# Forecasting and Foresight: Summary of Issues

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# Pep talk for forecasting

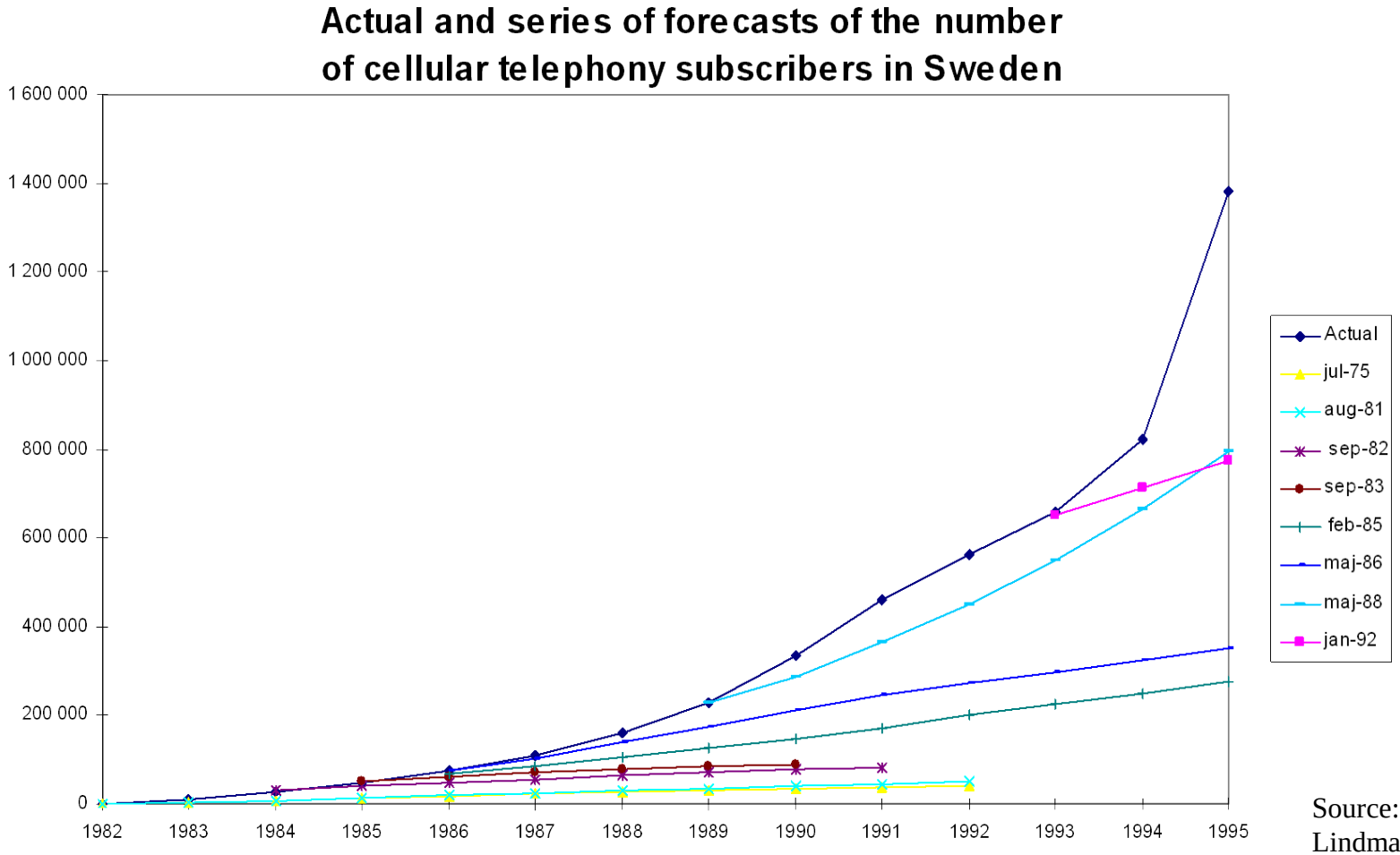
*“Forecasting is hard, particularly of the future.”*

*“Forecasting is like trying to drive a car blindfolded and following directions given by a person who is looking out the back window.”*

On the other hand:

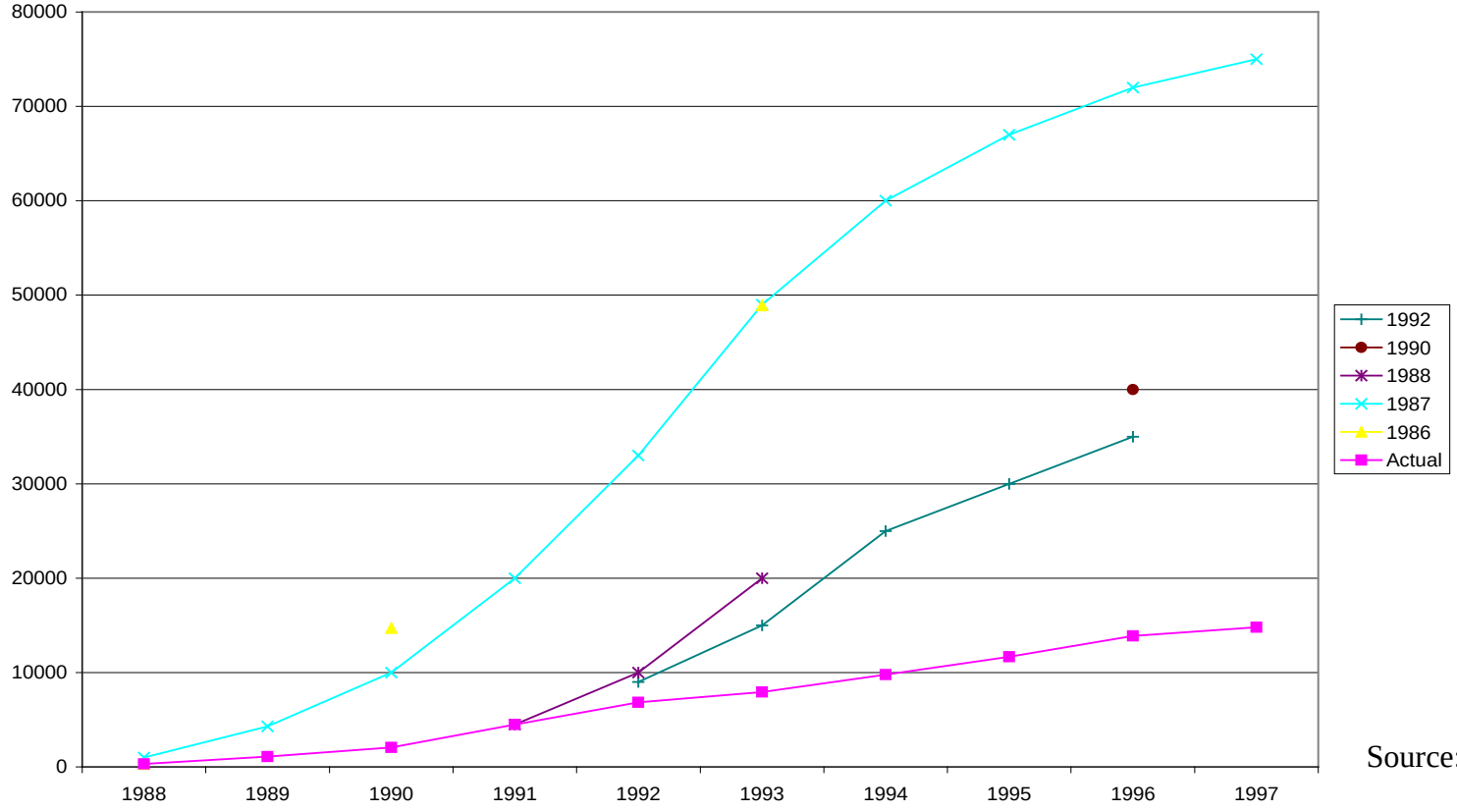
- we have to engage in forecasts, implicitly or explicitly
- Forecasting expertise (real or perceived) is valuable, - a market for forecasts

# Underestimations of demand for mobile telephony



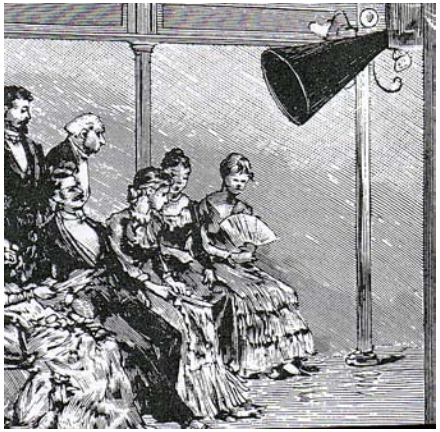

Source: Lindmark (2001)

# Overestimation of demand for mobile data (Mobitex)

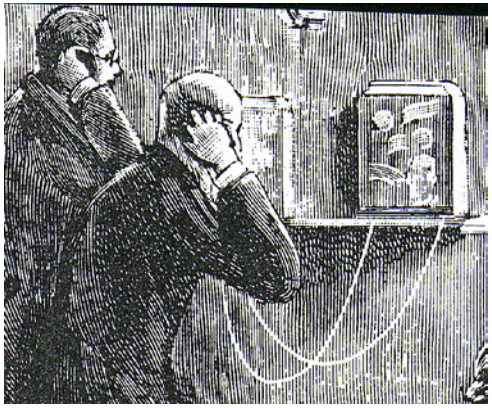


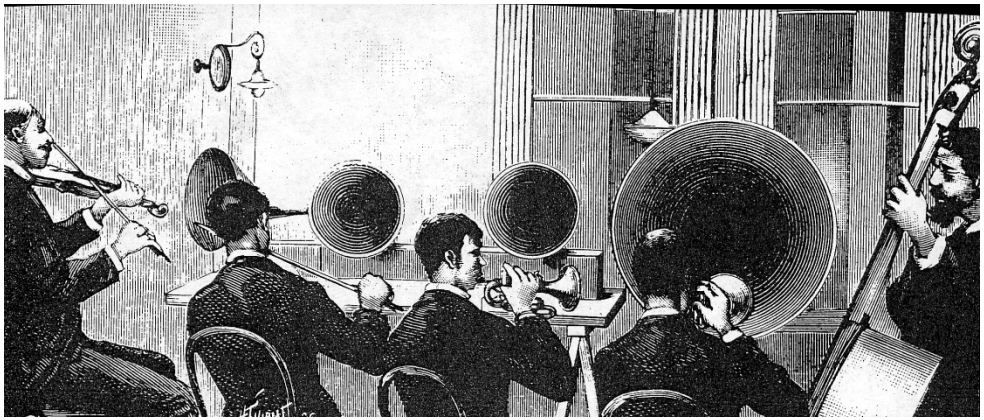

Source: Lindmark (2001)

# Application vision



One major application of the telephone network as perceived in the 1890s

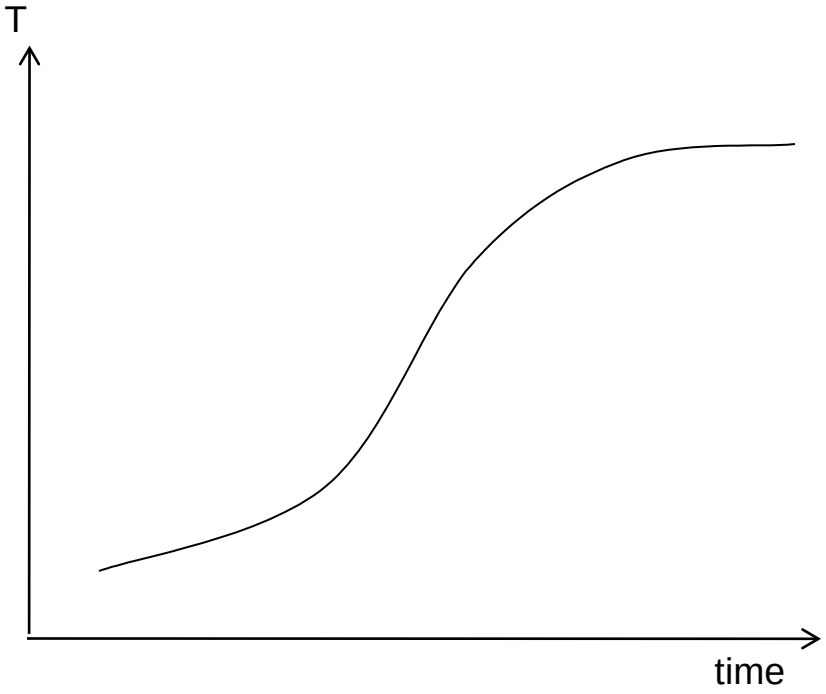




# Technological Forecasting Techniques (Methods)

I. Monitoring/technology scanning
II. Trend analysis/trend extrapolation
III. Expert opinion
IV. Modeling
V. Scenarios
(VI. Other (e.g. analogies)

# Technical change: S-curve

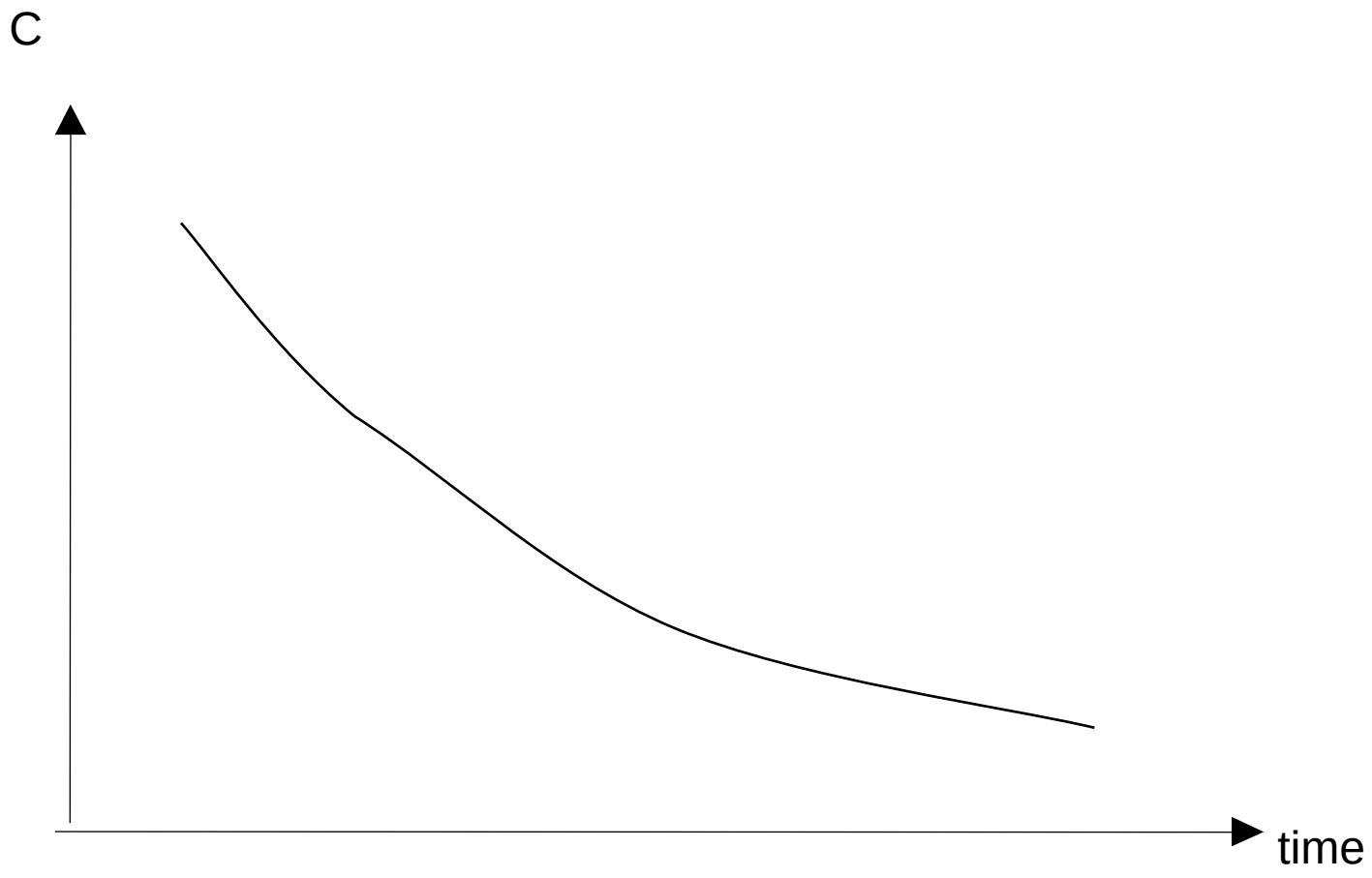



$\Delta T$ = opportunities * effort

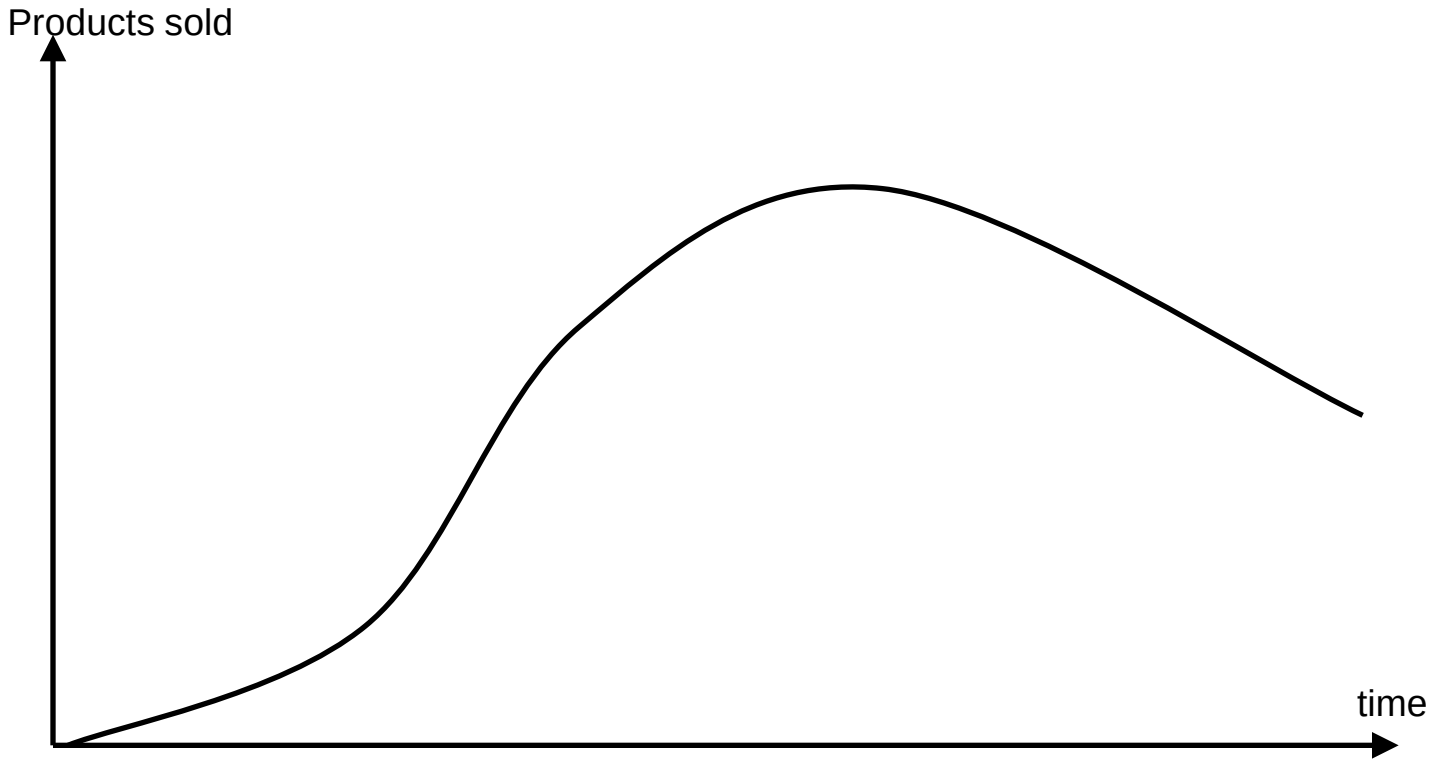
## Logic

1. An innovation opens up technological opportunities, many failing paths are followed initially, little resources spent
2. More and more resources spent as commercial potential is perceived. Technical progress accelerates.
3. Limits approached, technological opportunities exhaust, and progress slows down

# Costs (C) – the experience curve (learning curve)



# Diffusion



# Checklist for Scenario Construction

1.) Identify the problem
    - What is the reason for making the scenario?
    - For whom?
    - Time frame?
2.) Identify important dimensions (trends and uncertainties)
3.) Specify your assumptions
4.) Check you dimensions for importance and uncertainty
5.) Choose the most important and uncertain trends as basis for
6.) Build up 2-4 consistent scenarios
7.) What are the implications for the main problem (for each scenario)
8.) Chose indicators, and monitor.

# assumptions – one terminal per capita?

NTT DoCoMo *Vision 2010*

| | (Millions) |
|---|---|
| People | 120 |
| Cars | 100 |
| Bicycles | 60 |
| Portable PCs | 50 |
| Motorcycles, ships, vending machines | 10 |
| Pets（cats, dogs） | 20 |
| | 360 |

+

**Home appliances**

| | (Millions) |
|---|---|
| TVs, Set Top Boxes | 90 |
| Digital still cameras | 30 |
| Video cameras | 20 |
| Refrigerators | 40 |
| | 180 |

**Others**

| | |
|---|---|
| Parcels | 30 |
| | 210 |

**There could be more than half a billion hosts in Japan!**

# Technology forecasts are often wrong

- Why?
  - Personal or commercial interests
  - Difficulty to identify the true benefits of an innovation
  - Difficult to perceive new and innovative uses of an innovation
  - Social, cultural, political and organization factors often neglected
  - Development after commercial introduction
  - Importance of substituting techn. often neglected
  - Importance of complementing techn. often neglected.
  - Recent and visible trends are often exaggerated.
  - Faulty assumptions, not faulty models.