2016 – 2018
Technology Plan

Mission and Vision
To deliver value to the Chamber by enabling our team with effective technology that is useful to achieving the overall mission of our organization.

To serve as a model of technology-related best practices for other small businesses, nonprofits, and chambers of commerce.

Scope & Purpose
This document outlines the next three years of the Chamber's technology plans, while also preparing for the infrastructure we expect to need within the next five years. The projects and timelines listed herein are subject to be revised from year to year as the Chamber identifies new strategies and clarifies existing ones.

Technology Team
Cheryl Millsaps, VP of Administration
Dustin Harris, Technology Director
Bill Lupia, INCubator Office Manager
Eric Lisica, Website and Database Administrator
A select number of member-investors within the technology field provide consulting, engineering, and related services.

Objectives
In order to add value to the organization, the Chattanooga Area Chamber of Commerce's use of technology is informed by the following three key objectives:
- Oversee the proper stewardship of financial and informational resources.
    - Leverage the talent and knowledge of our staff and membership whenever possible.
    - Maximize the available technology funds by regularly implementing cost-effective methods for providing the Chamber with the most useful technology with the least financial investment.
    - Focus on ROI by ensuring the staff is always equipped with tools that balance effectiveness with investment.
- Ensure reliability of systems.
    - Maintain the staff's trust in technology by providing near 100 percent uptime of all critical services.
    - Resolve incidents and requests in a timely manner.
    - Regularly develop healthy relationships with a diverse network of strategic partners.
    - Increase the effectiveness of technology through ongoing training.
- Seek continuous improvement in technology and methodology.
    - Stay current with news about IT trends and technologies that might benefit the Chamber.
    - Always look for a better way of doing things.
    - Continually find relevant, convenient ways to communicate more effectively with our members, the public, and each other.
    - Maintain a proactive, structured approach to replacing technology.

Statement of Existing Conditions

- All full-time staff members are assigned a private computer and desk phone with a direct line and voicemail. Chamber computers are accessible to the staff from anywhere in the world with the approval of his/her senior manager.
- Select staff members may be provided with any combination of company-managed laptops, cell phones, and other mobile devices.
- The Chamber's ShoreTel telecommunications system serves both the Chamber and the INCubator with VoIP, voicemail, instant messaging, and presence along with a host of other features available from the desk phone, PC, or mobile device.
- The data network is maintained in a nearby collocation facility. To safeguard against single points of failure within the datacenter, the network design incorporates the following redundancies:
    - Disk RAIDs
    - Failover-ready hot-swappable integrated power supplies on each server
    - Dual network interface cards
    - Dual hot-swappable cooling fans
    - Rack-level external uninterruptible power supplies (UPS)
    - In-network monitoring
    - Firewall-level dual Internet service providers (ISPs)
    - ISPs are monitored by a third-party DNS failover service

    In addition to providing offsite data backups, the collocation facility also utilizes redundant power grids (from the local municipal power provider) and redundant Internet service providers. Physical access restrictions, temperature regulation, waterless fire suppression, and continuous surveillance are also implemented by the site.
- Security measures for the network's perimeter are provided by Fortinet (firewall with integrated endpoint anti-malware), Proofpoint (email filtering), and DNSMadeEasy (out-of-band DNS monitoring and failover).
- A license for a password management platform (LastPass Enterprise) is made available to all new staff, and retroactively available to all existing staff who request it. This tool assists with securely sharing passwords and other private information among staff and external strategic partners, and mitigates against lost institutional knowledge that is normally associated with turnover of staff, volunteers, and partners.
- An on-staff Technology Director maintains the data network and addresses break-fix issues for the staff.
- An array of production-quality hardware provides the staff with a full-service printing and mailing solution – automatic folding, cutting, binding, stuffing, and shipping.
- Laptops, projectors, screens, and related peripherals are available for staff members responsible for presenting offsite or otherwise traveling on behalf of the Chamber.
- Wi-Fi networks (802.11b/g/n/ac) are available for the staff and guests. The networks, which provide 100Mbps up/down, are managed on separate VLANs.
- Conference rooms are equipped with any combination of full-duplex wired/wireless conference phones, laptops, projection equipment, integrated sound, wireless microphones, video conferencing, and other collaboration materials. Wireless conference phones can be used anywhere in the office to accommodate popup meetings.
- The staff has access to solutions for online collaboration, hosting webinars, video calls, and a wide range of other business activities.

Timeline of Technology Needs
The following projects resolve unmet needs within the Chamber's technology environment. These items will be completed during the next three years, and will lay the foundation for the next five years of the network.

Project	Goal	Cost (Est.)	Due	Status
Short-Term				
Replace INCubator's tenant management database	To provide the INCubator's administrative staff with an effective, reliable, purpose-built application for managing all parts of the tenant lifecycle – from registration and enrollment through graduation and post-graduate follow-up. To provide an efficient mechanism to create/manage/archive facility maintenance activities for the tenants.	$7,000	SEP16	Completed
Redesign the Chamber website	To update the website's public-facing design and backend database structure to enable a responsive design and to take advantage of more efficient publishing features, current social networking tools, and similar opportunities.	$75,000	DEC16	Completed
Upgrade the Accounting Department's LOB application	To give the Accounting Team the most current, secure update available for its finance software.	$5,000	FEB17	Completed
Implement Microsoft Office 365	To increase the staff's internal and external collaboration capabilities by migrating our Exchange mailboxes and similar data to the latest offerings of the Microsoft Office productivity suite.	$14,000 + recurring	MAR17	On Hold Until SEP17
Upgrade Chamber's Wi-Fi network	To expand the reach of both the "staff" and the "guest" wireless networks. To fully leverage the existing 100Mbps from the ISP by adding support for IEEE 802.11ac now, which supports future	$9,000	JUL17	In Progress

	Gigabit speeds from ISP (pending subscription change).			
Replace physical hosts for the production virtual server environment	To install new server hardware that reinforces the data network's reliability and increases the overall performance of the applications and services it provides.	$80,000	AUG17	In Progress
Enhance the network management and monitoring tools	To automate and centralize the process of monitoring the Chamber's various IT systems from a single dashboard. To provide both IT and general users with better tools for managing accounts and passwords. To improve the protection of the file server's unstructured data by using blind spot analysis to identify overexposed files and folders.	$4,000	DEC17	In Progress
Long-Term				
Create a SharePoint intranet for staff	To facilitate better communication among the Chamber's staff and by using a consolidated hub for project collaboration, making announcements, accessing common files, and similar activities.	$2,500	FEB18	Researching
Create a SharePoint extranet for volunteers and colleagues	To facilitate better communication between the Chamber's staff and their non-staff resources and stakeholders.	$2,500	JUN18	Not started
Implement a mobile device management (MDM) platform for heterogeneous devices	To secure and manage the Chamber's ever-growing ecosystem of disparate software platforms, and for devices owned by the Chamber vs. owned by staffers/part-timers/interns/volunteers/guests/etc.	$1,000 + recurring	JUL18	Not started

End-User Hardware
Each staff member is assigned hardware based on the responsibilities defined by his/her job description. The average user's computer is equipped with Intel i5 or i7 processor running 4GB – 8GB RAM on a 64-

bit operating system (Windows 7/8.1/10 Pro), 250GB SSD (solid-state disk), a CD/DVD burner, and dual 17"-24" LCDs. High-performance or otherwise key users may be assigned more processing cores, a larger solid-state disk, more RAM, or similar upgrades. Mobile users are typically equipped with tablets, laptops and docking stations, phones, and other mobile devices based on their working style and personal preference.

Desktop printers, business card scanners, and similar niche peripherals are generally assigned on a case-by-case basis.

External devices such as CD/DVD burners, webcams, and hard drives are available to users who lack such on-board capabilities, and are either loaned or made permanently available on a case-by-case basis.

Software
The Chamber utilizes a number of "line of business" (LOB) applications and other software suites to fulfill its mission. These include:
- Line of business applications
    - Membership Partner (Steve Boyle & Associates, Inc.)
        - *Location: On-premise*
        - *Maintains the database of current and past members and prospects, committees, councils, volunteers, and other people groups*
        - *Events calendar*
        - *E-commerce module*
        - *Mass Communication tool (email, letter)*
        - *Detailed financial ledger*
        [NOTE: The majority of the above modules are both staff- and web-facing.]
    - Executive Pulse
        - *Location: Cloud*
        - *Stores active and inactive projects affiliated with the Economic Development Department*
    - Microsoft Dynamics SL (Solomon)
        - *Location: On-Premise*
        - *Manages the accounting functions*
    - incuTrack
        - *Location: Cloud*
        - *Stores the active and inactive tenants of the Chamber's incubator program located at the INCubator, along with other tenant and facility management functions.*
- Productivity suites
    - Microsoft Office 2013 Professional suite
    - Other Microsoft Office modules such as Visio and Project are provided to users on an as-needed basis to perform duties.
- Special-use
    - Adobe Acrobat XI (Standard and Professional)
    - Adobe Creative Cloud

Training

The Technology Director will organize one optional training program each quarter using the Lynda.com online training service. Training topics will be selected based on surveys of the staff and senior management team. All staff may request additional on-demand training from Lynda.com, or speak with their senior manager about receiving specialized training using one of the Chamber's member companies that provides those courses. Specialized training will be paid for by the training budget allocated to each department. Across all departments, the Chamber has a $16,200 budget, which accommodates technology training as well other opportunities for continuing education and professional development.

Every six months, the Technology Director will schedule a training time with new staff members to introduce any available technologies not covered during the initial orientation. Depending on their job duties, the new staff will be provided an overview of the various resources at their disposal, especially those items managed by the technology program. Users will also receive basic instructions on how to properly maintain any Chamber-owned equipment which they have either been assigned or will frequently use.

Select staff will be cross-trained on a regular basis to ensure they have sufficient skills to perform critical job functions.

The Technology Director will also work with the appropriate vendors to schedule quarterly training sessions for the membership databases, multi-function printers, mailing and folding machines, AV equipment, and other available tools. As needed, separate courses will be scheduled in order to bring new staff up to speed on vendor-trained technologies.

When negotiating major technology purchases and service contract renewals, the Chamber always attempts to maximize its capital investment by seeking to incorporate an unlimited number of training hours into the terms of the agreement. This increases the productivity and satisfaction of existing and future staff while reducing the long-term costs associated with training fees.

Rotation and Replacement Plan
Hardware
Practically speaking, the Chamber will repurpose an aging computer or server until the device is no longer capable of producing value for the organization. In general, reusable inventory will be rotated in the following manner:
- For computers:
  - All computers will be replaced every three years. At 18 months, computers will undergo preventive maintenance whereby the items are inspected, refreshed (RAM upgrade, hardware cleaning, peripheral checkup, ROM flashing, and reformatting with existing or upgraded operating system when applicable) and returned to user. In addition, laptops may receive a new battery, AC adapter, and other replacements of nondurable items. The user will be provided with a temporary computer for the duration of the maintenance period.
  - At end of use, computers will be refreshed and reformatted. Some computers will be stored on-hand as spare devices (for new staff, interns, and temporary PC replacements); others will be sold to employees or donated to a Chamber-endorsed nonprofit. For data security and licensing compliance purposes, the Chamber may remove the operating system and/or hard drive from any decommissioned computer

before transferring the ownership of the device to another entity. Funds collected from any sold computers will be allocated to the IT budget to offset costs of new equipment.
- o Depending on their condition, used laptops returned by users will either become travel laptops or grouped with other spare devices.
- o Memory-intensive or otherwise key users may be upgraded more frequently.
- For servers:
  - o Servers will be inspected for replacement every 3 years. The virtual servers' physical hosts will be clustered to improve performance and ensure high availability. To prevent downtime, only one section of a cluster will be replaced at a single time when possible.

Multifunction printers and other leased equipment are generally replaced every three years. Network infrastructure (switches, firewalls) and landline telephony hardware is replaced every 7 – 10 years or as needed.

The rotation and replacement plans for hardware are subject to regularly scheduled evaluations by the Technology Director.

Software
Version upgrades for LOB applications are managed by contracted vendors, and are typically rolled out every 2-3 years. Upgrades for productivity and specialty suites (ex. Microsoft Office, Adobe Creative Cloud) are timed to ensure that the Chamber is no more than one version behind the most recent release. Ancillary programs like Adobe Reader are upgraded as needed.

In between version upgrades, all software code is patched with regularly released updates provided by the developer.

As with any purchase, the Chamber always seeks to leverage its nonprofit status in order to obtain discounts on hardware and software. Whenever practical, software assurance and technical support plans are purchased to offset the cost of software upgrades and troubleshooting. The Chamber's asset management software is capable of automatically tracking expirations of warranties and other support plans so that items covered by the plan are repaired or replaced at the reduced cost whenever possible

Website
The Chamber's website, www.chattanoogachamber.com, is the primary vehicle for delivering information to Chamber members, prospect businesses, investors, and individuals interested in relocating to the area.

In December 2016, the site underwent a redesign take advantage of responsive web viewing, social media add-ins and other web technologies that had not yet matured when the previous design was launched in 2012. In addition to improving the site with a more intuitive navigation, the underlying code will make future upgrades easier to manage.

Data Storage and Backups
Most data resides on the organization's file server. Folders are created for each user and department, and access to this content is governed by Active Directory control lists that define which users and groups are allowed to perform certain actions on particular files and folders. This consolidated approach

fosters collaboration among the staff while also serving to effectively prevent unauthorized reads/writes/deletes of sensitive files.

All other data is maintained either on individual servers, the users' workstations, or removable media.

Users are advised to keep a current copy of their data on the file server.

Onsite Backups are performed using a process of Continuous Data Protection (CDP), whereby a snapshot of the servers are taken hourly. Additionally, the Accounting Department's LOB application produces separate SQL backups that can be used to restore from a failure.

Offsite backup routines capture all network data each night and maintain it for 24 hours. Additionally, the file server is protected with Carbonite for Business, to allow for a seamless file recovery.

After the Chamber has completed migrating its production servers to the new Hyper Converge platform in July 2017, the new storage infrastructure will allow for a more seamless process to test backups.

The Chamber takes the security and availability of its data very seriously. To review the arsenal of redundancies employed to protect the organization's information network, refer to the "Statement of Existing Conditions" elsewhere within this document.

Remote Sites
The Chamber manages the INCubator, an entrepreneurial development and business incubation program located 0.7 miles north of the main office. The INCubator's staff accesses the Chamber's network resources via a 100Mbps VLAN which is provided by the municipal telecom/power company.

Annual Assessment
Each August, the Technology Director will provide the VP of Administration with a progress report regarding the implementation of the Technology Plan. After collaborating with the senior management team, the VP of Administration will submit to the Director a list of necessary changes for inclusion into the remaining plan.