Appendix 1: Principal requirements specification

0 General

0.1 General information about the Customer's list of requirements

This document describes requirements for a national service for digital assessment. The solution should cover the assessment process and support the workflow from preparing the examination, to carry out the examination, grading and finalizing the assessment.

The institutions in the Norwegian Higher education sector (HE sector) want to cooperate in this work, so UNINETT has been given the responsibility to coordinate the process. Based on this, the process is owned and operated by UNINETT on behalf of the institutions.

The solution for digital assessment must support on-site exam with a proctor in the room (examination). The solution must support both digital workflow and digital workspace in accordance with requirements in Campus Best Practice document 44 (CBP 44). The solution should facilitate a continuous process and support the working processes by making relevant information available for students, lecturers, examiners, proctors and administrative personnel.

The Norwegian Higher Education sector (HE) is undergoing changes and restructuring. This has consequences for assessment, and there are processes underway for developing new forms of assessment and restructuring the way assessment of knowledge is done. In the future, solutions for digital examination and assessment should support different types of exams (e.g. home exams, group assessment, assignments, written (supervised) exams, portfolio assessments, projects, oral/practical exams). As a result of this restructuring, the number of participating Principal Institutions may be reduced. This may or may not affect the total number of student exams regulated by this contract.

It is the Principal's intent to use the latest stable version of the assessment solution. This contract gives the Principal the right to use all available functionality in the offered solution, and if new functionality becomes available, this should be made available to the Principal as part of this contract and be included in the service fees as detailed in Appendix 7.

The solution must be able to integrate with other applications used in HE, such as study administrative systems, learning management systems (LMS), task libraries, authentication solutions, etc as described in CBP 44 (UFS 148)

The workflow for written exams and how digital assessment will change the local workflow for assessment are described in CBP 44 (UFS 148). The solution for digital assessment should support the following phases:

- Preparing exams (assessment units)
- Carrying out exams
- Grading papers
- Finalising exams (handling explanations and complaints concerning grading decisions, storage, archiving)

The user groups involved are

- Course coordinators and lecturers
- Examinees (students and other candidates)
- Exam staff
- Examiners
- Proctors
- IT support

0.2 General requirements for Contractor and solution

In preparation for this tender process, UNINETT and the Norwegian HE sector have prepared a series of Campus Best Practice Documents (CBP). These CBPs contain further information about many of the requirements in this tender for a digital assessment solution. The CBPs are recorded and accepted recommendations based on the collective experiences of the HE sector in the field of digital assessment (see appendix 12).

- CBP 42: Physical infrastructure for digital assessment (Norwegian version: *UFS 145*)
  In this CBP document, the working group makes recommendations for physical infrastructure in permanent and temporary locations. The CBP document is a guide for planning and hosting digital assessment at your own institution.
- CBP 43: Clients for digital assessment (UFS 146)
  The working group looked at available client solutions for digital assessment, including the use of BYOD compared to institution-owned equipment.
- CBP 46: Integration for digital assessment (UFS 147)
  The CBP document identifies 6 existing systems, defining which system is the authoritative data source, and describes integrations for exchange of data to/from the assessment systems.
- CBP 44: Architecture for digital assessment (UFS 148)
  The CBP document describes an ICT architecture for a national solution for digital assessment and the consequences for the workflow at the university.
- CBP 45: Logging and monitoring digital assessment (UFS 149)
  The CBP document defines and lists requirements for logging and monitoring, and describes policies for how to perform logging and monitoring in digital assessment.

1 Total cost of ownership (TCO)

1.1 Purpose of the total price and pricing provisions

The objective of the pricing model is to provide transparency and predictability of the system for Principals, so they know what they are paying for and how high the usage costs will become.
It must also be easy for the Principal/Customer to get an overview of the total cost for all Principals, both for the pilot, the annual cost for each area when the solution is in operation, and the total cost for the entire contract period.

Descriptions

	Descriptions	Requested no. of pages
1	Describe the Contractor's usual or preferred price model, with regards to pricing variables.	1 page
2	Give some examples of other universities or other institution that are using your solution, add figures for number of students and exams. Detail whether these are in Europe/North America or other parts of the world	1 page

The bidder is to give his answers to these requirements in *Appendix 7, Total price and pricing provisions*.

2 Usability

The Usability award criterion will mainly be evaluated through the Contractors' demonstrations of the offered solutions and testing of the offered solutions.

Users, roles and access rights

Purpose: It must be simple to set the right level of access/role in the solution.

System management

Purpose: It must be easy for the Principal to manage the solution himself, or choose to let the provider do it.

User experience

Purpose: The user should find the navigation, screen dialogues and screen structure intuitive and straightforward.
The system is expected to provide a good user experience if the following points are satisfied:

Know the user:

- A good user interface is achieved and improved through continuous evaluations, tests and experiences – in interaction with diverse group of users, via feedback and through analysis of server statistics.

Make processes more efficient:

- Users should be able to perform their duties as efficiently as possible by optimizing their routine jobs, provide shortcuts for trained users. Leverage possibilities in personalization.

Speak the user's language:

- Avoid unnecessary use of technical language and jargon

Support:

- Provide understandable, constructive, precise, clear, polite and neutral feedback when users make mistakes or get stuck.

Make texts and graphic design user-friendly:

- Maintain a simple and understandable design throughout, from names of links and icons to the homepage.

Comply with established standards:

- Comply with established standards, like underlining links, using "*" for compulsory fields, etc.

Technical availability:

- Focus on speed in downloading and uptime.

Universal design

To ensure equal opportunities and rights to social participation for students with disabilities, the Norwegian HE sector has a goal of supporting *universal design* wherever possible.

Universal design means "designing, or accommodating, the main solution with regards to physical conditions, so that the solution may be used by as many people as possible," regardless of disability. Universal design is a dynamic concept that is becoming increasingly widespread. In higher education, the term is applicable in many different fields, for example in the planning of information and communication technologies so that the tools can benefit all students.

The goal is a universally designed learning environment that includes all students in mainstream solutions. This requires planning and designing education with the diversity of the student body in mind. It should

also be applied in planning the learning environment, taking into account the needs of students with disabilities, so that the need for special solutions is reduced as much as possible.

	Mandatory requirements	Compliant?
3	The user interface must be available in English and Norwegian Bokmål	YES/NO
4	User documentation must be submitted in both Norwegian and English to Principal	YES/NO

	Desired requirements	Compliant?
5	The user interface should be available in Norwegian Nynorsk.	YES/NO

	Descriptions	Requested no. of pages
6	Describe how the solution support multi-language test assignments (e.g. Norwegian Bokmål, Norwegian Nynorsk, English) regarding spell-checker, online help, etc.	1 page
7	ICT-based products and services developed for the general market should be accessible by anyone, with minimal additional effort and expense (capability for improved accessibility). Explain how this is facilitated in the solution	1 page
8	Describe the offered solution's capability for improved accessibility for students with disabilities, including (e.g. universal design) - visual impairment - hearing impairment - physical disabilities - dyslexia	2 pages
9	The offered solution should support setting different start and stop times for candidates taking the same test (adjusting for persons with disabilities). The offered solution should also support changing the timelimit or stoptime during the test (perhaps due to technical problems for one, several or all candidates during the test). Describe this functionality for the offered solution.	2 pages
10	Describe how the solution supports sending messages to examinees, and if its possible to edit system messages sent to examinees (e.g. messages before, during and after examination, about time extension, cancelled questions, final grades etc.)	1 page
11	Describe which perceivable WCAG2.0 Level AA success criteria the solution fulfils, ref. Principle 1: Perceivable - Information and user interface components must be presentable to users in ways they can perceive	1 page
12	Describe which operable WCAG2.0 Level AA success criteria the solution fulfils, ref. Principle 2: Operable - User interface components and navigation must be operable.	1 page
13	Describe which understandable WCAG2.0 Level AA success criteria the solution fulfils, ref. Principle 3: Understandable - Information and the operation of user interface must be understandable.	1 page
14	Offline functionality: Describe which parts of the offered solution that can be used offline	1 page

3 Technical and functional requirements

3.1 Technical requirements

The digital assessment solution must be a multitenant service, and the software manufacturer must be able to integrate the assessment solution with Norway's national student registry (FS).

Digital assessment will be carried out 6 days a week (Monday–Saturday), and during extended working hours (07:00–21:00) as specified in Appendix 5. This imposes some restraints on the Contractor's operational environment and how upgrades of the assessment solution are handled.

Whenever maintenance is scheduled to take place within the system availability period, the Contractor must provide the Principal with written notice no less than 14 days before said maintenance. During the busiest examination periods: May, June, and early December to mid-January, such maintenance must have written approval from the Principals.

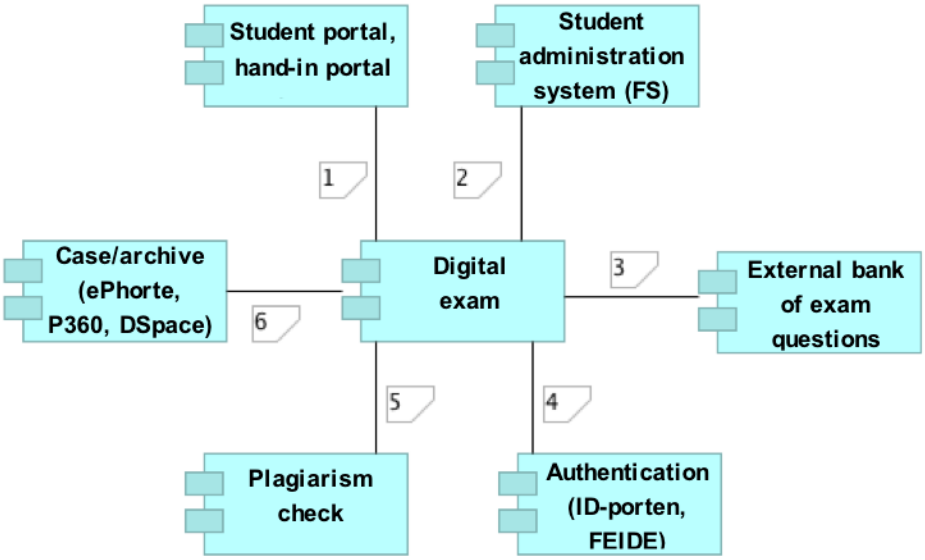
3.1.1 General technical requirements

	Mandatory requirements	Compliant?
15	The solution must be offered as a multitenant hosting service, for example SaaS.	YES/NO
16	Solution must have mechanisms to control and prevent access to the Internet, Wi-fi and local network resources per assessment session	YES/NO
17	New versions of the system must be able to reuse content and configuration	YES/NO
18	A test installation of the latest version of the assessment solution must be available for the Norwegian HE sector	YES/NO

	Descriptions	Requested no. of pages
19	Describe the suppliers operational environment and how upgrades of the assessment solution are done. (including networks and use of subcontractors)	1 page
20	List support for BYOD and supported browsers, both versions and OS. Include specifications for both computers and other devices (tablets/phones). (Ref CBP 43/UFS 146)	1 page
21	Describe the types of files that can be attached to the examination and any limitations in file size or other aspects	1 page
22	Do clients used for the exam need pre-installation of SW or configuration? Describe what, if any. Include information about Java, Flash or Silverlight if required. (Ref CBP 43/UFS 146)	1 page
23	Which requirements does the system have for local infrastructure? Network requirements and other. (Ref CBP 42/ UFS 145)	1 page
24	Describe how the solution deales with multiple, concurrent exams in a distributed environment. (e.g. common password for all the exams in a location)	1 page

3.1.2 Integrations

The following figure is taken from CBP 46 (UFS 147), and shows the interaction between the solution for carrying out digital exams and the support systems.



The interfaces to the exam solution are as follows:

1 The student portal and handing-in portal allow the examinee to submit exam papers outside the exam solution.
2 The student administration system (FS) is the authoritative source of student administration data, such as who the examinees are, the composition of grading commissions, and who the course coordinator is for an assessment unit.
3 The external bank of exam questions may reside with a publisher or a database of learning objects, or it could be an exam system at another institution with whom one is collaborating on the holding of exams. The exam-question archive may also serve as a bank of exam questions.
4 Authentication/login is done against external sources. Many use Feide for students, and Feide or ID-porten for examiners, but other forms of authentication may also be used.
5 To check for plagiarism, the exam paper is sent to an application that tests for text similarity and returns a text-similarity report. An assessment of the relevance of text similarity is carried out by human beings in accordance with the requirements of good citation practice.
6 The document archive receives everything that is to be archived or to be dealt with in connection with exams. Information may flow back from the document archive system to the exam solution.

Integration principles

Integrations follow the architectural principles for the HE sector [2]. Of particular interest for the present document:

- Integrations shall be realized by means of open protocols and interfaces.
- Data shall be re-used and shall have a defined authoritative source.
- APIs shall be functional and should not require in-depth knowledge of the source system.

Integrations are to be realized in a cost-effective way and to make allowance for changes. Ideally, integrations are to be implemented as loose connections, to prevent strong dependencies between systems.

The student administration system

The student registry is the authoritative data source for administrative information related to exams. In Norway, almost all universities and colleges use FS (Norwegian: *Felles studentsystem*). The exam solutions are entirely dependent on reading data from FS and being able to write information to FS.

A central integration bus (ESB) has been set up, and the integration with FS passes through it. In the development phase, it has been expedient to have a single point of integration, rather than spending resources on setting up separate bilateral integrations with many providers and FS instances.
https://agora.uninett.no/web/digital-eksamen-apen/wiki/-/wiki/Main/For+developers+-+English

Integration of third party applications

Higher education covers a comprehensive skill area, and assessments sometimes depend on specific software outside the digital assessment solution itself, for content, formats or application support (video, visualization, HD-pictures, compilers, spreadsheets, mathematical notation, etc.). Assessments, with proctors present, online, or in other situations, may need to include third party software solutions.

External source of exam questions

In the work on digital assessment, it has been noted that it might be expedient to have one or more external banks of exam questions and sets of exam questions, including the possibility of viewing sets of exam questions that have been used previously. The exam solution also needs to be able to add exam questions to a bank of exam questions so that previously used questions or question sets may be made available.

Authentication

Examinees and staff identities are authenticated using their Feide identities (Norwegian Federated ID for Education). The institution's Risk and Vulnerability Analysis will determine whether staff need to use the Feide functionality for strong authentication or not. Strong authentication in Feide is equivalent to security level 3, as described in the "Framework for authentication and non-repudiation in electronic communications with and within the public sector" (in Norwegian) [6]. The use of strong authentication by examinees is not recommended, as this will require access to a unit capable of receiving SMSs or installation of Google Authenticator-compliant software during the assessment. Further verification of the examinee's identity is performed by proctors through the institution's existing procedures.
For users without a FEIDE (SAML 2.0) user account, the solution must offer alternative authentication, for example via IDporten (MinID, BankID, Buypass) or a local user database.

Student portal, hand-in portal

There have been requests for the ability to use other hand-in portals than the one provided by the exam system for handing in papers, home examinations and similar, while still being able to use the grading parts of the exam system. Portals may need event feeds and the ability to share documents with the exam system.

Plagiarism checks

It must also be possible to integrate the offered solution with a system for checking against plagiarism using standardised integration methods.

The joint tender for a system for plagiarism prevention is planned for 2016, and integration with this system will be essential for the assessment solution.

Document-, Case- and Records Management system

There have been requests for the ability to transfer exam content and metadata from the exam system to other systems, such as the archive, exam-paper storage and similar. The Norwegian HE sector is subject to the requirements of the NOARK5 standard. Examples of such systems in Norwegian higher education includes the applications Public360 and ePhorte.

	Mandatory requirements	Compliant?
25	The solution must support Feide authentication (SAML 2.0). For users without a FEIDE (SAML 2.0) user account, the solution must offer alternative authentication, for example via IDporten (MinID, BankID, Buypass) or a local user database. (https://www.feide.no/sites/feide.no/files/documents/Feide%20requisites.pdf)	YES/NO
26	The offered solution must be able to integrate with student registry (FS)	YES/NO

	Descriptions	Requested no. of pages
27	Describe how can the system be integrated with other systems in HE (cf. the "map of applications" figure 6.1 in CBP 44/UFS 148)? Explain and enter existing system APIs (e.g. REST or other). Examination questions are required to be permanently archived in an institutional digital archive. The solution should be able to export all necessary metadata to fulfil applicable archiving requirements.	2 pages
28	Describe how applications outside your solution are integrated, for example by the use of LTI or widget inclusion. Describe lock-down solution limitations. Include information on real-time communication (WebRTC, Skype, etc.), where appropriate (list relevant systems).	1 page
29	Describe how the system updates information from FS before, during and after the exam. (e.g. candidates, internal and external examiners, candidate withdrawals, administrative registrations, no-shows, medical issues and grading decisions (see CBP 46/ UFS 147).	1 page
30	Describe how the offered solution complies with requirements in CBP 46/UFS 147, and how the data exchange is handled through the integration (batch-, service-, or message-based, real-time	1 page
31	Describe how data and functionality in the offered solution is available through API, how integration is maintained and configured, and how the data exchange through integrations is secured (e.g. username/password, PKI). Describe support for multitenant configuration.	1 page
32	Describe levels of logging and monitoring for data exchange through the integration interface (e.g. are logging and monitoring functions configurable?)	1 page
33	Does your system integrate with Learning Management Systems (LMS) today, or will it integrate with such systems in the future? Describe the technology (protocols and API).	1 page

3.1.3 Security

By monitoring, we mean automatic or manual systems for showing "status information" from systems, processes or procedures. Automatic system monitoring is often based on analysis of information gathered via logging. The main purpose of this status information is to show the progress and health status of systems and processes.

In connection with new assessment models, it may be relevant to retrieve logs from assessment solutions for other purposes than before. For example, logs from the assessment solution may be used for learning analysis, both individually and on a group level. In multi-phase assessment models, log analysis may provide the student with individual feedback on his/her progress and the focus of further study.
If a solution is procured from an external service provider, it must be made clear what the service provider is logging and monitoring. How these logs are to be used and possibly stored must be specified in the data processing agreement drawn up between the institution and the service provider. The data processing agreement must be followed by a risk analysis, assessing whether the service provider is actually capable of fulfilling the requirements in the agreement.
Procedures for securing and deleting logs must form part of the tidying-up after assessments. All logs containing personal data and lacking archival value should be deleted. Logs with personal data that do

have archival value should be secured in such a way that they cannot go missing or be misused at a later time.
Logging and monitoring inevitably entails the processing of personal data. The processing of personal data is regulated by the Personal Data Act and associated regulation.
The definitions and how the Act and regulation relate to digital assessments. In brief, personal data is defined as follows:

- Personal data includes all information and assessments that can be tied to an individual.
- Sensitive personal data is information that requires extra protection.
- Anonymized personal data is personal data from which names, personal identification numbers and other characteristics directly identifying persons have been removed
- De-identified personal data is similar to anonymized data, but there exists a key that allows the discovery of an individual author.

The Customer or a trusted third party must, upon request, be allowed to carry out revisions of the provider and the offered solution for security or technical purposes. Risk assessments will be carried out as part of the acceptance testing.

Availability, reliability and non-repudiation are important in the exam situation. Communication with the solution must be secured by the appropriate mechanisms (encryption, key exchange, signatures, etc.), both within the solution and for communication with other systems.

	Mandatory requirements	**Compliant?**
34	Data must be controlled and owned by the HE institution	YES/NO
35	The Principal or a trusted third party must, upon request, be allowed to carry out revisions of the provider and the offered solution for security or technical purposes.	YES/NO

	Descriptions	**Requested no. of pages**
36	Describe the security mechanisms in the offered solution regarding DoS attacks and other common attack vectors. Describe which mechanisms, if any, are in place to prevent access to information in the event of unauthorised access to your solution. This includes security breaches at application level and lower.	1 page
37	Describe how logging is handled in the solution; Where are logs of user activity stored, and for how long? Describe how to export logs from your solution to the Principal's central logging service (cf. CBP 46/UFS149). Describe how to extract usage statistics. The functionality should comply with the requirements of the Data Retention Directive and the Personal Data Act (cf. CBP 46/ UFS 149).	1 page
38	Describe access mechanisms for all user groups (authorisations) and examinee anonymisation. Is it possible to use digital signatures to ensure data integrity and validity for documents and transactions (e.g. confirm delivery of answers, grades)?	1 page
39	Describe anti-cheating mechanisms and how proctors can act when cheating is discovered.	1 page
40	Describe how the offered solution saves student answers periodically during the exam in order to prevent loss of data in case of power loss or other technical problems with the Internet, the device or the application used for the test. Explain how, where and how often data is saved. Describe how the solution deals with submissions very close to the end of the exam (e.g. when saving times exceed the end time of the exam).	1 page

41	List the default roles that come with the offered solution and provide a brief description about how they are organised. Can one user have more than one role? Describe what each role is authorised to do, and describe options to configure alarms for the roles.	1 page
42	Describe how communication within the solution is secured by encryption and other means.	1 page
43	Describe how monitoring is handled: Is it possible to perform monitoring at different levels (individual/groups/exam level)? How does one monitor the service as a whole? These "views" must be available at different access levels and distributable to many clients at the same time (cf. CBP 46/UFS 149).	1 page
44	Describe if its possible to require the user to re-authenticate before submitting the final work (e.g. by use the FEIDE two-factor authentication, such as SMS one-time password, Google authenticator or other solutions.)	1 page

3.2 Functional requirements

3.2.1 Preparing exams

In the preparation phase, the framework conditions for carrying out the exams are set. The preparation phase extends from the starting point of the process, the setting up of an assessment unit in the student registry (FS), until the time the actual exam is held. In this phase, the examinee signs up for the exam, the roles tied to the holding of exams are defined (examiners, examinees, committees, proctors), and the exam questions are developed. In addition, the time and place the exam is to be held must be set, and any adaptation measures planned. The workflow for the preparing exam phase is more described in CBP 44(UFS 148) Figure B.5

Exam planning must allow for multiple languages to be used in the same examination, with sets of exam questions available in both Norwegian Nynorsk and Norwegian Bokmål. These are often supplemented by English versions. Some exams may also require support for other languages, for example for students of foreign languages.

The student registry is a key system for exam planning.

Test exams must be available in the system for examinees and other users to familiarise themselves with the solution.

	Mandatory requirements	**Compliant?**
45	The offered solution must support several academic staff creating questions for the same exam	YES/NO

	Descriptions	**Requested no. of pages**
46	Describe the workflow, for how the examination and/or academic staff configure the assessment solution for a new test (e.g. lock-down browser, plagiarism checker, exam workflow, use of question pool, use of randomised questions, additional time etc.)	1 page
47	Describe the workflow and functionality for academic staff creating questionnaires for a new test	1 page
48	Describe how to monitor the different phases of the assessment process (e.g. preparing, carrying out, grading, finalising)	1 page

3.2.2 Carrying out exams

The carrying out phase takes place from handing out the exam papers/questions, working out answers and handing in the answer paper. Proctors are present for on-site exams. The set of exam questions may have different language forms (often English, Bokmål, Nynorsk). The workflow for carrying out exams are more described in CBP 44(UFS 148) Figure B.6

The examinee should be able to bring his own device (BYOD) and use this for carrying out the exam. The institution may provide PCs for use by students and other examinees.

Multiple concurrent written exams may take place in a distributed environment, with different exams in the same physical location. Some exams may take place off campus, with challenging network environments, for example in sports halls.

For home examinations, oral exams and other evaluation types, the exam execution may vary from the description above.

	Mandatory requirements	**Compliant?**
49	It must be possible to complete and submit the test before the time is out.	YES/NO
50	The offered solution must support on-site exams, lockdown mode and open mode	YES/NO

	Descriptions	**Requested no. of pages**
51	Describe the possibilities for carrying out different types of exams in the system (e.g. home exams, group assessment, assignments, written (supervised) exams, portfolio assessments, projects, oral/practical exams). If other models are supported, please describe (roadmap).	2 page
52	List additional features/functions, such as mathematical symbols, calculator, built-in functions for exams in computer programming, context-sensitive help functionality, etc.	1 page
53	Describe how the solution supports OSCE (e.g. oral/practical examination, one or more examiner, examiner-submitted evaluations). https://en.wikipedia.org/wiki/Objective_structured_clinical_examination	1 page
54	Describe how the examinee can organise his/her work during the exam.	1 page

3.2.3 Grading exams

The grading phase has two primary approaches: committee grading and individual grading. Work is either carried out by a single examiner as an individual assessment of an exam, or there are processes related to grading by committee. Grading committees are based on information from FS about examiners for the specific exam. Communication in connection with the grading meeting is not fully automated, as a certain level of human judgment is required. Cf. CBP 44(UFS 148), Figure B.7

The examiner's authentication/login requires communication with an external login service.

The grading protocol must be verified at the appropriate security levels, and the information must be submitted to FS.

	Desired requirements	Compliant?
55	The examiner should be able to see which grading committee he/she is a member of.	YES/NO
56	The examiner should be able to see which grading work belongs to which grading committee.	YES/NO
57	The solution should support a new grading iteration when required	YES/NO

	Descriptions	Requested no. of pages
58	The offered solution presents statistics showing weak and strong areas for each exam candidate compared to the average result for all exam candidates. Describe this functionality for the offered solution.	1 page
59	Describe how the offered solution presents statistics showing questions that probably were difficult to understand or easily misinterpreted, as well as other interesting factors.	1 page
60	Describe how the printing of exam answers is handled and how the exam answers are formatted when printed for grading, (e.g. page number, candidate numbers, etc.).	1 page
61	Describe how grading can be organised, e.g. one examiner per test, use of grading committees, who is member of the grading committee etc.	1 page
62	Describe how grading can be carried out for different types of questionnaires/exams.	1 page
63	Describe how annotations are handled during the grading process (per candidate, per parts of test and per test).	1 page

3.2.4 Finalising the exam

The last phase involves allowing the student to access the result and, as needed, to request an explanation and file a complaint about the grade. In case of a complaint, a new grading iteration takes place. In addition, this phase includes paying examiners and proctors, as well as archiving the exam questions and the storage of answer papers in accordance with the applicable regulations.

The request for explanation is the first step in a workflow that may result in the candidate filing a complaint about his or her grade. When a student files a request for explanation, the examiners may need to access material from the grading process. Filing a complaint triggers a new grading, including the preparation of a grading committee. The new grading iteration relies on information from the student registry, and repeats the Grading exams phase. Complaint percentages vary, though a rough estimate is approx. 10 % of all grades. Cf. CBP 44(UFS 148), Figure B.8.

Archiving and storage must comply with requirements in national and local policy. Requirements vary with the type of examination and data type within the examination.

	Mandatory requirements	Compliant?
64	It must be possible to prevent candidate access to the submitted exam paper, and limit their access to the exam score only, or to choose to give them full access.	YES/NO

	Descriptions	Requested no. of pages

65	Describe how the assessment system notifies the student, academic staff and examination staff about grades, comments, etc. during the finalising phase of an exam.	1 page
66	Describe how the system supports the workflow for explanations and complaints.	1 page

3.3 Services

Support

The solution for digital assessment is not the first national coordinated service for Norwegian HE. Over the years, the national coordinated services have developed a common support model that are well understood by staff at HE institutions:

- First-line support is handled by local superusers at the institution.
- Second-line support is handled by the Contractor.
- Third-line support is handled by technical experts at the Software Manufacturer.

The Contractor must provide support for all systems and their part of the interfaces offered to the Principal in this procurement. The Contractor must have sufficient resources and expertise to assist the sector.

Documentation

Documentation quality should be good enough to enable local superusers to handle first-line support at their institution. The Contractor/Software Manufacturer shall provide updated and complete documentation before releasing new functionality or versions of the assessment solution/integration interface.

The documentation quality will be checked through out the contract period, and any documentation found to be "not good enough" will be subject to penalties to be agreed between the parties as part of the negotiations.

Training

The Contractor shall provide customised and updated training material on the assessment solution for local administrators, superusers and examination staff throughout the contract period.
The Contractor should be able to provide training locally at the HE institution.

	Mandatory requirements	**Compliant?**
67	The support must be provided in English or Norwegian.	YES/NO
68	The Contractor shall have a single point of contact (SPOC), whom the Principal can turn to regarding use of the agreement, including order follow-up, invoicing, notification of problems, service monitoring, etc.	YES/NO
69	Updated technical/system documentation in Norwegian or English must be available for all modules/third-party software before the solution is approved for production.	YES/NO
70	UNINETT must have direct access to the contractor's third-line support.	YES/NO
71	The Contractor has support responsibility for both the solution and its integrations.	YES/NO
72	The Contractor must contribute in troubleshooting situations, regardless of who is responsible for the error.	YES/NO

	Descriptions	Requested no. of pages
73	The Contractor is responsible for coordinating work associated with errors. Describe the process, including procedures for escalation and opening hours for the support service (ref. support service appendix 5)	1 page
74	The Contractor shall always test the correction of errors before deployment. Describe the procedures for testing and approval prior to deployment.	1 page
75	The Contractor should be responsible for monitoring the progress made in connection with changes, including integration. Describe the procedures for handling this.	1 page
76	Describe the solutions for necessary Principal training, for example the training of superusers	1 page

Appendix 2: Contractor solution specification

1 Total cost of ownership (TCO)

The bidder is to give his answers to these requirements in *Appendix 7, Total price and pricing provisions*.

2 Usability

	Mandatory requirements	Compliant?
3	The user interface must be available in English and Norwegian Bokmål	YES/NO
4	User documentation must be submitted in both Norwegian and English to Principal	YES/NO

	Desired requirements	Compliant?
5	The user interface should be available in Norwegian Nynorsk.	YES/NO

	Descriptions

6. Describe how the solution support multi-language test assigments (e.g. Norwegian Bokmål, Norwegian Nynorsk, English) regarding spell-checker, online help, etc.

1 page

7. ICT-based products and services developed for the general market should be accessible by anyone, with minimal additional effort and expense. Explain how this is facilitated in the solution

1 page

8. Describe the offered solution's capability for improved accessibility for students with disabilities, including (e.g. universal design)

- visual impairment
- hearing impairment
- physical disabilities
- dyslexia

2 pages

9. The offered solution should support setting different start and stop times for candidates taking the same test (adjusting for persons with disabilities). The offered solution should also support changing the time limit or stop-time during the test (perhaps due to technical problems for one, several or all candidates during the test). Describe this functionality for the offered solution.

2 pages

10. Describe how the solution supports sending messages to examinees, and if it's possible to edit system messages sent to examinees (e.g. messages before, during and after examination, about time extension, canceled questions, final grades etc.)

1 page

11. Describe which perceivable WCAG2.0 Level AA success criteria the solution fulfils, ref. Principle 1: Perceivable - Information and user interface components must be presentable to users in ways they can perceive

1 page

12. Describe which operable WCAG2.0 Level AA success criteria the solution fulfils, ref. Principle 2: Operable - User interface components and navigation must be operable.

1 page

13. Describe which understandable WCAG2.0 Level AA success criteria the solution fulfils, ref. Principle 3: Understandable - Information and the operation of user interface must be understandable.

1 page

14. Offline functionality: Describe which parts of the offered solution that can be used offline

1 page

3 Technical and functional requirements

3.1 Technical requirements

3.1.1 General technical requirements

	Mandatory requirements	Compliant?
15	The solution must be offered as a multitenant hosting service, for example SaaS.	YES/NO
16	Solution must have mechanisms to control and prevent access to the Internet, Wi-fi and local network resources per assessment session	YES/NO
17	New versions of the system must be able to reuse content and configuration	YES/NO
18	A test installation of the latest version of the assessment solution must be available for the Norwegian HE sector	YES/NO

Descriptions

19 Describe the suppliers operational environment and how upgrades of the assessment solution are done. (including networks and use of subcontractors)

1 page

20 List support for BYOD and supported browsers, both versions and OS. Include specifications for both computers and other devices (tablets/phones). (Ref CBP 43/UFS 146)

1 page

21 Describe the types of files that can be attached to the examination and any limitations in file size or other aspects

1 page

22 Do clients used for the exam need pre-installation of SW or configuration? Describe what, if any. Include information about Java, Flash or Silverlight if required. (Ref CBP 43/UFS 146)

1 page

23 Which requirements does the system have for local infrastructure? Network requirements and other. (Ref CBP 42/ UFS 145)

1 page

24 Describe how the solution deales with multiple, concurrent exams in a distributed environment. (e.g. common password for all the exams in a location)

1 page

3.1.2 Integrations

	Mandatory requirements	Compliant?
25	The solution must support Feide autentication (SAML 2.0). For users without FEIDE (SAML 2.0) user account, the solution must offer alternativ autentication, for example via IDporten (MinID, BankID, Buypass) or local user database. (https://www.feide.no/sites/feide.no/files/documents/Feide%20requisites.pdf)	YES/NO
26	The offered solution must Integrate with student registry (FS)	YES/NO

Descriptions

27 Describe how can the system be integrated with other systems in HE (Se "map of applications" figure 6.1 in CBP 44/UFS 148)? Explain and enter existing system API:s (e.g. REST or other) Examination questions are required to be permanently archived in an institutional digital archive. The solution should be able to export necesarry metadata to full fill the archiving requirements.

2 pages

28 Describe how applications outside your solution are integrated, for example by use of LTI or widget inclusion. Describe lock-down solution limitations. Include information on real-time communication (WebRTC, Skype etc) where appropriate (list relevant systems)

1 page

29 Describe how the system updates information from FS before, during and after the exam. (e.g. candidates, internal and external examiners, withdrawal from candidates, administrative registrations, no show, medical issues and grading decisions (see CBP 46/ UFS 147)

1 page

30 Describe how the offered solution complies with requirements in CBP 46/UFS 147, and how the data exchange are done through the integration (batch-, service-, message-based, real-time)

1 page

31 Describe how data and functionality in offered solution is available through API and how integration are maintained, configured and how data exchange through integrations are secured (e.g. username/password, PKI). Describe support for multitenant configuration.

1 page

32 Describe levels of logging and monitoring of data exchange through the integration interface (e.g. are logging and monitoring configurable)

1 page

33 Does your system integrate with Learning Management Systems (LMS) today, or will it integrate in the future? Describe the technology (protocols and API)

1 page

3.1.3 Security

	Mandatory requirements	Compliant?
34	Data must be controlled and owned by the HE institution	YES/NO
35	The Principal or a trusted third party must, upon request, be allowed to carry out revisions of the provider and the offered solution for security or technical purposes.	YES/NO

Descriptions

36 Describe the security mechanisms in the offered solution regarding DoS attacks and other common attack vectors. Describe which mechanisms, if any, are in place to prevent access to information in the event of unauthorised access to your solution. This includes security breaches at application level and lower.

1 page

37 Describe how logging is handled in the solution; Where are logs of user activity stored, and for how long? Describe how to export logs from your solution to the Principal's central logging service (cf. CBP 46/UFS149). Describe how to extract usage statistics. The functionality should comply with the requirements of the Data Retention Directive and the Personal Data Act (cf. CBP 46/ UFS 149).

1 page

38 Describe access mechanisms for all user groups (authorisations) and examinee anonymisation. Is it possible to use digital signatures to ensure data integrity and validity for documents and transactions (e.g. confirm delivery of answers, grades)?

1 page

39 Describe anti-cheating mechanisms and how proctors can act when cheating is discovered.

1 page

40 Describe how the offered solution saves student answers periodically during the exam in order to prevent loss of data in case of power loss or other technical problems with the Internet, the device or the application used for the test. Explain how, where and how often data is saved. Describe how the solution deals with submissions very close to the end of the exam (e.g. when saving times exceed the end time of the exam).

1 page

41 List the default roles that come with the offered solution and provide a brief description about how they are organised. Can one user have more than one role? Describe what each role is authorised to do, and describe options to configure alarms for the roles.

1 page

42 Describe how communication within the solution is secured by encryption and other means.

1 page

43 Describe how monitoring is handled: Is it possible to perform monitoring at different levels (individual/groups/exam level)? How does one monitor the service as a whole? These "views" must be available at different access levels and distributable to many clients at the same time (cf. CBP 46/UFS 149).

1 page

44 Describe if its possible to require the user to re-authenticate before submitting the final work (e.g. by the use of FEIDE two-factor authentication, such as SMS one-time password, Google authenticator or other solutions)

1 page

3.2 Functional requirements

3.2.1 Preparing exams

	Mandatory requirements	Compliant?
45	The offered solution must support several academic staff creating questions for the same exam	YES/NO

	Descriptions

46 Describe the workflow, for how the examination and/or academic staff configure the assessment solution for a new test (e.g. lock-down browser, plagiarism checker, exam workflow, use of question pool, use of randomised questions, additional time etc.)

1 page

47 Describe the workflow and functionality for academic staff creating questionnaires for a new test

1 page

48 Describe how to monitor the different phases of the assessment process (e.g. preparing, carrying out, grading, finalising)

1 page

3.2.2 Carrying out exams

Mandatory requirements	Compliant?

49	It must be possible to complete and submit the test before the time is out.	YES/NO
50	The offered solution must support on-site exams, lockdown mode and open mode	YES/NO

	Descriptions

51 Describe the possibilities for carrying out different types of exams in the system (e.g. home exams, group assessment, assignments, written (supervised) exams, portfolio assessments, projects, oral/practical exams). If other models are supported, please describe (roadmap).

2 pages

52 List additional features/functions, such as mathematical symbols, calculator, built-in functions for exams in computer programming, context-sensitive help functionality, etc.

1 page

53 Describe how the solution supports OSCE (e.g. oral/practical examination, one or more examiner, examiner-submitted evaluations). https://en.wikipedia.org/wiki/Objective_structured_clinical_examination

1 page

54 Describe how the examinee can organise his/her work during the exam. 1 page

1 page

3.2.3 Grading exams

	Mandatory requirements	Compliant?
55	The examiner should be able to see which grading committee he/she is a member of.	YES/NO
56	The examiner should be able to see which grading work belongs to which grading committee.	YES/NO
57	The solution should support a new grading iteration when required	YES/NO

	Descriptions

58 The offered solution presents statistics showing weak and strong areas for each exam candidate compared to the average result for all exam candidates. Describe this functionality for the offered solution.

1 page

59 Describe how the offered solution presents statistics showing questions that probably were difficult to understand or easily misinterpreted, as well as other interesting factors.

1 page

60 Describe how the printing of exam answers is handled and how the exam answers are formatted when printed for grading, (e.g. page number, candidate numbers, etc.).

1 page

61 Describe how grading can be organised, e.g. one examiner per test, use of grading committees, who is member of the grading committee etc.

1 page

62 Describe how grading can be carried out for different types of questionnaires/exams.

1 page

63 Describe how annotations are handled during the grading process (per candidate, per parts of test and per test).

1 page

3.2.4 Finalizing the exam

	Mandatory requirements	Compliant?
64	It must be possible to prevent candidate access to the submitted exam paper, and limit their access to the exam score only, or to choose to give them full access.	YES/NO

	Descriptions

65 Describe how the assessment system notifies the student, academic staff and examination staff about grades, comments, etc. during the finalising phase of an exam.

1 page

66 Describe how the system supports the workflow for explanations and complaints.

1 page

3.3 Services

	Mandatory requirements	Compliant?
67	The support must be provided in English or Norwegian.	YES/NO
68	The Contractor shall have a single point of contact (SPOC), whom the Principal can turn to regarding use of the agreement, including order follow-up, invoicing, notification of problems, service monitoring, etc.	YES/NO
69	Updated technical/system documentation in Norwegian or English must be available for all modules/third-party software before the solution is approved for production.	YES/NO
70	UNINETT must have direct access to the contractor's third-line support.	YES/NO
71	The Contractor has support responsibility for both the solution and its integrations.	YES/NO
72	The Contractor must contribute in troubleshooting situations, regardless of who is responsible for the error.	YES/NO

	Descriptions

73 The Contractor is responsible for coordinating work associated with errors. Describe the process, including procedures for escalation and opening hours for the support service (ref. support service appendix 5)

1 page

74 The Contractor shall always test the correction of errors before deployment. Describe the procedures for testing and approval prior to deployment.

1 page

75 The Contractor should be responsible for monitoring the progress made in connection with changes, including integration. Describe the procedures for handling this.

1 page

76 Describe the solutions for necessary Principal training, for example the training of superusers

1 page

Appendix 3: Description of what is to be operated

The Contractor is responsible for delivering the service as defined by the requirements and descriptions in Appendices 1 and 2 as a SaaS solution, with service quality as described in Appendix 5.

Appendix 4: Project and progress plan for the establishment phase

An acceptance test for each of the selected solutions for digital assessment shall be conducted during the acceptance phase. This will include functionality testing and a test of technical integration. The acceptance test will also include a real-life examination.

A comprehensive testing plan will be developed in collaboration with each of the selected Contractors.

Test environment

The selected Contractors are responsible for providing and maintaining a test installation of their solution for the Norwegian HE sector for the duration of the contract. This test installation serves several purposes, including enabling the HE institution to test the solution's functionality with all integrations and adaptations.

Reliability testing

The Contractor must test the reliability of the offered solution; the testing plan should include testing failover-mechanisms and data replication, as well as back-up/restore functionality.

Performance testing

The Contractor must complete performance testing of the offered solution, and the test report should cover the number of simultaneous users and simultaneous exams, network performance, network delay, integration performance towards the student registry, etc.

Appendix 5: Service level with standardised compensations

The exam solution should have high availability, integrity and confidentiality.

The consequences of breaching availability, integrity or confidentiality for the solution may be that a student or group of students have to retake their exams. In worst case, if grades are not available by the cut-off date for admission to further studies, students may be one year delayed in their studies.
Repeated or extended periods of reduced quality of the service may constitute breach of contract as defined by section 11 of the general terms of this contract.

Definitions

Term	Definition
Guarantee	The term guarantee refer to is the assurance of quality that the Customer is offered. The guarantee is maintained through a financial compensation in the event occurrence that one or several service levels are not met.
System availability	This means that the solution is available for users at the established Internet exchange between the Contractor's Internet service provider and the Customer, including integrations with surrounding systems to/from the solution.
System availability period	The solution's availability is measured in extended working hours, Monday–Saturday, 07:00–21:00 Primary working hours (A-time) : 08:00–16:00 Secondary working hours (B-time): 07:00–08:00 and 16:00–21:00 This does not include January 1, the Wednesday before Easter after 12:00 noon, Maundy Thursday, Good Friday, Easter Sunday, Easter Monday, 1st and 17th of May, Ascension Day, Whit Sunday, Whit Monday, Christmas Day, Boxing Day, or New Year's Eve after 12:00 noon.
Measuring period	Time interval in which uptime must equal or exceed the specified service level. The measuring period for this contract is 1 calendar month. Downtime is measured in minutes; downtime minutes during "primary working hours" (A-time) will be multiplied by 1.3 when calculating total downtime minutes.
Max uptime	Total number of minutes for the system availability period in a measuring period. E.g. 07:00-21:00, 6 days a week for a month: ➔ 14 * 60 = 840 minutes for one day 840 * 24 = 20160 minutes
Downtime	Periods when the solution is unavailable or fails to perform within the System availability period.
Scheduled downtime	Periods when the solution is unavailable due to planned and scheduled maintenance. Whenever maintenance is scheduled to take place within the system availability period, the Contractor must provide the Principal with written notice no less than 14 days before said maintenance.

Term	Definition
	During the busiest examination periods: May, June, and early December to mid-January, any such maintenance must have written approval from the Principals.
Security upgrades and error correction	In the event security upgrades and error correction must take place within the system availability period, the Contractor must notify the Principal in due time.
Availability	Availability is calculated for the measuring period and given as a percentage (two digits): $$\frac{Max\ uptime - Downtime}{Max\ uptime} * 100\ \%$$
Guaranteed availability	The minimum guaranteed availability given as a percentage
Compensation	Standardised compensation payable to the Customer if the solution's availability falls below the guaranteed availability for the measuring period.

The SLA-level for the offered solution will be part of the negotiations and may be subject to change during this process.

Error levels

Level	Category	Description
A	Critical	All or material parts of the operational services are unavailable.
B	Serious	Certain critical functions do not work, or have response times that are materially inferior what has been agreed between the parties.
C	Less serious	Non-critical functions do not work; longer response times than agreed between the parties.
E	Change request	Change requests are coordinated and submitted to the Contractor by UNINETT.

Service level and compensation

Service level	Description	Service level	Compensation
Guaranteed availability	The minimum guaranteed availability given as a percentage	99,90 %	
Availability and compensation	Compensation payable to the Customer if the availability falls below the guaranteed availability for the measuring period.	99,50 – 99,89 % 98,50 – 99,49 % 97,50 – 98,49 % 95,00 – 97,49 % 0,00 – 94,99 %	5 % 10 % 25 % 50 % 100 %

The Contractor must ensure that the services are monitored and that the Customer is notified of any deviations from the agreed service level. The Customer must be notified in the event of material deviations

Unscheduled service downtime

In case of unscheduled service downtime during the defined "system availability period", the Contractor must notify the Principal(s) about the downtime of the service as soon as possible. If the time from the start of the unscheduled service downtime until the Principal is notified exceeds 1 hour, the Contractor is liable to pay to the Customer a penalty of NOK 1000 per hour.

After an incident, the Contractor must issue a report concerning the unscheduled service downtime, stating the reason for the downtime, the duration of the downtime, and measures taken to prevent downtime of this nature from occurring again. If the Customer has received no such report within 5 days after the incident, the Contractor is liable to pay to the Customer a penalty of NOK 500 per day.

The Agreement, clause 2.2.2 Undesirable incidents

Repeated service interruptions during the measuring period shall be compensated according to the following table, unless these are already subject to other and stricter SLA-compensations.

	Number of service interruptions in the measuring period				
Number of interruptions	3-4	6-6	7-9	10-11	> 11
Compensation (% of monthly fee)	2 %	5 %	7 %	10 %	25 %

The Contractor's response time

The Customer may wish to stipulate requirements concerning how quickly the Contractor shall respond to enquiries in the reporting of incidents, troubleshooting or requests for changes to the operational services. If user support is included in the operational services, it may be relevant to stipulate requirements concerning response times for this service.

The requirements for response times can be split into response time (enquiry answered) and incident management started.

The Customer can stipulate requirements concerning how, and how often, the Contractor should report.

Error level	Response time	Standardised compensation
A Critical E.g. Students are unable to turn in exams in the system.	15 minutes	NOK 5,000 per hour
B Serious	60 minutes	NOK 1,000 per hour
C Less serious	2 hours	NOK 500 per hour
E Change request / service request	1 day	

Response time is defined as the time from an error has been reported by a Principal until the Contractor responds back that troubleshooting or corrective measures are in progress.

Support service:

The support service should be organised after following model:

- First-line support is handled by local superusers at the institution/Principal.
- Second-line support is handled by the Contractor.
- Third-line support is handled by technical experts at the Software Manufacturer.

The Contractor must provide support for all systems and their part of the interfaces offered to the Principal in this procurement.
The support service should, at minimum, be available by phone and email during the defined "system availability period", with a guaranteed response time.

Support level	Response time	Standardised compensation
Second-line (phone)	5 minutes	
Second-line (email)	60 minutes	
Third-line (phone or email)	1 day	

Backup and restore

The offered solution should save students' answers periodically during the exam in order to prevent loss of data in case of power loss or other technical problems with the Internet, the device or the application used for the test. The Contractor is responsible for backing up the entire system, including system configurations and all user data.
If the back-up fails, the Contractor shall take immediate measures to remedy the problem. Back-up failure is classified as a critical error situation.

The Contractor shall perform tests of back-up and restore functionality.

Loss of data will result in the Contractor being liable to pay compensation to the Customer. This scope of this compensation will be part of the negotiations between the parties.

Security incidents

If a security incident occurs, the Contractor shall notify the Principal within a reasonable time. If more than 4 hours pass from the time of the security incident to the time the Principal was notified exceeds, the Contractor is liable to pay to the Customer compensation in the amount of NOK 1,000.00 per hour. After an incident, the Contractor shall prepare a report about the incident. If the Customer has received no such report within 5 days of the incident, the Contractor is liable to pay to the Customer compensation in the amount of NOK 500.00 per day.

Escalation

If an issue is not resolved in the time frame specified in the contract for the service level in question, the incident is escalated according to the levels defined in the table below. The Customer and Contractor are individually responsible for escalating the issue within their respective organizations.

Priority	Escalation level	Time	Contractor	Principal/Customer
A-errors / Critical	1	15 min.	Level 1	Level 1
	2	2 hours	Level 2	Level 2
	3	4 hours	Level 3 (CTO)	Level 3 (CTO)
	4	8 hours	Level 4 (CEO)	Level 4 (CEO)
B-errors/ Serious	1	8 hours	Level 1	Level 1
	2	12 hours	Level 2	Level 2
	3	24 hours	Level 3 (CTO)	Level 3 (CTO)
	4	48 hours	Level 4 (CEO)	Level 4 (CEO)
C-errors/ less serious	1		Level 1	Level 1
	2		Level 2	Level 2
	3		Level 3 (CTO)	Level 3 (CTO)
Change request	1		Level 1	Level 1
	2		Level 2	Level 2
	3		Level 3 (CTO)	Level 3 (CTO)

Appendix 6: Administrative provisions

This appendix will contain the specific administrative provisions between the Principal and the Contractor

Appendix 7: Total price and pricing provisions

Prices shall be provided as net amounts, with any discounts deducted and exclusive of any VAT.

Currency fees shall not be applied

The Principal is free to choose between invoicing in NOK or the original currency.

If invoicing in NOK is chosen, the Contractor shall apply the official exchange rate on the date of invoice.

The Contractor must enter his prices in the spreadsheet document “Appendix_7_Annex_Price.xlsx”. This file covers all items for which the Customer has required a price.

The Agreement, clause 8.5 Price adjustments
Prices for operational services and hourly rates may be adjusted at the beginning of every calendar year by an amount equivalent to the increase in the retail price index (the main index) of Statistics Norway, with the reference index value being the index value for the month in which the Agreement was formed, unless a different index value is agreed here.

	Descriptions
1.	Describe the Contractor's usual or preferred price model, with regards to pricing variables.
1 page	

2.	The offered solution should be used by several universities or other institutions for higher education. Give some examples and add how many. Detail whether these are in Europe/North America or other parts of the world
2 pages	

Appendix 8: Changes to the general contractual wording

Changes can be made to all the clauses in the Agreement, even where there is no clear reference to the fact that changes can be agreed. Changes to the contractual wording shall be specified here so that the wording of the general contractual wording remains unchanged. It must be stated clearly and unequivocally which clause or clauses in the Agreement have been changed and the result of the changes.

The Contractor should, however, be aware of the fact that deviations, reservations or changes to the Agreement in connection with the submission of a tender may result in rejection of the tender by the Principal.

Appendix 9: Changes subsequent to the conclusion of the Agreement

Example of change directory:

Change no.	Description	Effective date	Archive reference

The Agreement, clause 3.4 Documentation of the change

The Contractor shall maintain a directory of the changes on an ongoing basis, which directory shall form Appendix 9, and shall without undue delay provide the Principal with an updated copy thereof. The Principal must maintain its own overview of the change requests it has sent, the change estimates it has received, and the changes order it has issued.

Appendix 10: Standard terms and conditions for third-party deliveries

Include any standard terms and conditions associated with the following here:

1. third-party deliverables that the Contractor manages on behalf of the Principal as part of the operational services, and

2. other standard third-party deliverables where the Principal has explicitly accepted that the Contractor's liability is limited

The Agreement, clause 5.1 The responsibility of the Contractor for its performance

The Principal shall include standard terms and conditions in third-party deliverables that the Contractor shall manage on behalf of the Principal here.

The Contractor shall append the standard third-party licences here in those cases where the Principal has accepted that the Contractor's liability is limited.

Appendix 11: Data processor agreement

Draft agreement – data processor agreement pursuant to the Personal Data Act
NOTE: Read the guidelines at www.datatilsynet.no/databehandler

in accordance with Section 13, cf. Section 15 of the Personal Data Act and Chapter 2 of the Norwegian Personal Data Regulations

by and between

UNINETT

controller

and

_____

processor

1. Intention of the agreement

The intention of the agreement is to regulate rights and obligations pursuant to the Act of 14 April 2000 No. 31 relating to the processing of personal data (the Personal Data Act) and the Regulations of 15 December 2000 No. 1265 (the Personal Data Regulations). The agreement shall ensure that personal information relating to the data subjects is not used unlawfully or comes into the hands of a third party.

The agreement concerns the processor's use of personal data on behalf of the controller, including collection, recording, alignment, storage and disclosure or a combination of such uses.

2. Purpose

Give an account of the purpose of the processor agreement, including:

- what personal data will be processed
- which processes are covered by the agreement
- what the framework is for the processor's handling of personal data

Personal data is to be used only in connection with preparing, carrying out, conducting and evaluating exams, as well as handling complaints. Personal data:

- Name
- User name
- Password
- Identifying information from 3rd party service such as Feide or FS
- Email-address
- Exam, term paper or parts thereof
- Evaluation and/or grading of exams and term papers, including complaints and the handling of such.
- IP address

3. The processor's obligations

When processing personal data on behalf of the controller, the processor shall follow the routines and instructions stipulated by the controller at any given time.

The processor is obliged to give the controller access to his written technical and organizational security measures and to provide assistance so that the controller can fulfil his responsibilities pursuant to the Act and the Regulations.

Unless otherwise agreed or pursuant to statutory regulations, the controller is entitled to access all personal data being processed on behalf of the controller and the systems used for this purpose. The processor shall provide the necessary assistance for this.

The processor must observe professional secrecy in regard to the documentation and personal data to which he has access in accordance with this agreement. This provision also applies after the agreement has been discontinued.

No data processor may process personal data in any other way than that which is agreed in writing with the data controller. Transfer of data to other systems is only to be carried out with the written acceptance of the Data controller.

4. Use of a subcontractor

If the processor uses a subcontractor or others not normally employed by the processor, this shall be agreed in writing with the controller prior to starting the processing of personal data.

> **Agreement with subcontractor**
>
> Such an agreement should be entered into as an amendment to this agreement.

Anyone who performs assignments on behalf of the processor which include further processing of the relevant personal data shall be familiar with the processor's contractual and legal obligations and fulfil the requirements thereto.

5. Security

The processor shall fulfil the requirements for security measures stipulated in the Personal Data Act and the Personal Data Regulations, in particular Sections 13 – 15 of the Personal Data Act and Regulations thereto. The documentation shall be available upon the controller's request.

The processor shall report to the controller all discrepancies according to Section 2-6. The controller is responsible for reporting the discrepancy to the Data Inspectorate.

Data processor shall keep personal data secure and separate from other Principals. Data Processor is obligated to document this upon request from the Data Controller.

6. Security audit

The implementation of regular security audits for systems etc. covered by this agreement shall be agreed by the controller and processor.

> **Audit**
>
> The audit may include a review of routines, random checks, more extensive site inspections and other suitable control measures.

7. Risk Assessments

Risk Assessments is to be performed at least every other year, or whenever there are major changes to the running software. The Data Controller reserves the right to perform his own Risk Assessments of the Data Processor's routines and systems.

8. Duration of the agreement

The agreement is valid for as long as the processor processes personal data on behalf of the controller.

or

the agreement is valid until _____

In the event of breach of this agreement or the Personal Data Act, the controller can instruct the processor to stop further handling of the information with immediate effect.

The agreement can be terminated by both parties with a mutual period of notice of _____, cf. Clause 8 of this agreement.

9. Termination

Upon termination of this agreement, the processor is obliged to return all personal data received on behalf of the controller and covered under this agreement.

> **Return of data**
>
> The parties can also agree that a transcript and copies of all the contents in databases and other storage media that contain personal data shall be provided. The cost of this, or if the information is to be provided in a special format, can also be included in such an agreement.

The parties shall agree that the processor shall delete or destroy in a secure and definite/irreversible manner all documents, data, diskettes, CDs, etc. that contain information covered under this agreement. This also applies to any back-up copies.

The agreement should specify in which manner deletion or destruction is to take place upon termination of the agreement.

The processor shall document in writing that deletion or destruction has taken place in accordance with the agreement within a reasonable period of time after termination of the agreement.

10. Notifications

Notifications under this agreement shall be submitted in writing to: _____

11. Choice of law and legal venue

The agreement is subject to Norwegian jurisdiction and the parties agree on Trondheim District Court as the legal venue. This also applies after termination of the agreement.

***

This agreement has been drawn up in 2 – two copies, of which the parties retain one copy each.

Place and date

Controller	Processor
……..	……
(signature)	(signature)

Appendix 12: Campus best practice documents (CBP) /*Uninett fagspesifikasjon (UFS)*

The CBPs are recorded and accepted recommendations based on the collective experiences of the HE sector in the field of digital assessment.

- CBP 42: Physical infrastructure for digital assessment (Norwegian version: *UFS 145*)
  In this CBP document, the working group makes recommendations for physical infrastructure in permanent and temporary locations. The CBP document is a guide for planning and hosting digital assessment at your own institution.

  Attached file: *CBP-42-Physical Infrastructur for digital Assessment.pdf*

- CBP 43: Clients for digital assessment (UFS 146)
  The working group looked at available client solutions for digital assessment, including the use of BYOD compared to institution-owned equipment.

  Attached file: *CBP-43_clients for digital assessment.pdf*

- CBP 46: Integration for digital assessment (UFS 147)
  The CBP document identifies 6 existing systems, defining which system is the authoritative data source, and describes integrations for exchange of data to/from the assessment systems.

  Attached file: *CBP-46-integration for digital assessment.pdf*

- CBP 44: Architecture for digital assessment (UFS 148)
  The CBP document describes an ICT architecture for a national solution for digital assessment and the consequences for the workflow at the university.

  Attached file: *CBP-44_ICT-architecture for digital assessment.pdf*

- CBP 45: Logging and monitoring digital assessment (UFS 149)
  The CBP document defines and lists requirements for logging and monitoring, and describes policies for how to perform logging and monitoring in digital assessment.

  Attached file: *CBP-45-Logging-monitoring-for digital assessment.pdf*