IT @ MIT

Get your heads out of the cloud

Report prepared for
Project & Executive Sponsor
Tony Sharon L2L ‘03

By
Dimana Macdonald, Brent Oberlin, Bob Solis, Carol Wood

With Leader-to-Leader Process Coach, Scott Rolph
December 2018
Introduction

Our Leader-to-Leader (L2L) project team was assigned IT@MIT by Executive Sponsor Tony Sharon, Deputy Executive Vice President, Office of the Executive Vice President & Treasurer. The project team (Dimana Macdonald, Brent Oberlin, Donna Russell, Bob Solis, and Carol Wood) began working in May 2018. Of note, our team member Donna Russell was a contributor to the team up to the point that she left the Institution in June 2018.

We began with the following project charge:

*IT @ MIT*

*Information technology is pervasive, in both our work and personal lives. The maturation of cloud applications, tools and technology have made that even more so. This seemingly endless plethora of technology can serve as highly enabling; however, it can as well be incredibly disruptive. MIT has a significant presence in the cloud, and strategic plans to become even more so. However, while the cloud brings tremendous new capabilities, it has impacts to culture, organization and financial planning, driving the need for new operating models. This project will explore and offer recommendations supporting campus-wide IT governance in the age of cloud at MIT.*

This report is a summary of our project approach, findings and recommendations.

Approach

Our team project journey began with the development of a scope statement. We worked iteratively with our process and executive coaches, to help guide us through the process and ultimately create a scope statement that would serve as the focus for our research. We used an MIT Sloan Tool called A3 Problem Solving (see Appendix F) that helped us focus on defining the problem. Lastly, we incorporated final recommendations from our sponsor, resulting in the following:

**Scope Statement**

*MIT has transitioned to cloud based technology for delivering IT services. This transition has resulted in changes that affect the organization.*

- In the cloud based environment the vendor now provides many of the modernization services previously performed in-house by IT@MIT
- The business environment is migrating from broad access enterprise site licenses to “pay-as-you go” arrangements, that out of economic necessity, may restrict access and consumption levels.

*Both changes have cultural and process implications that need to be addressed.*
Methodology

The global move to the cloud is well underway, and since it encompasses most of the software we use today, it presents a real time, sizable challenge for the Institute. MIT’s Microsoft license is set to expire at the end of June 2019, at which point our only option is to go to the cloud based pricing model. The current status quo of offering everything unlimited to anyone, will become financially unsustainable going forward. We chose to focus on the migration to Office 365 (O365) as a case study for our project, as it is the most widely used software product on campus, and its shift to cloud software licensing is representative of other products.

Our research approach was to reach out and learn from the MIT community directly. We interviewed 20 key players (see Appendix A) from across the Institute, with different perspectives and influence on decision-making, spending a total of 60 hours of interviews. We also wanted to scan the environment beyond MIT, feeling it was critical to reach out to peer Institutions. We spoke to Boston University, Harvard, and UC Irvine to better understand how they are implementing Office 365. We spent an additional 100 hours of independent research seeking to set a benchmark on best practices as a reference point.

Microsoft licensing is a current issue for MIT. When we started the project, we realized IS&T had already been actively working on it. It only made sense that we joined forces, so we reached out. What transpired was a partnership that permeated throughout the project. We participated, along with IS&T, in discussions with SHI International, MIT’s Microsoft Reseller. This provided valuable information on the financial and cultural shifts that will occur. We formed a strong working partnership with IS&T, and freely exchanged data. It is our hope that this partnership resulted in a better thought out and synchronized recommendations from both teams.

And finally, we leveraged several of the leadership management models we learned in L2L. The SWOT analysis (see Appendix C) model gave us the tools to take a good look at the overall shift to the cloud, and assess where MIT stands with respect to our own known weaknesses and possible threats in the future, as well as what potential opportunities and strengths we may be able to leverage.

An additional L2L that we found extremely useful was the Three Lenses model with its focus on the strategic, cultural and political perspectives. Since the world of software is completely changing the way vendors price software, we needed to think strategically about what to recommend, and what will help the decision makers set a course that will be financially sustainable for the future. The political aspect of it is equally as important. In order to accomplish any change at MIT, one needs to involve the right individuals, providing them with a solid qualitative and quantitative overview of the problem we are trying to solve, and the proposed solutions. And finally, the cultural aspect, likely the most critical, since our Institute
is so decentralized and as a result can be resistant to wholesale change. What we heard from the community was that a collaborative approach, whereby everyone has the option to voice their opinion, and be heard, is crucial. People not only need to understand the big picture of why MIT is doing this, but also what it means to them personally. We felt that this model gave us all the necessary ingredients to look at the issue from all different angles.

Findings

The move from on-premise solutions to cloud computing is changing the MIT landscape. The migration from broad access enterprise site licenses to subscription based offerings will have significant impacts to MIT strategically, financially and culturally.

In order to gauge the level of understanding and impact to campus, we posed several questions during our interview process (see Appendix D for a complete list of the questions). Three themes stood out:

- The world of software licensing is changing – everyone will need a new operating model.
- Successfully managing our utilization, cost and value of software in this new model will require highly collaborative and shared governance.
- Community targeted, timely and poignant communications, and change management are key to embracing the new model.

Cloud computing/software vs. enterprise wide, on-premise solutions

The best way for MIT to meet its technology needs for the future requires shifting to cloud based technology. Historically, MIT has developed its own software, building customized niche solutions. These solutions often create stove piped applications and an entire portfolio of applications and technology support challenges, demanding significant resources, human and financial. In the new era of cloud software this approach will not be sustainable in the long run from a support, cost and resource perspective.

Software is becoming a utility and vendors can provide more efficient tools than MIT can on its own. We must leverage the work of others (Google, Amazon, etc.), vendors whose mission is exclusively focused on developing and providing market leading products. This will allow us to focus on what differentiates MIT across the globe, our research and education.

Shifting from site licenses to “pay as you go” cloud software subscriptions

There is a significant cultural, as well as financial impact when shifting to subscription software. Historically, MIT site licenses have been tied to headcount numbers identified
during negotiation, and generally allow individuals to install software on multiple machines (desktop, laptop, and home). The site license includes a standard, consistent set of features and functionality available to everyone.

With subscriptions, there are often different fees based on functionality and features, tied specifically to named users. With Office 365, there are “Educational Qualified Users” and “Light Users”, each with a different cost structure and portfolio mix. Determining who needs which license is a challenge, and yet, designating all staff as “Educational Qualified Users” would have a significant financial impact.

Many of these cloud solutions are required for MIT staff, faculty and students to do their daily work. They are considered commodities, just like phones and electricity. The MIT community expects these to be available for “free”, thus a chargeback model could have a negative impact.

**Our Peer Institutions**

In order to better understand the shift to the Cloud, we spoke to several of our peer Institutions, specifically about their approach to implementing Office 365.

**Boston University**

BU has identified all faculty and staff (about 10,000) as Educational Qualified Users. Facilities staff (600) have been identified as “light users”. They will negotiate again next fall, and hope to get new pricing. They are also considering moving to Google (although don’t anticipate making that shift).

BU students have Google accounts (free for life), which they keep as they transition to Alumni. BU retirees currently keep their Office 365 accounts, but will soon be transitioning to Google accounts.

**Harvard**

Harvard has deployed Office 365 across campus, and is gathering information to negotiate with Microsoft further. They have committed to buy 20,000 Educational Qualified User licenses; currently have 30,000 individuals identified in that category and are working on paring 10,000 back to Light users. They are using job codes to identify the different categories of workers (e.g. food services worker is light, food services manager is knowledge).

Harvard does not provide Alumni or Undergraduates Office 365- Alumni get a forwarding account, and Undergraduates get Google Mail. Graduate Students do get Office 365.

**University of California, Irvine**

The University of California schools have negotiated prices for the different levels (Educational Qualified Users and Light Users), and require each department to evaluate its own staff and
identify the appropriate users/licenses on an annual basis. Each department identifies the software usage and pays for the licenses.

**Affiliates**

The Affiliate population at MIT is complex, diverse and not systematically tracked. There is no clear data that reliably articulates the number of Affiliates, and there is no easy means to identify them today. IS&T is currently working on a plan to better understand this group. Today, MIT considers an Affiliate to be anyone that isn’t a full or part time employee or student, this may include contingent labor (contractors), Research Affiliates sponsored by faculty/staff, temporary staff (MITemps), and high school students participating in a summer program, or others with no formal affiliation with the Institute who still participate in campus activities. These Affiliates usually receive MIT Kerberos Accounts which give them access to SAP, Atlas, software installed on Athena (MATLAB, Maple, Mathematica, etc.), software downloadable from the IS&T software grid (which currently includes Office Pro Plus- mobile version) and Software-as-a-service products (Dropbox, etc.).

Historically, IS&T has used data from Institutional Research to aid in contracting for all of their software licenses. For our research we used data from HR. And although the originator of both sets of data is the same individual in Human Resources, we came to understand that the two data sources do not match, as the same data is interpreted differently (see Appendix H). In the world of cloud software MIT will need a clear understanding of who is using what toolsets, why and where. The problem is that the data for the Affiliate population has not been historically tracked. Even if we wanted to track it now, it would be difficult as there is no master data management, the data sources are all different, and the attributes about people are not consistent across the various systems. This makes analysis very difficult and prevents MIT from answering basic reporting questions. It also poses a challenge when planning, negotiating and managing software subscriptions.

In order to make effective decisions, one needs good data, which is the MIT way.

**Cultural Shift for Staffing**

Although our project did not specifically focus on the impact to staff with the shift to the cloud, it did come up as a point of discussion in many of the interviews. IT@MIT has historically included developers and administrators managing systems and servers with custom developed solutions. This is true in IS&T, as well as in many of the larger departments that manage their own IT infrastructure. Cloud solutions require staff with different skills, which means a shift away from one skill set to another, and ultimately fewer staff doing direct IT@MIT. There will be a cultural shift and a change in work and business process. Departments who used to rely on IT@MIT to build and develop custom applications, will rely more on vendors’ commercially available solutions. IT@MIT will need people with the right
skillset, across the campus, to meet this new challenge. IT@MIT will need to invest in retooling and educating staff to give IT@MIT the ability to succeed.

Communications

A dominant theme throughout our interviews was a sense that IT communications have not been inclusive enough about technology discussions. As we met with the community, it was clear that the level of awareness and/or understanding of the campus cloud strategy was mixed, ranging from very little awareness to a great deal, depending on where one resides in the campus community. We heard repeatedly that the move to the cloud was never presented in a comprehensive way, or had any community discussion.

The community feels they are not given the opportunity to process the changes, or have the appropriate time to respond without scrambling. This lack of engagement with the community regarding technology changes, impacts and timing, has led to resentment with some.

Perhaps the most significant gap was in understanding options and benefits, and not being engaged. How we procure and consume software applications has changed dramatically, and the community wants to be involved. As we will relay in our recommendations, success will be tied directly to our level of transparency and awareness across the community, both in determining what will be changing and how it’s communicated.

Case Study

As the team discussed details of the project approach with our sponsor, we came to a quick agreement that focusing on a contemporary “use case” would provide for a very powerful platform from which we could perform our analysis and test our recommendations. In addition, we envision, and hope that the case study approach explored in this project can be leveraged for future cloud technology project evaluations at MIT.

The campus is already well down the path of its overall cloud strategy, with several cloud software deployments in varying stages of analysis or deployment. This provided us with a number of options from which to choose. As mentioned previously, there were several options considered, including Adobe Creative Suite, Dropbox and Microsoft Office 365.

We selected Office 365 based on three factors:

- Broad nature of the product impact to the campus.
- Significant change to the operating model presented from this new Microsoft offering.
- IS&T was already working on analysis and assessment to determine the future state.
There is no doubt that software application and tools are moving to the cloud. Most, if not all, software vendors are adopting cloud strategies, “deprioritizing” function/feature sets for on-premise solutions, or simply not offering on-premise as an option. Software licensing models are shifting from traditionally categorized as capital expense to now exclusively operating costs. Costs are incurred as a subscription over time, versus one time perpetual license plus annual maintenance. The model focuses on person based software and tools consumption versus an all-inclusive enterprise-wide model where consumption is unlimited.

Not long ago it was unclear when, or if, large scale global on-premise solution providers could adopt this model anytime soon. However, as has always been the case with technology, the pace of change is fast and unrelenting. Microsoft has surprised many over the decades with its resilience and longevity. Since inception in 1975, Microsoft’s software revenue has been predominantly Windows and Office sales, with installations on local, physical machines in business and homes. It was not until 2010 that Microsoft entered the cloud market with its cloud computing and storage platform Azure, followed by Office 365, released in 2011. With 1.2 billion Office users across the globe it was hard to imagine in 2011 how Microsoft would create the momentum to move users to the new cloud platform, and in what time frame. Many assumed we would not see that day any time soon. Today, there are over 135 million users globally, presumed to have moved to the Office 365 platform. While this represents a bit over 11% of the total Office user base, the growth rate is staggering, posting a 42% revenue increase for the commercial product for Q3 of 2018. Recently eclipsed by Apple, the world’s wealthiest tech company, the growth in Office 365 alone positions Microsoft to retake that honor in the near future.

What is the Office 365 service offering? Microsoft’s cloud offering for Office with regard to the individual user is more than the standard products we know from our desk and laptops (Word, Excel and PowerPoint). The cloud service markets itself as a full collaboration and sharing application suite. It fulfills this claim by adding Outlook email, a file sharing repository called OneDrive, a note and idea capture tool called OneNote, and a new collaboration tool called Teams, fully equipped with chat, video and messaging capability. However, what Microsoft markets as the true power and strength of the service, is the fact that all components are tightly integrated, so that sharing across applications, and with colleagues, in the ecosystem is seamless and effortless. And the cloud makes it all available anytime, anywhere, and on any device.

Currently, the Microsoft Office product at MIT is licensed via an annual total employee + student count. All employees have access to the same baseline of products.
The advent of cloud and Office 365 introduces two new facets to the pricing model:

- Subscription model where we pay for the products via a monthly subscription fee, once we cease to pay the fee, we cease to have access to the tools.
- Individual licensing, with variable pricing driven by the mix of products we license, and whether or not one needs to access the tool locally versus online only.

Students are free of charge. However, they are limited to the online version only.

Employees are categorized as either “light worker” or an “educational qualified user”. The light worker is free of charge, similar to a student, and subsequently has only online access to the tools. The “educational qualified user” has access to the software locally on their devices (desk or laptop, table or mobile phone), as well as online access.

The educational qualified user has a subscription fee, noted at $55.90/user/year for this analysis. This is the base fee for the base level of products. Microsoft offers a vast array of addons that can be applied to any user, for an additional subscription fee per user. And therein lies the challenge: whereas currently all users are created equal with regard to product and tools, and there is one overarching campus license for this level of access, tomorrow’s world will consist of a monthly consumption fee directly tied to individualistic profiles based on their access to tools and capabilities.

**Recommendations**

Our project research and findings drive the following four recommendations:

1. Understand the community breakdown, software needs and utilization by segment.
2. Transform the operating model for budgeting, procuring and deploying software with an emphasis on proactive change management.
3. Enhance the current governance framework to better meet the new world of software as a service in the cloud.
4. Expand communications in terms of audience, messaging and frequency.

**Understand the Community Breakdown, Software Needs and Utilization by Segment.**

The essence of this recommendation is to create a framework, processes and tools, which will help MIT understand at a very granular level the community population breakdown, software needs and utilization by segment.

Buy-in from the MIT community is key. In order to get buy-in, we need to understand our target audience. We must ensure everyone has the tools they need to do their job. Some of our population is straightforward, such as students and faculty. The staff population present
various levels to which different staff members use technology, for example an accounting officer needs more in terms of technology to do their job than a custodian. There are differences, some large, others more subtle. Understanding this is critical in the new world of pay as you go, consumption based software licensing.

The subscription based licensing by community user magnifies the importance of a detailed analysis of the MIT “Affiliate” population. This group on its own could have a significant impact on what it would cost MIT to provide software in the future. Today the campus is quite liberal in what software it makes available to the Affiliate population. That works well with the enterprise style software pricing of the past.

**However, subscription based pricing changes the game.**

Our Office 365 case study clearly shows the impact of subscription person based pricing, and the cost implications of broad deployment to the large Affiliate population.

**Table 1 – MS Office 365 MIT Financial Analysis**

<table>
<thead>
<tr>
<th>MIT Community</th>
<th>Educational Qualified user @ $55.90/user</th>
<th>Light Workers @ $0/user</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff/Faculty</td>
<td>9,075</td>
<td>1,055</td>
<td>$507,348</td>
</tr>
<tr>
<td>Student</td>
<td>0</td>
<td>11,466</td>
<td>$0</td>
</tr>
<tr>
<td>Affiliates</td>
<td>9,606</td>
<td>14,028</td>
<td>$536,975</td>
</tr>
<tr>
<td>Total</td>
<td>18,682</td>
<td>15,983</td>
<td>$1,044,324</td>
</tr>
</tbody>
</table>

As illustrated in Table 1, the potential cost for “full educational qualified user”, for the entire community, could be a significant financial cost. With the Affiliate population believed to be over 24,500, licensing at that level, for even a subset of the population, could be very expensive. Table 1 shows a swing of $481,076 in cost when licensing 1,000 Affiliates versus 9,000 Affiliates.

Based on our research, the most interesting aspect of the Affiliate population at MIT is the fact that there is no reliable accounting of the Affiliates population across the campus, how they are connected to the Institute, what type of work they do, and how many of them legitimately need software provided, in order to do to their jobs. We saw numbers that
ranged from 1,200 to 34,000. For reference, MIT’s faculty and staff population is less than 11,000.

Why is this important? In the past, software access was provided simply based on affiliation with the Institute, but going forward it will be based on the number of people using it, therefore the larger the number of Affiliates we provide software to, the higher the price.

It is for this reason that we recommend MIT foster a clear definition of what an “Affiliate” is and what types of Affiliates we have. We also recommend that the Institute invests in the creation of a centralized people reporting system, which would integrate data from all different sources into one structure, and use agreed upon definitions for every person’s attribute. That would allow for much easier tracking and accurate reporting on anything related to people at MIT, regardless of function.

Other benefits will be to better manage physical systems and data access authorizations, memberships to labs and people affiliated with them, contractors and temps, and give better visibility and understanding of resources management.

As illustrated in Table 2, the MIT Community graphic, a clear understanding of our population mix, their affiliations and job function will allow MIT to understand the intersection of technology needs, providing us with accuracy and timeliness in budgeting for, procuring and deploying software.

**Transform the Operating Model and Emphasize Proactive Change Management**

The new age of subscription based software pricing ushers in a new way of thinking about software consumption. We now need to think of it as we do of utility, such as electricity. The cost of software now moves from a capital expense structure to an ongoing operating expense. We need to adopt budgeting and procurement practices that are commensurate with managing operating expenses. In addition, it is incumbent on the institution, to the fullest extent possible, to utilize the software as delivered, refraining from institution specific customizations, as they are expensive to build, maintain, and can render applications unusable in the future. The pace of cloud software changes will, if not already, outpaces our ability to keep up, with regard to retrofitting customizations.

Additionally, we recommend a “commodity toolset” be identified for the community, across all software cloud solutions. The specific applicable segments of the community, and the
toolset appropriate to the segments, will vary by software vendor and product. This will serve two primary benefits:

- Providing clarity to the community regarding solution sets.
- Affording the campus to take full advantage of licensing and tiered-discounting structures.

With the new operating model, the role of IT across campus will change as well. With the diminishment of custom software applications development, IT should pivot to focus on service, namely customer service, technical support, vendor management and ensuring that the community is able to leverage to the fullest the software capabilities offered to them. This should be viewed as an “opportunity” for IT across the institute, with an emphasis on ensuring the community not only has the tools they need, but that they are leveraging those tools to the fullest extent.

Enhance the current governance framework to better meet the new world of software as a service in the cloud

MIT has a good foundation for campus-wide IT governance. As we explored this via artifacts and campus interviews, we were impressed with the overall framework and the level of participation across several areas on campus. However, we also found opportunity for improvement to evolve a stronger model for the age of software in the cloud. Governance should be “for the people and by the people”.

We have four specific recommendations for IT governance at MIT:

1. **Launch a marketing/update campaign across all existing IT governance committees**

   We recommend a campaign focusing on providing a “refresher” for each of the established IT governance committees. The campaign should consist of an overview of the campus cloud strategy, benefits, progress and implications across the campus community, as well as a way forward on the cloud strategy.

   Additionally, we propose to add “cloud” as a standing agenda item for the governing bodies, so that these bodies can engage proactively in discussion, not simply when decisions are required.

2. **Issue a “letter to the community”**

   The ITGC (Information Technology Governance Committee) has done this in the past, most recently in June of 2017, with a letter titled “Next Generation MITnet”. The topic we suggest for this new letter is a timely review of the MIT cloud strategy, what it means to the community, and what they can expect for the future.
We recommend establishing criteria for when a letter to the community is needed, i.e. when large scale institute-wide impact decisions are made. Ideally communications should happen ahead of the actual decision to set expectations and avoid surprises.

3. Increase student engagement

During our campus interviews it was revealed that the IS&T Student Technology Advisory Board, while still noted in the campus IT governance framework website, had only met ad hoc in recent memory. It has the potential to be a valuable body in terms of engagement, and we recommend reengaging this advisory board.

We also suggest rebranding this group to reflect Enterprise IT, not simply IS&T. We believe that it provides for a better sense of community, rather than department (IS&T) only focused.

Finally, we recommend the following:

- Establish membership and a regular meeting cadence.
- Do the meetings over lunch or desert, students love to eat!
- Engage a representative from this group to other key governing bodies.
- Use as a learning opportunity for the student(s).

4. Increase engagement of the academic community and student administration

While there is currently ITGC representation from the academic community, it is not clear that key messages are permeating to the academic community writ large. We believe that IS&T can play a key role in assisting the communication efforts across the academic community, and it could serve to strengthen the partnership between the two as well.

Communication! Communication! Communication! - Audience, Messaging and Frequency

Communication is key to successfully rolling out any IT solution at MIT. During the interviews, we heard that communication needs to begin early, and be inclusive. Many suggested that it needs to begin with Senior Leadership communicating to everyone, then be recommunicated by the Deans within each of their schools, and then further within each Department. Communication needs to be a concerted, joint effort.
Several interviewees referenced recent events where communications were not as effective as they could have been, the recent changes to the Dropbox solution as a noted example.

An observation that we offer is that IS&T cannot be the only messenger for the MIT community. Communication must be a broader effort. Each IT project team should follow IS&T’s Communication Template (see Appendix I), and make sure to include:

- Senior Leadership
- Faculty
- Students
- Staff

Academic Council and the Deans’ group should be an integral part of discussions regarding IT changes at MIT. Faculty must be included and engaged in discussions early, and be part of the decision making process. The student community should also be involved. Engagement, and buy-in from the faculty and students will help with IT changes.

To be effective, there must be open dialog prior to any major decision, and then again, and again, and again, during the process. It has to be a continuous and transparent process.

The messages themselves must be clearly articulated and include:

- Why the change is happening?
- What the benefits and challenges are to the MIT community?
- Why it is better for MIT, and not just being “done”?
- What’s in it for each individual (what’s in it for ME)?
- Informative (provide some education about the change).
- A clear pathway for getting “it” done.

The variety, volume and velocity of communications will flow naturally with IT changes and campus impact. However, there clearly should be a variety of means for communicating direction, including, but not limited to, live connection forums, email, and web site messaging. Finally, it is vitally important to provide venues, both live and online, for community input and sharing of feedback.

**Conclusion**

During our team presentation on October 25, 2018 we conducted a live survey of the audience in attendance. We asked them two key questions:

- What word comes to mind when you hear the term ‘the cloud’?
- How familiar are you with the MIT cloud strategy?
The responses were very highly correlated to the feedback we received during our campus stakeholder interviews.

The response to the question of what comes to mind revealed a wide assortment of thoughts on the cloud ranging from everywhere to nebulous to mysterious to challenging and expensive. What is clear based on this variety of understanding, is that transparency and communications are vital to the future, as MIT continues forward on the cloud journey that it has already embraced.

Familiarity with the MIT cloud strategy was even more revealing. Nearly two thirds of the respondents indicated that they were “not very” familiar, with only 8% responding they were very familiar with the strategy. While a relatively small sample size of 24 respondents, this response was very consistent with the feedback that we received while working on the project. We believe this very much reinforces our recommendations advocating for enhancements to the campus IT governance framework, and for bolstering communications for a new IT operating model across the campus community.

During the interviews, we heard multiple references to Project Athena, a joint project, launched in 1983, of MIT, Digital Equipment Corporation, and IBM. The project’s goal was to create a campus-wide distributed computing environment for educational use. To put this into context, this effort was many, many years ahead of the advent of the internet, modern network computing and desktop software, such as Windows.

The reference to the project during the interviews was in juxtaposition to the current state of the world of software and computing in the cloud. MIT has a history of inventing not just the here and now but the future as well. Project Athena was a project that was geared to do just that, in the spirit and tradition of MIT. The question from our stakeholders was clear, why has MIT not been on the forefront or driver of this change to the cloud? The response to this is complex. MIT has undoubtedly contributed to technology innovation directly and indirectly, and will continue to do so. However, major commercial technology companies of today (Microsoft, Apple, Google and Facebook) collectively invest in research and development at levels that far surpasses universities, and even the GDP of many major developed countries.
Given the “not invented here” nature of the MIT culture, it is clear adopting to this new software paradigm is difficult for MIT. However, we encountered many that are very ready for change and welcome the new direction. This bodes well for campus adoption of a modern cloud technology platform, and our ability to embrace this change.

Leadership Lessons Learned

There were several leadership lessons learned throughout the project.

Establishing a collaborative approach to work is key. Our work with IS&T significantly helped our project, and we’d hope that we helped their work as well. Early on, we met with them to dispel some of their concerns that the project outcome may call into question their approach to creating and communicating the campus cloud strategy. We had a foundation setting meeting with them early on whereby we assured them it was our goal to assist and compliment their efforts to date. From that point forward the IS&T team were completely open and willing to share financial information, templates, possible solutions and even included us in meetings with vendors as they discussed Office 365. We found it to be a wonderful partnership.

It’s important to manage the “unplanned”. Just as our project work was starting, a member of our project team left MIT. This created an obvious gap for us. Even though we hadn’t been working together for very long, it was a big loss. At the same time, another team member had surgery and was out on medical leave for several weeks during our “interview” period. We also had lots of team members traveling. We ended up developing an agile approach to our project, using technology (phones, WebEx, Skype) where we could, finding some worked much better for us than others. Flexibility was the key to our successful work.

Distributed leadership works well when the team embraces it. We alternated as “note taker”, but other than that had a shared management of the meetings. Although the approach was questioned at times, it worked because we had the right group of people that felt a shared responsibility and each carried on their part.

Finally, we learned that there are no easy decisions! We saw the dilemmas of senior leadership in action, and can only hope our work will help them make the right decisions that carry the MIT community into the future.
In closing, we would like to share the final question we put in front of the audience at our presentation in October.

Is this the best L2L presentation you have ever attended?

We could not have been more pleased with the response, albeit we only offered the 4 choices in the chart as possible responses!

While we had great fun with this final question, we wish to note that the project itself and the L2L year was an incredible experience and learning opportunity.

It has been an extraordinarily fun journey!
Appendix A: Interviews

Individual Interviews:

Kathy Bihari, Group Leader, Lincoln Lab
Mary Callahan, Registrar & Sr. Associate Dean
John Charles, Vice President, Information Systems & Technology
Robin Elices, Executive Director, Office of the EVPT
Wes Esser, Chief Technology Officer, Sloan School of Management
Bill Garrett, Sr. Associate Dean & Chief Administrative Officer, Sloan School of Management
Doreen Morris, Assistant Provost, Office of the Provost
Israel Ruiz, Executive Vice President and Treasurer, Office of the President
Glen Shor, Vice President for Finance, Office of the EVPT
Mark Silis, Associate Vice President, Information Systems & Technology
Ian Waitz, Vice Chancellor, Undergraduate/Graduate Education

Information Systems & Technology and Office of the Vice President for Finance staff that we interviewed and worked with:

Chris Bunn, Director, Business Operations
Jim Fragala, Director, Business Systems Partnerships
Eamon Kearns, Senior Director, Emerging Technologies
Emma Levett, Manager, Software Asset Management
Christina Lo, Director of Strategic Sourcing and Contracts (VPF)
Doug Walsh, Manager, Project Management

IT Leads from the schools, to meet with as a group (all of the below people were invited, but unfortunately only one showed up for the meeting- Paul Acosta, LNS)

Wes Esser (Sloan)
Christopher Naylor, Linguistics & Philosophy (Humanities and Social Sciences (SHASS))
Fuquan Gao, Political Science (SHASS)
Mark Leary, Econ (SHASS)
David Foss, RLE (Vice President for Research (VPR))
Jack Constanza, CSAIL (VPR)
Duncan Kincaid, Urban Studies (Architecture and Planning (SA+P))
Michail Bletsas, Media Lab (SA+P)
James Hardsog, Chem E (Engineering (SoE))
Myron Freeman, EECS (SoE)
Kenton Phillips, Kavli (Science (SoS))
Paul Acosta, LNS (SoS)
Mohamed El Ouirdi, Libraries

Lab Directors, as a group:

LNS- Boleslaw Wyslouch
CSAIL – Daniela Rus
RLE – Marc Baldo

Appendix B: Interview Questions

For IS&T:

What is MIT’s cloud strategy?
Do you have a clear understanding of what it is?
What are the drivers for the strategy?
Were they socialized with the community? If yes, what were the reactions?

For everyone:

MIT leadership is committed to a cloud based technology, what are your thoughts on that? When did you find out about that?
How will, or how has, this impacted/changed your systems? Work?
What communication needs to be done to ensure IS&T/MIT are aware and onboard with this shift? What does it mean to you, your DLC, MIT?
What do you see as the most significant challenges with this strategy?
Should MIT move away from home grown/ highly customized system like MITSIS? Would that impact the IS&T talent?
How do you see MIT’s decentralized structure fit into the issue- advantage or disadvantage?

With moving to the cloud, there has been a drastic change in terms of the work IS&T does- they are more of a manager of software now, rather than writing the code for it. How do you think this has affected the morale and culture in the organization?
In your opinion, what are the biggest issues for IS&T now?
What is working well?

In your opinion, does IS&T sees itself as a service organization? Do they accept the fact that they are no longer inventing new technologies, but rather provide service to the community using already existing ones?

Are you worried about the cloud based pricing model? How do you think MIT should handle this- centrally, or leave up to the schools and departments?

Since everyone can download anything from the IS&T website for free, many people do it, and never use it, but the licenses get used up. With the cloud pricing by license, it ends up costing MIT a lot of money, and often there are no licenses available for the people who actually need them, so they end up going out and spending more money on their own. Do you think that should be regulated somehow?

Do you think individual departments should help pay for the licensing fees based on some kind of a system and usage?

IS&T can transfer licenses from people who are not using it to ones that need them. It is feasible?
There are different types of users on any given software – from light user to super user, and the price changes accordingly. Do you think the MIT community should be educated about the price of technologies offered? Would that help the issue?

Have you talked to any of our peer institutions about these issues?

Appendix C: SWOT Analysis

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>- The promise for significantly greater IT capabilities for the campus community</td>
<td>- Cloud solutions can limit customization</td>
</tr>
<tr>
<td>- Greater flexibility in how we license software</td>
<td>- Beholden to provider for new functionality</td>
</tr>
<tr>
<td>- Sr./Exec Management seems to have a good understanding of cloud technology</td>
<td>- A change in MIT culture</td>
</tr>
<tr>
<td>- Campus has already had many successes in cloud migrations</td>
<td>- Questions regarding who pays and how it will be administered</td>
</tr>
<tr>
<td>- Better security</td>
<td>- May lead to limitations or total exclusion for some parts of the MIT community</td>
</tr>
<tr>
<td>- The vendor is able to invest more in R&amp;D</td>
<td>- Unwelcome change</td>
</tr>
<tr>
<td>- New technology implementation time reduced significantly</td>
<td>- How will MIT Helpdesk be deployed?</td>
</tr>
<tr>
<td>- The burden of maintenance and improvement is passed on to the vendor</td>
<td>- Shift in some staff positions, may not need the same level of expertise</td>
</tr>
<tr>
<td>- Modernization of services</td>
<td>- Price may be higher</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Can provide opportunity for provide added value as cloud providers own commodity services</td>
<td>- Can cost more than on premise</td>
</tr>
<tr>
<td>- Providers can innovate and secure our software faster than we can internally</td>
<td>- May not have on premise offerings available</td>
</tr>
<tr>
<td>- Allows MIT to leverage “economies of scale” when purchasing</td>
<td>- Can lock subscriber into a solution</td>
</tr>
<tr>
<td>- With centralization comes greatly improved reporting</td>
<td>- Dependent on cloud vendor direction, which may not always be compatible</td>
</tr>
<tr>
<td>- Provides growth/learning opportunities for staff with changing roles</td>
<td>- Software may not be available without additional expense</td>
</tr>
<tr>
<td></td>
<td>- Staffing changes</td>
</tr>
</tbody>
</table>

Appendix D: Interview Request Email

Good afternoon,

I am a fellow in MIT’s Leader-to-Leader (L2L) program working on a group project sponsored by Tony Sharon, Deputy Executive Vice President, supporting the Institute’s communication efforts as it transitions campus-wide applications and technology to the cloud.

In our initial phase of research, we are conducting a series of interviews with members of the MIT community. We have identified you as a key stakeholder who can provide valuable insight and information, and will be reaching out
to schedule a meeting for 30 -60 minutes in the next 1-2 weeks. We have provided more information below including a list of questions we will be asking. An overview of Cloud Computing is attached.

Thank you in advance for your time and consideration.

Best,

Dimana Macdonald, Bob Solis, Carol Wood, Donna Russell, and Brent Oberlin

We have developed the following problem statement to guide our work:

MIT has transitioned to cloud based technology for delivering IT services. This transition has resulted in changes that affect the organization.

- In the cloud based environment the vendor now provides many of the modernization services previously performed in-house by IT@MIT
- The business environment is migrating from broad access enterprise site licenses to “pay-as-you go” arrangements, that out of economic necessity, may restrict access and consumption levels.

Both changes have cultural and process implications that need to be addressed.

List of questions for interview:

- MIT leadership is committed to the ongoing execution of a cloud based technology strategy. What are your thoughts on this? How did you find out?
- For the campus community, what is your understanding of the key drivers regarding this strategy?
- What are the most significant challenges?
- Moving to the cloud has changed the work of IT@MIT. How will this affect MIT? This change has a direct impact on IT@MIT, as the new strategy is software management driven (less coding and application development). How do you think this has affected IT@MIT organizationally? Culturally?
- There are cost, as well as, usage implications to this new strategy. How will this impact and/or change the systems and work you do (and for your department)?
- What needs to be communicated to ensure the MIT community is aware and onboard with this strategy? What is the best way, in your opinion, to communicate this change and who should the communication come from?
Appendix E: Additional Questions Answered IS&T

1) Who does IS&T consider an Affiliate?

MIT considers an Affiliate anyone who isn’t a full or part time employee (faculty or staff, including administrative staff, support staff, service staff, and sponsored research staff) or student (undergraduate or graduate, including cross-registered students). This may include contingent labor (contractors), research Affiliates sponsored by a faculty/staff member, high school students participating in a summer program that involves access to MIT computing resources, or others with no formal affiliation with the Institute who still participate in campus activities in some way.

2) What happens when someone who has no appointment at MIT - a Temp, who needs access to SAP for some reason- gets an MIT id, an e-mail, etc….do they have access to all the software available to MIT employees? Do they also have access to documentation that is not public, but available to the MIT community only-The Brown book report, for example? Are they considered members of the MIT community?

The process varies, both by system and type of software/access. For some of the specifics you ask about:

- Everyone with an MIT Kerberos account is provisioned access to SAP / Atlas.
- Everyone with an MIT Kerberos account is provisioned an Exchange mailbox; this doesn’t currently count towards our Microsoft licensing costs but will in the future when MIT is required to adopt Microsoft’s new licensing model in 2019.
- Everyone with an MIT Kerberos account has access to software installed on Athena (MIT’s academic computing environment) including scientific and engineering software such as MatLab, Maple, Mathematica, and other commercial software packages. These are generally site licensed software packages so there’s no incremental cost to MIT.
- Software downloadable from the IS&T software grid [http://ist.mit.edu/software-hardware](http://ist.mit.edu/software-hardware) varies by product and licensing. For example, of the reporting tools IS&T supports, Brio (an Oracle product) is licensed for use by all members of the MIT community, and is available for download by anyone with a valid Kerberos ID; Tableau, in contrast, is licensed for a fixed number of users, and is only downloadable by MIT faculty and full-time staff. In all cases, if a product’s access is restricted, an Affiliate may have access requested by their sponsor/home department.
- Software-as-a-service products (Dropbox, etc.) operate in a similar manner. Dropbox is available for self-service registration to all faculty, staff, and students, but an Affiliate may have an MIT Dropbox account sponsored by their home department if it’s required for the work they’re doing on behalf of the Institute.
- The Brown Book is available to all users with valid Kerberos IDs, regardless of affiliation with the Institute.

3) Do you know, in general, the number of people who have MIT id credentials, and no appointments in SAP? Are they all part of the Affiliate community? Are they tracked in any way?

I don’t think appointments in SAP is necessarily the right metric here since there will be classes of ‘official’ users (say, undergraduate students with no hourly student appointment because they don’t have a paying campus job) who don’t count as Affiliates but won’t have SAP appointments. MIT’s user management system (Moira) is the system of record for Affiliate accounts (and all Kerberos accounts) – there are currently around 9000 accounts that don’t correspond to an MIT employee, faculty member, or student.

4) What about family members for health insurance- do they get an Affiliate MIT ID card, and does that give them access to IT products?

Family members don’t receive MIT Kerberos accounts, with the exception of spouses of graduate students residing in MIT dormitories, who do receive standard sponsored Affiliate accounts.

5) How long after a person leaves MIT, do they get to keep their e-mail, and presumably access to software?

Currently, accounts are deactivated on a yearly basis, in the month of February. The list of accounts eligible for deactivation is generated every year in October so if an employee leaves in November/December, they would keep their account for a full year until the next deactivation cycle.
6) Drop Box - do alumni and retirees have access to that service? If yes, is there a time limit? Do they get the same free quota, like the rest of us?

Retirees and Alumni do not have access to Dropbox (or any other software we provide).

7) This one is a little out there - summer DAPER computer camps - do we provide the equipment and software? Or high School kids taking computer classes in the summer - do they have free access to the software?

Generally, no – there is one summer program (RSI, the Research Summer Institute) where the students do receive accounts and access to software as part of the program, but it’s an outlier in that regard.

8) Does IS&T have controls and procedures in place for different groups of people?

Yes, although as noted above it varies quite a bit by service / product. The account deactivation process currently does not vary by type of user with the exception of Faculty, whose accounts are never deactivated.

9) I came across this Software grid:

http://ist.mit.edu/software-hardware?type=All&platform=All&users=All&field_a_k_a_value=&recommended_only=All

It seems, from looking at it, that Affiliates do not have access to Adobe. But they do to Microsoft Office 365 for mobile platform. What is the difference between the two below?

Office 365 ProPlus is the mobile version of the Office applications (which can be installed on your iOS / Android device); Office is the full version of Windows and MacOS (Outlook, Excel, Word, PowerPoint) which may be installed on a desktop or laptop computer. One note: the ‘User’ column on the software grid doesn’t reflect the users who are authorized to download a particular product but rather those who the product is most relevant to. For example, we allow students to download Brioquery but the grid calls it out only for faculty and staff since it primarily serves the administrative reporting community.

10) Do we still have a site license for Microsoft office or have moved to being charged on a by person base?

Our existing Microsoft agreement was just renewed this summer for one additional year. In June 2019, MIT will need to move to the Office 365 licensing model which will change the price structure and move from the model where our pricing is based on MIT’s IPEDS numbers to a named user mode.

11) Are Affiliates allowed access to the full version of Microsoft office, and are we being charged for that?

Under the current agreement, Microsoft Office is available under the following terms:

- The software may be installed on any MIT-owned computer for use by students, faculty, and staff.
- Students, faculty, and staff may install the software on a personally owned machine (provided they discontinue use if they leave the Institute; graduating students are entitled to continue using the version installed on their personal machine at the time of their graduation for the lifetime of that machine, but are not entitled to upgrades or to move the software to a new computer).
- Affiliate accounts are not eligible to download Microsoft Office via self-service. There are certainly places where contract employees are using Office products on MIT-owned equipment – under the current licensing, MIT pays no additional cost for this class of use.

12) What is the different between the full version and Office 365 ProPlus, besides where it is installed - does the mobile version have a lot less capabilities - macros for example?

The mobile versions of Office are reasonably full featured, subject to the limitations of a mobile device – you probably wouldn’t want to author a complex PowerPoint document or Excel spreadsheet on your phone. The browser-based versions of the Office apps do support most / all of the functionality of the desktop / Enterprise versions, with a couple of caveats:

- Since its browser based, you can’t work offline or without an internet connection.
- Performance may be weaker than the “full” versions of Office, and will definitely degrade if you have a slow / intermittent network connection.
13) Of the about 9000 Affiliates currently active in Moira, do we know how many of them have access to the version of Office that we are currently charged for, or will be charged when the licensing agreement changes in 2019?

See above for the current state of the world with respect to Affiliates. IS&T has an active project exploring how we’re going to handle licensing for the O365 migration, but it’s our current expectation that Affiliates would either not be licensed for O365, be licensed as “light users” (entitling them to only browser based tools) and / or that individual DLCs sponsoring Affiliates would be required to pick up the costs of whatever Microsoft products they’d like access to.

14) Same questions in regards to Adobe?

Adobe products (Creative Cloud and Acrobat Pro) are not available by default to Affiliates or students. Students are eligible to purchase personal copies of Adobe Creative Cloud via Adobe’s online store at a discount. Affiliates may get access sponsored via their department, although my understanding is that this is quite rare. Unlike Microsoft, Adobe licensing is not expected to change in the coming year.

Appendix F: MIT Sloan A3 Tool

A3 Project Tracking Format

1. Problem Statement
   A simple sentence with a number. The number should be able to be linked to a key business result. No solutions. Can be a “target”, intent is to be clear about what is to be accomplished. A 50% targeted improvement with a narrow scope is a good start.
   Quantify the problem and the improvement desired. If a second sentence is needed, no worries, just be sure it’s necessary and doesn’t include information that would be more appropriate in subsequent sections. Ensure there is clarity on what is to be accomplished and by when.
   The primary failure mode is to start with a solution stated as a problem.

2. Current Design (Based on seeing the work)
   What is the current situation? Do the work, don’t try to solve from your office.
   Pictures and graphs are always better than words. Try to capture everything that is happening. Living at data, reading reports and talking to people involved are important, but directly observing what is happening is critical. This is a collaboration document, so make sure you are interacting with the people doing the work and the people affected by it. Don’t get hung up by looking for perfect data. You know more than you think, so 80% correct is OK to start.

3. Root Causes
   Analyze the Current Design to discover the underlying drivers and mental models causing undesirable results. Consider root cause analysis techniques like the 5 Whys, Fishbone Diagrams or Affinity Maps to help give you insight into how to change the conditions above. Use the scientific method: develop hypotheses and test them. This is the heart of an A3.

4. Target Design
   Target Design is the ideal design. Human activity is your most precious asset. You are looking for the least number of changes possible to get the result. Use a limited timeframe: 60 days or less. If more than this, split up into separate projects. Don’t try to solve world hunger all at once – take small steps.
   This section shows how the work is, different from the Current Design and how the results will be attained. It is not a must schedule ("YES better here!" for example). Show what is changed in the work: lower inventories, better work design, training completed, etc.

5. Track Results
   State clearly what is being done by whom to accomplish the Target Design. A Gantt chart is one way to do this. Only specify activities that produce results to the target you have. If it is a plan for a plan, then either you are still in current state investigation or this problem may need to be broken into additional A3’s.

6. Leadership Guideline: Delineate who owns this section. Clear boundaries and guidelines to ensure solutions are feasible and robust. Don’t tell, coach. Examples are:
   - No short-term solutions that don’t work long-term
   - No pushing work or waste to other parts of the organization
   - More cross-functional involvement is better.

7. What did We Learn & What’s Next?
   Close out the A3 with a team discussion of the following:
   - What was learned about the problem?
   - What was learned about the process?
   - Who needs to know? How do we capture and communicate?
   - Most importantly, what should we do next?
Appendix G: Poster

Get your heads out of the cloud

Project Charge/Scope:
MIT has transitioned to cloud-based technology for delivering IT services. This transition has resulted in changes that affect the organization:
- In the cloud-based environment, the vendor now provides many of the modernized services previously performed in-house by IT@MIT.
- The business environment is migrating from broad access to enterprise-wide license agreements to “pay-as-you-go” arrangements. That out of economic necessity, may restrict access and consumption levels.
Both changes have cultural and process implications that need to be addressed.

Appendix H: Headcount Data

<table>
<thead>
<tr>
<th>HR Data</th>
<th>Institutional/Research (IR) data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>October Count reported in IPEDS** HR survey</td>
</tr>
<tr>
<td></td>
<td>Campus</td>
</tr>
<tr>
<td></td>
<td>Employee type, FY 2018</td>
</tr>
<tr>
<td>Faculty</td>
<td>1026</td>
</tr>
<tr>
<td>Other Academic</td>
<td>1016</td>
</tr>
<tr>
<td>Adm</td>
<td>1021</td>
</tr>
<tr>
<td>Research</td>
<td>1590</td>
</tr>
<tr>
<td>Support</td>
<td>1578</td>
</tr>
<tr>
<td>Medical</td>
<td>1517</td>
</tr>
<tr>
<td>Service</td>
<td>1514</td>
</tr>
<tr>
<td>Total</td>
<td>1033</td>
</tr>
</tbody>
</table>

**IPEDS: Integrated Postsecondary Education Data System is a system of information services conducted annually by the National Center for Education Statistics (NCES)

NOTE:
IBIT uses the IR data for all licensing negotiations.
It is important to note that this data does not include Affiliates, Post Doc Fellows or Grad students.

<table>
<thead>
<tr>
<th>Postdoc Fellows</th>
<th>47</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grad Students</td>
<td>522</td>
</tr>
</tbody>
</table>

Affiliates-the big question mark we heard numbers between 1,2000-34,000

Different sources have this information:
- 1132 those with affiliate SAP appointments
- 9200 The number of IDs in MIT’s database that do not belong to Faculty, Staff, or Students
- 1044 Temp employee info gathered manually from various temp agencies
- 27 Unknown/Shadow systems

Understanding this delta requires:
*deep detailed review
**certain side tracking system with agreed upon definitions
Communications Plan

Project Name:
Department:
Focus Area:
Product/Process:

Prepared By

<table>
<thead>
<tr>
<th>Document Owner(s)</th>
<th>Project/Organization Role</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Project Charter Version Control

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Author</th>
<th>Change Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>10/10/2017</td>
<td></td>
<td>Create initial draft</td>
</tr>
</tbody>
</table>
## Document Control

### Document Information

<table>
<thead>
<tr>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Document Id</td>
</tr>
<tr>
<td>Document Owner</td>
</tr>
<tr>
<td>Issue Date</td>
</tr>
<tr>
<td>Last Saved Date</td>
</tr>
<tr>
<td>File Name</td>
</tr>
</tbody>
</table>

### Document History

<table>
<thead>
<tr>
<th>Version</th>
<th>Issue Date</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>[Date]</td>
<td>[Section, Page(s) and Text Revised]</td>
</tr>
</tbody>
</table>

### Document Approvals

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Sponsor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Review Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Manager</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality Manager</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(if applicable)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procurement Manager</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(if applicable)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communications Manager</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(if applicable)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Office Manager</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(if applicable)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Table of Contents

Template Guide ........................................................................................................................... 1

1. Summary ............................................................................................................................... 2

2. Introduction ............................................................................................................................ 2
   2.1. Background .................................................................................................................... 2
   2.2. Situation Analysis .......................................................................................................... 2
   2.3. Lessons Learned ............................................................................................................ 2

3. Objectives .............................................................................................................................. 3
   3.1. Communications Objectives ........................................................................................ 3
   3.2. Communications Guidelines ........................................................................................ 3

4. Stakeholders .......................................................................................................................... 4
   4.1. Target Audience ............................................................................................................ 4
   4.2. Stakeholder Requirements ........................................................................................... 4
   4.3. Key Messages ................................................................................................................ 4

5. Channels ................................................................................................................................ 5
   5.1. Delivery Channels ......................................................................................................... 5
   5.2. Information Collection .................................................................................................. 5

6. Communications Plan .......................................................................................................... 6
   6.1. Communications Schedule .......................................................................................... 6
   6.2. Communications Events ............................................................................................... 6
   6.3. Communications Responsibilities ................................................................................ 6

7. Feedback ............................................................................................................................... 7
   7.1. Feedback Measures ...................................................................................................... 7
   7.2. Success Criteria ............................................................................................................ 7

8. Appendix ............................................................................................................................... 8
   8.1. Assumptions .................................................................................................................. 8
   8.2. Risk