ICT, Mobility, and Sustainability

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Sustainability

- A highly normative scenario, including requirements for egalitarianism within and among generations, and redistribution of wealth.
  - Note that many other scenarios are possible and, given current trends, perhaps even more probable
- Has become increasingly ambiguous over time as different institutions adopt different definitions to suit their requirements.
- What is to be sustained? The Earth? Biodiversity? Human life? Existing economic and power structures?
- Mismatch between degrees of freedom of managers, and firm itself, and global sustainability issues.
- Grossly oversimplifies complexity of current and future environments, especially given accelerating technological evolution (for example, sustainability activists focus on resource use, versus information structures, and fail to consider even very foreseeable trends such as extension of human life to 120-140 on routine basis).

Sustainable Engineering and Myth

- “There have always been, and will always be myths because it is through the metaphorical language of myth that a culture articulates its deepest concerns. Sustainable development can be seen as our modern myth, emerging from a culture of science, technology and reason.”

S. Walker, Sustainability – the evolution of a contemporary myth, Proceedings of the 5th European Academy of Design Conference, Barcelona, Spain, retrieved Jan 11, 2007, from www.ub.es/5ead/PDF/5%20/walker.pdf, p. 1.

Sustainable Technologies?

- Telework/network centric firm structure
- Advanced traveling salesperson n-point algorithms
- Life extension technologies (to 120-40 average within 20 years)
- Biotechnology: from evolved biodiversity to designed biodiversity

Telework Compass

AT&T TELEWORK EXPERIENCE

I. Telework is already here:

At AT&T, 63% of managers telework at least one day a month, and and 22% are full time virtual office (all AT&T figures for year 2003). In 2001, 47% were non-teleworkers, in 2003, only 37% were non teleworkers.

II. Economic benefits:

For AT&T, $34M due to reduced real estate costs; $148M due to increased productivity; and $2M due to reduced turnover (2003 annual figures). Significant enhanced productivity and competitiveness.

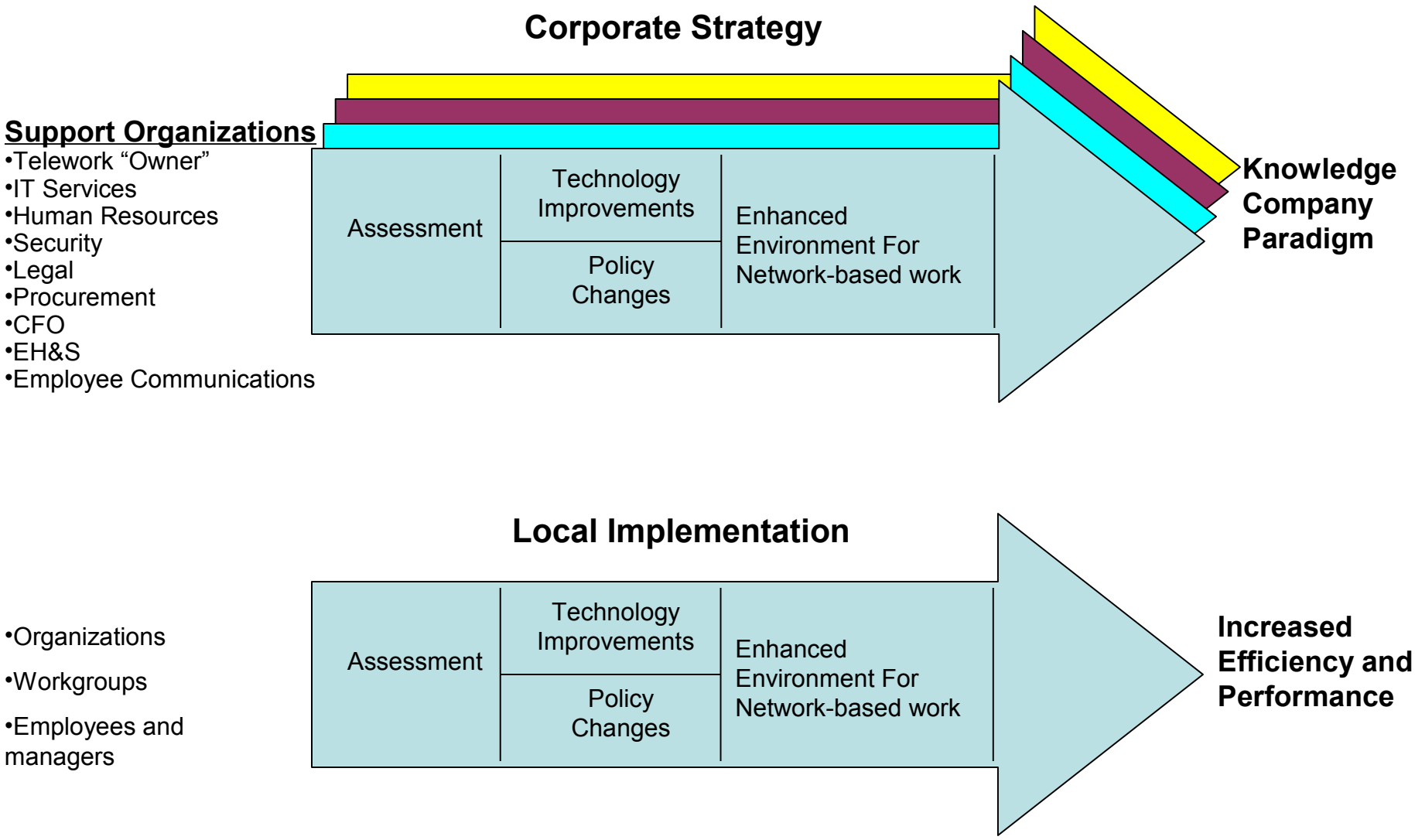
III. Social benefits:

84% of teleworking employees at AT&T reported better balance between work and family life; 71% reported more personal time because of reduced commute times; 67% of employees receiving competitive job over reported that telework was factor in their decision to remain with company (2000 data). Families of teleworkers also reported greater satisfaction with job arrangements.

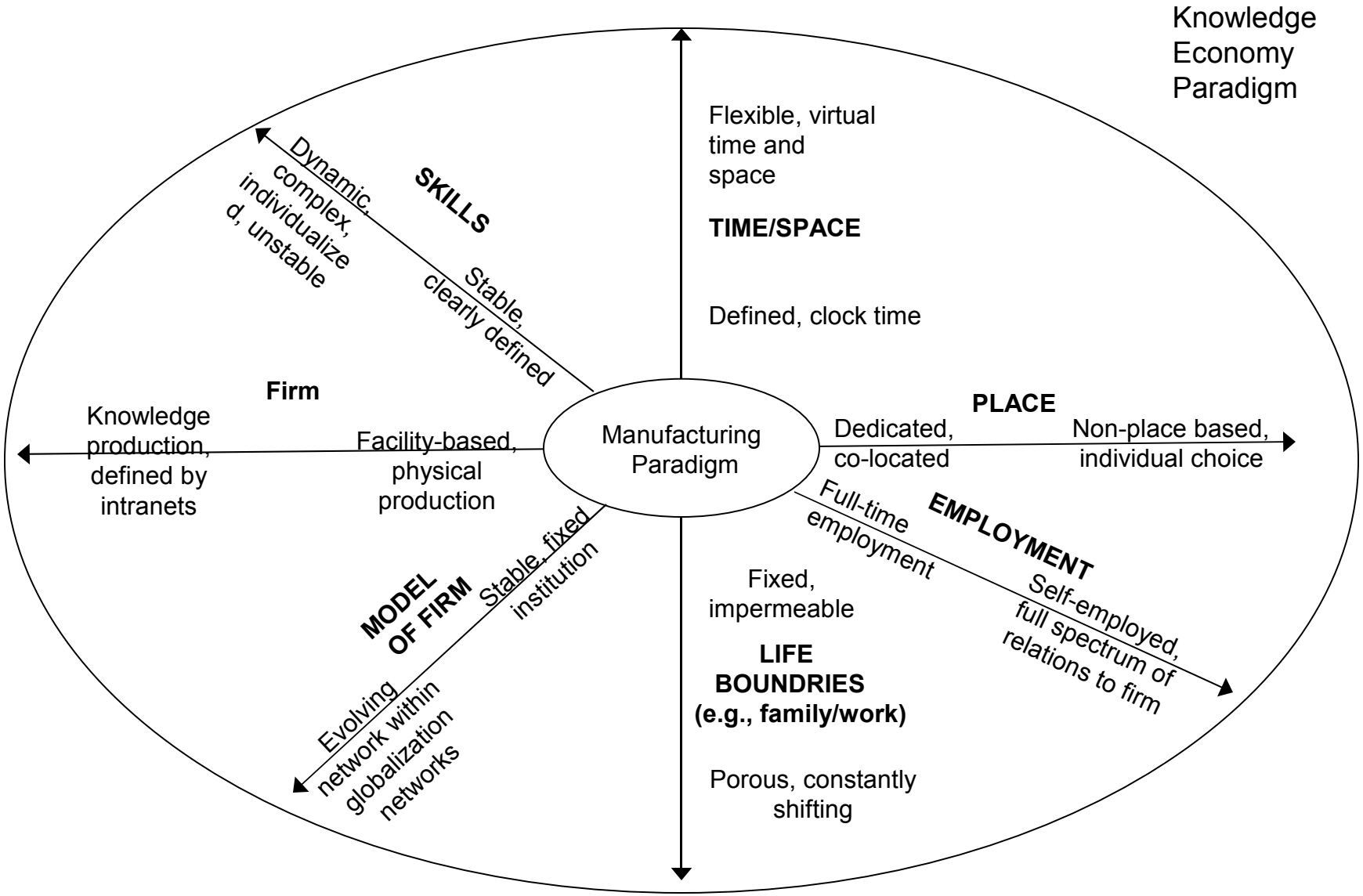
IV. Environmental benefits:

In 2000, AT&T teleworkers avoided commuting 110 million miles, keeping 50,000 tons of CO2 from being emitted into the atmosphere. Less congestion means less fuel expenditure on part of not just teleworker, but also all of those on road as well.

Multiple Dimensions of Business Transformation



Changing Dimensions of Work



Lessons Learned

- Rather than sustainability, evaluate environmental, social, cultural, and economic criteria
- Systems approach critical:
  - Integrated transportation and ICT planning?
  - Integrated transport/ICT/air quality policy?
- Cultural barriers even where social, environmental, and economic interests align
  - Public policy incentives?
  - Create infrastructure enabling “informal” efficiency
- Integrate with regional culture
  - Help high technology image
  - Support high quality of life image