Standards and actor-network theory (ANT)

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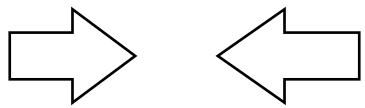
Contents

- **Standard: background, role, motivation**
  - **Why bother ?**
  - **IS and standards…?**
- **ANT: key ideas and concepts**
  - **Grasping the dynamics of standards processes**

AC vs. DC

Altern. current
+
cheap transport

?

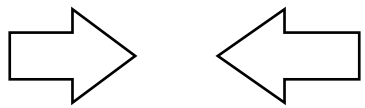


Direct current
+
motor

AC vs. DC

Altern. current
+
cheap transport

?



Direct current
+
motor

“Do you want those deadly currents in your home?”

Standards: a typology

Quality

- **”max. level of salt in mineral water is …”**

- **Compatability standards**
  - **Deals only with the interface**

Standards are everywhere!

- **Technology …**
- **Routines**
- **Protocols, languages**
- **Agreements**
- **Formats**
- **…**

Ex.: a method in systems design

Standards: typology

- **Formal (by standardization bodies)**
- **De jure (imposed by law)**
- **De facto**

Actors

ISO

CEN TC 251

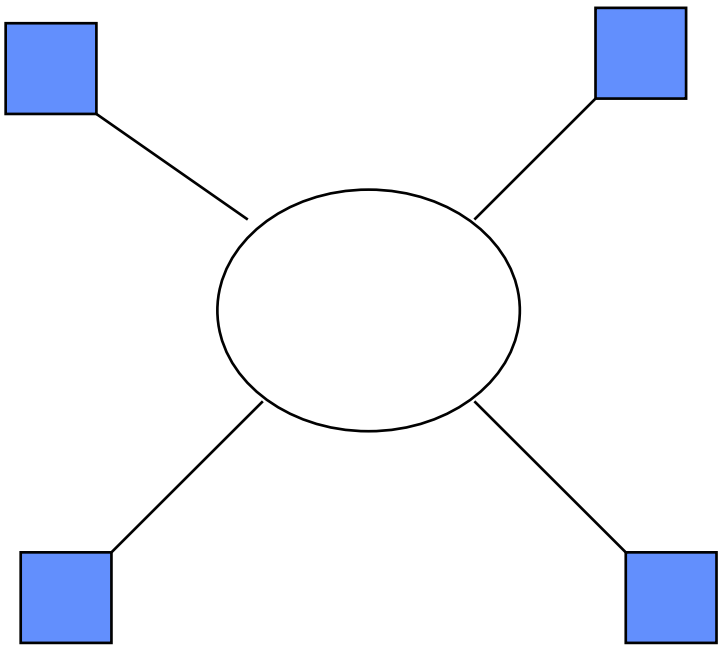
UN

IETF

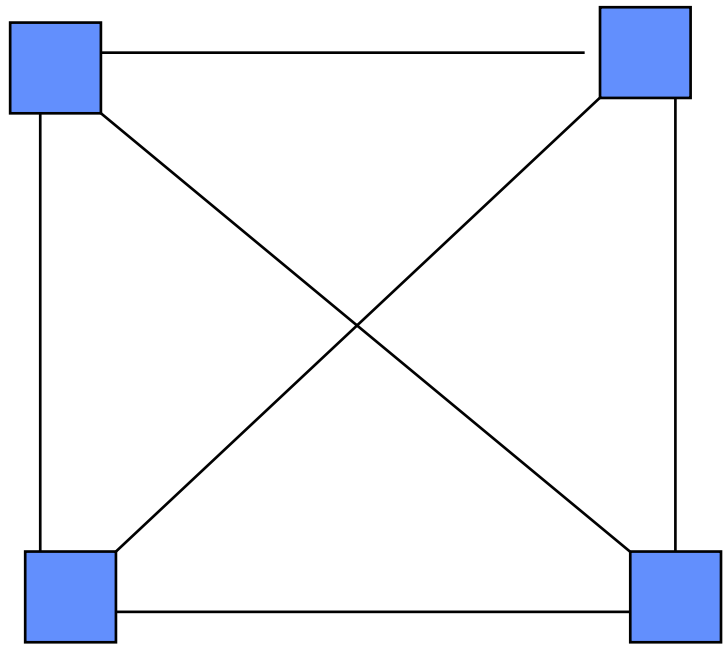
W3C

IEEE

The logic of compatibility standards



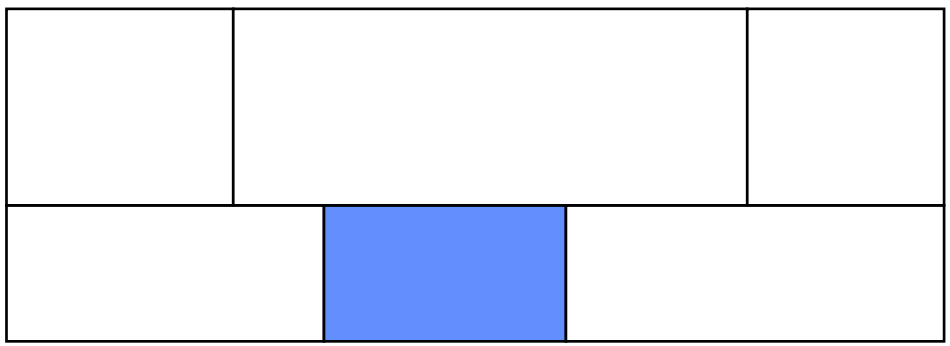
versus



O(n) vs. O(n**2)

Arguments

- **Economics**
- **Division of labour**
- **Flexibility**



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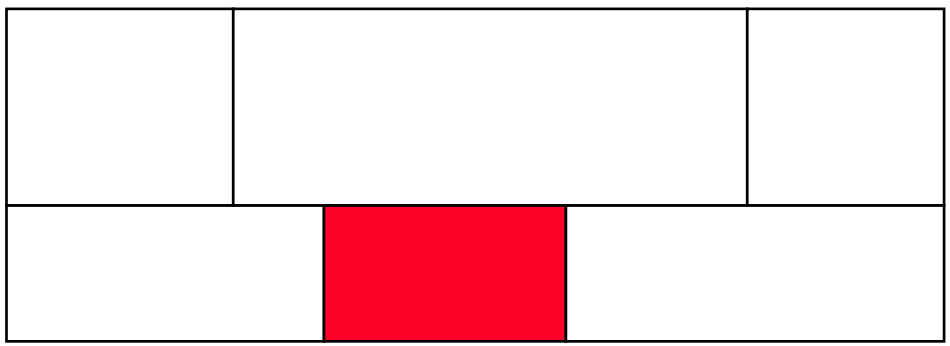
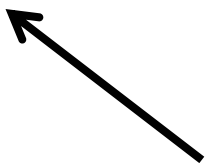


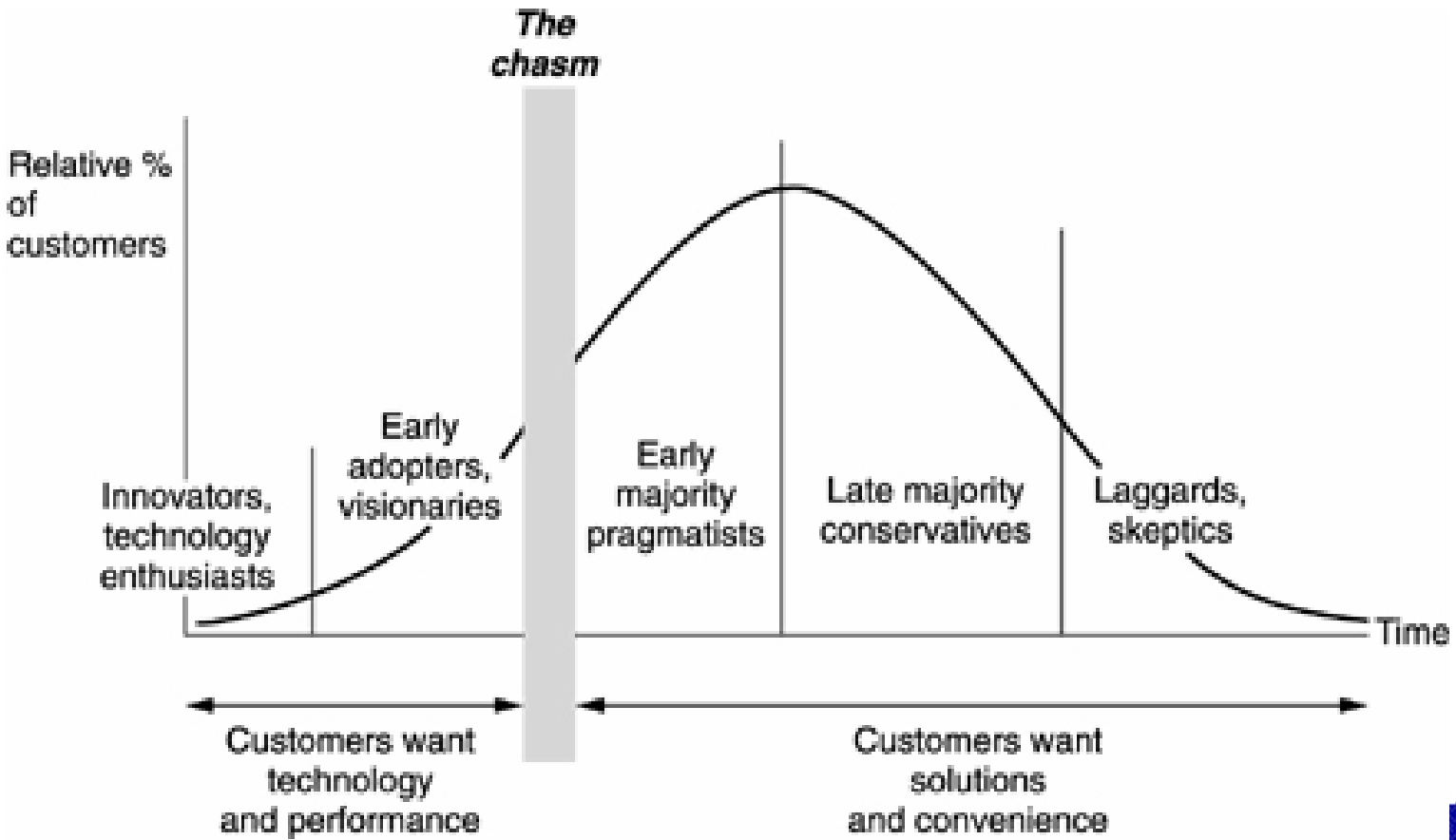
Key assumption

- **Idealization**
  - **-abstraction**
- **IF modules THEN bliss**

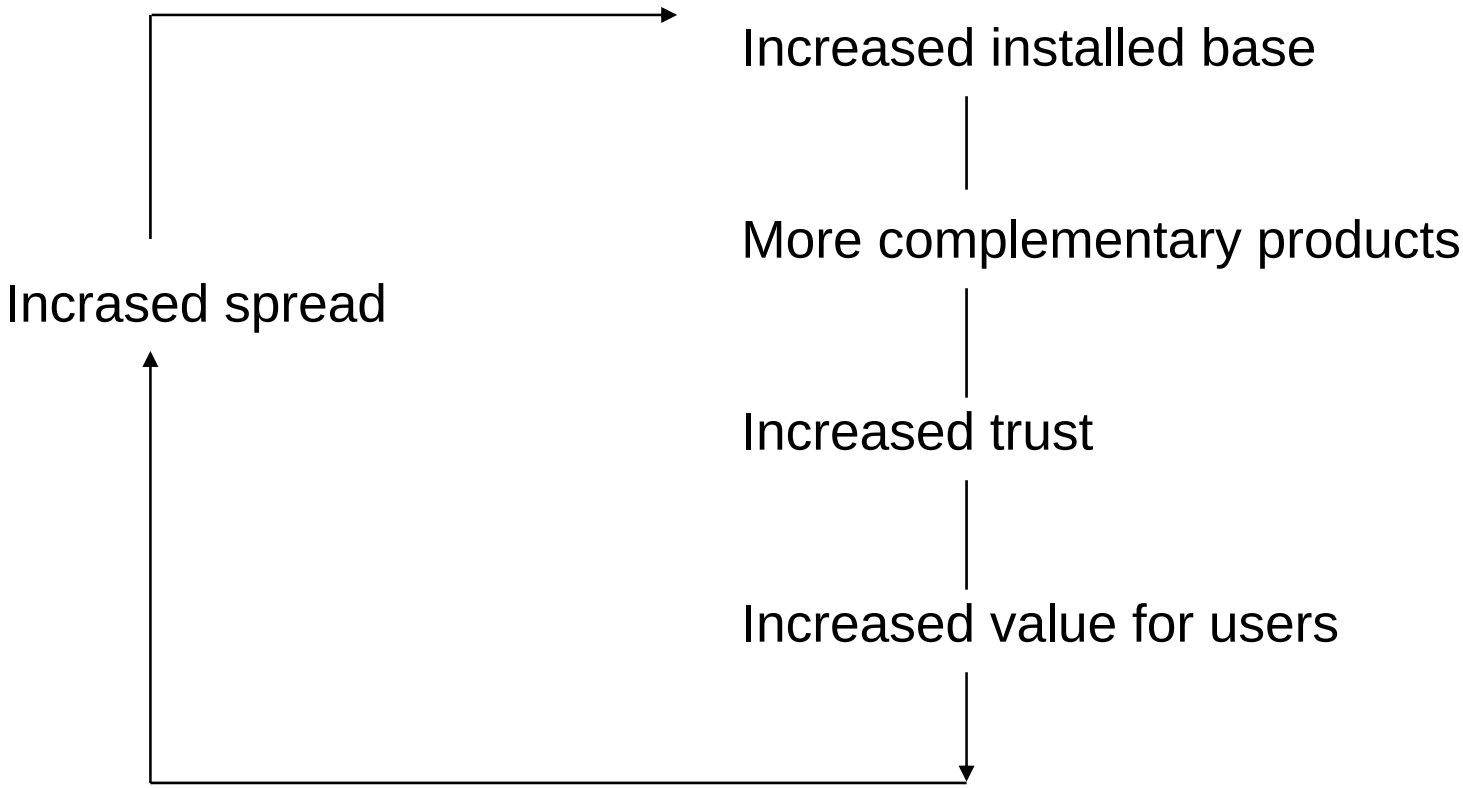


Modularization,
encapsulation,…

Life cycle diffusion, traditional



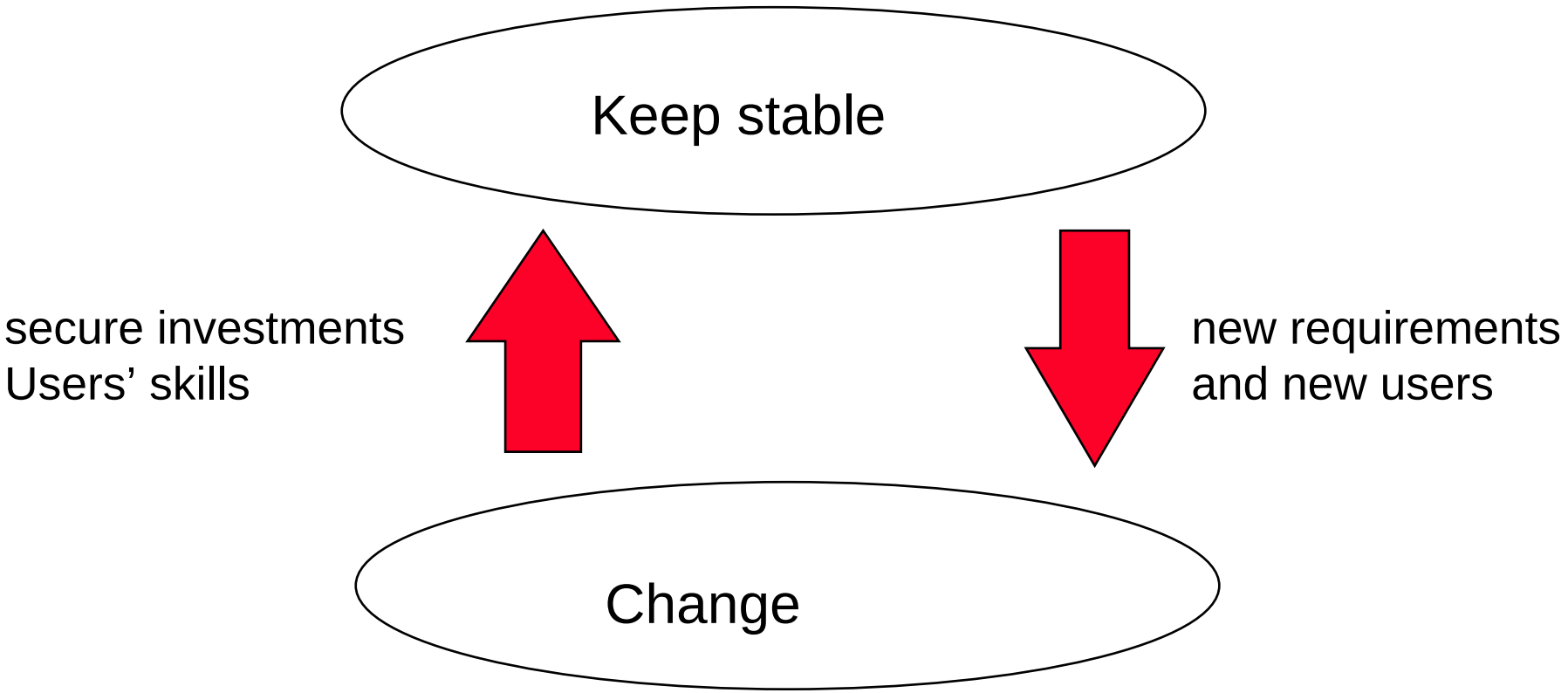
Grindley's model for innovation (1)



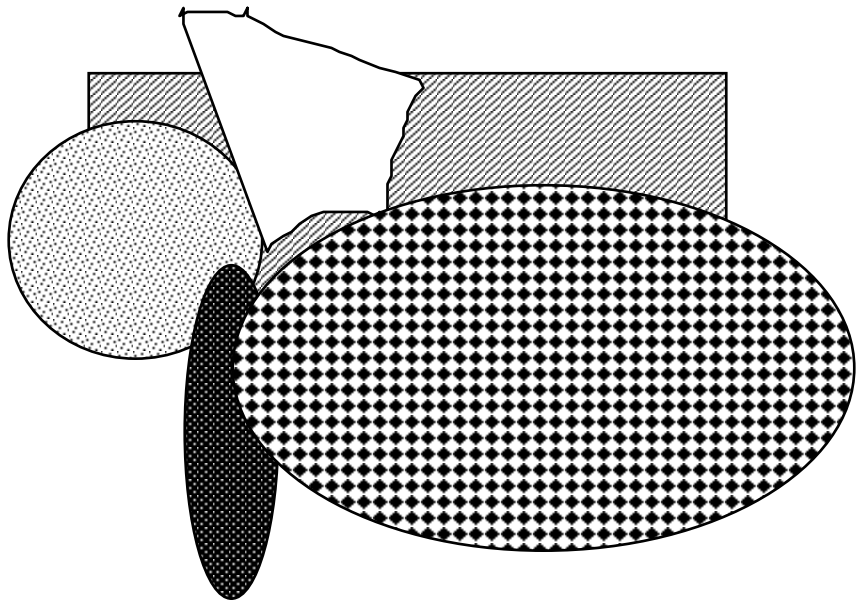
The video player

- **Betamax**
  - **Sony first mover**
  - **Sony's name and reputation**
  - **Proprietary**
- **VHS**
  - **JVC – small, compentence primarily on audio**
  - **'open' standards**
  - **persuading Philips**

“Changing a Jumbojet - in the air”



Stability and dynamics



Ex.: Electronic Patient Records

- **RIS**
- **PAS**
- **Lab**
- **Nomenclature (SNOWMED)**
- **Hospital – health region – nation – Europe**
- **CEN TC 251**

Products vs. services

- **Standardized products**
  - **Mass production, fordism**
- **Services**
  - **Flexible specialization**

”Quality”

"[U]niformity of output, a major goal of routinization, seems to be a poor strategy for maintaining quality… since customers often perceive rigid uniformity as incompatible with quality”

(Leidner, 1993)

History of ideas (at a glance)

- **Philosophy of science**
  - **T. Kuhn**
  - **sociology of science**
  - **sociology of technology**
  - **Science and technology studies (STS)**
- **Labour process**
  - **H. Braverman, D. Noble**
  - **Sociology of work**

Main variants of STS

- **Technological systems (T. Hughes)**
  - **socio-technical web, momentum**
- **Social construction of technology (Bijker, Woolgar)**
  - **interpretative flexibility, symmetries, stabilisation**
- **Cultural studies (R. Silverstone, KH Sørensen)**
  - **domestication, appropriation, consumption, taming**
- **Actor-network theory**

What kind of animal is ANT?

- **Alternatives exist**
  - **Giddens, ethnografy, grounded theory, activity theory,...**
- **A theory?**
- **A methodology?**
- **A perspective?**
- **A vocabular!**

Basic moves

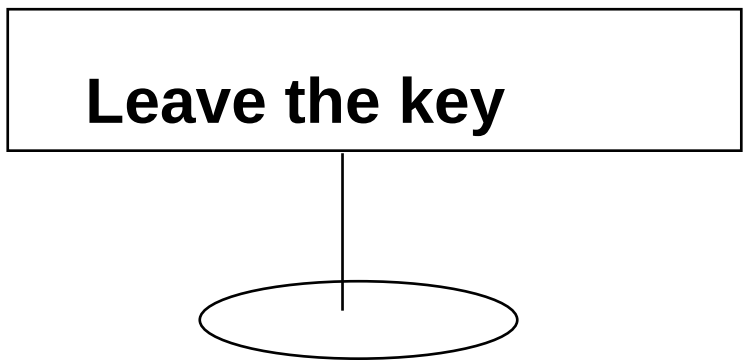
- **Our world is full of technology**
- **The end, not the means**
- **Same role => same explanation**
- **Reductionist? Vulgar? Anti-humanistic?**

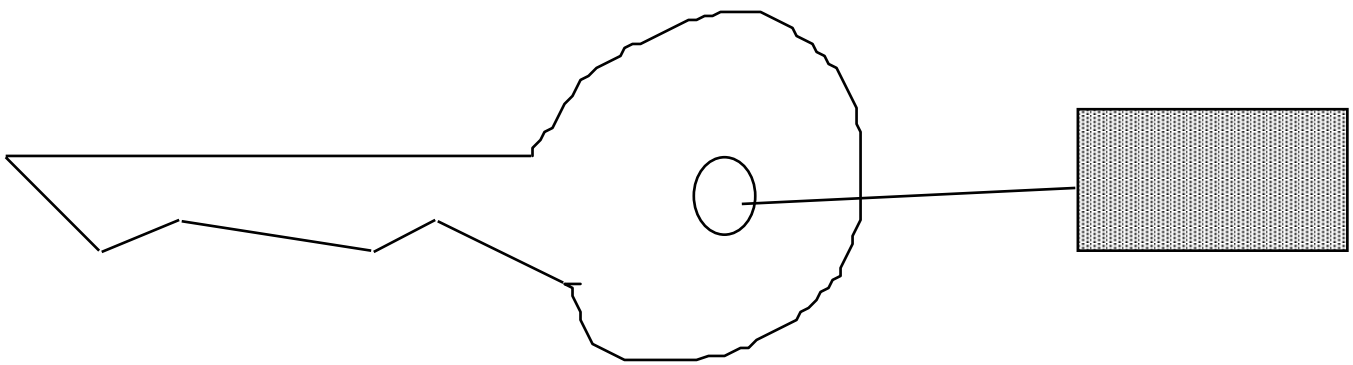
Appropriating ANT

- **Social science => ICT**
  - **A GENUINE interest in the technology**
- **Backward gazing => design**
  - **Only after the dust has settled...**
- **Details => basic notions**
  - **Unstable, keeps changing**

Inscribing behaviour

<<Leave the key!>>

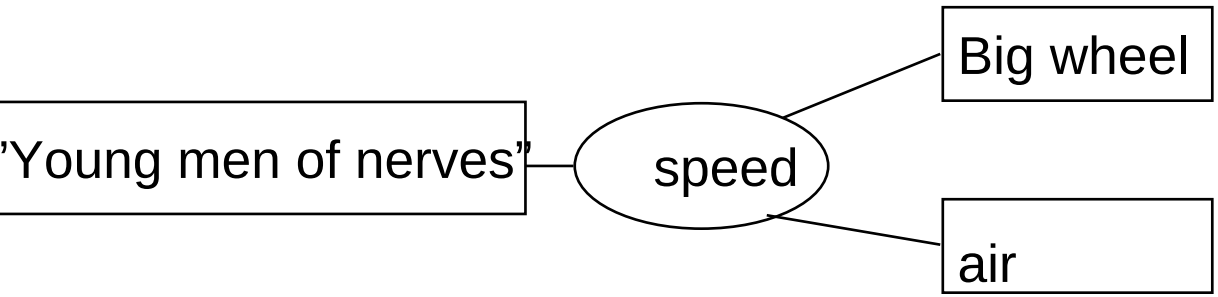

Leave the key

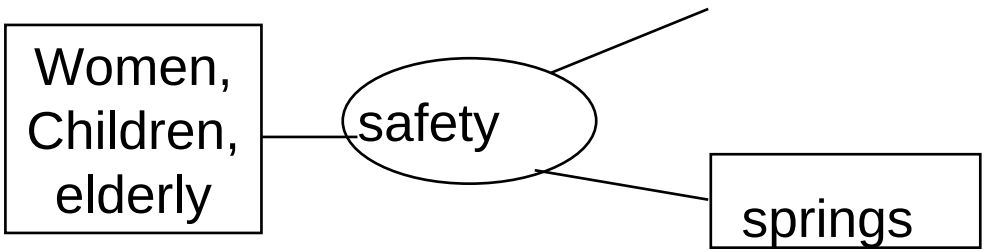


Inscriptions

- **WHO inscribes**
- **WHAT is inscribed (which scenario)**
- **HOW is it inscribed (the material)**
- **STRENGTH of an inscription - does it succeed?**

Stabilization

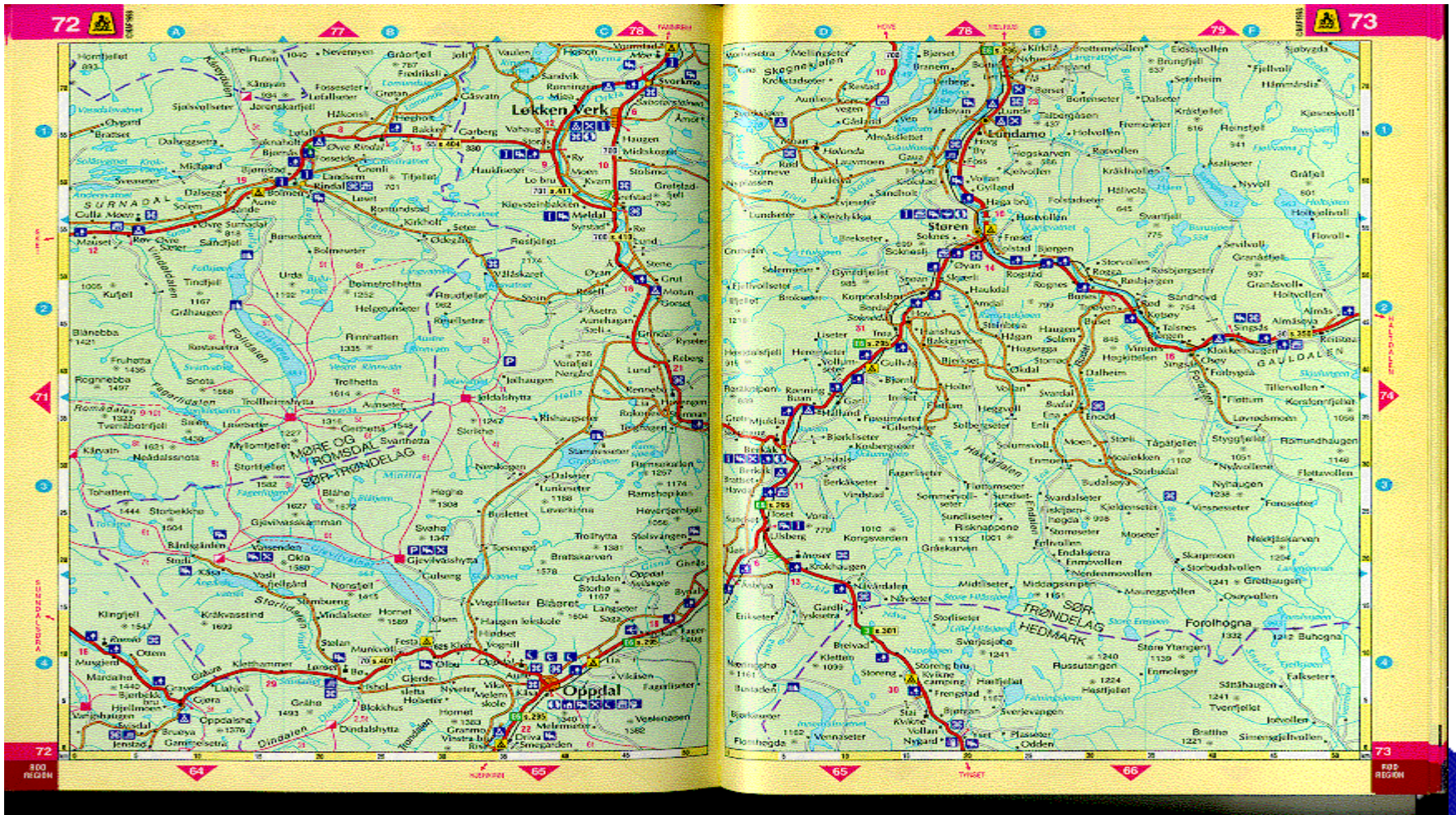



Women,
Children,
elderly
safety
springs

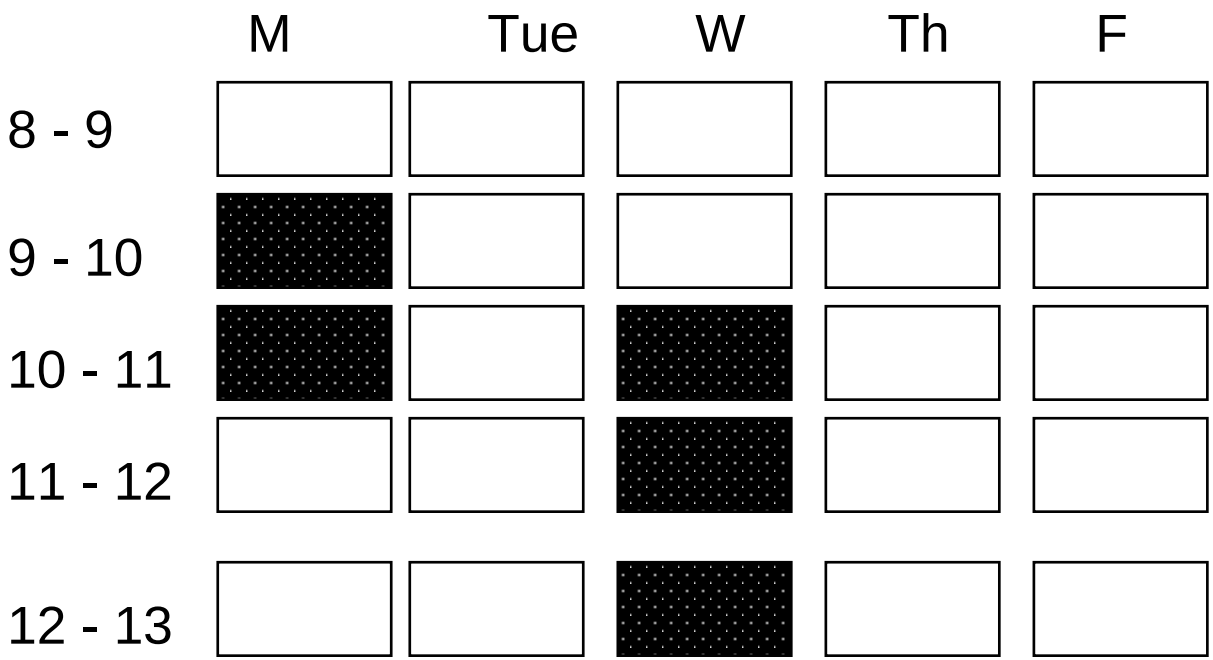
Interpreting information systems

- **Making the context concrete, specific**
- **Interpration through translations over time**
- **The interdependencies**

Context (I)


72
73
Løkken Verk
Støren
Lundamo
Oppdal
Forolhogna
MØRE OG ROMSDAL
SØR-TRØNDELAG
HEDMARK
GAULDALEN

Context (II)



Irreversibility

- **Irreversibilitet - measuring how well-aligned the actor-network is**
  - **How difficult it is to undo an earlier inscription**
  - **To what extent future action is determined**

QWERTY

Q W E R T Y U I O P Å
A S D F G H J K L Ø Æ
Z X C V B N M

Ex.: Microsoft

- One application vs. a suite of applications
- OS vs. application
- Habits, customs
- Future updates

Problem areas

- ”Actant”
- Only micro studies
- ”Flat” actors
- Centered, drifting
- A grand theory of everything
- Design = intervention, not from scratch

Actant

- **Just a fake? A play with words?**
- **Who interpretes the actants?**
- **Reasonable interpretations**
- **Unsolvable problem!**

Only micro?

- **what about larger structures**
- **Institutions?**
- **”move up and down!” (Callon, Latour 1986)**

Flat actors

- **Goal directed**
- **Machiavelli**
- **No soul**
- **Symbolic aspects**

Centered

- **Goal oriented**
- **Managerialism**
- **No drifting**
- **A mastermind, an origo**

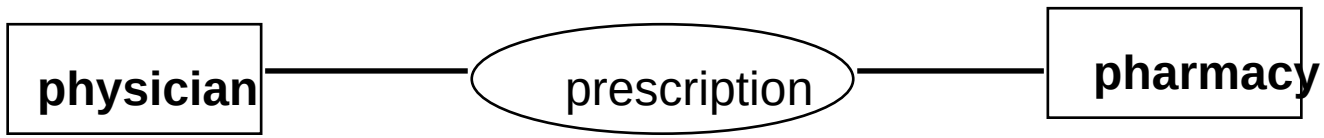
Grand theory of everything

- **what is NOT an actor-network?**
  - **None talks about boudaries - do they exist?**
- **The neverending networks**
  - **The world in your lap**
  - **How to delimit them**
  - **Methodological issues**
- **”There is never only one network” (Leigh Star)**

Design

- **Till now - networks from scratch**
- **Infrastructure**
- **Gradual change of networks**
- **Polyvalent networks**

Prescription



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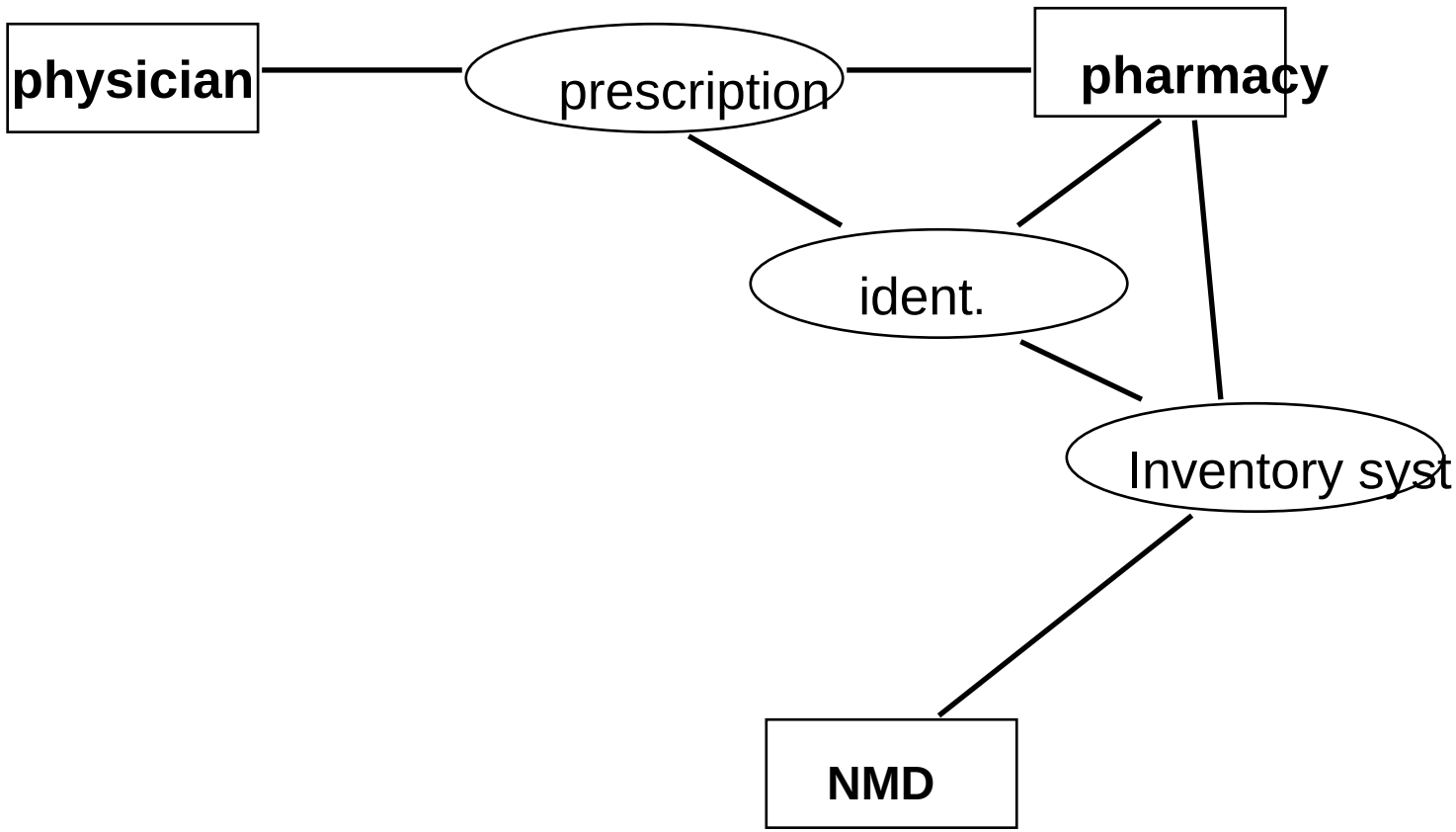

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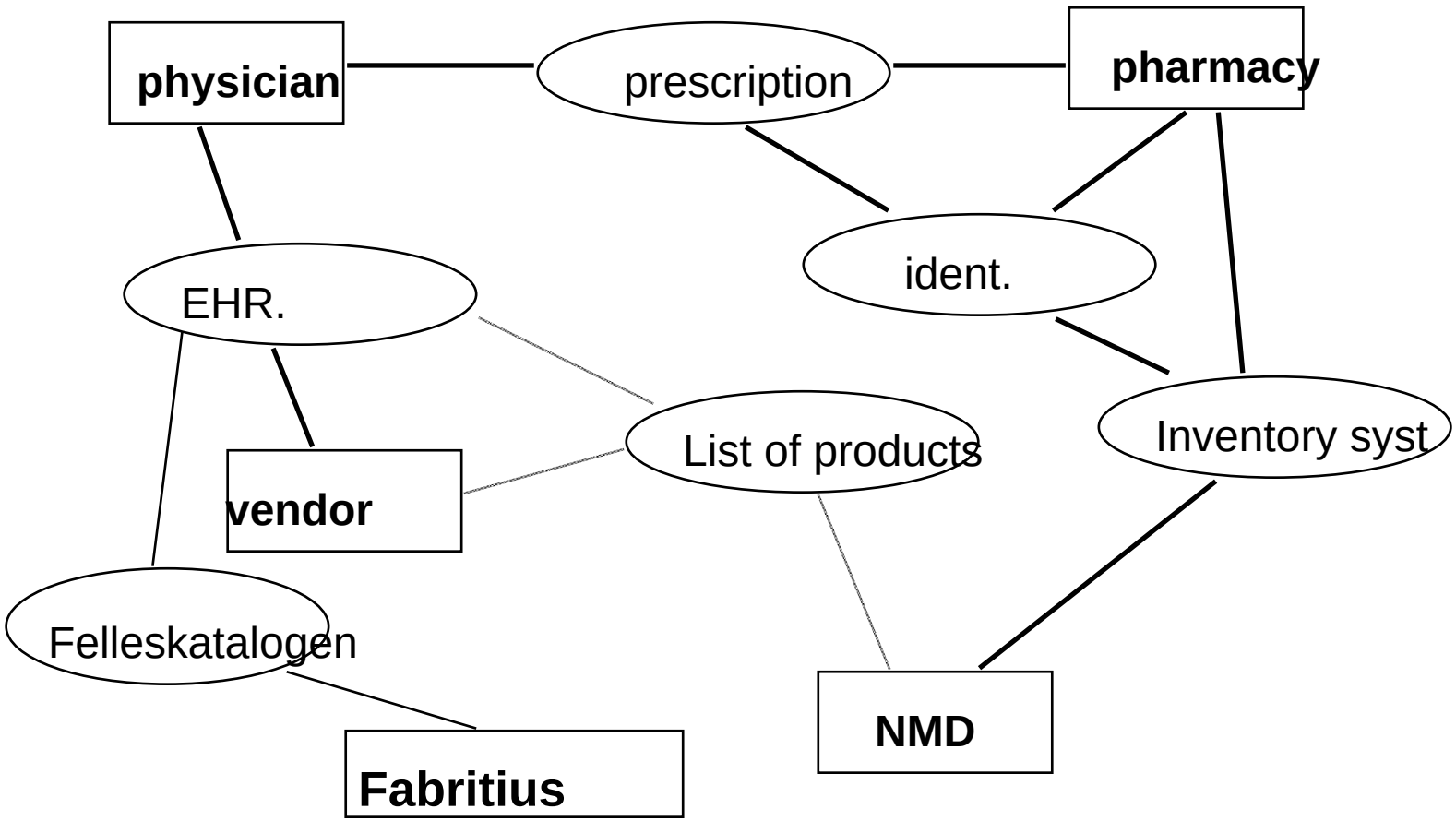


Purity and danger

- **strong, rhetorical device!**
- **socially constructed (M Douglas)**
- **danger = impurity = fragmentation**
- **”Infrastructures are clean - tidy, uniform”**

Fragmentation = dirt

“[W]e risk that the company’s information and access get fragmented (...) The Intranet market is highly fragmented today, with a number of strong competitors fighting each other with technological as well as political means. (...) For the non-specialist, this creates the impression that Intranet technology is cheap, but it is of key importance to recognise that the Intranet technology of today has it price — they require an effort to be integrated with the existing infrastructure of the company” ((SData K/RD21, IT challenges and trends 1996 - 1999)

BRA: SAP in Statoil

- **Largest in Northern Europe**
- **”main effect: new work routines”**
- **1,3 billion NOK**
- **1996 - 2001**

The espoused version

"SAP R/3 overcomes the limitations of traditional hierarchical and function-oriented structures like no other software.

[All the functions] are integrated into a workflow of business events and processes across departments and functional areas"

(www.sap.com)

Cont'ed

- **Decentralization - decisions locally**
- **young & enthusiastic vs. old & established**

"I quit when BRA got 6 levels in its hierarchy"

Nauticus: DnV

- **Survey support system**
- **300 ports , 100 countries**
- **NEEDs to be equal - ”Quality”**
- **checklists: management vs. surveyors**

Statoil: The big picture (1992 - 1998)

PES
BRU

Norne
K2000

BRA

"plan economy"

"internal market"

"new work practises"

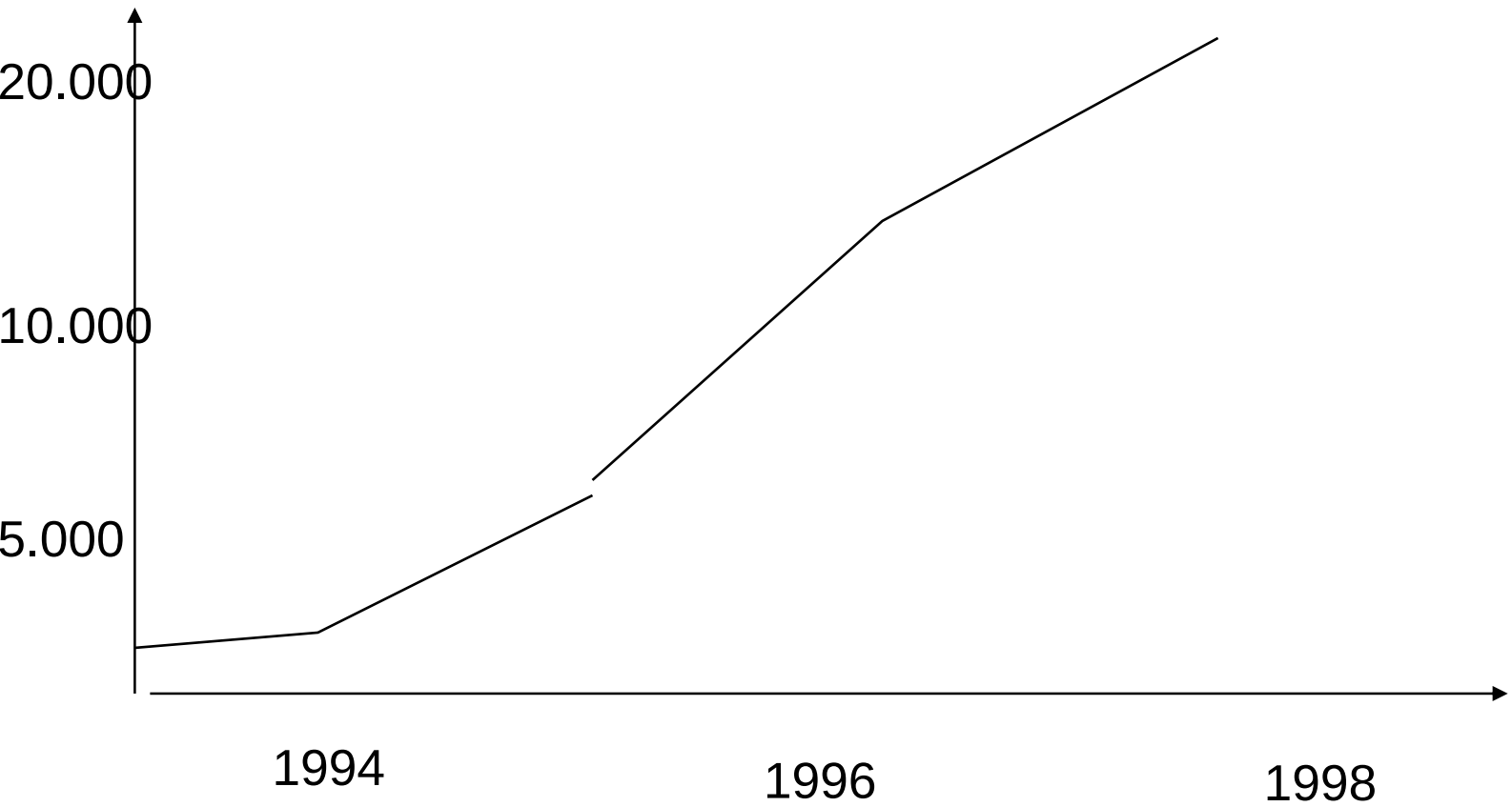
Lotus
Windosw
I-nett

Notes
in Sdata

v4.0
alignment

Domino

Ex.: Lotus Notes in Statoil



Norne

ISO 9000

$
Olje