



STUDENT
SYSTEM
SOLUTIONS



UNIVERSITY OF
OXFORD

eAssessments StuTalk Integration Project



SITS CONFIGURED SOLUTION



STUTALK & OTHER SYSTEM INTERFACES



STU3 COLLABORATIVE PROJECT

▶ A StuTalk project to integrate SITS with Inspira for online assessments and submissions

“ It was always a strategic objective of the university to diversify the forms of assessment that the university offers. It was about making them **more accessible, fair and modern**. Of course, the urgency and the timing was about COVID, the need for social distancing and no longer being able to have the traditional methods of assessments. So the project was **an acceleration**, if you like, of a 3 to 5 year plan to move towards digital assessment and the diversification of the types of assessment. ”

Victoria Brown, University of Oxford Senior Project Manager (e-Exams)

Stu3 Case Study

www.stu3.co.uk

The Challenge

The start of the pandemic's first lockdown intensified the need for a reliable and streamlined way of enabling and managing e-exams and coursework submission (referred to as e-Assessments).



Victoria Brown

"It was all about scale. To get some measure, we needed to cater for about 40,000 exam sittings." **Victoria Brown, University of Oxford Senior Project Manager (e-Exams)**

The existing approach also caused an administrative burden on students and staff. More strategically, the University had a goal to diversify assessments, and this project aimed to deliver the platform to support this goal.

"The university was seeing an increase every year of the number of students needing special provision for exams and that was linked to an increase in the disclosure of disabilities and a need for extra time for exams. The way we examine our students is ingrained in the culture of the institution, so this was a big step and this project was really quite transformational for us as an institution."

Victoria Brown, University of Oxford Senior Project Manager (e-Exams)

"On the coursework submissions side, staff and students had been pushing to move submissions online even before the pandemic, so the pandemic was a catalyst as it were, and accelerated something that was already quite a popular idea."

Naomi Hood, University of Oxford Senior Project Manager (e-Submissions)

However, the current solutions in place were not robust, sustainable, or sufficient for the expected increased usage. The project would deliver a more resilient and longer term solution for e-Assessments with two primary aims:

- ▶ To deliver an **integrated** solution to support an online format for timed examinations driven by educational principles rather than technical constraints
- ▶ To replace the existing taught degrees online submissions for summative assessment solution (currently provided by WebLearn, a deprecated system).

The University of Oxford chose Stu3 as their partner expert in SITS integrations on the project.

“We selected Stu3, and I believe this was down to the positive experiences from the past of working with them and the success of previous contracts and pieces of work. Stu3 has a unique skill set which is understanding HE processes but also SITS, in particular the technical side of SITS. And going down the commercials, the fact that Stu3 is competitively priced, all of that together is a winning formula.”

Victoria Brown, University of Oxford Senior Project Manager (e-Exams)

Stu3’s aim was to deliver, in an accelerated time frame, the University’s objective of creating a seamless, flexible and sustainable solution between SITS and the following systems:

- ▶ the new e-Assessments Platform by Inspera to support the management of online exams and coursework submissions
- ▶ the Examiner Appointments and Payments (EAP) system
- ▶ the Exam Scheduling system (CMIS)



“The main challenge was definitely time. In this respect, the Submissions part of the project benefited significantly from the integration work that Stu3 had already done for Online Exams. And although the integration is different for coursework, Stu3 had established a good understanding of the Inspera APIs and were able to easily grasp our requirements.”

Naomi Hood, Senior Project Manager, UoO” Naomi Hood, Senior Project Manager, UoO

The Solution

“For the exams component, to deliver 100% of the 40,000 examinations that were due to take place -which we did by the way - at the scale we needed to, meant we had to have the integration between SITS and CMIS (the exam timetabling software), as well as SITS and Inspera (the eAssessments platform). These integrations are what made it possible for us to deliver to that scale of exams. I think without the integration, we definitely would not have been able to have done that, or it would have cost the university an awful lot more money and time.”

Victoria Brown, University of Oxford Senior Project Manager (e-Exams)

Stu3 worked closely with the University's Project Team to understand the requirements and map out the data sources. It became clear that a direct integration between SITS and Inspira wouldn't deliver the necessary requirements, and a further set of Integrations with the exam board scheduling system (EAP) and the student assessment scheduling system (CMIS) would be needed to support the Inspira integration and create some of the missing data links. Alongside this, e:Vision functionality would be needed to handle the creation of staff contributor data to be sent to Inspira.

The full set of integrations solutions delivered by Stu3 within the timescales include three new StuTalk integrations, and an update to existing integration.

- ▶ **StuTalk interface between SITS and Inspira's e-Assessments Platform** - a cloud-based assessment platform supporting the examination cycle and covering the planning, designing and scheduling of assessments and exam papers, the online and offline delivery and monitoring of tests as well as the marking, feedback and results process.
- ▶ **StuTalk interface between SITS and Examiner Appointments and Payments (EAP) system** - an online tool for the administration of examiner appointments and payments processes for undergraduate and taught graduate degrees. The EAP stores information on staff members that are involved in Oxford assessments and submissions.
- ▶ **StuTalk interface between SITS and the Exam Scheduling system (CMIS)** - a software solution used to create and maintain exam timetables and bookings. CMIS is the exam scheduling system used by Oxford to create Candidate records for assessments in SITS.

eVision Functionality

The eVision functionality has been designed and built to enable:

- ▶ Selected users to assign staff members roles to specific exams and submissions.
- ▶ A flexible approach to handling two different assessment types with different users - exams and submissions - and within each of these two levels of access - super user and user.

- ▶ Each user to perform multiple roles in an exam/submission with a task designed to do:
 - ▷ Updates in a loop so that if multiple people were added to multiple roles for an exam/submission it would loop through each person one at a time adding each of the chosen roles.
 - ▷ Periodic updates to eVision messaging to inform the user of the progress so they are aware of approximately how long it would take and to provide reassurance that the updates are running correctly.

“Technically, the biggest challenge regarding the eVision functionality was to balance the required flexibility of adding multiple people to multiple roles in an exam/submission while balancing speed and performance.” Ashley Jones, Stu3 Developer

Inspira (e-Assessments) Interface

The e-Assessments interface has been designed to send the following data from SITS to the e-Assessments system:

- ▶ **Written assessment and module assessment submission details** - including assessment start date and submission end date.
- ▶ **Candidate data** - If a candidate is removed from an Assessment or Submission in SITS, the candidate will be removed from the associated test record in the e-Assessments platform.
- ▶ **Staff assigned roles** - the Assigning Roles eVision task allows selected users, via the interface, to assign staff member roles to specific assessments or submissions in the e-Assessments platform in order to grant these assigned staff members access to the assessment/submission in question. Additionally, the task) allows staff to be added and removed from an assessment/ submission and for this to be passed through to the eAssessments platform.

The connection between SITS and Inspera has been designed to utilise multiple API's that Inspera offers for assessments, contributors, candidates and admins. Access is handled via a custom SITS OAuth 2.0 token based model, with StuTalk handling the evaluation, generation and transfer of data.

Additionally, Stu3's delivery includes:

- ▶ The creation of a data model in SITS to fit the Inpera data model with:
 - ▷ triggered based updates on each table.
 - ▷ data transformation handled in the **XET's** to ensure data is formatted and converted correctly. This included handling daylight savings time, unit conversions etc.
- ▶ A set of scripts (**XSLT**) through which data generation is handled in order to send the data in the model that Inpera requires (**JSON**)
- ▶ Use of custom SITS workflows to ensure the data is:
 - ▷ sent to the correct end point
 - ▷ handles calling and storing new tokens
 - ▷ supports multiple error handling scenarios.
- ▶ Data being written back into SITS so each system holds primary key data for the other.

Examiner Appointments and Payments (EAP) Interface

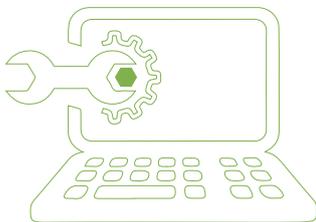
The EAP interface has been designed to handle data exchange from EAP to SITS to include:

- ▶ EAP staff information - the received information creates SITS records which in turn can be passed to the eAssessments platform to create admin records for the staff members. This allows staff members to work on their assigned submissions/assessments.

This was built on the principle of dump pipes, smart endpoints, meaning the interface would read in all the data for an academic year that EAP would send in the request, that included duplicate data and unmatchable data.

With this massive dataset (50,000+ members) it would:

- ▶ Break it down into individual exam boards (500+)
 - ▶ For each exam board, the following happens:
 - ▷ Duplicate exam board members are stripped out
 - ▷ Unmatchable exam board members are stripped out (missing SSO)
 - ▷ Data is converted from JSON in EAP format to XML that SITS can process
 - ▷ Missing SITS primary key data is added to the payload so that it can be stored
 - ▷ An MPA and ICP is created/updated for internal examiners
 - ▷ An EEX, MPA and ICP is created/updated for external examiners
-



Exam Scheduling system (CMIS) Interface

CMIS, the exam scheduling system, takes assessment and student data from SITS, allocates students to assessments, and then sends the student data back to SITS. When this process was analysed, it became clear that the key data links between the students scheduled assessment times and the assessment they were on, were being lost when the data was returned to SITS.

To create the robust link needed for the Inspera interface, the current student-based integration had to be updated, to stamp the primary key of the assessment on the student record when returned from CMIS. This meant an update to the XML and data import process. However, to support the data model in SITS, where one exam had multiple sittings against it for initial sittings and resits, the assessment date and times also needed to be transferred from CMIS to SITS, so the assessments could be created in Inspera.

To allow this, a new interface was created alongside the student based interface. This used the existing transport methods, to read an XML file via StuTalk, before processing it into a staging table, transforming the data into the SITS structure and updating the required records.

Stu3 Auto Documentation Template

Alongside the StuTalk interfaces, the Stu3 auto technical documenter has also been utilised which:

- ▶ automatically generates at any point from the system, up-to-date technical documentation (built from XML and XSLT) to include:
 - ▷ all the configuration items linked together in a readable way to give easy oversight of the entire build.

The Benefits

“Moving our exams and submissions online has had a massive efficiency and security benefit.” **Naomi Hood, Senior Project Manager, UoO**

The new solution has provided the following benefits to the institution:

- ▶ Improves student experience by offering typed exams to the majority of students via a modern
- ▶ Reduces the need for exam adjustments by providing a digital interface designed for taking assessments in an HE setting
- ▶ Saves staff time compared with management of paper submissions/ exams, earlier detection of late submissions, printing and distributing examination papers, hiring rooms etc.
- ▶ Provides a robust and fully scalable digital assessment platform for online summative examinations, in the case of continuing disruption from pandemic.
- ▶ Provides the foundations so that, in future academic years, departments will be able to take advantage of a wider range of assessment options - choosing appropriate exam and assessment methods for each programme of study.
- ▶ Avoids the cost of hiring existing & additional locations for in-person exams by being able to offer online exams as needed to meet scale.

“We have lots of data being sent to Inspera and all of this data is being created for the users without much maintenance required. It’s all automated and all automatically configured as it were, into Inspera. That’s because now we’ve got a data feed coming from EAP to SITS of all the examiners and a data feed going from SITS to Inspera.” **Antony Brown, University of Oxford Test Manager**

“Other benefits, certainly for students, is that they can see when requests have been pre-approved, to put their minds at rest that they will receive the additional time needed. There’s just no way we could have rolled all of that out, at that scale without the data integration. This links back of course to the work that Stu3 did for us.” **Victoria Brown, University of Oxford Senior Project Manager (e-Exams) Working on the project**

Working on the project

“From my point of view, it’s been really good working with the Stu3 team and I would certainly work with them again. I find Pete (Stu3 Developer) and Sam (Stu3 BA and Tester) really easy to talk to and they are really responsive, and their work is done to a really good standard. They’ve been very happy to have weekly calls. Sometimes the supplier can be a bit reluctant to have a meeting, as though it’s a waste of time and it can be difficult to get time with them, whereas with Stu3, I could just jump on a call and just talk it through, rather than going through everything over a dozen emails. They weren’t just trying to please us, and do whatever we want, but were amenable and open to how we wanted to do things.”

Naomi Hood, Senior Project Manager, UoO

“Stu3 did the BA work, development and functional testing then handed over, but there was a lot of support for us when we were in testing and in UAT and also when we needed to make some changes. I don’t know if the Stu3 team were working on other projects, because they were always available and very responsive. They never said, “Oh I’m too busy working on something else”. They did actively try and help us when things went wrong, or when things went live they were very helpful in supporting us in trying to unpick things and to understand what went wrong. Also, it was very good having Ashley (Stu3 developer) create the eVision task. I think all of our eVision screens look quite dated and I know there’s a lot of things you can do with eVision and SITS which we’re not aware of or don’t utilise very well. Stu3 came in and suggested a whizzy way of doing something, providing a fresh perspective based on previous experience of working at lots of other institutions.”

Antony Brown, University of Oxford Test Manager

“Stu3 gave us some really good steers on the integration especially around what was and wasn’t possible. What Stu3 added for me, in particular, was their understanding of APIs in the liaison with Inspera. Stu3 had a lot of good questions regarding the APIs so that technical liaison was very, very useful. For the delivery of the project, the integration was absolutely critical. It was ambitious, in terms of time scale, but it was all done in time, beautifully in time.”

Victoria Brown, University of Oxford Senior Project Manager (e-Exams)

On working with Stu3 on future projects:

“Stu3 gave us a level of StuTalk expertise that we don’t have internally and also showed how SITS and eVision could be developed and configured in ways we hadn’t done before. I think based on that basis we are going to use Stu3 again - definitely - for example, for our Digital Transcripts project as well as consultancy for StuTalk. There’s talk about getting you Stu3 to do that. You’re StuTalk gurus!”

Antony Brown, University of Oxford Test Manager

Background on Client

As the oldest university in the English-speaking world, Oxford is a unique and historic institution.

There are over 24,000 students at Oxford, including 11,955 undergraduates and 12,010 postgraduates. Oxford is very competitive: more than 23,000 people have applied in each of the last three admissions cycles, and there are usually only around 3,300 places. The majority of Oxford’s UK undergraduates come from state schools. For 2020 entry, over 69% of UK offers went to students from the state sector. Oxford offers more than 250 postgraduate programmes and international students make up almost 45% of our total student body - around 10,900 students. Students come to Oxford from more than 160 countries and territories.

Let's chat.

STU3 LIMITED
EVERGREEN HOUSE NORTH
GRAFTON PLACE
LONDON NW1 2DX

OFFICE HOURS
MONDAY - FRIDAY
9AM - 6PM

CONTACT
CONTACTUS@STU3.CO.UK
020 3305 8443

STU3 CASE STUDY

A StuTalk project to integrate SITS with Inpera for online assessments and submissions