LOYOLA UNIVERSITY MARYLAND
A STRATEGIC PLAN UPDATE FOR TECHNOLOGY SERVICES
2013
This report discusses the results technology services has achieved by implementing the plan. It also provides a snapshot of current customer satisfaction survey results, comparison benchmarks within the education industry, the evolving security posture of the technology environment and upcoming goals and objectives.

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Technology is one of the leading change agents within higher education today. Investments need to be deployed thoughtfully and in alignment with the university strategic plan in order to leverage its maximum potential in the achievement of the University’s goals.

In 2008, what is now Loyola University Maryland launched its five year strategic plan; *Grounded in Tradition, Educating for the Future*, as a framework to guide Loyola’s direction and initiatives through 2013 (www.loyola.edu/strategicplan). The plan’s core goal; Loyola will become the leading Catholic comprehensive university in the nation. Appendix A

As a result, specific initiatives in the plan sought to elevate nearly every aspect of the university: undergraduate and graduate education and support; faculty development; athletics; engagement with local and global communities. Technology services reviewed the Loyola strategy, and identified the implications for technology, as well as how we could best contribute to the success of the University. The result was the Technology Services 2009-2011 Strategic Plan aligned with Loyola’s core goals. The plan can be viewed at www.loyola.edu/CIO.

During the last four years, the IT organization has been challenged to implement its strategy to support Loyola’s goals with decreased resources and increased student, faculty and staff expectations for technology to enable learning and business processes.

We have successfully addressed this challenge by:

- Supporting the attraction and retention of students by shifting the University website to be more agile and market focused, implementing paperless admission processes, creating a learning environment that is consistent with generational expectations and fostering learning opportunities outside the classroom.
- Providing a technology environment that differentiates Loyola from competitors.
- Improving operational efficiency that reduced costs and improved service.
- Making investments in technologies and projects that align most closely with Loyola’s strategy through collaboration with technology governance.
- Developing risk mitigation initiatives such as cybersecurity, business continuity planning, disaster recovery, compliance with government and industry regulations.
- Modernizing campus computing resources and partnering with faculty, students, administrators, and staff to ensure the maximum potential of our systems and services are understood and leveraged.

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**OUR MISSION:**

Our mission is to support, enrich and inspire the academic, social, and administrative experience of the Loyola community through dynamic partnerships and a focus on effective technologies in alignment with the University’s mission and dedication to lifelong learning and caring for the whole person.
## Looking Ahead

Most of our 2009 goals have been realized. In some cases, we’ve far exceeded them. The technology services department has evolved into a highly functioning, collaborative team that understands the urgency of our work. Loyola continues to benefit from our success. Each year, as our budget has decreased, we have been able to: significantly modernize the computing environment, mitigate the risks through cybersecurity and business continuity initiatives, and work with the Loyola community to ensure that all are able to maximize the University’s investment in technology.

Looking ahead, challenges at the university will be similar to those found throughout higher education. Most of these challenges will require technological solutions. As a result of our vision, many solutions are already in place.

Technology in higher education has changed tremendously since the 2009 plan was written. Today, some technology challenges we face are: consumerization and personalization in IT, leveraging the cloud, data security, risk management and compliance. Add these to the other challenges Loyola faces as a mid-sized, private university, newly entering the online market. We must be fully committed to leverage technology as we enter the “new normal” for higher education.

There is much work to do. Our accomplishments over the past four years position us well to meet the demands of the next four to five years while continuing to grow as an agile and strategic asset to the University.

### Higher Education Challenges

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<th>Challenge</th>
<th>Example Solutions to Date</th>
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<td><strong>Funding Pressures</strong> – revenue management, recruitment, retention, fundraising, tuition pressures and affordability</td>
<td>Constituent relationship management (CRM) systems to aid in the recruitment phase of admission.</td>
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<tr>
<td><strong>Operational Efficiencies</strong> – optimizing resources, containing costs, process transparency, agility, improvement, financial discipline, controls and metrics—services and tools to keep learners on track, flexible pathways to learning, improving learning outcome.</td>
<td>A paperless system to streamline major business processes such as admission, employee hiring and accounts payable.</td>
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<td><strong>Accountability</strong> – measuring performance, outcomes, compliance, data-driven decisions</td>
<td>Key performance dashboards for senior leadership and the addition of web enabled reporting tools for management and operational activities.</td>
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<td><strong>Constituents Expectations</strong> – faster, more flexible access to information and services, managing and keeping pace with technology change, differentiating educational experiences</td>
<td>Strong governance committees that provide input into decision making for technology projects and by encouraging faculty and students to explore new technologies and their varied uses in teaching and learning.</td>
</tr>
<tr>
<td><strong>Engaging our Community</strong> – partnerships with neighboring communities, donors, peer institutions and industry</td>
<td>Technology services was awarded Partner of the Year award for contributions to the Govans Ecumenical Development Corporation (GEDCO) organization and their initiatives in the local community.</td>
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</tbody>
</table>
The plan was developed to align the activities, services and outcomes of the technology services department with the strategic plan of the University in order to achieve maximum effectiveness and return on technology investments.

The technology plan identified four strategic focus areas:

- **Communication** – connect academic and student life across campuses, regions, geographies and across schedules and time zones to build community, interaction and collaboration.

- **Differentiated Service** – meet rising demands for IT service by outsourcing commoditized services while realizing cost savings and freeing resources to implement differentiated services.

- **Operational Excellence** – recognize the realities of resource and budget limits in university administration and provide IT solutions that increase operational efficiencies without diminishing effectiveness.

- **Transparency and Understanding** – provide outstanding service and university-wide insight into IT capacity, capability, project selection and prioritization to build credibility so that we make the best decisions regarding technology resource allocation.
ORGANIZATIONAL REFOCUSING

Assess the current organization and re-distribute and re-focus the staff and resources to meet the changing landscape including; the consumerization of technology, cloud services, mobile devices and increasing end-user skills and expectations.

OUTCOMES: In order to become more effective at what we do, we needed to change how we worked together. The department was reorganized to improve productivity, communications and customer support. Next, relationship management with our client groups was set as an operational imperative which drove the formation of dedicated support centers for students and faculty. A project management methodology—and office—was developed to organize project selection, execution and the successful implementation of new systems and services. Over time customer satisfaction has drastically improved as evidenced in our surveys. The multi-year backlog of projects waiting to be completed has disappeared as our project management processes improved. Cybersecurity became an area of increasing concern, resulting in new policies, safeguards and ongoing awareness campaigns.

Appendix B

TEACHING AND LEARNING STRATEGY

Assess the instructional technology environment and plan for the adoption of appropriate types and levels of technologies, in keeping with the Loyola Jesuit values and mission, with an ongoing awareness of the tension between evolving student expectations and faculty adoption rates.

OUTCOMES: Several major initiatives were undertaken and completed, including the creation of a Faculty Technology Center where faculty are able to work with instructional designers on course design and receive assistance with course material creation, manuscripts and general technology support. Migration from the Blackboard learning management system (LMS) to Moodle, an easier, more intuitive LMS was completed, resulting in broader adoption by the faculty and an annual savings of over 50%. The challenge of making all of Loyola’s online services accessible to everyone via assistive and adaptive technologies in use by students and staff with disabilities was tackled by a task force that focused on system audits, raising awareness and workshops for faculty and staff in creating accessible course materials. Technology grants were made available to faculty that wanted to experiment with emerging technologies to effectively integrate them into their courses. We partnered with the Clinical Centers to implement a best-in-class “practice management” and “electronic medical record” system. This enables Loyola’s students to gain experience first-hand in health care software which better prepares them for entry into the workforce. Similarly, the Sellinger Business school was equipped with industry standard financial services such as Bloomberg and Reuters to produce a “trading room” experience for our students. All Loyola classrooms are now “smart” with digital technologies and 30% are equipped with lecture capture capabilities.

Appendix C
INFRASTRUCTURE ASSESSMENT AND REFRESH

Plan and implement the next generation of technology infrastructure to ensure maximum utility of our servers, network, and communication systems as well as provide for operational fault tolerance and protection of our electronic assets.

OUTCOMES: We focused our efforts on removing all single points of failure on our data networks on main campus, between campuses and out to the Internet. We expanded the capacity of our connections to the Internet and have met the federal government requirement to block illegal peer to peer file sharing. An internal portal was introduced called “Inside Loyola” that provides a single point of entry into all Loyola’s online systems and services through a single login. We have prepared our data networks to carry voice traffic in the future in order to avoid the expensive replacement of our outdated PBX. WiFi capacity was expanded everywhere and through the use of virtualization technologies, thousands of dollars were saved in the operation of our Data Center. Whenever possible we are using cloud based servers and applications to keep costs in check, but not at the expense of data security. We continue to monitor cloud opportunities and will leverage them as appropriate. Appendix D.

TRAINING ASSESSMENT AND STRATEGY

Assess the current training programs and develop an enterprise strategy for effective technology training that meets the needs of a changing work force.

OUTCOMES: The desire of our clients for just-in-time information has driven a change in our training delivery methods for the Loyola community. The Technology Training Center was created, which introduced a new delivery framework. In addition to face-to-face training, online training has been made available (Lynda.com, Microsoft IT Academy, AdobeTV, Datatel Online Library). Custom training is also now being delivered for offices that are receiving new systems such as Admission and the Clinical Centers. As a result, software adoption rates are up as is customer satisfaction. A new program, “Technology Onboarding for New Hires” has been successful in bringing new faculty and staff up-to-speed on Loyola systems so they are quickly productive in their new roles. Other favorites are the technology workshops, lunch-and-learns and “quick start” guides our staff provide. Appendix E
IT GOVERNANCE: POLICY AND PORTFOLIO MANAGEMENT

Institute technology governance to facilitate broad participation by all constituent groups in the technology project decision making and policy setting activities. Establish a methodology for sustainable project/portfolio management and accountability that provides transparency and awareness of University technology projects.

OUTCOMES: Improved communication and accountability were two priorities that we set for ourselves at the start of this plan. We have accomplished both by working closely with technology governance committees that are comprised of our constituent base (faculty, students, administrators, staff) and who help us to select technology projects for the University, track them and determine launch dates. These committees also work with our CIO to develop policies that are needed to better clarify the appropriate use of technology and safeguarding of data. Data Stewards were named in each business unit to work with our staff to manage data security, access and integrity. Our Project Management Office manages all technology related projects and has expanded their methodology to the Facilities Management Department as well. Appendix F

BUSINESS PROCESS MANAGEMENT

Align technology services with the wants and needs of users to promote business effectiveness and efficiency while striving for innovation, flexibility and integration across systems and services.

OUTCOMES: In order to assist our admission offices in their need to process increasing numbers of applications without expanding their staff and to reduce processing time, we evaluated their business processes and took the bold step of automating as much of it as possible. This became part of a larger campus initiative called the “Paperless University”. Through reengineering the process, which had a 6-8 week backlog each year in undergraduate application processing, we were able to reduce the process to just one week. In addition, we were able to secure applicant data and free staff up from chasing files to answering parent questions in real time. The overall process of receiving the applications (and their supporting documents) completed one month sooner than in past years. This enabled the staff to focus their time on following up with applicants and their parents proactively. The same principles have successfully been applied in the new hire process and in the accounts payable office. Appendix G
INTEGRATED ADMINISTRATIVE INFORMATION STRATEGY

Assess the current Enterprise Resource Planning System (ERP) to determine its fit for University needs as well as the effectiveness of third party applications that interface with the ERP. Evaluate and update the University Web presence.

Outcomes: The administrative systems that run the business of the University are a complex set of applications, all of which communicate with one another to share our core data about students, faculty and staff. The administrative system, comprised of HR, Finance, the Student Information System and Advancement provides many self-service opportunities via the new web portal (Inside Loyola) as well as a mobile app. In partnership with the Marketing and Communication department, the Loyola web presence was split into two sites; an externally facing site that targeted information for prospective students, faculty, staff and donors and an internal portal that became a one-stop-shop for everyone connected to Loyola to interact with our online systems and services. A business process that provides access to these systems was automated so that an accepted student or newly hired faculty member could log into Loyola’s online environment before ever setting foot on campus. Cost cutting measures ushered in a heightened need for access to data. We delivered dashboards for senior leadership as well as web reporting tools for management and operational needs. Appendix H

BUSINESS CONTINUITY STRATEGY

Develop a Disaster Recovery/Business Continuity Plan to reduce the risk of failure of the critical University systems.

Work with University business units to develop and periodically test business continuity plans that will enable ongoing business operations during and after a crisis event such as a sustained power outage, water damage, natural or man-made disaster. By creating and testing these plans, we are reducing risk to the University in the event of catastrophic failure.

Outcomes: Realizing this was a weakness within the institution, we worked with each University department to develop a Business Continuity Plan (BCP) which could be utilized in conducting business in the event a major crisis occurred and Loyola’s online systems were not available (and possibly no power or communications). University wide Table Top Exercises (TTEs) were held semiannually to simulate a new crisis event each time in coordination with Public Safety. Responses were practiced among the departmental teams, service units and the President’s Cabinet, resulting in lessons learned and ongoing plan improvements. In addition, we have lowered our risk for loss of data by building a second Data Center on the Timonium campus. We have put numerous safeguards in place to minimize the exposure of the University to a major technology failure. Appendix I
CLIENT SERVICES

Develop Client Services that address the unique needs and preferences of each constituent group found at Loyola. As the complexity of technology increases, reduce the barriers for end user adoption by providing more self-help, partnering, coaching and workshop opportunities to increase confidence, satisfaction and overall productivity.

OUTCOMES: One of the most often heard comments from our focus group surveys in 2009 was the request for more consultative partnering with our clients due to the increased complexity of technology. As a result, we created “constituent relationship management” teams to identify and meet the unique needs of faculty, students, staff and our executives. This enabled us to provide personalized service and support which is designed to meet our clients where they are, instead of expecting them to figure things out on their own. The Help Desk was reworked to become a trusted resource for anyone needing technology assistance. The desktop computer replacement policy was put into place, as were best practice tools for managing them remotely for software installs and client support. Opportunities for exploring new and emerging technologies for faculty and students were made available via the Faculty Technology Grant program and the iGoForth Mobile App development contest for students. The technology services website was redesigned to deliver easier to use information in friendlier terms.

Appendix J

CLOUD COMPUTING CAPITALIZATION

Engage large industry cloud solutions that extend the breadth of services without jeopardizing the security or integrity of daily operations. Use cloud services to realize cost savings and increased time to market with new services. Wherever possible, use cloud services to better leverage our resources (staff, budget) and increase organizational agility. Appendix K

COLLABORATION TOOL ENHANCEMENTS & SOCIAL NETWORKING INTEGRATION

Develop Client Services that address the unique needs and preferences of each constituent group found at Loyola. As the complexity of technology increases, reduce the barriers for end user adoption by providing more self-help, partnering, coaching and workshop opportunities to increase confidence, satisfaction and overall productivity.

Appendix L
2012 CUSTOMER SATISFACTION SURVEY

In spring 2012, Loyola participated in a survey of students, faculty and staff on the quality of technology services provided at the university. The survey, “TechQual”, compared Loyola technology service delivery to that of peer institutions nationwide. The survey was distributed to 25% of the Loyola community, and completed by 12.6% of this group. They responded to twelve questions, assessing three categories of technology services:

- **Connectivity & Access** - quality of the Internet service on campus
- **Technology & Collaborations** Services websites, online services and technologies for collaboration
- **Support & Training** - the experience of obtaining assistance with technology on campus.

**Key Findings**

Overall, the perception of Loyola’s technology services exceeded that of peer institutions for eight of the twelve questions. The results indicated that Loyola expects more from technology services than peer institutions expect from their IT departments. This illustrates the high level of technology service provided at Loyola compared to other universities. The highest concentration of community feedback focused on issues of connectivity and collaboration services.

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**Minimum Desired Level of Service**

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**Perceived Level of Service**

We exceeded peer schools in 12 of 12 questions.

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**Minimum Desired Level of Service**

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**Perceived Level of Service**

We exceeded peer schools in 8 of 12 questions.

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**Perceived Level of Service**

We exceeded peer schools in 4 of 12 questions.
The Distribution of Technology Services Costs

While technology can provide quick access to data, enhance communication and collaboration between students, faculty and staff, it also enables the business side of the institution to fulfill its requirements in meeting operational, strategic and regulatory demands of its stakeholders and the government. Fulfilling the needs of each constituent group (academics, admission, facilities, etc.) requires a wide array of systems and services, each with its own sets of demand cycles and intensity levels. As expected, nearly 60% of the IT budget is spent on services aimed at the student academic and campus experience.

This graphic shows the distribution of technology costs and staffing by functional domain and provides a view of key IT resource consumption in the context of the overall IT portfolio.
IT Costs vs. Loyola IT Costs
In addition to examining the cost to provide technology solutions across the divisions of the University, we have also compared our annual technology costs with the education market in general. The charts that follow compare Loyola to other educational institutions surveyed in 2012 by Gartner. The overall comparison indicates the Loyola technology organization is not as well funded or staffed as industry norms; however, based upon the 2012 TechQual survey, the perception of service delivery at Loyola exceeds that of comparable institutions.

IT Spending as a Percent of Revenue
IT spending as a percent of revenue is the most common measure of total IT investment relative to top line university results. The value of this measure is that it assists in identifying the competitiveness of investment levels relative to the most fundamental measure of institutional performance: revenue. The metric alone does not highlight why spending levels are at, above or below average, nor does it reflect IT’s contribution to the performance of the university. Thus, IT spending as a percent of revenue should be considered in tandem with other IT intensity measures.

Education Industry Averages Comparison

IT Spending as a Percent of Revenue vs. Loyola IT Costs
In addition to examining the cost to provide technology solutions across the divisions of the University, we have also compared our annual technology costs with the education market in general. The charts that follow compare Loyola to other educational institutions surveyed in 2012 by Gartner. The overall comparison indicates the Loyola technology organization is not as well funded or staffed as industry norms; however, based upon the 2012 TechQual survey, the perception of service delivery at Loyola exceeds that of comparable institutions.

IT Spending as a Percent of Operational Expense
IT spending as a percent of operating expense is another view of IT investment levels in terms of the role IT plays in overall university spending patterns. Operational expense is defined as the enterprise operating budget. While revenue may be subject to external-market-based volatilities, business operational expense typically remains much more consistent year over year; thus, it better reflects the overall university investment strategy. Typically, organizations with a greater level of IT investment relative to operating expense view IT as a strategic enabler, which can improve institutional performance and productivity levels.

Source: Gartner IT Key Metrics Data (December 2011)
Loyola’s spending per employee is less than the industry average, which is important when considering the annual TechQual survey results showing the perception of technology services offered at Loyola exceeded that of peer institutions and this is being accomplished with less funding per FTE.

**IT FTEs as a Percent of Employees**

IT FTEs as a percent of employees is a key measure of IT support and IT intensity from a human capital perspective. Understanding the relative level of IT staff dedicated to supporting the university can also assist in identifying whether the staff size is appropriate.

This metric is significant when considering the fact that in the 2012 TechQual survey, Loyola scored better than our peers with regard to technology support expected and received by the organization and did so with a less than average staff size.
IT Operational vs. Capital Spending

IT operational vs. capital spending helps to portray the IT investment profile for an organization in a given year. This metric can provide visibility into the cyclical nature of the capital investments (such as server, desktop and network hardware, software purchases and large University projects) compared with the recurring operational expenses (such as annual maintenance and support contracts).

![IT Operational vs. Capital Spending Graph]

Source: Gartner IT Key Metrics Data (December 2011)

IT Spending to Run, Grow and Transform the University

This metric provides the distribution of IT spending to “run the university”, “grow the university” and “transform the university”. Classifying IT spending into categories that show impact on business outcomes or success can aid alignment and quantify underinvestment in IT. Gartner defines each category as:

**Run the university:** an indicator of how much of the IT resource is consumed and focusing on the continuing operation of the university and includes all non-discretionary expenses.

**Grow the university:** an indicator of how much the IT resource is consumed and focused on developing and enhancing IT systems in support of university growth and is likely to include discretionary investments.

Since technology is considered similar to other campus utilities such as electricity and water, **keeping computing services available 24 x 7 is critical.** Over the past four years, investments have been made not only in life-cycle refreshes in our infrastructure equipment, but also in creating redundancy in the network and for our critical systems such as Colleague and Email. A second data center has been built in the Timonium Graduate Center to enable fail-over computing services in the event that Internet access or other critical campus systems experience a failure on main campus.

An example of the enhancement of a Loyola system was the optimization of the University ERP system. Many Web features were previously turned off, forcing manual, paper based data collection for student and employee demographic information, paper pay advice and W2s. By enabling students and staff to enter their own address changes and check online for their pay advice, staff were freed up to focus on more meaningful activities such as providing excellent customer service.
**Transform the university**: an indicator of how much of the IT resource is consumed and focused on implementing technology systems that enable the enterprise to enact new business models. This is very much a “venture” category and would be represented by activities such as face-to-face teaching and learning moving to a completely online delivery method.

Examples of transformational change in the Loyola technology environment include:

- **The paperless admission process**
  which reduced the amount of time to process undergraduate applications and the supporting documents, which totaled over 95,000 documents in all. In previous years, the backlog on matching documents to applications was from 6 to 8 weeks during the Fall semester, requiring temporary staff working long hours. By moving to a paperless admission process, the entire process of preparing an application for review was 48 hours. This enabled the staff to spend more time working directly with applicants, which improved our customer service with this crucial group as well as creating operational efficiencies for the undergraduate admission office.

- **Universal calendar** is another example of transforming the way Loyola manages classroom and event scheduling on all campuses, through the reservations, approvals and publishing of these items to various communication channels such as the Web, the mobile platform and digital signage, keeping faculty, students and staff fully informed of all campus activities. In the past multiple calendars were published using various software programs that did not exchange information with one another. Now, all offices are working together and sharing information in one integrated system.
The distribution of IT FTEs: insourced vs. contractor can help provide a view of the IT staffing strategy. Insourced IT FTEs are employed by the IT organization; include full-time and part-time employees supporting the IT environment. Contractors are supplemental to the institutional employees. Usage of contract labor can be an effective approach to maintaining flexibility and agility when business conditions or technologies are changing. Keeping contractors for extended periods can be costly and limit process standardization and the development of institutional knowledge. Loyola seeks to balance the need for one time versus long term knowledge in order to maximize our limited resources.

The education industry IT metrics provided by Gartner in this report enable us to examine our IT spending in relation to industry averages for comparable sized institutions. It is important to understand that published averages are not targets and decisions of “good” or “bad” performance should not be based on these metrics. They are indicative reference points from which to view current performance and investment levels to help us identify differences that could merit further analysis.
Information security is an operational imperative. We now spend increased time and budget planning to deploy various processes to reduce our vulnerabilities. Benchmarking our maturity levels in key areas enables us to continually monitor our progress.

This chart shows the overall security posture of our technology environment over the past 3 years, the current year, and looking ahead to the aspirational goals we have set for ourselves.

### Overall Security Program Maturity
Weighted average maturity of all security-related processes, including those illustrated here

### Security Governance
Ensures that the security program addresses the needs of the university and has sufficient resources.

### Security Awareness
Mitigates risk by delivering security knowledge to raise awareness and influence behavior.

### Identity and Access Management
Systematic management of individuals’ accounts and privileges at Loyola.

### Risk Management
Assesses and mitigates weaknesses and threats to the university’s information resources.

### Incident Response Management
Ensures appropriate escalation and response during and following security incidents.

#### General Descriptions of Maturity Levels

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<th>Description</th>
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<td>Managed</td>
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<tr>
<td>Level 5</td>
<td>Optimizing</td>
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Little or no process maturity exists.
Processes are ad hoc, disconnected and disorganized.
The vision is outlined and management buy-in is secured.
Goals, practices and performance metrics are fully defined.
Process is part of the culture and is an integral, inseparable part of ongoing operations and decision making.
Processes are fully mature.
Appendices

Appendix A

GROUNDED IN TRADITION, EDUCATING FOR THE FUTURE

ENHANCE UNDERGRADUATE EDUCATION
- Establish Living and Learning Communities for all First-year Students
- Enhance and Enrich the Natural Sciences

EXPAND GRADUATE EDUCATION
- Launch a School of Education
- Achieve National Recognition for the Loyola Clinical Centers
- Strive for Greater Renown for the Sellinger School
- Augment Services that Enable Recruitment, Retention, and Development of Graduate Students

DEVELOP FACULTY
- Strengthen Loyola’s Intellectual Positioning through Tenure-track Faculty Positions and Enhanced Faculty Development Support

INCREASE COMMUNITY ENGAGEMENT
- Partner in Developing a Plan for York Road Corridor Redevelopment
- Enhance the Global Studies Program

ATHLETICS
- Enhance our Athletic Programs by Improving Athletic Facilities and Implementing a Comprehensive Marketing Plan for Loyola Athletics

Appendix B

ORGANIZATIONAL REFOCUSING

Outcomes:
- The technology services department was reorganized to: remove silos that restrict communication, and improve workflow and collaboration within the department. Job descriptions were updated and career paths identified to encourage staff retention, consistent service delivery and retention of institutional knowledge.
- Constituent Relationship Management was instituted to better work with the different clients being served. The result was the creation of: the Student Tech Center, the Faculty Tech Center, Executive Tech Coaching, the Tech Training Center, and the Office of Technology Support (OTS). Each center designed to address the unique needs of its constituent groups.
- A Project Management Office (PMO) was created to provide a framework for project and portfolio management and accountability. This office successfully executed seven semester portfolios, closing 60+ projects. The result was a reduction in the backlog of new system and enhancement requests. The PMO provided a new agility for the department and enabled the technology governance committee to select projects aligned with the University strategic goals.
- A commitment to strengthen our presence was made. This resulted in strong customer satisfaction reviews and external awards in recognition of our department’s work. Loyola consistently scored higher in technology service delivery satisfaction than our peers.
- Cybersecurity became a priority area resulting in: ongoing awareness training for the University, new information security policies, compliance achievement, and an ongoing management of operational vulnerabilities. Unlike many higher education institutions, Loyola did not suffer a data breach that compromised privacy.

Appendix C

TEACHING AND LEARNING STRATEGY

Outcomes:
- To provide better support, the Faculty Technology Center was created. It’s staff is well-versed in instructional technology and course design, and available to work one-on-one with faculty.
- Moodle was adopted to provide an “easier to use” learning management system that integrates with the University student information system. This will enable learning analytics in the future to help faculty and administration understand how behaviors predict academic achievement. When we make this information available to students, they will be able to make behavioral changes that impact their academic success.
- Workshops and technology grants were instituted to provide faculty opportunities to work with new technologies in preparation for adoption in their courses. The results were: multiple iPad initiatives in the Sellinger School and Belvedere Clinics, several classes taught on the Loyola virtual campus in Second Life, podcasting and video integration in classes, all of which increased student engagement.
- Accessibility to online systems and services was made a priority. A cross functional team working with technology services and the Office of Disability Support Services audited all systems. This team now manages remediation of those not 508 compliant to ensure all students have an equal access online course materials and associated systems.

Appendix D

INFRASTRUCTURE ASSESSMENT AND REFRESH

Outcomes:
- Single sign-on capabilities were added to streamline access to campus online systems and services. This includes service providers outside Loyola. Identity management was instituted to automatically create and remove accounts for new students, faculty, and staff.
- The “next generation” network was designed and deployed. It provides secure, high speed, resilient bandwidth for students, faculty, and the administrative systems. This serves to protect the daily operations of the University and guarantee a high quality learning environment for students and faculty.
- Redundant Internet and intranet connections were added between the campuses and a high speed (10 GB) fiber link deployed between main campus and Timonium—the site of our disaster recovery center. Critical data is written twice, in order to provide near real-time fail over capabilities. This ensures lower risk of data loss if critical systems should fail (i.e. the student information system, finance, or human resources).
• **Savings and economies of scale** were realized when 100% of our file servers were virtualized. This enabled us to economically deploy new services, in days instead of weeks. Just-in-time server usage is now possible, providing the ability to dial-up memory and storage for peak processing demand. This resulted in the savings of thousands of dollars in hardware costs, support contracts, power, and cooling.

• The wireless network was completely upgraded to 802.1x to meet the need for Wi-Fi access and increased security.

• As each student now owns multiple devices, **Wi-Fi demand** across campus has increased exponentially. This upgrade secured our on-ramp to the Internet via authentication (i.e.; Loyola login ID and password) and the transmission of encrypted data.

• **Microsoft was selected as the operating platform of choice.** All systems and services are now aligned to leverage the entire stack of Microsoft operating systems, collaboration and communication tools (i.e. SharePoint, Exchange, Lync), database and applications such as the Dynamix CRM product and Colleague. This ensures that all systems are compatible and our staff able to maintain them.

Appendix E
TRAINING ASSESSMENT AND STRATEGY
Outcomes:
• Recent technology trends have changed how our constituent groups learn to use new software and systems. **The Technology Training Center was created** to meet their changing needs. In addition to face-to-face classes, online training—Lynda.com, Microsoft IT Academy, AdobeTV, and the Datatell Online Library—was introduced to augment in-class sessions. This has resulted in: increased use of SharePoint for collaboration and communication, increased adoption of our learning management system—from 50% to 80%—by faculty, and greatly improved end-user understanding of technology changes.

• **An “Onboarding for New Hires” program** was developed to provide a technology orientation for Loyola’s new faculty, administrators, and staff. Our goal has been to ensure that new hires quickly become productive members of the Loyola community by creating their online access prior to their arrival, and familiarizing them with the systems and services they will use.

• **Faculty workshops, Quick Start Guides, Lunch & Learns** and custom course development are also popular offerings that have increased satisfaction, productivity and engagement between our department and constituents.

• To provide support to the PMO—as new systems are implemented—**just in time training** is developed. These include Sitecore CMS (migrating from SiteExec), and Image Now & Recruiter (paperless admission processing). This ensures our end-users are confident in their ability to use new systems, and guarantees an increased return on investment for the University.

Appendix F
IT GOVERNANCE: POLICY AND PORTFOLIO MANAGEMENT
Outcomes:
• Governance Committee charters were rewritten to include more input from the CIO. We now work together to draft necessary technology policies, and share in decision-making on technology initiatives that impact the Loyola community. These committees are:

  • Technology Services Advisory Committee (TSAC) reviews, scores, and prioritizes university technology project proposals and drafts necessary technology related policies. This committee includes faculty, administrators, staff, and students who provide feedback and direction for the CIO.

  • Academic Technology Advisory Committee (ATC) identifies, discusses, and makes recommendations for academic decisions, direction, technology policy and guidelines. Membership includes faculty, assistant deans, and technology liaisons who advise the CIO.

  • Administrative CORE Technology Committee (CORE) consists of administrators and University business unit staff who are concerned with all aspects of the Enterprise Resource Planning (ERP) system, related third party systems, and carrying out major university projects.

• **Policies and guidelines** were developed to address the following areas: Information Security, Email Custodianship, Email Retention, Social Security Numbers, Online Account Eligibility, Mass Communication, and Privacy. These policies serve to protect the Loyola community and our electronic assets.

• The **Project Management Office (PMO)** developed a sustainable project management methodology. A process for project identification, selection, and prioritization was adopted by the TSAC committee, providing full transparency into University technology project selection and management. This process was adopted by Facilities Management, and scaled for University Capital budgeting. Several universities—including Notre Dame (Indiana), Brigham Young, and Gallaudet—have sought our materials to understand our successful process.

• The **Data Steward role** for major business units was created to collectively manage institutional data. This Role is responsible for access management, data integrity, data standards, and data security. Working with the Office of the CIO, this group ensures Loyola maintains data standards, access control, and appropriate safeguards; minimizing the risk of the accidental release of confidential information, and improving the quality and credibility of our data.

Appendix G
BUSINESS PROCESS MANAGEMENT
Outcomes:
• The **Paperless University project**—designed to provide enterprise wide opportunities for business process innovation using document digitization and electronic workflows—was successfully completed in several departments including: Human Resources, Graduate and Undergraduate Admission, and Accounts Payable. The project reduced admission application processing times from 8 weeks to 48 hours, increasing contact with the applicants and their parents. Human Resources has benefited in the reduction of file cabinets and the digitization of all employee records from hiring on. The project continues as it follows the student life-cycle into the first year student experience, working with Academic Affairs and Student Development.
Critical business processes were evaluated for security vulnerabilities and re-engineered in the Payroll department.

Appendix H
INTEGRATED ADMINISTRATIVE INFORMATION STRATEGY
Outcomes:
- Ellucian (formerly Datatel) met with University leadership, resulting in the creation of a Three-Year Action Plan. The Plan was designed to provide assistance to the business units for full adoption of the unused software available (and often licensed) within the Colleague suite in order to modernize the end-user experience and maximize our investment in the system. The result was an overall improvement in utility of the system as well as end-user satisfaction.
- A strong partnership between Loyola and Ellucian was built to ensure Loyola’s ERP system was protected, despite the ongoing code changes, upgrades, and added functionality.
- The Loyola Web presence was split in two: an updated marketing website, Loyola.edu, targeted to prospective students, donors and job seekers, and an internally facing Web portal, Inside Loyola, designed to deliver information and access to active members of the University community. This ensures that the right information always gets to the right audience.
- Single Sign-on was adopted to ease access to online systems and services via Inside Loyola.
- The process of creating and removing online account access for the Loyola community was automated. This provided immediate access to appropriate systems and the removal/reduction of access upon departure or graduation, enabling quick access to systems and services.
- The standalone Benefactor system was migrated to the integrated Advancement module in Colleague; enabling the ERP system to maintain a comprehensive record of each student through their academic years and beyond. We’re now ensured of improved and ongoing relationship management with our alumni.
- A reporting strategy was executed, including: a student data warehouse, executive dashboards, Web reports and financial reporting, and optimized operational and regulatory reports. In today’s economy, having the available data to make smart decisions is critical.
- The Blackboard learning management system (LMS) was replaced with the Intelligent Learning Platform and the Moodle LMS, resulting in real time integration of the student information system and the learning management system. Both systems were made available in Inside Loyola, with the anticipation that the shared data would enable learning analytics. Learning analytics are increasingly used to inform students and faculty of factors that affect grades and retention. Data—such as “students that took this course and earned an A, spent X number of hours in the LMS working on their course work”—can positively inform and change behaviors.
- A Constituent Relationship Management (CRM) was deployed in both graduate and undergraduate admission offices and integrated with an electronic content management (ECM) solution called Image Now. Each admission office now has the ability to track prospects, communicate with them, and manage the relationship over time.
- ID card photos were made available in all major systems for the entire Loyola Community providing the ability for faculty and staff to know their students in advance or to verify their students’ identities.
- A Universal Calendar system was implemented across all campuses for events, classroom scheduling, and billing. Systems that were integrated included: Resource 25, 25Live, and Colleague. This reduced the number of published calendars, reduced confusion for visitors to Loyola.edu, and enabled the publishing of class and event information from one system to multiple destinations such as Web and digital signage.
- Several third party applications were integrated with the ERP including HR applications, scheduling, clinic management, facilities management, campus housing, door access, one card, and others. By automatically sharing data across systems we are able to react quickly to status changes, provide near real time reporting across the environment, and leverage changes in individual systems. This provides an added layer of security for our data.
- A leading medical practice and electronic patient record system was deployed for the Loyola Clinical Centers. This gave our students real world experience in using health care software, and empowered clinicians with greater efficiency and automation.
- The general ledger Chart of Accounts was restructured to provide improved reporting and fiscal accountability.
- The Service Learning Tracking System was created for the Center for Community Service and Justice. It tracks classroom-to-community engagement in service opportunities.

Appendix I
BUSINESS CONTINUITY STRATEGY
Outcomes:
- Led an enterprise-wide Business Impact Analysis (BIA) and Business Continuity Planning (BCP) initiative for all major business units and service organizations.
- Led multiple table top exercises (TTE) with Public Safety, the Storm and Crisis Response Teams to simulate emergency situations with the business units and President’s Cabinet. Captured lessons learned and developed ongoing biennial processes to review and refresh university BCPs, providing training and awareness. Prior to this, the University had only disjointed efforts , and no campus-wide crisis response test. As a result, Crisis Response Manuals, online materials, and offsite storage for BCPs are now available. This ongoing activity requires the engagement of University leadership and mid-level management.
- Built a second data center at the Timonium campus to lower the risk for loss of data or communications. Critical data is now written to disk twice, and multiple network connections between the campuses and the Web now exist.
- Developed technology disaster recovery plans
that include using cloud services if our campus is hit by a disaster.

Appendix J

CLIENT SERVICES
(formerly Emerging Technologies Forum)

Outcomes:

- Created **Constituent Relationship Management** teams based on the unique needs of our students, faculty, administrators, staff, and executives. Teams provide advocacy within the technology services organization when decisions are being made that affect these groups.

- Offered more choices for the increasing presence and capabilities of the Apple product line. Met Apple’s requirements to set up an on-campus Authorized Apple Service Center, providing Apple support services and warranties to the Loyola Community.

- Reworked the Help Desk to become a credible source of information and problem resolution. Introduced the concept of crowd sourcing the help desk by opening an online knowledge base to the university community to encourage questions and answers from professional staff as well as our end-users. Through the incorporation of Information Technology Infrastructure Library (ITIL), we are adopting service delivery best practices which translate into faster problem resolutions and improved customer satisfaction.

- Developed **computer replacement guidelines** that ensured end-users a new computer every four years for the platform of their choice; Windows or Mac. Faculty was encouraged to select laptops (replaced every three years) to enable mobility and productivity.

- Developed a **Service Catalog** that is used to describe the various services available to end-users. We are now able to track service costs and compare ourselves with other service providers.

- Through the **Faculty Technology Grant** program and other workshops, we encouraged the experimentation and adoption of iPads for academic and administrative uses. The Emerging Leaders MBA program, Sellinger Accounting classes, the Board of Trustees, executive

Appendix K

CLOUD COMPUTING CAPITALIZATION

Outcomes:

As appropriate, adopted several Software as a Service solutions which lowered our capital costs and sped up our time to delivery, including:

- Student Email Services - Microsoft Live@edu
- Learning Management System- Moodle hosted with MoodleRooms
- Performance Management System- Halogen
- Benefits Enrollment and Tracking- Benelogic
- Business Continuity Plans- CPOTracker
- Portfolio Management- AtTask
- Knowledgebase- Get Satisfaction

In order to lower the risk of a local failure of our Web presence, we adopted an Infrastructure as a Service solution;

- Amazon Web Services provides Loyola with a failover Web presence and Domain Name Services in the event that our main campus data center and Timonium campus disaster recovery site both experience catastrophic failure. It is important that Loyola be able to communicate with the outside world (via the Web), especially to concerned parents, if a disaster strikes our campus.

- To scale our enterprise delivery of internal services, we have developed the following private cloud offerings:

  - **SharePoint**, a repository for shared documents, collaboration activities and electronic workflow.
  - **Virtual Servers and Desktops** enable us to drive down costs and deploy servers and desktops quickly and efficiently.
  - **Virtualized Storage Area Network** enables us to store our critical data in multiple locations so that in the event of a data center failure, we are able to retrieve our data from the disaster recovery site.
  - **Door Access and Surveillance Cameras** are able to use our high speed campus network without danger of intermingling with data (Internet) traffic.

Appendix L

COLLABORATION TOOL ENHANCEMENTS & SOCIAL NETWORKING INTEGRATION

Outcomes:

As collaboration challenges have been presented, we adopted several Web-based tools to meet the unique challenges of our various constituent groups:

- SharePoint 2010— departmental, project, committee collaboration and information sharing via Inside Loyola
- Yammer— faculty/staff social networking and information sharing
- Campfire— crisis mode communication and information sharing
- Voicethread— faculty/student communication and information sharing
- REACT Online— crisis self-help for students, faculty and staff
- CPO Tracker— online storage of business continuity documents
- Web Conferencing— virtual meetings, information sharing and collaboration
- PB Works— faculty collaboration and information sharing
- Twitter— information sharing
- AtTask— project communication and collaboration