Introduction to the Plan

In October 2009, Provost Peter Salovey and VP for Finance and Business Operations Shauna King charged Philip Long, Yale’s Chief Information Officer, to develop a University-wide strategic plan for information technology to maximize the collective leverage of Yale’s investment in IT. The resulting 5-year Plan considers the totality of IT use at Yale, builds on existing IT plans, and supports continued innovation in Yale’s mission activities, while also providing effective and efficient core technologies for the ongoing operation of the University.

The strategic objectives in this plan consider how best to use information technology to achieve President Levin’s strategic goals for Yale (December 1, 2009, Office of Public Affairs):

The Plan was created in the context of three inherent challenges to managing IT services:

• the continuous and rapid pace of IT change
• the immense diversity of IT solutions
• the substantial, sometimes hidden costs of information technologies

Yale’s IT planning is guided by four principles to address the inherent challenges in a consistent way and thereby gain maximum benefit from Yale’s substantial ongoing IT investments across all Yale’s applications, academic and administrative:

• provide standard core IT infrastructure in abundance
• facilitate innovation
• plan, manage and fund IT strategically
• manage IT costs on a life-cycle basis

The Plan presents a vision for an IT-enabled Yale in 2015, from the perspectives of faculty, students, alumni and administrators interacting with Yale throughout the world:

**A Vision for IT at Yale (excerpt)**

On his way to class, Professor Crawford muses about how his teaching has changed since he started using a studio classroom. He now spends less time preparing lectures and the accompanying presentations, and instead thinks about the problems he wants his students to work on during class, the dynamic student feedback he will solicit, the details he wants them to research, and the interactions he wants to foster.

Each time he enters IC-100, he is struck by the remarkable transformation of this room. In its previous form, it was a very traditional classroom, with rows of fixed seats and a “stage for the sage”. There is no “front” or “back”, the stage and rows of seats are gone, replaced by round tables distributed throughout the space and a teaching station in the center of the room.

Professor Roger Wolfers disconnects from the video conference with his Princeton and UCLA colleagues. Using the latest behavioral economics computational tools and techniques, they are mashing up - combining and analyzing - a wide range of data sources including personal, governmental and market financial data, interpersonal interactions recorded in public spaces or published in social networking sites, internet searches, real estate transactions, tax records, and medical data. Before settling down to work, Professor Wolfers glances at myYale, his personal portal, and sees that his NSF grant’s spending is on track, his postdoc’s visa has been extended, and it’s time to re-balance his retirement account.
The Plan: Strategic Objectives and Opportunities

The IT Strategic Plan contains 10 primary Strategic Objectives in support of Yale’s missions. Each Strategic Objective is supported by one or more focused Opportunities to achieve the objective, accompanied by bulleted examples to illustrate specific, actionable projects.

IT for Academic Success: Teaching and Learning

Support Yale’s preeminence as one of the world’s finest educational institutions by becoming a leader in higher education in the use of technology to support and enhance the education process.

Learning spaces
Explore and develop a range of innovative approaches to teaching and learning in facilities across Yale, including state-of-the-art instructional technology in conventional classrooms, IT-equipped learning spaces, and spaces specially designed to accommodate varying instructional approaches.
• Improve current classroom standards and then update the installed equipment in all of Yale’s classrooms.
• Identify, update and equip all of Yale’s learning spaces with appropriate technologies to support learning.

Teaching support and innovation
Provide faculty with the resources, support, and appropriate incentives to develop innovative digital instructional materials, educational resources, simulations, and educational games for use by students and for campus-based, and distance-learning delivery.
• Implement appropriate compact, portable devices that connect students and instructors.
• Consolidate key resources within an Educational Technologies Center to provide opportunities for experimentation.
• Extend current practice with technologies such as clickers or iPhones to provide real time and persistent student feedback to instructors.

Personal learning environments
Provide IT resources that offer students an online environment to integrate and personalize their Yale academic experience and selectively share it while at Yale and beyond graduation.
• Support a collection of online tools that students can use to personalize their learning experiences.
• Provide students with an online portfolio environment where they can showcase samples of their academic work and skills.

IT for Academic Success: Research

Support Yale’s research enterprise though the exploration of highly promising technologies and by providing a state-of-the-art IT infrastructure and associated expertise to support the research lifecycle from proposal to research through publication.

Exceptional research infrastructure
Carefully assess new equipment, systems, facilities and skills that are necessary to advance promising opportunities as research becomes more IT-intensive and provide sustained investments in IT-intensive areas strategic to Yale’s aspirations.
• Develop sustained growth and support for high performance computing (HPC).
• Based on existing resources, establish a world-class biocomputing center for the biomedical sciences that is ubiquitously accessible.

IT for Academic Success: Student-Centric Services

Meet students’ expectations of a technology-enabled university and support student success and the quality of the student experience at Yale by developing student-centric IT services supporting academics, administrative tasks, and student life.

Next-generation student portal
Provide a comprehensive student portal view that integrates relevant content for student life in one place in a way that makes sense from the students’ perspective.
• Combine key content for student life into one relevant place.
• Develop and deploy an institutional student system that fully meets the needs of all academic programs.
• Develop and deploy a student-centric calendaring system.
Electronic textbooks
Assess emerging eTextbook technology and the associated infrastructure.
• In the context of experience at other institutions, deploy e-book/e-reader systems on campus in pilot areas to inform decisions on broader deployment.

IT for Academic Success: Academic Administration
Maintain Yale’s academic leadership by developing a comprehensive set of resources and easily accessible technologies for the creation and use of rich media in scholarly work.

Multimedia digitization
Provision a multimedia utility service to digitize and preserve film, audio, and the many special events that enrich scholarly life at Yale.

Support excellence in academic administration by providing state of the art tools to help Yale effectively and efficiently manage teaching, learning and research activities.

Faculty Information Repository
Consolidate essential information on all faculty and researchers at Yale accessible to all who need it. Fully connect this faculty information repository with related systems to enable integrated support of faculty and researchers.
• Develop the core data repository by combining essential existing information sources and gathering missing information.
• Leverage document management capabilities to facilitate the aggregation, cataloging and accessibility of faculty credentials, references and publications.

Administrative support for the academic enterprise
Provide institutional systems that support effective management of the academic enterprise, including faculty appointments and career development.
• Develop a Faculty Administration system to: administer faculty activity reporting, the tenure process, the appointment & promotion processes, committee nominations & proceedings, and efficient preparation of grant proposals; provide the Office of Public Affairs and Yale websites with needed information and prioritize and “push” the content most valued by the University.

Administrative support for instruction
Revise existing systems of teaching-related activities to enable “flexible learning units” including variable schedules, meeting times, credit, and prerequisite structures.
• Enhance systems for scheduling, course management, and related functions to support “flexible learning units”.
• Provide an institutional course evaluation system.

IT for Clinical Success
Deploy technology to support clinical excellence in the School of Medicine.

Clinical systems
Provide a highly secure, usable best-practices digital infrastructure for clinical care and research.
• Deploy an Electronic Health Record throughout the Medical Campus.
• Deploy a Clinical Trials Management System throughout the Medical Campus.
• Deploy Patient Protocol Management throughout the Medical Campus.
• Deploy a Clinical Data Repository throughout the Medical Campus.

IT for the Yale Community: Alumni Outreach and Support
Foster lifelong connections to Yale in support of alumni with high quality and innovative technology services. Provide alumni with a seamless Yale experience in every phase of their lives and every interaction with the University.

Foster and manage Alumni contacts and communications
Update, expand and extend the channel of communication among and between alumni and the University with innovative and effective technologies. Track contacts with alumni and givers to provide continuity across interactions with Yale entities. Provide a comprehensive picture to those who interact with alumni (selected volunteers, development officers, and representatives from schools and colleges) to leverage
information that “Yale already knows or should know”.

- Deliver a Yale-wide Customer Relationship Management application with alumni configured as a key customer type to track contacts with alumni, donors, dignitaries, the press, compliance/government/legal entities, etc.
- Deliver to each alumnus a universal ID, accessible for a lifetime to provide personalized experiences to alumni.
- Build on University systems to provide superior IT tools for alumni communications and collaborations.
- Target the best prospective donors through rich data mining on past and potential givers.

Alumni volunteerism
Support volunteerism among alumni through the effective application of technologies.
- Deliver applications to improve administration and support for alumni volunteers.

IT for University Administration

Improve efficiency and services by dramatically streamlining Yale’s core administrative processes and compliance functions, reducing the complexity and effort associated with research and academic administration and departmental management.

Life cycle research administration
Continually improve systems to manage grants and related compliance activities throughout the research lifecycle.
- Develop a “wizard” user interface on top of the core InfoEd application to facilitate the grant development process.
- Implement an InfoEd model for IACUC.
- Replace the eSirius tool with an improved system.

Campus security systems
Provide critical IT systems to support campus and community safety and security programs.
- Link alarm stations to deliver integrated access control and situation management.
- Assure comprehensive cell phone and emergency radio coverage throughout all appropriate campus spaces.

Shared administrative services
Leverage the methods and tools established for the IT Help Desk and HR Employee Service Center.
- Implement improved service center capability and self-service tools to streamline purchase-to-pay processes.

Business intelligence
Use existing business intelligence tools and solutions to provide Yale leaders with analytics for strategic decision making.
- Build a faculty financial information tool, replacing the Account Holder Report, including an online self-service capability.

Budgeting and planning system
Implement a highly functional budget and planning system to facilitate the budget development, submission, tracking and reforecasting processes.
- Replace the OFA tool with Hyperion Planning.

Document management
Go paperless with an aggressive document management roll-out across the University to reduce waste and dramatically improve efficiency.
- Deploy document management for the next wave of departments (e.g. OGC).
- Digitize all the documentation needed for faculty appointments, promotions, and tenure. Implement an approval hierarchy and workflow to route these documents electronically.
- Implement additional capabilities to “go paperless.” Replace some documents entirely with web forms that pre-populate core data and ask for “new” information.

Role and access management
Standardize master data, roles, hierarchies and access permissions across administrative applications to make it easier to obtain the right access to needed systems and data.
- Implement the Oracle roles management to manage transaction activity across business functions.
- Standardize HR job definitions and hierarchies, implementing the change in Yale systems.
Master Data Model
Provide easier access to reliable data on students, faculty, staff, alumni, and financials. Consolidate and rationalize duplicate data and implement governance to keep data accurate.
- Identify whether supplementary systems with employee data could be provided in the HR system. Ensure the process is streamlined to facilitate local updates of the data.

Space and event management
Provide University-wide tools/processes to manage events and to track long-term assignments of Yale-owned and rented space and provide the “complete view” of space use at Yale across all its missions.
Manage the daily and hourly scheduling of rooms in a more comprehensive and integrated way.
- Standardize on a single institutional room scheduling system that is integrated with existing course registration and course management systems.
- Develop a University-wide system to track space, usage, and cost allocation.
- Deploy a University-wide event management system to improve administration of reunions and other events.

IT for the Yale Community beyond Yale: Local Outreach
Fully exploit information technology to improve access to Yale and its resources for the people and organizations of Greater New Haven.

New Haven economic development
Support Yale’s efforts to use technology transfer to contribute to the economic development of Greater New Haven.

New Haven school reform
Support Yale’s efforts to improve neighborhoods and schools in Greater New Haven.
- Provide a database to track student attendance and outcomes associated with attending Yale’s science oriented outreach programs with the New Haven school systems.

IT for the Yale Community beyond Yale: National and International Outreach
Provide the technology foundation to support Yale’s internationalization efforts.

International access
Enhance and facilitate the international community’s experience of and interaction with Yale.
- Partner with international universities by providing them with ability to publish content to the YaleGlobal Web site or similar online sources.
- Provide better automatic language translation of online content for all of Yale’s websites.
- Update and expand the Faculty Research Database to enhance its visibility and accessibility to scholars around the world.
- Expand and improve the “Yale & the World” Web site.

International students and scholars
Streamline and improve administrative activities supporting international students and scholars.
- Improve Yale’s ability to track international contacts and our interaction with them.
- Provide better administrative support systems for international visitors/students/scholars.
- Improve the on-line housing information system for access from remote locations and multiple languages.

Distance learning
Increase support for distributed education environments that enable Yale faculty to effectively and efficiently conduct classes using distance technologies while easily integrating instructional resources and support for a variety of pedagogical approaches.
- Modify existing systems such as Open Yale and Classes*V2 to allow for true integration to enable immersive distance learning and blended (local and distance) environments.
- Adapt Yale’s Course Management Systems to easily import, use, and export open educational resources from a variety of digital sources.
The Plan: Foundational IT Objectives

In order to support innovation and provide the foundational technologies and operational excellence required to achieve and maintain Yale’s IT investments, the plan outlines eight additional IT Objectives focused on foundational infrastructure, emerging technologies and IT planning and management.

1. Meet essential academic and institutional mission activities with a highly available, reliable, cost-effective and secure set of core IT infrastructure services, provided in abundance across the University. Provide a firm funding foundation for these services.
2. Protect the privacy, security, confidentiality and integrity of Yale’s assets and institutional information in compliance with an evolving regulatory environment.
3. Help Yale establish global leadership in environmental practice by providing sustainable information technology throughout the University.
4. Create robust access control to systems and promote authorized collaboration by providing local and cross-institutional identity management.
5. Improve the Yale community’s effective use of technology by providing a rich, accessible set of outreach, education and self-help resources.
6. Anticipate the promise of technology at Yale by maintaining an ongoing awareness of emerging trends and investing in active explorations.
7. Maximize Yale’s investments in IT by developing transparent, consistent and effective processes to plan and manage institutional IT campus wide.
8. Use industry best practices to manage and deliver IT services with excellence.

Conclusion

Yale’s ambitions, which encompass 11 visionary goals that span sustaining the excellence of Yale’s foundation, Yale College, and global leadership in academia are ambitious and diverse. With 10 mission-related and 8 foundational IT objectives the IT Plan is also broad and diverse.

Yale IT needs to be comprehensive and expansive in order to support so many diverse University missions, activities and aspirations. Yale IT also needs to be successful. The successful execution of this Plan will require focused planning and service delivery, such as that outlined in the complete version of the Plan.

In particular, two elements will most assure successful implementation of this IT Plan. The first is executing against a strategic portfolio of projects and foundational technologies, rather than an unrelated collection of individual projects. The portfolio approach will enable Yale to leverage foundational technologies to meet a diversity of needs, and will thereby deliver related outcomes together to provide a deeper and faster impact. The second element for success is a recognition that even small yearly changes will accumulate to major change over time, providing those changes are coordinated to advance a common strategy.

This IT Strategic Plan and the accompanying annual planning process intend to provide the framework to deliver the IT support essential to Yale’s continued success.

The full length Draft IT Strategic Plan is available at www.yale.edu/itsp.

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