

Human and Social Capital for a Sustainable Knowledge Society

Ilkka Tuomi

Joint Research Centre

Institute for Prospective Technological Studies

ilkka.tuomi@jrc.es

Agenda

- Social networks in the current social transformation
- The social and cognitive basis of knowledge work
- Regional development
- The role of information and communication technologies

Capital, resource and competence

- “Classical economy” = “Land, labor, and capital”
- “Knowledge economy” = “Land, labor, capital” + “Solow residual”

- Or capability and commitment?
 - “Knowledge workers still sell their labor, but now the brain and the heart must follow.”
 - “Knowledge and competence creation are inherently social. Electronic communication networks are going to make a big difference.”

Door-to-Door Network



Place-to-Place Network

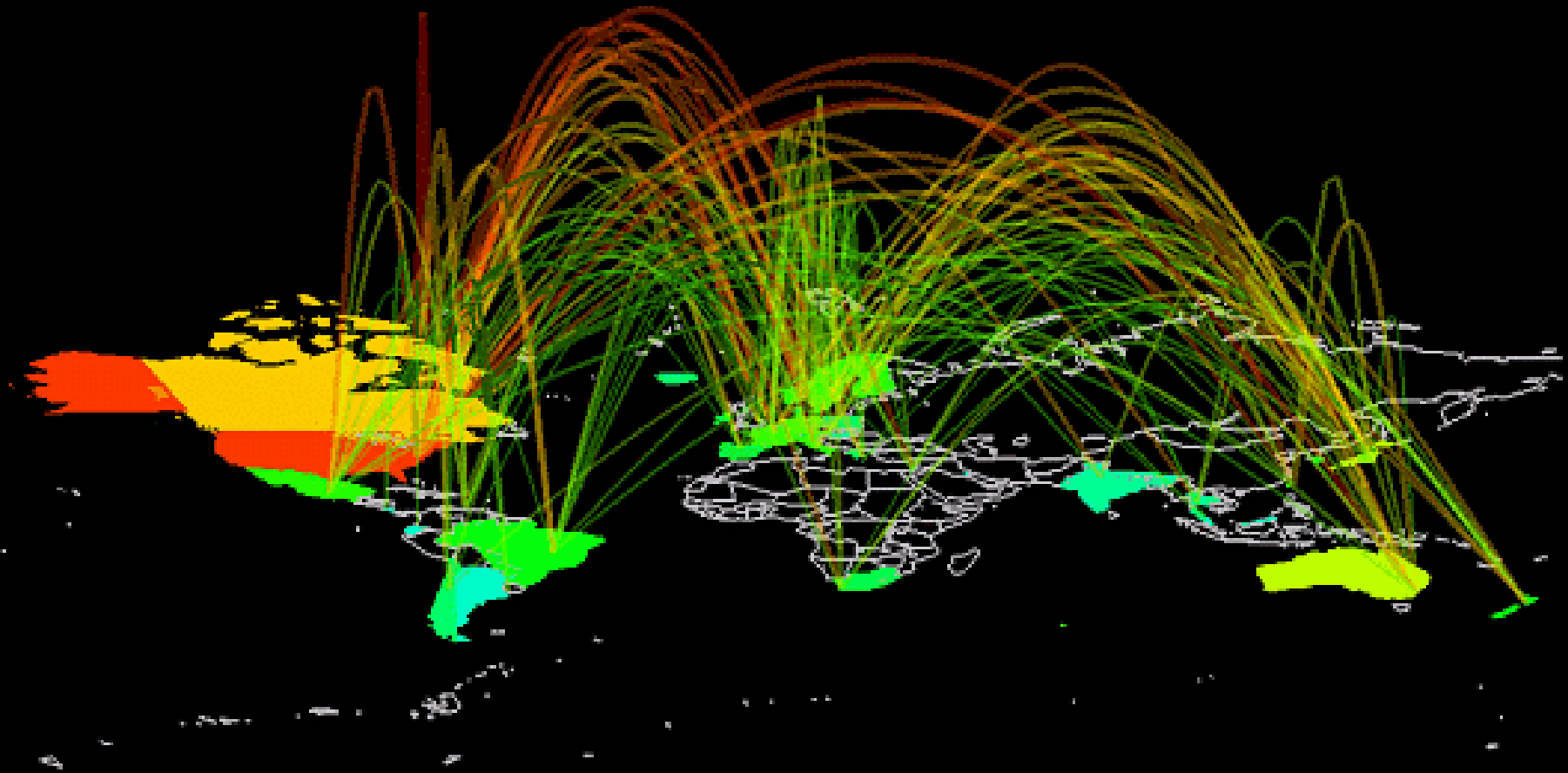


Person-to-Person

- Communication networks connect the world in the 1980s
- These networks expand rapidly and provide the infrastructure for the Internet
- In the 1990s, wireless communication makes personal connectivity increasingly independent of space and time



Internet



Role-to-Role Networks

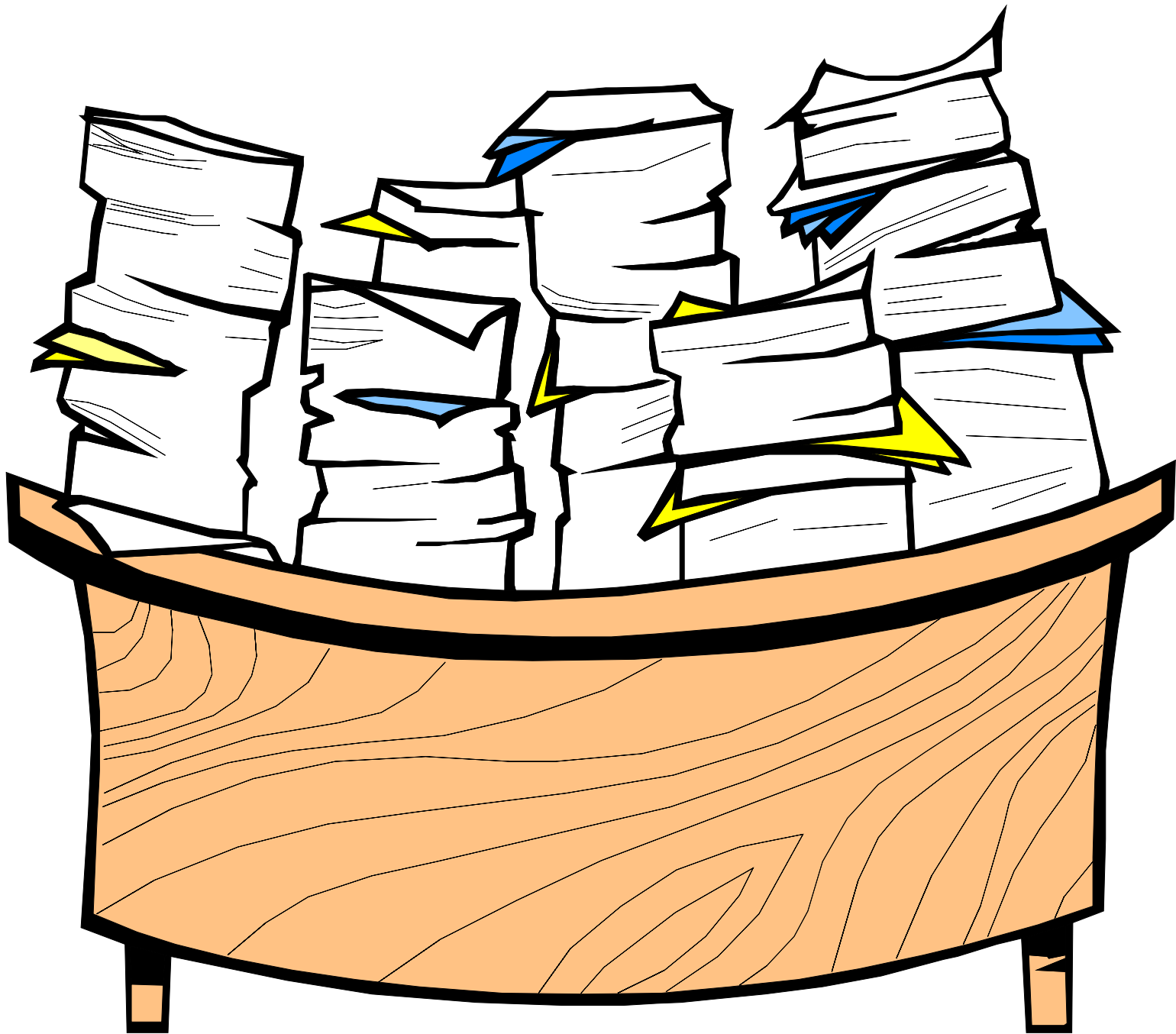
- In the intersection of networks of production and personal connectivity, new role-based connectivity is emerging

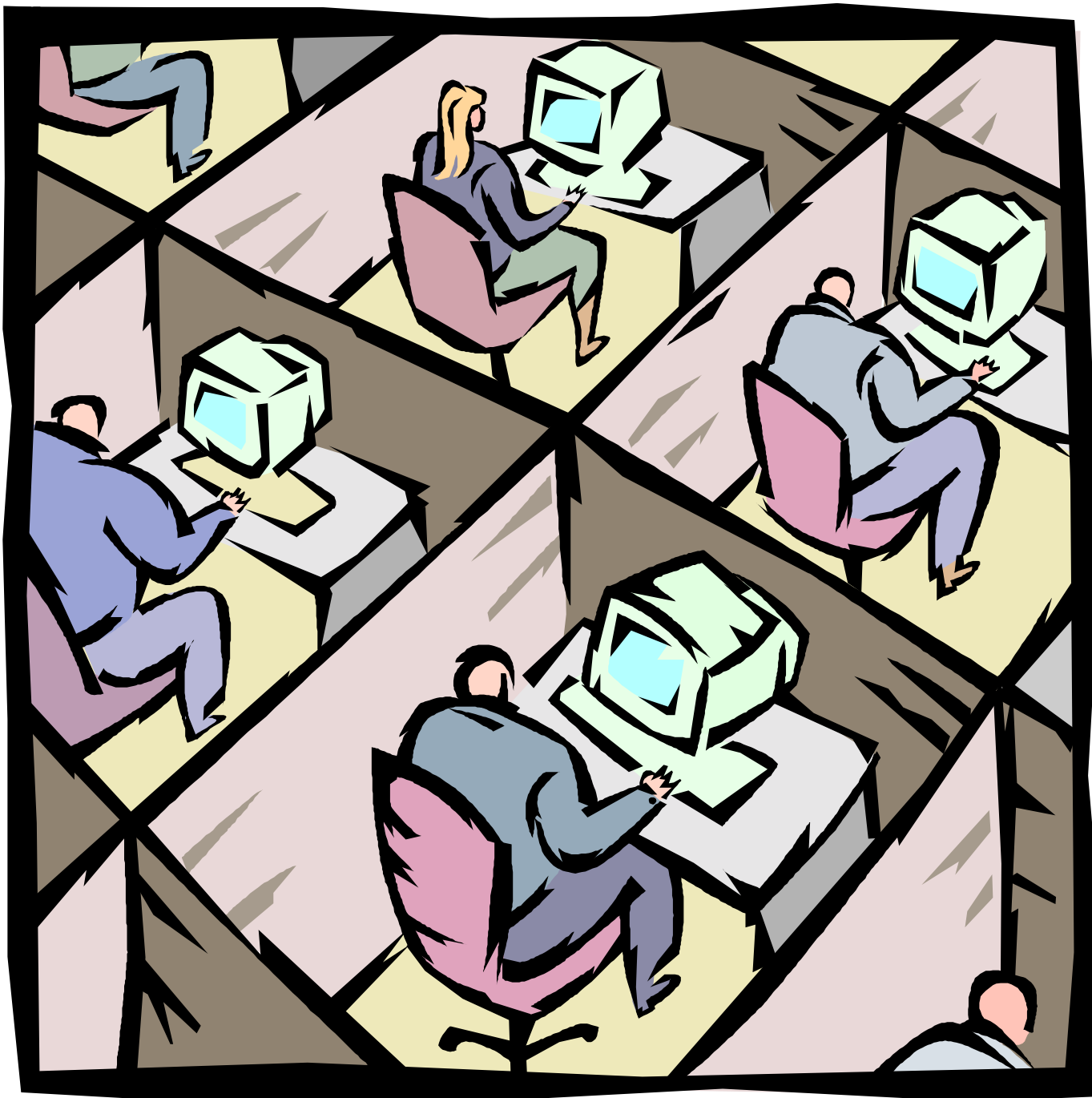


- People are accessed as individuals, but they function as specialists with given roles
- A single individual may have many roles and several specialties
- Role-to-role connectivity has interesting characteristics:
 - It makes high demands on individual cognitive skills
 - It generates a need to actively manage social networks
 - It may be psychologically unsustainable, as the individual may have problems in constructing a coherent identity
 - It makes inter-organizational and trans-organizational networks critical for business success

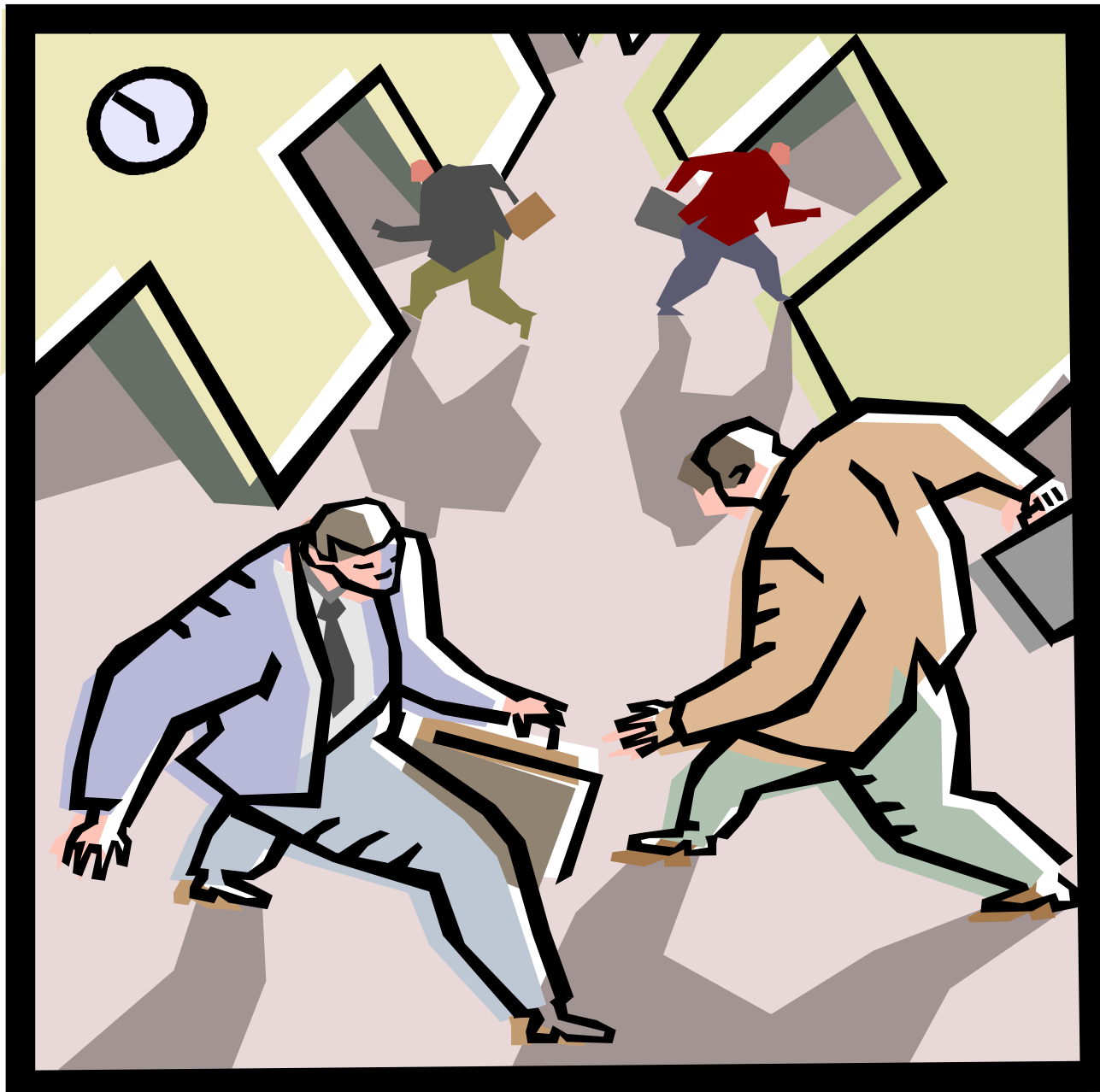
Transformation of Work























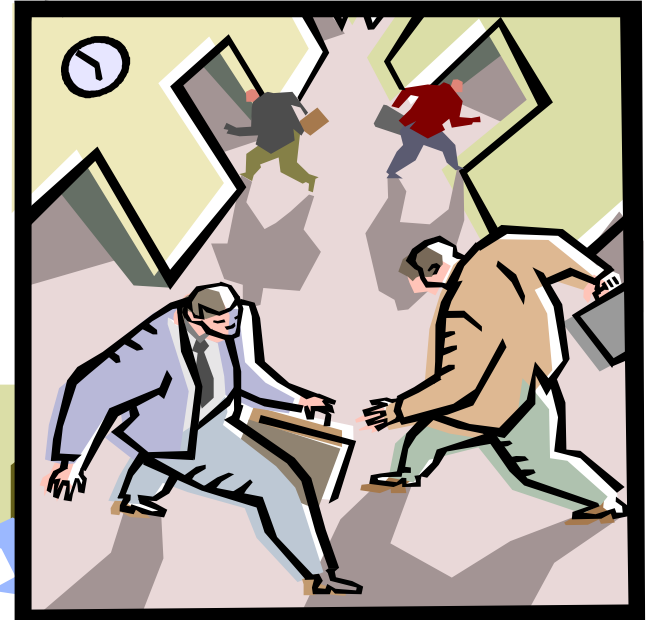
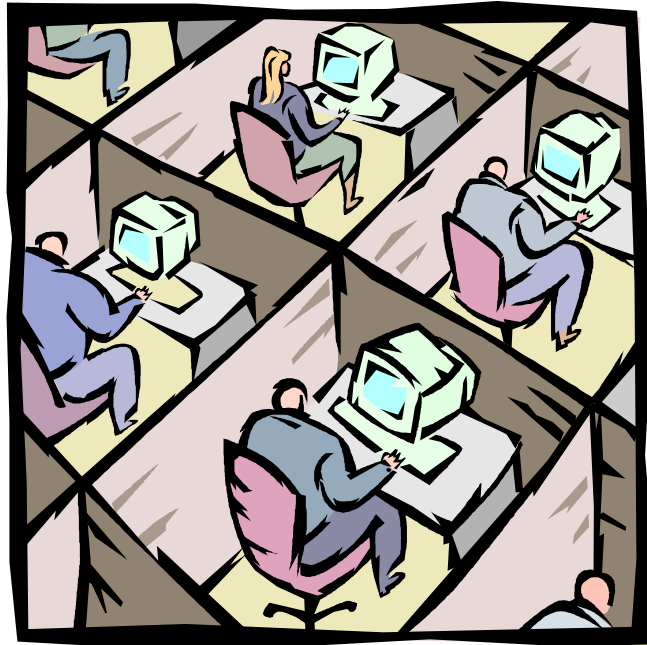








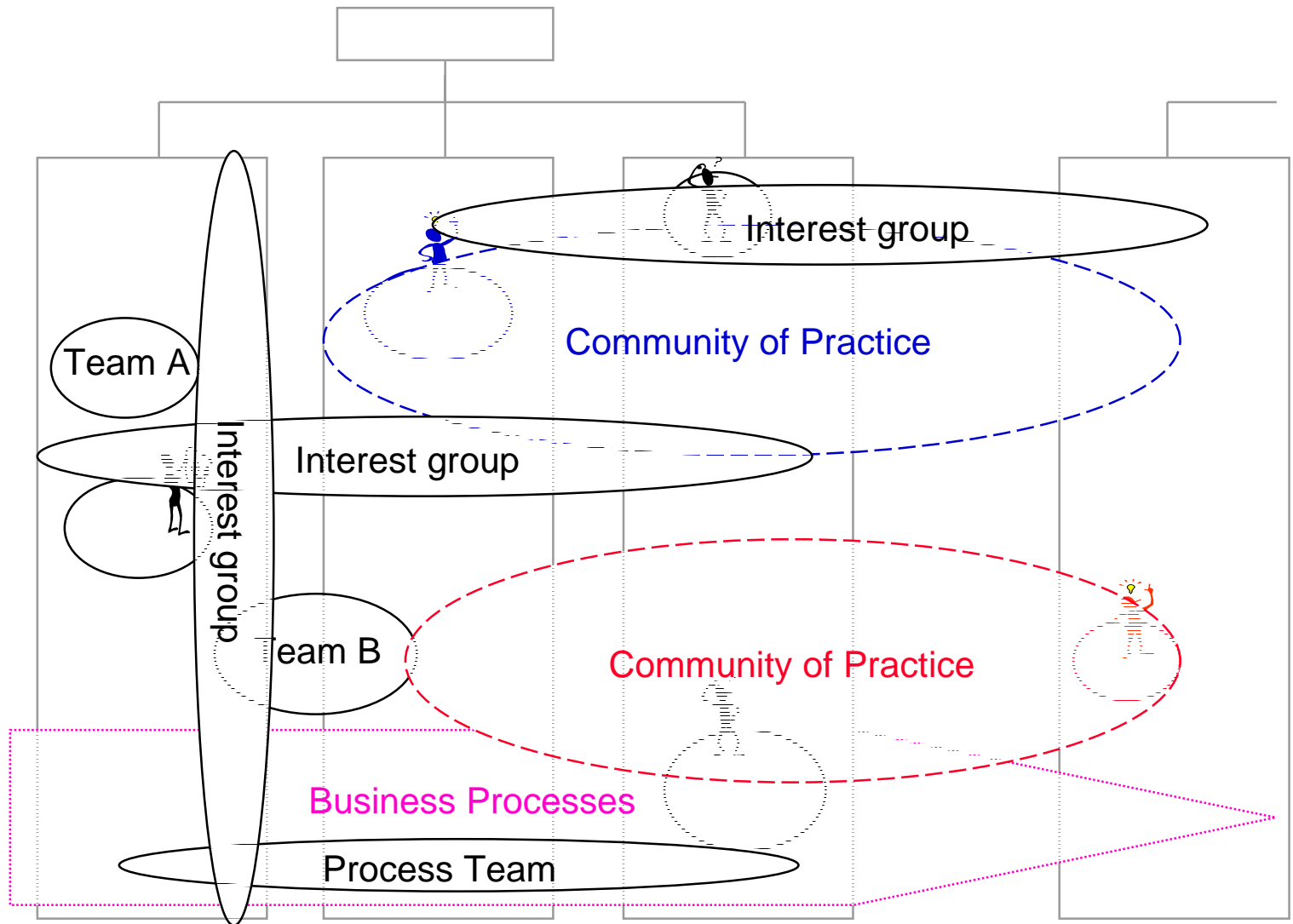
The Social and Cognitive Coffee Cup



Functions of a Coffee Cup

- It is used in many ways in knowledge work
 - to organize time and work rhythm
 - to control mood
 - to adjust level of alertness
 - to meet people and to exchange information
 - to signal availability for social contact
 - to organize boundaries between public and private space
 - to organize boundaries between informal and formal social encounters
 - to signal celebration
 - to signal membership in a community
 - to keep your hands warm (in the Finnish winter)
 - to build trust and social capital

Knowledge Organizations



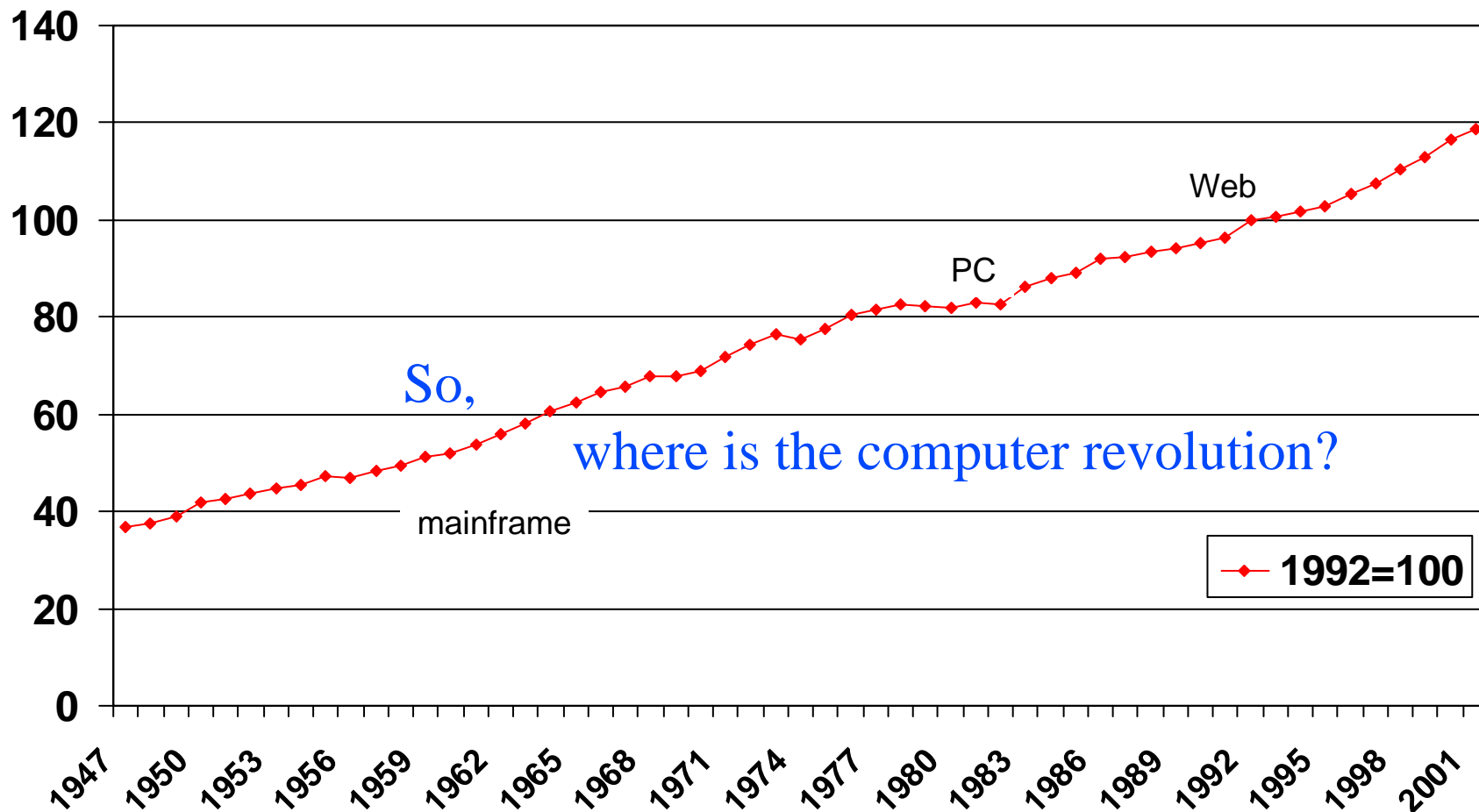
The Mystery of Organizational Investment

Also known as the Famous "Productivity Paradox"

- Since the 1960s, organizations have invested huge and continuously increasing sums in information technology
- Despite the massive investment in ICT, economists were unable to detect any positive impact

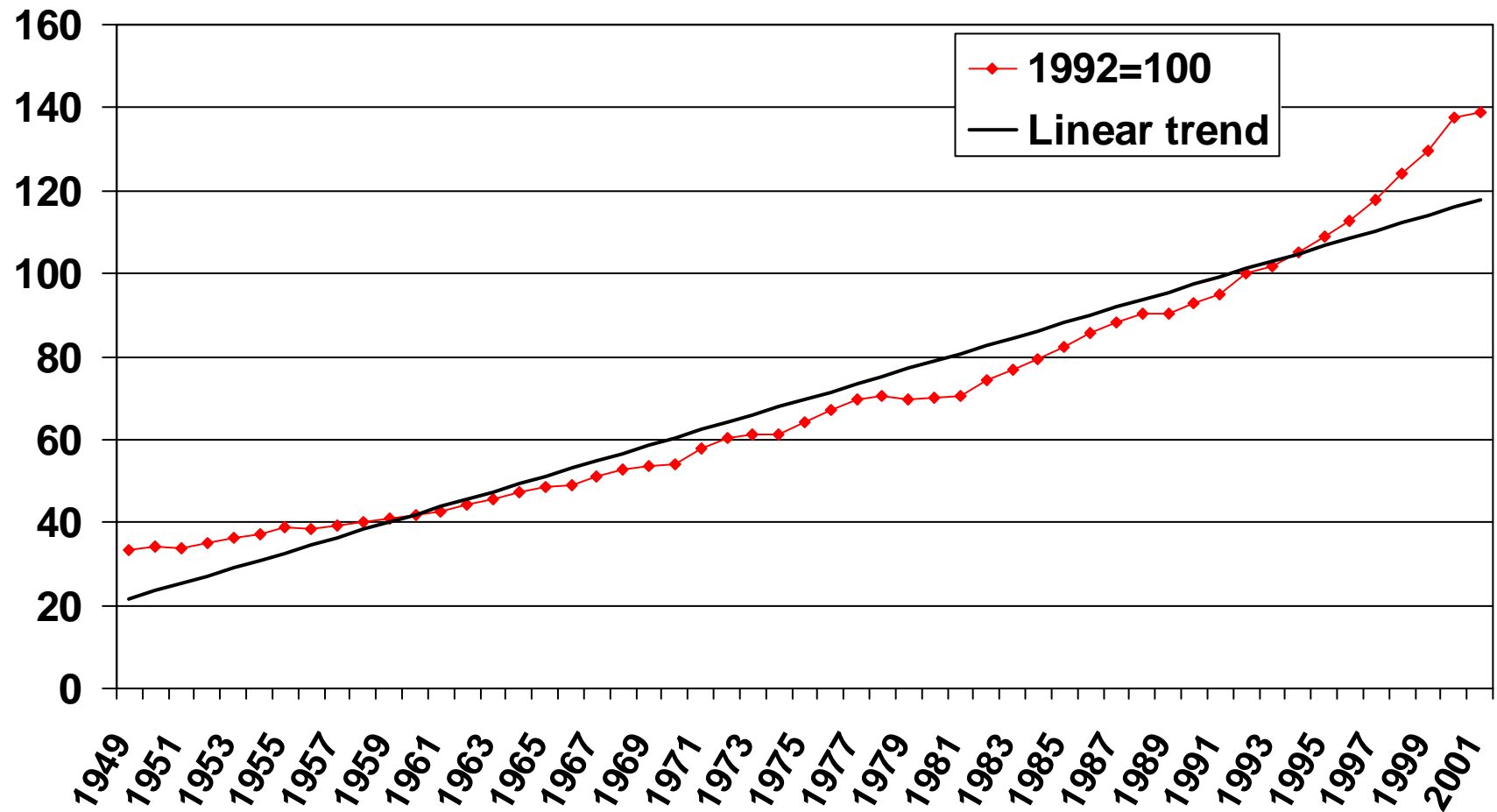
- Solow, 1987: "You can see the computer age everywhere except in the productivity statistics"

Labor productivity in non-farm business



source: U.S. Bureau of Labor Statistics

Labor productivity in manufacturing

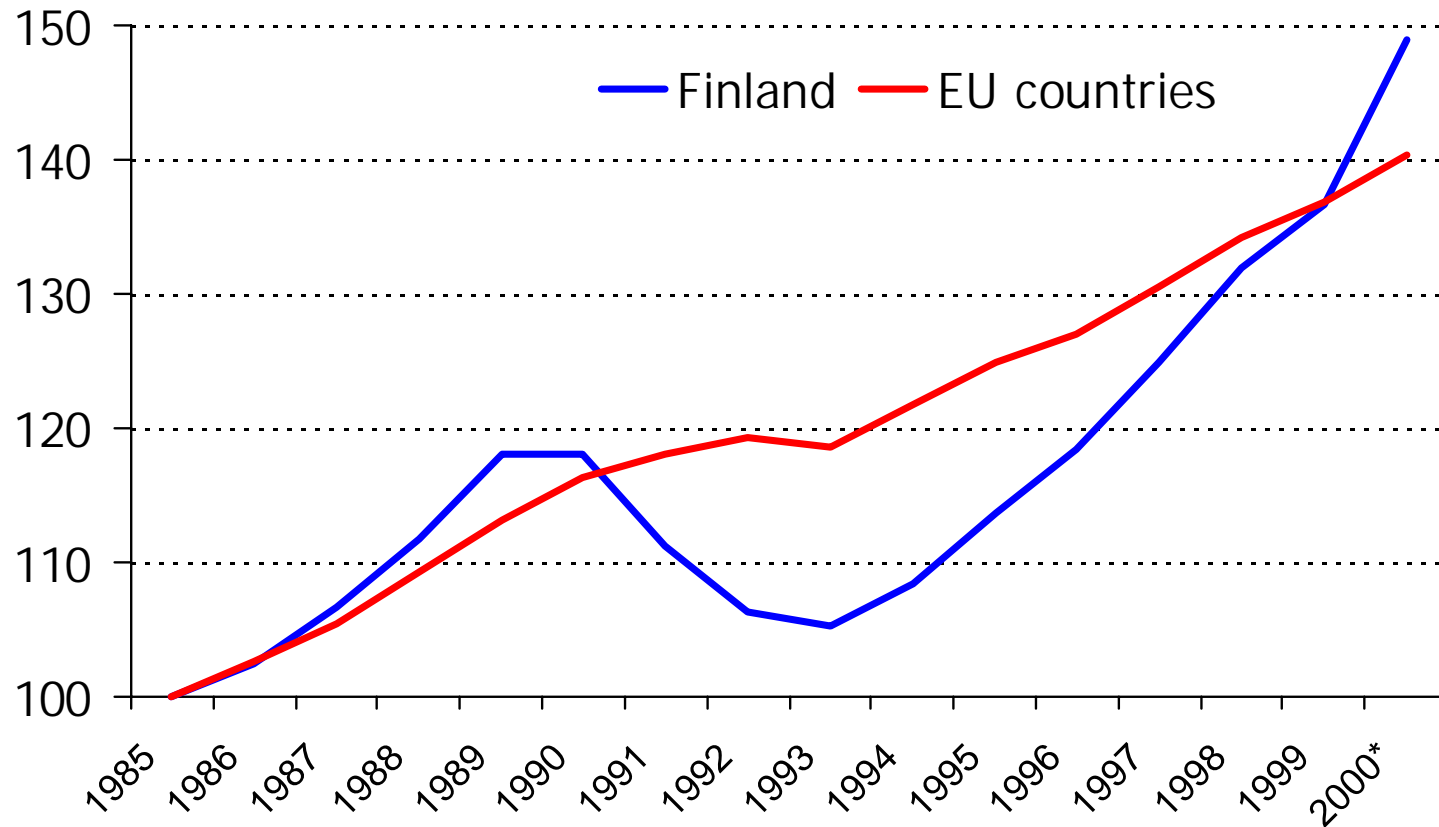


source: U.S. Bureau of Labor Statistics

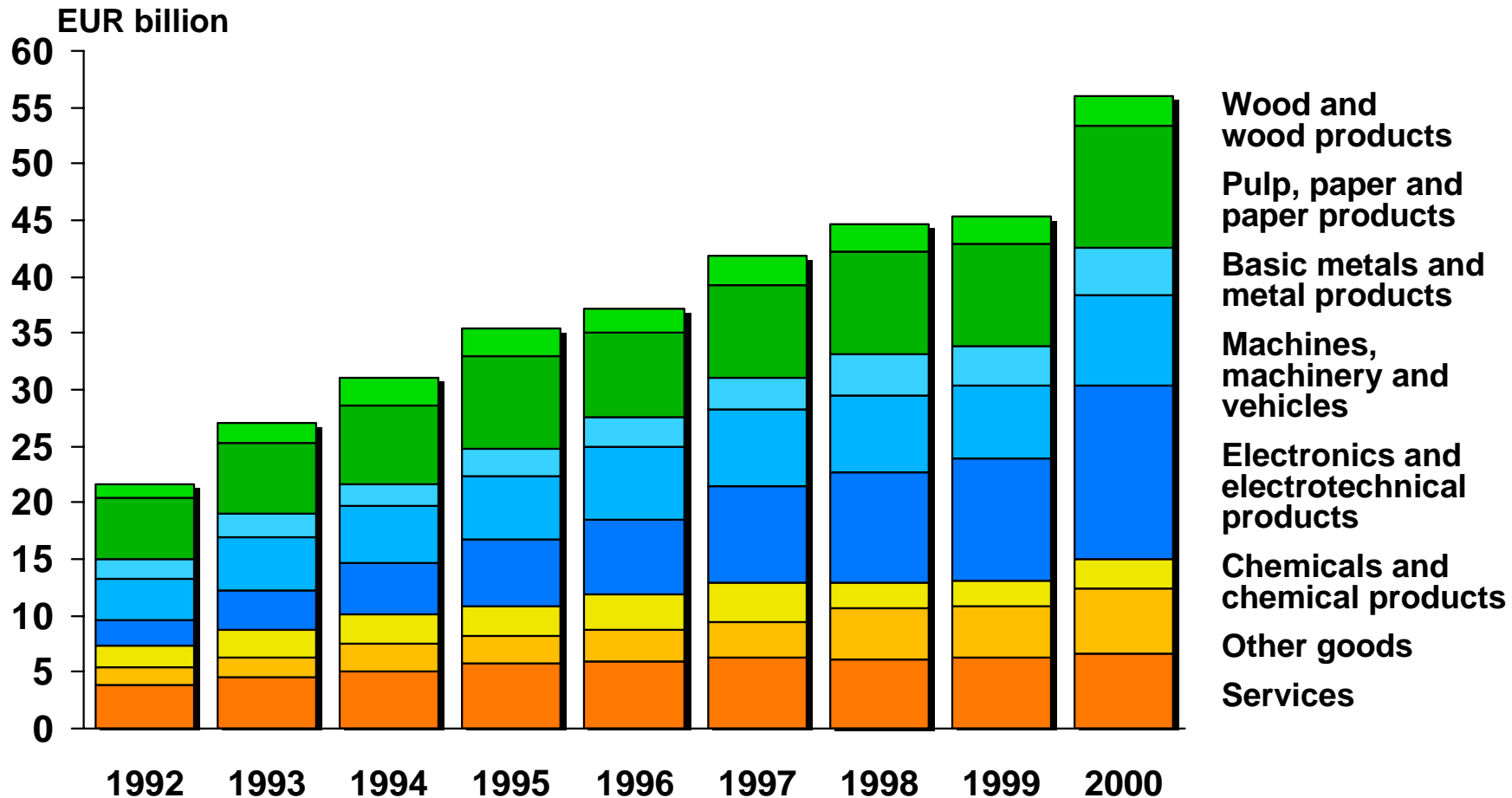
“The Finnish Economic Miracle of the 1990s”

A story of human and social capital?

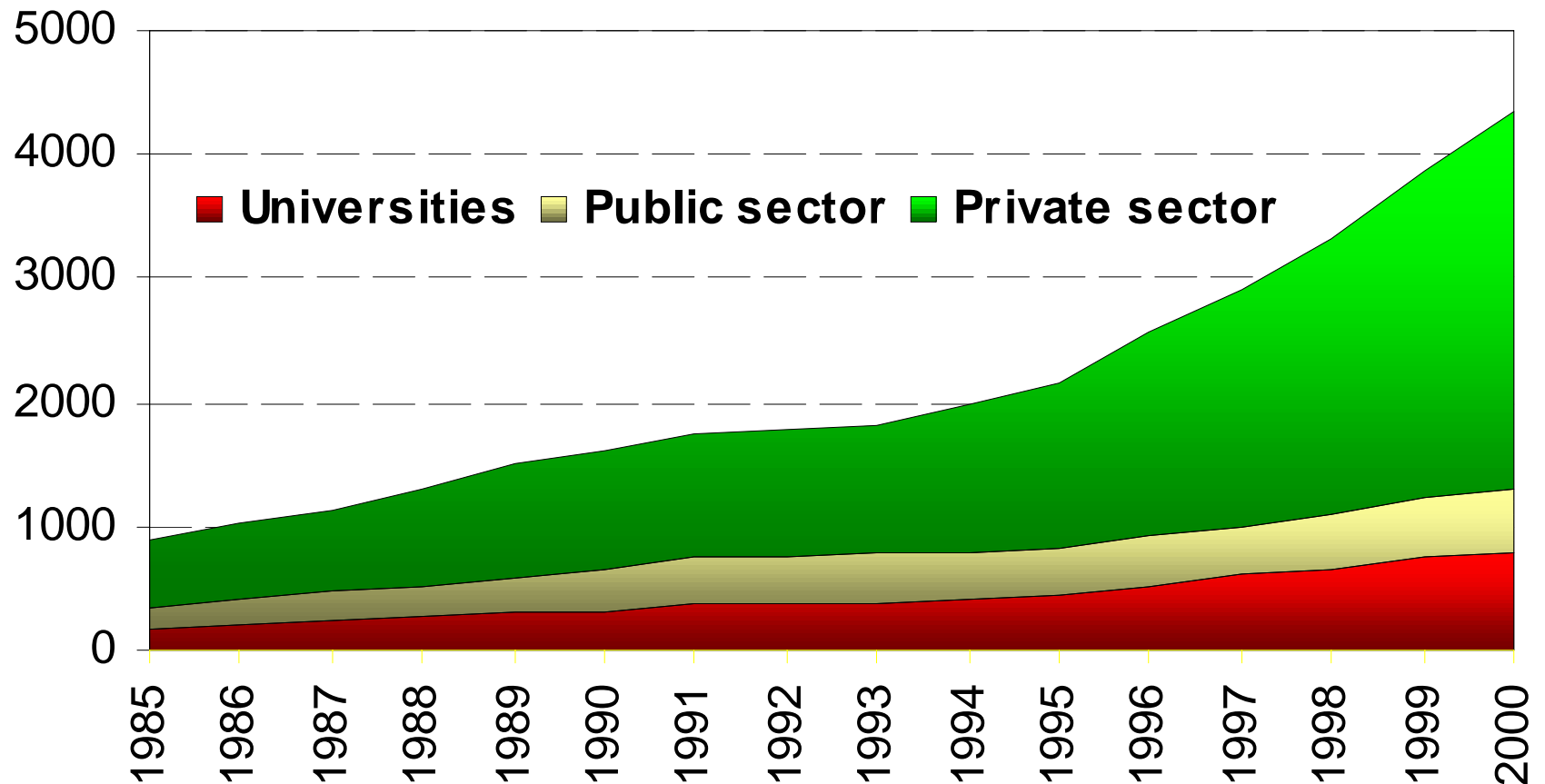
GDP 1985=100 (at market prices per capita)



Finnish Exports by Industry

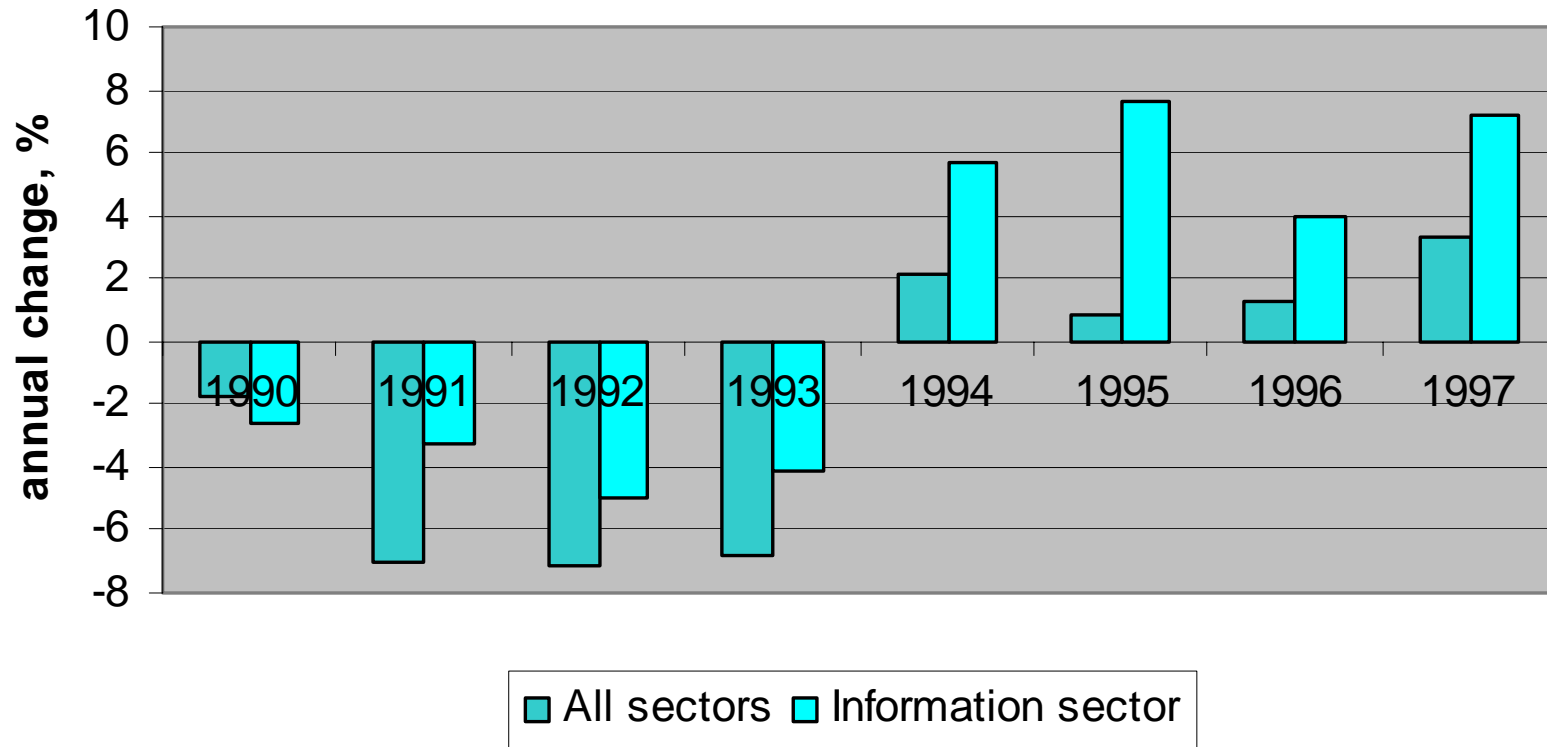


R&D expenditure by sector EUR Million, Finland



Recession and Safety Nets “The Finnish Trampoline”

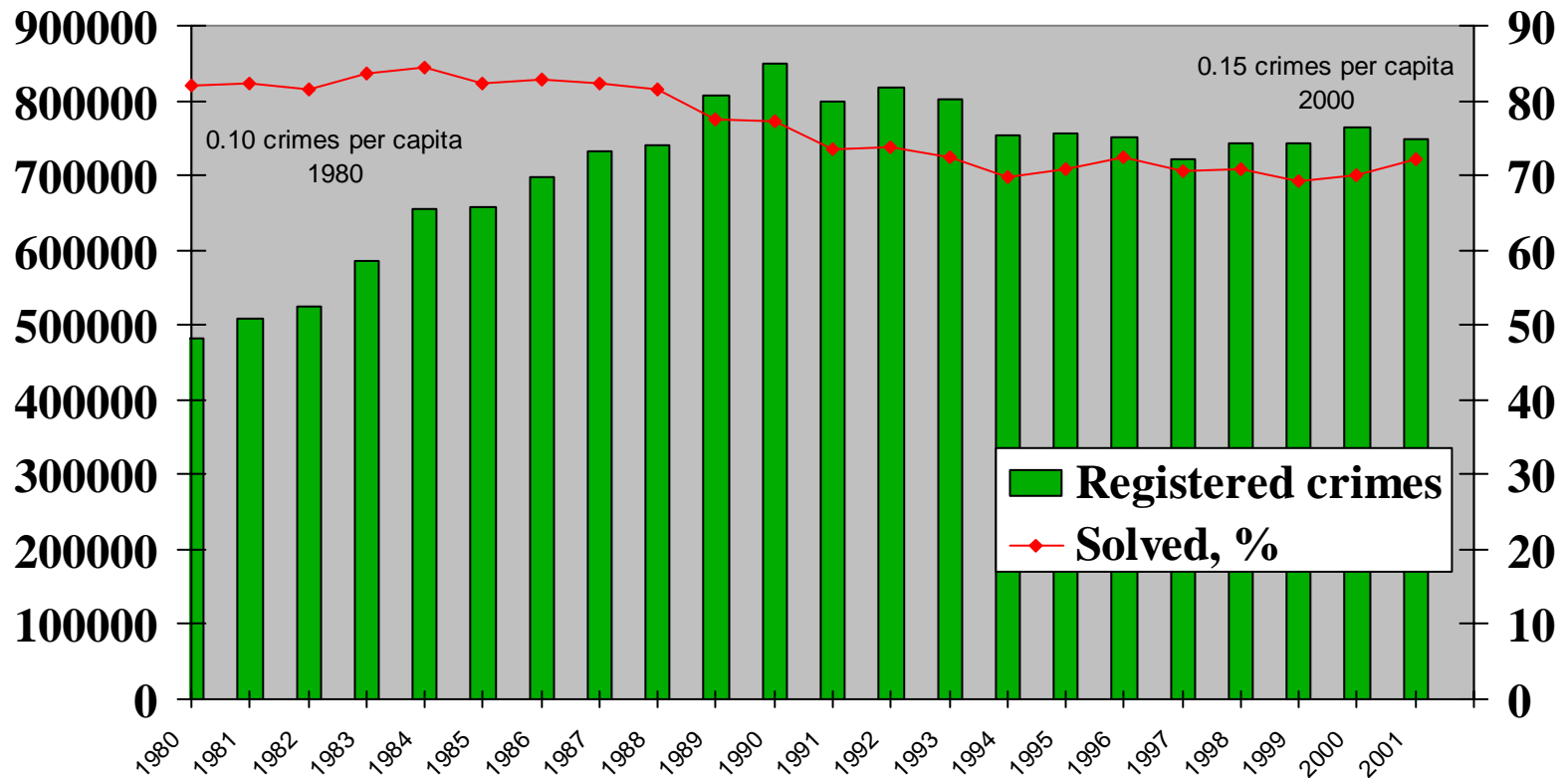
Change in employment



Between 1990-1994 household income dropped 18 % in Finland;
due to income transfers, however, the usable income dropped only 10 %

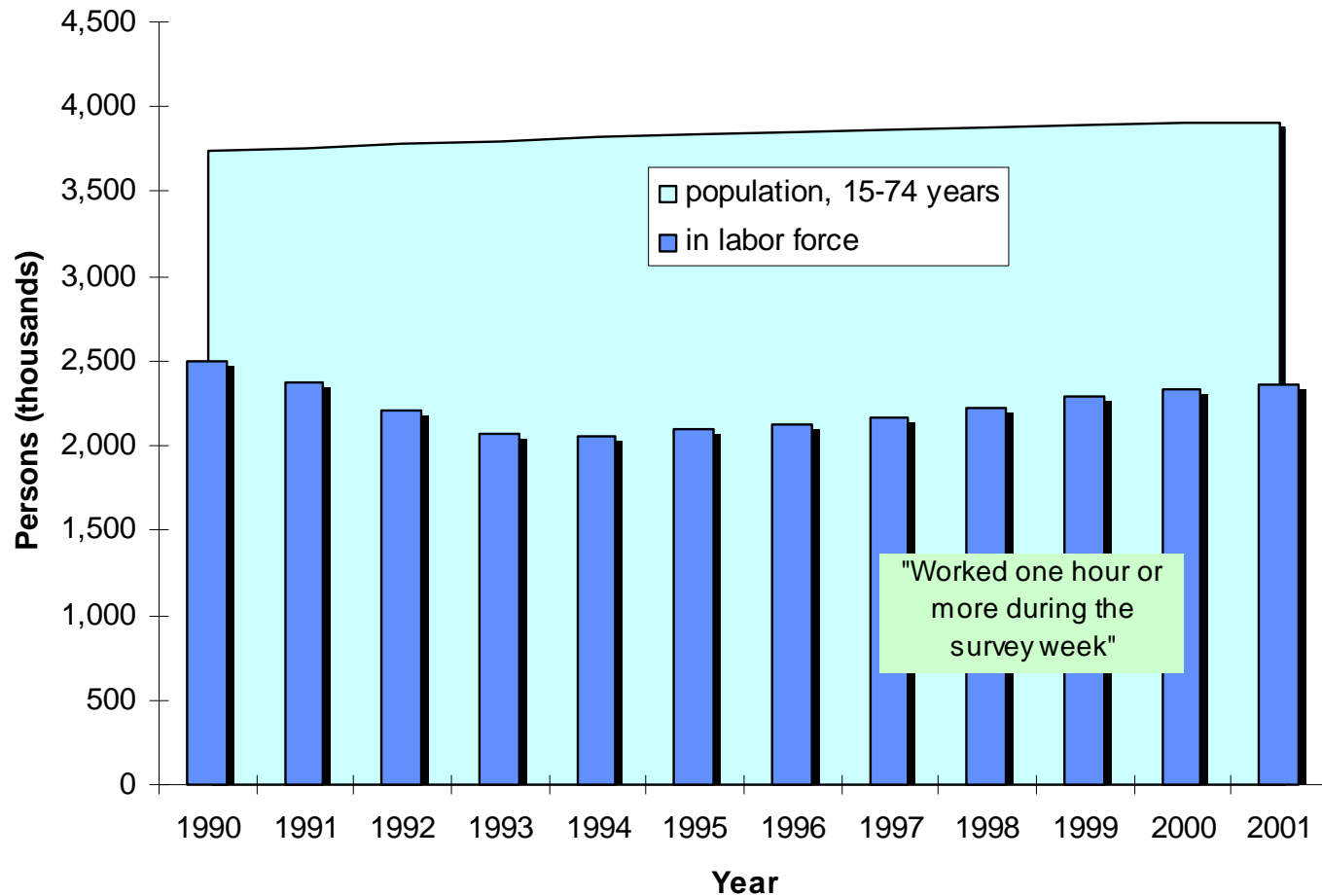
The Value of Social Capital

Crime in Finland

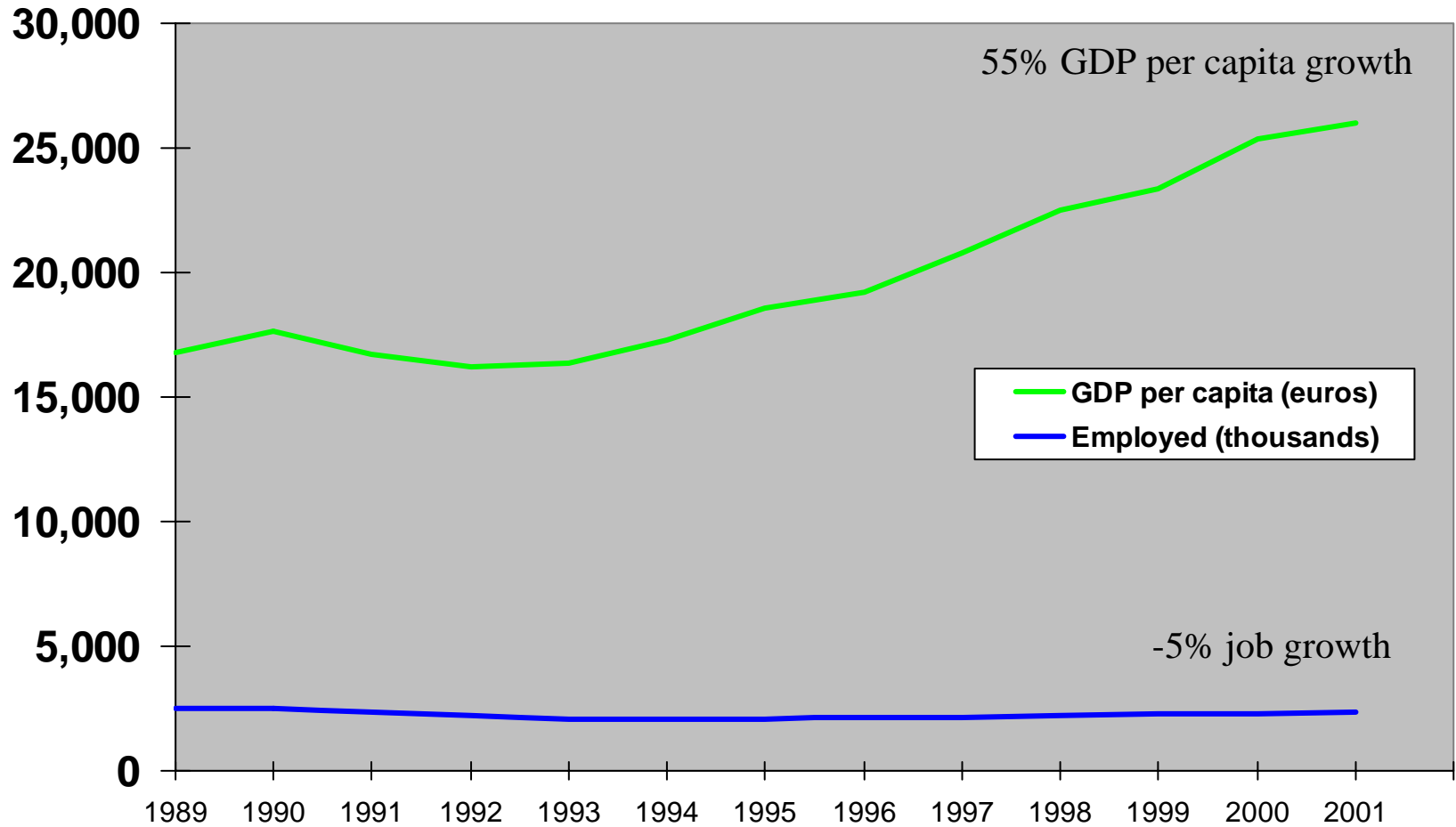


Challenge: Jobless Growth

Did we already use all our social capital?



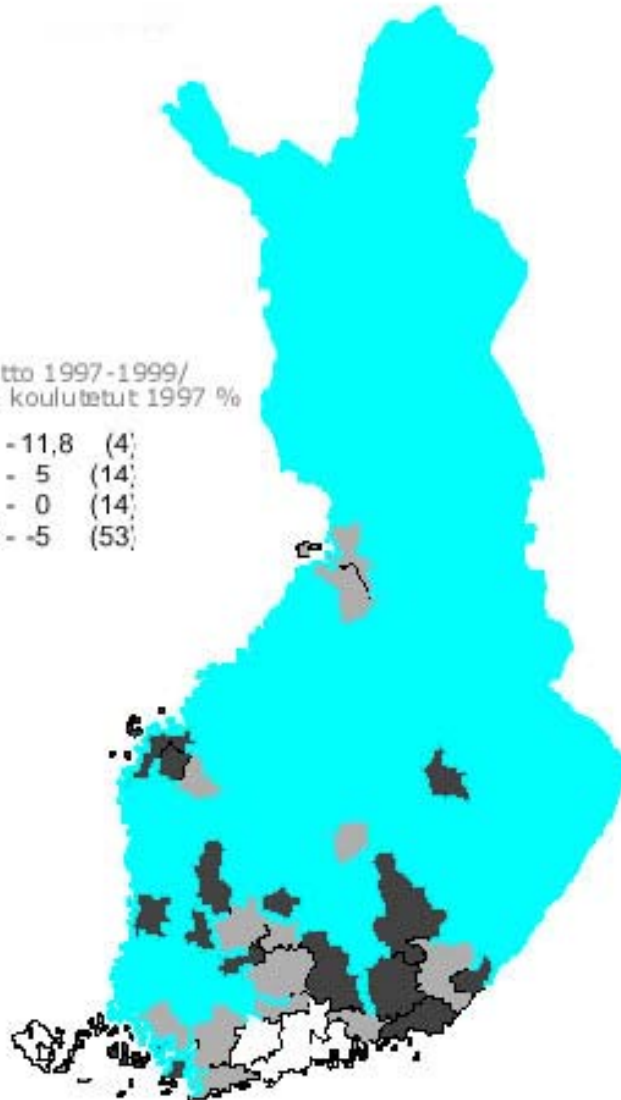
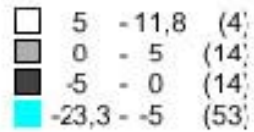
Finland, 1989-2001



Challenge: Space Matters

Net movement of
people with post-
secondary degrees
1997-1999

Nettomuutto 1997-1999/
korkea-asteen koulutetut 1997 %

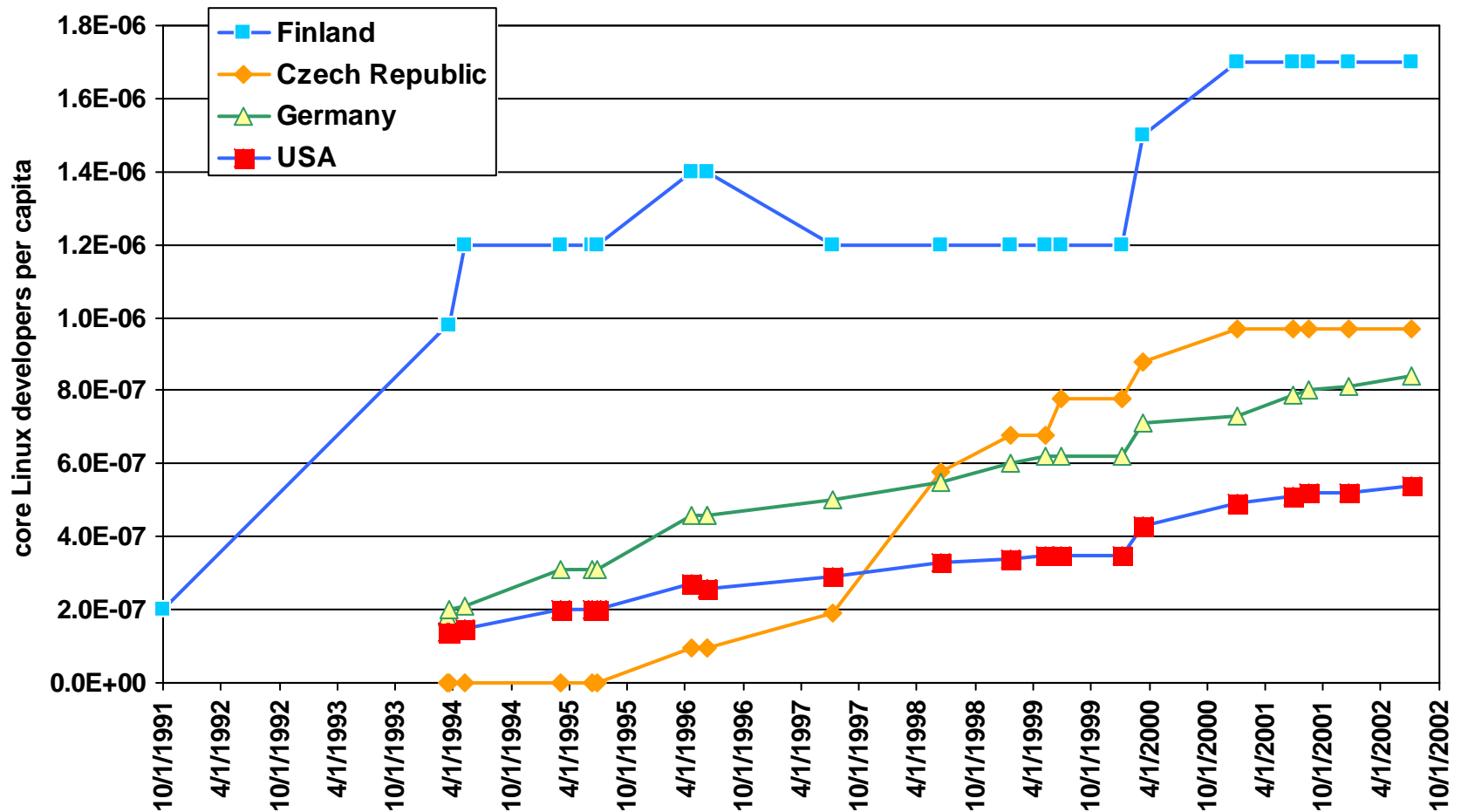


The Focus on Technology Missed an Important Point

- Effective use of new technologies requires complementary investments in human competencies and new work practices
 - these require new ways to organize space, time, and social relations
 - ...new managerial competencies...
 - ...new institutions of work, perhaps a "new constitution of work"
 - and new tools and new ways to use old tools

Becoming a Member in the New Networks of Innovation

Linux Developers, Example Countries, Sep. 1991-Jun. 2002



Sustainable Knowledge Society

- Four forms of sustainability, all based on knowledge and communication
 - Environmental
 - Economic
 - Social
 - Cognitive and psychological

Summary

- The current transformation penetrates all aspects of life, bringing with it new concepts of community, identity, and work
- New organizational forms are emerging that combine learning, innovation, and production in new ways
- Space and time are becoming reorganized on a global scale
- Digital divide is not about access to technology but about access to resources and capabilities that make life choices possible and manageable