

IT Operations Assessment

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1 Executive Summary

1.1 Background

Client has experienced significant growth through the expansion of their charity programs. IT has grown as well, driven to meet the increasing requirements of the organization. IT staffing has grown from 12 in 2014 to 43 in 2019, while Client staff increased from 250 to 1,092. IT has reached an inflection point in terms of the effectiveness of the IT operational model, resourcing, an unfettered inventory of applications, and limited governance over demand. This has resulted in a budget that is not optimized to support the financial goals of the organization to minimize administration costs while increasing the amount of incoming revenues/donations to the members it serves. Based on a recent Gartner Benchmark Study, IT spend compared to revenue for Client is 7% compared to 4% for the peer group. In addition to optimization, IT must ensure it is bringing the most value to the organization.

National IT has grown in its importance to the business as new systems and services have been added to support the maturity of the organization. Today, the backbone of business processes is supported by IT staff to support key applications like Salesforce.com, Netsuite/Concur (Finance) ADP (HR), and the underpinnings of most business processes.

The dependence on Salesforce.com and related applications to conduct many of the operational processes beyond a typical CRM tool, has increased. The environment has become very complex with numerous interfaces and customizations to the applications. In addition, there is duplication of tools (e.g. two LMS applications) which add to the complexity for end users.

National IT staff have evolved to be predominantly a support group to maintain the infrastructure and systems consumed by the organization. Most development has been sourced to high cost domestic consultants. There should be a reversal to globally source support functions at a much lower cost and retain higher value resources doing strategic and developmental work. At the same time, there is an opportunity to lower infrastructure support costs by assessing other vendors that provide those services.

Another trend is the growing licensing of the applications to accommodate Client staff. This is a significant spend in the IT budget, and in many cases, the number of licenses is oversubscribed. There is limited control over licenses and application use. There has been little effort comparing license use with entitlements and establishing role-based use.

The National IT budget is driven by the requirements and consumption of the organization. For example, 825 requests have been processed for Salesforce.com and 1,732 requests for ADP over 6 months, which drives resource needs, both internal and external. A significant gap is governance over the intake of requests, which drives the work and resources to distinguish between low and high value tasks.

Lastly, from a technology perspective, there are opportunities to establish a more efficient environment in network, hosting, communications and collaboration, desktops, and desktop applications. Our experience has been that these areas do result in savings and have a significant impact on the productivity of the organization.



1.2 Scope and Context of the Assessment

As the dynamics noted above have impacted the evolution of the IT organization, the scope of this assessment is to review costs, organization and process, service delivery and technology as to the effectiveness and efficiency of the organization in delivering it's services and what the future state should look like to support Client objectives and long-term strategy.

Initially the assessment was focused on "IT Support," which consists of service management, infrastructure, software licenses, contracts, and cybersecurity. It has evolved, as a review of the baseline budget has elevated areas of opportunities to include "Information Systems" (apps development and support).

1.3 Organization of Sections

We segregated the assessment as follows:

- Baseline Analysis: Gathering of and analyzing information to assess services, staffing and organization, financials, and network and hosting, technology and operations of 3rd party provider.
- Observations and Recommendations: List of observations, recommendations, cost opportunities and impacts

Roadmap and Action Plans: Grouping and prioritizing the recommendations and establishing a roadmap and action plans (plan charters) to implement the opportunities identified. As a result of the many transformation initiatives, we have identified a need for a separate organization change management (OCM) track to the roadmap to manage the change.

1.4 Overview of Findings and Recommendations

As a result of our assessment, we recommend the following actions to address National IT's challenges around optimization and cost reduction:

- Implement a **new operational model** with strong leadership that will focus on key value contribution of technical services.
- Optimize maintenance and support functions (both infrastructure and applications) by moving all support resources to a global resourcing footprint, including security and data privacy.
- Implement an effective **demand management process** to better manage demand for maintenance workload and focus on break/fix, planned production maintenance and approved enhancements. Consider a "pay-as-you-go" model for enhancements, so cost and benefit is realized within the requesting organization.
- Optimize 3rd Party vendor spend by re-negotiating and re-structuring IT contracts to fit future workload and competitive market pricing.
- Complete an application rationalization assessment to review all applications for value to the organization, use and cost. Act on recommendations to retire applications and reduce support for those applications.



- Perform an assessment of software licensing and ongoing process to audit software entitlements against deployments, tighten usage requirements by deploying a role-based usage model, and retiring systems that are either low value and/or not used.
- Optimize and/or automate key processes including Member account management, onboarding and request workflow by conducting a process assessment and acting on recommendations.
- Establish a **technology modernization plan** to address key issues in the network, hosting, desktop and call center environments.
- Implement a **performance measurement mechanism** to monitor organization performance against these goals and benefits achieved. Establish a governance approach that enables the process and organization changes recommended to drive alignment with business and IT and enabling effective management of operations.

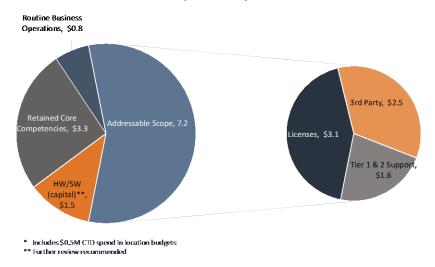
Following are the summary findings and recommendations to support the actions noted above. The assessment is based on the review and analysis of documentation, interviews, and research of best practices. The following recommendation are broken down between Quantitative and Qualitative outcomes.

Quantitative

Overview of Spend

Total IT spend is \$12.8M. This includes \$0.5M allocated to the regions for Support by CURRENT SERVICE PROVIDER. The Addressable Scope was \$7.2M, 55% of the total spend. See chart below for the distribution of the IT spend, segmented to focus on the highest-impact savings-potential items.

2019 Spend Analysis - \$12.8M *



Both internal and external costs were considered in assessing the addressable scope. The following were not included in the addressable scope:

- Capital Expenditures- not in scope for operating expenditures analysis. It is recommended a further review be completed for savings opportunity with hardware vendors and/or Client technology partners
- Retained Core Competencies- retains key strategic internal positions
- o Routine Business Operations- includes items such as facilities charges, travel, etc.
- Software license spend in business budgets

The total opportunity is \$3.3M in annual savings. The following charts break down the cost reduction recommendations by opportunity area as well as a 2019-20 cash flow that presents the timing of the implementation costs and the opportunities.

By Opportunity Area

Opportunities are grouped by the highest-impact savings-potential areas. Note that these figures represent mid-range estimates, and each specific savings for any item will fall within confidence intervals.

(\$000)	Current Cost		Projected Cost		Annual Savings		Cost to Implement			
Consulting and 3rd Party										
Agreements	\$	2,465	\$	1,342	\$	1,123	\$	375		
Note: Includes \$500k Annual Savings from CTD Agreement										
Software Licenses	\$	3,131	\$	1,999	\$	1,132	\$	124		
Note: Does not include pro	ject	ed 2020	Wo	rkday Lice	ensi	ng				
Tier 1 & 2 Support	\$	1,650	\$	1,153	\$	497	\$	268		
Discretionary Work Requests	\$	-	\$	(499)	\$	499	\$	-		
Sub-total	\$	7,246	\$	3,995	\$	3,251	\$	767		
Program Management							\$	188		
TOTAL	\$	7,246	\$	3,995	\$	3,251	\$	955		

Note the following:

- The opportunities are justified by the findings and recommendations that follow.
- Specific opportunities are itemized and actionable on a case-by-case basis in Section 3 Observations and Recommendations.
- A 20% factor for savings opportunities for discretionary spend for work requests is included for elimination of low value work. This is based on past experience introducing a best-practice governance process, where there has been little governance over demand.
- Cost to implement is predominantly implementation resources required to manage the cost opportunity action plans. Costs related to organization change management (OCM) support are not included because it was out-of-scope of the operations assessment.
- Our estimated range of savings is between \$2.5M \$3.5M.

Cash Flow

The following cash flow chart distributes and nets cost and savings when expected to incur by quarter.

(\$000)	1	.Q20	2	2Q20	(1)	3Q20	4	IQ20	Total 2020	2021
Savings	\$	17	\$	307	\$	828	\$	828	\$ 1,980	\$ 3,251
Costs	\$	666	\$	289	\$	-	\$	-	\$ 955	\$ -
Net	\$	(649)	\$	18	\$	828	\$	828	\$ 1,025	\$ 3,251
						/back riod				

Note the following:

- If all recommended actions are initiated Jan. 2
 - o Payback occurs in 3Q20
 - \circ 60% of the annual savings potential can be realized in 2020
- Implementation durations range from immediate to 6 months

Changes from Report-out to Client President

Change in Savings								
(\$mill)	Explanation	Savings						
Presentation to Client's		\$						
President		3.3						
Less:								
Software Licenses	Took out savings for Salesforce in-kind	\$						
	licenses as the licenses are expensed to the IT budget	(0.3)						
Tier 1 & 2 Support	Lowered internal FTE opportunity-from	\$						
	21 to 15 and reduced average salary assumption	(8.0)						
Add:								
Software Licenses	20% savings for all licenses	\$						
		0.6						
Discretionary Work Requests	20% factor for savings generated from	\$						
	limiting low value work requests	0.5						
Sub-total Net Changes		\$ -						
Report		\$						
		3.3						

Cha	nge in Current Cost	
(\$mill)	Explanation	Current Cost
Presentation to Client's President		\$ 6.5
Less:		
<u>Tier</u> 1 & 2 Support	Lowered internal FTE opportunity from 21 to 15 and reduced avarage salary assumption	\$ (1.2)
Add:		
Software Licenses	Added all software licenses to Addressable Scope	\$ 1.9
Sub-total- Net Changes		\$ 0.7
Report		\$ 7.2

Assumptions

- CURRENT SERVICE PROVIDER will be replaced with another service provider
- CURRENT SERVICE PROVIDER transition will occur within 90 days
- A new service provider to replace CURRENT SERVICE PROVIDER is ready for transition 1/2/20
- CURRENT SERVICE PROVIDER will allow transition of its services to another provider without penalty
- Transition of application support, including Salesforce.com, NetSuite, ADP maintenance, can be done with minimal knowledge transfer
- 3rd party contracts can be restructured and re-negotiated
- Clear internal roles aligned with FTE can be identified for transition to another service provider. There are no business functions that can't be sourced with a service provider
 - Discussions will take place with Year-UP leadership to gain buy-in regarding transitioning staff performing business functions, as part of the change management plan
- Software license renegotiation for situations of over subscription enables reduction in license entitlements
- Software license vendors provide all entitlement data26 of the report
- Procurement is able to provide all software licensing purchasing records
- There are no restrictions by Client to workforce manage staff
- There is currently limited governance over the approval to carry out work requests sent to application managers
- There is minimal review of software entitlements compared to deployments
- There are no policies and process for software asset management



Section 1: Consulting and 3rd Party Agreements Provides basic help desk, desktop remote support, network and hosting services. Their services are minimal in terms of their scope and value. Example is the request intake process is single channelled by emails which limits more optimal channels like the web. In addition, CURRENT SERVICE PROVIDER uses a separate instance (same tool) from Client to provide service management capabilities. There is no visibility in their ticket data. There is a significant spend on application maintenance tasks driven by two factors: Separate external resources are used to support each application sourced by different domestic vendors. Following are examples of spend in the budget for separate applications: **Major Findings** Salesforce.com- \$477k planned maintenance HR- \$90k planned maintenance NetSuite: \$60k planned maintenance Finance- \$90k planned maintenance Limited control over requests that drive the consultant spend. Following are examples of the volume of requests for key applications; Salesforce.com: 6 month volume- 825 requests, averaging 138 requests a month ADP: 6 month volume- 1,942 requests, averaging 324 per month Box: 6 month volume- 249 requests, averaging 42 per month Desktop moves, adds and changes to all but three cores sites is sourced out to a vendor for a planned spend of \$232k Explore transition of CURRENT SERVICE PROVIDER infrastructure services to another vendor Recommendations For immediate gain, source out like-for-like services to replace CURRENT SERVICE PROVIDER Once the transition of like-for-like is complete, expand the provider agreement to a broader scope of services and improved service levels Including security and data privacy Include, field service support to replace the current provider of those services. Properly engineer depot and self-service pull system to reduce this cost. Improved scope and quality of infrastructure services at a lower cost Project Reduction in the spend for application maintenance and administration Reduced request workload from strict criteria at the point of intake Request workload is focused on high value opportunities for the organization

Section 2	2: Software Licensing					
	There appears to be an over subscription for key applications. Two key examples:					
indings	 Client has 1,150 licenses for Salesforce.com, while Salesforce has accounted for 900 entitlements. There are two opportunities: 1) immediately reduce the paid licenses by 250; and, 2) assess whether appropriate users are using the licenses 					
Major Findings	 Client has 900 licenses for Tableau, enough for usage by 80% of the staff population. Tableau is a specific tool used for business intelligence and reporting. There are only certain roles that require access 					
	There are no software asset management policies and practices in place to maintain the appropriate number of licenses					
l ations	Perform a license audit to compare entitlements (purchased licenses) to actual deployments. Reconcile and act on differences. Purchasing licenses where there are more deployments than entitlements and unsubscribing where entitlements are higher than deployments.					
Tactical Recommendations	Establish a software asset management policy, process and procedures to maintain licenses going forward					
Recom	Develop a role-based model for approved users of systems. Perform an audit of named users. Users not qualified from the role-base framework should be restricted from licensing					
	Leverage Client corporate partnerships and PR to get better pricing					
Project outcomes	Reduced license spend					
roje tcor	Improved management over software licences					
P	Avoid penalties from vendor software audits with better compliance over entitlements					

Section 3	: Tier 1 & Tier 2 Support
Sg	• To handle the volume of requests and other requirements in application maintenance, the following resources located in Boston, a high cost area, are dedicated to those efforts:
din	 HR Applications: 4 FTEs
Ë	 Finance Applications: 2 FTEs
Major Findings	 Salesforce.com- 2 FTEs
2	• To perform IT support tasks, there are 6 FTEs doing admin work such as account setups, desktop imaging and deployment, email distributions, password resets
Tactical Recomme ndations	• Explore a alternative providers to perform the application maintenance tasks leveraging global delivery capability.
Tac Reconnument	• Include IT support tasks done internally to reduce the internal resources dedicated to those tasks. Transition tasks to alternative resources
Strategic Recommendations	Maintain Business Intelligence senior roles locally.



Section 3: Tier 1 & Tier 2 Support

Project outcomes

- Reduction in the spend for infrastructure and application support. Between 40-50% savings by leveraging global delivery resources to achieve the cost advantages.
- Optimize requests by consolidating services to a single sourced vendor

Qualitative

In addition to quantifiable recommendations, there are qualitative recommendations for changes to the operating model, network, technology and process regarding optimization which will drive efficiencies and increase value but are either offset by investment or provide intangible benefit.

Section 4	: Changes to the Operating Model
	Inefficient model of same people doing support and development
ings	No incorporation of global sourcing and low-cost labor
Major Findings	No cohesive and formalized end-to-end service management processes
Majo	
ıtio	Aligning any operating model changes to the org evolution initiative
cal	Assess possibility of global resourcing
Tactical Recommendatio ns	Formalize key processes governing IT Service Management
Strategic Recommendations	Evaluate consolidating 3 rd party outsourcing services
Project outcomes	Integrated end-to-end operating model

Section 5: Network and Hosting

The Client network infrastructure is managed by a combination of in-house Staff and an external contractor. During its relationship with CURRENT SERVICE PROVIDER, Client has grown to become CURRENT SERVICE PROVIDERs largest single customer.

Client operates two types of site:

Core Sites

Cores sites are leased/owned by Client.

All network infrastructure is owned by Client and monitored either by both Client via an Application Server hosted by CURRENT SERVICE PROVIDER or by CURRENT SERVICE PROVIDER itself or by both Client and CURRENT SERVICE PROVIDER, depending upon whether or not the equipment is supported by CURRENT SERVICE PROVIDER.

Colo Sites

Colo Sites are typically located in Customer sites

Colo Site network infrastructure is highly variable, ranging from being totally dependent upon the Colo Site owners (most common) to being wholly provided by Client. Client typically has very little influence on what network infrastructure will provided by the Colo Site owner, the bare minimum being access to the internet for Client Staff and Members.

Client-owned Infrastructure

The infrastructure vendor is partly a legacy choice by Client (for example the Meraki LAN switches and Wi-Fi access points) and partly because it is supported by CURRENT SERVICE PROVIDER (for example the Sophos Firewalls and Windows servers).

All physical MACs (moves/adds/changes) are carried out by Client IT staff, potentially using local non-IT Client Staff as "smart hands." This includes desktop devices.

Connectivity to Core sites is via one, or more Internet Service Providers (ISP). Client owns the Carrier relationship in all cases.

Site WAN connections are primarily used to provide outgoing Internet access. A VPN tunnel is also used to connect the site infrastructure to CURRENT SERVICE PROVIDER for Management/Monitoring purposes. There is no direct access between any of the Client sites. Client has access to the site internal networks via a Jump host provided by CURRENT SERVICE PROVIDER.

Monitoring of the network infrastructure is via the PRTG tool maintained by Client and hosted by CURRENT SERVICE PROVIDER. CURRENT SERVICE PROVIDER also uses its own tool to monitor equipment it supports (i.e. Widows servers and the Sophos Firewalls), but Client has no access to this.

Alerts and Reporting

Client receives no regular network operations reporting from CURRENT SERVICE PROVIDER, but can generate reports from its own PRTG tool. These provide some input into capacity planning.

CURRENT SERVICE PROVIDER provides alerts on outages captured by its monitoring of the devices it supports to Client Staff via email only.

CURRENT SERVICE PROVIDER also maintains a simple web site showing monthly availability for the Skype for Business service (see Unified Communications section below) and the client web site. This is of little practical use, however.

Cyber-Security Monitoring and management

Client does not maintain a formal Security Operations Centre (SOC) function. Protection from Internetborn cyber threats is a feature of the Sophos XG firewalls in use at Client owned sites, but these



devices are under the management of CURRENT SERVICE PROVIDER and Client has no control over their configuration nor real-time visibility of the any security alerts that may be produced. It is understood that CURRENT SERVICE PROVIDER does provide notification of significant alerts via email, but the reliability and inherent delays of this notification mechanism limits its effectiveness.

While it is understood that the windows laptops and servers used within the Client organization do have anti-virus protection, there is no formal process in place to ensure that this protection is kept current on all devices in a timely manner.

MACs and Break/Fixes

Physical MACs and Break/Fixes are carried out by Client staff.

Infrastructure Refresh

Much of the Client network infrastructure is due for refresh;

- The current LAN switches and Access Points are over 4 years old.
- The Skype for Business application is moving towards End of Life

Refresh options are currently limited by the hardware/applications supported by CURRENT SERVICE PROVIDER.

Wide Area Network Design

The current Wide Area Network (WAN) design is limited in scope and centered around a third party (CURRENT SERVICE PROVIDER), rather than under the direct control of Client IT. In general, Client sites only require access to the Internet to function, but this does not apply to management access which require inbound access to the Local Area Network at each site. As Client does not maintain a private WAN connection between its sites, such as MPLS, this requires VPN tunnels over the Internet to provide centrally located management and monitoring applications with access to site-based infrastructure.

VPN tunnels have been deployed, but only to connect each Client site to the CURRENT SERVICE PROVIDER data center. As such, Client IT staff have no direct access to the infrastructure they manage at the various Client sites. Instead they are dependent upon a jump host hosted by CURRENT SERVICE PROVIDER.

New Site Build-Out

Currently the build-out of a new site is very labor intensive and, in the case of a Colo site, is dependent upon the willingness of the Colo Owner to provide the necessary infrastructure support. Colo Owners are often a reluctant partner and thus have no incentive to co-operate with Client IT staff in providing a suitable network environment.

For example, limitations imposed by some of the Colo site Owners;

- a) May restrict Internet access for Client Members and Staff to an impractically low bandwidth
- b) May prevent external access to Client LAN-based equipment, thus preventing remote management and monitoring

An "office in a box" type network infrastructure has been tried whereby Client would deploy its own WAN connectivity to a Colo site using the wireless technology used by cell phones. This uses a "cell enabled" router, such as the CradlePoint, that provide Internet access over a 4G and/or LTE cell service. This technology has been abandoned, however, due to limitations with the cell service with respect to bandwidth and reliability.

It is typically either not cost effective or impractical for Client to deploy its own ISP service to a Colo site.



Network Monitoring and Management

The monitoring and Management of the Client network infrastructure is currently divided between Client IT Staff and CURRENT SERVICE PROVIDER with the duplication of effort and resources that this implies.

It would be more efficient to consolidate the network monitoring and management functions into a dedicated Network Operations Centre (NOC) using a single tool set and under the direct control of Client IT staff. The tool set itself could be hosted by a third party, such as CURRENT SERVICE PROVIDER, but Client IT staff should have direct access to the real-time status of, and fault reporting from all of the Client owned network devices.

Alternatively, the entire Network Operations Centre function should be outsourced to a third-party Vendor who has the skills to support all of the Client network devices. This would free up Client IT staff to work on other projects.

In either case, Client IT staff should have direct management access to all Client owned network devices. This implies a modification of the current WAN design to provide a private data connection between, at least, the Head Office site in Boston and all other Client sites where Client owned equipment is located.

Security Monitoring and Management

It is recommended that a Security Operations Centre also be implemented to complement the implementation a NOC described above. This is particularly important given the dependency of Client on the Internet for its business applications. Due to the specialized nature of a SOC, it is recommended that this function be outsourced to specialist Vendor. Employing a specialist Vendor has the added advantage that the Vendor will have access to threat data from other clients that will enable it to introduce proactive preventative measures to the Client network.

Security monitoring can take many forms, but at the very least it is recommended that it include the following functions:

- Real-time, active monitoring of the firewall logs to scan for active cyber-attacks from the Internet and/or suspicious traffic that could indicate an internal device has been compromised.
- 2. Active scanning of all Internet-facing gateways to identify potential vulnerabilities
- 3. Active monitoring of the Client web site for Denial of Service and Intrusion attacks.
- 4. Active scanning of all internal devices to verify they are operating to the required specifications and that updates and antivirus versions are up to date.

The implementation of additional network layer protocols could also be considered to harden the Client network as a whole, particularly with respect to the Member laptops. For example:

- 1. Introduce Wireless Client isolation on the Meraki Access Points and port isolation on the Meraki LAN switches used by the Member laptops. These features prevent the AP and LAN switch clients from communicating with each other and thus minimises the risk of a compromised device infecting others around it.
- 2. Introduce an access management protocol such as 802.1x to prevent access to the Client network for any device that is either unauthorized or does not have the required configuration level.

Strategic Recomme

Reduced Colo Dependency

In order to reduce/eliminate the current dependency on the network resources provided by Colo site Owners, the use of a wireless Carrier to provide independent access to a Colo site should be reconsidered in the light of the emerging 5G technology. This technology has the prospect of



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ajor
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delivering both the desired bandwidth and reliability. This would remove any dependency of the Colo site infrastructure.

It is accepted that the deployment of 5G in the USA is still in its infancy, but will become available in major urban areas over the next 2 to 3 years.

Project outcomes

• Rationalization and optimization of technology platforms and services.

Section 6: Technology

On-site servers are Windows Print and Imaging server Virtual Machines (VM) hosted on a redundant pair of Windows Hyper-V servers. In some cases, a dedicated Active Directory server VM is also present.

Backups

Server backups and restores are managed by CURRENT SERVICE PROVIDER. VM Image backups are taken nightly to a server hosted by CURRENT SERVICE PROVIDER. CURRENT SERVICE PROVIDER can typically rebuild a server VM within 2 hours.

Asset Management

Client uses the SolarWinds asset management tool.

Unified Communications

Unified communications (Voice, Video, Conferencing and Chat) is provided by the Skype for Business application hosted centrally by CURRENT SERVICE PROVIDER.

There are typically no dedicated handsets provided to Client staff, with the exception of some Executives and the larger Conference rooms.

Call Center

Client does not have a Call Center as such. CURRENT SERVICE PROVIDER provides a level 1 Help Desk function via email only.

There is also a central 1-855-YEARUP1 number that supports an IVR tree that directs the caller to the appropriate department. The tree options typically terminate on a simple Hunt Group with very limited capabilities. This IVR tree is provided by the Skype for Business application.

Desktop Devices

Client provides their Members with access to a workstation located in the classroom. The workstation is typically a laptop or desktop PC. In the case of laptops, these cannot be removed from the classroom.

Client Staff are also provided with a workstation, often in the form of a laptop, that can move with the Staff member as required.

Workstations are initially imaged by Client staff but are managed by CURRENT SERVICE PROVIDER using the Microsoft System Center configuration manager, which provides remote control, patch management, software distribution, operating system deployment, network access protection and hardware and software inventory.



Tactical Recommendations

Skype for Business

Microsoft has already announced the retirement of the Skype for Business application. As such, Client should give consideration as to its replacement. The easiest migration path would be to move to Microsoft Teams, particularly given the preferential licensing terms provided to Client by Microsoft. There are, however, a number of alternative cloud-based UC services that could be considered.

Whatever replacement service is chosen, the migration away from the current Skype for Business infrastructure will not be a trivial project due to the level of dependency of Client on Skype for Business for its day-to-day operation. It is therefore recommended that this project be undertaken sooner rather than just before Microsoft removes support.

Call Center

Strategic Recommendations

The current complex IVR tree associated with the 1-855 number should be replaced with a full-featured Contact Center service. This would provide a more comprehensive and satisfactory Caller experience with in-call features such as wait times, position in queue, call back and multi-media support. It would also provide advanced call routing features such as skill based routing and real time reporting.

The Contact Center service could be outsourced to a cloud-based service or could be provided by an extension to Microsoft Teams, if this is chosen as the replacement to Skype for Business, such as that provided by Landis Technologies.

Member Desktop Devices

It is understood that some consideration has been made to the deployment of Virtual Desktop technology for the Member workstations, but that this was abandoned due to the complexity and cost of the technology at the time.

Virtual Desktop technology has made significant advances in the past few years, particularly with respect to the use of the technology together with web client devices such as Google Chromebook. It is therefore recommended that the use of this technology at Client be revisited as it has the potential to reduce the cost of both the hardware required and management overhead.

Project outcomes

Factual basis for a technology roadmap



Section 7	: Demand Management
Major Findings	 Significant ticket volumes for work requests in key areas based on 6 month ticket data including: ADP- 1,732 tickets, average of 289/month Salesforce.com- 825 tickets, average of 138/month Box support- 249 tickets, average of 42/month Significant planned spend for maintenance and support: Salesforce.com- \$477k NetSuite- \$60k HR- \$90k Finance- \$90k
Tactical Recommendations	 Complete a current state assessment of work request (ticket data) and work request process Develop and implement demand management policies and processes to limit requests for low value work
Strategic Recommendations	N/A
Project outcomes	 Reduction in work requests Reduction in support resources Improved management and reporting of work requests

2 Baseline

2.1 Scope & Approach

The Scope of the baseline data started with Network & IT Support Services, then expanded to review the Information Systems Group as well. Baseline information was collected to include staffing and organization, service management, network and hosting, financials, technology, 3rd party agreements and business demographics.

The Approach included the following steps:

- Distributed a document request for evidence for areas of focus
- Client team members uploaded documentation into a shared Box folder for Silver Tree access
- Conducted interviews with IT members as well as business/end-users
- Reviewed and analyzed documents received

The documents reviewed are listed in Appendix A. Refer to Appendix B for the interview list.

2.2 Baseline Profile (details removed from this sample report)

The following section provides a current state view including business demographics, financials, staffing and organization, service management, systems and services volumes, costs and FTEs, technical environment, and 3rd Party contracts. Removed from this sample report.

Business Overview

Financials

The following charts show a distribution of IT spending by Expense areas and by Function.

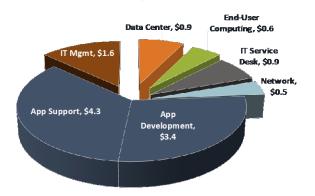
- Planned spend
- Over 75% of spend is in three areas: Compensation, Licensing, and Management Consultants
- 64% of the spend is on Application Support and Development



By Expense Categories

By Functional Areas





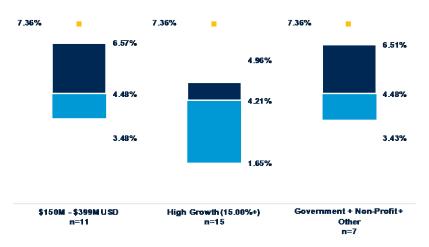
Source: SG&A Spend and Head Count Benchmarks, Gartner, August 30, 2019

Gartner Benchmark

- According to the Gartner Benchmark report, spend as % of revenue (7.36%) is higher than benchmark peers
- In the same report, spend is significantly higher for Application Support (35%) and Development (29%) of total spend

Total Information Technology Spend

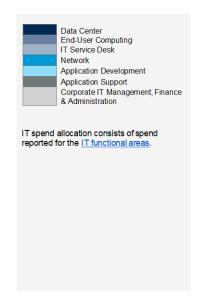
Total Information Technology spend as a percent of revenue, quartiles



Source: SG&A Spend and Headcount Benchmarks, Gartner, August 30, 2019



Information Technology Spend by Functional Areas Information Technology spend by functional areas as a percent of total Information Technology spend, average 11% 13% 13% **7**% 14% 29% 8% 14% 14% 18% 17% 15% 35% 16% 13% 12% \$150M - \$399M USD High Growth (15,00%+) Government + Non-Profit + Your Organization Other



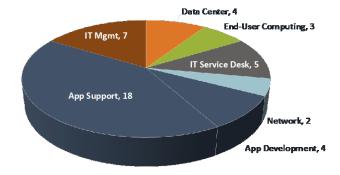
Source: SG&A Spend and Headcount Benchmarks, Gartner, August 30, 2019

Staffing and Organization

The following chart shows a distribution of headcount by functional area. Based on organization information prior to the most recent re-structuring:

- Total Headcount is 43
- 55% of headcount is in Application Support and Development
- Proportionally, headcount for Application Development is low because most development is done by consultants

Headcount Profile



Source: SG&A Spend and Head Count Benchmarks, Gartner, August 30, 2019

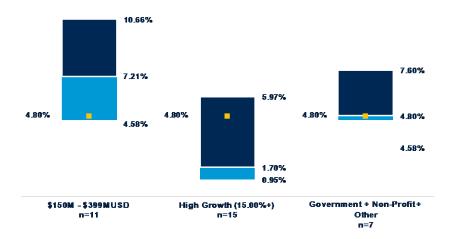


Gartner Benchmark

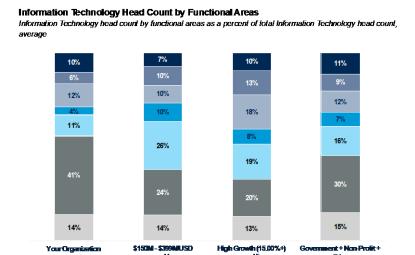
- According to the Gartner Benchmark report, headcount as % of total organization headcount (4.8%) is at or lower than the benchmark peers
- In the same report, headcount as % of total IT headcount is significantly higher (41%) in Application Support and lower (11%) for Application Development than the benchmark peers. The lower headcount for Application Development is because most development is done by consultants

Total Information Technology Head Count

Total Information Technology head count as a percent of total organization head count, quartiles



Source: SG&A Spend and Headcount Benchmarks, Gartner, August 30, 2019



Data Center
End-User Computing
IT Service Desk
Network
Application Development
Application Support
Corporate IT Management, Finance
& Administration

IT head count allocation consists of staff reported for the IT functional areas.

Source: SG&A Spend and Headcount Benchmarks, Gartner, August 30, 2019

n=7

National IT Organization Chart

The following is the most recent organization chart. The organization has been in a cycle of change so this is as accurate as the information available at this time.

(chart removed)

Systems and Services

An analysis was completed aligning systems and services with ticket volume (last 6 months), spend plan and internal FTE. See Appendix C.

- The highest cost system is Salesforce.com at \$1,325k including licenses and maintenance.
- The highest volume system in terms of number of tickets (last 6 months) is ADP at 1,942
- The highest volume of tasks (over last 6 months) completed by IT Support are adds and terminations, 862 tickets

3 Opportunities and Recommendations

Consultants and 3rd Party Agreements

The following chart shows the specific observations and recommendations regarding consultants and 3rd Party agreements which are predominantly applications maintenance and consulting support. Savings are predominantly driven by transitioning work from expensive consultants to alternative providers.

Opportunity	Recommendation	C	Current Cost	Pi	rojected Cost	Annual avings
Provider is the current vendor for infrastructure services at an annual cost of \$1.2M	Identify an appropriate provider at a lower cost	\$	1,236	\$	811	\$ 425
Consulting spend planned for development projects for 762 hours @ \$140/hr	Savings predominantly from transitioning work from expensive consultants to alternative providers	\$	155	\$	51	\$ 104
Plan for Box support	Perform support with in-house staff	\$	27	\$	-	\$ 27
Salesforce Non-Profit Start-up Plan (NPSP) consulting in the plan for 300 hours @ 200/hr	Savings predominantly from transitioning work from expensive consultants to alternative providers	\$	60	\$	26	\$ 34
Plan for NetSuite maintenance and support for 360 hours @160/hr	Savings predominantly from transitioning work from expensive consultants to alternative providers	\$	60	\$	27	\$ 33
Plan Donor Page Support for 200 hours @ 150/hr	Savings predominantly from transitioning work from expensive consultants to alternative providers	\$	30	\$	15	\$ 15
Plan for site transitions (local MAC) assuming 1,660 transitions @ \$160/transition	Savings bundling field support with service desk provider	\$	232	\$	116	\$ 116
Plan for Tech Debt for 484 hours @ \$140/hr	Eliminate Tech Debt	\$	68	\$	-	\$ 68
Plan for HR maintenance for 640 hours @ \$140/hr	Savings predominantly from transitioning work from expensive consultants to alternative providers	\$	90	\$	43	\$ 47
Plan for Finance maintenance for 640 hours @\$140/hr	Savings predominantly from transitioning work from expensive consultants to alternative providers	\$	90	\$	43	\$ 47
Plan for Salesforce maintenance for 2,977 hours at \$140/hr	Savings predominantly from transitioning work from expensive consultants to alternative providers	\$	417	\$	211	\$ 206
	Total Consulting and 3rd Party Agreements	\$	2,465	\$	1,342	\$ 1,123

Software Licenses

The software license spend only includes spend in the IT budget, not overall Client licensing. Highlighted areas with highest-impact savings-potential items. For products not reviewed, we assumed a 25% savings based on our experience doing software audits.

Observation	Recommendation	Current Cost	Projected Cost	Annual Savings
Higher Opportunity Licenses				
Spend for Tableau licenses is \$148k assuming 900 staff at \$163/license will use the tool. This is over 80% of all staff.	Tableau is a business intelligence and reporting tool. It should be used by trained staff. There should be limited roles requiring use of the tool in addition to licenses not being used. Assume reduction to 450 users	\$148	\$74	\$ 74
Salesforce made an in-kind donation of 450 licenses @ \$712/license. The cost for those licenses is included in the plan for \$320k, while the credit is included in revenue.		\$320	\$320	\$ -
Client pays Salesforce for 700 licenses@ \$712/license for a total spend of \$498k	Salesforce confirmed 900 entitlements. 1150 licenses in the plan for both paid and inkind. Reduce paid licenses by 250 to match entitlements	\$498	\$178	\$ 320
Cornerstone is used by HR for similar functionality as its intended replacement, WorkPlace by Facebook	Retire the app in 2020 and do not renew the licenses.	\$45	\$0	\$ 45
Client purchased 300 licenses for Conga, document creation tool at total spend of \$95k.	Reduce number of users/licenses by 50%. Assume some licenses not being used and limit users to role based	\$95	\$48	\$ 47
OKTA has been deployed for user account and permissions administration. There is functional overlap with Active Directory, and it was noted it is not being used for its full capability. Total spend is \$83k for 1700 licenses (more than the staffing count)	Move user account and permissions administration to Active Directory	\$84	\$0	\$ 84
	Sub-total Higher Opportunity Licenses	\$1,190	\$620	\$57
81 products not reviewed	Based on the estimates of savings noted above, we feel there is a 30% opportunity from the remaining licenses	\$1,941	\$1,379	\$ 562
	Total Software Licenses	\$ 3,131	\$ 1,999	\$ 1,132

Tier 1 & 2 Support

Opportunities come from savings in transitioning 15 internal staff to lower cost alternative resources for Tier 1 & 2 support.

Opportunity	Recommendation	Current Cost	Projected Cost	Annual Savings
There are 4 HRIT admin support FTEs doing support work and no development.	Transition work to a lower cost service provider	\$440	\$319	\$ 12
There are 2 Finance IT admin support FTEs doing support work and no development	Transition work to a lower cost service provider	\$220	\$160	\$ 6
There are 2 Salesforce.com admin support FTEs doing support work and no development	Transition work to a lower cost service provider	\$220	\$182	\$ 3
There are 7 IT Support FTEs performing operations tasks.	Combine support with infrastructure services outsourcing	\$770	\$492	\$ 27
	Total Tier 1 & 2 Support	\$ 1,650	\$ 1,153	\$ 497

There are 28 retained staff in the following key areas:

- Digital Experience
- Business Intelligence (BI)
- Architecture & Security
- IT Strategic Business Management

4 Sequencing, Roadmap and Action Plans

Sequencing

The following timeframes are estimates of when the action items should be deployed. Action Items 1-6 are directly related to achieving the \$3.3M savings noted in Section 4- Observations and Recommendations. A Roadmap and Project Charters follow for these actions. Action Items 7-9 will be further assessed at a later date.

Action Item#	Action Item (reference Section 1.4 in the Executive Overview)	Timeframe
1	New Operating Model	3-6 months
2	Transition infrastructure services from CTD to another provider including security and data privacy	3-6 months
3	Transition application consulting resources and internal Tier 1 & 2 resources to alternative provider	3-6 months
4	Assessment of software licensing	3-6 months
5	Re-negotiate and re-structure IT contracts	3-6 months
6	Demand Management Process	3-6 months
7	Technology Optimization Plan	6-9 months
8	Optimize/automate key processes	9-12 months
9	Application Rationalization	9-12 months

Additional Opportunities to be assessed

There are additional opportunities that that were not specifically called out in our assessment but are important items to assess in the future.

- Managed services bring in best-practice-based services to <u>manage</u> the integration of recommended services
 - o Introduce automation for IT service management (IT Infrastructure Library ITIL)
- Expand self-service capabilities
- Assess business process, stream-line them and automate for cost, responsiveness and scalability
- Review hardware/software capital spend for further savings opportunities by negotiating lower pricing with vendors and/or Client technology partners

Roadmap

The Roadmap includes Action Items 1-6 on the previous slide, which will provide the \$3.3M of estimated savings. A separate track for organizational change management (OCM) activities is included.

	Nov'19	Dec'19	Jan'20	Feb'20	Mar'20	Apr'20	May'20	Jun'20	3Q20 and beyond
Operating Model	IT Org Evol	ution	Operating mo	odel changes a	nd				
rcing	RFP for infra services- inc and data pri	l security	Potential de-se	elect announcem	ent to CTD				
re Soul		CTD Transitio	n						
Alternative Sourcing				Transition Tie alternative re	r 1 & 2 internal sources	staff to			
۷				Transition approviders	o consultants to	alternative			
Software Licensing			Software lieDevelop an processes	cense audit d deploy SAM	policies and				
3rd Party			 Review agre Re-negotian agreements 	te and re-struc	ture				
Demand Mgmt					Develop and De Process	eploy Deman	d Manage	ement	
Change and Comm		_		_	internal/external		ations,		

Action Plans

The following pages include project charters for the following initiatives:

- New Operating Model
- CURRENT SERVICE PROVIDER Transition
- Transition Tier 1 & 2 Support
- Software Licenses
- 3rd Party Agreements
- Demand Management
- Organization Change Management



New Operating Model Project

Objectives

- Align Implementation of recommendations with the Org Evolution already underway
- integrate roles, responsibilities across all functions
- Establish metrics and controls as part of overall governance model

Scope

• All affected functions based on implementations

Key Milestones	Estimated Start Date	Estimated End Date	Owner	Resources
Document affected roles and functions	12/15/2019	12/22/2019		
Adjust and document processes and touch points	12/15/2019	01/15/2020		
Establish measurements	01/10/2020	01/24/2020		
Turn over to Business Management Function	01/24/2020	01/31/2020		

Dependencies

- CTD Transition Assistance
- Alignment with Org Evolution

Key Performance Metrics (KPIs)

- Project schedule and budget reporting
- baseline and transitioned operational performance
- Daily / Weekly / Monthly Reporting Defined
- Governance Meeting Schedule Defined

- CTD Transition Assistance
- Rate of change for YU workforce



CTD Transition Project

Objectives

- Smooth Transition of in flight service transactions
- Eliminate any business impact of transition
- Establish clear visibility of transition progress and service performance

Scope

- Current Services that CTD provides today
- Touch-points in YU for those services
- Integration points for new / replacement services

Key Milestones	Estimated Start Date	Estimated End Date	Owner	Resources
Service Impacts Identified	12/15/2019	12/31/2019		
Transition Schedule established and agreed	01/03/2020	01/15/2020		
Roles / Responsibilities documented	01/15/2020	01/31/2020		
Establishment and testing of new services and processes	02/17/2020	03/31/2020		
Go – Live with new services	03/15/2020	04/01/2020		
Shut Down of old services	04/01/2020	4/15/2020		

Dependencies

- Transition Services cooperation from CTD
- YU engagement in overall service governance

Key Performance Metrics (KPIs)

- Project schedule and budget reporting
- baseline and transitioned operational performance
- Daily / Weekly / Monthly Reporting Defined
- Governance Meeting Schedule Defined

- Cooperation and transition support from CTD
- Reliable data on CTD services



Transition Tier 1 & 2 Support Project

Objectives

- Smooth transition of responsibilities to new provider
- No service Interruption during transition
- Clear visibility of transition progress and operational performance

Scope

- Tier 1 & 2 User support services
- ITSM Support Platform
- Tier 1 & 2 Application support services
- Reporting and Visibility
- Integration with extended organization and processes

Key Milestones	Estimated Start Date	Estimated End Date	Owner	Resources
Document Baseline services and metrics	12/15/2019	1/15/2020		
Knowledge transfer plan documented	1/3/2020	1/17/2020		
Knowledge Transfer complete	01/17/2020	03/31/2020		
ITSM platform configured	03/01/2020	03/08/2020		
ITSM Data Migrated	03/24/2020	03/31/2020		
Service Go Live	04/01/2020	04/15/2020		

Dependencies

- Good Data on in flight service tickets
- Transition Support Services from CTD
- YU Engagement for validation of risks / assumptions
- Good Knowledge Data for KT

Key Performance Metrics (KPIs)

- Project schedule / risks / budget
- Operational Service Metrics
- Service Governance Cadence

- CTD Transition Support
- State of Data supporting KT



Software Licensing Assessment Project

Objectives

• Identify savings opportunities in software licensing / subscription

Scope

- IT Owned Software Licenses
- IT Owned SaaS Subscriptions

Key Milestones	Estimated Start Date	Estimated End Date	Owner	Resources
Lock Down specific licensing / subscriptions in scope	01/03/2020	01/10/2020		
Prioritize licenses based on savings potential	01/10/2020	01/10/2020		
Execute Assessment	01/11/2020	02/21/2020		
Produce & Review Findings	02/21/2020	02/28/2020		

Dependencies

• Access to licensing contracts and current owners

Key Performance Metrics (KPIs)

- Project Reporting
- Potential Savings Identified

Major Risks

•



3rd Party Agreements Assessment Project

Objectives

Scope

• Right size, re-compete or eliminate all third party agreements

• All third party agreements – start with the xx contracts representing 80% of the spend

Key Milestones – will define milestones after we agree on the Approach – the Approach:	Estimated Start Date	Estimated End Date	Owner	Resources
Inventory all agreements & Select for analysis the top xx agreements representing 80% of spend	1/6/20	1/20/20	TBD	
For each contract identify Owner, User(s), value created, contract Term and termination options, most recent recompete, alternate providers considered	1/13/20	2/7/20	TBD	
Determine how users would cover the gap if contract not available – explore options	1/13/20	2/15/20	TBD	
For each contract recommend preferred option: recompete, renegotiate, take in house	2/1/20	3/1/20	TBD	
For each contract include: ROM savings, ROM cost of transition, etc	2/15/20	3/20/20	TBD	

Dependencies

- Timely access to contract detail information / history,
- Timely access to owners, users and SME

Key Performance Metrics (KPIs)

- Owner / users satisfaction
- Net run-rate improvements of total current spend
- Impact on relevant business metrics associated with agreement

Major Risks

 Changing or eliminating an agreement without understanding key impacts



Demand Management Project

Objectives

- Implement an effective demand management process to better manage demand for maintenance workload and focus on break/fix, planned production maintenance and approved enhancements
- Establish a centralized point of entry for work requests
- Reduce the number of work requests by limiting requests for low value work
- Reduce the number of support resources/costs

Scope

- All tickets requesting support for maintenance and enhancement activities
- Application and infrastructure
- All resources that work on the tickets noted above, including in-house staff, consultants and 3rd party providers

Key Milestones	Estimated Start Date	Estimated End Date	Owner	Resources
Current State Assessment of work request process and ticketing data	3/2/20	3/6/20		
Development of demand management policy, process and work categories	3/9/20	3/20/20		
Gain executive management approval for the policy and limiting work requests	3/23/20	3/27/20		
Configurations to the ticketing tool. Example- work flows, approvals	3/30/20	4/10/20		
Communications to IT staff and end-users/business community	4/13/20	4/30/20		
Implement demand management process	5/4/20	5/29/20		

Dependencies

- Executive management buy-in
- The ticketing tool (Zendesk)
- Clear definitions and understanding of the established work categories

Key Performance Metrics (KPIs)

- Total number of tickets
- Number of tickets by work categories
- Number of support staff
- Consulting and 3rd party spend

- Work-arounds to the centralized work intake process (e.g. "Hey Joe support")
- Business creates "shadow IT" to get their requests done



Organization Change Management (OCM) Plan

Objectives

- Awareness of program initiative
- Limited/non-negative media coverage
- · IT Staff and employee satisfaction
- Strategy adoption
- Non-disruptive transition

Scope

- Internal and external stakeholders
- Executives, management and staff

Key Milestones	Estimated Start Date	Estimated End Date	Owner	Resources

Dependencies

- Executive buy-in
- Resources to manage change

Key Performance Metrics (KPIs)

- IT staff and employee satisfaction
- Level/maturity of business engagement

- IT Staff and employee dissatisfaction
- Staff turnover
- Effectiveness of deployments



5 Next Steps

The following activities are recommended in preparation for the implementations noted in the roadmap.

Decisions:

- Accept assessment report as complete and accurate
- Select recommendations to proceed with implementation spend and timing
- RFP and in/out-of-scope services
 - Including potential de-select announcement to CURRENT SERVICE PROVIDER
- Organization change management approach
 - An initial step is to meet with Client leadership to gain buy-in regarding transitioning staff performing business functions, as part of the change management plan
- Sourcing strategy (internal and external)

Actions:

- Conduct planning session for selected optimization initiatives (what is required to make it happen)
- Develop and release RFP for technology and support services including security and data privacy
- Send notification of termination to CURRENT SERVICE PROVIDER, if not selected
- Complete partner selection
- Solicit organization change management proposal
- Develop Communications plan
- Engage project resources to do detail planning and begin implementation projects

