UiO : University of Oslo

Lecture in INF5890 May 8th 2017

Critical Perspectives on Management, Governance and Control of ICT

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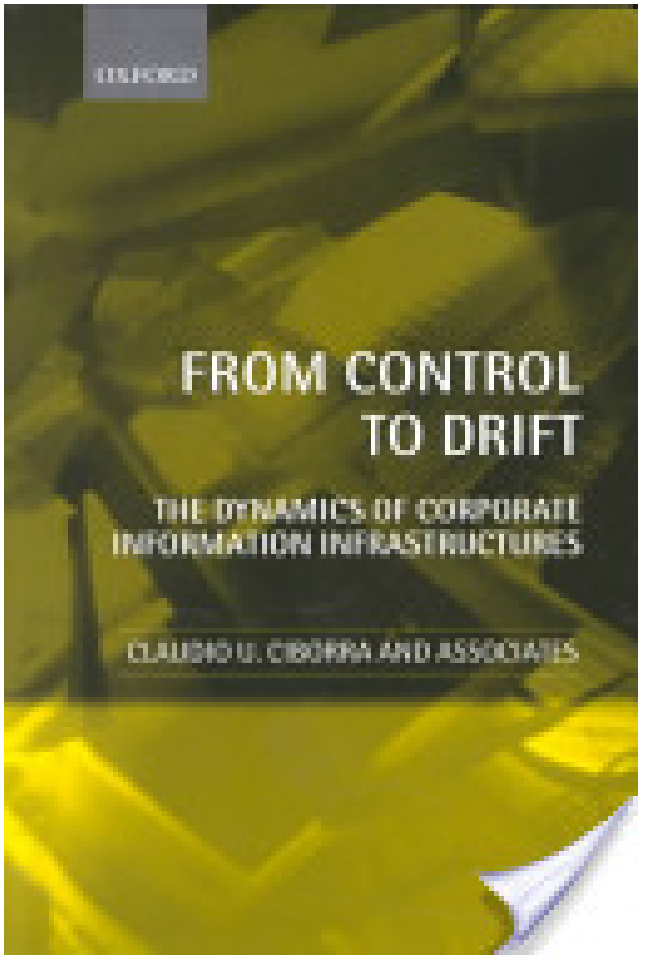
Today:

- Critique of traditional management approaches
  - Too much reliance on «command and control»
  - Alternative approaches
- Readings
  - Ciborra, C. U. (2000): “A Critical Review of the Literature on the Management of Corporate Information Infrastructure”. Chapter 2 in "From Control to Drift", Oxford University Press
  - Ciborra, C.U (2004): “Encountering information systems as a phenomenon” Chapter 1 in "The Social Study of Information and Communication Technology". Oxford University Press

Ciborra in «From Control to Drift»

Chapter 2:
A Critical Review of
the Literature on the Management
of Corporate Information Infrastructure



- Arguing against other literature on how to manage/govern the information infrastructure of a company, specifically this book:
  - Weill and Broadbent (1998): *«Leveraging the New Infrastructure. How Market Leaders Capitalize on Information Technology"*
  - They claim: IT infrastructure is an asset, manage it as other assets in your investments portfolio
  - The recommendations are «based on proven and familiar principles of financial portfolio management»

Asset: «A resource with economic value that an individual, corporation or country owns or controls with the expectation that it will provide future benefit"

- Different understandings of what «Information Infrastructures» are
  - ‘common sense’ versus theoretical notion
- The complexity of the existing IT and the interplay between IT and organization makes the information infrastructure much more complex to deal with than other assets
  - There are limitations to control-based approaches
- Central terms:
  - The «installed base»: IIs are never developed from scratch, always already exists
  - «Cultivation of installed base»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Chapter 8 (by Hanseth and Braa): "Who's in control: Designers, Managers – or Technology?

- Norsk Hydro established in 1905
- Fertilizer Division: Hydro Agri Europe
  - 19 production sites & 72 locations
- Diversification, large acquisitions, but "hands off" management (independent national divisions)
- 1992: Crisis – decided tighter integration of European divisions

Phase 1: Reengineering (without IT)

- A swift integration was planned
  - "Synergy between processes through global organizing"
- A lot of resistance in the organization, not successful
- Detected a lot of very different IT systems – decided to standardize (necessary for organisational integration)
  - Defined the "Hydro Bridge" standard
- HAE choose SAP as a company wide standard ERP system in 1994
- Implementation started in 1995 and should continue to 1999

Phase 2: SAP Implementation

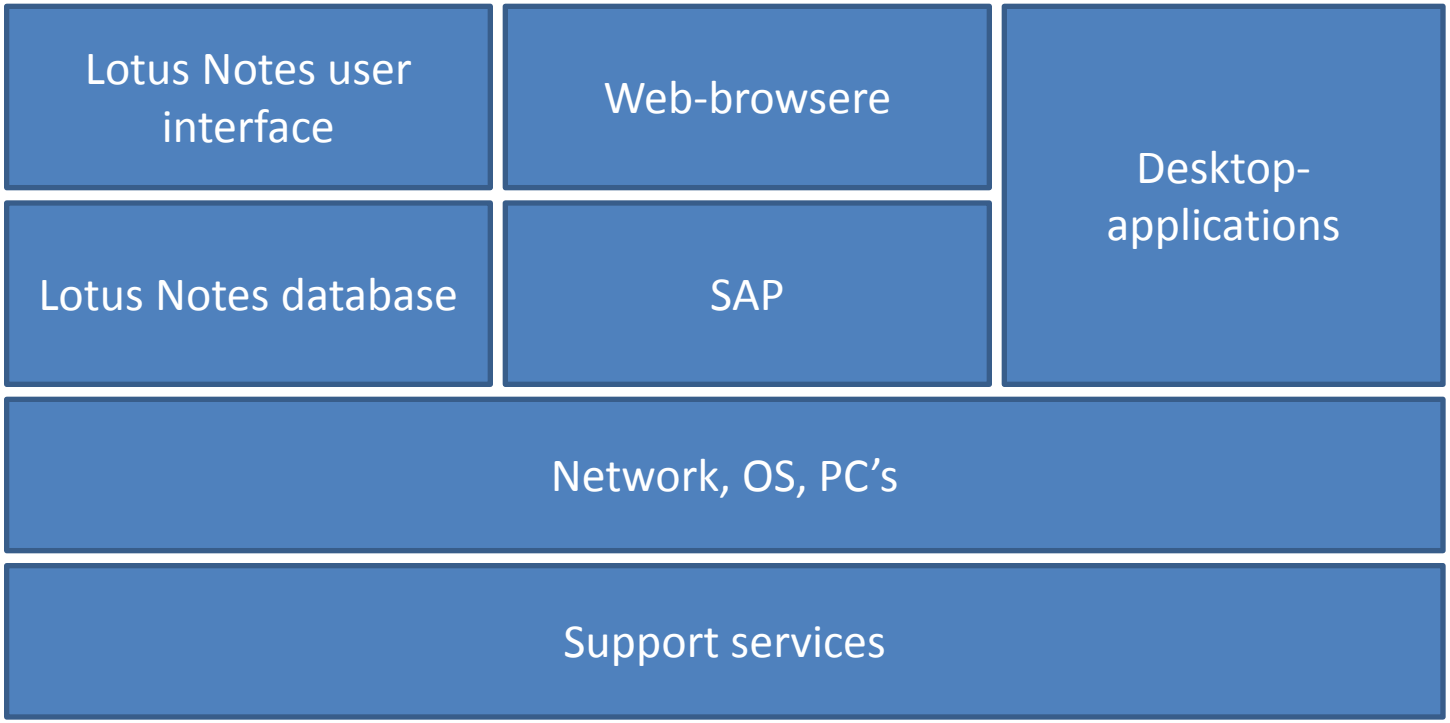
- First step:
  - Develop a common, uniform SAP installation that supports joint processes across the organisation
- Second step:
  - Shared processes -> tighter integration
- Plan: Pilot (Germany), then validation and roll-out of final version
  - More complicated than expected – pilot demanded 3 months of massive support, > 1000 issues identified, not all could be corrected in final version
- Management did achieve (via SAP) more control (through definitions of standard processes)

Phase 3: Fragmentation during roll-out

- Validation before local implementations: Lokal users involved in several regionale projects, ca. 100 participants in scandinavian project
- Fragmentation of the SAP solution
  - Different national regulation (accounting, tax, environmental impact)
  - Different market models and business cultures
- From a uniform, joint system to a heterogeneous information infrastructure
  - Customized for every division
- SAP now became the “ally” of the local divisions (resisting management’s standardization efforts)

HAE's emerging information infrastructure

- SAP installation in HAE had to be integrated with the other divisions (e.g. Oil and Gas)
- … and it had to be integrated with the underlying infrastructure and other applications
  - The "Hydro Bridge" standard
  - Lotus Notes, spreadsheets
  - Notes and web-based interfaces to SAP
- Result: not a neat, layered, but a complex, matrix formed information infrastructure



Complex –further changes may be difficult:
"SAP is like concrete, it is very flexible until it sets.
Then there is nothing you can do to change it"

Summing up the case:

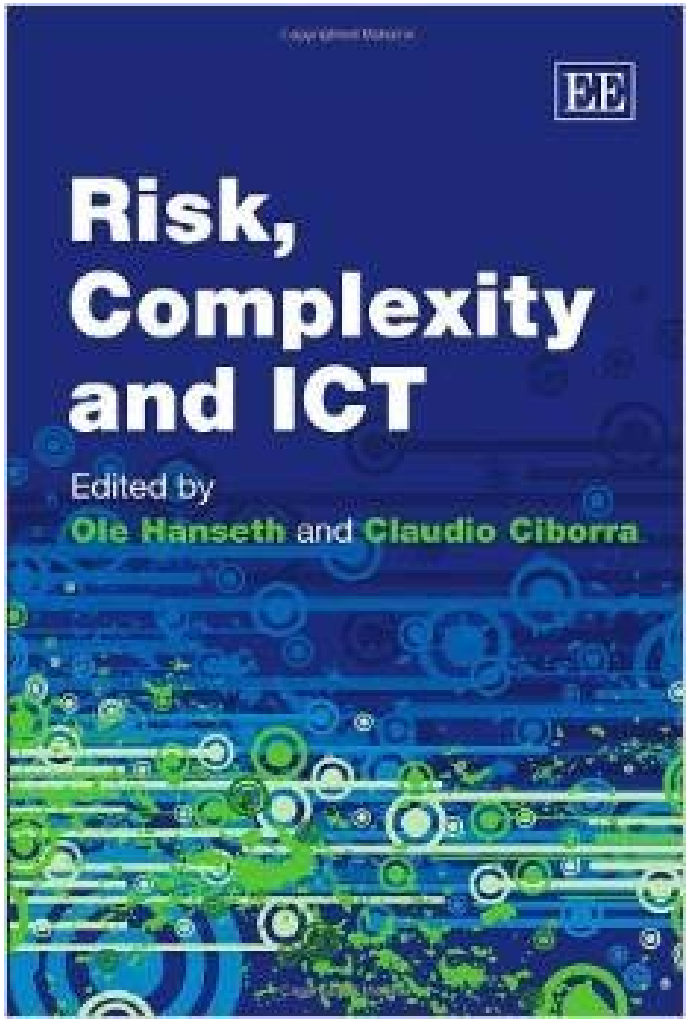
- From visions of shared, uniform system to a complex, heterogeneous information infrastructure
- The II was "***emergent***" rather than designed and planned
- Chapter title: "Who is in control? Designers, Managers – or Technology?"
  - First – SAP is the ally of top management
  - Then: the ally of the local divisions
  - Then: blocks future changes – SAP "in control"?

Alternative to control

- The «From Control to Drift» book contains cases with similar outcomes , showing the limitations (or even counter-productivity) of traditional managerial approaches (control-based)
- Alternatives to control:
  - Cultivation of the installed base:
    - Less control (the plant must grow)
    - Less detached control, more involved «care»
    - Selection based on proven results (learning process)

Similar argument:

- Ole Hanseth and Claudio Ciborra:
- «Risk, Complexity and ICT»
- Focus: integration
  - Solution or problem?
- Increased integration -> increased risk



NORSK HYDRO

SMOOTH UPGRADE TO SAP® ERP WITH HELP FROM SAP CONSULTING

"The quick upgrade evaluation service and the upgrade coach helped us save time and ensure the project ran smoothly. But the biggest value was up front, providing management with the security of knowing that the project would be successful."

Ole Reiersen, Project Leader, Norsk Hydro ASA

QUICK FACTS

Company
- Name: Norsk Hydro ASA
- Location: Oslo, Norway
- Industry: Mill products
- Products and services: Aluminum and aluminum products
- Revenue: ~US$34.9 million
- Employees: 25,000
- Web site: www.hydro.com
- Implementation partner: SAP® Consulting

Challenges and Opportunities
- Take advantage of functionality available in the current release of SAP enterprise resource planning (ERP) software
- Ensure supportability in the future

Objectives
- Upgrade to the SAP ERP application

Why SAP
- Norsk Hydro's long history of success with SAP applications
- SAP's proven upgrade technology
- The SAP consultants' up-to-date knowledge of SAP software

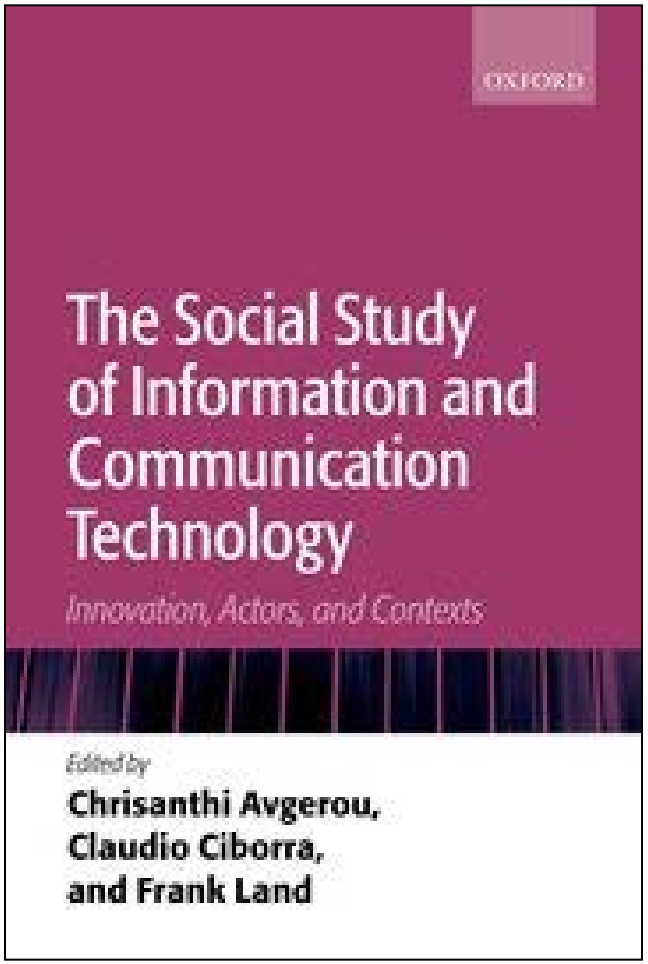
Benefits
- Confidence that schedule and budget would be met and that issues would be handled expeditiously
- Implementation time savings
- Enhanced functionality
- Assurance of long-term support

Existing Environment
Earlier version of SAP software

Naturally, managers and consultants tend to downplay challenges and emphasize achievements. But what about researchers? Do we need to «go deeper»?

The second reading

- Ciborra, C.U (2004): "Encountering information systems as a phenomenon"
- A methodological argument: how to approach (study, understand, deal with) these phenomena?



Some quotes:

- «Managers… lack the words to describe… the unexpeced consequences, serendipitous occurrences, and emergent, disappointing features of the new technological systems… A key reason for managers' bafflement and uncertainty lies in the ungrounded expectations created by widely used managerial and consulting models… The vacuity and boastfulness of these promises should not fool anyone...The recommendation is: 'more command and control'»

Argument

- We need to think differently about IT than what managerial/consultant approaches advocate
- Phenomenology (Husserl, Heidegger):
  - «go back to the basics and enounter the world as it presents itself in our everyday experiences»
  - «rely on evidence, intuition, and empathy»
  - In «the murly world of informal, worldly, and everyday modes of operations and practice, It is the realm of hacking, practical intelligence,…, the shortcut and the transgressions…»

With a phenomenological lense we might see that:

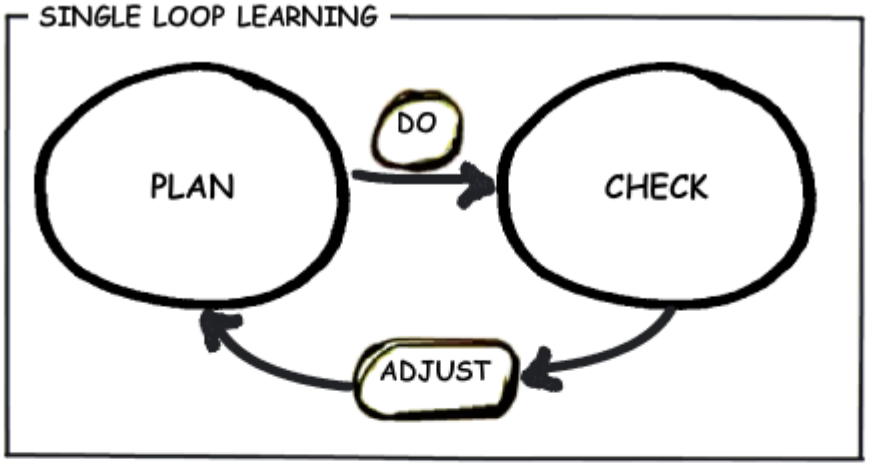
- Technology tend to surprise us when it is put into use
  - «drift» as metaphor
- Implementation requires ongoing work
  - «care» as metaphor
- Technology doesn't evolve according to rational implementation plans
  - «cultivation» as metaphor (bricolage, improvisation)
- Technology comes with promises and threats
  - «hospitality» as metaphor

Other points in Ciborra (2000)

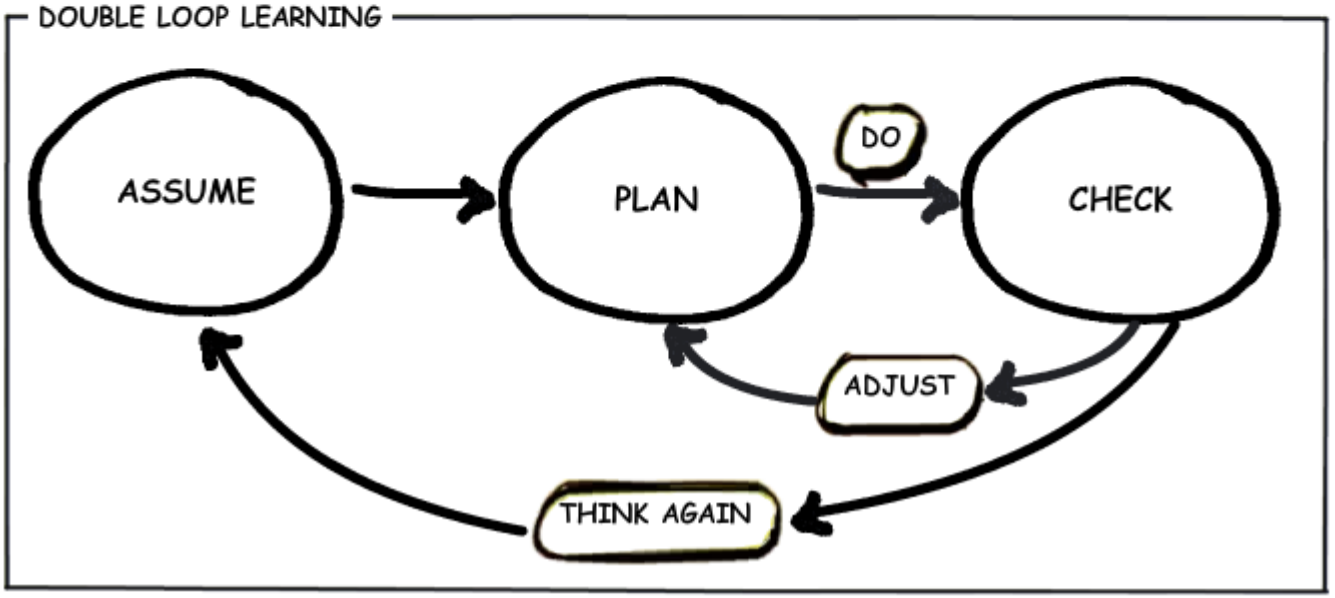
- Tensions/differences between:
  - Formulation and implementation
  - Espoused theory versus theory in use
  - Single-loop learning or double-loop learning
  - Management politics vs. politics of non-humans

Challenging assumptions

Traditional managerial approach (Deming)



Double loop learning (Argyris)



Why double loop?

Organisational complexity → analytic processes not sufficient, exploration required

Rapid technological change → new affordances, new potentialities, constraints continuously relaxed

Striking a balance between global and local – planned and emergent – short term and long term

How to handle the challenge

Governance vs project management vs maintenance

Creating a common basis for: operating logics, technology principles, socialisation processes, distribution of decisions

Timeboxing (projects) only when relevant and realistic in close relationship with maintaining – cultivating

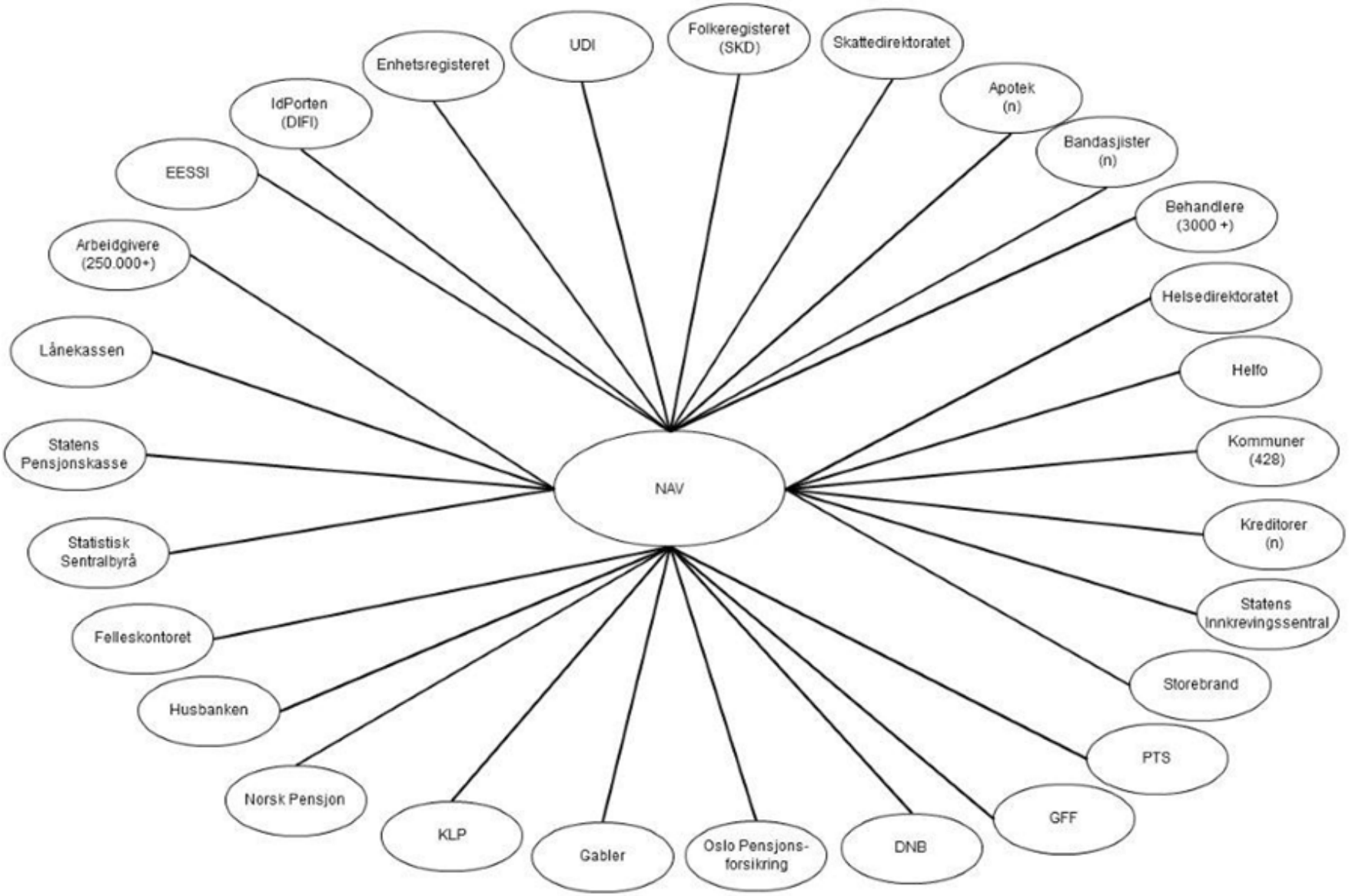
Projects are good for monitoring and managing but they create a sense that IIs can be compartmentalised

Example: NAV

- Social insurance/benefits, social welfare, employment (2006 merger)
- Administers 1/3 of national budget (<320 billion NOK/year), 30 mill. transactions/year
- >19000 employees
- NAV ICT:
  - Runs > 300 applications
  - 425 employees
  - + ca. 200 consultants
  - ICT renewal projects

NAV's ICT renewal projects

- Projects: (2012 numbers)
  - Arena: 225-300 mill. NOK (over six years)
  - Infotrygd: 150-210 mill. NOK (over six years)
  - New «vedtaksløsning»: 340-460 mill. NOK (over seven years)
  - Self service solution: 350-460 mill. NOK (over seven years)
  - Info-platform/resource- and production mng: 260-360 mill. (seven years)
  - Agreement for customer side: 600-850 mill. NOK (over six years)
- 15-20 years' perspective (3,3 billion NOK)



Some of the external parties that NAV systems communicate with

Progress with ICT renewal:

- Work planned from 2010, initiated in 2012
- Project 1, 2 and 3
  - Project 1: 1,75 bNOK allocated
  - Spring 2013: Halted – to be «re-organized»
  - Prioritized disability pension reform 1.1.15
  - Estimated losses: 110-170 mill. NOK
- Increased overall costs ~ 1,5 bNOK (?)
- Parliament hearings
  - November 28th 2014 and February 2nd 2015

«in hindsight we see that we were too ambitious, and that we did not realize the complexity of harmonizing the new platform with the existing solutions»

Etter et halvt år og 700 millioner kroner satte NAV-direktør Joakim Lystad foten ned for moderniseringe av etatens IT-plattform.

Politikk og samfunn (/nyheter/politikkSamfunn/)

Nav stanset IT-prosjekt etter å ha brukt 700 mill.

Falt tilbake på å bruke det mest moderne av de gamle systemene istedenfor.

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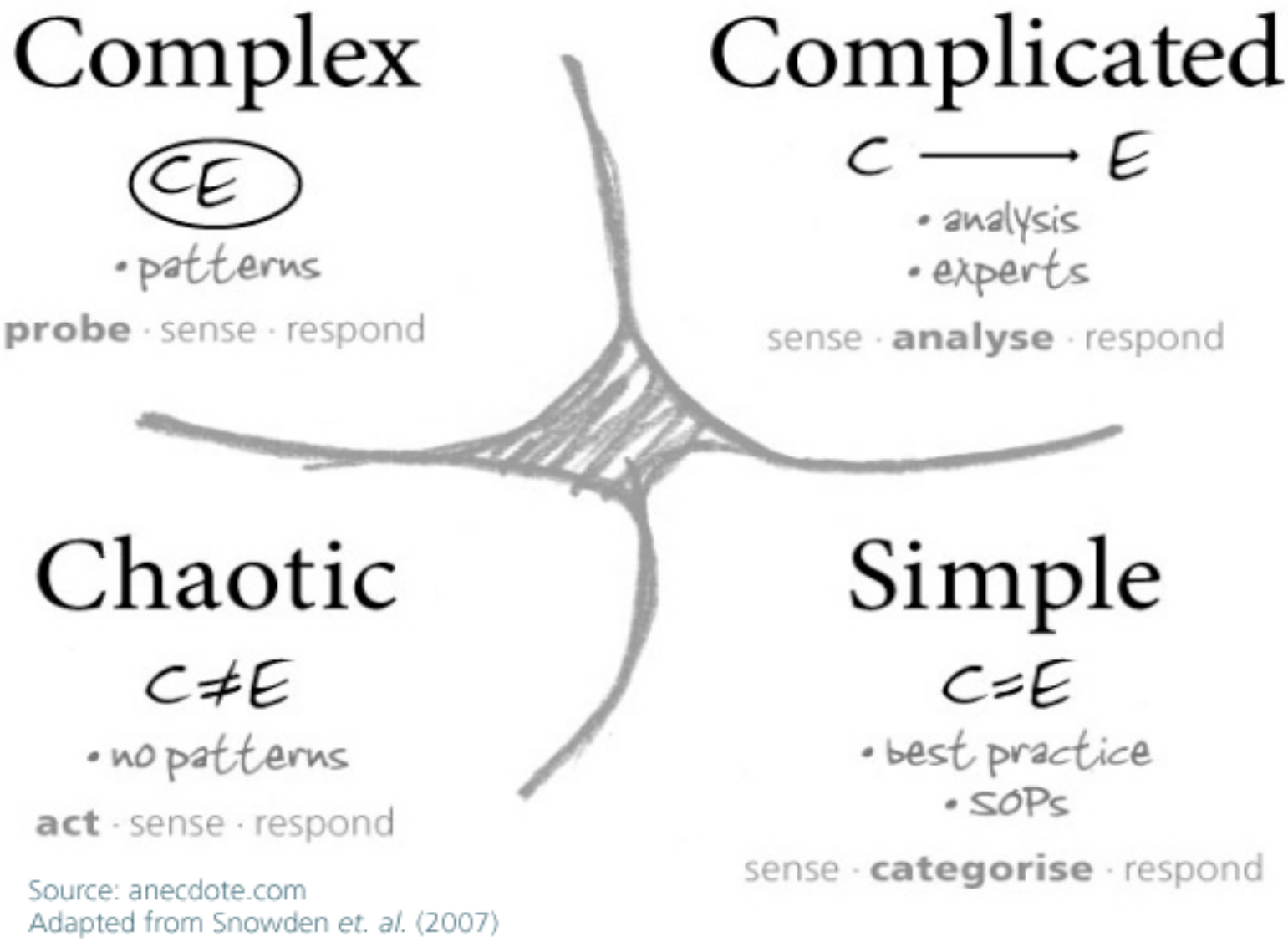

("The Cynefin framework")