Digital assessment
A National coordination project

Freddy Barstad, National coordinator, eCampus

Nora Clarke, National coordinator and project manager at the University of Agder.

EUNIS conference

Umeå, 2014-06-12
Our students have waited long enough
It all started here..

The exam day
The Examinations process

Preparation of the exam → Taking the exam → Grading the exam → Archiving the exam

Manual => digital
Success factors

- National collaboration
- Positive propaganda
- Learning by doing
- Outsource development
- Management on board
- Project ownership
- First things first
- BYOD
A national task force «Norgesuniversitetet»

- Technology
  UNINETT

- Pedagogical perspective

- Digital assessment for all

- Organisational change

- Legal issues
A national assembly in Bergen nov. 2013

Main challenges:

- Many different pilots
- Need for understanding
- A un mature market
- Procurement model
- High expectations from students and management
- How to involve the lectures/scientific staff
- All universities are facing the same challenges!
National project Digital assessment
## Participating institutions

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Project activities

Main project group
- Prepare plans and advisory board for project decision and priority

Task force - Digital workflow
- Establish a national digital process for digital assessment, to ensure a digital first choice

Task force - IT-architecture
- Establish an IT-architecture description for digital assessment

Task force - Integrations
- Establish standards and a technology interface

Task force - Client devices/BOYD
- Establish guidelines for client devices

Task force - Infrastructure
- Establish guidelines for technology and building infrastructure

Reference group
“to be involved” and ensure the projects direction in accordance to institutionally needs
In general:
- Must support digital and manual routines
- Access to systems. People with loose connection to institution
- Digital signatures
- Clarify regulations
- Different forms of assessment
- Role of Learning Management Systems
- Hand over information to internal and national archives

System for register examinations
Formalities Overview, e.g. language-variants Shortage, reminders
Archiving: Need of history archiving.
Critical: Access

Prepare Examination Grading Feedback on grade and complaints
Locality Candidate Examination / questions Medium
Answers Status Info
System for digital exam Challenges:
- Control access
- Scaling
- Context
- Infrastructure
- Costs
- Competence
Critical: Stability

System for digital censorship
- Process support
- Transparent censorship
Support for varying methodology

Need for system support. Case management system
Integration with archive system

Assessment process: From manual to digital routines

Digital Examination-registry FS Digital Answers FS Digital Journal FS

FS Examination registry

FS Answers

FS Journal

FS Archiv e

Locality Candidate Examination / questions Medium

Answers Status Info

Grading

Journal

Feedback on grade and complaints

Inform the students

Ministry of Education (DBH)

Norwegian State Education Loan Fund

Figure by NTNU
Exam types

- Oral
  Skype, video conference, web meeting
  Digital exam may be stored and reviewed

- Home exam
  Submission in VLE/LMS or other solutions
  Similar solution for non-exam

- School exam
  Essay form or answering questions
  Multiple choice
  Programming, using other software (excel etc)

- Other exams, case based or practical
BYOD FOR EXAMS
LEAVING STUDENTS TO THEIR OWN DEVICES
Power to the students

Wireless networks

Physical locations for exams vary: on campus, in sports facilities, conference halls «anywhere indoors with large surface»

- Ad hoc networking: need to extend eduroam/Wifi coverage
- Ensure reliable backend fiber from base stations to campus

Restricting access

- Pushing access restrictions at edges (virtual desktops, client firewalls)
- Access restrictions at network layer - per exam

Power supply

Rough estimate: 75W/student (3000 students = 225 kW)

Ad hoc power supply, need to rig fast
PRACTICAL SOLUTIONS

WHAT CAN WE DO TODAY?
Exam mode

- Configure equipment and environment in exam mode
  Students must release private devices to controlled exam mode

- Exam is a controlled exercise
  Audit is required of security system (holistic, not just ICT)
  Exam mode has max stressed out users: usability

- Exam mode
  Total control over the device: subject to university domain policy
  Virtual machine on the device: exam mode, with extra surveillance
  Lockdown browser:

- Test exams are important tools for IT, security and end user
Challenges on your exams

- Restricted use of sources
  - Clear policies
  - Limit access
  - Monitor physical and network use

- Restrict communications
  - Monitor communications
  - Restrict access

- Authentication: who was the student?
  - Checking identity
  - Surveillance and audit

- Plagiarism
  - Automated checks for plagiarism
  - Citation practices

- Post information about requirements and regulations
- Train exam proctors
- Monitor PC activity, logging
- Restrict exam area
  - Block line of sight
  - Restrict network access to permissible sites on exam network
  - Restrict access to exam network only
- Check for plagiarism
REMOVING COMMUNICATIONS
IDENTITY PROOFING AND ACCESS RESTRICTIONS
Cheating: the security view

- Paradox: students need access to (limited) information resource, but should not be able to communicate

  The Internet was built for communication, now we need to turn off the most useful features

- Monitor and audit

  Exam is controlled environment, audit documentation vital

- Users (students) are max stressed

  Ability to process input goes down significantly, may forget to bring PC or power or student ID

- Exams are time limited, and uptime must be 100%

  Storage and backup are vital, snapshots used to increase uptime
Pre-commercial Procurement (PCP)

Behov
Needs

Dialog

Konkurranse
Competition

Leveranse
Delivery
National pilot in the supplier development program
A practical guide to PCP

http://www.innova-eu.net/docs/pcp17.pdf
Further work

- Summer 2014: Pre-commercial agreements with several vendors
  - Dialog conference 23. June 2014

- Autumn/Vinter 2014-2015:
  - Different pilots at several universities with different vendors/solutions (PCP)
  - Ongoing work within the task forces

- Autumn 2015: Common specification(s)

- Q1 2016: A national procurement (min 3. solutions?)
DIGITAL EXAMS

- We can do BYOD
- Share solution information
- Scaling up
- Deploy!
Sharing knowledge

- A national coordination project
- Dialog and agreements with several vendors
- Standardization of process, IT-architecture and Integrations
- Common specifications

- A mature HE-sector and a mature market

https://www.uninett.no/digitaleksamen
GET MOVING