Building the digital campus: examples from Norwegian national services and collaborations

Ingrid Melve, program director, UNINETT
SRCE eInfrastructure day
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Internet in general (Norway, DESI 2016)

Universities

1. Connectivity: Good
2. Digital skills: identified as needing to increase
3. Use of Internet: high, but variable
4. Integration: potential untapped
5. Digital services: Collaboration, need for more selv service, automation, simplification, data centric eInfrastructure
The Nordic network landscape
Major reorganization of universities

Shared ICT is next
- Network
- HPC and storage
- Research data
- Student registry system
- Online services: libraries, repositories, cloud use, portals etc
- Joint procurement

Work smarter: quality up and cost down
Network status and plans

- Building rings, not links
- Connect university and college campus
- Data traffic goes up

- 14500 km (11500 ex Svalbard)
- 59 POPs
- 120 routers
- IRU with Broadnet until 2023.
- 1G, 10G, 100G
- >40% load -> upgrade
We will build/buy fiber to your campus
Croatia (DESI 2016)

eInfrastructure in Europe

1. Connectivity: Research network, including eduroam, IoThings

2. Digital skills: how to use? digital self confidence for teaching?

3. Use of Internet: variable

4. Integration: eInfrastructure services, federated login, clouds, data flows

5. Digital services: collaboration? Open access? Data centric?
Strategy for ICT in universities

- **Data**
  - Data centric

- **Tools**
  - Research
  - Education
  - Analytics and admin

- **Users**
  - Researchers
  - Students
  - Teachers
  - Management and support
DATA CENTRIC
INFRASTRUCTURE
LOCAL RESPONSIBILITY
ICT for university and research

Infrastructure

Education

Research

Administration and management
COLLABORATION

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STANDARDS
AUTOMATION
Services for education

- Collaboration
- Video
- Assessments
- Learning environments

- Nordic collaboration on requirements, procurement and service delivery
ECAMPUS
Goals of the eCampus program

- ICT solutions for higher ed: simple and good enough
- Digital competence (human capital)
- Digitalise ICT in learning
- National solutions, shared understanding
- Ministry of education and research, UNINETT program lead
- 70 million NOK, 5 (6-7) years
- 2012-2016 (initial idea 2009)

Proposed goals 2017-:

- All users should be able to access data, services and infrastructure
- The digital campus must support varied learning formats
- Systematic, from ad-hoc to everyday practice
- Collaboration local-national-international
- Make better use of data
DIGITAL LEARNING ENVIRONMENT
SPECIFICATIONS, INTEGRATION, PROCUREMENT
DIGITAL LEARNING ENVIRONMENT
FILESENDER, BOX
SHARING LUMPS OF INFORMATION
SfB, ADOBE CONNECT, WEBRTC

MEETING PLACES
SCREENCAST
FLIPPED CLASSROOM
MEDIASITE, KALTURA
VIDEO INFRASTRUCTURE
Learning environment

Pedagogic support

Classes, courses, student groups

Media production

- auditorium, video conference
- capture
- editing
- meta data markup

Media management

- conversion
- storage and archive
- licensing
- support for search and retrieval

Distribution

- LMS, VLE
- podcast, RSS
- streaming
- mobile
- iTunes, YouTube

Digital competence

Technological foundation

- Standards, data formats, meta data formats
- Equipment, work flow

Organizational foundation

- Ownership and usage
- Access everywhere
Shopping-list Roadmap for video in education

**Local investment**
- Digital competence
- Web meeting support
- Video conference room and handholding
- Lecture capture agents
  - Screen capture or video?
  - Automated lecture hall
- Portal/LMS integration
- Identity management
- Common specifications

**Shared services**
- Network for competence
- Web meeting service
- Video conference support
- Lecture capture server
  - Multiple solutions
  - Media management
- Storage
- Access management
- Common specifications
SHARED IMPLEMENTATION

cc: ryancr

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SHARED INVESTMENT

INVEST IN SHARING

cc: jonathan mcintosh
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Work methodology

- Working groups: open and coordinated
- Best practice: identify, document, share
- Collaboration with vendors and suppliers: partnership, procurement
- Development agreements: Pre-procurement procedures, partnership
- Cost/benefit assessments: document, share
BEST PRACTICE
BEST PRACTICE

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Digital competence (opinion)

- Digital skills: how to use computer
- Digital competence: use ICT to evaluate, understand, organize, locate, use and create
- Digital confidence: willing to try (and fail)

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<thead>
<tr>
<th></th>
<th>Students</th>
<th>Faculty</th>
<th>ICT</th>
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<tr>
<td>Digital skills</td>
<td>High</td>
<td>Variable</td>
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<tr>
<td>Competence</td>
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CAMPUS BEST PRACTICE
Technical infrastructure

- Server consolidation, share end system procurement agreement
- Local user support, link with working group
  - University users need local support teams: some had, some have built (some still lack)
  - Local support was done by “fire souls” (those who care), not by support teams
- Support portal
- Things take time
  - Education changes take time: Professors want to deliver proven good teaching, test and wait for next semester to deploy
KNOWING HOW TO
ICT use in higher education

- Proposed strategic goals 2017-:
  - All users should be able to access data, services and infrastructure
  - The digital campus must support varied learning formats
  - Systematic, from ad-hoc to everyday practice
  - Collaboration local-national-international
  - Make better use of data
DIGITAL SKILLS, COMPETENCY
Quality development

- Shared understanding of what is needed
- Technology maturity
- Timing, in relation to work in a topic, study program, institute or institution
- Collaboration with other national agencies
- Local support team organization
- Local eCampus projects
- Arena for digitisation
Skype for Business as a service

- Production March 1 2016
- Joint effort by UNINETT, NTNU and University of Tromsø
- Highly redundant design
- Integrated with our SIP infrastructure
INFORMATION

FOR HUMANS

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INFORMATION

FOR SYSTEMS AND MACHINES

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INTERNET OF THINGS
MAKE DECISION TOGETHER

SHARE IMPLEMENTATIONS

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BEST PRACTICE