Open Source Software Acquisition

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Research approach

Research question:

How do government institutions and commercial organizations decide on software acquisition in the case of open source software?

Research approach:

- Literature study
- Case studies
- Suggested framework
- Quantitative study

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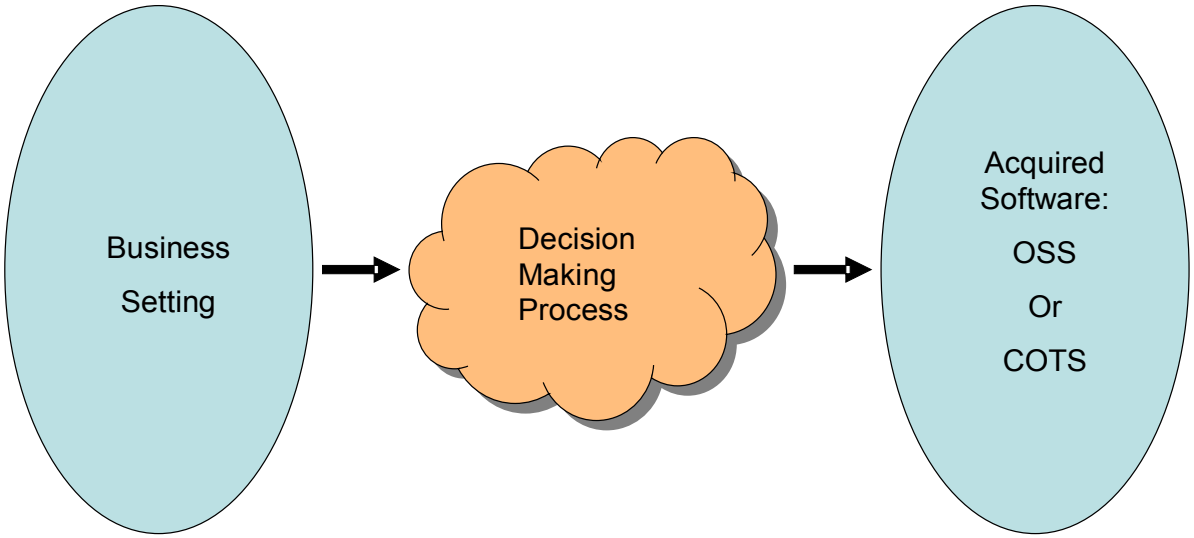
Our focus



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Case studies

Organization	Time	Interviewees
POG	April 2004	Head of production support, lead systems engineer
DME	May 2004 and January 2005	Vice CIO
CBA	April 2004	IT director
DLS	April 2005	CIO, infrastructure and operating systems manager, system specialist
APH	June 2003, May and December 2004.	CIO and OpenOffice project manager

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Educational institution

- 700 employees, 17,000 students, 500 mio. DKK turnover
- Non-adopters of OSS, except for educational purposes
- Focus on efficient and effective administration and support
- Large parts of systems developed by Danish Ministry of Education
- Substantial discounts from vendors (Microsoft)
  - No major savings from OSS
- Major drawbacks
  - Lack of vendor support (older versions)
  - Compatibility problems
  - Poor support from 3rd party vendors
- Choosing the “safest course”

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POG

Scandinavian company in Petrol, Oil and Gas industry

- 1,200 employees, 19 billion DKK net revenue
- Slowly adopting OSS for back-office
  - Linux, Samba, OpenLDAP, DHCP, ...
- Key motivators
  - Better performance
  - Open standards
  - Avoiding vendor lock-in
  - Reduced cost
- Problems
  - Hard to find consultants, commercial support
- Good experiences
  - Fast and good support from OSS communities
  - Better infrastructure

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DME, Center for Informatics

Central IT department for DME

- 30 employees, service 2,400 staff, 75 million DKK budget
- Cut down: 17% expenses, 25% staff
- Goal of standardizing across institutions
- Declined Microsoft Software Assurance programs, stayed with Microsoft Office 97 and Outlook 98
- Led to situation with “all options open”
- Analyzed “future scenarios”:
  - Microsoft Office and OpenOffice similar in relation to switching costs, user training, external support
- Arguments for OSS:
  - Low acquisition costs, vendor independence, open source
- Arguments against OSS:
  - Interface to mail system, existing documents, outside partners
- Too risky, compared to expected annual savings of 2 million DKK

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Danish Lottery Services

80% owned by Danish state, national lottery monopoly

- 270 employees, 95 IT staff, 9 billion DKK turnover
- Very dependent on high-quality, reliable systems
- Few, highly specialized vendors
- OSS “contrary to every principle DLS ever had” - no contracts, licenses, certificates
- New Internet game site, chose Betware as vendor
- Betware wanted to migrate from BeOS to Linux and Jboss
  - Proved successful, lived up to expectations
  - Betware provides support, situated at DLS
- Now Linux considered as candidate platform for other servers
- “No concerns whatsoever” with more Linux servers

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Irish hospital

Irish hospital (Fitzgerald & Kenny, 2004)

- Migration to OSS, both servers and desktop
  - StarOffice, Zope (CMS), Dicom (X-ray), Jboss/Tomcat (application server), Apache (web server), ...
- Key motivator
  - Cost savings
- Problems
  - Staff, fearing deskilling
- Enablers
  - Adaptable key staff
  - Scalability and stability of OSS applications
  - Almost identical look-and-feel

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Landesrechnungshof

Landesrechnungshof Meckelburg-Vorpommern (Müller 2004):

- Migration from outdated Microsoft-based environment to Linux and OpenOffice
- Key motivators:
  - Cost, triggered by changes in support and license policies
  - Need for document and software standards
- Problems
  - User skepticism (partly overcome by installing OSS on home computers)
  - Lack of user and administrator qualifications
  - Exchange of Microsoft Office documents
  - Finding the best Linux distribution and programs
- Enablers
  - Limited number of applications

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Comparing the cases

	CBA	DME	POG	DLS	APH
Sector	Public	Public	Private	Private	Public
Industry	Education	Environment	Petroleum	Gaming	Health Care
Employees	700	2,400	1,200	270	2,200
Employees, IT Department	7	30	14	95	15
Employees / IT staff	100	80	85.7	2,8	146.6
Turnover per employee	Low	Low	High	High	Low

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Comparing the cases

	CBA	DME	POG	DLS	APH
IT environment in the organisation	Homogeneous	Homogeneous	Heterogeneous	Heterogeneous	Heterogeneous
Tasks of the IT Department	Maintenance Customisation	Maintenance Customisation	Maintenance Customisation Application Development	Maintenance Customisation	Maintenance Customisation
IT Strategy/ IT Policy	None	None	None, but vision driven IT decisions	Yes, but open for experiments	Yes

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Comparing the cases

	CBA	DME	POG	DLS	APH
Origin of OSS initiatives	IT Department	IT Department	Users / IT Department	Vendor	IT Department
Initial requirements for acquisition of OSS	• Product quality • Support quality	• Cost Savings	• At least the same level of support as for commercial applications	• Product quality	Cost savings End-user acceptance

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Comparing the cases

	CBA	DME	POG	DLS	APH
Arguments for or against OSS acquisition	• Architecture • Subjective or non-substantiated judgments	• Formal methods • Architecture • User attitudes analysis • Anti-sympathy towards Microsoft Monopoly • Subjective or non-substantiated judgments	• Architecture • Anti-sympathy towards Microsoft Monopoly • Subjective or non-substantiated judgments	• Cost savings • Security • Scalability • Proof of concept	• Cost savings • Preparing open standards platform

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7C model

- Commercialization: OSS as a business case
- Cost of ownership: TCO, financial appraisal
- Compatibility: IT architecture and standards
- Control environment: Governance structure and style
- Customers: End-user acceptance
- Change management: Facilitation of future business processes
- Conviction: Preferences, dominating logic

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OSS investment based on a business case

Traditionally based on

- Analysis of industry, competitors, market segments, alternative products and services
- Internal resources, project organization, budgets
- Cost-benefit analysis, direct and indirect cost and benefits
- Financial and non-financial features

Traditionally neglecting

- Investments in infrastructure, shared resources
- Architectural view, interoperability, standards, security

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OSS investment based on financial appraisal

Traditionally based on TCO, ROI

- Several case studies with different sponsors and results
- Very hard to do
- Relevance?

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OSS investment based on change of architecture

IT architecture:

- Organizing logic for data, applications, infrastructure
- Captures policies, relationships, technical choices
- To achieve business and technical standardization and integration
- Balance between efficiency and flexibility
  - Component / service architectures
  - Reliable modular services

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OSS investment based in IT governance

Software and hardware organization:

- Local, distant, outsourced services

Distinguish between

- Infrastructural and strategic applications

Governance archetypes

- Business Monarchy (CEO)
- IT Monarchy (CIO)
- Federal (distributed IT)
- Duopoly
- Feudal

OSS put new demands on governance:

- Internally
- Relation to OSS networks

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OSS investment based on user evaluation

Technology acceptance model, adoption determined by:

- Perceived usefulness
- Perceived ease of use

Case studies show:

- IT staff promoting OSS back-end adoption
- “Ordinary users” sceptical or resistant

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OSS based on change management approach

- IT investments as consequence of business transformation
- OSS very similar to COTS

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OSS investment based on conviction

Subjective evaluation:

- “Act of faith”, “gut instinct” ...
- Not wanting to spend time and resources on meticulous analyses
- “If you choose IBM / Microsoft, you won't be blamed”
- “We don't like monopolies (except our own)”

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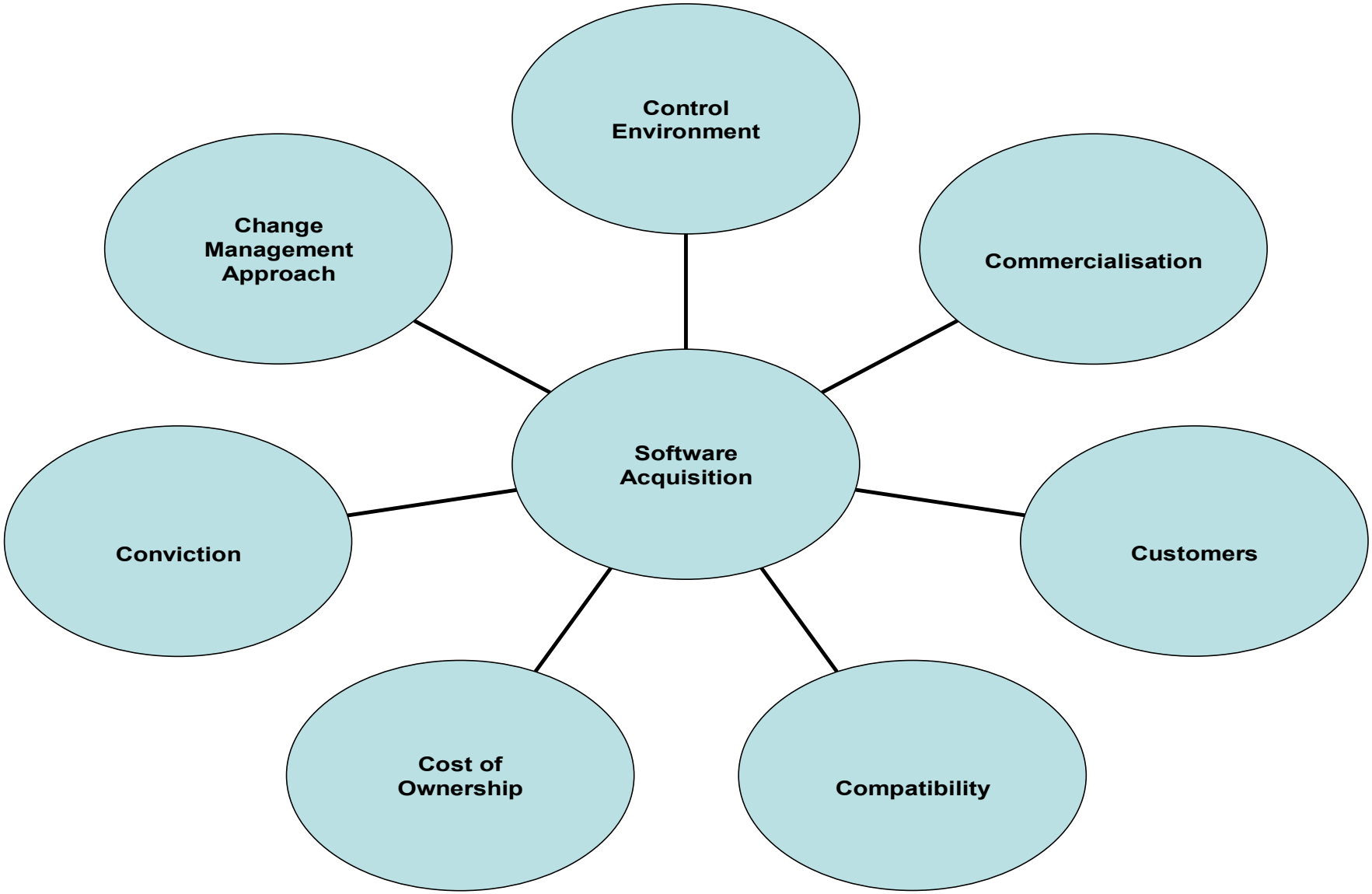
7C model



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Questions, conclusions

Consequences for OSS “vendors”?

The question of “Why / why not OSS?” has no simple answer

Need for further, quantitative studies