

Enhancing Rural Business Competitiveness Through Technology

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Outline

- I. The range of technologies
- II. The issues
- III. Rural advantages and disadvantages
- IV. Policy options

Technologies that Shape Spatial Competitiveness

- Transportation technology
- Geographical information systems (GIS)
- Computational Technology
- Information and Communication Technology (ICT)
 - Wireless telephony
 - Broad band

Information and Communication Technology: The Issues

1. Digital divide?
2. Advantage or disadvantage for rural regions?
3. Endogenous growth or external investment?
4. Is infrastructure all that is needed?

Dimensions of the Digital Divide

1. Income

Poorer people and poorer places cannot afford access to Internet

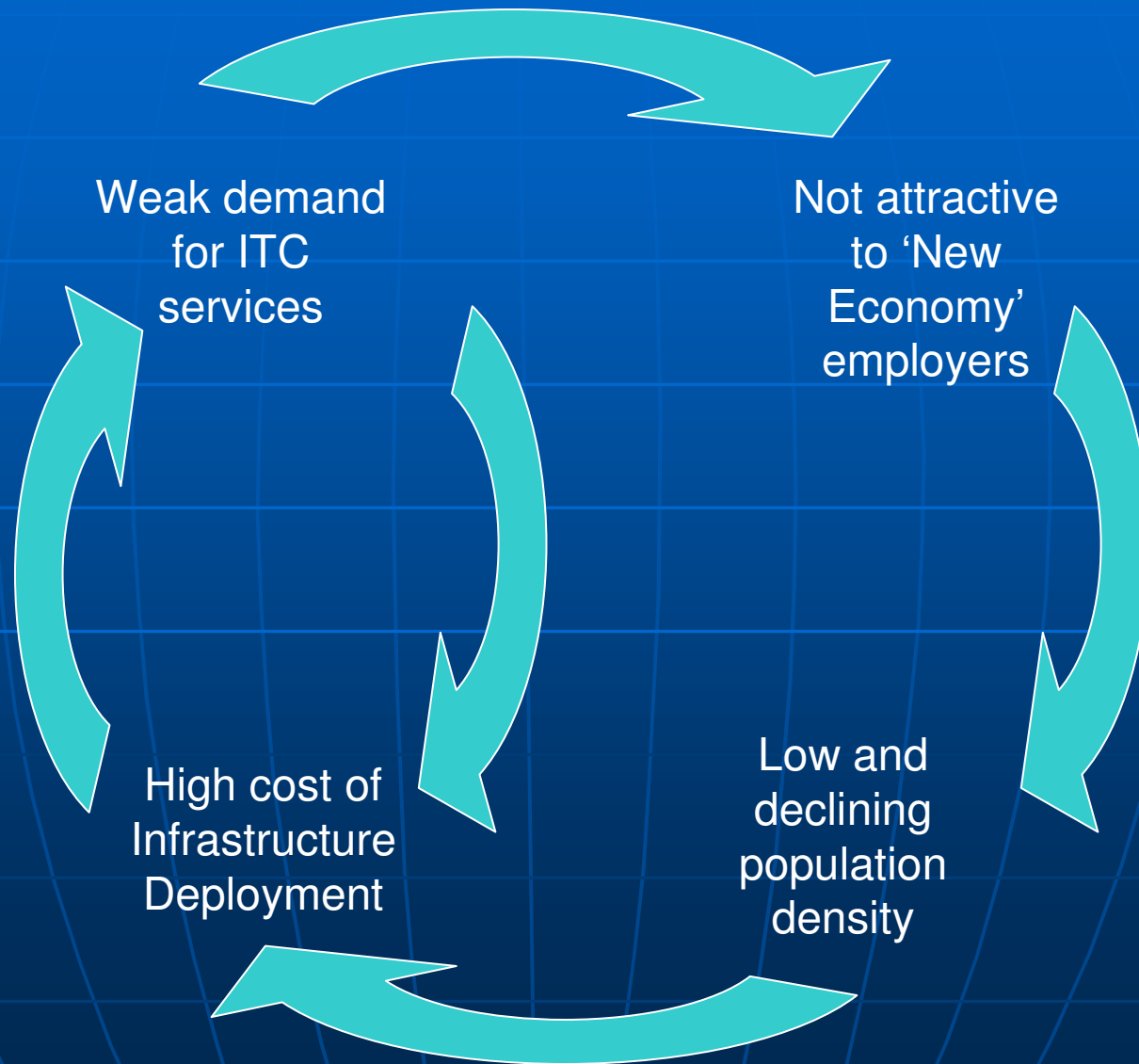
2. IT literacy

Technical skills limit access for some.

3. Geography

Peripheral and sparsely populated areas are much more expensive to serve

The Vicious Supply/Demand Cycle



Digital Divide

- Demand aggregation:
 - Number of users must be high enough to reduce unit costs to acceptable levels.
 - When larger firms and governments have dedicated access, demand is insufficient.
- Competition:
 - In rural areas ICT is frequently provided by monopolies
- Dynamics:
 - New technologies will always be rolled out in urban areas first.

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Advantages for Rural Regions: Death of Distance

- ICT reduces costs of distance and sparse populations
- Information is ubiquitous
- Services can be produced anywhere
- Allows distributed scale
 - Scale economies can be achieved without physical proximity
- Improves quality of life in rural areas
 - Tele-work, entertainment, tele-education, tele-medicine, on-line services and shopping.

Disadvantages for Rural Regions

- Cost of ICT is often prohibitive for small firms
- Death of distance also increases external competition for rural firms
- Rural firms not accustomed to new level of competition
- Fewer skilled service providers
- Less sophisticated local government support
- Less sophisticated entrepreneurship skills

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Internal or External

- External firms have advantage because:
 - More likely to be globally orientated for sales and procurement
 - More familiar with their competitors

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Necessary Conditions

- Low cost and reliable infrastructure is essential but not sufficient
- Also necessary (Malecki, 2003):
 - Intelligent government
 - A business culture which promotes entrepreneurship (Malecki, 2003)
 - An institutional framework which encourages inter-firm and public-private cooperation,
 - A dynamic tertiary sector providing business services and the transfer of technology,
 - A minimum level of R&D capabilities,
 - Financial instruments conducive to innovation.

Policy Options

- Adequate infrastructure at a reasonable cost
- Public versus private provision
- Development led by indigenous firms accessing broader markets, or external firms relocating to rural areas
 - External firms may inspire and accelerate adoption among indigenous firms

Policy Options

- Quality public and private support services
- Local e-government comparable to urban areas
- Training and encouragement in the use of ICT
- Entrepreneurship programs to expand the competitiveness of businesses

Summary

- Technology, especially ICT, is essential to the viability of rural economies and the quality of rural life
- A policy of strategic investment, in 'hard' and 'soft' infrastructure, especially by local and regional governments, is essential.

THANK YOU

Citations

- Berkeley, Nigel, David Clark and Brian Ilbery. 1996. "Regional Variations in Business Use of Information and Communication Technologies and their Implications for Policy: Case Study Evidence from Rural England" *Geoforum*, Vol. 27, No. 1. pp. 75-86.
- Glasmeier, A.K., Howland, M., 1995. *From Combines to Computers: rural services and development in the age of information technology*. State University of New York Press, Albany.
- Grimes, Seamus. 2003. The digital economy challenge facing peripheral rural areas. *Progress in Human Geography* 27,2, pp. 174-193.
- Malecki, Edward J. 2003. "Digital development in rural areas: potentials and pitfalls." *Journal of Rural Studies* 19, pp. 201-214.
- Richardson, R. and A. Gillespie. 2000. "The economic development of peripheral rural areas in the information age." In Wilson, M.I. and Corey, K.E., eds., *Information tectonics*. Chichester: Wiley, pp. 199-218.
- Rowe, Bob. 2003. "Rural technology deployment and access: successes upon which to build." *Government Information Quarterly* 20, pp. 85-93.