Little relevant data on ICT in rural areas available
- Little comparable data
- Qualitative measurement (satisfaction of user) is sketchy
- Information sharing between projects is essential, to monitor progress, identify difficulties and find common solutions.
- Such an approach can shorten the learning curve and help in defining best practice criteria.

I.S. AND RURAL DEVELOPMENT

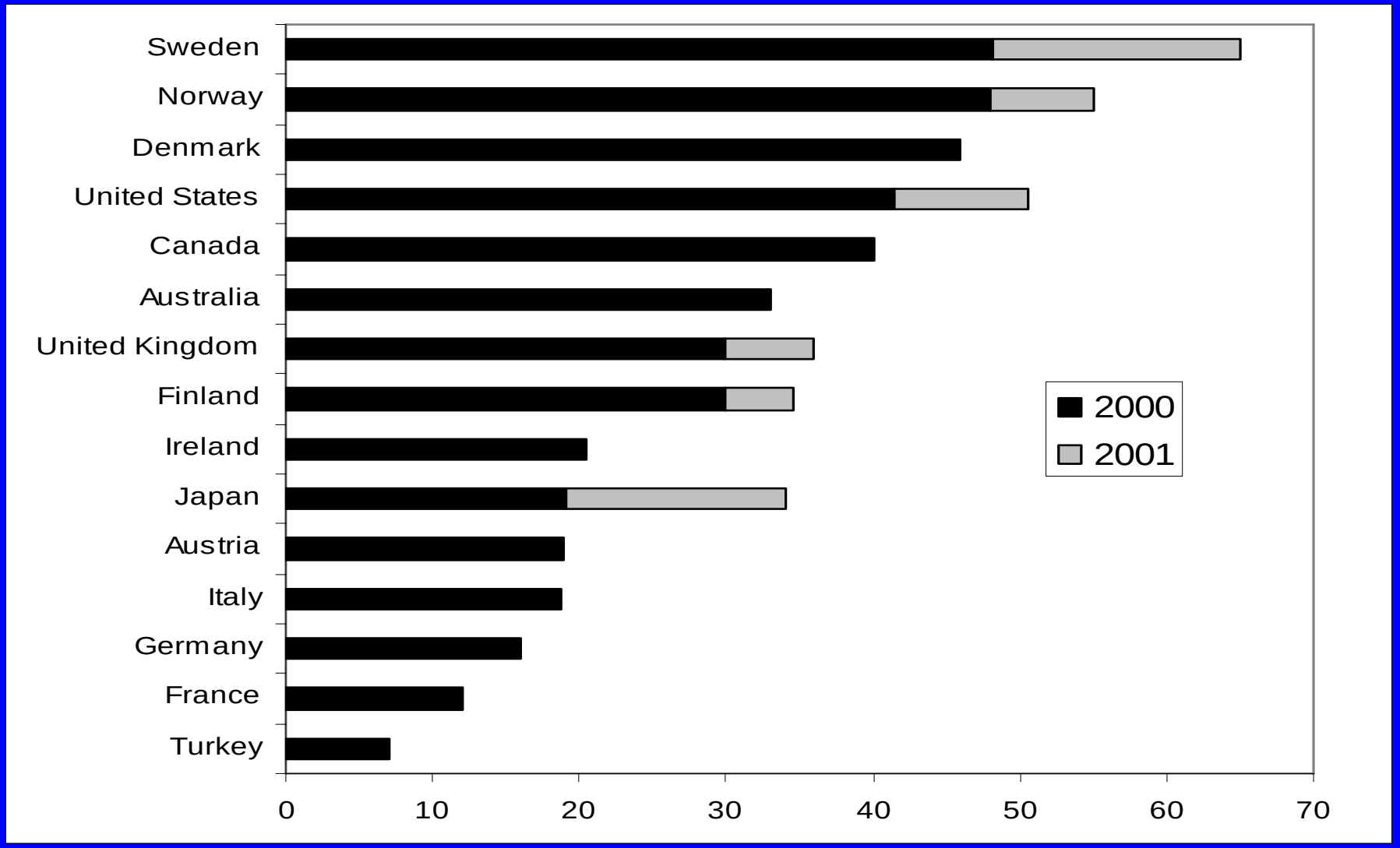
II/ SOCIETAL ISSUES

- The digital divide
- Public access points
- Public services
- Local governance

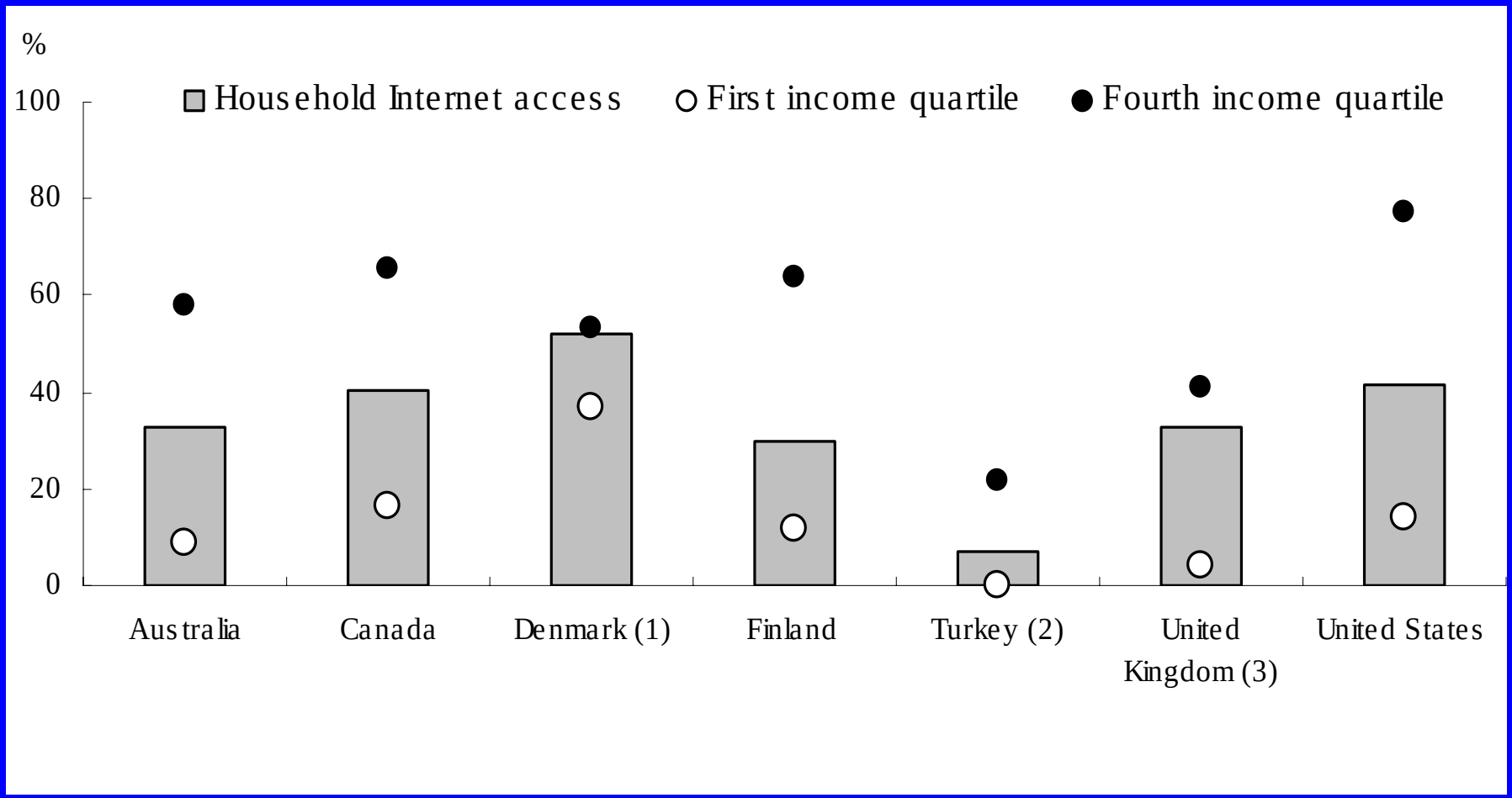
Households with home computer, 2000-2001, OECD/DSTI



Households with Internet Access, 2000-2001, OECD/DSTI



Internet Home Access by household income level, 2000, Source: OECD (DSTI)



SOCIETAL ISSUES

PUBLIC ACCESS POINTS

- Sometimes called telecottages in rural areas, are an essential component in ICT awareness, dissemination and training.
- Address needs of general public and SMEs.
- Are often part of national Information Society initiatives but set-up supposes close coordination with regional and local authorities.
- Standard processes on implementation and information sharing are most useful.

SOCIETAL ISSUES
PUBLIC ACCESS POINTS

- **Long term sustainability not always ensured:**
- many programs rest on volunteers
- lack of proper technical resources
- communities not always sufficiently supportive
- **Remedies:**
- professional approach with salaried personnel
- networking in territory to share resources
- continued role for SMEs (e-commerce)
- Local website support/access to public services

SOCIETAL ISSUES

PUBLIC SERVICES ON-LINE

- Countries implementing ambitious e-government programs to facilitate access to public services for all citizens (information, formalities, transactions, payments): portals.
- In rural areas, if significant proportion of population is connected and public access points provide adequate alternative entry, e-government can be a cost effective solution.
- Can be an answer to insufficient presence of these services in sparsely populated areas.

SOCIETAL ISSUES
PUBLIC SERVICES ON-LINE

- Two areas where specific projects are required for rural and remote territories:

- distant education
- telemedecine

- both rest on sharing of human resources (teachers, specialist doctors) through video conferencing in particular, provided adequate telecom infrastructure.
- successful regional and local programs, national support.

SOCIETAL ISSUES

LOCAL GOVERNANCE

- e-democracy is not only on-line voting.
- new way of relating citizens with elected/public officials, better associating to democratic process.
- transparency in decisions
- voicing of opinions (e-forums)
- increased role of general interest groups
- risks of territorial imbalances if smaller towns do not develop their own initiative but they need to join forces in a wider area (micro-region).

I.S. AND RURAL DEVELOPMENT

III/ ECONOMIC ISSUES

- **I.S., ICTs and small businesses**
- **New activities in rural areas**
- **Attractiveness of territories**

ECONOMIC ISSUES

SMALL BUSINESSES

- **Obstacles to ICT dissemination**

- the smaller the firm, the lesser the awareness of ICT potential for business development.
- lack of sufficient expertise to elaborate an ICT strategy and choose best adapted hardware and software.
- lack of sufficient financial resources
- more difficult access to training

ECONOMIC ISSUES

SMALL BUSINESSES

- **Advantages of ICT:**

- increased marketing capacities
- development of new services for customer
- extension of commercial territory
- openings on new national and foreign markets
- SMEs present on the Internet tend to be more performing than others.

ECONOMIC ISSUES

SMALL BUSINESSES

- **ICT policies/projects**

- national Information Society initiatives, European programs help create awareness and deliver training but do not usually distinguish rural SMEs or address needs of smallest firms.
- incentives for projects regrouping several SMEs
- at the regional level deliver expertise to help define strategies.
- identify “business champions”and disseminate best practices.

ECONOMIC ISSUES

NEW ACTIVITIES

- **At different geographical scales economic development based on ICT can be pursued in rural areas:**

- call centers and outsourcing of business processes (telebusiness) at sub (regional) level
- telework organized at the level of a community
- multimedia and website design and maintenance in small towns
- technology centers and business incubators in rural towns

ECONOMIC ISSUES

NEW ACTIVITIES

- **Requirements:**

- well defined strategy seeking sustainable results mostly on the medium to long term
- convergence with other policies at the (sub) regional level (education and training)
- securing adequate telecommunications infrastructure or proper linkage with trunk lines.
- whenever possible, capitalise on existing skills (telework, rural start-ups based on IT for farming).

ECONOMIC ISSUES

ATTRACTIVENESS OF TERRITORIES

- **A triple socio-economic goal:**

- stem emigration, reverse demographic decline.
- attract inward investment and ideas/ innovation.
- Attract tourists (adequate Internet site + policy).

- **Essential conditions for SMEs:**

- adapted telecommunications infrastructure
- public access points for good level of awareness and training
- easy access to public services.

I.S. AND RURAL DEVELOPMENT

IV/ BRINGING IT ALL TOGETHER: LESSONS FROM CASE STUDIES

- A broader vision
- A cross-sector view

BRINGING IT ALL TOGETHER

Even if...

- National policy/local authority investment finances ISDN or broadband infrastructure, immediate benefits in rural areas will not necessarily appear.
- In many cases, link to main lines still required.
- If local financing is available, strict requirements can only be followed if economic soundness of investment is based on favourable environment, (capacity to make best use of ICT in local development and business terms).
- Dependence on education/training (long-term).

➢ A STRATEGY IS REQUIRED

BRINGING IT ALL TOGETHER

Strategic questions

What potential benefits are expected from adequate infrastructure deployment?

- Support to local businesses: which products, markets?
- To attract inward investment: capitalising on which specialisation/niche market/skills?
- To sustain public services: is there a priority on those requiring broadband (health, education)?

Is there a sound "business case" for the community?

- Enough potential users?
- Sufficient level of awareness and understanding of applications?

BRINGING IT ALL TOGETHER

The conditions

With the high cost of infrastructure (ISDN and even more for broadband), a sufficient level of use can only be achieved through:

- intensive training of SMEs to show potential business benefits and use of applications.
- appropriate education and training of the workforce in new skills to deliver distant services (delocalisation of activities).
- aggregation of demand, particularly in the public sector.

CASE STUDY LESSONS: BROADER VISION

The example of the Highlands and Islands of Scotland

- A strategic plan launched in 1989 to revitalise rural areas afflicted by decline of traditional sectors and out-migration by creating new activities.
- Pro-active role of the development agency (Highlands and Islands Enterprise) in 25 million £ project co-funded by national and EU sources and the operator (BT).
- ISDN infrastructure project directly linked to education and training in certain skills to perform distant services.
- Today 2300 employees in 17 telebusiness locations (call centres, data processing, multimedia).
- Telework project in Western Isles, +120 jobs since 1995.

CASE STUDIES LESSONS: BROADER VISION

The example of Lanark County, Ontario, Canada

- Too close to Ottawa, risk of being only a distant residential suburb, loss of local jobs.
- Local public and private sector create Not for profit Corporation (1996) to implement a high speed network.
- Aggregation of public needs (hospital), existing private sector demand, start-up projects and support of population convince operators of the business case.
- Bell Canada retained in 1999 for C$ 12 million project (60% operator, federal regional and local funds, local businesses)
- Smart community, good example of bottom-up initiative.

BRINGING IT TOGETHER: CROSS-SECTOR VIEW

Technicalities and the human dimension

All successful rural ICT projects require horizontal approach combining infrastructure investment with other initiatives, one or more of the following:

- Rising overall ICT awareness of inhabitants and business community.
- Launching visible and highly useful projects, particularly for remote communities.
- Publicising success stories and best practices.

Creation of synergies is essential to overcome possible apathy or skepticism.

BRINGING IT TOGETHER: CROSS-SECTOR VIEW

Raising ICT awareness:

mix of local/regional/national initiatives:

- **Digital Age Towns** (Blacksburg, USA; Ennis, Ireland; Parthenay, France), different local contexts and project profiles but all with strong sensitisation and training.
- **Public access points**: essential to these efforts; now full-fledged element of most national Information Society programmes.

  Staffing and/or financial difficulties could lead to reduction of activities, negative impact in rural areas.

  Answer: efforts to network access points (Canada) so as to pool resources in a given territory.

BRINGING IT TOGETHER: CROSS-SECTOR VIEW

Highly visible and useful local projects

Most added value applications of broadband in rural areas concern education and medicine, bringing quality services usually available only in bigger towns or cities.

- Tele-education rests on pooling of teaching resources within a wider area, avoiding closure of schools.
- Tele-medicine gives access to specialist skills without keeping costly equipment and staff for small population.
- Successful projects in Europe/North America broke with pattern of decline in level of essential public services.
- Justification of public investment in telecommunications infrastructure, market mechanisms unable to deliver.

BRINGING IT TOGETHER: CROSS-SECTOR VIEW

Knowledge of best practices and success stories

- In Ennis (Ireland), local business championships permit selecting small firms with best chances of integrating major technological and organisational changes. Are supported in their efforts (training) and best practices publicised on local Internet site.
- In Maddock (North Dakota, USA), ICT firms in local business centre of small town (less than 600) are example for others, sharing experience and know-how.
- In Parthenay (France), small local businesses now export, thanks to e-commerce.

CONCLUSIONS

Bringing high speed telecommunications infrastructure to rural areas requires either:

- Economic justification (sustaining local economy, creating new jobs/activities) on basis of a sound business case and related cross sector actions.
- Social cohesion needs (access to public services).

The **first option** rests on **public-private partnerships** with later phase-out of public support.

The **second option** is by definition **public sector responsibility**, with **sharing** between **different levels of government** depending on national/regional/local context and regulations.

CONCLUSIONS

- **High speed telecommunications infrastructure are the communications arteries of the 21st century.**

  …as roads and railroads were in the second half of the 19th century

  …as highways and air links in the second half of the 20th century.

  Yet, as all communities are not served by fast roads or air transport.
- Not all communities will have broadband communications
- But those who can make best use of these must not be left aside: **avoid a territorial digital divide.**

ACT LOCAL AND THINK GLOBAL

CASE STUDIES SHOW RENEWED ATTRACTIVENESS IS ACHIEVED WHEN EUROPEAN/NATIONAL/REGIONAL I.S. POLICIES:

- Give specific attention to rural areas, to contribute to their sustainable development, prevent a territorial digital divide.
- Help rural communities seize the opportunities of the new economy on the long term, by mastering ICT tools and the I.S. to face the challenges of the “global village”.
- Bring framework and support only: local initiative is primary driver, (i.e. LEADER), it can influence other levels.