Information Technology
Strategic Plan 2016-2021
Executive Summary

Lone Star College (LSC) is the fastest growing community college system in the country. Its mission is to provide high quality, affordable educational opportunities and services to its students so they can achieve their goals. Lone Star College offers a wide variety of courses and programs to suit individual student needs and we are known for our affordability and outstanding teaching.

The mission of the Office of Technology Services (OTS) is to provide exemplary services that promote student success, quality instruction, effective employees, and a thriving community. The purpose of the Lone Star College Information Technology Strategic Plan is to guide the direction, focus, alignment, investments and initiatives of OTS to achieve this mission. The plan is completed after the system wide Strategic Plan is finalized to ensure both documents align and advance the organization’s needs. This IT Strategic Plan provides a roadmap for technology decision making and initiatives at Lone Star College for the next three years. It takes into consideration current and projected academic and administrative technology needs and several potential futures as identified through a scenario planning process. Internally, the Office of Technology Services pursues a five-prong strategy to execute the plan:

**Strategic Alignment**
There are two types of Strategic Alignment initiatives. The first set derives from Lone Star College’s Strategic Plan and the campuses’ strategic plans for 2015-2020. All of the objectives have a technology component and are a joint effort between OTS and system and campus leadership. The second set reflects initiatives Lone Star College is pursuing at a system wide level as identified by the Chancellor’s Cabinet. These objectives may have some overlap with those in the first set, but are sufficiently distinct to warrant inclusion as separate initiatives.

**Service Excellence**
These initiatives focus on enhancing and expanding existing OTS-provided technology services.

**Innovation**
These initiatives advance the organization in the innovative use of technology to meet Lone Star College’s unique challenges and needs.

**Security**
These initiatives strengthen Lone Star College’s security systems, processes and approach to identity management.

**IT Foundation**
These initiatives maintain Lone Star College’s award-winning infrastructure to ensure it meets organizational technology needs.

The IT Operations Framework described in the strategic planning process operationalizes this plan to achieve the strategic goals of Lone Star College and the Office of Technology Services.
Planning Process & Scope of this Plan

This Information Technology Strategic Plan was a collaborative effort involving faculty, staff, administrators and students. Feedback was collected through surveys, focus groups, advisory councils and a SWOT analysis. In addition, research from Gartner, Inc. and EDUCAUSE helped inform the plan. OTS also used scenario planning as a method to capture potential futures and pathways to those futures (Appendix A). The scope of this plan is from 2016-2018.

The planning process generated a set of enterprise strategy documents consisting of an IT Strategy, an IT Strategic Plan, and an IT Operations Framework. The purposes of each are described below.

**IT Strategy**

Provides vision and direction on how OTS supports Lone Star College’s mission and goals. Used to drive investments, decisions and activities.

**IT Strategic Plan**

Provides an outline of initiatives, costs, benefits, risks and measurements that will be executed to achieve the IT Strategy. Used to drive project activity at a high level.

**IT Operations Framework**

Provides details on managing OTS assets and operational activities. Used to drive management best practices and quality improvement efforts.
IT Trends in Higher Education

The Office of Technology Services considers IT trends in higher education as part of its IT strategy. Gartner’s 2016 IT Market Clock (shown below) provides vital information on key technology asset commoditization and market life cycles.

![IT Market Clock](image)

CBE = competency-based education; HPC = high-performance computing; LMS = learning management system; OPM = online program management; OSS = open-source software; RaaS = retention as a service; SIS = student information system.

Source: Gartner (September 2016)
**IT Trends in Higher Education (cont.)**

The below chart maps key technology assets presently in use, works in progress or under consideration at Lone Star College with Gartner information on current market life status and expected changes using the IT Market Clock. This information is considered when setting current and future strategies for deployment, sourcing and retiring key assets in Lone Star College’s technology portfolio.

**LSCS Technology Assets & Gartner’s IT Market Clock Recommendations**

<table>
<thead>
<tr>
<th>Technology Asset</th>
<th>Position on IT Market Clock</th>
<th>Next Steps</th>
<th>Status at LSC</th>
<th>Gartner Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart Machine</td>
<td>Advantage</td>
<td>Choice in 2 to 5 years</td>
<td>Under consideration</td>
<td>A potentially transformational new asset that could represent a competitive advantage for early adopters</td>
</tr>
<tr>
<td>Bluetooth Beacons</td>
<td>Advantage</td>
<td>Choice in 2 to 5 years</td>
<td>Currently in place</td>
<td>An interesting new asset, but likely only appropriate for very early-adopter-type institutions that have a high need to track student activity, and with fewer barriers to adoption.</td>
</tr>
<tr>
<td>RaaS</td>
<td>Advantage</td>
<td>Choice in 2 to 5 years</td>
<td>WIP for students</td>
<td>An emerging asset class that could be of high value as institutions struggle to understand and address retention challenges.</td>
</tr>
<tr>
<td>SIS (Cloud)</td>
<td>Advantage</td>
<td>Choice in 2 to 5 years</td>
<td>Currently in place</td>
<td>A high-value asset that could represent a competitive advantage for early adopters.</td>
</tr>
<tr>
<td>Digital Assessment</td>
<td>Advantage</td>
<td>Choice in 2 to 5 years</td>
<td>Currently in place</td>
<td>A previously slow-moving asset class whose pace is now accelerating. Monitor and invest in it, but be aware that options will expand as new adaptive technologies and learning analytics advance. Near-term investments should focus on delivering actionable data and focused instructional outcomes.</td>
</tr>
<tr>
<td>CBE Platforms</td>
<td>Advantage</td>
<td>Choice in 2 to 5 years</td>
<td>Under consideration</td>
<td>An emerging asset class that should be monitored closely, but as more LMSs add this capability, it may be subsumed under LSM asset class.</td>
</tr>
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<td>---------------------------</td>
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</tr>
<tr>
<td>Learning Analytics</td>
<td>Advantage</td>
<td>Choice in 2 to 5 years</td>
<td></td>
<td>An emerging high-value asset. Monitor closely or even invest soon if retention and completion are problems. However, this asset is likely to change considerably, so investment time frames should be less than five years to preserve flexibility.</td>
</tr>
<tr>
<td>Institutional Analytics</td>
<td>Advantage</td>
<td>Choice in less than 2 years</td>
<td></td>
<td>A high-value asset that could represent a competitive advantage for early adopters.</td>
</tr>
<tr>
<td>Adaptive Learning</td>
<td>Advantage</td>
<td>Choice in less than 2 years</td>
<td></td>
<td>An emerging asset class with high potential benefits, but substantial implementation challenges. Monitor closely and explore the application via pilots.</td>
</tr>
<tr>
<td>Alumni CRM</td>
<td>Advantage</td>
<td>Choice in less than 2 years</td>
<td></td>
<td>Consider in concert with alumni development systems to ensure adequate CRM functions to support lifelong learning and alumni engagement opportunities. Advantage phase is ending, so those seeking greater choice may benefit from waiting another 12 to 24 months if possible, when more choice will be available.</td>
</tr>
<tr>
<td>SIS (OSS)</td>
<td>Advantage</td>
<td>End of life</td>
<td>Make new investments in this asset with extreme caution. If you have this asset, then evaluate alternative sourcing options soon, and plan to move within a two- to five-year window.</td>
<td></td>
</tr>
<tr>
<td>CRM (Retention)</td>
<td>Advantage</td>
<td>Choice in less than 2 years</td>
<td></td>
<td>An emerging high-value asset with a fast pace to the next phase. Monitor closely or even invest soon if retention is a problem. However, this asset is likely to morph considerably, so investment time frames should be less than five years to preserve flexibility.</td>
</tr>
<tr>
<td>Financials (Cloud)</td>
<td>Choice</td>
<td>Cost in 2 to 5 years</td>
<td>An emerging asset class with early adopter success. It may be replaced as contract expirations and ERP suite replacement projects present opportunities.</td>
<td></td>
</tr>
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<td>------------------</td>
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</tr>
<tr>
<td>LMS (Cloud)</td>
<td>Choice</td>
<td>Cost in 2 to 5 years</td>
<td></td>
<td>A steadily maturing asset class. Institutions that plan to adopt a cloud sourcing strategy should monitor this carefully.</td>
</tr>
<tr>
<td>HR (Cloud)</td>
<td>Choice</td>
<td>Cost in 2 to 5 years</td>
<td></td>
<td>A fast-moving and commoditized asset with increasing suppliers and growing adoption. If you are in the market for a new HR solution, then consider this as a primary option.</td>
</tr>
<tr>
<td>HPC (Cloud)</td>
<td>Choice</td>
<td>Cost in 2 to 5 years</td>
<td></td>
<td>Quickly maturing with a potentially transformational impact. Ready for production for some use cases. It should be considered as a viable alternative and even preferred in special circumstances, such as significant short-term capacity requirements.</td>
</tr>
<tr>
<td>OPM</td>
<td>Choice</td>
<td>Cost in 2 to 5 years</td>
<td></td>
<td>An expanding asset class as more institutions begin or expand online programs. Institutions should explore multiple options to ensure that they find the service with the best fit.</td>
</tr>
<tr>
<td>CRM (Enrollment)</td>
<td>Cost</td>
<td>Replacement in 5 to 10 years</td>
<td></td>
<td>An asset on trajectory to becoming a baseline service for most institutions. Consider investing even if the institution is selective. Institutions should re-evaluate their existing solutions because the solution space has significantly expanded with many different pricing models. Also, consider how this fits with the overall SIS and enterprise CRM strategy.</td>
</tr>
<tr>
<td>SIS (Classic)</td>
<td>Cost</td>
<td>Replacement in 2 to 5 years</td>
<td></td>
<td>A key educational back-office asset. As new cloud solutions emerge, limit investments in classic solutions, except in extenuating circumstances. Start the planning process for replacement in the next 24 months.</td>
</tr>
<tr>
<td>LMS (Classic)</td>
<td>Cost</td>
<td>Replacement in 2 to 5 years</td>
<td></td>
<td>A key educational asset for a relatively fast-moving market. Actively monitors the market for new delivery options and possible paradigm changes to a learning platform model.</td>
</tr>
<tr>
<td>Technology Asset</td>
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<td>-------------------------</td>
</tr>
<tr>
<td>LMS (OSS)</td>
<td>Cost</td>
<td>Replacement in less than 2 years</td>
<td>An asset class with considerable variability, but one that will likely remain a part of the market, especially if more cloud options become available and development can keep pace with commercial offerings.</td>
<td></td>
</tr>
<tr>
<td>Financials (Classic)</td>
<td>Replacement</td>
<td>End of life in more than 10 years</td>
<td>A key educational back-office asset. Replacement planning should begin even if timing is years away. An immediate move is unnecessary unless current application is severely underperforming or opportunities present themselves. Incumbent vendor roadmaps should be reviewed and maintenance contract terms carefully considered.</td>
<td></td>
</tr>
<tr>
<td>Academic ERP Suites</td>
<td>Replacement</td>
<td>End of life in more than 10 years</td>
<td>A key educational back-office asset. Market shifts are underway. Replacement planning should begin. Time schedule should be determined by threats due to current ERP functional fit, level of vendor commitment to the product, and opportunities to gain agility and support for new business models with newer market offerings and delivery models.</td>
<td></td>
</tr>
<tr>
<td>Alumni Dev.</td>
<td>Replacement</td>
<td>End of life in 5 to 10 years</td>
<td>Currently a key fundraising asset, but soon to be overtaken by more comprehensive alumni CRM assets. Watch the evolution of new players and solutions, and consider replacing as fundraising campaign opportunities allow.</td>
<td></td>
</tr>
<tr>
<td>HR (Classic)</td>
<td>Replacement</td>
<td>End of life in 5 to 10 years</td>
<td>A key educational back-office asset. Actively monitor HR (Cloud) market and migrate if current solution is markedly underperforming, or as cloud opportunities present.</td>
<td></td>
</tr>
<tr>
<td>Grid Computing</td>
<td>Replacement</td>
<td>End of life in 5 to 10 years</td>
<td>A key research asset. Slow-moving market, but considerable opportunity to move to the cloud when current investments have depreciated and resources can be put to good alternative use.</td>
<td></td>
</tr>
</tbody>
</table>
HPC (Classic) | Replacement | End of life in more than 10 years | A key research asset. Slow-moving market, but considerable opportunity to move to the cloud when current investments have depreciated and resources can be put to good alternative use. However, it is important to verify that use cases work in the cloud.

Key:
- Gartner recommends action within 12 months
- Gartner recommends action within 24 months
- Recommendation is less urgent

**IT Trends in Higher Education (cont.)**

Gartner’s 2015 Hype Cycle for Education was considered in the development of this IT strategy document.
Summary of IT Strategy

The Office of Technology Services contributes to Lone Star College’s success by providing exemplary services that promote student success, quality instruction, effective employees, and a thriving community. It starts with guiding principles that inform decision making, includes policies, procedures and metrics to standardize operations and measure performance, and aligns spending and services with institutional needs. Our IT strategy to facilitate Lone Star College’s success is to:

- Provide an infrastructure that promotes growth and innovation
- Manage finances and resources well
- Rapidly respond to changing needs
- Facilitate classroom innovation initiatives
- Partner with campus leadership to ensure OTS provides appropriate services and to eliminate those that are no longer needed
- Successfully lead and manage projects
- Skillfully negotiate licensing agreements and vendor contracts
- Keep current on emerging technologies
- Attract and retain highly competent IT professionals with a multitude of skills

Strategies, Goals & Objectives

The OTS strategies, goals and objectives are grouped according to our five-prong approach. The corresponding Lone Star College strategic goal and objective is listed with each OTS objective.

Strategy: Strategic Alignment

The Strategic Alignment initiatives are derived from Lone Star College’s Strategic Plan and the campuses’ strategic plans for 2015-2020. All of the objectives have a technology component and are a joint effort between OTS and system and campus leadership. See Appendix B for a list of these objectives.

Digital Signatures
- Allows authorization of documents through online methods (Financial Responsibility & Accounting)

Payment Gateways
- Change Lone Star’s merchant payment processing bank from Bank of America to Chase.

Taleo
- Implement Oracle’s Talent/Recruiting solution in the Cloud (Online Service).
Strategies, Goals & Objectives (cont.)

PeopleSoft 9.2 Upgrade
• Upgrading all iStar modules to the latest version, which includes the underlying programming code to the latest version; along with implementing Oracle’s Talent/Recruiting solution (Taleo).

Bond Construction Projects/Management
• OTS consults with college administration to design and implement classroom technology and administrative technology

Strategy: Service Excellence
These initiatives focus on enhancing and expanding existing OTS-provided technology services.

Enterprise Management Expansion
• Expand our ServiceNow enterprise management solution to other departments outside of OTS (Culture)

Service Portal Creation
• Rework our service catalog to promote customer engagement, reduce support cost and optimize service (Partnerships)

Admissions Application 3.0
• Upgrade Lone Star’s Online Application (LOLA) to the latest version (Student Success)

Educational Milestones
• Improve the visibility and ease of functionality for students to identify and complete actions for entry through certifications/completions (pathways for Success). (Student Success)

OnBase 15
• Upgrade to the latest version of Lone Star’s document imaging solution and integrate with iStar

Hyperion Upgrade
• Upgrade Lone Star’s budgeting and planning (What-If Scenario) solution to the latest version. (Financial Responsibility & Accountability)

MDM Decommission
• Decommission of Master Data Management to allow Campus Solution/Human Capital Management to be the keepers of data. (Financial Responsibility & Accountability)

Strategy: Innovation
These initiatives advance the organization in the innovative use of technology to meet Lone Star College’s unique challenges and needs.

Event Video/Audio Streaming
• Allows for a greater audience outside the physical limitations of a venue through online participation (Student Success)
Strategies, Goals & Objectives

Strategy: Innovation (continued)

9.2 Fluid/Mobile UI
- Second phase of 9.2 upgrade, screens and navigation within iStar will have enhanced graphics and will display automatically in the proper size on all devices (Culture)

LMS Automation
- The creation of single-sign-on and complete integration of LMS and iStar. (Academic & Workforce Program Quality)

ERP 9.2 Upgrade
- Upgrading all iStar modules to the latest version, which includes the underlying programming code to the latest version; along with implementing Oracle’s Talent/Recruiting solution (Taleo). (Student Success)

SIP Implementation/Fax Replacement
- Replace old telephony connectivity to allow for more capacity and redundancy. Will also allow for voice redundancy at centers that at this time does not exist. (Partnerships)

Fiber Optic Network Renewal
- Upgrade campus network infrastructure to allow for a minimum of 1G to the desktop. (Financial Responsibility & Accountability)

One Drive Implementation for Faculty/Staff/Students
- Add file storage capability to offer unlimited storage. (Student Success)

Strategy: Security

These initiatives strengthen Lone Star College’s security systems, processes and approach to identity management.

Two Factor Authentication
- Placeholder

End Point Protection Replacement
- Provide a service to guard against and educate employees and students about malicious software. (Student Success)

Data Center Firewall Security
- Implement internal data center protection with next generation firewalls. (Culture)
Strategy: IT Foundation

These initiatives maintain Lone Star College’s major systems and award-winning infrastructure to ensure it meets organizational technology needs.

**ServiceNow Project Management Re-Work**
- Bring our project management app in Service Now to current version and configure the new app to meet our current needs (Financial Responsibility & Accountability)

**Windows 10 Upgrade**
- Provide updated software to best meet the needs of the Faculty, Students, and Staff. (Student Success)

**Classroom Technology Upgrades**
- Monitor and improve classroom technology to meet the changing instructional needs (Academic & Workforce Program Quality)

**Computer/Printer Hardware Refresh**
- Maintain our established refresh cycle for computer and printer hardware (Academic & Workforce Program Quality)

**Financial Gateway and Cash Management**
- Implement Oracle’s Deal Management solution that allows Lone Star to communicate/integrate with third-party financial institutions. (Financial Responsibility & Accountability)

**Compliance**
- The implementation/updating of regulatory/compliance items for iStar as they relate to the Business Offices, HR, Student Success and Completion. (Financial Responsibility & Accountability)

**WAN Communication**
- Renewal of WAN infrastructure to allow for redundancy to centers with additional fiber routes. (Financial Responsibility & Accountability)

**College Data Center Infrastructure Refresh**
- Upgrade campus network infrastructure to allow for a minimum of 1G to the desktop (Financial Responsibility & Accountability)
# Major Programs

<table>
<thead>
<tr>
<th>Year</th>
<th>Program</th>
<th>Value</th>
<th>Risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>ERP System Upgrades</td>
<td>Upgrade all modules within ERP and implement Talent/Recruiting solution (Taleo).</td>
<td>Limited resources and expensive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Provide new functionality to assist meet business objectives while minimizing ownership costs</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>Bond Construction Projects/Management</td>
<td>Consult with administration to design and implement technology</td>
<td>Increase functional technology in classrooms and administrative areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Provide new functionality to assist meet business objectives while minimizing ownership costs</td>
<td>Limited resources and dependent on other projects</td>
</tr>
<tr>
<td>2018</td>
<td>WAN Communication</td>
<td>Renewal of WAN infrastructures</td>
<td>Dependent upon outside vendors and construction projects</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Add redundancy to centers to minimize service interruptions</td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td>Data Center Firewall Security</td>
<td>Implement internal data center protection</td>
<td>Resource allocations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Strengthen integrity and confidentiality of data</td>
<td></td>
</tr>
</tbody>
</table>

Lone Star College System IT Strategic Plan 2016-2021
Risks & Issues

This diagram reflects the impact & likelihood of risks to this IT Strategic Plan with mitigation strategies.

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**Risk:** Difficult to recruit or retain talented IT staff due to highly competitive IT industry  
**Mitigation:** Work with HR to restructure classification and compensation structure

**Risk:** Failure to establish IT Governance  
**Mitigation:** Strengthen existing relationships and communications

**Risk:** Increased IT costs  
**Mitigation:** Centralized purchasing, standardization of equipment, elimination of redundancies, aggressive contract negotiations

**Risk:** Project cost overruns, scope creep, failure to meet project objectives  
**Mitigation:** PM methodology

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This diagram reflects the potential impact future events might have on this Plan.

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Likely to generate more projects

- Successful Bond Referendum
- Shared Services Growth

Less urgent need

- Decreased State Funding
- Continued Global Expansion

More urgent need

- Decreased Enrollments
- Likely to generate fewer projects

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The Office of Technology Services uses a variety of metrics to measure progress and completion of the IT Strategic Plan. They include: Key Performance Indicators (KPIs) on system and service performance; surveys and focus groups on customer satisfaction; and milestone completion on projects. Communication of the same is provided to faculty, staff and administrators through dashboards, executive reports, updates in the monthly OTS newsletter, and face-to-face meetings.

Below is a sampling of the various metrics used by the Office of Technology Services:

**Strategic Alignment**
- **Payment Gateway** (Financial Responsibility & Accountability: Change Lone Star College’s merchant payment processing bank from Bank of America to Chase.)
- **Taleo** (Culture: Implement Oracle’s Talent/Recruiting solution in the Cloud (online service)).

**Service Excellence**
- **Educational Milestones** (Student Success: Improve the visibility and ease of functionality for students to identify and complete actions for entry through certifications/completions (pathways for Success.).)
- **Hyperion Upgrade** (Financial Responsibility & Accountability: Enhance/Upgrade budgeting module to allow for new features, functionality, and security.)

**Innovation**
- **LMS Automation** (Academic & Workforce Program Quality: Create single-sign-on and complete integration of LMS and iStar.)
- **OneDrive Implementation** (Student Success: Add file storage capability to offer unlimited storage.)

**Security**
- **End Point Protection Replacement** (Student Success: Provide a service to guard against and educate students and employees about malicious software.)
- **Data Center Firewall Security** (Culture: Implement internal data center protection with next generation firewalls.)

**IT Foundation**
- **Windows 10 Upgrade** (Student Success: Provide updated software to best meet the needs of the faculty, students, and staff.)
  - **WAN Communication** (Financial Responsibility & Accountability: Renewal of WAN infrastructure to allow for redundancy to centers with additional fiber routes.)
Appendices
Appendix A: OTS Scenario Planning
Appendix B: Lone Star College’s Strategic Plan 2015-2020 Technology-Related Objectives
Appendix C: Project Management Portfolio 2016-20119

References
Lone Star College Strategic Plan
Office of Technology Services IT Strategy
IT Operations Framework
Disaster Recovery Plan
OTS Communication Plan
Information Security Plan