

Towards a Core Model for Higher Education IT Management Benchmarking

Contents

1. Research background
 - Why Research this?
 - Four Projects, same goals
2. Data Comparison
 - Potentially Comparable
 - Unlikely Comparable
3. Process Comparison
 - Similarities in Processes
4. European-Wide Benchmarking
 - Cooperating Organisation

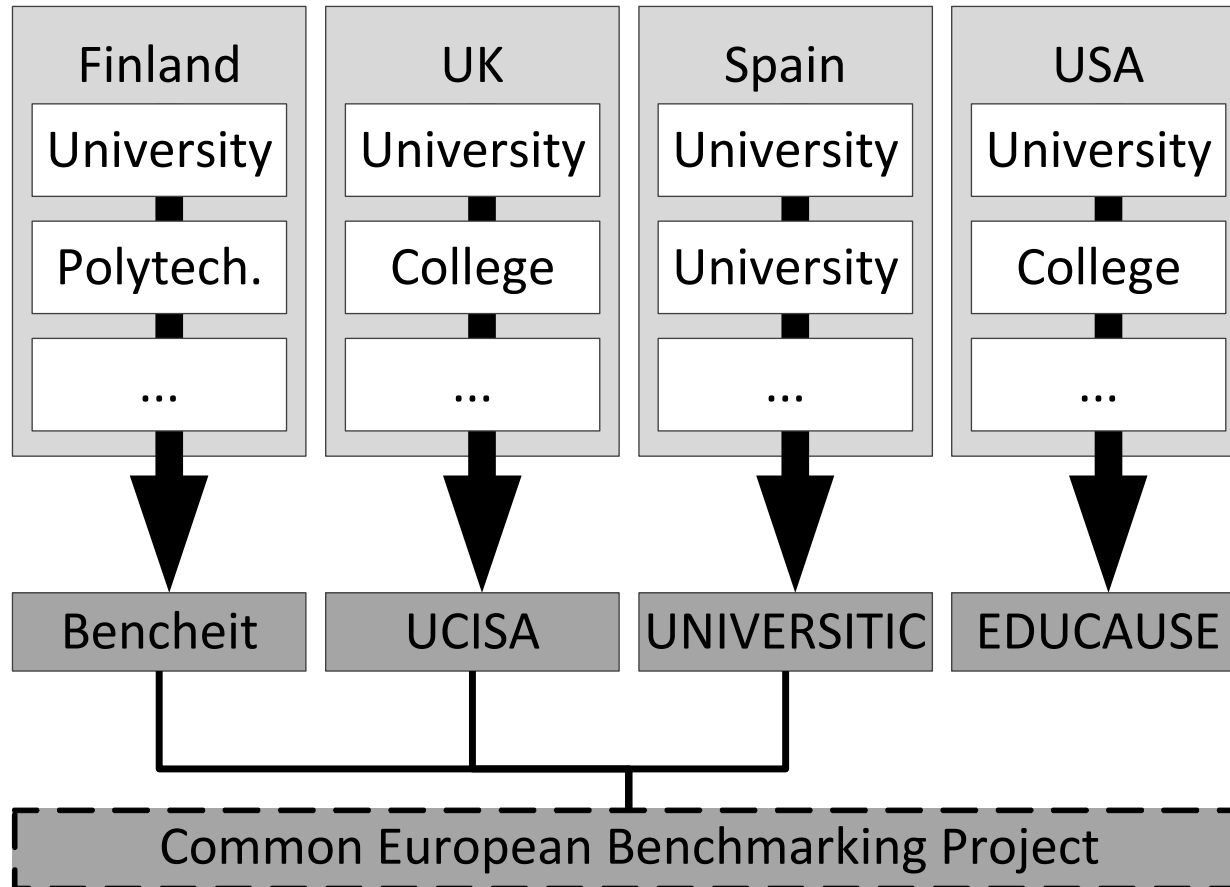
1. Why Research This?

- Higher Education is international
 - Universities want the best students regardless of nationality
 - IT managers need tools to assess their organisations' performance
 - Traditional metrics not necessarily IT-related
 - Number of publications, endowment, alumni salaries...
- IT benchmarking is national
 - Direct comparison between HEIs in other countries is not possible
 - Comparison of IT benchmarking projects not previously done
- Joint European project planning requires background information

1. Research Questions

- Q1: What similarities, common factors, and notable differences are there among four established higher education IT benchmarking projects in various European countries, regarding data and its manipulation processes?
- Q2: Based on main similarities and major differences of these four projects, what kind of European-wide higher education IT benchmarking project is feasible?

1. Participating Projects



1. Basic Background Information

Project	Bencheit	UCISA	UNIVERSITIC	EDUCAUSE
Country	Finland	United Kingdom	Spain	United States
Starting Year	2011	1996, renewed in 2009	2006	2005, renewed in 2010
Frequency	Yearly	Yearly	Yearly	Yearly
Scope	Finland and some partners abroad	UK HEIs	Spanish universities	American HEIs, open for internationals
Coverage*	88% (36/41)	50% (70/140)	89% (65/73)	Nearly 1000 participants
Funding	Founding HEIs	Self-funded	Partnerships	Self-funded
Cost	Free of charge	Free of charge	Free of charge	Free of charge
Modularity	None, some in testing	Two tiers	Three parts	12 separate modules

* The coverage is the number of participating HEIs per the maximum possible participants in their area of operation. Not available for EDUCAUSE.

2. Data Comparison Framework

- Comparison of indicators in six different areas
 1. Indicator Categorisation
 2. Personnel Composition and Costs
 3. Hardware Composition and Costs
 4. Software Composition and Costs
 5. Distributed IT
 6. Best Practices

2. Potentially Comparable Themes (1/2)

- Amount of students and staff
 - FTE and absolute used - convertible?
 - Often available from official sources for verification
- Total costs
 - Staff
 - “Other”
- Volumes
 - Absolute numbers of workstations, servers, data networks
 - Open source usage
- Budgets
 - Totals
 - Breakdown by function common, depth and style varies

2. Potentially Comparable Themes (2/2)

- Some indicators can be compared by streamlining the categorisation
 - Depth and categorisation of indicators vary
 - IT units (network team, helpdesk, etc.)
 - Staff costs
- Outsourced services
 - Portion of outsourcing in entire budget
 - Classification by resource common
- Distributed services
 - Are we content with simply centralised/distributed classification?

2. Unlikely Comparable Themes

- Best practices
 - Not universally benchmarked
 - Designed to be specific to an environment
 - Usually indicators that do not yield direct numeric data
- Organisational learning
- Specific non-streamlined cost categories
 - Electricity consumption, cloud services

2. General Notes on Data Comparability

- After careful selection many indicators can be deemed “similar enough” to compare
 - Error tolerance?
- Leads to a patchy coverage of indicators
 - Not necessarily in the best interest of information users
- Full coverage impossible
 - Requires new forms of cooperation

3. Process Comparison Framework

- Comparison of four different benchmarking process areas
 - Synthesis from theory
1. Purpose and Goals
 - 2. Data Collection, Validation, and Analysis**
 - 3. Documentation, Communication, and Feedback**
 - 4. Reporting and Member Retention**

3. Data Collection, Validation, and Analysis Methods

- Web interfaces common for collection
 - Bencheit: custom Excel sheet, collaboration web workspace
 - UNIVERSITIC: kti4u web interface
 - EDUCAUSE: proprietary web interface
 - UCISA: Vovici web based survey, collaboration web workspace
- Some automated validation implemented
 - Zero elimination
 - Year-to-year comparison
 - Manual checks by dedicated members
- Analysis done mostly by hand, especially in small projects
 - Web interfaces do preliminary summaries
 - Excel sheets contain analytical formulae

3. Documentation, Communication, and Feedback

- Basic instructions very good
 - Personal assistance available in smaller projects
- Some advanced documentation available
 - Manuals and extensive indicator catalogues in English
- Meetings seen as crucial in Europe
 - Additionally email lists, web collaboration platforms
- Every project collect appropriate feedback
 - Utility, ease, time, problems
 - Usually once a year
 - Web surveys

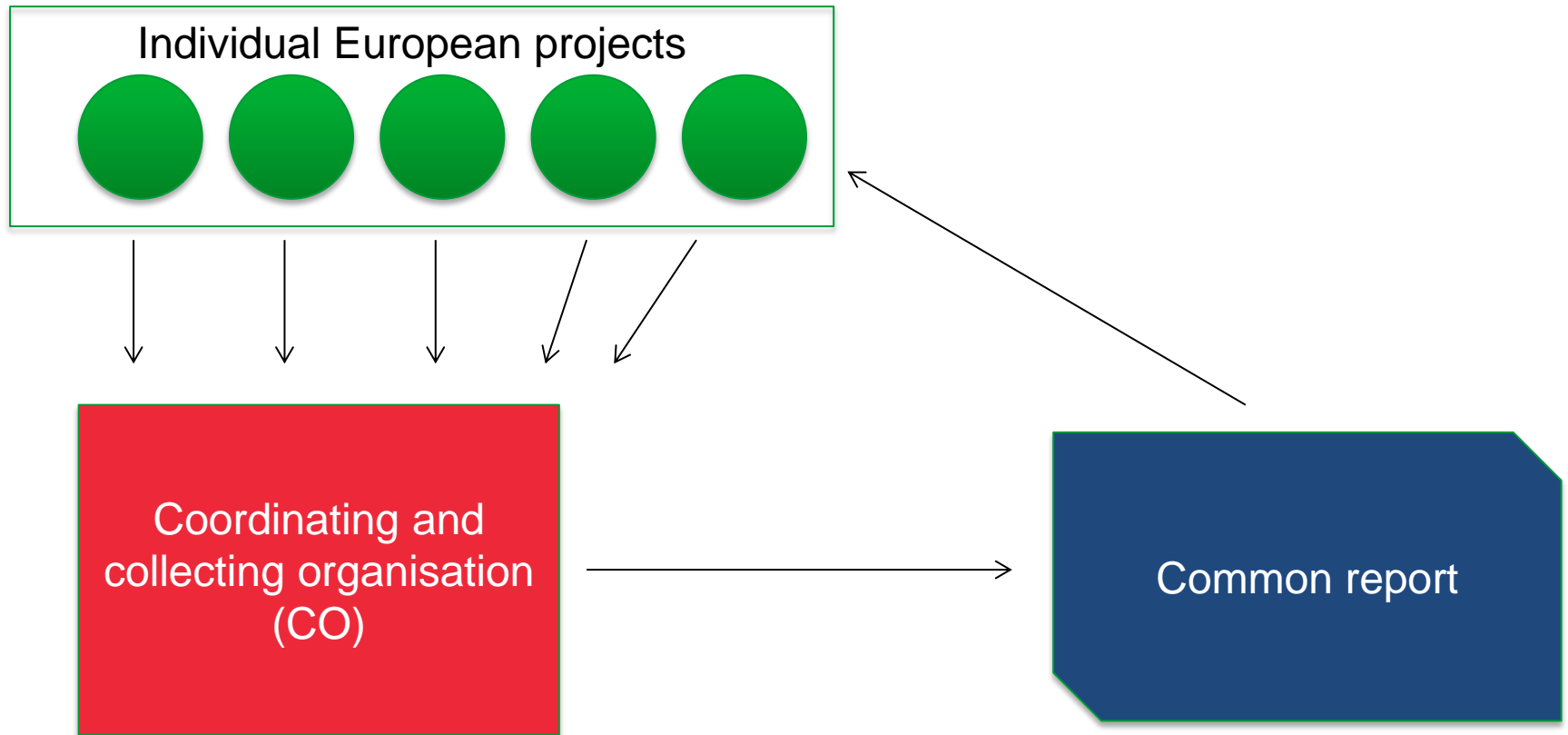
3. Reporting and Member Retention

- Published report depth varies greatly
 - No official reporting to full-depth yearly catalogues
- Member retention not seen as an issue
 - Specific steps to retain members rarely taken
 - “Business as usual” benchmarking

4. European-Wide Benchmarking

- Directly combining projects not feasible
 - Discontinuing existing projects
 - New organisation, indicator catalogues
 - Language issues
- Cooperation Organisation (CO)
 - Individual projects submit their data through a streamlined system to the CO
 - CO collects, verifies and analyses the data
 - CO prepares a common report based on agreed guidelines
 - Member projects review and accept the report for their own use
 - Aggregated data available for all members

4. Coordinating Organisation Illustrated

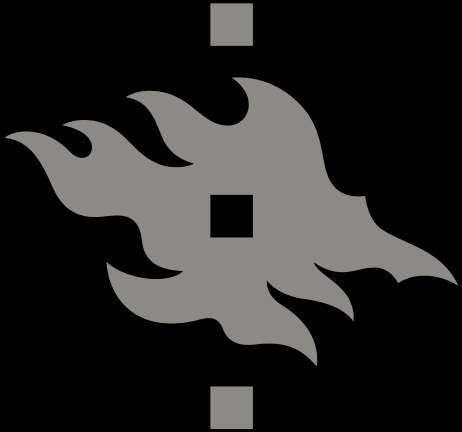


4. Issues Requiring Further Study

- Management
- Funding
 - Participation fees
 - Institutional funding (EU, national schemes)
 - Partner companies
 - Commercial activity
- Legal considerations
- Data openness
- Language
- Currency unit

4. Summary

- Data indicators have similarity in basic level, but advanced benchmarking features have differentiated the projects
- Data collection, verification and analysing processes are different in each project, but considerable similarities exist
- Comprehensive organisation model for the CO warrants further study
- Level of acceptance for a CO among existing benchmarking projects is unknown



Benchmarking university IT

CIO Ilkka Siissalo, University of Helsinki

ilkka.siissalo@helsinki.fi



What is benchmarking?

Identifying best practises

- Common practise in commercial companies
- Measuring volumes: no. of people, machines, volume indicators of storage, no. of servers etc.
- Costs: Total cost of IT, cost per workstation?
- Why??
 - top management likes you if you do it 😊
 - risk analysis
 - missing opportunities??



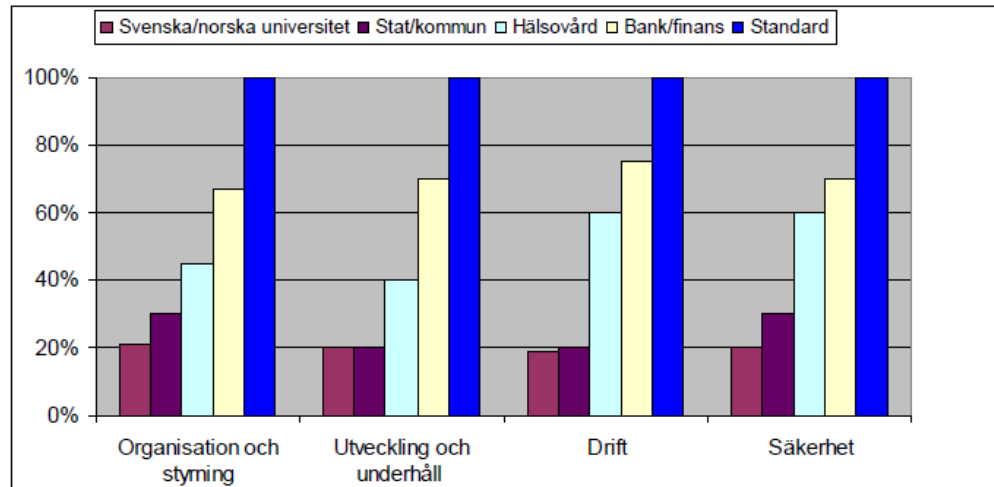


Old Swedish/Norwegian benchmarking

- High expectations – risk analysis – attempted comparison with commercial companies, state and communes

Granskning kvalitet IT-processer

Kvalitetsgranskningen genomfördes genom en bedömning av kvaliteten inom fyra huvudprocesser och totalt 33 delprocesser. Resultatet per huvudprocess redovisas i nedanstående figur och resultatet per delprocess redovisas i kapitel 4.

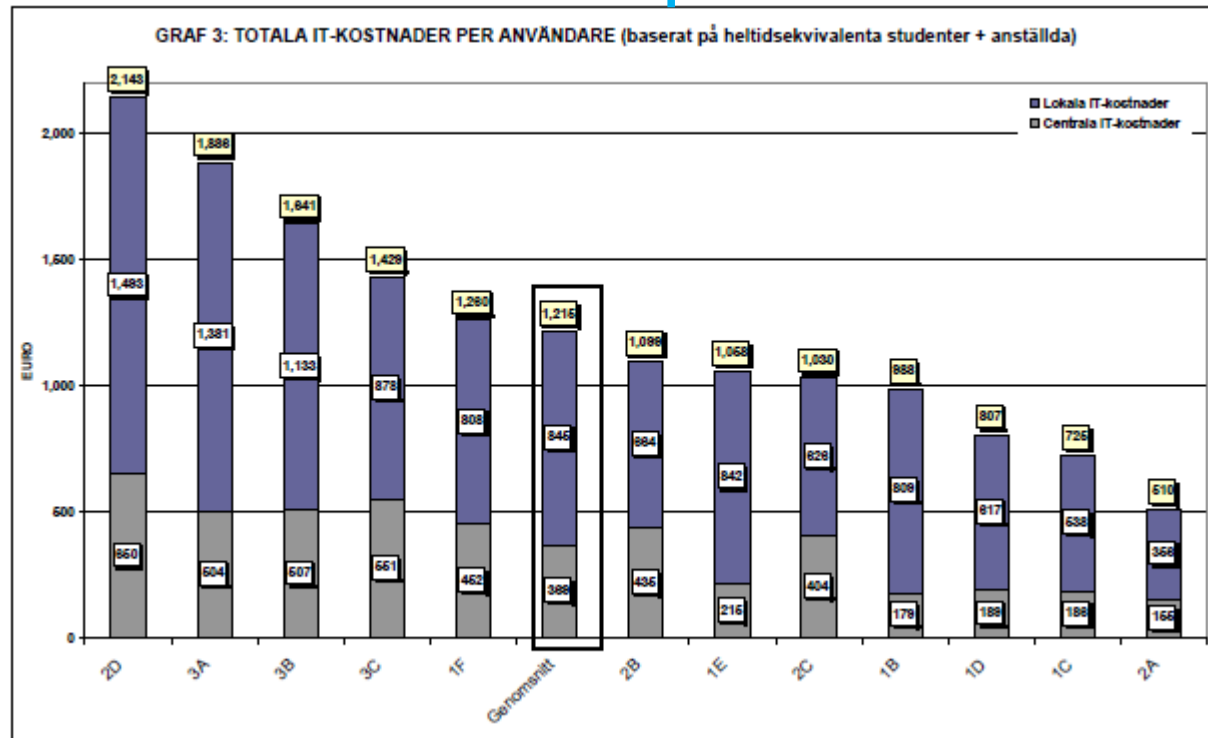




Old Swedish/Norwegian benchmarking

- Costs were shown without indication to which university was which

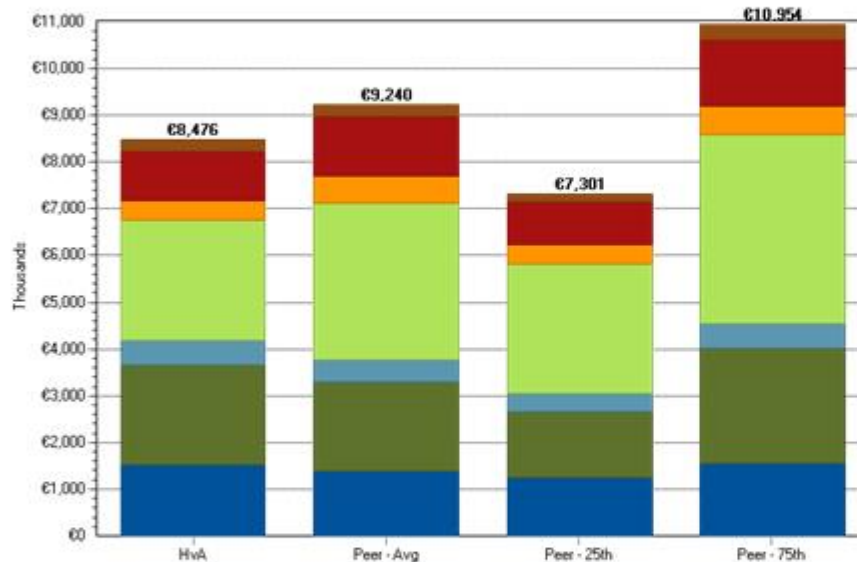
Be open – YOU benefit !!





There are commercial players who do this also... e.g. Gartner

Overall cost levels are 8% below the costs Gartner finds in the market;



- Unix and Wintel have higher cost levels
- Client & Peripherals, IT Helpdesk and Data networking have lower cost levels

	HivA	Peer - Avg	Peer - 25th	Peer - 75th
Total Applications	€1,523	€1,396	€1,246	€1,563
Compute	€2,138	€1,921	€1,406	€2,441
Storage	€522	€471	€394	€539
Client/Peripherals	€2,575	€3,353	€2,760	€4,051
IT Help Desk	€413	€566	€437	€616
Data Networking	€1,057	€1,279	€902	€1,400
Enterprise Telecom	€248	€264	€154	€343

© 2009 Gartner, Inc. and/or its affiliates. All rights reserved. Gartner is a registered trademark of Gartner, Inc. or its affiliates.



Comparison with companies?

We tried in 2007 a commercial benchmarking
...and learned a lot

- comparison data from commercial companies was interesting in many cases – but we did not know which companies they were -> relevance??
- we found out many areas for improvements
- ...and were surprised to see that we were actually doing pretty well and that there were no major differences



Key learnings

- BM has to be repeated
 - preferably every year
- expensive investments cause fluctuation
- This CANNOT be done with questions made for companies
- ...and it should not be done by sending out questionnaires to 100+ institutes / university
- The most useful data is often the simplest – like total costs, key differences in volumes
- focus on centralisation of IT and standardisation
 - Being small = being expensive





Bencheit - Benchmarking higher education IT

Yvonne Kivi
University of Helsinki

BM2012: Coverage

- Participants from Finland, Sweden, Estonia
Denmark, Norway, Germany
 - Universities: Finland 12, Sweden 2, Estonia 1,
Denmark 1, Norway 2, Germany 1
 - Universities of applied science: Finland 20
- Institutes of very different sizes, from 1000
students to 24000, or 2 IT FTE:s to 340.
- Find a similar organisation to compare with

Principle of total openness

You join in and give your data =
You get everybody else's data

Participants have the right to view data of any other participating HEI.

Data ownership is not given to a commercial company

Tools needed

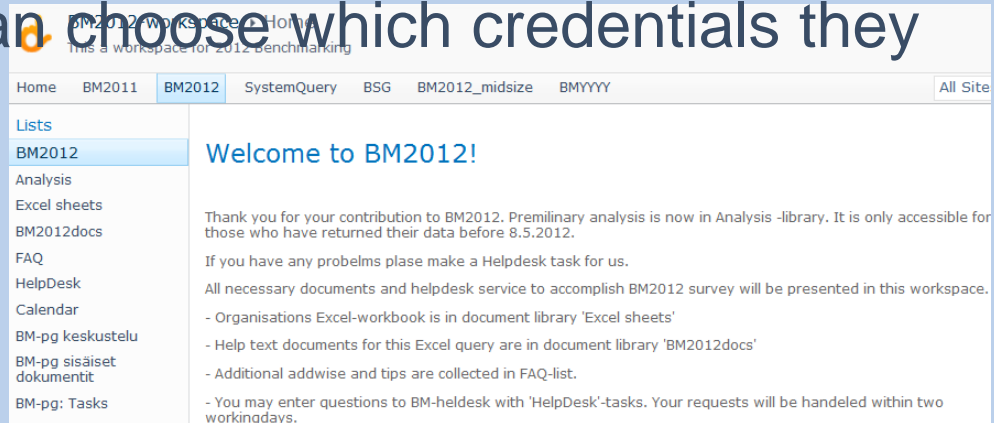
- Excel 2010
 - Both the survey form and the report

IT-costs (without VAT) and personnel grouped according to three dimensions: Service and SubService (blue rows), Account group (columns)

		Grand total	Hardware €	Software €	Staff €	Facilities €	Outsourcing €	Other acc. group €	Staff
Help on/off: press +/-	Grand total	33 519 640 €	4 898 385 €	3 301 073 €	17 736 024 €	2 268 486 €	2 551 577 €	2 764 094 €	350
Service	Sub Service	Organisation Level							
	Infrastructure	6 500 283 €	1 639 551 €	81 060 €	4 122 463 €	453 550 €	203 659 €	0 €	73,
	IT-centre	3 112 017 €	439 332 €	79 249 €	1 947 705 €	442 072 €	203 659 €		34,
	Other centralised	2 341 983 €	155 747 €		2 174 758 €	11 478 €			39,
	Distributed	1 046 283 €	1 044 472 €	1 811 €					
	Unspecified org.level	0 €							
	Workstations, client and peripherals	8 455 846 €	1 945 677 €	962 086 €	3 730 826 €	1 070 149 €	30 976 €	716 131 €	80,
	Workstations	7 723 659 €	1 930 482 €	961 226 €	3 730 826 €	1 070 149 €	30 976 €	0 €	80,
	IT-centre	5 911 137 €	250 694 €	958 782 €	3 601 252 €	1 069 432 €	30 976 €		77,
	Other centralised	301 761 €	222 415 €	2 443 €	76 499 €	403 €			1,
	Distributed	1 510 761 €	1 457 372 €		53 075 €	314 €			1,
	Unspecified org.level	0 €							
	Printing and other peripherals	717 504 €	512 €	861 €	0 €	0 €	0 €	716 131 €	0,0
	IT-centre	264 716 €	512 €					264 204 €	
	Other centralised	88 193 €						88 193 €	
	Distributed	364 594 €		861 €				363 734 €	
	Unspecified org.level	0 €							
	Unspecified peripherals (sum.level)	14 683 €	14 683 €	0 €	0 €	0 €	0 €	0 €	0,0

Tools needed

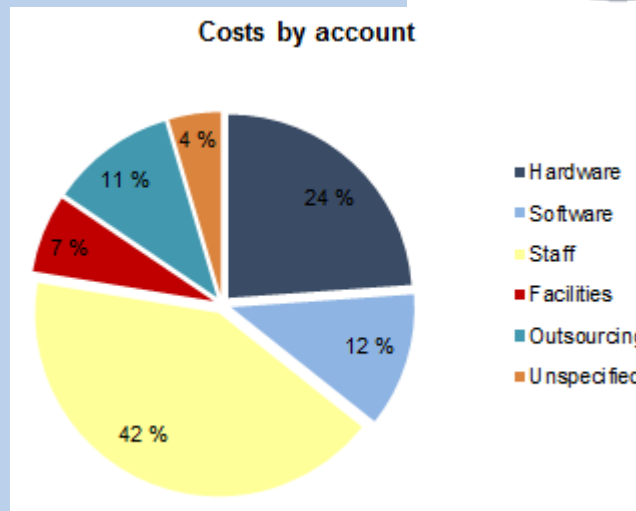
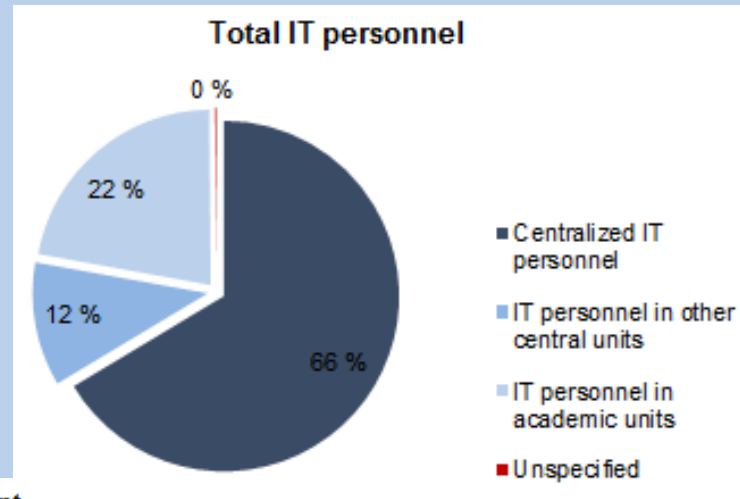
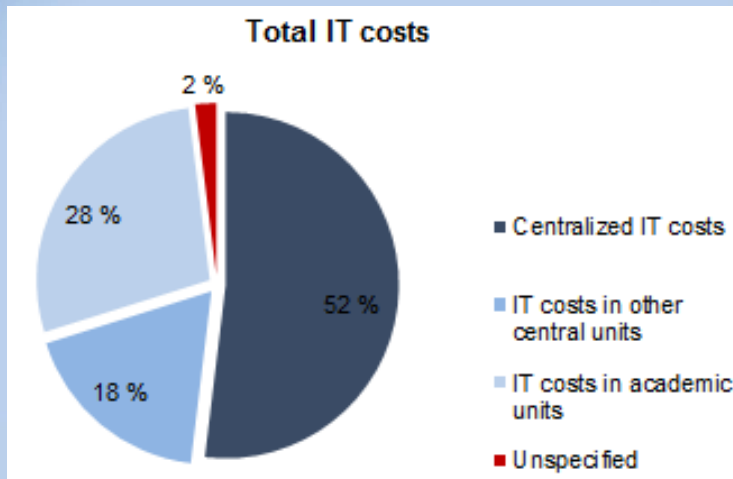
- Google, Windows Live ID or Yahoo account
 - To sign in to...
- Eduuni, a collaboration platform based on SharePoint <http://www.eduuni.fi/>
 - Access rights can be applied to email addresses
 - Everyone can choose which credentials they want to use



Questions

- Background information about your HEI
- Costs and FTE per account group and organisational level, e.g.:
 - How much money does the IT-center spend on workstation hardware?
 - How much does the distributed IT spend on staff costs for audiovisual services?
- Volumes, e.g.:
 - Number of data centers
 - Number of IT classrooms
 - Number of network printers

Results: Average of all universities

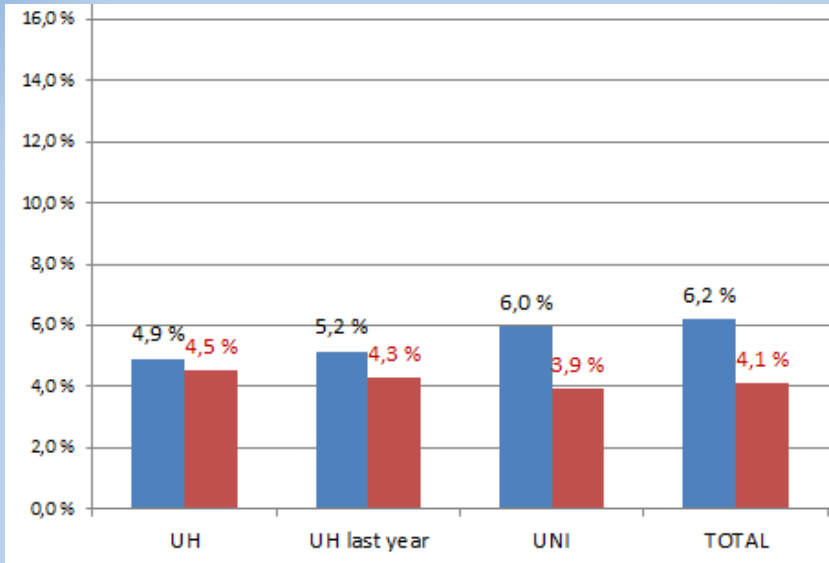


Feedback and improvements

- 75% said they understood the terms easily and the survey form in Excel was flexible
- Over 50% feels that it is hard to find the data needed, but almost 90% are confident that the data is accurate
- An average of 10-11 working days was spent on filling in the survey
- Everyone agreed that the CIO summary is useful

IT share of budget and staff

Example: University of Helsinki



Blue: IT share of budget
Red: IT share of staff

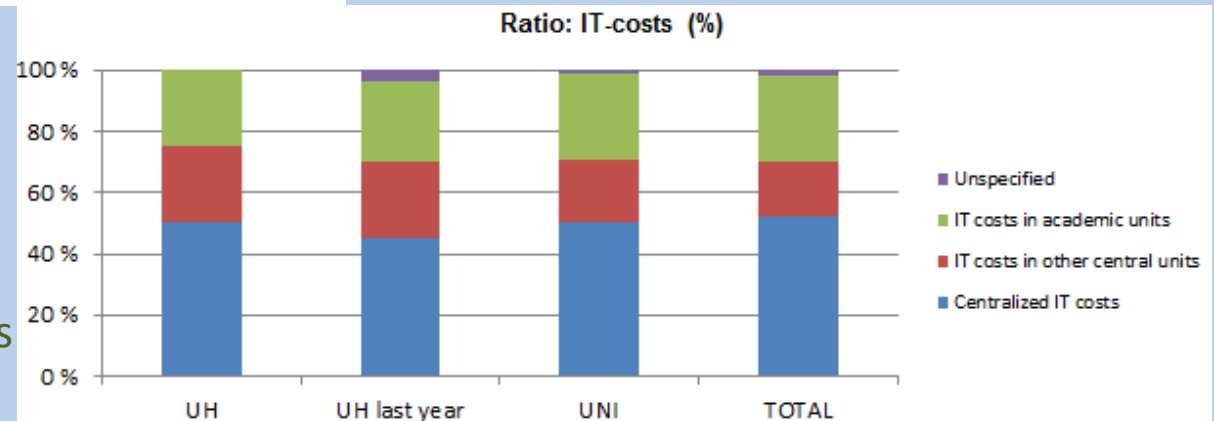
Centralisation:

Blue: centralised IT

Red: other centralised

Green: IT in faculties

Purple: unspecified

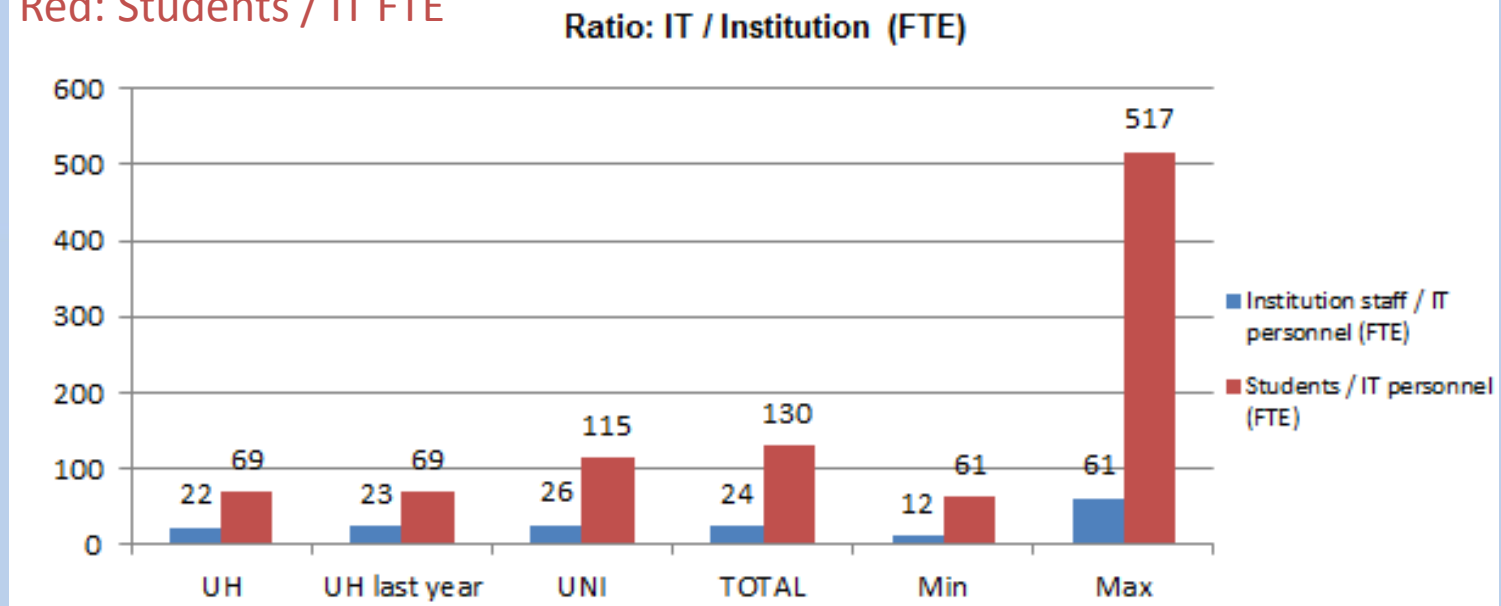


Number of students and staff / IT FTE

Example: University of Helsinki

Blue: Staff / IT FTE

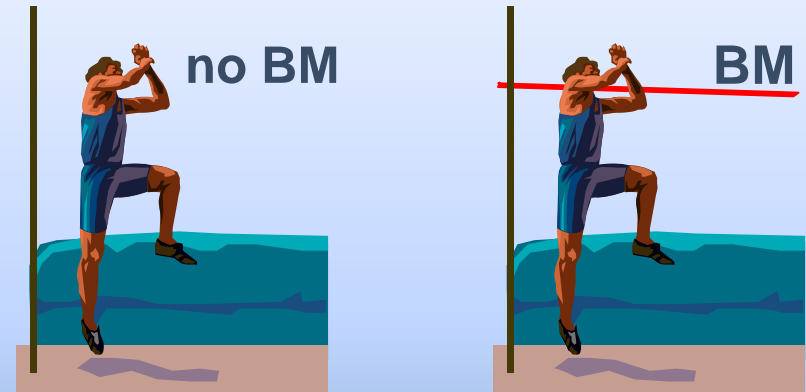
Red: Students / IT FTE



How to participate

- Email us at bencheit@bencheit.info
- Visit us on www.bencheit.info

BM2012 Survey



How high do jump ?

“About indicators - What is the average number of fingers in a hand of your employee?”

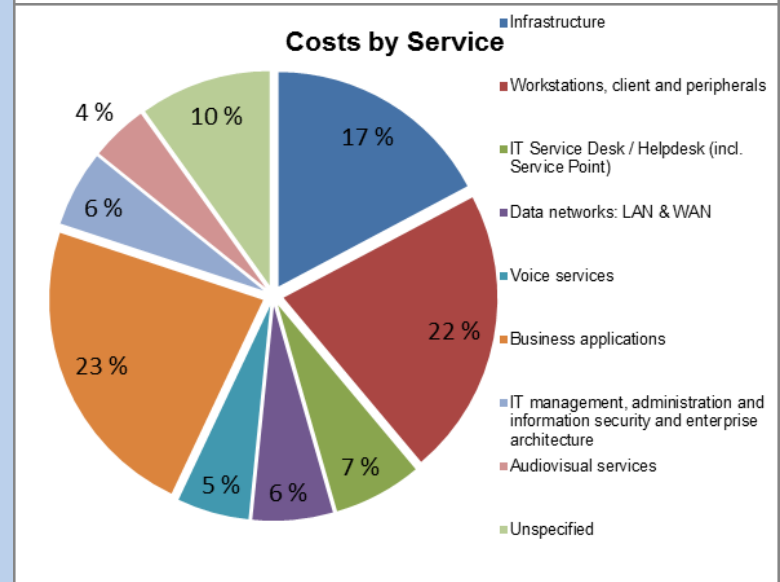
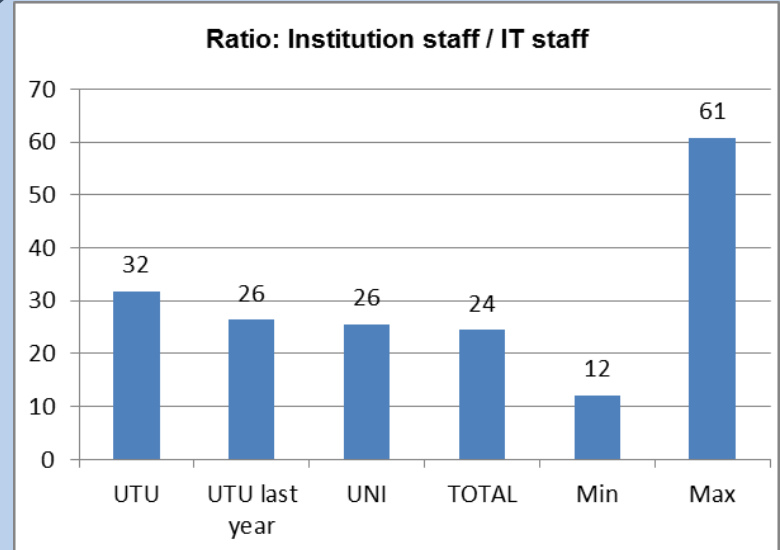
Teemu Seesto
University of Turku, Finland



Eunis2013 conference, Riga, Latvia

BM2012: “Indicators?”

- 22 calculated indicators e.g.:
 - IT Costs / Student FTE
 - IT Costs / Staff FTE
 - IT Costs / User account
 - Costs per organisational level
 - Total staff / IT Staff
 - Students / IT Staff
 - Workstations / Staff FTE



BM2012: “*Indicators*”

What do you use/need?

- Continuous indicators*

	2011	2012		
Workstations in personal use / Staff FTE	1,77	1,85		
Workstation costs / Workstation / Year	227€	233€		
	Min	Avg	Median	Max
IT costs/ Institution budget*	4,1 %	6,2 %	6,4 %	12,2 %

- Indicators for ad-hoc purposes*

- Cloud service maturity stage
- Eduroam coverage
- Usage of grid computing

Benchmark 2012

Thank you!

Teemu Seesto

IT manager

University of Turku

Finland

teemu.seesto@utu.fi

Bencheit: <http://www.bencheit.info>

Benefits of Benchmarking in University of Tartu

Marti Taremaa



The University of Southern Denmark

- a short introduction

SDU facts

Established 1966. Merger of 4 partners in 1998.
Another 6 mergers since.

5 faculties: Engineering, Science, Health Sciences,
Humanities, Business and Social Sciences

6 campuses – Odense is the main campus

Income, 2012: 351 mill. EUR

Academic staff, FTE, 2012: 1,973

Technical and adm. staff, FTE, 2012: 1,445

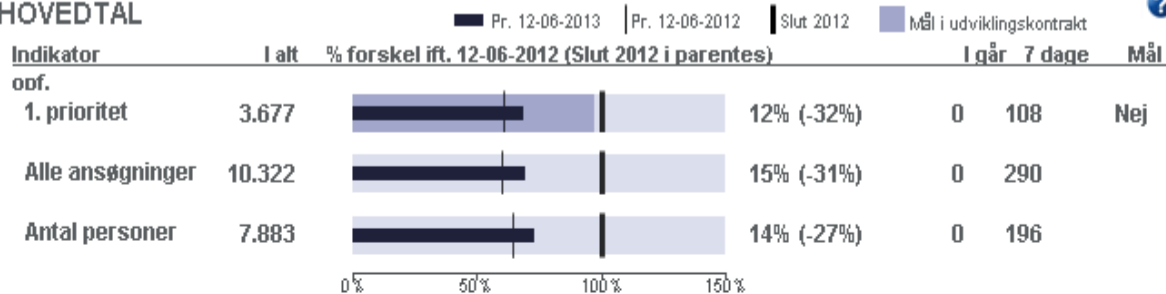
Students, no (oct. 2012): 26,034
(of which from other countries: 4,104)

Programs, no (bachelor + master): 222
(of which in English: 81)

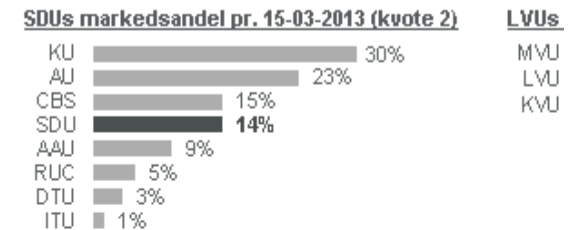


SDU facts

HOVEDTAL

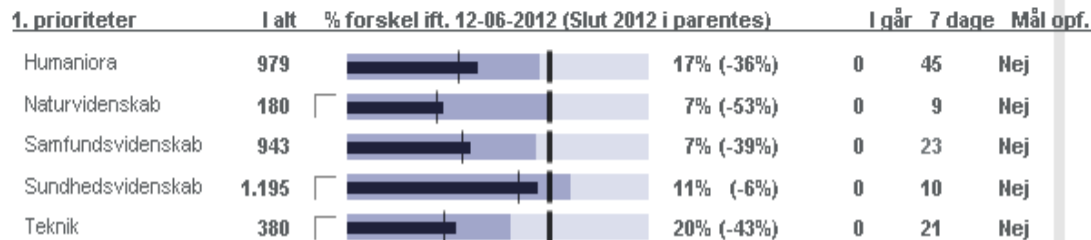


AKTUELLE SEKTORTAL

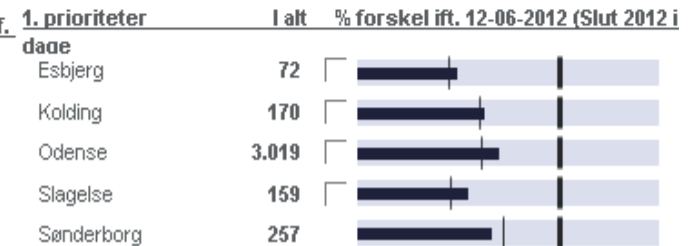


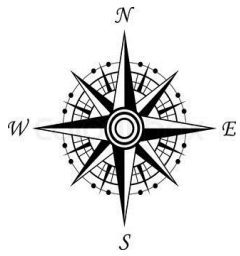
*Målt på antal 1. prioritetsansøgninger pr. 15. marts 2013. Å

FAKULTET

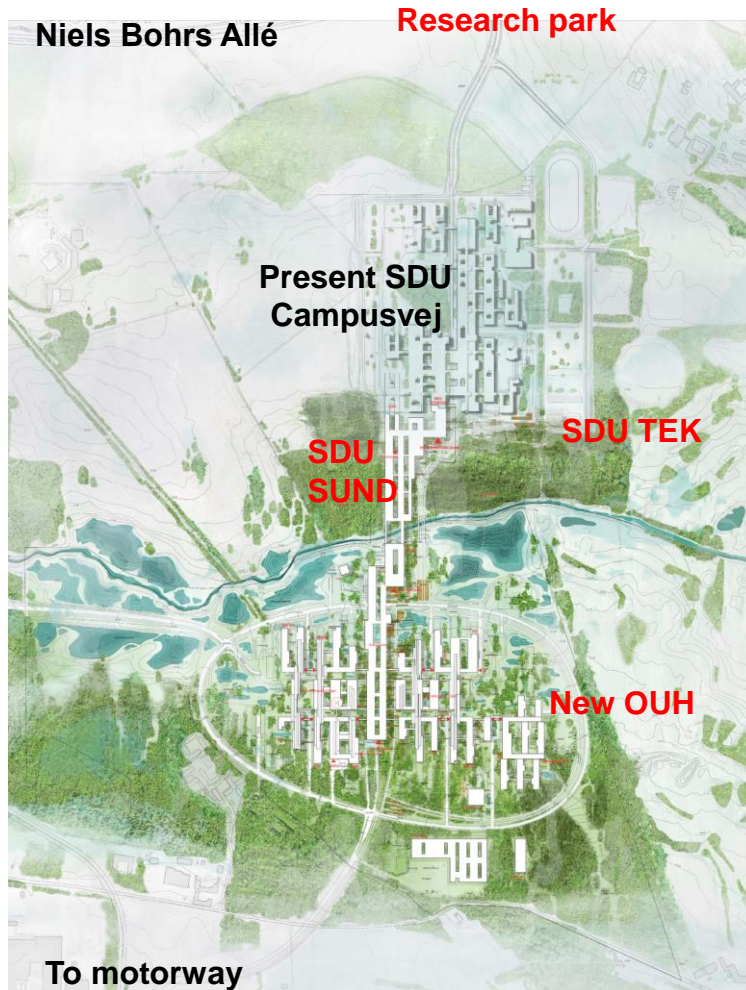


CAMPUS





Construction plans Campus Odense



Plans (**with RED**):

- Expand SDU, Campusvej
- Move OUH
- Move SUND from WP
- Move TEK from NBA 1
- Research park
- Infra-structure



CIO summary, SDU numbers 2012

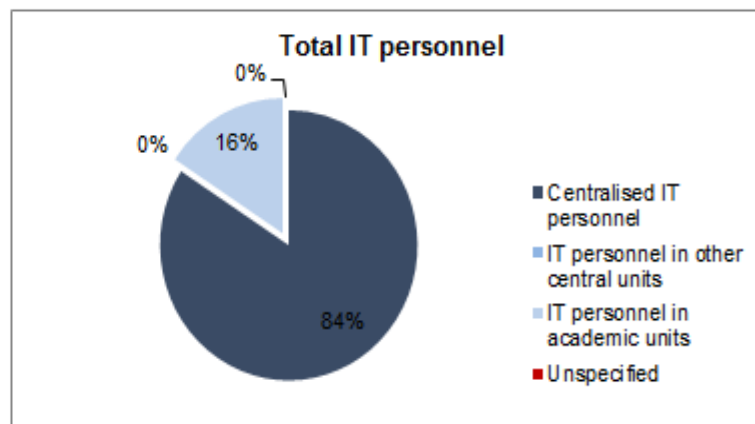
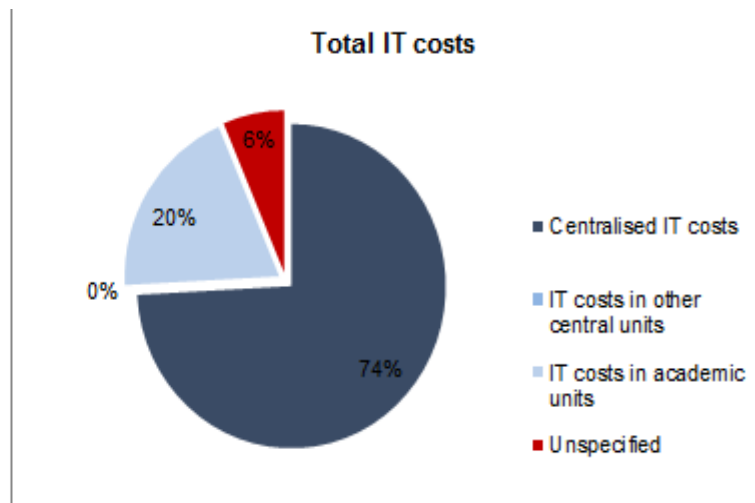
Summary of Bencheit questionnaire year 2012

Organisation: University of Southern Denmark

Costs	1000 Euros	%
Centralised IT costs	10.653 t€	74,1 %
IT costs in other central units	0 t€	0,0 %
IT costs in academic units	2.794 t€	19,4 %
Unspecified	921 t€	6,4 %
Total IT costs	14.368 t€	100,0 %
IT share of institution budget	4,2 %	

Personnel	FTE	%
Centralised IT personnel	109,4	84,2 %
IT personnel in other central units	0,0	0,0 %
IT personnel in academic units	20,5	15,8 %
Unspecified	0,0	0,0 %
Total IT personnel	129,9	100,0 %

Institution staff / IT (FTE)	26,0
Students / IT personnel (FTE)	177,1
User accounts / IT Personnel	423,4



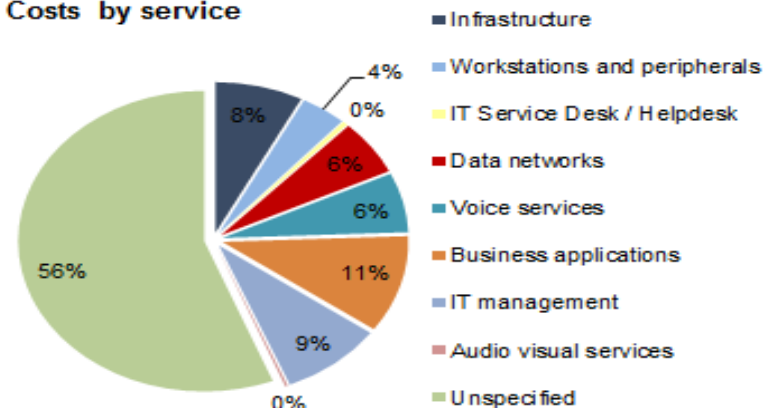
CIO summary, part II

Costs by service	1000 Euros	%
Infrastructure	1.093 t€	7,6 %
Workstations and peripherals	568 t€	4,0 %
IT Service Desk / Helpdesk	65 t€	0,5 %
Data networks	856 t€	6,0 %
Voice services	921 t€	6,4 %
Business applications	1.505 t€	10,5 %
IT management	1.282 t€	8,9 %
Audio visual services	30 t€	0,2 %
Unspecified	8.047 t€	56,0 %
*Total IT costs	14.368 t€	100,0 %

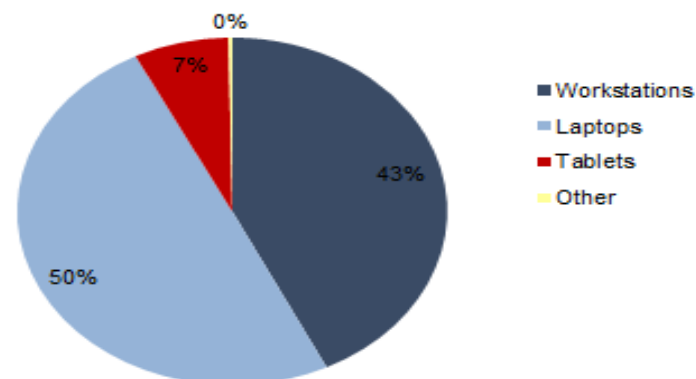
Number of Workstations	#	%
Personal use	5922	76,3 %
Student classrooms	1343	17,3 %
Research laboratories	365	4,7 %
Other	131	1,7 %
Total # of workstations	7761	100,0 %

Per type	#	%
Workstations	3319	42,8 %
Laptops	3866	49,8 %
Tablets	555	7,2 %
Other	21	0,3 %
	7761	100,0 %

Costs by service

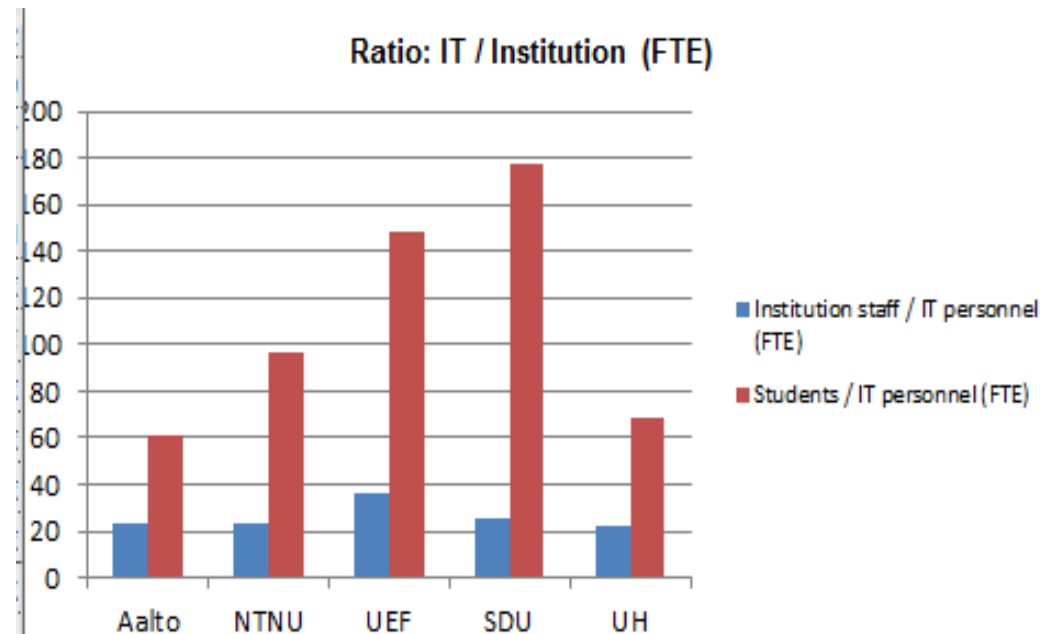


Number of Workstations



Costdriver

- Student centered learning (SCL)
- Well maintained teaching facilities, incl. labs
- Network (1000 AP)
- 2 PB data pr. Month over network
- Wide use of ICT
- E-learning





Aalto-yliopisto

Bencheit 2012 –

Using the results of benchmarking at Aalto University

12.6.2013

EUNIS 2013 Riga, Latvia

Tomi Lamminsalo, IT Service Excellence Leader

Aalto University in numbers



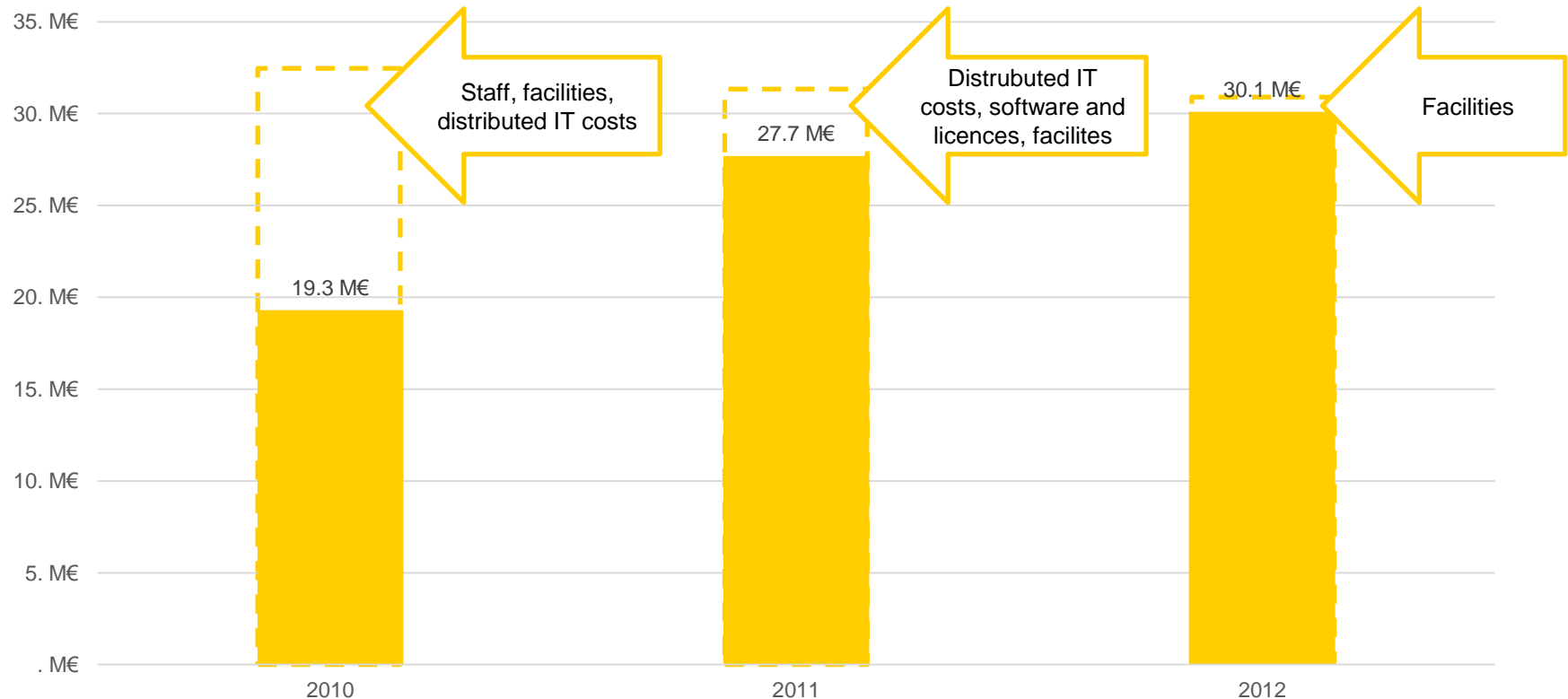
- **Customers**

- Students: 19 993
- Staff: 5 330
- 6 schools
- Stakeholders (mm. alumni, open uni students): > 80 000

- **Resources**

- Budget
 - Centralized IT: 17,4 M € / 425,3 M €
 - Total costs of all IT in Aalto University 30,1 M €
- IT-staff
 - 138,7 Centralized IT FTE
 - 210,9 Total IT FTE

Visibility to actual costs 2010 - 2012



- Aalto doing BM for the first time
- Limited financial knowledge and processes
- Learning from the first time
- Collaboration effort with distributed IT
- Visibility to all costs
- Costs related to facilities unclear

Aalto IT staff and costs

Costs	2010 M€	2010	2011 M€	2011	2012 M€	2012
Centralized IT costs	12,3	67 %	16,5	59,4 %	17,4	57,9 %
Costs in other centralized units	2,0	6 %	0,8	2,9 %	2,4	8,1 %
Costs in academic units	5,0	27 %	9,7	35,1 %	10,2	34,0 %
TOTAL IT COSTS	19,3	100 %	27,7	100,0 %	30,1	100,0 %
Percentage of the university costs	5,1 %			6,8 %		7,1 %

IT Staff	2010 FTE	2010	2011 FTE	2011	2012 FTE	2012
Centralized IT Staff	136,6	64 %	142	68,0 %	138,7	65,7 %
IT staff in other centralized units	9	4 %	11	5,2 %	4,5	2,1 %
IT staff in academic units	68	32 %	56	27,0 %	67,8	32,1 %
Total IT staff	214	100 %	209	100 %	210,9	100 %
IT staff percentage of total staff	4,5 %			4,7 %		4,2 %

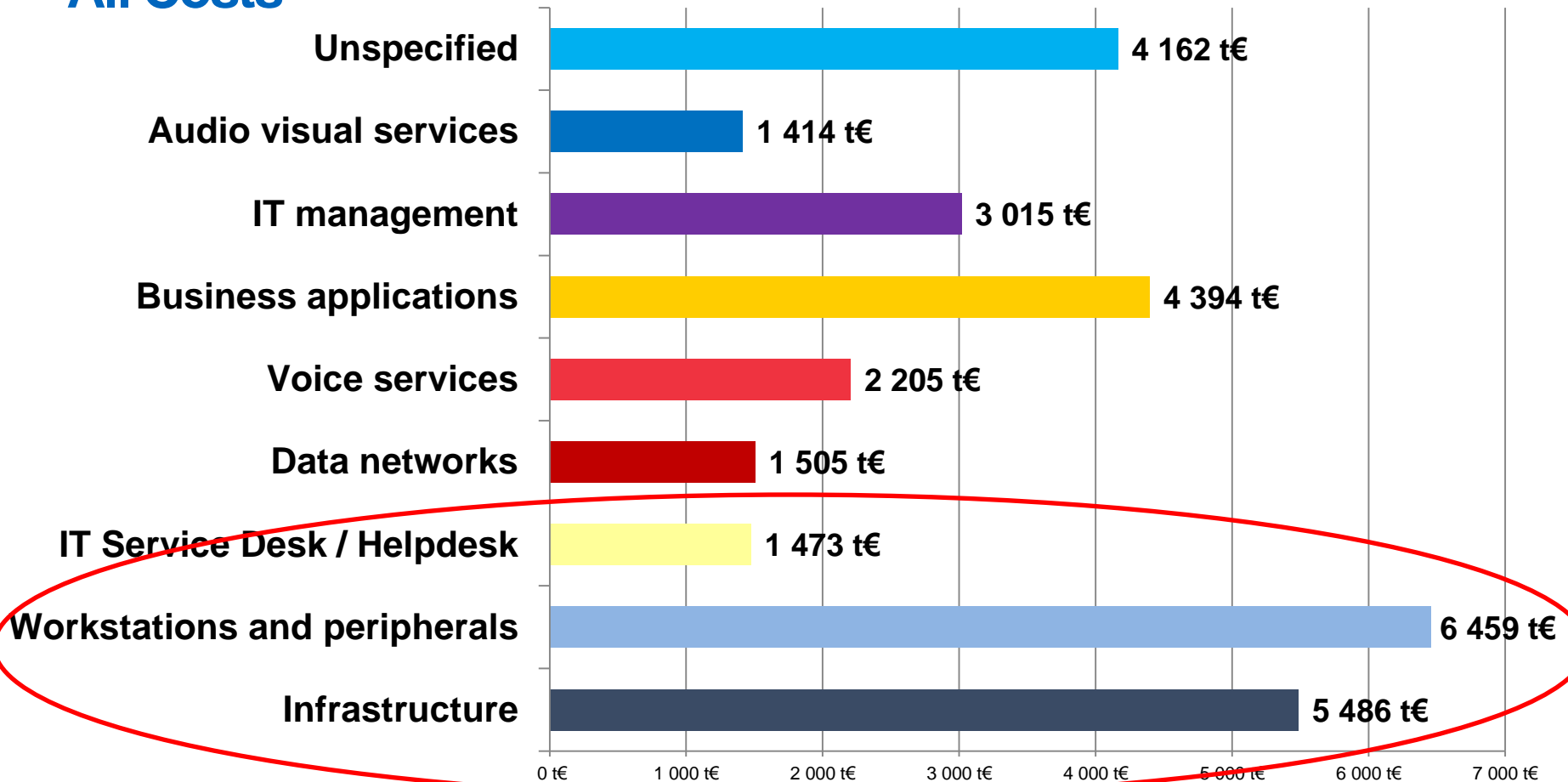
IT technology numbers

Logical servers 2012				Datacenters		2011	2012	2012 m ²
OS	X86 Linux	1288	73 %	Total	34	30	1065 m ²	
	X86 Windows	364	21 %					
	Muut (Unix, jne.)	113	6 %					
Organization	Centralized IT	560	32 %	Data		2011 TB	2012 TB	
	Other IT	1205	68 %					
Physical servers in total		967	100 %	Data in Centralized IT		900	1132	
In centralized IT		316	33 %	Data in noncentralized IT		1180	1484	
Workstations		2011	2012	TOTAL		2080	2616	
Total		11884	10807					
OS	Windows	8619	8085	Verkko / puhelin / muut		2011	2012	
	Linux	1308	1284					
	MacOS ja others	2185	1106					
Tyyppi	Desktop	7330	6473	Simultaneous WLAN users		3150	4361	
	Laptops and other	4554	4334	Network / Multi-use printers		1353	831	
Käyttö	Personal	7887	7423	Service Desk contacts per year		33788	35501	
	Classroom	2078	2185					
	Laboratory use	449	627					



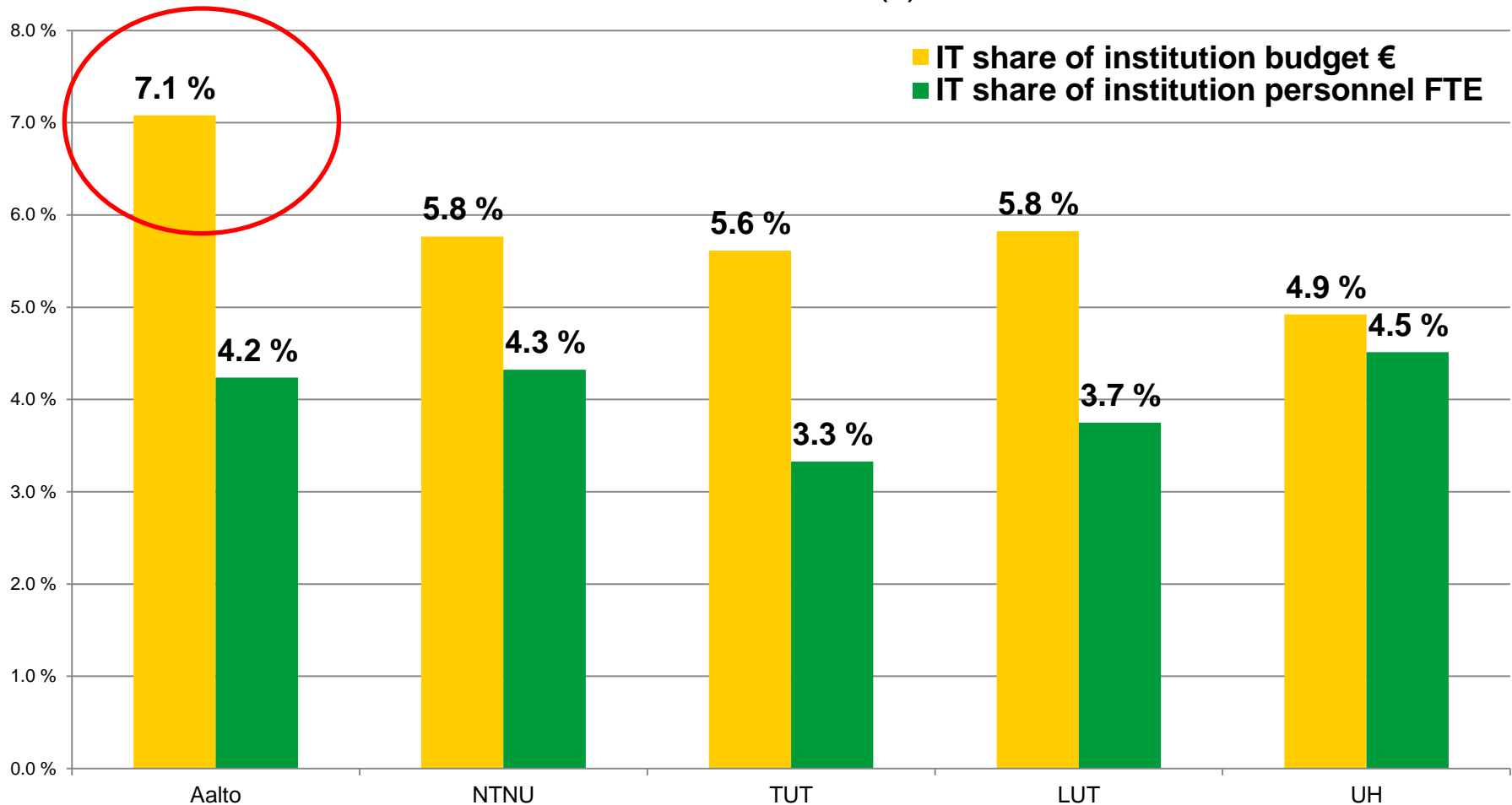
Costs by Service

All Costs



Comparing 2012 results

Ratio: IT / Institution (%)





Aalto-yliopisto

From Data to Actions

34 Data centers

- **2011: We discovered 20 data centers**
- **2012: We discovered 34 data centers**
- **2013: We discovered 30 data centers**
- **Projects:**
 - New data center concept and migration (2013)
 - Data center consolidation project (2014 onwards)
 - Making our schools aware of the situation and work together towards more efficient solutions

Increase in Storage Requirements

- **Knowledge through BM and stakeholder meetings**
- **Storage program initiated in 2013**
 - Focus on supporting research storage requirements
- **Different needs and different solutions**
 - Fast storage
 - Cloud storage
 - Cheap storage
 - Secure storage
 - Metadata management and data lifecycle

Increase in Mobility

- **Big increase in mobile devices**
 - Changing fixed lines into mobile phones
 - 75% of new phones are smartphones
 - Mobile platform support (m.aalto.fi)
- **Network renewal program**
 - Changing network architecture to support the increased need
 - New network architecture (4 IP addresses per person)



Incident Management Efficiency

- **Need to increase incident management efficiency**
 - Project to improve incident management efficiency and tools.
- **Need to build a common model with our schools**
 - Common process
 - Common tools
 - Transparency across organization boundaries
 - More collaboration
- **Incident Management project 2013 - 2014**

Summary

- **IT has taken a lot of work and learning to get doing benchmarking well.**
 - Still learning!
- **Benchmarking is an excellent tool for initiating discussion towards university level IT collaboration.**
- **You find it easier to get buy-in for important projects that you know you need to do NOW.**