IT GOVERNANCE COUNCIL

Daniel Atkins
Chair, Research Steward

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Learning and Teaching Steward

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Graduate Student Representative

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Lynn Johnson
Unit IT Steering Committee Chair

Rowan Miranda
Administrative and Finance Steward

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David Munson
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James Penner-Hahn
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Andrew Rosenberg
Clinical Care Steward

James Woolliscroft
Dean Representative

Briefing Material for IT Executive Committee Meeting

December 21, 2010

8:00 am

3019 Fleming

Proposed Agenda

1. NextGen Michigan (Laura Patterson)
2. IT Council (Dan Atkins)
3. Recommendations (Dan Atkins)
    a. Unified Collaboration Environment
    b. Sakai 3 Open Academic Environment and the Future of Ctools
4. Process Discussion
5. Matters Arising

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To: IT Executive Committee

From: IT Council

Date: December 3, 2010

RE: Recommendations for the Adoption of a Contemporary Collaboration Environment for the University of Michigan Community

The IT Council unanimously endorses the following recommendations from the Unit IT Steering Committee.

- The university should select and invest in one cloud collaboration suite.
- The university should contract with Google to provide a consistent collaboration environment for all students, staff, and faculty as a public good. The selection of Google in the cloud does not mean that Microsoft products will not be used at the university.
- MCIT or ITS should provide a single instance of on-premise Exchange available for any department (including UMHS) that has a business or security need that cannot be addressed with the Google collaboration suite. This should be a fee-based toll service.
- The university should extend its Microsoft site license for practical and economic reasons. The site license provides Microsoft Office for all faculty and staff for business use and deeply-discounted copies for personal use. Additionally, the site license provides licenses for the on-premise Microsoft server infrastructure needed to run many applications for campus. During the next renewal cycle in three years, we should evaluate the Microsoft site license and drop any software that does not have campus-wide value.

Recommendations on a Strategy for Adoption of a Contemporary Collaboration Environment for the University of Michigan Community

Recommendations

Charge: The IT Council asked the Unit IT Steering Committee to provide recommendations addressing how the university should proceed on the question of adoption of collaboration environments available (and continuing to emerge) from commercial providers based on the following goals:

1. To provide the U-M community a contemporary, tailorable, extensible, secure, and continually improving personal productivity and group collaboration environment that reduces as many barriers as possible to collaboration in carrying out our academic mission anytime, anyplace, and with anyone in the world having Internet access. The focus of this environment should be to serve the direct academic mission of the university, but if it can also serve the administrative functions that serve this mission, all the better.
2. To provide this environment in the most cost-effective way possible consistent with the above goals.

The Unit IT Steering Committee recommends:

- The university select and invest in one cloud collaboration suite. (Committee vote 8-1)
- The university contract with Google to provide a consistent collaboration environment for all students, staff, and faculty as a public good[2]. The selection of Google in the cloud does not mean that Microsoft products will not be used at the university. (Committee vote 8-1)
- MCIT or ITS should provide a single instance of on-premise Exchange available for any department (including UMHS) that has a business or security need that cannot be addressed with the Google collaboration suite. This should be a fee-based toll service. (Committee vote 9-0)
- The university should extend its Microsoft site license for practical and economic reasons. The site license provides Microsoft Office for all faculty and staff for business use and deeply-discounted copies for personal use. Additionally, the site license provides licenses for the on-premise Microsoft server infrastructure needed to run many applications for campus. During the next renewal cycle in three years, we should evaluate the Microsoft site license and drop any software that does not have campus-wide value. (Committee vote 9-0)

[2]**Public Good IT Services can be used by** all **units and a portion of the cost for these services will be paid by every unit regardless of whether they choose to use the service..**

In addition to the above recommendations, the committee would like the university to consider the following:

- Partner with Google to build the next generation learning and research environment around Sakai 3.
- Leverage Google's open APIs.
- Integrate the current *Michigan* mobile apps with the new collaborative environment.
- Continue to explore partnership with Microsoft to use Azure for research and other academic computing needs. A foci of this research partnership should be around sharing of data sets.

Cost

One of the goals in the IT Council charge was to provide a robust collaboration suite in the most cost-effective way possible. Accenture's analysis indicates that the selection of Google could save an estimated $1.71M annually after full implementation. The estimated savings for choosing Microsoft is nearly the same, but choosing both would increase expenses compared to the current environment, and require even greater initial investment.

An investment will be needed in order to move to the Google collaboration suite. The cost includes setup, migration, integration, and change management. In moving to a cloud-based solution we will also need to invest in addressing U-M's email and document archiving needs in collaboration with the Bentley Historical Library. The following table summarizes Accenture's financial projection for moving to the Google cloud collaboration suite.

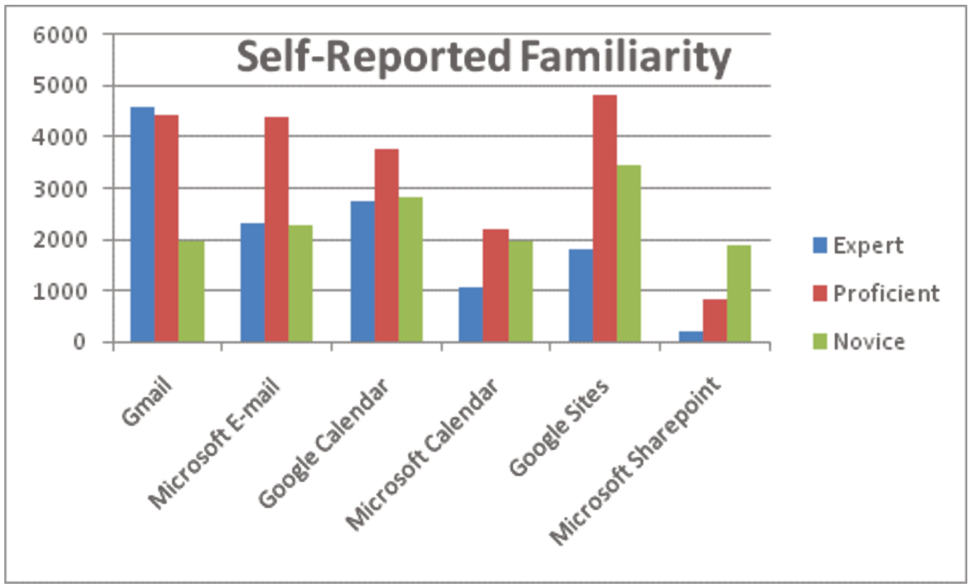
Google Apps Projected Investment/Savings

Total Investment	**$2.1M**
Total Savings	**$13.1M**
Cumulative Benefits	**$10.9M**
NPV (over 10 years)	**$8.1M**
Break Even Point	**Year 3**
Sustained Annual Savings	**$1.71M**

Personal Productivity and Group Collaboration

The committee believes Google's offerings provide the collaboration environment that will best serve the teaching, learning, and research needs for faculty, staff, and students. Google's strengths include ease of use, widespread adoption by U-M community members, leadership position in the collaboration space, strong open APIs, and commitment to continued investment to develop the environment. We recognize that many staff and some faculty may experience a loss of functionality by shifting from the Microsoft solutions that are currently in use, but we

believe the benefits to the academic community outweigh this concern. In the campus-wide survey, we asked participants to rate their familiarity with the various tools that make up the Google and Microsoft suites. U-M faculty, students, and staff reported being more familiar and comfortable with the Google collaboration tools than with the corresponding Microsoft collaboration tools, as indicated in the following table.



The committee also considered the possibility of selecting both the Google and Microsoft cloud collaboration solutions and allowing individuals to select the tools that they preferred. The committee determined that this approach would not meet either of the goals identified by the IT Council. The selection of two cloud collaboration suites would create new barriers to personal productivity and group collaboration. We validated this conclusion by talking with the University of Washington, which selected both cloud solutions several years ago and have experienced increased fragmentation and limited use of both environments. The committee believes that choosing one also brings a competitive advantage. We expect better collaboration and productivity for projects involving both students and faculty. Some of our peer institutions are putting students and faculty on different systems and we believe we will have a competitive advantage to the extent we have both students and faculty on one system.

The selection of Google in the cloud does not mean that Microsoft products will not be used at the university. Microsoft products--and particularly Microsoft desktop products--will be used widely across campus for many years. Microsoft Office will still be provided for all staff and faculty as the foundation of many academic and administrative functions. UMHS is currently moving to Microsoft Exchange for calendaring and email because of security requirement for protected health information and integration with the incoming Epic electronic health record software. We believe we can continue strong partnerships with both companies by selecting Google as the cloud collaboration provider and continuing to leverage Microsoft software for desktop and on-premise services.

Creativity and Innovation

The open development environment provided by Google is one of the key differentiators between the two offerings. The vast number of APIs that are currently in place and Google's continued emphasis on adding to these interfaces and encouraging active development offers a compelling environment for creativity and innovation. The committee believes that the implementation of the Google suite offers the most compelling environment for creativity and innovation for the campus because the ease of use and open development environment make it usable and extensible by more of the U-M population.

The possibilities for research use are broad. The ease of creating and publishing web forms and the relatively simple spreadsheet functions that can leverage Google's search and web page scraping capabilities offer interesting possibilities for researchers. We need to ensure that enough support is available to train faculty and staff on how they can leverage these tools. Additionally, public forums for exchange of ideas and uses of the collaboration suite will propel innovation in this space.

Minority opinions

Against selecting Google Apps

Respectfully submitted by Vlad Wielbut, Director of ICS, School of Public Health

Providing University of Michigan faculty, students, and staff with a unified platform for e-mail, calendaring, and document collaboration "in the cloud" is the right thing to do, with many potential benefits. My vote against the selection of Google Apps for Higher Education as the sole platform for UM is therefore not a vote against this idea. Given what we know today about our two contenders, I also cannot firmly state that Microsoft's Live@Edu would be a much better alternative. Rather, my vote was prompted by the desire to express serious misgivings about this selection, which can be described as follows:

Google offers an impressive array of tools, which is steadily growing. However, that array has been described by an analyst from Gartner as "broad but shallow". Having tried to use Google tools, I have to agree with that characterization. In particular, the tools of primary interest to us at this stage: e-mail, calendaring, and document collaboration, are relatively primitive compared to what many of us have been accustomed to with tools such as Microsoft Office, Exchange, and SharePoint. For example: the word processing application in Google Docs does not offer the ability to track changes; any edits become part of the document being edited, with no option to reject specific changes, or identify their author. Much has been written about the ability to co-edit documents in Google in real time, but this feature is very rarely used – much more frequent is asynchronous editing, and here the ability to track changes is often essential.

One could argue that Microsoft tools are oversaturated with features, and that 80 percent of users use 20 percent of those features. In the past, that has even been an impediment, when simple tasks required digging through a cascade of menus and submenus. However, Microsoft

has made great strides in making these tools more user-friendly and streamlined. The underlying complexity no longer hinders the typical user, while still being available to the "power users". By selecting Google we're in effect offering the "lowest common denominator" in terms of features, satisfying the majority of users, while leaving the more demanding ones stranded. These users will have to continue to rely on Microsoft Office and collaboration will fall back on the model prevalent today: e-mailing a document between editors, with change tracking turned on[3].

Google has clearly been working on increasing the "fidelity" of its tools, but whether it will be able to come close to approximating the rich functionality of Microsoft's toolset, and when, remains an open question. If the current, simplified version satisfies the great majority of users, what incentive is there to put a lot of effort into developing more sophisticated versions? Microsoft has some advantage here by coming at this problem from the opposite direction: it already has a sophisticated toolset, and now it only has to make it work in the cloud environment. If it succeeds, the typical user will get what (s)he would receive in the Google environment, while the power user will not have to make sacrifices in order to be admitted onto the "cloud". (Inability to delegate scheduling is just one of many such sacrifices.)

Members of the IT Unit Steering Committee appear to be in agreement that the use of Microsoft Office will continue on the UM Campus for the foreseeable future. If this is the case, and given that Microsoft is putting a lot of effort into moving these tools into the cloud, would it not make more sense to take advantage of that, rather than fight it by crippling or ignoring the new features that already started appearing within Office, such as: the ability to see documents from various SharePoint sites within Outlook; to see who is currently online from within the Contact List; to save a document directly to a SharePoint site from within Word; to convert an Excel spreadsheet into an online database simply by importing it; etc.

Google's is an individual consumer-oriented world; this is where they started, and this is where their focus has been for a long time. It is only recently that they began attracting the attention of institutions, and they have yet to adapt to being a service provider for enterprises. This means that, at least for the time being, it is the institutions who will have to adapt to the "Google way", for example, by relinquishing control and choice. Currently, if there is a new version of a tool being deployed at UM, it will undergo careful testing and the deployment can be halted or rolled back if it is causing problems for the system or the users. Many UM departments "skipped" Windows Vista and allowed their faculty and staff to stay on Office XP long after Office 2003 had become available, because of confusing interface changes. Such choices will no longer be available: if Google decides to completely revamp one of its tools, it *will* be completely revamped. Of course, this is likely to be the case in all cloud-based environments, but perhaps more so with Google, given their orientation.

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[3]After this opinion had been written, a plugin to connect MS Office applications to Google Docs was made available to a limited number of users for testing. If it works as expected, it may enable collaboration on MS office documents via Goggle's "cloud".

The fact that Google has been providing e-mail and calendaring for personal use by many UM faculty and staff poses another problem: further blurring of the boundary between "personal" and "institutional". Of course, this line has been getting blurry for quite a while – some people are receiving their personal e-mails in their UM mailboxes, or linking their office phones to their personal cell phones - but helping further disintegration of this line is fraught with problems: e-discovery or archiving of institutional data that is mixed with personal material are just two of those. Selecting a tool that has not been associated with personal use (Live@Edu) has therefore the advantage of keeping the two spaces separate.

I would like to caution against giving a lot of weight to students' endorsement of Google. Clearly, a lot of students have already migrated to Google for personal and academic use, so following their "lead" seems like a sensible thing to do. However, while the concern described in the previous paragraph is less of an issue in regard to students than it is in regard to people employed by this university (faculty and staff), it still applies here. More importantly, while the majority of students are technology-dependent, they are not technology-savvy; many people are making the mistake of equating heavy use of technology with technological sophistication – these are clearly different, and we should be mindful of that difference.

Students' loyalty to the tools they use is also fickle: today it is Google, tomorrow it might be something else, depending on what will become popular with their peers, and what will allow them to accomplish their tasks. It is worth noting that students flocked to Google because it was free, it offered them the features they wanted, and it was pretty much the only game in town. The issue of features warrants special attention: they did not find the tools we had made available to them in CTools robust and flexible enough, so they voted with their virtual feet and moved to the richer pastures of Google. Are we about to make a similar mistake by choosing a toolset that is inferior to its alternative? If it is necessary to honor students' choice, why not move them to Google, while moving faculty and staff to Live@Edu? Most of students' collaboration involves other students, and, given our stated commitment to Sakai, some version of CTools will continue to provide the primary platform for their collaboration with faculty.

It would be unrealistic not to acknowledge that Google is currently the leader when it comes to collaboration tools "in the cloud", and that Microsoft has same catching up to do, but if history is any guide, it is a pretty safe bet that it will catch up quickly; it may even dominate this space in the not so distant future. There have been several instances in the past when Microsoft appeared outflanked and blindsided by a more nimble and fast-moving rival; it was even written off for dead more than once by commentators, as in the recent article in CNN Money. The company was late to embrace the Web and recognize the importance of the browser; it was deemed not technologically sophisticated enough to compete in the SQL database market for enterprises; it was criticized for not getting a handle on the many security holes in its products; now it is allegedly too beholden of its outdated business model to move aggressively into the cloud. In all of these cases Microsoft proved its critics wrong, with the exception of the most recent one, which is yet to play itself out. I am not a fawning fan of the company – its byzantine

licensing schemes, among other things, irritate me to no end – but their ability to turn their giant ship around and, in time, move to the front of the race, is quite astounding.

The "outdated business model" is a red herring. In late October Microsoft announced 51% increase in profits compared to a year ago, on a 25% increase in revenue. Windows 7 is the fastest selling operating system in history, with 240 million licenses sold in one year. Many businesses would love to be so "outdated". In fact, I find it reassuring that Microsoft's products are generating income for the company and are not advertising-supported, as is the case with Google. It gives me more confidence that they will continue to be developed and supported – confidence I do not have in regard to Google's willingness to continue investing in products that do not generate revenue, especially after the goal of unsettling Microsoft is reached.

The fact that Google cannot promise to keep our data within the United States is also troubling. While the company's assurances that the data is so fragmented and scrambled, as to be undecipherable outside of the system, are fairly convincing, they are likely to be insufficient to some partners in UM research, who make it a condition that their data does not leave the US. This can be overcome by not storing such data with Google, but it requires additional level of self-policing on the part of researchers, and introduces points of conflict that are not present on Microsoft's side, where such promise has been made.

Finally, the decision being made, while nominally "strategic", feels more like a "tactical" one, aimed at quickly solving several identified problems, such us the proliferation of many e-mail systems. It is likely to solve at least some of these problems, so it is by no means a wrong decision, but I'm not sure we had the time or the means to evaluate our options thoroughly enough to elevate it to the "strategic" level. **I would very much like to have groups of users adopt the platforms being evaluated for a period of time, so that we could compare their experiences. Also, waiting a few months for Microsoft to further develop their Live@Edu service would go a long way toward evening out of the playing field between Microsoft and Google.** As it is, I have the unfortunate feeling that the momentum toward Google is driven mostly by familiarity, popularity, and ideology[4] (with Google being perceived as the "cool, innovative, young, idealistic, anti-establishment" force) and is not sufficiently rational.

Risks faced by UM for selecting Google as the sole cloud provider

Respectfully submitted by Ronald D. Loveless, Senior Manager, LSA Information Technology, College of LSA

[4] **Defined as "false consciousness", with perception of reality skewed by a set of preconceptions**

Based on the charge given to the Unit IT Steering Committee, I agree that Google (today) best meets the charge, particularly with General Goal 1 in mind.

"To provide the UM community a contemporary, tailorable, extensible, secure, and continually improving personal productivity and group collaboration environment that reduces as many barriers as possible to collaboration in carrying out our teaching, learning, and research academic mission anytime, anyplace, and with anyone in the world having Internet access. The focus of this environment should be to serve the direct academic mission of the university, but if it can also serve the administrative functions that serve this mission, all the better."

Relative to Microsoft's offering to date, Google is better at providing collaboration anytime, anyplace, on any computer platform, and with anyone in the world having Internet Access. However, there are risks to choosing Google that University leadership should be aware that they are implicitly accepting along with this decision. The perceived advantage enjoyed by Google now may be transient and may not outweigh these risks.

The cloud model f[5]or email and collaboration is in its infancy. According to Gartner[6] (see publications G00205184 and G00205778), those adopting the cloud model are early in the innovation diffusion process; they are the "innovators". As innovators, there is a huge risk of betting on the wrong solution. The cloud landscape is likely to change dramatically over the next several years; Google, Microsoft, and other vendors will play a significant role in the future state of the cloud. Given this uncertainty, Gartner recommends that organizations refrain from selecting one vendor, but instead select both Google and Microsoft to hedge their bets. The University would benefit by taking advantage of their competition to drive down cost and spur innovation.

Gartner suggests there is no assurance that Google will not abandon Google Apps at some later point in the future if they are unable to monetize the product. Google's revenue is not based on Google Apps; it is generated from adware and search. Microsoft's revenue, on the other hand, is based on productivity applications, thus they are committed to this effort.

Even if Google is selected as the sole cloud solution for Michigan, I believe we will still end up with a hybrid world of both Google and Microsoft on campus if for no other reason than regulatory compliance and application compatibility. For instance, in order to comply with HIPAA security requirements and integration with the Epic electronic health record software, the hospital will build a premise-based version of Exchange to replace their current Novell Groupwise e-mail and calendaring system. Some units such as the Ross Business School and ISR may also run Exchange for pedagogical, competitive or technical reasons. Other universities have selected Microsoft as their

[5]As Gartner points out, according to the Innovation Diffusion model espoused by Everett Rogers, the innovator stage for innovation diffusion comes before early adopters. Risk and uncertainty of the "innovation diffusion process" are highest for innovators.

[6]Gartner, Inc. is a leading information technology research and advisory company. The University of Michigan has a subscription to their services, and they are often consulted by IT leadership for their analysis of strategic issues related to Information Technology.

cloud provider solely for FERPA compliance. Google's inability to guarantee data storage within the United States will preclude its use by some federally funded research projects.

I also believe that The President's office and the finance office(s) of the university will not find the Google collaboration toolkit a suitable solution for their business needs. Moreover, the unified communications system at Michigan is currently based on Exchange.
To my mind, one of the greatest risks is that we will forgo the opportunity to use a very promising collaboration product, the cloud-based version of Microsoft's SharePoint, which is scheduled for release in late 2011. The premises based version of this product is already proving popular at Michigan. (At present there are 25 schools, colleges, or institutes using the LSA implementation of SharePoint. There are also several SharePoint silos running outside of the LSA implementation, such as at the Law School and at Business/Finance. Within LSA, the Deans office and 32 of the 70 departments are currently using SharePoint to a greater or lesser degree. To date, LSAIT continues to forge ahead with SharePoint training, development, and implementation of new sites.) The product is closely integrated with the well-established Microsoft Office suite, and it offers features such as document version control that we know are valuable to research collaborators.

A switch to Google will necessitate a migration of data and workflow applications from SharePoint to Google and there will be applications for which that will not be possible. These applications have been streamlining some of our business processes and shutting them down without a Google alternative will not only disrupt business continuity, but it will also force the abandonment of a promising direction for business cost savings. Gartner agrees that Google is weak at supporting the Enterprise because their focus is on the consumer.
The Microsoft Ecosystem is broader and deeper than Google's. We will surely discover instances where Google will simply not work with a 3rd party solution, and Microsoft will be the only solution.

Finally, there is a question of objectivity that should be considered. There is a certain contagious excitement surrounding Google and its offerings, and opposite emotions are engendered when considering Microsoft. The qualitative survey conducted at campus on the Google-Microsoft decision captured the perceptions of a self-selected subset of students, staff, and faculty. It was not a side-by-side technical comparison of Google and Microsoft's collaboration technology.
Will Microsoft catch up to Google? Whether Google's lead is large or modest, it is not commanding. In the 1990's Netscape dominated in the browser market while Novell dominated in the networking market. Microsoft has had leadership in both markets for some time now.
In summary, while I am cautiously joining other committee members in casting my vote for Google, I believe we may ultimately find out that it was premature for us to try to pick the future winner or loser in this fiercely competitive sector at this time. It may actually be in the best interests of the University to choose both in some configuration, and wait a few years for clarification. The financial benefit of choosing a single provider would only be postponed, not

forgone. Should we end up retaining both, that could only be because the benefit to our intellectual mission proved to be dominant.

Specific Questions

1. What are the critical attributes of a collaboration environment for the university community that meet the general goals above?

   The committee identified the following key attributes needed to satisfy the goals of a cloud-based collaboration suite.

   - Ease of use – intuitive enough for average users to sort out what they need to do
   - Low barriers of use
   - Broad adoption
   - Work the way people work
   - Seamless authentication/authorization
   - Easily allows external (non-UM) collaboration
   - Self provisioning
   - Efficient
   - Interoperability with other tools that are not part of base suite
   - Integration toolkit – allow connections with other systems

   The campus survey validated many of these attributes and added a few more. When asked to rank the reasons for using online collaboration tools not affiliated with U-M, students, staff, and faculty uniformly ranked the following attributes in the following order of importance:

   1. Easy to use
   2. Ability to access from anywhere
   3. Easy to share information with others
   4. Integration with other tools I use
   5. Features & formatting options
   6. Information is backed up
   7. My colleagues/peers use it
   8. Overall impression

2. With respect to these attributes, are the offerings from Google and Microsoft the two best alternatives or are there other offerings that we should considered? If so, what are they?

   In July, in an effort to educate themselves about collaboration tools, the committee invited Google and Microsoft to come and talk about their different collaboration suite offerings. Prior to and following the presentations, the committee deliberated on whether service providers beyond Google and Microsoft should be considered. Based on the information gathered in these meetings and a preliminary market scan, the committee concluded that no other possible service provider would offer a partnerships as strong as Google's or Microsoft's. Additionally, no other service provider offered a suite of tools as broad or as robust as those provided by Google and Microsoft. Both providers could satisfy, to varying degrees, the critical collaboration suite attributes .

The committee's decision to narrow future investigations to Google and Microsoft is based on our assessment that the following criteria should be considered for any potential service provider:

- Existing strong U-M partnership.
- Overwhelming percentage of the market share including high usage by many of our higher education peers.
- Pervasive tools mean that many other vendors have complementary and compatible products.
- Maturity of the existing offerings.
- Ability to act as service provider (cloud offerings) as well as a product provider.
- Substantial resources committed to investments in ongoing development.
- High number of U-M faculty, staff and students that already use various components of one or both of these suites.

3. Assuming that Google and Microsoft are the two to consider, should we evolve towards supporting only one of the two environments or an environment involving some or all services from both? If only one, which one and why? If some of both, explain why and elaborate on the nature of an interoperability strategy between them.

The committee spent a considerable amount of time investigating the possibility of selecting both the Google and Microsoft cloud collaboration solutions and allowing individuals to select the tools that they preferred. The committee determined that this approach would not meet either of the goals identified by the IT Council. The selection of two cloud collaboration suites would increase rather than reduce barriers to personal productivity and group collaboration. We validated this conclusion by talking with the University of Washington, which selected both cloud solutions several years ago and have experienced increased fragmentation and limited use of both environments. Additionally, the selection of both will increase the cost over the current fragmented environment.

The Unit IT Steering Committee recommends that the university contract with Google to provide a consistent collaboration environment for all students, staff and faculty. The committee believes Google's offerings provide the collaboration environment that will best serve the teaching, learning, and research needs for faculty, staff and students. Google's strengths include ease of use, widespread adoption by U-M community, leadership position in the collaboration space, strong open APIs, and commitment to continued investment to develop the environment. We recognize that many staff and some faculty may experience a loss of functionality by shifting from the Microsoft solutions that are currently in use but believe the benefits to the academic community outweigh this concern.

The selection of Google in the cloud does not mean that Microsoft will not be used at the university. The fact that much of the business of the university is dependent on Excel and Word combined with the lack of certain advanced features in Google Docs mean that we would want to continue to license Microsoft Office for the foreseeable future. The interoperability between the two environments will be something that we will work with both

Google and Microsoft to try to improve. Currently, Google Docs is a much better multi-editor collaborative environment and Microsoft Office is much better at creating highly formatted documents and is the most common format for sharing documents. The University will keep its Microsoft site license for practical and economic reasons. The site license provides Microsoft Office for all faculty and staff for business purposes and deeply-discounted copies for personal use.

The Microsoft Active Directory is also an important service that allows consistent access to various Microsoft provided solutions, like storage, applications, and data management. We recommend continued investment in making Active Directory a core part of the identity management infrastructure at the university.

Another touch point between the Google cloud and Microsoft will be Exchange. UMHS is currently moving to Microsoft Exchange for calendaring and email because of a security requirement for sensitive health information and the integration with the incoming Epic electronic health record software. We would recommend having a single instance of Exchange available for any department (including UMHS) that has a business or security need to run Exchange on-premise. There are options for calendaring synchronization between the Google cloud and MS Exchange on-premise that we must investigate.

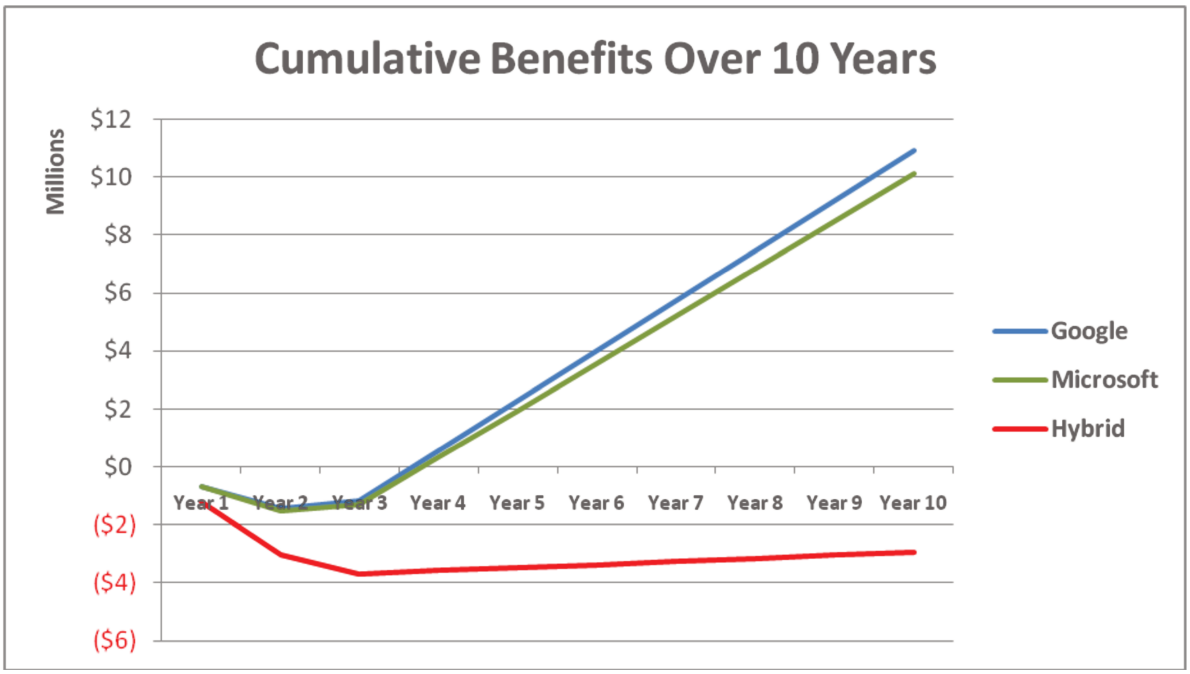
We believe we can continue strong partnerships with both companies by selecting Google as the cloud collaboration provider and continuing to leverage Microsoft software for the desktop and on-premise services.

4. Explicitly address the question of cost-effectiveness (General Goal 2) in your responses to the above. To the extent possible address cost and cost-effectiveness from the perspective of total cost of ownership including necessary training and user support.

   The selection of a single solution is essential to meet general goal 2. There is not a substantial financial difference between selecting either Google or Microsoft as a single cloud collaboration provider, but if the hybrid (Google and Microsoft cloud suite) is selected where users are free to choose either collaboration suite, the costs to ongoing maintenance increase dramatically and, as mentioned previously, we will increase barriers to collaboration and efficiency.

   The cost modeling for the different options was compiled by Accenture using conservative estimates of the current cost to provide the 40+ email and calendaring solutions. In order to attain the cost savings, the model assumes a high penetration and that most of the current campus solutions will be retired. The following table summarizes the projected costs for implementation as well as ongoing cost and savings from retirement of current systems around campus.

Google Apps All users are migrated to Google		Microsoft Live@edu All users are migrated to Microsoft		Hybrid (Cloud solution) Individual chooses Google or Microsoft	
Total Investment	$2.1M	Total Investment	$2.1M	Total Investment	$3.4M
Total Savings	$13.1M	Total Savings	$12.2M	Total Savings	$0.5M
Cumulative Benefits	$10.9M	Cumulative Benefits	$10.1M	Cumulative Benefits	($2.9M)
NPV (over 10 years)	$8.1M	NPV (over 10 years)	$7.5M	NPV (over 10 years)	($2.9M)
Break Even Point	Year 3	Break Even Point	Year 3	Break Even Point	N/A
Sustained Annual Savings	$1.71M	Sustained Annual Savings	$1.65M	Sustained Annual Savings	N/A



5. Share your thoughts on how the path you recommend would interact with the next generation of CTools built upon the Sakai 3 platform. Please seek local expertise on CTools and Sakai 3 as necessary.

   The university will continue to implement and offer to its community a core environment tailored for the conduct of its academic mission and the administrative support of that mission. Increasingly the architecture for that environment is being built upon open-source, standards-based protocols, APIs, and web-services able to interoperate with systems of like architecture. The university's decision to invest in the Sakai 3 Open Academic Environment reflects this direction and sourcing priority. The selection of the collaboration suite provider is based on the Google's experience and roadmap to provide services, applications, and tools that interoperate and extend the university's core environment with minimal university

investment. Ideally, the collaboration suite tools will be selectable and operated at the individual user-level similar to and along with Sakai 3 tools.

Aside from the initial focus on Google calendaring and email, Google provides additional collaboration tools that in some ways overlap with existing Sakai tools. Indeed Sakai has its own calendaring and email capabilities. We would want to capitalize on the Google campus-wide calendaring solution by integrating it such that it could be offered as a selectable tool in Sakai sites. Other Google features (e.g., group/sites, collaborative office tools, file storage) will be integrated so that users in Sakai sites can choose to use the same tools in instructional settings as they do in administrative and staff collaborations.

We should negotiate with Google to provide integration via the IMS LTI/LIS specifications at a minimum. This will give us flexibility in tailoring collaborative environments according to the needs of the particular user, role and context. In an administrative scenario, Google may be the 'base' level system users interact with, and pull in Sakai tools. For example, Google groups making use of Google calendar, document authoring, and file storage for an administrative project might also want Sakai Announcement, Polls, and Discussion tools. In the instructional context, course sites used for teaching and learning might be created in Sakai, but use Google calendar, messaging and/or file storage rather than the native Sakai tools. Likewise, we expect that provisioning Google groups/sites with course rosters and/or groups as defined in the enterprise system will support collaborative work in a transparent way. We will leverage Google's capabilities while focusing our own resources on developing Sakai services to meet our unique needs and integration points. In short, by utilizing open and standards-based approaches we will be able to offer a variety of mashed-up internal and vended service offerings to support a wide range of educational, research, and administrative contexts.

The CTools Implementation Group (CTIG) team did a preliminary review based on the presentations last month and they believe that Google would be easier to integrate with as compared to Microsoft for a few reasons:

1. Google seems to have more APIs published than MS (which mostly just offers the Exchange API):
   http://code.google.com/more/

2. There is already a fairly solid integration in the Sakai Community with Google Docs via the rSmart CLE (a VAR version of Sakai):
   http://www.rsmart.com/post/sakai-meets-google
   http://us1.campaign-archive.com/?u=b89539062c82247d99b2b9632&id=8e4613d9a6

3. The Sakai community has been thinking about the Google integration for a while:
   http://confluence.sakaiproject.org/display/SAKDEV/Google+Integration

6. In looking forward 5-10 years with which provider can we best build a long-term relationship that will aggressively innovate their product offerings such that we can accelerate the adoption of collaboration strategies on campus.

   Both companies have committed to investing significantly in their collaboration suites.

   Google's strengths include ease of use, widespread adoption by U-M community, leadership position in the collaboration space, strong open APIs, and a commitment to continued investment to develop the environment. Google is platform independent because it is browser based and therefore has full support for PC, Mac, and Unix workstations. Google also has full mobile support for the calendaring and email features across multiple devices including iPhone, iPad, Blackberry, and Android platforms. The open development environment provided by Google is one of the key differentiators between the two offerings. The vast number of APIs that are currently in place and Google's continued emphasis on adding to these tools and encouraging active development offers a compelling environment for creativity and innovation.

   Google's weakness are primarily in the richness of application features. There are limited editing features in Google Apps on mobile devices to date. Users complain about the lack of features in the Google Apps environment and losing formatting and graphics when moving files between the MS office and Google Apps environment.

   We identified a number of current and potential strategic relationships with Google:
   Current Strategic Relationships
   - Digital Library
   - Google Ann Arbor Office
   - Student Recruitment

   Potential Strategic Relationships
   - Google Community Fiber
   - Sakai integration
   - Google voice integration in the enterprise
   - Significant long-term donor opportunity
   - Potential Google Ann Arbor engineering office.
   - Cloud computing research opportunities

   Microsoft's strength is in its rich feature set, seamless integration between off-line and on-line editing, and tight integration with the MS Office and Windows environments. Microsoft is investing tremendous resources to make their tools easier to use and tightly integrate all of their tools. A concern with not selecting Microsoft for collaboration is that we will lose

capabilities in the MS Office suite, in the long term, as Microsoft increases the integration between Office and their server and cloud-based products.

SharePoint offers a full development toolkit that allows sophisticated development that requires training and/or deep expertise to take advantage of the toolset. Currently, average users require training in order to properly utilize SharePoint. Microsoft has done a lot of work in the latest release to make SharePoint website creation intuitive and easy for users. Microsoft also provides additional APIs and toolkits that can be used for integration. These are all proprietary Microsoft tools that require specific training.

We identified a number of current and potential strategic relationships with Microsoft:

Current Strategic Relationships

- LSA and Engineering Board Member
- Site License
- Student Recruitment

Potential Strategic Relationships

- Sakai integration
- Azure research opportunities
- Unified communication

The steering committee believes that Google offers the most compelling environment for creativity and innovation because the ease of use and open development environment make it usable and extensible by more of the U-M population.

7. What questions remain to be answered about individual and groups collaborating in learning, discovery and creative activities in order to guide our future directions in support of an IT-based collaboration environment.

   The selection of the suite is a starting point for creating a robust collaboration environment. In the near term, we need a clearly defined pathway for extending collaborative features of the suite, e.g. by adding integrated web- and video conferencing. Further analysis needs to be done to determine which additional tools would be needed to support the future collaboration environment.

   U-M could take advantage of the rich and open development environment. The committee would recommend that the ITS mobile team's charge be broadened to integrate the mobile apps with our new collaborative environment. CTools integration has also been mentioned several times.

8. Please comment on any missing questions or criteria we should have specified in making this request. What should we have asked and did not? What is the answer?

What is the expected impact on our current and future relationships with Google and Microsoft if we were to select one vendor over the other?

We asked the Office of Development and the Business Engagement Center to come and speak to the Steering Committee to give us a perspective. The main message was that the way we communicate the decision will be important to maintaining strong ongoing relationships; however we should be able to maintain relationships with either company whatever decision is made. Their opinion was that Google would notice the collaboration tools selection more than Microsoft. However, they didn't believe that either company would be crushed if it was not selected. Microsoft does have a strong culture, so some alums may be vocal if they are not selected.

Once a final decision is make, we need to communicate with the executives at both companies before any decision is made public.

Process

The steering committee engaged a broad spectrum of both users, providers, and IT experts in informing your recommendations. The following process was used to gather information to inform these recommendations.

- June - Documentation of requirements that were sent to vendors for response
- July - Vendor briefings held for IT Steering Committee members under non-disclosure to understand product offerings and strategic directions from both companies. - Appendix A includes a collaboration suite comparison
- August - Accenture business case development of three alternatives - Google only, Microsoft only, and Hybrid (Google and Microsoft) cloud collaboration environment
- Sept - Oct - Vendor campus demonstrations - feature and technical sessions
- Oct - IT provider feedback session - Appendix B
- Oct - Campus wide survey - analysis is provided as attachment and not included in this report.
- Oct - BEC and Office of Development presentation to steering committee
- June-Oct - Faculty collaboration use research conducted by SI - Appendix C
- Nov - LSA student council engagement and resolution- Appendix D
- Nov - UM purchasing and general counsel begin negotiation process with both vendors

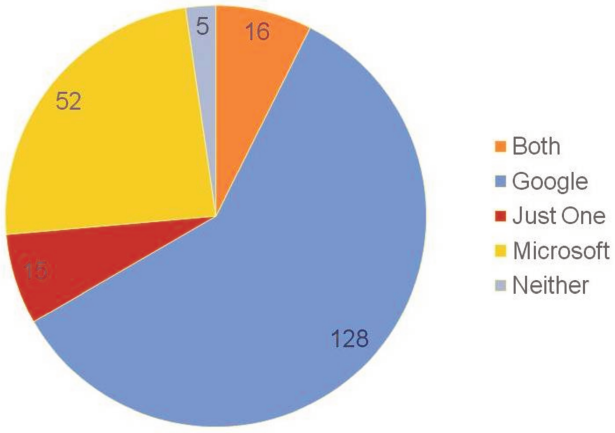
Appendix A - Collaboration Tool Suite Comparison

	Google	Microsoft
Collaboration Suite Components	• Gmail • Google Calendar: Agenda management, scheduling, shared online calendars and mobile calendar sync. • Google Docs: Documents, spreadsheets, presentations and forms. Work on a document with other users online in real-time without attachments. • Google Groups: User-created groups providing mailing lists, easy content sharing, searchable archives. • Google Sites: Secure, coding-free web pages for intranets and team managed sites. • Google Video: Private, secure, hosted video sharing. • Plus 100+ more applications, such as Picasa, Blogger, etc. this fall.	The current offer in market includes: • Hosted Exchange 2010 (branded Outlook Live) for email, calendar management, contact management and task management. • Online Web Apps (Word Web App, Excel Web App, PowerPoint Web App, OneNote Web App) • Windows Live Groups for self-managed collaboration using the Office Web Applications • Live Messenger Service for Instant Messaging and voice/video chat. In the second half of next calendar year, Microsoft will be release significantly more features and functionality with Live@edu .
Storage	• Gmail: 7.4 GB Storage with a 25 Mb attachment limit per message. • 1 GB non-Google Docs file storage, unlimited Google Docs file storage	• 10 GB Mailbox Storage, the maximum attachment size is 18MB, the maximum total email size is 25MB. • 25 GB SkyDrive
Compatability	Windows, Mac, Linux operating systems and various browsers	Windows, Mac, Linux operating systems and various browsers
Supported E-mail Clients	Google supports IMAP, POP, and SMTP. Additionally, Outlook, Outlook Express, Apple Mail, Windows Mail, Thunderbird are explicitly supported.	Outlook Live supports a very wide variety of client access methods using the following protocols: POP, IMAP, Outlook Anywhere, ActiveSync, Exchange Web Services. Outlook Live also supports a wide array of Operating System/Browser combinations. Live@edu works with Firefox, Safari, and more – across the PC, Mac, and other platforms. Windows Live Messenger works on a PC and Mac as well.
Supported Mobile Devices	Google supports Android, iPhone, Blackberry, Windows Mobile. Anything with a basic internet connection should be able to access the Google Apps services.	Any mobile device that Supports POP/IMAP or ActiveSync is supported.
Support	You can contact Support by filing a ticket online or calling the 24/7 help desk telephone line. Your case will be addressed within 24 hours. Depending on the problem, it can take either longer or shorter than that 24 hour time frame to be resolved.	Customers can contact Live@edu support on a 24/7 basis, for free, through phone, email or web form. You case will be addressed within a maximum of 4 hours.
User Base and Market Share	According to the 2009 Campus Computing survey, Google Apps is the number one provider of hosted student email at universities in the United States. There are currently 10 million students, faculty and staff that *actively* use Google Apps Education Edition (Based on weekly logins)	More than 10,000 schools in more than 130 countries have enrolled in Live@edu, serving 11 million people worldwide. (Based on provisioned accounts)

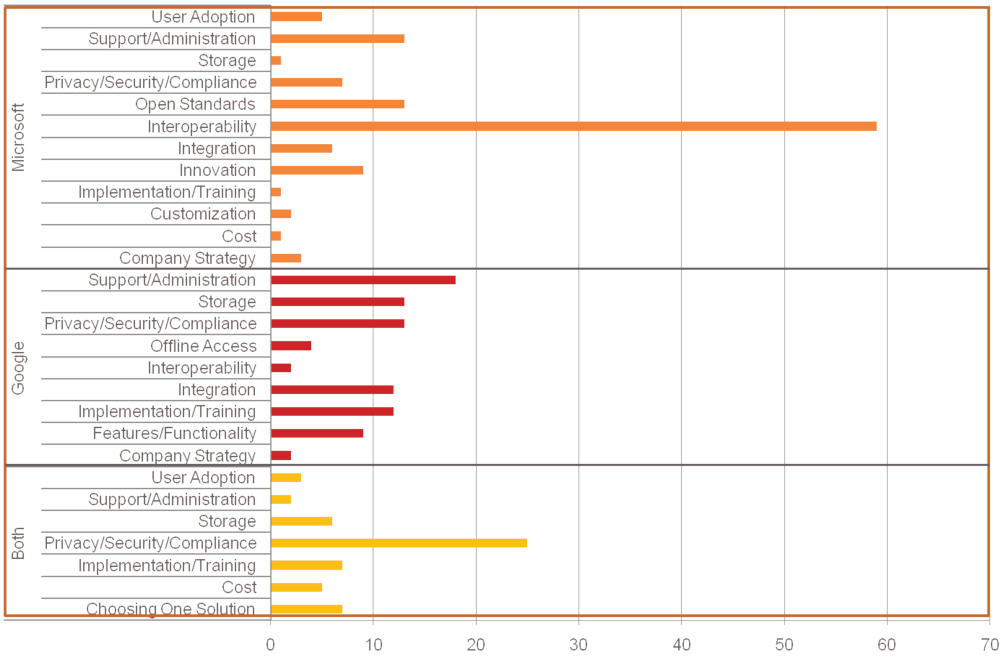
Appendix B - IT Provider Technical Feedback Session

There were three questions that were asked of the group. The count represents the number of red dots and individual votes for each feedback item posted during the Technical Feedback Session on 10/11, Both is an interpretation of answers that appeared to apply to both solutions

1. All things considered, which suite better enables collaboration for your constituents?



2. What concerns you the most about each of the suites?



3. What opportunities or new possibilities would be provided by each of the collaborative suites?


Microsoft
User Adoption
Support/Administration
Strategic Partnership
Storage
Privacy/Security/Compliance
Offline Access
Integration
Implementation
Features/Functionality
Enhance Collaboration
Cost Savings
Common Calendaring
Google
User Adoption
Strategic Partnership
Open Standards
Interoperability
Integration
Innovation
Features/Functionality
Enhance Collaboration
Cost Savings
Common Calendaring
Both
Support/Administration
Storage
Interoperability
Enhance Collaboration
Cost Savings
Common Calendaring
0
10
20
30
40
50
60

Appendix C - Research on Faculty Collaboration and Use of Educational Technology

Notes from presentations to IT Unit Steering Committee:

Research on Faculty Collaboration Activities – Stephanie Teasley

Stephanie Teasley is a research professor in the School of Information and is the director of the usability lab. She has been working with Chuck Severance and Erik Hofer. They have conducted structured interviews with faculty about how they do their collaborations and what else they are doing besides email and calendaring. To illustrate what faculty are doing, here are four scenarios of composites:

1. Mid-career LSA faculty member: Uses CTools for internal collaboration, is open to using tools that students bring and show how they work and how to use. For external collaboration will use whatever the other collaborators agree to use. Success is measured by if the group wants to continue collaborating even when the project is over; they want to write new grants together.
2. Just-tenured faculty member in Engineering with many collaborations and students collaborating: Not on the bleeding edge, but an early adopter of hardware and software. Using both a Windows-based tablet (better for teaching) and iPad (better for everything else). Highly values having information accessible everywhere. Success is measured by how many publications produced, and the extent to which their students get jobs in high quality places.
3. Tech savvy faculty member who collaborates primarily with others on-campus: Most collaboration is face to face in meetings and uses email attachments for documents. A specific example that was part of this composite was a Computer Science faculty member; this professor has his own server infrastructure and technical staff at his disposal. Most collaboration is done in-person or via-email, even though those involved are capable of using a wide range of other tools.
4. One interesting, individual case (not typical of others), the Google enthusiast. Uses primarily Google services and wants to try all the Google Services, not just calendar, docs, etc. Looking at how to use Google Voice. Has Umich email is forwarded to Google. Desires to have everything in one package.

Other observations include:

- Not earth shattering. Every faculty has multiple tools in use that are not in one package. They use whatever they want. Faculty are ruthless about productivity. Will try different tools if it will enhance productivity. When something isn't working well and work isn't being done fast enough, will find new tools (e.g. Skype from home use), and get their colleagues to use. They grab, try it out, if it works, they keep it otherwise they drop it.
- They won't use anything that kills the fun of collaboration (e.g. stuff built around business). Collaboration with faculty is self-selected and they want to work with people they trust and can have fun with and have good interpersonal connections, and they enjoy it. They don't want to use tools that get in the way of this way of working.
- Work is deadline driven. Very spurty. Good to have tools that are easy to use and lightweight.

- Faculty are not concerned about where the data lives. It needs to be accessible and safe, meaning backed up. Would use cloud because not sure that data in house would be backed up.
- Themes were not technology based. Most frustrations were human ones: time – not enough of it, and time management. Having one internal system may help with calendaring, but not so much for off campus relationships because it's just difficult finding the time to connect.
- Version control came up and is important, and nobody is completely satisfied with any tool set or approach on version control.
- Regarding Google and Microsoft, they don't think it will affect the other tools they use because they don't see their tools going away because of this decision. It won't stop them from using the tools they want or need due to productivity requirements.
- Some schools set up the CTools sites for faculty (Ross), some use it for just the syllabus, others use many of the features. Students set up 60% of the CTools project sites. The other 40% of CTools project sites are split between faculty and staff sites. For their research, faculty use what their students and other collaborators use. Faculty like Word track changes and that's why they email docs around vs. using CTools for tracking since it doesn't.

Appendix D - LSA Student Government Resolution

An Academic Affairs Committee Resolution to Encourage the University of Michigan's Unit IT Steering Committee to Adopt Google's Collaboration Tools

A bill for the consideration of the College of Literature, Science, and the Arts Student Government

Whereas, the mission of the College of the Literature, Science, and the Arts Student Government (hereafter LSA SG) is to "work to improve the quality of both academic and non-academic life for
students of the College and to protect the rights of students of the College, as students and as citizens. Additionally, the Government shall serve as the representative voice of the Student Body of the College on issues which pertain to academics and the general welfare of the students of the College, both on and around the campus[7];" and,

Whereas, College of Literature, Science, and the Arts (hereafter LSA) students use technological resources, products and tools to email, calendar, and collaborate in an effort to efficiently manage their academic and non-academic lives; and,

Whereas, "the IT Council, the faculty-led governance body established in 2010 to set campus-wide priorities for IT services, resources, and facilities, has endorsed moving forward to identify a new generation of collaborative tools to better serve U-M's teaching, learning, global engagement, and scholarly activities(http://www.nextgen.umich.edu/collaboration/);" and,

[7] **LS&A Student Government Constitution, Article II**

Whereas, “at the direction of the IT Council, the Unit IT Steering Committee is developing a recommendation on the future of campus collaboration platform based on its own research and investigation and considerable input from the campus community2” between vendors Google and
Microsoft; and,

Whereas, the Unit IT Steering Committee will be making a recommendation to the IT Council in the near future about which collaboration tools to adopt University wide; and,

Whereas, many LSA students currently use Google’s products to manage their academic and non-academic lives; and,

Whereas, LSA students and faculty have indicated familiarity and comfort with Google’s collaboration tools; and,

Whereas, Google’s collaboration tools have received Federal Information Security Management Act (FISMA) certification from the United States Government; and,

Whereas, adopting Google’s collaboration tools would increase the security of the University of Michigan’s information sharing; and,

Whereas, peer institutions similar to the University of Michigan have adopted Google’s collaboration tools and have been satisfied with the user experience and security settings associated with those collaboration tools; and,

Whereas, the ability for University IT providers to write and develop programs to work with Google’s collaboration tools would allow for increased and dynamic functionality for students in the future; and,

Whereas, LSA students have indicated their concerns regarding Microsoft’s collaboration tools compatibility with Apple products, which many University of Michigan students use; and,

Whereas, members of LSA SG attended the presentations given by Google and Microsoft regarding their collaboration tools in order to better understand product offerings and to make an informed decision about the selection of a collaboration tools suite.

Be it therefore resolved, the LSA SG Academic Relations Officer will write and send a letter from
LSA SG, to Cindy Wells, Lynn Johnson, and the Unit IT Steering Committee, which indicates LSA SG encourages the Unit IT Steering Committee to recommend Google for the University’s collaboration tools; and,

Be it further resolved, LSA SG will work with the Unit IT Steering Committee to help transition students and faculty efficiently to the selected collaboration tools; and,

Be it finally resolved, LSA SG will continue to research student opinion of product implementation, and endorse the use of student attitudes in making administrative decisions, such as selecting collaboration tools for the University of Michigan.

IT GOVERNANCE COUNCIL

Daniel Atkins
Chair, Research Steward

Deborah Ball
Learning and Teaching Steward

Paul N. Courant
Knowledge Steward

Jocelyn Dewitt
CIO, U-M Hospitals and Health Centers

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Lester Monts
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Laura Patterson
CIO, Associate VP, Information and Technology Services

James Penner-Hahn
Dean Representative

Andrew Rosenberg
Clinical Care Steward

James Woolliscroft
Dean Representative

To: IT Executive Committee

From: IT Council

Date: September 17, 2010

RE: Sakai 3 Open Academic Environment and The Future of CTools

At its meeting of September 17, 2010 the IT Council heard a presentation from the Digital Media Commons (DMC, now part of the UM Library) and ITS concerning the future of CTools and a request to recommend investment in the SAKAI 3 project. We also received and reviewed the attached document entitled University of Michigan Collaborative Learning Environment and the Sakai Investment Proposal to Invest in the Future of CTools - October 2010. The Chair of the IT Council also obtain additional information in a telephone conversation with John Norman, a respected veteran leader in the SAKAI enterprise and now the SAKAI 3 Project director at Cambridge University.

The current CTools environment is aging and no longer provides contemporary collaboration services nor quality interaction. User expectations have increased and widely-used, commercially available collaboration environments such as Google Apps are now overlapping, and in some ways overtaking, CTools' capabilities.

CTools is built using a software toolkit called Sakai. Sakai is also the basis for other locally-tailored course management systems at other universities. Sakai, and the open source programming community that supports it, emerged from an NSF-sponsored research project on science collaboratories at UM in the early 1990s. Michigan helped create and lead the Sakai consortium for many years but more recently the leadership has shifted to the University of Cambridge, England.

Two paths were discussed for the future of CTools as follows:

1. Migrate a way from CTools to a commercial system, a market now aggressively dominated by Blackboard or an alternate open source product called Moodle.

2. Rebuild and evolve a new version of CTools based upon a new emerging version of Sakai designated Sakai 3.

The current version of Sakai, referred to as the collaboration and learning environment (CLE), is a monolithic set of software modules that provide the complete set of services, through web structures, that define CTools. The architecture of Sakai 3 is intended to support both the building of services as well as provide software "glue" to integrate all or part of other applications into an integrated portal. It is intended to be used with social media, digital libraries, and collaboration tools (such as Google Apps) to provide an integrated system in support of scholarship -- both education and research. It is intended to enable extensibility and leveraging of the best software services provided by others but in ways tailored to the academic requirements of the university.

The emerging version of Sakai (Sakai 3 or Sakai Open Academic Environment (OAE)) is a scholarly space for research, teaching and learning. Designed by educators for educators, the Sakai OAE's design goals are:

1. A user-friendly experience informed by the needs of learners, teachers and researchers.
2. Powerful capabilities for content authoring, sharing, and reuse.
3. Group collaboration and social networking within an academic context and around learning, teaching and research interests.
4. Learner, group and activity focused. Not site centric.
5. Ability to create and deliver cohesive learning experiences and portfolio processes, and promote student engagement.
6. Highly configurable and scalable at both small and enterprise levels.]

7. Multiple options for software development and integration.
8. Agile Sakai code base built atop other reliable open source projects.
9. Open source license. Open educational resources. And interoperability with other systems.[1]

The proposal is for the University of Michigan to invest in Sakai 3 both with programming talent and funding. The proposal states:

In addition to contributing to the higher education community and continuing to play a leadership role, participation in Sakai 3 would:

- Ensure that our priorities would help shape the solution.
- Improve our ability to maintain, enhance and configure the code.
- Help us be an early adopter of Sakai 3.
- Ensure that the Instructional Management Standards we are investing heavily in are designed into the product.
- Leverage our skill in pedagogically-driven user experience (learned via MPortfolio) where the community needs are substantial.

In order to participate, we expect an investment of $500,000 per year for three years would be needed to support staff and travel expenses. Priorities for UM would need to be developed and agreed upon to ensure a proper allocation toward the product in general and that UM interests are met.

Findings and Recommendations by the Council

1. The Council concurs that the future course management environment for the University of Michigan should not be based upon Blackboard or any other currently available commercial system. We also do not challenge the assertion of the proposers that the open source package Moodle is

[1]See SAKAI website at http://sakaiproject.org/welcome-sakai-oae.

inadequate for use at UM.

2. The Council strongly supports the open academic environment strategy and the goals of Sakai 3 listed earlier. Such a strategy, in concert with other major universities, should enable UM to capitalize on the unified collaboration environment currently evolving here, to add the special services needed in a university setting, and to avoid unwanted lock-in to specific vendors. Peer institutions now tangibly committed to the Sakai 3 project include Cambridge, NYU, Berkeley, Indiana, Georgia Tech and Stanford.

3. We believe that the University of Michigan should engage with the Sakai Foundation with the idea of providing effective leadership and programming talent that will enable Sakai 3 to innovate the integration of local and external services for our learning and teaching mission. The Sakai 3 leadership is anxious to have the talent of the UM Sakai programmers involved in Sakai 3 especially in the area of interface design, scalability, and testing. They would also value input into the strategic thinking around library integration and other systems integration.

4. We also note that Sakai is not exclusively (or perhaps even primarily) a software project. The software project is rather a manifestation of an attempt to address the needs of a peer group of research-led institutions. The exchange of ideas and solutions between those partners is as valuable as the software project. We believe that Michigan should continue to be a leader in defining these solutions.

5. Based on conversation with John Norman and review of the CV of Alan Marks, the Sakai 3 software development manager, we believe that the management leadership for this project, particularly with Michigan involved, is adequate for the task at hand.

6. The attached document from the ITS-DMC team lays out a budget request for both one-time and base funding. The Council supports the request for 1.9M over three years to enable leadership participation in the Sakai 3 Project. We believe participation in the project should begin soon. The request for a $380,000 base increase beginning in FY12 should be further justified and fine-tuned as the project evolves.

7. The IT Council requests brief written progress reports on this project approximately twice a year.

University of Michigan Collaborative Learning Environment and the Sakai Investment
Proposal to Invest in the Future of CTools
September 2010

Summary – A new Learning Environment for the University of Michigan – a way forward

- The expectations of students and faculty for the pedagogical support and personalization of the learning environment have changed dramatically since the development of CTools in 2003.
- The University's needs to have a managed environment for content, assessment and academic administrative functions have also increased.
- A survey of the enterprise learning environments shows fewer options that existed just three years ago.
- Our CTools environment is the local instantiation of the successful community opens source project known as Sakai (see Gartner report). UM founded and led the Sakai community/ Today Sakai includes more than 200 peer institutions (see list) that share the same needs for a next generation learning environment.
- The Sakai community has well-underway a new web-services based version of Sakai (version3) that enables the capabilities we desire. It also provides for a smooth transition from our current CTools environment to a new one at a pace that best suits our needs.
- Based on our existing success with this community development model, and its new architecture we recommend that the University invest in the development of Sakai 3 so we can meet the changing expectations of our students and faculty and leverage the new technology platform.

The Provost Office recently supported a $500,000 increase in ongoing funds to provide base support for CTools. The CTools support team has moved to ITS. Additional one-time funds ($1.9 million) are needed for new technical infrastructure and staff to participate in the development of Sakai 3 over the next three fiscal years (FY11-FY13). Additional base funding ($300,000) is needed in FY14 to sustain the resulting improvement in service.

Why Sakai Originally?

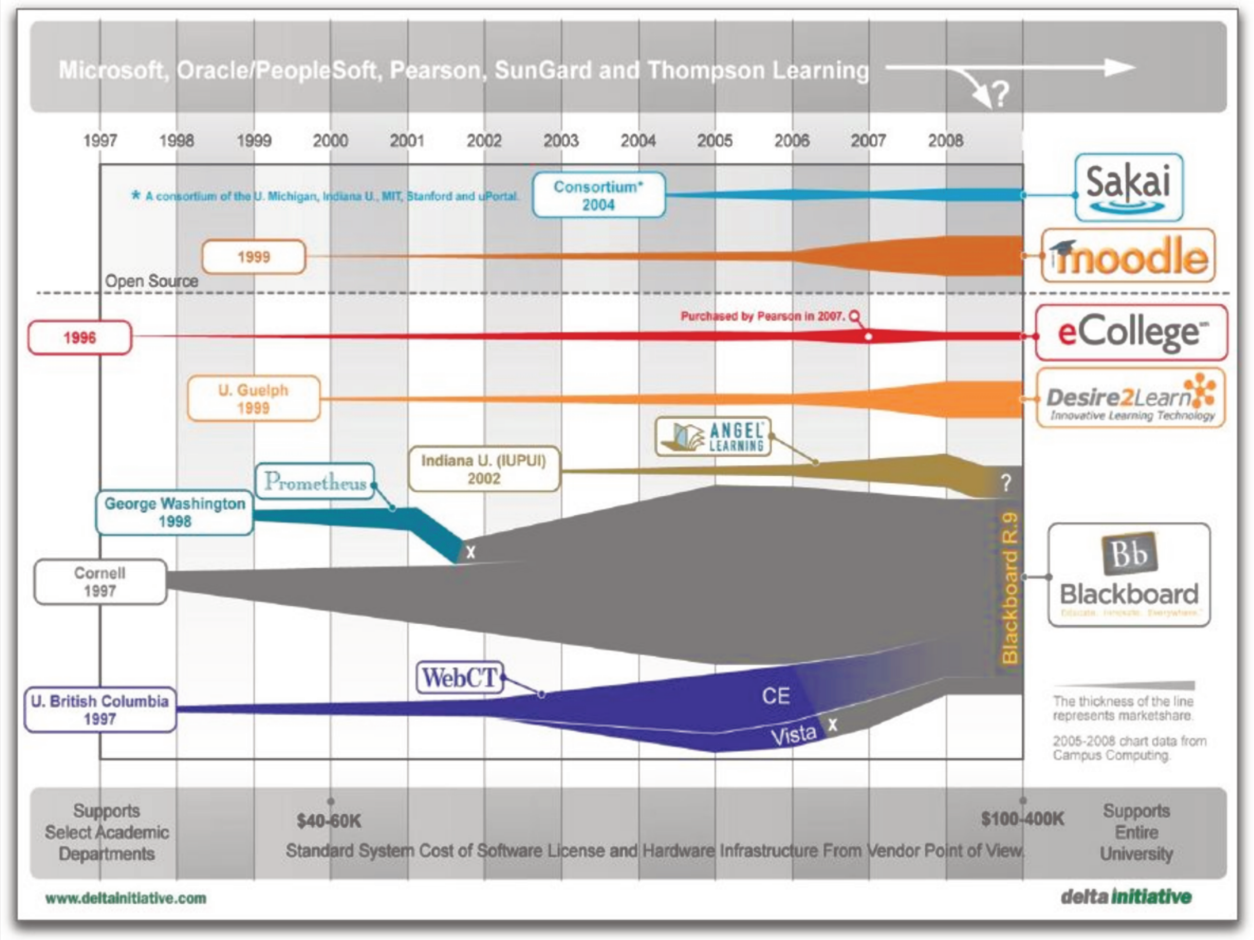
The University of Michigan's leadership role in the Sakai open source community that led to development of our CTools was based in part on our previous success with our internally-developed um.Coursetools and um.Worktools. Commercial solutions have been market driven and focused on the needs of the "middle of the curve" higher education community rather than the needs of a diversified R1 campus like ours. In addition to supporting needs of our faculty and students in courses, we wanted a toolset that supported research and administrative needs in a collaborative environment. That product did not exist on the market.

The benefits of a community open source product are well known and understood. The standards based solution also leverages a larger, more diverse pool of thinkers and developers than a commercial solution. It also provided the University with a global leadership role in teaching and learning.

What's Next?

User expectations are changing. Social networking and collaborative applications like Google docs are working their way into the teaching and learning space. New technologies improve the user experience and may be more effective. Our CTools environment is becoming more of a portal controlling access to multiple resources like gradebooks, podcasts, video, and electronic textbooks. New standards are emerging to support interoperability for content and access via enrollment status in a course. The Sakai community has started the next generation of tools called Sakai 3.

At the same time, we see the commercial market becoming even less competitive Blackboard dominates the market and has bought up many of the competing products. A couple of other commercial products remain and Moodle exists in the open source space. However, none of the other commercial products or Moodle meets the University requirements for customization and scalability. They are not developed to meet our diverse needs. See a depiction of the Learning Management market share below:



University of Michigan Collaborative Learning Environment and the Sakai Investment
Proposal to Invest in the Future of CTools
September 2010

A spring meeting with John King, Laura Patterson, Paul Courant, and Jocelyn Dewitt confirmed the University should continue on its path with Sakai. A more recent meeting with Deborah Ball, Paul Courant, Laura Patterson, and others confirmed this direction and resulted in a request to take the proposal to the IT Council for consideration.

What is Sakai 3?

Sakai 3 is the next generation Learning Management environment. Sakai 3 will provide an improved user experience built on a new technical architecture. One design goal of Sakai 3 is to ease transition process for campus moves from Sakai 2 to Sakai 3 – Sakai 2 tools will run inside of Sakai 3. Sakai 3 will provide more personalization of the workspace and better reflect the natural pedagogical workflow. Sakai 3 is user centric rather than course centric. It will be more aligned to the social networking solutions we interact with on a daily basis. Sakai 2's user interface is over 5 years old. Sakai 3 will bring the user experience up to date and be developed in a way to make it easier to keep up to date. Technically, it will break the current binding between content and authorization to provide more reuse of content. It will provide for easier integration with third party solutions which will allow us to better accommodate variations in teaching and learning. It will be more scalable and flexible. It will better support large sites and increased usage.

Should UM Participate in Sakai 3?

The Sakai Foundation has requested the University of Michigan's participation in the Sakai 3 development effort. The University of Michigan is still seen as a leader in this area.

Given the premise that our preferred direction for a collaborative Learning Environment is Sakai, it makes sense that the University of Michigan would invest in Sakai 3. In addition to contributing to the higher education community and continuing to play a leadership role, participation in Sakai 3 would:

- Ensure that our priorities would help shape the solution
- Improve our ability to maintain, enhance and configure the code
- Help us be an early adopter of Sakai 3
- Ensure that the Instructional Management Standards we are investing heavily in are designed into the product
- Leverage our skill in pedagogically-driven user experience (learned via MPortfolio) where the community needs are substantial.

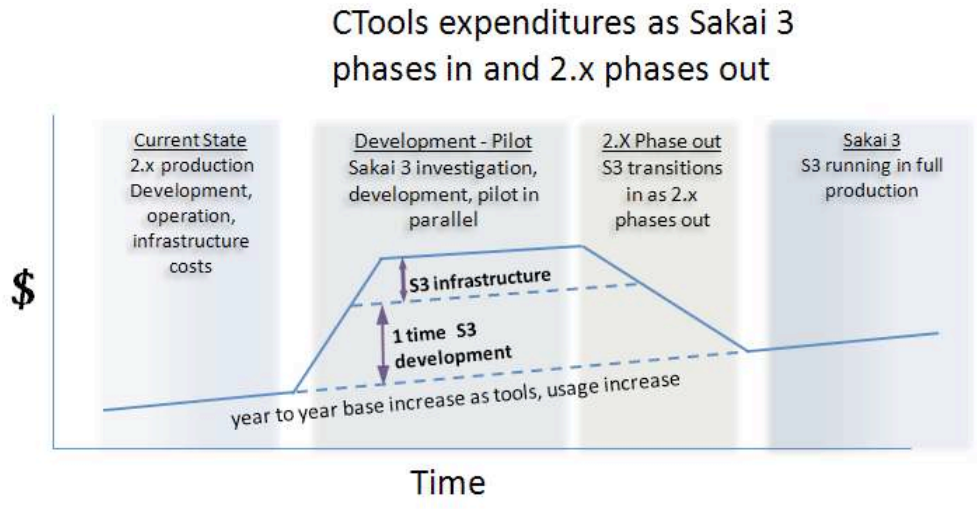
In order to participate, we expect an investment of $500,000 per year for three years would be needed to support staff and travel expenses. Priorities for UM would need to be developed and agreed upon to ensure a proper allocation toward the product in general and that UM interests are met.

How would UM Participate in Sakai 3?

The Sakai Foundation is looking for a commitment to the project that they would control to ensure the base system is developed and delivered. The University would establish a steering committee, under the Teaching and Learning domain, representing key central units (Library, ITS, CRLT) and academic units to decide what part of the incremental investment to provide to the Sakai Foundation and which to keep local to support projects to develop functionality the University feels it needs but isn't a priority for the Sakai Foundation. The steering committee would work with campus to set priorities for local projects though we expect some units will choose to invest on their own as well. The steering committee would guide the investment and oversee the progress of the local projects as well as the efforts of the Sakai Foundation. ITS will coordinate the campus efforts and be the primary link to the Sakai Foundation.

What Does the Transition Look Like?

Our investment in Sakai 3 would be incremental to any investment in Sakai 2.x. A move to a Sakai 3 production environment will be gradual. We expect we will need to fully support Sakai 2.x through 2012 when we would see support needs for 2.x start to taper off. We would start to move to Sakai 3 in 2012 and would see support needs for Sakai 3 increase until stabilized. However, 2.x will still be in use for some time beyond 2012.



Our investment in Sakai would likely increase for a period of time due to the development needs of Sakai 3. While it is too soon to provide hard numbers for Sakai 3 at this point, a rough estimate for the overall investment in Sakai/CTools may look like this:

University of Michigan Collaborative Learning Environment and the Sakai Investment
Proposal to Invest in the Future of CTools
September 2010

Area	Investment[1]	Timeframe	Notes
CTools 2.x	$2.1 million base	Current	DMC CTIG and ITS CTops base budgets for application support and infrastructure; includes .5 FTE allocated towards community support of UM 'owned' tools
CTools 2.x	$500,000 base - additional	Approved June 2010	To increase quality of application support for emerging campus needs.
CTools 2.x Infrastructure Upgrade	$0 - $300,000 one-time and $0 - $60,000 base	FY 2011 potential	Planning is currently underway to move CTools to a more scalable and sustainable infrastructure. Cost range will be influenced by factors such as length of acceptable maintenance windows, disaster recovery objectives and overall performance and scalability of systems. The high end estimate would include the following components: - Production sized development environment ($50K) - Production sized test environment ($100K) - Production server ($100K) - Replica DR environment ($50K) Ongoing capital replacement would be 20% of one-time costs
Sakai 3 Development	$500,000 one-time (per year for 3 years)	FY 2011 - 2013	To provide 3-4 FTE plus expenses to Sakai 3 development (business systems analysts, programmers, QC/QA, documentation) to get UM's priorities into version 3
Sakai 3 Infrastructure	$400,000 one-time $80,000 base	FY 2011 FY 2012	Very rough estimate. No infrastructure details are known at this time, so it is impossible to accurately assess the cost. Initial estimates: - Increase in application servers ($50K) - Increase in database servers ($200K) - Increase storage ($150K) Ongoing costs would be one-fifth of one-time costs (to handle capital replacement).
Sakai 3 Application Support	$300,00 base	FY 2014	Very rough estimate; assumes new tools developed in version 3 need to be maintained in 3; may not be needed
Other	TBD	TBD	Expect new requests will continue to come in over time; will develop separate business cases. An example is a request for growth in terms of infrastructure needs (HW, disk space) due to increased use (Flint, Dearborn) and content[2]

[1] These are rough numbers and may not tie specifically to the budget.

[2] Possible that other collaboration tools may reduce usage in CTools for non-course usage. About 50% of the CTools use today is for research and administrative projects. This may reduce costs.

To put this in a fiscal year perspective:

	FY10	FY11	FY12	FY13	FY14
Base	2,100,000	2,100,000	2,600,000 – 2,660,000	2,680,000 – 2,740,000	2,680,000 – 2,740,000
Additional Base HW (2.x)		0-60,000	80,000		
Additional Base Application (2.x + 3)		500,000[3]		0	300,000
Incremental Base	0	500,000 – 560,000	80,000	0	300,000
Total Base (high end)	2,100,000	2,660,000	2,740,000	2,740,000	3,040,000

One Time HW (3)	0	400,000-700,000	0	0	0
One Time Application (3)	0	500,000	500,000	500,000	
Incremental One Time	0	900,000 – 1,200,000	500,000	500,000	0
Total One Time (high end)	0	1,200,000	500,000	500,000	0

[3] This $500,000 is in the current budget request from the CFO to the Provost for FY11.

Who is Using Sakai? Sakai Installations - Partial List

The Sakai Collaborative Learning Environment (CLE) LE is the enterprise system of choice at more than 200 educational institutions in production settings ranging from 200 to 200,000 users.

Abilene Christian University
Annaba University, POLLES Algeria
Antioch University
Appalachian College Association (15 member institutions)
Applied Educational Research Scheme of Scotland (AERS)
Arizona State University
Arteveldehogeschool
Australian National University
Boston University, School of Management
Cairo University, Faculty of Engineering
California State University, Fresno
Catholic University of America
Cerritos College
Charles Sturt University
Claremont Colleges Consortium (10 member institutions)
College of the Redwoods
Columbia University
Columbia University, Earth Institute
Cornell University
Dana College
ETUDES Consortium (26 member institutions)
EU-Asia Link Program (HPC/GC)
East Carolina University
Ecole Int'l des Sciences du Traitement de l'Information
Georgia Tech
Gert Sibande College
Glasgow Caledonian University
Hebrew Union College
Hong Kong University of Science and Technology
Hosei University, ITRC
Indiana University
ICET, Beijing University of Posts and Telecom
Instituto Politecnico de Braganca
International Institute for Higher Education in Morocco
Johns Hopkins University
Lahore University of Management Sciences
Marist College
Moleque de Ideias Educacao e Tecnologia Ltda
Moody Bible Institute
Mount Holyoke College
National Ctr for Integrative Biomedical Informatics (NCIBI)
National Inst for Technology and Liberal Education (NITLE)
New York University (NYU)
New Zealand BeSTGRID VRE
Newcastle University
North-West University
Northern Arizona University
Northwestern University
Ohio Learning Network
Ohio State University
Oxford University
Pacific Lutheran University
Pai-Chai University
Portland State University
Rhode Island Electronic Portfolio System (RIEPS)
Rice University

(more…)

Roskilde Universitetscenter
Ross Institute
Rutgers University
Sabanci University
San Mateo County Community College District
Simon Fraser University
Specs Howard School of Broadcast Arts
Stanford University
Stockholm University
Texas State University, San Marcos
The Carnegie Fndtn for the Advancement of Teaching
Trinity University
UDG Virtual, Universidad de Guadalajara
Universidad Complutense de Madrid
Universidad Nacional de Colombia
Universidad Politecnica de Valencia
Universidad del Valle de Guatemala
Universidade Fernando Pessoa
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Universite de Poitiers
Universiteit van Amsterdam
Universities of East Anglia and Hull
University of Baltimore
University of British Columbia
University of California, Berkeley
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University of California, Merced
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University of Delaware
University of Hawaii
University of Limerick
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University of Michigan
University of Missouri
University of Nebraska-Lincoln
University of New England
University of North Carolina at Chapel Hill
University of North Texas
University of Notre Dame
University of Portsmouth
University of Puerto Rico
University of Rhode Island
University of South Africa
University of Toronto
University of Virginia
University of Windsor
University of Winnipeg
University of Wyoming
University of the Highlands and Islands
Universitaˆ degli Studi di Salerno
Universite´ Pierre et Marie Curie
Virginia Tech
Wake Technical Community College
Walsh University
Washington State University, Vancouver
Washington and Lee University
Wharton School, University of Pennsylvania
Willamette University
Yale University

Gartner Research

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Case Study: Sakai Demonstrates How Community-Source Software Works and Thrives

Andrea Di Maio, Jan-Martin Lowendahl

We will describe the workings of an organization-based community-source approach to application development. It provides lessons for application managers and CIOs who are looking for effective approaches to application sourcing.

Key Findings

- Community source is a viable sourcing option when there are enough user organizations sharing very similar requirements, a low to moderate level of competition among them, and a proven ability to cooperate between a subset of them, who are at the core of the initial community.
- Community source provides a useful model for coordinating the efforts of participants in a large-scale open-source project when initial contributors want to retain control of their development, while setting the foundations for community growth. It articulates the governance structure, values, and operating principles for aligning the interests and efforts of the community.
- The basic requirements for a successful community-source initiative are the existence of a potential ecosystem with skilled resources, committed users and developers, and a solid business case for all participants.

Recommendations

- CIOs in public-sector organizations (especially education and local government) should look to include the Sakai community-source model as a possible sourcing option in addition to evaluation of mature commercial application for some of their custom-made or internally developed mission-critical applications.
- Open-source software (OSS) policies in such organizations should be enhanced to cover the terms of reference for identifying and possibly joining community-source initiatives.
- CTOs and innovation managers should look for funding options through national and supranational schemes to support the creation of such communities.

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WHAT YOU NEED TO KNOW

The Sakai experience proves that community source is a viable option for public-sector applications when there is a tightly knit, but small and manageable kernel of contributors, and when there is the potential for growing a sustainable community where every member has the interest and the opportunity to participate. Initial seed funding of some sort is required to trigger developments and reach a stage where potential additional members can reasonably assess the benefits, risks and costs of joining the community as opposed to more-traditional sourcing options.

STRATEGIC PLANNING ASSUMPTION

By 2010, between 10% and 20% of application software used by government agencies will be reused from other agencies or open source (0.8 probability).

CASE STUDY

Introduction

Today, public-sector organizations have four different sourcing options for their software applications, ranging from custom development, to commercial packages, to open source, to community source (see "When to Use Custom, Proprietary, Open-Source or Community-Source Software"). While the first three are fairly well understood, the last (community source) — which possibly yields the greatest potential to leverage common requirements across similar organizations (such as local authorities, schools and universities) — is still in its infancy. There are relatively few examples around the world of communities that have achieved a sufficient degree of maturity and self-sustainability, and one of these is Sakai in the higher education sector.

Sakai (see Note 1) has developed a collaboration and learning environment that is used by universities around the world, constituting one of the largest-scale examples of community-source developments and deployments to date (see Note 2).

A recent Gartner higher education survey on e-learning shows that the trend toward a hybrid approach to learning continues, and course management systems are well entrenched as an academic enterprisewide application. The survey indicates that e-learning platforms are no longer "nice to have" but a requirement, and although the majority of higher education institutions have proprietary e-learning platforms as their campus standard, this may change during the next few years, making Sakai a plausible option, along with the main OSS competitor Moodle.

The Challenge

The challenge is the old challenge of build versus buy, or rather assemble versus subscribe, as it has become in recent years. The challenge is ultimately about critical mass of skill and economy of scale in relation to benefit. Higher education institutions have a strong tradition of developing their own systems to support their core education and research mission. In fact, most of the successful commercial systems, such as WebCT and Blackboard, started as homegrown systems at the University of British Columbia and Cornell University, respectively. While several larger institutions have supported internally developed systems for a long time, the trend in recent years has been for most institutions to rely on proprietary software as a means to achieve cost-effective deployment with guaranteed service levels. However, the experience with commercial

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packages has also led to concerns related to issues such as licensing costs, adaptability, pace of change, available support and vendor lock-in. This situation, together with the fact that even the larger institutions are now finding it difficult to support their internally developed solutions, has led many institutions to seek other sourcing options for their e-learning platform. In view of the recent successes of some OSS, such as Linux, Apache and uPortal, several institutions have started to look at an OSS model for developing and supporting an e-learning platform. However, due to the mission-critical nature of an e-learning platform and the relatively small user base with respect to successful OSS communities (such as Linux), they had to find a path to sustainable development and support of the e-learning platform.

Approach

In January 2004, Indiana University, MIT, Stanford University and the University of Michigan launched the Sakai project. All four universities had already developed their own e-learning platforms and had experience with OSS communities from their involvement in earlier OSS initiatives, such as the uPortal project (www.uportal.org) and the Open Knowledge Initiative (www.okiproject.org) — which also joined Sakai as co-founders. The four universities agreed to contribute about 27 full-time equivalents (FTEs) or $4.4 million to the project. They received a $2.4 million grant from the Mellon Foundation, which gave an initial boost to the amount of coding resources that could be committed to the project. The original founders of Sakai directly produced five releases between October 2004 and August 2005. In March 2004, they launched the Sakai Educational Partner Program to invite other institutions (initially 19) to contribute financially and by submitting code. This planned and well-marketed effort to build a community was initially supported by a $300,000 grant from The William and Flora Hewlett Foundation. In December 2005, version 2.1 was the first release to include tools developed by the broader community. During 2005, the partners started working on a more-formalized structure to sustain the development and support of Sakai "indefinitely." In October 2005, the Sakai Foundation was born (see Note 3). In three years, the Sakai community has grown from its four founding members to more than 105 paying members.

The Sakai Foundation acknowledged from the start that its ecosystem needed commercial service providers to thrive. Although there is a special Sakai Commercial Affiliates partnership program, commercial organizations participate on the same level as all other organizations. They pay the same fee, document their intent to support the Sakai foundation mission, and are eligible for being nominated to the board. For example, a representative from rSmart, a company providing support services for OSS, is already on the board.

Sakai is available through an Open Source Initiative-certified open-source license called the Educational Community License.

Results

Sakai as a product is more than a mere e-learning platform, and it provides functionality in three main areas: collaboration, learning and portfolio. Although still perceived as somewhat immature in terms of traditional e-learning platform functionality, Sakai is quickly gaining ground, and can be seen as fairly innovative in some areas like the use of Web 2.0 capabilities such as podcasting, blogging, wikis and Really Simple Syndication. Short-term improvements are focused on core e-learning functionality — such as grade book assignments, online tests and quizzes — to meet the increasing need for replacing legacy e-learning platforms. In the long term, Sakai will focus on improving the user interface and user experience, while continuing to improve interoperability in areas such as "learning" standards (such as Sharable Content Object Reference Model) and portal/portlets (such as Web Services for Remote Portlets and JSR 168/268), developing Sakai as a data consumer/producer for other e-learning platforms, publishers, digital repositories and long-term archiving.

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Sakai is in production in a variety of institutions around the world, ranging from Indiana University and UNISA (in South Africa) with more than 100 000 users; to institutions (with 10,000 to 50,000 users) such as the University of California at Berkeley, Cambridge University and Stockholm University; to smaller institutions (with less than 10,000 users) such as Roskilde University (Denmark), Rutgers University and Fernando Pessoa University (Portugal). All in all, there are 80 reported production Sakai sites and 36 reported pilots deployed in six continents (For a map-mashup of members and sites, see sakaiproject.org/index.php?option=com_wrapper&Itemid=588). Sakai is also making inroads into the K-12 community. For example, the Arizona state system is looking to implement Sakai for 35,000 users.

Sakai develops and supports "tools" through a number of projects. Some projects start as an experiment with regard to a new technology, while others are a response to the needs of a specific university. Major tools have ongoing projects for maintenance and for the development of new features.

To coordinate the major releases of Sakai, the community has agreed to a simple, three-phase development process: requirements, design and coding, and quality assurance (QA).

The foundation has established a requirements working group that is charged with collecting feature requests and ideas that could lead to improvement of Sakai and JIRA, the Sakai's issue management and tracking system (see Note 4). These requests are sorted, and duplicates are eliminated by the official group members. Once a year, all suggestions are evaluated and ranked by members of the foundation; the public at large can also vote. Both a wiki and a voting tool, with a fairly sophisticated voting algorithm, are being used.

The design and coding process of the new features and tools are then done in projects (see sakaiproject.org).

Sakai tools typically have one of three "status" levels:

1. Contributed — Prototypes or software that don't meet provisional requirements.
2. Provisional — Proposed Sakai tools, included in the distribution, but turned off.
3. Core — Fully supported Sakai tools that are turned on in the distribution.

Progress of Sakai projects is tracked and communicated to the community by a project coordinator. Biannual project coordination meetings have been started to deal with high-level project issues.

Each major release goes through a full QA process, which usually lasts about two months. Candidate builds are tested using a variety of techniques. Bugs are reported back into JIRA, where they are picked up and fixed for the release. The QA director coordinating this process plays one of the most important roles in the Sakai Foundation (see Note 5).

Critical Success Factors

- Sakai learned from previous OSS experiences and brought together the best aspects of several different approaches to software development, such as open source, organizational consortia and commercial models, to build a thriving ecosystem. Open access to the code enables more innovation, simply because more people are able to contribute, and meritocracy enables a road map built on actual contribution to the community, rather than financial or political muscle.

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- Sakai recognized early in the process that the key for a sustainable ecosystem is to build it for the mutual benefit of all participants.
- Flexibility and speed of change enhanced by a basic service-oriented architecture enable institutions to implement "tools" in an incremental fashion and make changes at their own pace. Institutions focus on developing tools that suit the institutions' own pedagogical environment, while using and maintaining a common core.
- Sakai chose openness over IP protection when deciding that all members of the foundation are equal members — whether educational or commercial members. Access to the code enables more innovation simply because more people are able to contribute.
- Availability of skilled developers is necessary, as is a good source of new potential developers among the students (who have recent experiences of using e-learning platforms), as well as a good mechanism for staff development in terms of programming and collaboration skills.
- A well-focused community of interest is required to achieve the goal of supporting teaching, learning, research and collaboration within higher education.
- Efforts are focused on building the community by arranging conferences, formal partner programs and "marketing" at higher education events.

Lessons Learned

- Starting as a limited community, rather than with a totally open one from the outset, helped to promote a smooth progression toward a manageable and sustainable community.
- Software developed by domain-specific communities can indeed be made available and evolved through an open-source license. However, the community needs to maintain a more rigorous, domain-specific governance process, which Sakai achieves through its foundation.
- In the early stages, expectations created by the high profile of founder institutions and the large grant did not match the actual output when compared to available commercial and OSS options. Neither did the early partners feel very involved, as their input did not make it to software releases until version 2.1 in December 2005. This led to a greater focus on managing expectations by the Sakai Foundation, which has resulted in roles like the community liaison person and a high focus on arranging conferences and other meeting places.
- Most successful OSS projects are about "techies" developing for "techies" — that is, the developers understand the end-user's situation very well. In the Sakai project, there are many types of end users whose experiences have to be considered, and the foundation has recognized a need for improvement. Right now, the foundation is exploring the possibility of funding a permanent position responsible for the user experience.
- There is some concern that Sakai might have drawn resources from uPortal, a very successful OSS project, which for many universities is the preferred portal. If the adoption of community-source models increases, it will be necessary to assess the interdependencies between different communities, to prevent resource problems and critical bottlenecks.

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- The business case for joining Sakai has not been fully articulated. Therefore, it may still be difficult to compare its benefit, risk and cost profile to more-traditional sourcing options. In particular, the total cost of ownership, including building and maintaining internal skills on the product, must be assessed.
- There is considerable debate about how community source relates to open source. Although community developments do not necessarily require an open-source license, Sakai chose an open-source license and established clear community governance mechanisms through its foundation. Whereas future developments are likely to be cohesive and coherent as a result of such governance, the use of an open-source license would allow licensees — including members of the foundations — to produce derived work, should their requirements ultimately collide with those of the foundation.

RECOMMENDED READING

"E-Learning for Higher Education: Course Management Systems"

"When to Use Custom, Proprietary, Open-Source or Community-Source Software"

Note 1
Origin of Sakai's Name

Sakai is not an acronym. The project was initially conceived as extending the CHEF technology architecture. Chef Sakai is a Japanese cooking artist.

Note 2
Definition of Community Source

There is no official definition of community source, nor has Gartner developed one yet. A "good enough" definition (and one of the earliest) was provided by the Sakai project itself: "Community source describes a model for the purposeful coordination of work in a community. It is based on many of the principles of open-source development efforts, but community source efforts rely more explicitly on defined roles, responsibilities and funded commitments by community members than some open-source development models."

Community-source software is usually made available through an OSI-compliant open-source license (this is the case for Sakai), although in principle its use could be limited to members of the community or to a particular field of endeavor (for example, public-sector users only, or users in a given geography or domain).

Note 3
Sakai Foundation

The Sakai Foundation is a nonprofit organization whose mission is to coordinate activities around Sakai and the Sakai community to ensure Sakai's long-term viability. There is no requirement to be a member of the foundation in order to use the Sakai software, and membership is open to organizations that have a mission that is consistent with the purpose of the Sakai Foundation and can validate that with documented activities, policies or strategies. The membership fee is currently $10,000 per year for institutions with more than 3,000 students.

The foundation is governed by a board of directors (elected by partners) that provides strategic leadership. Each partner has one vote and "anyone" can be elected. The foundation employs a staff of four to five people who coordinate project management, quality assurance, release management and conference planning (see sakaiproject.org).

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Note 4
JIRA and Confluence

The Sakai project is using JIRA, a "bug tracking, issue tracking, and project management application" together with Confluence, an "Enterprise Wiki" provided by Atlassian to support the project and the community. Both products are available free for nonprofit organizations. (see www.atlassian.com/software/jira/pricing.jsp#nonprofit and www.atlassian.com/software/confluence/pricing.jsp#nonprofits).

Note 5
Sakai Releases

For the release 2.3 in November 2006, the Sakai Foundation counted 116 developers from seven countries. Of the total developing community, 13 people, or 11%, were from commercial organizations. The QA process counted 43 people testing from 17 organizations in five countries. Currently, more than 100 volunteers representing more than 30 academic institutions and commercial organizations are active in developing and testing Sakai releases. On 21 May 2007, the Sakai Foundation released version 2.4. At the time of publication, there was no final data on the involvement of the community.

This research is part of a set of related research pieces. See "Open-Source Software Grows in the Public Sector" for an overview.

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