



Improving the learner experience

Integrating learning management and student records systems and a UK university

Dr. Steve Gallagher
Synapsys NZ Ltd
steve.gallagher@synapsys.co.nz
<http://www.synapsys.co.nz>

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 - s.quinsee@city.ac.uk
 - <http://www.city.ac.uk/elearning>
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 - mike.beeston@maven-asc.com
 - <http://www.maven-asc.com>

The Context

- City University, London
- 12,000 students, 1,500 staff (800 academic/research, 700 support)
- Eight semi-autonomous schools
- All at different levels of e-learning adoption
- Increasing use of e-learning
- A centrally supported learning management system(LMS)
- A single student records system (SRS)

Symptoms

- Students
 - I can't access my learning materials
 - I can see my marks on the LMS, they're wrong
- Teachers
 - Who are these random students on my module?
 - Why can't X see my content?
 - I need to change the grade that the system awarded this student, because they cheated
- Administrators
 - According to the SRS, these guys should be enrolled, but they're not
 - I have to enter the marks twice????

The Problem

- Lack of integration between SRS and LMS
- Diverse range of practice across different Schools

The Solution: MLE Project

Objective

"to improve the learner experience for both staff and students at City University by making systems work more efficiently and effectively together"

Two areas of focus:

- Registration and enrolment
- Transfer of assessment data between the two systems

Registration and Enrolment

- Objective was to automate the enrolment of students on LMS modules, based on data in SRS
- Attach students to modules in LMS (where present) according to module rules held in a separate system.
- Questions:
 - How well do University defined 'module rules' apply at the School level?
 - How do Schools represent 'modules' in the e-learning space?

Assessment

- Provide a means of sharing assessment data between systems
- Both systems need assessment data for different reasons
- Questions:
 - How are Schools managing this currently?
 - How do students in different Schools access their marks and feedback?
 - How are exceptions handled?

Getting this right

- We needed to get a good understanding of these processes
- Not always clear how these systems were used in different parts of the University
- Process of consultation:
 - Central University Services (Registry)
 - Teaching and Administrative staff

What we did

- Identify key people who worked with both systems across all schools
- Questionnaire
 - What do you do in your school?
 - What are the barriers to doing this effectively?
 - What would you change about the systems if you could?
- Focus group

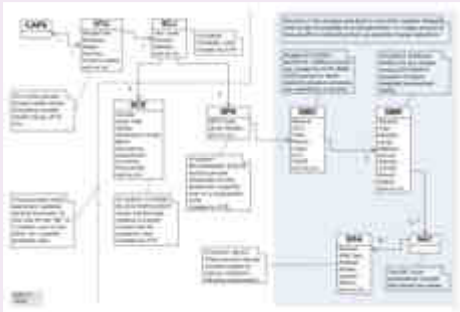
What we found

- Strong desire to improve the flow of data between LMS and SRS – need to know that the data in *both systems is accurate*
- Desire to avoid manual entry or double entry of data where possible
- Desire for 'near realtime' data transfer – students don't like waiting!
- Desire to avoid manual reformatting of data for different systems

Issues uncovered

- SRS complicated – multiple entry screens, but no validation
- LMS not designed to support City style assessment processes, difficult to batch import data
- How to accommodate sit/resit/moderation/exam boards processes?
- Assessment weightings
- Every school has different practices

Complexity



How can technology help us?

- Data sharing between systems did exist
 - Batch processes (e.g., daily download)
 - Fragile (i.e., liable to break)
 - Tightly coupled, custom interfaces
 - No awareness of business rules, which led to many problems
- Need a more flexible system that can accommodate the different needs of the different schools



Service Oriented Architecture

- Technology that provides a common means of communication between systems
- Business processes can be built on common communication platform
- Supports 'on demand' communication, when process requires it
- Exception handling
- Workflow management
- Portal capabilities

Example Process: New Student

- A new student joining a course generates many activities across multiple, disparate systems. For example:
 - Student Record System (Registry)
 - Library
 - Reading lists
 - Finance
 - LMS
 - Email
 - Security Access

Using SOA to link applications

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|--|--|
| <p>Before</p> <ul style="list-style-type: none"> • Linkages between applications are one to one • Techniques are batch and bespoke • Interfaces are custom and tightly coupled • Interfaces/linkages are fragile | <p>After</p> <ul style="list-style-type: none"> • Business rules link applications/data when required – process driven • Techniques support near real-time - on-demand • Interfaces use common techniques • Supports re-use • Loosely-coupled |
|--|--|

SOA – Benefits for new student process

Before

- Batch – “long” time delays
- Fragile
- No re-use
- No process visibility

After

- Near real-time – no perceptible delay
- Agile
- Scope for re-use
- Full process visibility and audit

Technology Selection

- Began during requirements gathering
- Other City projects stakeholders in technology choice
- Many possible vendors – IBM, Tibco, BEA etc
- Ultimately, IBM Websphere selected

Summary

- Solving these problems for large organisations demands a rigorous requirements gathering process
- Let the problem define the solution, not the other way around
- Problems need to be examined in the wider organisational context