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INFORMATION TECHNOLOGY **BUDGETING**

FOR

Heart of Texas Workforce
Development Board, Inc.

Laura Quinones | Ignacio Gonzalez | Lilian Signey-Hall

TEAM ONE

TABLE OF CONTENTS

03

*Executive
Summary*

04

*HOTWDB
Overview*

05

*HOTWDB
Strategies &
Summary*

05

*HOTWDB IT
Investments/
Budget
Process*

06

*Models and
Frameworks*

12

*Action
Recommendations*

13

Conclusion

15

References

16

Miscellaneous

EXECUTIVE SUMMARY

The Heart of Texas Workforce Development Board, Inc.'s IT budget and allocation process is done every year by the Executive Director, IT manager, IT specialist, and network contractor. The IT budget is only allocated 2.5% of the organization's overall budget. As a non-profit government agency, the budget allocated to IT has remained the same year after year and does not currently allocate budget for transformational investments. Another issue is the organization's infrastructures are rapidly aging and need upgrading every five years. Due to the pandemic, it required the agency to switch its business model from a *brick mortal delivery service* to 100% *digital delivery*. This resulted in a greater need for digital operations hence required greater technology support to keep this initiative in operation.

We have examined the Information Technology budget and found three possible models and frameworks that would help the agency leverage its IT budget to maximize the value IT investments can have while leveraging technology for strategic outcomes. First, JMARK's Industry Best Practices of expense segregation, critical budget factors consideration, and budget killer's evaluation. Second, Gartner's simple and most practitioner's favorite to use is the Run, Grow, Transform IT investment framework. Third, use of the 2x2 matrix Portfolio Management. After further investigation and discussions, our team recommends JMARK's industry best practices of conducting IT Budgeting as a continuous exercise and not only once a year. This would enable HOTWDB to prioritize its needs and investments as the year progresses, allowing the organization to prioritize and allocate resources for initiatives that would bring the most value. Moreover, leverage the structure of segregation of expenses to plan their budget more strategically while balancing out potential drains that can impact the capital available. The risk with this framework is that it would be difficult to quantify events that can drain the budget with high levels of accuracy; however, it is best to plan for some uncertainty rather than none. The team also recommends the 'Run, Grow, Transform' framework by Gartner to diversify its IT budget and spending ratios, and determine whether the IT budget properly reflects the role IT plays in achieving the organization's strategy. Using this framework will also help HOTWDB determine the percentages of budget items are allocated to 'Run' items which are considered support investments that are 'valuable but not critical to success,' 'Grow' items and considered as key operation "investments that the organization currently depends for success", and 'Transform' items and considered strategic and high potential investments which may be important in achieving the future successes (Peppard, 2016). We recommend increasing investment of at least 20% of its IT budget into 'Transform' items to give the organization capabilities to transform and adjust IT spending in response to change in business environments as we have already seen happen to many businesses who failed to adapt because of the pandemic (Shimamoto, 2012). The risk associated with this framework is that when the overall budget of the organization gets tight, the first thing that gets derailed is 'Transform' budget items. Our third recommendation applies the application portfolio framework, which would help the organization categorize and identify how current and future applications fit into the organization by placing them into one of 4 quadrants, which are strategic, high potential, key operational, and support. This framework will allow for each application to be analyzed and measure how they help support the business strategies set forth by the organization and to help derive business value. The risk with this framework is that if an application

is categorized into the wrong quadrant or used for the wrong purpose, then it can cause increases in cost, decreased productivity, and efficiency. Strong application portfolio management is key to utilizing this framework effectively

INTRODUCTION

How does a global and well-established brand suddenly fail and vanishes from the limelight, brands like Kodak, Blockbuster, and Borders to name a few? (Rao, 2018). The cause of this failure is the inability to quickly adapt to a rapidly changing environment. Change and competition are constant, companies need to create flexible cultures that reinvent and evolve accordingly to achieve organizational effectiveness (Rao, 2018). Embracing technological change is a strategy to adapting successfully to rapidly changing business environments, no doubt the effects of the pandemic COVID-19 made this more evident when it forced organizations to change their business model to 100% digital delivery and strained the organization's culture, policies, and people working therein. Information Systems and Information Technology have not been so critical until now for the Heart of Texas Workforce Development Board, Inc. (HOTWDB). According to 'McKinsey Global Survey of executives' digital adoption has accelerated at both organizational and industry levels forcing companies to recognize the extent of technology's differentiating role in this crisis (LaBerge, O'Toole, Schneider, & Smaje, 2020). It is essential to examine an organization's IT budgeting process because first, it affects every organization that exists and struggles to collaborate their finance and information technology teams. Second, the way an organization allocates its IT budget reflects the role Information Technology plays in achieving the organization's strategy. Third, it determines the capabilities an organization has when changes in business environments like the aftermath of the COVID-19.

Company Overview

The Heart of Texas Workforce Development Board (HOTWDB) is a local nonprofit that serves Bosque, Falls, Freestone, Hill, Limestone, and McLennan counties in the Texas Region. Provides workforce solutions to employers and career development for employees while ensuring economic growth for the state of Texas. HOTWDB operates with a volunteer Board of Directors appointed by chief officials and approved by the Governor of Texas, this team along with the professional staff are tasked with implementing local board plans to develop the pool of workforce and meet talent acquisition expectations in the Heart of Texas area. The mission of the board is to prepare an educated workforce including veterans, youth, individuals with disabilities, ex-offenders, job seekers, workers, and parents. Annually, the board negotiates performance expectations with the Texas Workforce Commission (TWC) and proposes strategies to work with service providers to carry out core programs for employment needs in existing and emerging companies/industries. The strategies that the board carries out to meet its goals and drive support in the community are as follows:

- Commitment to continuous improvement which is centered on providing exceptional customer service
- Partnership as an enabler to improve quality and skills of the workforce
- Access to Services for all customer groups through innovative ideas

- Driving efficiencies through Technology and Logistics for services, education, and training
- Visionary Leadership that ignites commitment to a highly skilled workforce, equal opportunity, and learning
- Market-Driven which understands the needs of both the employer and job seeker and fosters economic development for the region

Company Strategies Summary

The Board's first strategy is Partnership with key stakeholders of chambers of commerce, regional partners, employers, ISDs, and other non-profit organizations to carry out its core programs and align to the Board's vision and goals. Second, collaboration with post-secondary institutions to provide customized training opportunities for individuals and employers to meet workforce demand skills and issues. Lastly, the creation of a 'virtual one-stop portal' that enables all customers to access all services online through the website, chat, and social media. The board is dedicated to expanding and improving accessibility to serve all its customers by removing barriers that prevent people from being able to access resources and services. For example, in rural areas, customers can access all of Workforce Solutions services via the website portal by going to their nearest library and using the computer with the internet. The librarians are familiar with workforce resources because they attend a yearly training called 'Public Access Points' by the Workforce Solutions Business Team to educate them with resources available to our customers like child care, tuition, and transportation assistance so that they can find work. There are Workforce Solutions centers in Hillsboro, Teague, Marlin, and the biggest one being in Waco. Investments in the digital space are crucial for the board's commitment to serving all customers in their region.

Current/Future IT Investments

HOTWDB currently does not have IT investment included in its IT budget process.

Fiscal Year	Overall budget	IT Budget	IT budget %	How the budget is spent
2019-20	18,964,457	\$474,145	2.5%	Software 15% Hardware 20% Vendor/consulting contracts 20% One-time purchases of hard/software 40% Training 5%
2020-21	19,757,600	\$474,145	2.4%	

Table 1.1 – Heart of Texas Workforce Development Board, Inc. IT Budget

Current IT Budget Process

Each year by the end of August, the E.D., Executive Director, would ask the needs and wants of each of the IT Team which includes a network engineer(contractor), IT specialists(contractor), and IT manager (board staff). The E.D. would then take their thoughts into account and compare them to last year's budget. Essentially, the IT

budget for the following year is dictated by the 'IT needs and if the budget allows the 'IT wants are considered. The overall budget will then have to be approved by the Chief Elected Officials and by the Board in September before the new fiscal year starts on October 1st.

MODELS AND FRAMEWORKS

1: Industry Practices and Models

At this point, research will be pivoted to explore the industry's best practices and frameworks that can be utilized as a guide for developing IT budgets.

In general, organizations struggle to develop IT Budgets as Finance and IT Teams typically have their areas of expertise, IT lacks financial knowledge and Finance lacks understanding of technology needs (JMARK, 2018). Therefore, it is suggested that the IT Budgeting process is managed as a continuous exercise and not just an annual exercise. Both functions should be highly involved, and IT needs to be recognized as an investment that enables innovation and alignment with short- and long-term goals. However, research from Gartner indicates that "I.T budgets tend to give more importance to individual line items in the general ledger, instead of the larger organizational goals" (JMARK, 2018). Therefore, organizations must conduct smart planning and make the best decisions with robust budgeting processes.

JMARK Business Solutions Inc, an industry leader in technology solutions proposes an approach for IT budgeting that involves expense segregation, critical budget factors consideration, and budget killer's evaluation. The process would be described in detail and evaluated as a fit for HOTWDB's strategies.

The first step to develop an IT Budget as outlined by JMARK Business Solutions Inc is to list out all the expenses and segregate them into technology-specific expenses that empower decision-making and planning (JMARK, 2018). The table below summarizes the categories that should be considered in this step.

Expense Type	Description	HOTWDB's callouts
Hardware	Includes equipment, devices, and all the cost associated with it. (i.e. Warranties or Maintenance)	40% Hardware warranties and one-time purchases of new hardware
Software	Licenses and service contracts	35% Software renewals and one-time purchases of new software

Subscriptions	Services to support hardware, software	20% Vendor/Consulting contracts
Services	Service provider expenses that include indirect or direct costs incurred for IT's purposes	%5 Training

In addition to the listed categories above, initiatives should also be grouped based on Capital, Operating, and Project expenses (JMARK, 2018).

Capital expenses represent all the vital and large expenses that are critical to the organization, as well as any major upgrades. In the case of HOTWDB, these would represent all hardware and software purchases, any significant enhancements for the current infrastructure, and initiatives that would unlock a competitive advantage for the organization. Operating expenses are comprised of the cost to keep the I.T organization and infrastructure running to continue supporting the business. HOTWDB is currently contracting out their IT department which expenses should be accounted for in this category. In conjunction with any maintenance and renewals for existing platforms used internally. Project expenses represent the flexible component of the budget in which initiatives are funded depending on available resources. In the case of HOTWDB's current strategy, this category does not have any initiatives pegged against as IT Budget is occupied by the other two types of expenses and it is not usual for the non-profit organization to be able to tackle new projects with the current budget allocations.

After understanding the key expense categories, it is suggested that critical budget factors are considered to understand how they can impact the budget and overall resources (JMARK, 2018). This step proposes identifying the frequency of asset replacement. In other words, evaluate the needs for equipment enhancements/upgrades and when it must be done so it can be planned accordingly. The better visibility that organizations have to their assets and their life cycle the better decisions that can be made that won't hinder productivity or create an unnecessary expense. JMARK's approach suggests the use of an asset management tool to accurately track the company's assets. Similarly, maintenance costs should be evaluated and accounted into the budget, typically, companies underestimate the cost to upkeep and resolve any sudden breakdowns to technology leaving them in a tight position or overspend if the issue arises. The third factor is data security as it is normally not a top priority for organizations to allocate budget for. Unless, they have experienced an attack that motivates them to upgrade data protection protocols and processes (JMARK, 2018).

Once expenses are categorized and critical budget factors are recognized, JMARK's budgeting model recommends understanding and taking precautions for the following concepts that can drain the budget. The first one is outdated technology as it can impact productivity and reduce efficiencies. If not properly updated, it can cause

idle downtime or an extended gap in service. For HOTWDB, this is an important consideration as the organization works with multiple employer providers and serves many customers, not having the right protocols in place to prevent disruption can negatively influence employers and people seeking placement in their career fields. Also, inefficient technology and infrastructure can impact performance and prevent from delivering of results to the organization. For example, power outages and network congestion. In response to COVID, HOTWDB has transitioned their operating model from physical locations to digital solutions by providing services and support via a newly created website, therefore, this third consideration is imperative for HOTWDB to continue servicing their customers that are relaying in the new operating model. Lastly, the third watch out is a full consideration of IT operations to decide between in-house IT department or outsourcing. As it currently operates, HOTWDB has contracted out their IT department so this would be applicable to ensure application and support is available to fulfill the organization's initiatives and keep the business running (JMARK, 2018).

Overall, the IT Budgeting approach as a continuous model analysis would help HOTWDB prioritize their needs and investments as the year progresses, allowing the organization to balance out priorities and allocate budget for initiatives that would bring the most value.

2: Run, Grow, Transform IT Investment Framework

A budget is “more than merely a source of funds; it is a tool for implementation and decision (Budgeting, 1994). IT budgeting should be seen as an investment in the organization's future and a good way to analyze this is by conducting a ‘Run-Grow-Transform’ framework by Information Technology Research firm Gartner.



‘Run’ are ‘support’ budget items that “keep the lights on” so to speak and cover the cost of day-to-day costs that keep the IT infrastructure performing. For example, server replacements, key software upgrades, contractor costs to maintain IT infrastructure daily. Cutting the ‘Run budget’ is vital and must be abstained because it would result in operational issues and failures (Shimamoto, 2012).

‘Grow’ are ‘key operational’ budget items that help the organization introduce new technologies or improve current existing ones and cover the cost incurred with the expansion of services. For example, the purchase of new software for efficiency, a new firewall for security, or an upgrade of the organization's website to encourage interaction with customers. “Grow” budget items should be directly connected to the organization's strategic initiatives. “Grow initiatives usually are not as mission-critical as Run initiatives and often have some time

flexibility, which means that they are good candidates for starting early when additional cash is available, or for deferral if cash is tight” (Shimamoto, 2012).

“Transform” budget items are R&D-type activities and cover the cost of changing an organization’s business process or “to explore how technology might enable the implementation of an innovative business idea” which are considered Strategic and High Potential (Peppard, 2016). Examples of “Transform initiatives include proof of concepts, prototypes, and small-scale testing of new systems or business applications (Shimamoto, 2012). This budget item is usually the first one to go when finances are tight but should be re-considered when cutting it because “Transform initiatives often are key to the organization’s long-term health and can stunt future success” (Shimamoto, 2012).

By looking at the percentages of the Run, Grow and Transform components of an IT budget, determines whether the IT budget properly reflects the role IT plays in achieving the organization’s strategy. With due diligence found under Miscellaneous on the last page, we asked for HOTWDB’s IT budget items and categorized them in three quadrants, ‘Run’ items as support, ‘Grow’ items as key operational, and ‘Transform’ items as strategic and high potential items. See **Table 1.2** below for Examples of Spending Ratios and the results of spending ratios for HOTWDB. Company A is a ‘late technology adopter’ which means IT does not play a critical role for 80% of its IT budget is used for ‘Run’ items – “keeping the lights on” and only “20%” is spent on helping to ‘Grow’ the company (Shimamoto, 2012). Company B & C spend 50-60% of their IT budget on ‘Run’ items and 30% to ‘Grow’ their technologies. Shimamoto suggests that “spending more on IT on how to leverage technology can provide a huge competitive advantage” (Shimamoto, 2012).

Table 1.2 – Examples of Spending Ratios

IT Budget	Company A <i>Late Technology Adopter</i>	Company B <i>Mainstream adopter</i>	Company C <i>Early Adopter</i>	HOTWDB ?
RUN - support	80%	60%	50%	55%
GROW - Key operational	20%	30%	30%	40%
TRANSFORM Strategic + high potential	0%	10%	20%	5%

The question that needs to be asked then is, “how important is Information Technology to HOTWDB?” If it is critical, it should look like Company B or C spending ratios but be on guard if the budget spending ratio looks like company A because an organization will not survive a rapidly changing environment if it isn’t transforming and keeping up with current technology. The aftermath of the pandemic has proven this to be true (Shimamoto, 2012).

According to Shimamoto, a managing director of Intraprise TechKnowledge in Honolulu, “having a diversified IT budget portfolio is important for ensuring the long-term viability of an organization” (Shimamoto, 2012). We suggest diversifying HOTWDB’s IT budget portfolio by considering the implications of IT initiatives and aligning the IT budget to the organization’s business strategy.

One key IT initiative implication that is often forgotten is the ‘human element’. This means considering how employees will fare when new technologies are adopted or how they would affect its employees’ working conditions. Each IT initiative should be considered as an investment option and consider adopting a ‘timing or initiative phasing’ execution to identify how different scenarios might impact the organization’s overall budget (Shimamoto, 2012).

The last step is to verify the role IT plays in the organization by asking the following questions: “Do the selected IT initiatives align with and support the organization’s strategic objectives? Should any initiatives that weren’t selected for the budget be reconsidered? Would any of the organization’s strategic initiatives make one of the selected IT initiatives obsolete?” (Shimamoto, 2012).

In conclusion, it would greatly benefit HOTWDB to invest at least 20% of its IT budget in strategic and key operational budget items to supply IT the capability to transform as an organization (Shimamoto, 2012). This means the agency will be able to adapt and adjust IT spending in response to changes in business environments as we have already seen many failed businesses due to the inability to quickly adapt to a rapidly changing environment brought by COVID-19.

3: Portfolio Management Framework

The application portfolio is a framework that allows for the technology applications that an organization is utilizing to be measured in terms of the business value that each application may provide to the organization. There are four sections to the application portfolio framework, which are strategic, high potential, key operational, and support. All applications being used by an organization can be classified into one of these categories and can be analyzed based on where they match within the framework and can help guide decisions. We will apply the application portfolio framework to the current applications and help determine how we can categorize the applications being used by HOTWDB to help reduce cost and improve the IT budget.

The organization’s IT budget has not grown much in recent years and is just a small percentage of the overall budget. The current budget is allocated towards software, hardware, vendor, and consultant contracts, one-time hardware or software purchases, and a small amount is allocated to training. By categorizing the applications, it will help determine how much IT investment is contributing towards the organization’s business performance and

strategy. Also, it facilitates a way to separate investments made in the budget into projects that can be assessed by factors such as goals, risk, strategy, resources available, and other criteria. The Framework can provide a way for IT to transform the application portfolio by setting processes and procedures that evaluate IT investments on how they apply to the business.

Software Application Portfolio	
Strategic	High Potential
<ul style="list-style-type: none"> - JotForms - Tidio Chat - WordPress 	<ul style="list-style-type: none"> - Currently no High Potential Software
<ul style="list-style-type: none"> - Cisco Call Manager Call Control - Cisco IOS - firewalls, routers, switches, firewalls, and telephones - Microsoft Office365, Windows 10, Windows Remote, Desktop Services, Windows Server 2016 - Nutanix Linux OS - TWIST - Workflow Client - Cisco AnyConnect VPN - GatherContent 	<ul style="list-style-type: none"> - Adobe Creative Suite - Microsoft Office 2016 - Word, Excel - Google Chrome - Cisco Unity Voicemail - Adobe Reader - Powerpoint - Podbean - Getty Images
Key Operational	Support

Figure 1

We see above in (Fig.1) the organization's current application portfolio and where applications fit within the framework. HOTWDB is determined to deliver its services in an efficient way to the customers of the business and since they serve a large regional area where customers may not necessarily be able to physically visit a location. The expansion to digital delivery of services is going to continue to be a focus for HOTWDB as the organization attempts to reach more customers. The current applications can be entered into one of the four categories to help determine how they are being used within the organization and if they are contributing to the goal of customer reach while helping reduce budget cost. As the organization currently does not have a process for future investments, this framework allows for insight into where any future investment will fit into the business strategy.

Fully digitally based applications can help replace current ones that have a physical component while helping support and expand business strategies.

An advantage of separating current or future IT investments is that it allows us to analyze them based on factors such as organizational goals, risk, strategy, resources available, and other criteria the organization may feel are important. The primary focus for HOTWDB is to be able to reach as many customers as possible with its services and with a limited budget of around \$474,000 as mentioned previously, the application portfolio can help mitigate unnecessary inefficiency and provide a way for IT to view applications and manage them. A major challenge with the budget is that with a limited amount allocated to IT and very little room for increases, it becomes even more important to be aware of the factors that affect the IT organization. HOTWDB outsources all its IT services, which eliminates the need for in-house development, but as the needs of the business grow, the switch from physical items that require more budget allocation and that have a digital alternative out in the marketplace should be considered. Using different criteria to measure current and future investments within the framework can assist with prioritizing and potentially replacing applications.

The IT organization can develop processes and procedures that measure where applications fit into the organization and set plans for application replacement or enhancement. Setting timelines for evaluation of applications and seeing how they apply within the organization according to the framework can help keep the portfolio organized and from causing issues. By categorizing these components, we can better understand if costs are being incurred that could be reduced by potentially utilizing other available options, like moving from physical hardware to fully digital services where the organization is not required to physically have hardware on-site. This is most effective in the support category, where the goal of application management in this area should be to manage it in a way that promotes efficiency. We can help standardize current applications and eliminate any redundancy if any exist, so that cost savings can be reinvested into ideas that could help future strategies.

In summary, the application portfolio offers a great method for the organization to view their current applications and can help categorize them on how they are applied within the business. HOTWDB can use this framework to evaluate all current applications being used and make decisions that can help the organization cut costs that will help increase the capital available to invest. Reducing most of the large hardware costs being incurred by the organization and moving to a digital alternative can help increase the budget internally, without cutting the budget somewhere else to move it to IT. HOTWDB as an organization is already using a fully outsourced IT department and can be comfortable with using this framework to improve the IT budget by making application and hardware decisions that will suit the business best that are digitally based.

ACTION RECOMMENDATIONS

With due diligence and further discussions, the team determined three possible solutions and recommendations using models and frameworks that would help HOTWDB diversify its IT budget, maximize the value of IT investments, and leverage technology for strategic outcomes. Ultimately, the team recommends

JMARK's model of industry best practices of conducting IT Budgeting as a continuous exercise and not only once a year. This would enable HOTWDB to prioritize its needs and investments as the year progresses, allowing the organization to prioritize and allocate resources for initiatives that would bring the most value. Moreover, leverage a cross-functional committee that has expertise in both business and IT ensuring alignment with organization strategies, as well as, conducting segregation of expenses to plan their budget more strategically while balancing out potential drains that can impact the capital available. The risk with this framework is that it would be difficult to quantify unforeseen events that can drain the budget with high levels of accuracy; however, it is best to plan for some uncertainty rather than none. The team also recommends the 'Run, Grow, Transform' framework by Gartner to diversify its IT budget and spending ratios, and determine whether the IT budget properly reflects the role IT plays in achieving the organization's strategy. Using this framework will also help HOTWDB determine the percentages of budget items are allocated to 'Run' items which are considered support investments that are 'valuable but not critical to success', 'Grow' items and considered as key operation "investments that the organization currently depends for success", and 'Transform' items and considered strategic and high potential investments which may be important in achieving the future successes (Peppard, 2016). We recommend increasing investment of at least 20% of its IT budget into 'Transform' items to give the organization capabilities to transform and adjust IT spending in response to change in business environments as we have already seen happen to many businesses who failed to adapt because of the pandemic (Shimamoto, 2012). The risk associated with this framework is that when the overall budget of the organization gets tight, the first thing that gets derailed is 'Transform' budget items. Our third recommendation applies the application portfolio framework, which would help the organization categorize and identify how current and future applications fit into the organization by placing them into one of 4 quadrants, which are strategic, high potential, key operational, and support. This framework will allow for each application to be analyzed and measure how they help support the business strategies set forth by the organization and to help derive business value. The risk with this framework is that if an application is categorized into the wrong quadrant or used for the wrong purpose, then it can cause increases in cost, decreased productivity, and efficiency. Strong application portfolio management is key to utilizing this framework effectively

CONCLUSION

In conclusion, as the news cycle for IT Budgeting approaches in August, HOTWDB's should leverage the recommendations of the research conducted by Graduate Students at the University of North Texas to diversify and enhance their budgeting process in efforts to maximize the value IT investments can have while leveraging technology for strategic outcomes. The team action recommends the use of a best practice model from JMARK, the Run-Grow-Transform along with the application portfolio management process which will help ensure that taxpayer dollars are being spent on information technology that will be used effectively to support the agency's strategies. This will require consistent effort, executive management collaboration, commitment, and targeting on risks and returns using quantifiable measures. Senior program managers in key business areas should be involved directly in the IT budget process, which can help push support for IT initiatives across the organization. Furthermore, the team recommends this IT budget process as a year-round activity, not just a process to be done when a new budget year is

approaching. Senior managers should be involved in preparing and enforcing solutions to the problems that are unavoidable. Finally, the IT budget process is an ongoing learning process. Feedback from teams to senior management from the contractor's side to the board staff side is essential because it will help them make wiser decisions on new projects and operational systems when they are aware and cognizant of the happenings on the ground.

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MISCELLANEOUS

Information Technology Asset Inventory with Categories

	KEY OPERATIONAL <i>Currently depends for success</i>	STRATEGIC <i>Critical to sustaining future business strategy</i>	SUPPORT <i>Valuable but not critical to success</i>	HIGH POTENTIAL <i>May be important in achieving future success</i>
HARDWARE	<ul style="list-style-type: none"> • Adva Fiber to Ethernet Switches, • APC Data Storage Racks, • APC UPS Battery Racks, • Cisco Firewalls, • Cisco Routers, • Cisco Switches, • Cisco UCS Servers, • Hewlett Packard Servers, • Nutanix Appliance Servers, • Cisco Telephones • Dell Workstations 		<ul style="list-style-type: none"> • APC Netbotz Security Monitoring Devices • Barracuda Email Archiver • Hewlett Packard Tape autoloader • Xerox Network Printers • Stamp machine 	

SOFTWARE	<ul style="list-style-type: none"> • Cisco Call Manager Call Control • Cisco IOS - firewalls, routers, switches, firewalls, and telephones • Outlook • Microsoft Office 365 • Microsoft Office365 • Microsoft Windows 10 - Microsoft Windows Remote Desktop Services • Microsoft Windows Server 2016 • Nutanix Linux OS • TWIST • Workflow Client • Cisco AnyConnect VPN • GatherContent • Zoom 	<ul style="list-style-type: none"> • JotForms • Tidio Chat • WordPress 	<ul style="list-style-type: none"> • Adobe Creative Suite • Microsoft Office 2016 • Excel • Word • Google Chrome • Cisco Unity Voicemail • Adobe Reader • Powerpoint • Podbean • Gettyimages • 	
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