Learning Management System (LMS) Evolution
Change management perspective

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Background of HKUST
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- Started in 1991
- 9000 Undergraduates
- 4500 Postgraduates
- 600 Teaching staff
Evolution of LMS in HKUST

1997
Basic website for content distribution

- Require technical skills to set things up
- Need to remember many URLs

Content delivery

2001
WebCT
Ease of content update by non-technical persons

- Bb acquired WebCT >> unknown future
- No control over enhancements / fixes
- License cost

Basic Interaction

2006
Sakai
Open-source
Allow customization

- Inconsistent UI
- Not user-friendly
- Application architecture changes between versions
- High maintenance cost
- Not suitable for blended learning

Customization

2014
Canvas
User-friendly
Min maintenance
API for integration

- No customization on core functions
- Network latency
- Privacy / security concerns
- Remote support

Cloud Service
Why change?

- Academic reform in HK in 2012
  - New curriculum
  - 3 years tertiary education → 4 years
  - Outcome-based learning
- Blended learning initiative
- More team-based and online activities
- High maintenance cost to maintain the open-source Sakai platform

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## Change Process – solutions selection

<table>
<thead>
<tr>
<th>Oct-13</th>
<th>Oct-13</th>
<th>Nov-13</th>
<th>Jan-14</th>
<th>Feb to Apr-14</th>
<th>May to Jul-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formation of Committee</td>
<td>Requirements</td>
<td>Vendor listing</td>
<td>Vendor demo</td>
<td>Tender Process</td>
<td>PO &amp; Agreement</td>
</tr>
<tr>
<td>Oct-13 Forma.on of Committee</td>
<td>Functional requirements</td>
<td>Blackboard</td>
<td>Blackboard</td>
<td>Tender reply Trial system setup Tender review (Technical) Tender review (Price) Recommendations Tender board approval</td>
<td>May to Jul-14 PO &amp; Agreement</td>
</tr>
<tr>
<td>Oct-13 Vendor listing</td>
<td>Technical Requirements</td>
<td>Canvas</td>
<td>Canvas (remote)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nov-13 Vendor listing</td>
<td>Evaluation criteria</td>
<td>Desire2Learn</td>
<td>Moodle</td>
<td></td>
<td></td>
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<td>Jan-14 Vendor demo</td>
<td></td>
<td>Moodle</td>
<td>Moodlerooms</td>
<td></td>
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### Stakeholders engagement
- Confirm project objectives
- Look for solutions
- Evaluate solutions
- Management approval
- Start of implementation

**Engaging faculty members & students in the process is important as they are the real-users**
Our change objectives

- Usability
- Scalability & High Performance
- Mobile friendly
- Security
- Expandability
- Maintainability

canvas
Initial hurdles of the change

- Top concern – Cloud service
  - Data Privacy
  - Security
  - Ownership of data
  - Law compliance
  - Performance / Latency
  - Support

- To overcome
  - Persuade stakeholders – Cloud services is the trend
  - Review and revise service agreement to meet our needs
  - Use the new data center in Singapore instead of USA
Change Process - Implementation

Jul-14
On-site
Implementation Workshops (5 days)

Jul-14
On-site
Trainings (3 days)

Aug-14
System Implementation

Sep-14
Production Launch

1. Project planning
   - Branding & UI
   - JS customization
   - Basic Setup
   - Authentication
   - Roles/Permission
   - Migration
   - Integration
   - Marketing
   - Support model

2. Admin Training
   - Instructor Training (train the trainer)
   - Course Design & Delivery
   - Assessment / grading / collaboration
   - Communication, analytics
   - Training Strategy

3. Regular web meeting w/ implementation Consultant
   - SIS import
   - Customized URL
   - User Agreement
   - LTI whitelisting

4. Few courses in pilot
   - System walk through with pilot instructors
Implementation / Change strategy

- Minimize customizations from the core system
- Phased approach
  - 1\textsuperscript{st} phase Sept 2014 with minimal integration
  - 2\textsuperscript{nd} phase Feb 2015 with more integration with existing systems

- Objectives
  - To launch the system as soon as possible
  - Minimize customization / upgrade effort
  - Ease of on-going maintenance and support
  - Standard tutorial / training materials from Canvas can be used
Implementation - customizations

- Minor user interface customizations
  - Hide delete course button
  - Hide reset course content button
  - Hide conclude course button
  - Hide add token button
  - Hide link to Instructure support site
  - Add user agreement for 1\textsuperscript{st} time access

- Objectives
  - Minimize impact to users when they are not familiar with the system initially
  - To direct all support requests to local team for better support
  - Force user to review the TOS before using the system
User interface customization

External Apps

Apps are an easy way to add new features to Canvas. They can be added to individual courses, or to all courses in an account. Once configured, you can link to them through course modules and create assignments for assessment tools.

See some LTI tools that work great with Canvas. You can also check out the Canvas Community topics about LTI tools.

{code embed} Dropbox

Set up a code embed to Dropbox.
User interface customization

Approved Integrations:

These are the third-party applications you have authorized to access the Canvas site on your behalf:

<table>
<thead>
<tr>
<th>App</th>
<th>Purpose</th>
<th>Dates</th>
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</thead>
<tbody>
<tr>
<td>User-Generated</td>
<td>William</td>
<td>Expires: Jan 31 at 12am</td>
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<tr>
<td></td>
<td>Test</td>
<td>Last Used: --</td>
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<tr>
<td>Canvas for Android</td>
<td>LG-F350L</td>
<td>Expires: never</td>
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<tr>
<td></td>
<td></td>
<td>Last Used: Mar 5 at 10:53am</td>
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+ New Access Token

Terms of Service Agreement

Last updated: Jul 18, 2014

1. Acceptance

By using the HKUST Learning Management System ("LMS", "Service") provided by Instructure, Inc. ("Service Provider") and managed by HKUST LMS Administrator ("Administrator", "We", "Us"), you ("User", "Users") are agreeing to be bound by the following terms and conditions ("Terms of Service").

2. User restriction

Users are not allowed to:

i. use the Service, for non-educational purposes, to store or transmit infringing, unsolicited marketing emails, libelous, obscene, deceptive, defamatory, pornographic, racist, sexual, hateful, or otherwise objectionable, unlawful or tortious material, or any other material in violation of a third-party right;

ii. use the Service to harm or impersonate any person, or for any commercial purpose;

iii. interfere with or disrupt the integrity or performance of the Service;

iv. attempt to gain unauthorized access to the Service or their related systems or networks;

v. reproduce, duplicate, copy, sell or exploit any portion of the Service or

vi. reverse engineer the Service;

3. Privacy

We pledge to meet fully internationally recognised standards of personal data privacy protection, in complying with the requirements of the Personal Data (Privacy) Ordinance (PDPO). In doing so, we will ensure compliance by our staff with the strictest standards of security and confidentiality.
Implementation – LTI whitelisting

**Objectives**
- Narrow-down those useful LTI tools For instructor to use.
- Hide those require subscription or system integrations
- Minimize support effort
Kevin, Can we hide this, show that and add that?

Sure, let me do it tonight!

Good question! Do you want a pen, notebook, T-shirt or pin?
Change Management – User adoption

- Migration plan from Sakai to Canvas
- Email sent to all teaching staff about the plan
- Communicated with student union about the new system
Adoption / migration strategy

- Objectives
  - Minimize lead-time
  - Minimize support work
  - Instructor / TA self-service migration
- A very simple LTI tools was developed for migration use
- Organize trainings for instructors and TAs
Migration

Instructor / TA self-service migration

A LTI tool has been developed for migration use

There are 76 courses used this tool to migrate the course materials from Sakai to Canvas

LMES Migration

This tool helps you transfer components from your LMES course site into the current Canvas site. Once you have migrated the content, you can easily modify it and integrate the components into your Canvas learning sequence.

STEP 1 Which course do you want to transfer content from?

-- Select a LMES Course Site --

STEP 2 Which components would you like to transfer?

To find out more about the settings of the individual components after the transfer or where to find them on Canvas, click on the info icon after each of the components.

- Course Content
- Announcement
- Assignment
- Self-Test

STEP 3 Start the transfer

The duration of the transfer depends on the amount of components you are migrating. In most cases the process will not take more than an hour, but in some rare cases, it may take up to a day. You will receive an email on your ITSC account as soon as the process has been completed.
User adoption (Training)

From Aug 2014 – Jun 2015

Canvas Basic
- 11 sessions held
- Basic functionalities of Canvas
- Course & content design
- Manage student progress
- Over 200 participants

Canvas Extended
- 11 sessions held
- Student Groups
- Conferences
- Turnitin and other assessments
- Over 200 participants

Canvas for CLE
- 3 sessions held
- Specific sessions for language course instructors / TAs
- ~100 participants

Canvas Exclusive
- Multiple sessions held
- Training specific to individual / groups of instructors / TAs
Integration with other systems

• Integration strategy
  – User-friendly
  – Seamless integration between systems
  – Auxiliary systems can be updated / upgraded independently

• Objectives
  – To retain the existing LMS integration to minimize changes for end-users
  – To enhance the existing integration to make users more willing to change
Integration with other systems

CAS
Central Authentication System

SIS
Teaching & Enrollment Records / Grades

SFQ
Student Feedback Questionnaire

iPRS
Clicker system

iPeer
Peer evaluation system

LIB
Library toolbox

OAuth
Basic-Auth
JSON
XML
GET
PUT
POST
REST
DELETE

API
LTI
Integration (CAS)

CELT System Authentication Service

To access the protected service, please enter your ITSC network account username and password.

Username
Password

Login

Remember to Logout - It is important to log out and close all your web browser windows when you finish using services that require authentication.

Password Management:
For ITSC account users, click here if you want to change your password. Contact cchelp@ust.hk or call 2358-6200 if you want to retrieve your password.
For non-UST users, please authenticate yourself with the credentials provided by CELT. Click here if you want to change/retrieve your password.

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Integration (SIS student import)

SIS Import

Select the zip file that you want imported.
For a description of how to generate these zip files, please see this documentation.

Choose File: No file chosen

Import type: Instruction formatted CSV or:

☐ This is a full batch update
If selected, this will delete everything for this term, which includes all courses and enrollments that are not in the selected import file above.
See the documentation for details.

☐ Override UI changes
By default, UI changes have priority over SIS import changes; for a number of fields, the SIS import will not change that field's data if an admin has changed that field through the UI. If you select this option, this SIS import will override UI changes.
See the documentation for details.

Process Data

Last Batch

Started: Mar 5 at 4:17pm
All SIS data was successfully imported.

- Imported Items
  - Accounts: 0
  - Terms: 0
  - Courses: 0
  - Sections: 0
  - Users: 0
  - Enrollments: 0
  - Crosslists: 0
  - Groups: 0
  - Group Enrollments: 0
Integration (SIS grade publish)
Integration (SFQ)

Welcome to Canvas!
You don’t have any courses, so this page won’t be very exciting for now. Once you’ve created or signed up for courses, you’ll start to see conversations from all of your classes.

Recent Activity

Coming Up
Nothing for the next week

SFQ to complete
- CELT-1001
  ends on 31 Mar 2015
- IPRS-1001
  ends on 31 Mar 2015

Active SFQ Surveys
- ACCT-2222-L1

New SFQ Reports
- ACCT-1001-L1-STA
  Mr. Edmond Fung
- ACCT-1001-L1-STA2
  Mr. Edmond Fung
- ACCT-1001-L1-STA2 (provisional)
  Mr. Edmond Fung
Integration (Library Toolbox)

Facts & Figures
- Credo Reference
- Encyclopedia Britannica Online
- Gale Virtual Reference Library
- Oxford Reference Online

Databases
- EBSCOhost
- LexisNexis Academic
- ProQuest
- SciVerse Scopus
- WiseNews

Library Services
- Services for Undergraduates
- Services for Postgraduates

Research Guides
- Information Strategies for Research Assignments
- Writing Guides and Manuals

Citation Manager
- RefWorks

PowerSearch (Library Catalog)

PowerSearch (Finding articles)

Ask a Librarian: web form | email (libref@ust.hk)

Modified on November 27 2014.
B. Instructor Interface

1. Preparing iPeer (Step 1)

Preparing iPeer (Step 1: Create a new iPeer course)

To start using iPeer, please press the “Create a new iPeer Account” button to confirm creating the following course in iPeer, current user will be added as default instructor.

Next step will be adding teaching staff to the course.

Course Code: SPRING 2014-15 ELEC4610 L1

Course Title: Engineering Optics

Instructor: ccjlee
Integration (iPRS)

Which country is not a member of the European Union?

(1) Belgium
(2) Finland
(3) France
(4) Norway
(5) Romania
(6) Sweden

00141505 11223
Result of the change

• More than 200 course sites created for Spring 2015
• All course sites will be auto-created starting from Summer 2015
• Overall feedback is satisfactory
• Survey will be conducted to collect more feedbacks from users
Current status (2015 Spring)

The Hong Kong University of Science and Technology

<table>
<thead>
<tr>
<th>Courses</th>
<th>Teachers</th>
<th>Students</th>
<th>Assignments</th>
<th>Discussion Topics</th>
<th>Files Uploaded</th>
<th>Media Recordings</th>
</tr>
</thead>
<tbody>
<tr>
<td>117</td>
<td>136</td>
<td>5,164</td>
<td>1,285</td>
<td>2,213</td>
<td>6,082</td>
<td>408</td>
</tr>
</tbody>
</table>

Activity by Date
Each bar represents the number of page views on that day. An orange bar indicates that some user took an action within a course on that day.

Activity by Category
Each bar represents the number of page views related to that category.

Grade Distribution
Distribution of current grades in courses across all students enrolled in department courses.
Thank you!

Q&A

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