Digital assessment
A National coordination project

Freddy Barstad, National coordinator Digital Assessment, eCampus UNINETT
Bernt Smilden, Special Advisor, The Norwegian Business School

etlf workshop at EUNIS conference
Dundee, 2015-06-07
Digital assessment as a whole

- Technology UNINETT
- Pedagogical perspective
- Organisational change
- Legal issues

Digital assessment for all
Assessment process

- Preparation
- Examination
- Grading
- Finalizing
Assessment process: From manual to digital routines

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

- Systems for digital examination
  - 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

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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

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Figure by NTNU
What is Digital Assessment?

Making the test → Answering the test → Grading

Detect cheating → IT-Support

Course plan → Student management and administration

Existing service

Digital assessment workflow
Why Digital Assessment project?

» Digital assessment is about working smarter, moving from paper based assessment procedures to digital procedures, reducing the time and energy spent, and improving the quality of the old written assessments procedures.

» To change from paper-based procedures to digital procedures requires change in the operations procedures at the university, the assessment regulations at the university and the perception or understanding of the assessment processes, among both students and staff at the university.

» Students of today can’t write by hand anymore, they using PCs in their study, why can’t they use PCs on exams?

» There is no turnkey product, immature solutions from vendors, several promising solution but lacking features supporting workflow.
How is the Digital Assessment project organized?

- The digital assessment project, is a part of the eCampus program
- UNINETT has established a national project to ensure that students get access to digital examination.
- All universities and university colleges was invited to participate in the project.
- Created several working group, with participation from the universities.
- Lots of coordination of existing activity
- Facilitating exchange of experiences
- Writing specifications (CBP)
Project organization
Project deliveries

- Sharing knowledge
- Market development
- Pre-standardization descriptions (CBP-documents)
- Establish necessary infrastructure
- Prepare procurement(s)
Sharing knowledge

Seminar series;  [https://www.uninett.no/digitaleksamen/arrangementer-om-digital-eksamen](https://www.uninett.no/digitaleksamen/arrangementer-om-digital-eksamen)

Web-site:  [https://www.uninett.no/digitaleksamen](https://www.uninett.no/digitaleksamen)


Experience reporting:  [https://www.uninett.no/digitaleksamen/status-mars-2014](https://www.uninett.no/digitaleksamen/status-mars-2014)

International collaboration

jisc & GEANT & EUNIS(ELTF) & SUNET
Market development

• Pre-commercial Procurement (PCP)
• Dialog conference
• Vendors day at seminar
  https://www.uninett.no/seminar-om-digital-eksamen/leverandører
• Development agreements
• Sharing results
• Establish and testing integrations
Pre-standardization descriptions - CBP documents

- The digital assessment market is immature, we use Current Best Practice (CBP) documents, and other reports as pre-standardization descriptions to generate commend understanding of needs and requirements for digital assessment.

- CBP documents gives us a common understanding of digital assessment, common definitions, and a common starting point for future work.

- CBP - Infrastructure (Norwegian / English)
- CBP - Integrations (both in september 2015)
- CBP - Client devices (Norwegian / English)
- CBP - Digital assessment process & IT-architecture (Norwegian / translated to English in June 2015)
- CBP - Logging and monitoring in digital assessment
Workflow analysis
Applikasjonskart
Prepare procurement(s)

Tentative schedule

- Koordinering eCampus finansiert
- Overlevering til anskaffelsesprosjekt starter
- National project
- Jan 2015

Handover to procurement

- Avhengigheter:
  - Etablering av infrastruktur

Procurement process

- Mar 2016
- Publiseringsfristen (TED)
- Kontrakt(er)
- Jan 2017

Deployment

- Nov 2016
- Pilotering/utrulling
- Jan 2017
- Utrulling ferdig
- 31 des, 2017

Call for tender

- Jan 2016
- Anskaffelse UH-sektor finansiert
- 1 okt, 2015

12. Jan 2015
National Norwegian architecture for digital summative assessments

Bernt Smilden, Norwegian Business School
Agenda

- Drivers
- Scope of architecture
- Methods and inspirations to the approach
- The architecture work
- Further work
Drivers

- Technology drive
- Political drive for mergers
- Common legal regulations
  - Legal aspects of digital summative assessments
- Requirement for equal treatment
- Drive towards self service => digitalization of services

- Bologna-process, ECTS
- Shared learning objectives
  - National plans for learning
  - National exams
- Collaboration on curriculum
- Shared use of data across the sector

The drivers put heavy requirements BOTH to business and IT!
Scope of the reference architecture work

- Project-execution
- Infrastructure
- Application-integration
- Application-functionality
- Business
- Processes
- Exam-forms
- Standardisation
- Academic
- Quality
- Project-implementation
- Application-landscape

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Methods and inspirations to the approach

TOGAF® Architecture Development Method (ADM) from Open Group

Archimate® from Open Group

Archi Enterprise Architecture tool
Standardisation and integration

Source: "Enterprise Architecture as Strategy: Creating a foundation for business execution"
Relevant examples and recommendations

<table>
<thead>
<tr>
<th>Diversification</th>
<th>Unification</th>
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<tbody>
<tr>
<td><strong>Business:</strong> Teacher governed formative assessment types with few policies</td>
<td><strong>Business:</strong> Standardised future exam processes and cross institution cooperation</td>
</tr>
<tr>
<td><strong>IT:</strong> Individual and independent products supporting each assessment type</td>
<td><strong>IT:</strong> One national digital exam solution supporting the processes</td>
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<table>
<thead>
<tr>
<th>Coordination</th>
<th>Replication</th>
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<tbody>
<tr>
<td><strong>Business:</strong> Future menu of summative assessment types</td>
<td><strong>Business:</strong> Each school is today an autonomous unit within Norwegian regulations</td>
</tr>
<tr>
<td><strong>IT:</strong> Modules for each assessment type plugged into a unified exam framework</td>
<td><strong>IT:</strong> Current Norwegian Common Student Information System (FS)</td>
</tr>
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</table>

Source: "Enterprise Architecture as Strategy: Creating a foundation for business execution"
Detailed aspects of the architecture

- Definition of specific processes
- Information systems that support the processes
- Information flows in and out of processes
- Information accessed by the processes/activities
- Information model
- The application landscape in the neighbourhood of a digital exam solution
Definition of processes

- Grouping of activities in specific processes characterised by:
  - Has a trigger
  - Uses input covered by the information model
  - Produces a result covered by the information model
  - Has a well-defined case being the information carrier for a process instance
  - Is significant enough to have a process manager with a follow-up responsibility

- Example: Author test
Applications supporting the processes

- Describes applications supporting the processes
- Defines the footprint for the digital exam solution
- High-level requirements to the digital exam solution - What work will the solution support
- Defines footprint for surrounding applications - new requirements?
Process input and output

- Describes the business’ process integration, putting requirements to the integration between applications and the information to flow through the integration
- Describes the information formally
- Is a significant input to and verification of the completeness of the information model
- Example: Plan exam and Author test
Information model

Focus:
- Identify the information elements accessed by processes/activities
- Supports the description of information flow over interfaces
- Time aspect of information

Later (not focus now)
- Accurate entity relationships
- Detailed entities
- Field level
- Application of standards as solution components

Example: Candidate/candidate special aid description/ presence:
- A candidate is created upon sign-on
- Candidate special aid description is created by the detailed exam planning
- Presence is created upon authentication of the candidate in the exam location
- There is a 1:1 relationship between these but they are still distinct information elements
Work flow analysis (Norwegian)
Application map
Process and applications (Norwegian)
Information architecture
National project: Further work

- Use the reference architecture: Verification & validation
- Details for further architecture work:
  - Integrations
  - Additional specifications of collaboration between portals, LMS, question banks and exam
- Requirement specification work
Institutions: Candidate areas for further work

Analysis of as-is situation:

- Administrative processes:
  - Are the processes clearly defined?
  - Are they harmonised within the sector?

- Surrounding IT solutions:
  - Are they in use?
  - Do they actively support the processes covered by the architecture?
  - Are they ready for integration with a digital exam solution?

- Digital exam solution vendors:
  - Does the solution support the processes in the architecture?
  - How complete is the information model?
  - Which integrations do they support?

Activities to close gaps between as-is and to-be architectures:

- Administrative processes:
  - Roll out standardised processes

- IT solutions:
  - Roll out available shared sector solutions to support the processes covered by the architecture
  - Ensure that individual solutions collaborate to reach the goals

The activities simplifies roll-out of a shared digital exam solution

UNINETT supports and coordinates the work
Sharing ___ is caring

A mature HE-sector and a mature market

https://www.uninett.no/digitaleksamen