



HARVARD UNIVERSITY
Information Technology

Project Completion Report

my.harvard Student Information System (SIS)

Report to CIO Council

March 21, 2017

Project Completion Summary - SIS (my.harvard)

Summary Metrics

 **Budget:** .003% over revised budget due to late change in HRES tenancy
Green = less than 10%, Yellow = between 10% and 20%, Red = more than 20%

 **Schedule:** Overall project delivered on time
Green = less than 10%, Yellow = between 10% and 20%, Red = more than 20%

Award: \$54M*
Spent: \$53.2M

Start: 05/2013

End: 12/2016

* Revised to \$53.2 for change to HMS scope

Major Benefits Achieved

- Delivered common student, faculty, and advising portal for 7 schools (HCOL, GSAS, SEAS, HGSE, GSD, HDS, Harvard Chan SPH, HKS)
- Replaced mainframe term billing and third-party electronic bill presentment platforms with new platform offering significant usability benefits for students, alumni, parents, and other third party payers.
- Replaced local student information systems previously in use by the 7 schools and migrated several paper-based processes online, including grading for GSE, enrollment for FAS/HDS.
- Built new student data warehouse to support institutional reports, student financials, school reports, and data integration with external systems.

Key Success Factors

- Strong executive governance committee and partnership between schools and project team
- Agile development process allowed us to make up ground
- End user portal design allowed for minimal training for core user base

Areas for Improvement (see lessons learned...)

- More concrete / defined requirements and scope
- Opt-in model for schools created significant inefficiencies during the first year
- Staffing model and approach was not optimal

SIS (my.harvard) - Vision

The Vision for Student Information System Program

Adopt a modern, secure, flexible, and intuitive student information technology platform that provides an excellent user experience, supports unique requirements of the Schools, and facilitates access to integrated student and course data.

Objectives

1. Make it easy for students, faculty, and advisors to access information and do their jobs
2. Support critical student-related business processes according to best practices and distinctive Harvard needs
3. Provide University-wide course catalog and schedule of classes
4. Create a unified environment to support inter-faculty teaching, learning, and administration
5. Consolidate redundant systems while facilitating interactions with mission-critical School systems
6. Deliver an extensible platform and data architecture to support future innovation

Guiding Principles

1. Embrace an iterative (agile) approach for continuous improvement
2. Ask hard questions about current business practices and opportunities for change
3. Maintain transparency and foster collaboration
4. Ensure business needs drive technology adoption rather than the reverse
5. Design common system to allow Schools to join over time
6. Strive to be a leader in student information systems technology and processes

Key Performance Indicators

1. Continuous acknowledgment of lessons learned from prior efforts
2. Active engagement from University and School leadership
3. Leverage existing information systems investments and expertise
4. Recognize and manage the impact of this change on the University community
5. Focus on achieving key objectives and adhering to project scope for initial implementation with continuous improvement achieved in subsequent phases

Project Timeline

May 2013	Program announced
Summer 2013	Cross-school foundational design process
November 2014	New “new admit” and bio-demo processes
March 2015	Launch Student Financials module Retire SIS+ mainframe Back-office curriculum management for FAS, HDS
July 2015	my.harvard course search for FAS, HDS
August 2015	Advising portal open for College, GSAS, SEAS, HDS advisors Student self-service portal launches for College, GSAS, SEAS, HDS
December 2015	Grading completed in my.harvard
January 2016	Student Financials self-service for <u>all</u> students
Spring 2016	Curriculum management for GSE, GSD, HKS, SPH
June 2016	Delegate (e.g., parent) portal launches; tuition calculation for all Wave 2 schools; online ACH payments
August 2016	Advising, Student, and Faculty Portals open for GSE, GSD, HKS, and Harvard Chan
December 2016	Project ends – transition to operations

“Top 10” Key Focus Areas for All Schools

Topic	Progress
1. Admitted students data	PARTIAL – Standard format has been in use since November 2013 and complies to common data model. Additional data elements such as test scores and previous institutions remain in progress. Harvard Chan has fully integrated application processing.
2. Student financial services	COMPLETE – Tuition calculation automated for all my.harvard schools.
3. Registration checklist	COMPLETE: Schools have a highly standardized check-in process for updating biographic data, emergency contacts, etc., with local variances as necessary. Verbiage conformed to “check-in.”
4. Course enrollment	COMPLETE: Students from my.harvard schools can enroll from my.harvard portal from computer, tablet, or phone 24x7. INCOMPLETE: Cross-registration will be integrated as of Fall 2017.
5. Faculty support	COMPLETE: Combined section data merged on feed to Canvas system to create one site. Faculty can view all my.harvard courses in home page, with consistent navigation to rosters, permission requests, and grading. First version of combined roster delivered in Fall 2016, but only includes the my.harvard school enrollments. INCOMPLETE: Enrollments from non-my.harvard schools in joint courses to be delivered by Fall 2017; streamlined cross-registration features also coming Fall 2017. Faculty dashboard in “beta” and to be rolled out over the next year pending school review.

“Top 10” Key Focus Areas for All Schools

Topic	Progress
6. Advising & student progress	<p>COMPLETE – HDS, GSD</p> <p>PARTIAL – College (opt-in by field), HKS, GSE, SPH, GSE</p> <p>FUTURE – GSAS</p>
7. Student status	<p>SOME PROGRESS – Convergence on high level status (enrolled, leave of absence) but many other student attributes remain highly correlated to unique aspects of each academic program. Ongoing discussion as reporting initiatives proceed.</p>
8. Course catalog	<p>COMPLETE (for my.harvard schools) – Unified search with facets and advanced filtering, with support for common data elements and school-specific attributes.</p> <p>Summer 2017: Integration of cross-registration eligible courses</p> <p>TBD: Integration of MIT and DCE courses</p>
9. Transcripts & verifications	<p>DEPRIORITIZED – There has been no concerted effort to consolidate third-party vendors, although all students can obtain unofficial transcripts from my.harvard. May be opportunity ahead as schools look to replace existing contracts.</p>
10. Add/drop/withdrawal dates	<p>DELAYED – Will be discussed in context of new cross-reg processes for Fall 2017, but dates are still determined by the schools.</p>

Features and Requirements Delivery

What features and requirements did the project deliver?

- Intuitive student, faculty, advising, and third-party payer portal
- Back-office suite of curriculum management, student records, advising, student financials, and admissions modules
- Converted data from multiple local systems (at least one per school)
- Data warehouse and real-time data integration layer
- Integration with many third-party systems such as CAADS, MIDAS, Oracle GL, PeopleSoft HR, school databases, etc.
- Automated tuition calculation and delegated payer access using HarvardKey
- Mission-critical unique features for the schools:
 - GSD: Lottery, Course Evaluations
 - GSE: Shopping Week, Course Competencies
 - HSPH: Internal transfer credit, applicant/admit portal, waitlist
 - HKS: Bidding, Loan Repayment Program, Lockers, Flight Plans
 - HDS: Field Education, Plan of Study
 - FAS: Sectioning, Advising Surveys, GSAS G-Year, Declaration of Concentration

Features and Requirements Delivery

List any planned features/requirements that were not delivered.

- HMS and HSDM adopted a third-party medical school specific platform
- Historic admissions data has not yet been loaded for most schools
- Standardized school code master list far more challenging than expected
- Integrated cross-registration within my.harvard deferred to Fall 2017
- University-wide course catalog remains a separate system
- Degree audit has not yet been completely rolled out

List any significant changes to scope.

- Many customizations required to meet the MVP requirements of the schools (although we avoided many, too) beyond the “marquee” known extensions.
- Requirements of “faculty portal” were ambiguous; final scope included new UX for course catalog, faculty, students, advisors, parents, and alumni.
- Real-time data integration layer (“ODS”) was not in the original plan, but became necessary to support systems integration and reporting needs.

Transition

Ongoing Governance

- UCIO will chair ongoing governance committee, which includes representation from all my.harvard schools and central administration.
- Management of ongoing enhancements through working groups comprising all schools; continuous delivery based on Kanban for ongoing priority management.

Ongoing Support

- Carolyn Brzezinski, Director of Enterprise Student Systems, is the service owner, reporting to the Managing Director of Administrative Technology Services.
- The ongoing team includes approximately 21 individuals: 4 product managers, 7 business/data analysts, 2 support and outreach, 5 developers, 2 warehouse architects, and 1 user security analyst.
- Most of the support team was part of the implementation team during the project.

Communication and Engagement

- Bi-weekly meetings between schools and the product managers.
- Director meeting monthly (or ad hoc) with every school/unit.
- User groups for each major functional area.
- Schools continue to own local business process change and communication.

Lessons Learned – Scope & Planning

Surprises

- Project timeline was aggressive and ideally would have included longer stabilization.
- Planning phase focused on business case for change, but did not provide detailed design or backlog items. Focus was on marquee feature gaps (e.g., lottery).
- Agile methodology required for scope management but learning curve, additional PM resources, and change management with schools were not factored into the budget.
- Expectations were very high; Harvard's tolerance for MVP remains a work in progress.
- User experience critical to adoption and change management, but it takes time.
- Some strategic goals (e.g., common transcript) were not priorities for stakeholders.

Best Practices

- Continuous delivery – multiple releases per week – is major success factor in making it possible to address feedback and introduce new features.
- Ensure that planning phase produces a more comprehensive product backlog based on fit-gap analysis before the implementation begins.
- Include education / change management time for the methodology (Agile or otherwise) for both the delivery team and stakeholders.
- Consider the staffing approach for stabilization and work just outside MVP.

Lessons Learned – Engagement & Staffing

Surprises

- Initial “interactive design and prototype” (IDP) phase was unsuccessful; schools were expecting fit-gap and the consultants expected to configure the system.
- Schools needed more dedicated resources than originally estimated; the budget did not include dedicated FTEs for each school, but they proved necessary.
- Allocation of resources to Wave 2 delayed due to Wave 0/1 work, which put additional pressure on the timeline.
- Resource requirements for agile project management exceeded expectations.

Best Practices

- Build end user support framework during the project – internal “service desk” in place prior to go-live made a difference when things did not go smoothly.
- Provide open, transparent access for schools to project resources such as ticketing systems, collaboration tools, etc., and mandate adoption.
- Ensure sufficient staffing for agile project management.
- Hire dedicated, professional quality assurance FTEs.

Lessons Learned – Governance & Budget

Surprises

- Effort to support the Wave 2 “opt-in” decision was overwhelming.
- LIM model was wrong for this project; we needed a steering committee approach in each school from the beginning.
- Change in plans for HMS/HSDM midway through the program, with corresponding budget reduction.
- Complexity of downstream systems and their relative inability to adapt to changes (often due to resource or technical constraints).

Best Practices

- As always... strong executive sponsorship with the schools and for the overall program is essential to success.
- Avoid “opt-in” projects where the opt-in decision interrupts implementation.
- Dedicated communications personnel, working in close collaboration with school communications people, should be assigned to every major project.
- Engage downstream system owners in the planning phase and include sufficient resources / budget for those systems to be updated as part of the project.

Lessons Learned – Technical

Surprises

- Data conversion to support the phasing model was extremely complex and too much rework required in the second phase.
- Limitations of downstream systems previously obtaining data from SIS+ mainframe resulted in complex transformation programs and unexpected impacts.
- Scope of required customizations bigger than expected because we did not have the benefit of comprehensive fit-gap beyond “marquee” features.
- Systems integration during the first phase required too many point-to-point interfaces; switched gears mid-stream to use a standard data exchange architecture.

Best Practices

- Deliver standard data exchange / integration structures and push transformation to the “consumer” to streamline development; future data management services will be a huge benefit for ongoing integration.
- Bear in mind that integration is a two-way street -- many mission critical integration points have real limitations on data formats, frequency, etc.
- Avoid changing infrastructure / hosting approach mid-stream.

Lessons Learned – Discussion

From your perspective, it would be really helpful to capture input on the project and product, to help inform how we a.) deliver services in the coming year and b.) design future projects of similar magnitude and complexity

What should HUIT...

...Keep Doing

...Start Doing

...Stop Doing

Thank You