Massachusetts Institute of Technology

IS&T Transformation Strategy: Enabling the 2020 Vision for IT@MIT

Administrative Advisory Council II
March 18, 2015
Assessment of the Institute’s needs: Drove convergence on a vision, guiding principles, target architecture, new operating model, new capabilities model, & new org structure.

Assessment 2009
Assessment 2011
Advisory Council Final Report August 2012

Listening Tours
EVPT Guiding Principles & Themes

New Infrastructure
- High Velocity Innovation
- Adaptable for Rapid Changes
- Easy Access to Data for Decision Making
- Open & Extendable Architecture to Meet Differentiated Needs
- APIs, Cloud & Integration Platforms

New Processes
- Transformative Digital Service Models
- Engaging User Experiences
- Mobile & Context Aware Approaches
- Lifecycle Portfolio Models

Up-skilled People
- Agile Methodologies
- Automated Deployment Methodologies
- Social Coding Methodologies

Excellence through modernization; and a strategic focus on enabling innovation.
The Target Architecture & Proof-of-Concept Projects
PoCs validated and calibrated the target architecture & new operating model

Example Proof-of-Concept Projects:

<table>
<thead>
<tr>
<th>PoC</th>
<th>Participants</th>
<th>Components of New Model Tested</th>
<th>Assessment</th>
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</thead>
<tbody>
<tr>
<td>Lab Admin App</td>
<td>RLE (Mark Mondol)</td>
<td>DLC independent use of an IS&amp;T-provisioned model-driven software development kit (SDK) to rapidly develop an easily updateable cloud-based app</td>
<td>Validated target architecture, non-IS&amp;T use of agile SDKs, &amp; automated deployment</td>
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<tr>
<td>P-Card App</td>
<td>CSAIL (Karen Shirer)</td>
<td>IS&amp;T use of a SDK to rapidly develop an easily updateable SAP-integrated app for a DLC w/o customizing SAP</td>
<td>Validated rapid dev &amp; secure use of SAP APIs, engaging UX, &amp; transformational digital service model</td>
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<tr>
<td>Compensation Analysis App</td>
<td>HR (Wayne Turner)</td>
<td>IS&amp;T use of SDK to rapidly develop an easily updateable SAP- &amp; Success Factors-integrated app for an Admin Unit w/o customizing SAP</td>
<td>Validated secure use of SDK with SaaS and SAP APIs via an integration platform architecture</td>
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<tr>
<td>Student Acct App</td>
<td>SFS (Mark Waters)</td>
<td>IS&amp;T use of IS&amp;T-provisioned APIs to rapidly add a modern cloud app (Nelnet) on top of MITSIS w/o customizing MITSIS</td>
<td>Validated rapid &amp; secure use of API connectors into MITSIS 2.009 PM Platform</td>
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<tr>
<td>2.009 PM Platform</td>
<td>ME (Prof David Wallace)</td>
<td>Faculty use of an IS&amp;T-provisioned API for a cloud service platform (Dropbox) to independently &amp; rapidly extend functionality to meet differentiated needs</td>
<td>Validated rapid &amp; secure non-IS&amp;T use of API connectors to create new services</td>
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<tr>
<td>Beaver Dash App</td>
<td>MIT Student Team</td>
<td>Student use of IS&amp;T-provisioned APIs to rapidly &amp; securely create new services</td>
<td>Validated student use of APIs to create new services</td>
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Infrastructure
- High Velocity Innovation
- Adaptable for Rapid Changes
- Easy Access to Data for Decision Making
- Open & Extendable Architecture to Meet Differentiated Needs
- APIs, Cloud & Integration Platforms

Processes
- Transformative Digital Service Models
- Engaging User Experiences (UX)
- Mobile & Context Aware Approaches
- Software Development Lifecycle Model

People
- Agile Methodologies
- Automated Deployment Methodologies
- Social Coding Methodologies

Architecture & Operating Model Validated... Essential Capabilities Identified... Buy-in Demonstrated & Confirmed
Successfully demonstrated that the new model & architecture can unlock business value & enable innovation

<table>
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<tr>
<th>BUILD Applications Better, Faster, &amp; Cheaper</th>
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<tr>
<td>• Optimized UX</td>
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<tr>
<td>• Accelerate app development by <strong>10x</strong></td>
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<tr>
<td>• Significantly lower cost (approximately <strong>25%</strong> of previous costs)</td>
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<table>
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<tr>
<th>RESPOND Quickly to Changes &amp; Opportunities</th>
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<tr>
<td>• Reduce time-to-market</td>
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<tr>
<td>• Accommodate constant updates</td>
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<th>ENABLE the DLCs &amp; Admin Units to Accelerate Innovation</th>
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<tr>
<td>• Reduce project bottlenecks</td>
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<tr>
<td>• Open platforms to extension by others</td>
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<tr>
<td>• Enable units to move at their own pace</td>
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New Operating Model
New Operating Model

**Enabling Services**
- Cloud & API-centric Architectures
- Open & Extendable Platforms
- DevOps Culture
- Data & Code Repositories

Handoff to Enabling Services frees-up the Emerging Solutions team to focus on next round of innovation

**Emerging Solutions**
- Work with Innovation Teams
- Fast Track Agile Methodologies
- Focus on User Experiences
- Leverage Platforms

**Diagram**

- **Deploy** (Invest Resources)
  - Discovery, Pilot, or Sandbox
  - Deploy-at-Scale, Grow, Replace, or Modernize

- **Innovate** (Invest Resources)
  - Innovate
  - Retire (Reallocate)

- **Manage** (Seek Efficiencies)
  - Run, Maintain, or Optimize
  - Sunset or Alternatively Source

- **Retire** (Reallocate)
Organizational Agility
New IS&T Organization Structure: Consolidated into 3 “capability” groupings with 14 teams

IS&T
VP, John Charles

Emerging Solutions
Sr Director, Eamon Kearns
- User Experience and Design
  - Data Analytics/Science
  - Integration
- Systems Implementation/DevOps

Enabling Services
Assoc VP, Mark Silis
- IT Ecosystem Architecture
- Infrastructure Operations
- Security & Resilience
- Infrastructure Design & Engineering
- Systems Optimization & Integration Solutions
- Provider & Consumer Partnerships

Planning & Administration
Sr Director, Diana Hughes
- Infrastructure Design & Engineering
- Sourcing & Logistics Management
- Project & Portfolio Management
- Social Communications
- Administration

Future of IT at MIT
Agility-Oriented Operating Model: Designed for speed – strategic urgency

**Emerging Solutions**

**Mission** - Collaboration with innovation teams to create new services

**Enabling Services**

**Mission** - Rapid deployment of new services, operational excellence, and enabling & nurturing the IT@MIT ecosystem

**Planning & Administration**

**Mission** - Project & portfolio management support, staffing & financial planning

- **Rapid iterative-experimentation is a built-in principle, along with agile methodologies & platform-thinking**
- **Platform-thinking is a built-in principle, along with DevOps, agile methodologies, open & extendable API-centric architectures**
- **Fostering agility-oriented approaches, programs & practices is a built-in principle**
Transformation Milestones

Responsiveness of IS&T and IT@MIT (Success Stories)

Time

FY 2015  FY 2016  FY 2017  FY 2018  FY 2019

- Up-skilling, Retooling, & Restructuring
- Innovation Platforms & Connectors In Place
- Portfolio of Enabling Services Available
- Core Business Systems Modernized
- Mature IT@MIT Ecosystem

Significantly Enhanced Support for High Velocity Innovation
Consideration for DLCs & Admin Units
Some considerations for DLCs & admin units

■ When can DLC & admin unit IT service providers get involved?
  – IT teams are welcome to opt-in at anytime – and welcome to take full advantage of IS&T scheduled (and funded) opportunities for training

■ Will DLCs & admin units have access to the new tools & platforms?
  – IS&T is attempting to license each new tool and platform for Institute-wide use – enabling access by individual students, faculty, researchers, and staff

■ How could this new architecture and operating model create multiple wins for DLC & admin unit IT teams?
  – IT teams will be able to replace some (perhaps many) of their “shadow systems” with modern mobile-ready apps sitting on top of (and connected through APIs to) Institute systems-of-record
  – IT teams will be able to leverage IS&T-provided compute and storage platforms to reduce some of their existing “keeping-the-lights-on” workloads & costs – thereby enabling the shift of resources to higher-value functions
  – IS&T’s transformed focus on collaborating in agile ways with innovation teams across the Institute will make it possible for DLCs & admin units to more easily tap into a wider array of resources as they strive to relieve pain-points for their constituencies
Questions?