BizTechSherpa

Business Technology Advice for Business Leaders

Information Technology Assessment

May 6, 2020

PREPARED FOR

Acme Financial

Adam Smith

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Introduction

Acme Financial ("Acme Financial ") has asked BizTechSherpa ("BizTechSherpa") to review its Information Technology systems environment and make observations and recommendations for future improvements. This project has been completed by way of onsite reviews and interviews, and offsite analysis and follow-up.

Our goals were to develop the following:

- Summary of the systems in place.
- Development of a network diagram with core components such as switches, servers, routers, etc.
- Summary of interviews with various personnel, which are referenced throughout this document. These included:
    - End users
    - Executives and senior level management
    - Information Technology department staff
- Assessment of current staff to review skills, interests, and time spent.
- Description of key issues identified and their impact.
- Suggested improvements, prioritized by impact / risk reduction, and including approximate costs.

BizTechSherpa assigned network engineers and a business analyst who went onsite and met with various individuals as described above. We also examined all systems and reviewed them with the Acme Financial team in information technology, as well as a walk through to review desktops, printers, etc.

This document and associated discussion constitutes the deliverables for this project.

Executive Overview

Acme Financial has significant issues in its information technology environment which should be addressed to align the technology to the business. The following items are of note:

1. The IT team is not large enough to fully support the growth and direction of the company. This is true in two ways: (1) the skills are not broad or deep enough for complexity of systems, and (2) the size of the organization at over 300 users when compared to the size of the IT team shows a very high ratio of users to support personnel, limiting proactive thought and support of growth.
2. Leadership and Planning: There is no formal strategic plan for information technology, no formal process to evaluate new ideas, and nobody from the IT department who sits in strategic executive planning meetings. This lack of presence affects both sides and slows IT's reaction to the business, and does not allow a proactive, value added IT function.
3. Security Issues: Review and policies are not sufficient. Too many domain admin accounts, accounts set so the password never expires, Active directory has numerous accounts which are enabled but have no activity, and several other issues were uncovered.
4. Servers: Lack of Virtualization restricts flexibility, reliability, and increases costs. Results are that recovery if equipment fails would be a significant period, increased upgrade times, and excess capacity. Additionally, the Exchange server for email is currently on Microsoft Exchange 2007,

which is two versions behind. Of perhaps greatest concern, the mission critical application servers for Interactive Dialer (I3) are not being patched for new security threats, bugs, etc.

5. Infrastructure Issues, such as the wireless network on the first floor does not allow access to corporate network assets.
6. Operating Systems in use no longer supported, Including Windows Server 2003 on several key servers.
7. Backups: Key systems like the Interactive Dialer (I3) are not backed up, there are no offsite backups, and no written, or tested disaster recovery plan.
8. Lack of modern tools to reduce costs and increase speed of response.
9. Database and Reporting Issues, seen in 4 key ways.
    a. There is no central, modern data warehouse, even though the organization's leadership has stated that managing by better use of data is essential
    b. Insufficient development environment - There is little version control in place, and no development or test systems, all database work is done in the live system.
    c. Nightly database jobs are not well maintained and not well documented.
    d. Reports are not strategically managed - There are 450 reports in the system, and many are never used.

This document explains these problems including the underlying causes, and has recommended initiatives to address them.

Summary of Organization and Systems

General Info

Summary of the Organization and Locations

There is 1 location and approximately 300 users (though only 180 PCs, users share via multiple shifts throughout the day).

Locations:
Headquarters in Akron, where staff and servers are located. They occupy the second floor and a portion of the first floor.

IT Team:

The IT team at Acme Financial includes six (6) employees as follows:

- Adam Williams
- Billy Jones
- Brian Davis
- Jacob Green
- Lloyd Hanson
- Patrick Mulrooney

Additional vendor support is provided by:

- An outside contracted resource who does tasks in SQL Server
- Previously used CDW for setup and configuration of switches, VLANS, etc.

The IT Function reports to Adam Smith, COO for Acme Financial.

Key Software Applications

- Interactive – now on version 3, want to go to Version 4. Installed on every workstation as Client, also have Supervisor versions that call center supervisors use to watch call.
- No ERP software
- QuickBooks 2010 – on Windows XP machine. Owner's wife uses by remotely accessing.
- Some users still use Access reporting connected to SQL Server – but thy have gotten rid of a lot of it.
- Some people have Report Builder installed on their machines.
- Instant Messaging - Openfire is the back end (http://www.igniterealtime.org/projects/openfire/), and the client is Spark from the same company (http://www.igniterealtime.org/projects/spark/). They use it primarily because it is free, and runs on Windows.
- Acme Financial Live Stats – Web based ASP applications
- Microsoft Office 2010
- SQL Server (connected to Excel, or using tools such as SSIS, SSRS)
- SalesForce.com CRM (limited to marketing and some sales)

Infrastructure/Backbone

External Access/Wide Area Network

Acme Financial has multiple Internet connections.

- 10x2 – First Comm. One is used for Camera System that watches doors.
- 10x2 Time Warner
- 15x2 – Time Warner – used by management staff.

These are separated by VLANs

Firewalls:

- SonicWall 2400 NSA used for both 10x2 First Comm and 15x2
- NetGear is for camera and guest access and is connected to FirstComm

Wireless Access

- Wireless: Use 2 SonicPoints for WAPs and are connected to SonicWall

End User / Client Personal Computers

- There are 180 Workstations
- 2 Surface Pro 3s
- 2 Laptops
- Everybody else has a desktop

Operating Systems: All client devices are Windows 7; except 1
Antivirus: use Trend Micro through a console to centrally manage.

Acme Financial does not use thin clients, and has no terminal server. They have considered a terminal server for 5-6 office users who move around a lot.

User and mailbox accounts

1) 96 mailboxes – a lot pf people do not have email.
2) Acme Financial has more users than workstations, for example they run a second shift sometimes and two people may use the same cubicle at different times of the day, with different accounts.
3) They have quite a bit of turnover, so there is a lot of account management.
4) There are two remote users who connect from home.
5) Jacob counted 741 user accounts in active directory. They do not have a workflow or process for cleanup of accounts.

Email

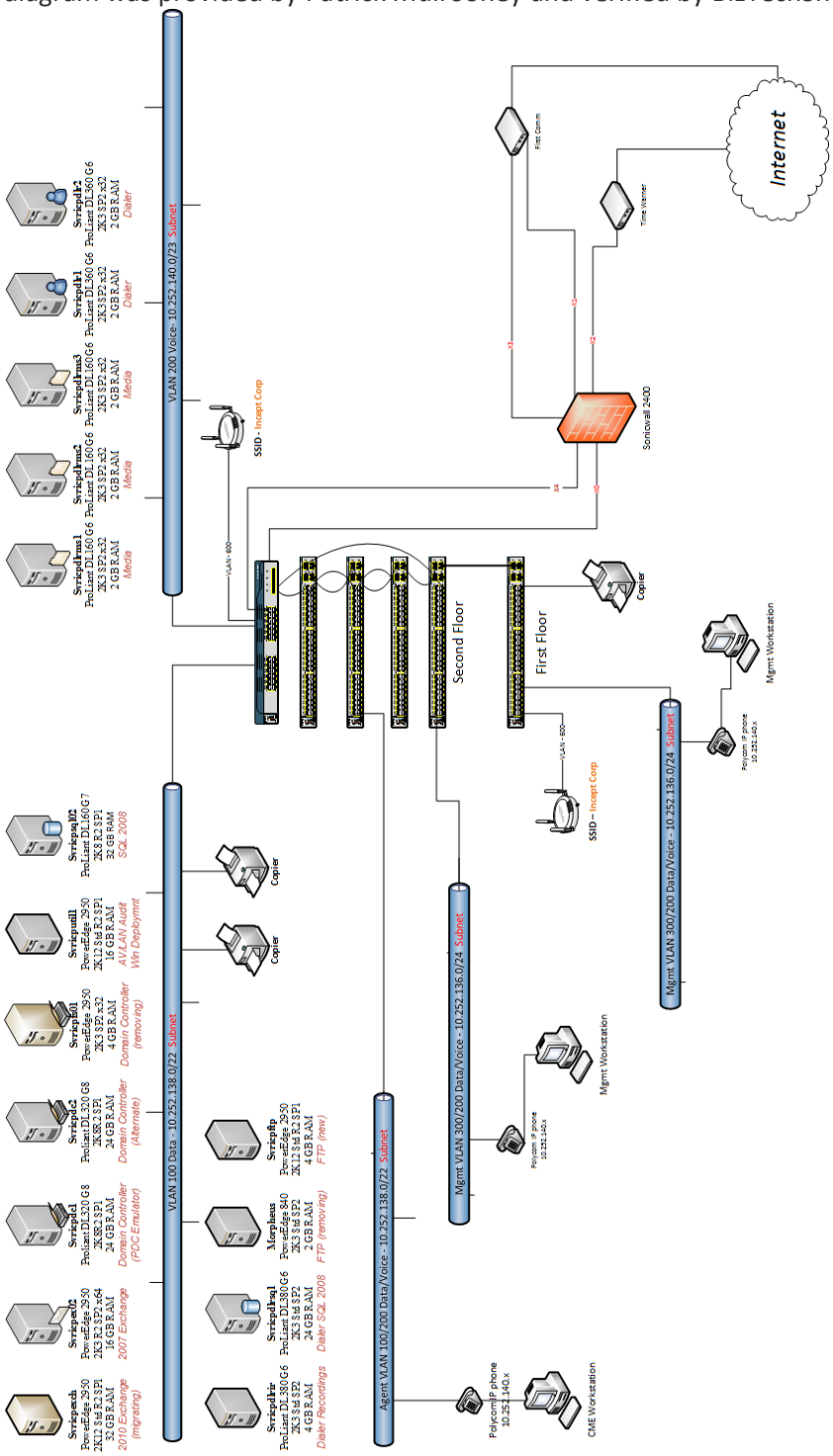
1. Email is running on Microsoft Exchange 2007.
2. Have Software Assurance and want to go to Exchange 2013.
3. AntiSpam: use Trend Micro

Backups

1. Acme Financial uses Symantec Backup Exec 2014.
2. They backup all servers except Dialer servers
    a. This is seven (7) servers
    b. Patrick said he was told he was not supposed do anything on that server to by Interactive Dialer rep because he is not allowed to put any agents, etc. on servers according to the contract.
    c. For the I3 dialer, they own hardware and OS, Interactive provides the rest.
    d. They do not even do Windows updates on these servers.
    e. They call Interactive if anything is needed.
3. Backups go to disk onsite; then a second removable disk using an appliance called NetSwap Plus from Highly Reliable (http://www.high-rely.com/products/1-bay-netswap-plus/). This can hook to an offsite vendor for offsite backups.
4. Now working on offsite solution. He is talking with Time Warner and another vendor about this. They are recommending a fiber link internet. They would need a data center to put data offsite.
5. No disaster recovery plan has been written.
6. Acme Financial would be days to weeks of recovery time.

Summary of Systems in the Server Room at the Akron HQ Location

The Akron headquarters facility is the primary location for IT systems at Acme Financial. A network diagram was provided by Patrick Mulrooney and verified by BizTechSherpa.



Servers in Use

Acme Financial uses all physical servers, there is no virtualization in use at this time.

Server Name	Hardware	Operating System	Notes
VLAN 100 Data 10.252.138.0/22 Subnet			
SvrIcpExch	Dell 2950 32 GB RAM	Windows 2012 Std R2	New Exchange 2010 server going into production.
SvrIcpEx02	Dell 2950 16 GB RAM	Windows 2003 R2	Current Exchange 2007 server. (being retired)
SvrIcpDC1	HP ProLiant DL320 G8 24 GB RAM	Windows 2008 R2 SP1	Domain Controller (PDC)
SvrIcpDC2	HP ProLiant DL320 G8 24 GB RAM	Windows 2008 R2 SP1	Domain Controller (Alternate)
SvrIcpFS01	Dell 2950 4 GB RAM	Windows 2003	Old Domain Controller being retired
SvrIcpUtil1	Dell 2950 16 GB RAM	Windows 2012 Std R2	AV/Lan Audit Windows Deployment Server
SvrIcpSQL02	HP ProLiant DL160 G7 32 GB RAM	Windows 2008 R2	SQL Server 2008
SvrIcpDLRIR	HP ProLiant DL380 G6 4 GB RAM	Windows 2003 Std SP2	Dialer Recordings
SvrIcpDlrSQL	HP ProLiant DL380 G6 24 GB RAM	Windows 2003 Std SP2	Dialer SQL 2008
Morpheus	Dell 840 2 GB RAM	Windows 2003 Std SP2	FTP Server (Being Retired)
SvrIcpFTP	Dell 2950 3 GB RAM	Windows 2012 Std R2	FTP Server (new)
VLAN 200 Voice 10.252.140.0/23 Subnet			
SvrIcpDlrMs1	HP ProLiant DL160 G6 2 GB RAM	Windows 2003 SP2	Media Server
SvrIcpDlrMs2	HP ProLiant DL160 G6 2 GB RAM	Windows 2003 SP2	Media Server
SvrIcpDlrMs3	HP ProLiant DL160 G6 2 GB RAM	Windows 2003 SP2	Media Server
SvrIcpDlr1	HP ProLiant DL360 G6 2 GB RAM	Windows 2003 SP2	Dialer
SvrIcpDlr2	HP ProLiant DL360 G6 2 GB RAM	Windows 2003 SP2	Dialer

Information Technology Department Capabilities and Common Issues

Top Help Desk Issues

The top help desk call is that a computer will not boot up. They built a new image using Microsoft Deployment Toolkit, and it had an issue that was forcing repeated reboots.

They have also had Issues with redirected document shares – this may be a temporary issue.

They said they used to get a lot more calls, but automation has helped a lot. Automation is done in Group Policies to do installs, redirect My Documents to the server, etc. They added that the users are mostly self-sufficient. If a user has an issue in Access, Report Writer, etc. they do not ask for a lot of help, generally try to figure it out themselves.

There are very little tools in use, including:

- No monitoring software (although they have started to work in PowerShell)
- No remote control - they have to physically touch a workstation in order to help a user, or resolve an issue.

Currently, tickets are tracked in an Access database, and the team tracks time against tickets and projects (project tasks are created tickets). Adam has decided to use SharePoint for ticketing and they are in the process of making that move now.

Information Technology Department Resources (employees)

We interviewed Adam Smith, the COO who oversees the area, and 4 persons from the information technology department to determine their interest and skill set. Our goal was to ascertain what areas may be uncovered and not adequately serviced for the organization. Acme Financials information technology team has six members, which is not enough to service all of the areas of information technology. Information Technology is a conglomeration of needs which can have varying skill sets required, such as security, email, database, programming, help desk, etc.

Our interview results are shown below.

Adam Smith

Adam said the IT department is called "Technology Results" (all departments are named with "Results").

Adam took over the department when he joined the firm a few months ago. He said the team has made improvements in that time. They were underperforming previously and had a manager "who did meetings and beatings with other departments", so the relationship between technology and the business was not effective. Additionally they were underspending when doing projects. One example of this was an Access database to SQL Conversion, which they did not invest enough and had the wrong skill sets. He said that the previous IT manager was largely an infrastructure focused IT person, so the software side such as this project was not done adequately.

Adam said that the team has made “huge strides” over the last few months.

Adam described some of the particulars of how the team works now.

- The entire team works in one room.
- Team has daily scrum at 10am
- They create a weekly plan, and each person has an individual plan for the week.
- Track to the plan on a white board in the room where they work. They record time against tasks in an Access database. This will be in SharePoint with a new application being developed by Stephens IT out of Independence, Ohio.
- Team Structure:
    - Adam said that the whole team reports to him.
    - There are two senior leads in the group:
        - Patrick - focused on the network
        - Brian - focused on the I3 Dialer and SQL Server database
- One of the problem areas is SQL Server Jobs
    - They have 40-50 processes running nightly – but there is no normalization, etc.
    - Brian has been fixing this, and has cut processing by 25% in the last month, so progress is being made.
    - They do have some monitoring to know if a job fails.

Patrick and Jacob

We met with two persons from the IT staff who are primarily focused on the network and infrastructure support, to include client PCs.

- Patrick Mulrooney - Network Administrator - Has been with Acme Financial for a year
- Jacob Green – Jr. Network Administrator – Jacob primarily focuses on end-user support.

Their responsibilities include:

- Server Racks
- Servers
- Firewall, Switches
- User accounts
- Exchange Server

There has been a lot of work done to clean up the environment. Patrick said that when he came to the company there was a document of 3-4 pages that needed to be done, and 95% of it is completed now.

Roles and Duties / Interests Interview

Patrick described his daily duties, which recently includes a lot of managing active directory and permissions. They recently did a project where they split the shared folders by dept. with mapped drives, and this has been causing a lot of issues where people cannot find their files. We witnessed this while we were there.

Patrick

- What do you like to do?
    - Everything. Generally enjoys doing everything that he is called on to do.

- What do you not enjoy doing?
    - Manual work, want to automate processes
    - Frustration – Never can get really good because there is too much to do

Jacob

- What do you like to do?
    - Networking
    - Supporting Workstations
    - Working with Email
    - Security
- What do you not enjoy doing?
    - Coding

We asked Patrick and Jacob "In your view, what is being neglected?"

1. Coding – reporting to make decisions, is all over the place - no central data warehouse, users should not build queries.
2. Strategic Planning

Billy Jones

SQL Developer

Billy has been with Acme Financial for 4 months, he came from InfoDataCommCorp.

What does he love to do?

- SQL Server – strong in SSIS, wants to learn more SSRS
- Also does:
    - A little bit of Oracle.
    - A little bit of Crystal Reports
- He does not do any database design, etc.
- He likes to document

What does he not love to do?

- Billy said this was tough to answer, he "likes it here".

I asked him how IT could be better from his perspective. He gave the following answers:

- Optimize everything
- Get SharePoint – will provide centralized documentation, notes, record of changes, etc.

Brian Davis

Brian is part of the IT Team at Acme Financial. I interviewed him via phone on March 5, 2020 as part of the IT assessment.

What does Brian love to do:

- High scale problem solving
    - Nitty gritty debugging, help others with problems – Find errors
    - Example: SQL processes – they had a lot of SQL processes has reduced by 40%
        - Really improve the process.
    - Also enjoy the coding issues – such as "function returns errors, why?"

- Toolset:
  - Visual Studio 2010 – No TFS
  - SQL Server Bus Intelligence Studio
  - SQL Server Management Studio
  - SSIS
  - SSRS
- Source code control
  - Microsoft Source Safe for Visual
  - SQL Server – With RedGate – but not entire environment, Dialer pieces does not have Dev Set –
    - Need some new servers for a true dev environment, need new VMs

- Lead on dialer side
  - Complex component – Handler development, GUI dev environment - to tweak settings in Dialer. Creates Chat objects, add SMS chat; similar
    - On 3.0 version of dialer, does not do other comm streams well – I4 will work
    - Using third party tools now BoldChat
    - Email is setup on I3.
  - I4 – he went to conference last year and went through demos
  - Last training was on Handler for 2.3.1 in 2009 – everything
    - How does he learn best?
      - Stack Overflow, online articles.
      - For Dialer – read no matter what the relevance
      - SQL Server - Read as needed
- Going to meetings at Acme Financial
  - Business Intelligence meetings – with Adam Smith, Sam Carruth, and a Client Results rep – these are targeted to one client, so they are very tactical.
  - "Anything having to do with improving the business"
  - Been with them 13 years
    - Started as Dialer tech – running manual processes
    - Screen dev for dialer (HTLM, JavaScript, ASP)
    - Lead role for network admin
    - Helping with programmer side
    - Then back to focus on programmer side, focus on SQL and Dialer
      - Brian is the lead on both tools – this may limit the business from having full capabilities in both. I asked Brian about his relative skill level in each of these tools and he answered as follows:
        - He is 6.5/10 on SQL
        - He is 9/10 on dialer
      - Thinks he likes dialer better, but not worked with it enough
      - I asked him how he would answer the question if it were worded: "On a scale of 1 to 5 where 5 is "you could write a book about how it is done at Acme Financial" what is your skill level?" He said he would be a five on both if we asked that question.

What do you not like to do?

- Any web based coding – screens, etc.
  - Classic ASP – most of code is in this.

Skills and Interest Assessments of Team

We conducted a series of self-assessments with the team, in which each member completed an Excel spreadsheet and returned it to us for analysis. The method and results, and recommendations are shown below.

Explanation of Data Collection

1. The areas of data collection correspond to the skills believed needed for the organization. Other organizations may have different areas reflective of their perceived needs. The needs we collected for are based on the following:
    a. Interviews with leadership
    b. A review of the systems and technology in use that require support; e.g. "if you have a Windows server, someone should be able to adequately support it."
    c. Best practices in the industry. For example, leadership may not cite security, and no security tools or procedures are in place, but industry best practices require someone to be responsible for this function.
2. Each team member was given the same Excel spreadsheet and asked to complete the assessment for their personally perceived skill level, using very specific criteria, their interest level, and the percentage of time they spend in that area. All skill and interest responses were on a scale of 1-5.
3. Time responses were on a scale of 0%-100%, where it was expected that the sum of all responses for an individual would be 100%.

Explanation of and Aggregation/Analysis

1. Tables are provided which show a rolled up aggregate of the responses. Areas that are potentially underserved by team are shown in red. These can be seen in appendix 1.
2. Charts are provided
    a. There are 4 Detail charts provided, each representing a major area of need to the organization.
        i. Infrastructure Support – skills related to the network and infrastructure (servers, connectivity, security, etc.)
        ii. App Dev and Support – skills related to the software applications the organization develops or buys and supports.
        iii. Management – The management and leadership of information technology and teams.
        iv. Other – Other necessary tasks to the function, such as purchasing, inventory, and administrative.
    b. There is one summary chart provided, showing:
        i. The overall average skill response, in which a lower overall number indicates low skill levels in the staff for that area.
        ii. The number of responses that are < 3 (considered adequately skilled)
        iii. The average time spent in that area across the staff.
3. The left scale which measures aggregate skills or interests is a variable scale based on the data. Note that values on the scale are different for each area. The number of responses and numerical value of the responses can change the scale. Two respondents to a survey who both report a 5 will have a high end of 10 on this scale; but of each had reported a value 3, the scale would be a maximum of 6.

4. The right scale which measures the average response for skills or interest is fixed at a maximum of 5. Unlike the aggregate, this is the highest value any category can be regardless of the number of responses.
5. The fact that the left scale follows the aggregates data allows a way to see where most skills are concentrated (to evaluate if they are focused on the infrastructure, the app dev area, etc.).
6. The average of skills and interest follow the pattern of the aggregates, this is normal and intended. Where it does not follow should be evaluated as an area that is under skilled or over skilled.

Caveats:

1. The reports and charts are based on the self-assessed skills of the individual respondents. Some may over inflate these values, and some may underinflate. Generally speaking the larger the team (more than 4 is better than 2) the more likely the results can be used. The detailed responses are included to better gauge the accuracy by others.
2. The lack of skills in an area may be completely acceptable for the organization, but this should be discussed both against best practices and within the management team to ensure that the team's skills align to the needs and values of the organization. For example, a lack of the skills and interest in database programming may be consistent with the organization's goals of using off the shelf applications supported by third parties.

Specific Observations:

1. Most of the team's skill is focused on infrastructure support – the aggregate scale here is maxed at 30, vs 25 for application development and support, and 18 for management, and 16 for other.
2. Oddly enough, this is also the area that reflects low interest levels by the team; 8 of 10 functional aspects show an average interest of less than 3.
3. Most time is spent in Application Development and Support (43%), this is almost twice as high as the next category of Infrastructure Support.

Interpretations:

1. Resources tasks are not well focused. Everybody tends to spend time in a lot of areas, as opposed to focus into specific areas. This is not uncommon for a team of this size, but can result in lower than needed results for quality and timeliness, and career growth or satisfaction for the individuals.
2. Personal skills in the Infrastructure area do not match the interest level, which is low. This can be for several reasons, but should be evaluated by follow-up discussion with the team.

Recommendations:

1. The team currently lacks the skills and responsible personnel to manage the team and be a business relationship manager with the rest of the organization. Of particular importance is strategic capabilities to plan with the business leadership for future needs. This generally requires business skills, technology skills, and excellent listening and leadership traits.
    a. This may be solved by promoting someone in the team, and hiring a mentor for them. This could be a very integrated, yet retained skill that focuses on setting up the process for Business-Technology alignment, and mentoring the individual assigned to the role as a new manager.

b. This may also be accomplished by assigning two “functional managers” and lining them with a business leader capable of translating the details between IT and the organizational leadership.
c. Two personnel stand out as potential functional managers, Patrick Mulrooney and Brian Davis. Patrick skill sets represent the infrastructure needs, and Brian’s the development needs. The difficulty of promoting either, and particularly Brian, is that any time spent “managing” will reduce the time spent in current activities. A back fill plan will be necessary.

2. Review the findings with the team and seek honest feedback on roles, time allocated, and what they see as underserved areas. The scope is not team reduction, it is alignment and opportunity to contribute and grow as individuals.

Complete results are shown in Appendix 1.

User Views

We next interviewed several users across the organization to determine how they use and are supported by information technology. This is important because the end-users have the clearest view into the results that IT can obtain and is currently providing to the company. While they may not set the strategic goals of what is to be accomplished, they do have an understanding of what they are able to accomplish.

The following notes were taken.

Sam Falletta

We met with Sam Caruth, the CEO of Acme Financial. Sam shared his thoughts about information technology in the organization, and how this would need to change in the future.

Business Status and Direction

Where do you see the business going in the next few 3 years?

1-2 years from now

Sam said Acme Financial needs to be #1 or #2 in a market or do not play (like Health Records industry)

- Looking for Markets that sell to small, home based business, like Home.Com
    - Future clients may be GM Online Services, Carbonite, etc.
- Industries they would serve:
    - Software as a Service
    - Ecommerce – Best Buy online

See notes from Michael Somebody interview for more on this.

Acme Financial would provide the customer facing services via phone. What Acme Financial does is based on volume of results, so they focus on prospects or companies that value "dollars per transaction." Acme Financial's pricing model is performance based. Where most in the industry charges per hour on time on calls, they charge for a unit of blood per donor they contact in the blood bank segment.

They understand the upfront statistics to actually help with the supply chain. Adam Smith is applying the complexity of the manufacturing model to the service industry, to have more predictive capabilities.

Acme Financial can actually look at analytics from the communication channels: a website, SMS, etc. They want to be platform and tool agnostic. They can package labor in a way that clients receive greater value. The benefit to the client is no capital cost, and no hires to attempt to make their own calls.

5 years

- "Still delivering results"
- Move from current ways of phones to the future means: text, live chat, Internet of Things (IOT) sends signal that "dishwasher broke and needs service call scheduled", alarm systems, etc.
- Pull complaints from Twitter and other social feeds and use that in the process and to improve the results.

Technical Gaps
We discussed technical gaps between the current capabilities and the organization's current and future needs. Sam said that there needs to be a "Translation of business expectations into the technical foundation at the appropriate level for the step." They need a road map to keep the technology and business aligned (BizTechSherpa has a white paper on the subject).
They make big investments every 5 years regardless of the changes in business: some is just a bigger server, some is new capabilities (but the business is also getting more sophisticated and has more needs).

IT needs an executive seat at the table – nobody is in the team that can do that (not referring to Adam – the team in the room). They would like that person to be added. Sam said there is a gap between where they are now and the appropriateness of having a CIO at this point for the size of the organization.

<u>The barrier to getting to market dominance is the technology</u>
Sam said that they "…need to look at interesting technology trends of how we can convert that to something valuable and actionable. There is no place to drop the crazy idea."

On a scale of 1-5 – how well does IT support?
Sam said that when considering the word "support" the result is a 4. But if the question was "how well does IT drive? The answer would be a 2."

Michael Somebody

We met with Michael who oversees the new Customer Success team. We asked various questions about how he uses the data systems, and his experience with the information technology tools and support function.

Business Status and Direction

What does your area do?
Michael is the VP of Customer Success (like VP of Sales). He has been with Acme Financial for 7 month, and came from "Virtual Reality". He likes to use technology, and uses Apple Macs, and has Windows 10 loaded at home.

His focus is growing the SAAS and Ecommerce model of business, not the existing business like the blood bank. The quickest way to this will be customer contact retention, especially in the SAAS model: get paid for getting back lost customers. Michael mentioned Yango, another company that tries to get to 4%, Acme Financial will take that 4% on fee for results model.

What is working well for you in IT?
- Hardware wise he is ok – was able to get latest Microsoft Surface Pro technology.
- He wanted to use as Mac, but they did not want to support it. He is okay with that.

What is not working well for you?
Infrastructure:
- Wireless is useless: he cannot get to network share from conference room, just internet. He can VPN on his wireless data plan to get to these.

- Connectivity to the outside world – thinks they are on Time Warner – the speed degrades throughout the day.

Michael was concerned about the disaster recovery capabilities of the organization. Is there a Disaster Recovery (DR) plan? Is there a failover plan to a different line? Different data center?
The customers he sells to may expect them to have this to be provider.

Feels they are behind on technology curve; this may have been intentional due to budget.

What are your key software applications?

- MS Office
- Outlook and Excel
- Salesforce.Com and Hubspot – Stacey in marketing use these also and Sam

Where do you see the business going in the next 3 years? How will technology help or hinder this?

1. As part of growth, Michael would expect to be over a division with more sales people, including inside sales.
2. They will rely heavily on Salesforce.com as the CRM system, they have made the investment and it works well.
3. They could hire more people outside the area:
    a. Will need to support a small virtual workforce of 5 (all sales).
    b. 5-8 years – people at home doing call center work.
4. I asked about physical placement of sales people to clients:
    a. He does not see a need to be right at the place where prospects or clients are, but would provide more face to face contact.
    b. We asked if Video Conferencing was an option – would be great but has never reached its potential. He mentioned one employee that works remotely gets left out of daily meeting even though she is on the call.

If we gave him everything needed what would be possible?

1. "Great question, tough to answer…everything needed is available now, but inefficient."
2. They struggle with onboarding non-CME personnel like him. He gave an example that he did not know he had a shared folder. Additionally, they are backing up his local files to a network server, and it slows him down.

Other Comments:
Should be better Standard Operating Procedures and training on security, such as "lock machine when leaving desk", etc.

Secure the I3 application – At Michael's last company they were hacked and cost $8,000, then the next month another incident cost them $28,000. The VOIP system was insecure.

How would he rate IT on a scale of 1-5?

- He would rate them a 3 – not because they are not technical enough.
- When it comes to the parts that make money – set up CMA, etc. is a 4.5
- His requests take 7-8 days to get done; this may be getting better with Adam.

James Lasky

We met with James Lasky who is the Director of the Contact Center for Acme Financial. James oversees the Conversational Marketing Experts teams. We asked various questions about how he uses the data systems, and his experience with the information technology tools and support function.

Business Status and Direction

How many users do you have now?

- Management: Nine users in management roles
- 130 on the phones (this position is called "Conversational Marketing Expert")

What are your key software applications?

- Conversational Marketing Experts:
    - Scripter with dialer
    - Web Browser – to access the scheduling software
- James uses:
    - Microsoft Office
    - SQL Server Reporting Services (SSRS)
    - SQL Server Client (SQL Server Management Studio) and writes SQL queries in a Read Only Mode.

Where do you see the business going in the next 3 years? Staffing or business offerings? Locations?

- Growth in efficiency
- Growth in headcount
- New Channels – Outbound and inbound calls, but add chats, 2 way SMS.

What concerns do you have about the capabilities of IT and or the way it is supported?

Team Aspects:

- Skill sets on team vs the needs they are going to. The team is home grown talent and has been together for a long time; James has been here 5 years, and only 2 people have turned over in that period. They may not have the necessary capabilities to go to the next step.
- Breadth of team: there are not enough people. Most glaring is the user interface – SSRS is not always intuitive.

James said that there is not a good ability to design effective and attractive user interfaces (my summary of his words not his). He used several phrases as follows:

- "Let's make it pretty"
- "Smoother on demand flow of information" - need a better way to way to see data from many sources, there is no good way to combine them.

Brian and 3 others do SQL Server Reporting Services (SSRS). James was not sure that SSRS is the best tool for them. He said that the IT team is very good at supporting transactional needs and knowing data to identify issues, and help determine root causes.

James said another need they have is "Predictive analytics", and that D5 is doing project (a company they contracted with) to develop donor segmentation and eventually predictive models that will drive operational strategies and calling/contact tactics. This project is focused initially on leveraging the decade of blood donor behavior data that into predictive models to drive operational efficiencies, and eventually a very compelling go-to-market differentiator in the blood bank space. They are developing the model only, which the in-house developers will incorporate the scoring algorithms into the current SQL processes.

He thinks IT spends a lot of time in integrations with client for customized data feeds.

Some data is in Excel like Revenue Sheet.

Current IT Support Status

What is the response time like of your current IT support function?
Generally appropriate to what I need.

What would you like to see from IT that would make the greatest difference for you and your area?

- Database rebuild
- People being able to run reports – they promote from within and the people who move from phones to supervisor need better access to data.
- On Demand information and reports
- Agents (managers) be wireless – move around. They now have to stay at their booth. The benefit is that they are in the business of managing people, would allow management by walking around.

We asked about the use of the large monitors (TV sets) that are on the wall in the call center area. James said that there were plans to put dashboards on these so that everybody could see the current statistics, but this is on hold at this time to allow Adam to review.

James said that the performance of the systems is not very good, and he thought that perhaps they needed better hardware to get faster processing time.

One thing I noted was that James may be able to run queries that could affect the server which everybody is working on. He writes read-only queries which run against the transactional database as it is being used by other users. We discussed a little bit about a data warehouse, and I asked him what time frames he runs queries against. He runs reports on today's data and before today, so a data warehouse that is loaded overnight would not be effective for him.

James said the data is growing in importance as they move towards a culture of data based analysis.

Have there been any of the following?

Security incidents?
None of significance that he is aware of.

Lost Data?
Not lost, but can't find the data. Examples include Excel files that they have created, etc.

Significant downtime or loss of access?

- *Operations – Yes, but not at fault of internal team, the phone lines were down which obviously affects their ability to work.*
- *Data - no significant loss of access to the Internet due to loss of data lines as far as he knows.*

What was the impact to the business if any of the previous items occurred?
"A couple of hundred hours of production"

Business – IT alignment
How do you strategically plan your information technology function? How do you budget and who helps with that?
Yes, there is one, but he does not create. He does give input to it.

Valerie – Call Center Employee

Met with Valerie in Call Center, she was working Home.Com and Blood Center Calls. Her desktop technology includes a Lenovo Desktop computer, single monitor, keyboard, mouse, PolyCom Phone, and wired headset to phone.

There is no use of "soft phones". Everybody has a physical phone on their desk.

Applications Valerie uses

- Home.com application – Oracle Based with rich client
- Acme Financial Live Stats – Web based ASP applications
- Interactive (now on I3, want to move to I4)
    - Scripter
    - Dialer
- ARC Scheduler comes through this
- She does not use email, and has limited access to web sites

We asked about technology support. Valerie described how a call center user gets help. When they need assistance they snap their fingers. Most snaps are done to get help with a call or caller. She has snapped three times in 3 years for IT needs, and the IT team is very fast to help.

She said that somebody in IT spends the first couple of hours doing updates on workstations; they walk around for this and do 10-15 per day.

Key Issues and Recommendations

After reviewing the findings and discussing internally, and using clarifications and additional information from each person we spoke to, we identified the following key issues that do or will affect the Information Technology function's ability to deliver optimum services.

Detailed Description of Issues

1. Team issues
    a. The information technology team is energetic and engaged in their roles. We determined their skill set to be higher than we expected given the condition of the network and some of the applications. We believe the team was underperforming under previous management and that it is capable of what it is currently doing.
    b. The team is not large enough to fully support the growth and direction of the company. This is true in two ways.
        i. Information technology requires at least nine or 10 different personnel to be available for supporting the ongoing environment. The team has six persons which means none are as well versed as they should be in key areas.
        ii. The size of the organization at over 300 users when compared to the size of the IT team shows a very high ratio of users to support personnel. We would normally expect to see at least four persons focused on network or end-user device support for an organization of this size, especially an organization based upon access to information necessary to deliver client services.
2. Leadership and Planning
    a. There is no formal strategic plan for information technology.
        i. CEO Sam Carruth said that there needs to be a "*Translation of business expectations into the technical foundation at the appropriate level for the step.*" Acme Financial needs a road map to keep the technology and business aligned (BizTechSherpa has a white paper on the subject).
        ii. A written plan, aligned with the business goals for the foreseeable future is required. This plan should cover necessary projects, a technology roadmap, and team makeup to meet business needs. The most notable issue here is the leadership's desire to have more channels of communication with contacts (add texting, chat, etc. to the current phone based approach), but there is no formal plan to implement technology to do this. But secondarily, we did not witness any plan developed to handle the expected growth of the company and its user base.
        iii. There is no formal process to evaluate new ideas - The barrier to getting to market dominance is the technology. Mr. Carruth said Acme Financial "…needs to look at interesting technology trends of how we can convert that to something valuable and actionable. There is no place to drop the crazy idea."
    b. Currently, there is nobody from the IT department that sits in strategic executive planning meetings. This lack of presence affects both sides and slows reaction periods of IT to the business, and does not allow a proactive, value added IT function.

3. Security Issues:
    a. There are 18 domain admin accounts detected; this may be a high for an organization of this size and should be further verified.
    b. Some accounts are set so the password never expires; this is not best practices.
    c. Active directory has numerous accounts which are enabled, but have no activity. At the time of our assessment there were 745 enabled accounts, 326 had been accessed in the previous 30 days. This means there 419 accounts which a person could login to but is not using. This is a security risk.
    d. Insecure ports on the network - our assessment revealed that there are 17 potential insecure listening ports on the network. These could be accessed by somebody outside the organization and used to capture information. These should be secured.
    e. Some servers have no anti-virus protection detected. This should be resolved with a centrally managed, well supported solution.
    f. There is no formal, ongoing review of the status of network and data security.
4. Servers / Server Room
    a. Servers are all physical, with no virtualization tools used ("bare metal"). This has three major impacts:
        i. Recovery if equipment fails would be a significant period. New equipment would have to be procured, and then restored. Recovery periods are measured in days, if not weeks. This is especially true for the database server.
        ii. There is little flexibility with physical servers. Servers are limited to the hardware installed, and upgrades take a significant time period. Virtualization allows upgrades in minutes, and allows moving servers between physical machines.
        iii. More hardware is required, and excess capacity is unused. The organization would need to keep replacing the aging hardware at excessive cost.
    b. The KVM (Keyboard/Video/Mouse) does not work; this would slow down any work or response times when doing work at the console in the server room.
    c. The Exchange server for email is currently on Microsoft Exchange 2007. While this version is still supported by Microsoft through at least 2016, it is two versions behind and software assurance is available and should be used to upgrade. Alternatively office 365 may be considered.
    d. The mission critical application servers for Interactive Dialer (I3) are not being patched from new security threats, bugs, etc.
5. Infrastructure Issues
    a. The wireless network on the first floor does not allow access to corporate network assets, so user are forced to VPN in and access a PowerPoint, etc.
    b. Internet access should be reviewed for better line speed, and improve the failover process.
6. Operating Systems no longer Supported
    a. Server Operating Systems are losing support – There are 10 servers running Windows Server 2008, which Microsoft ended support for effective July 14, 2015 (http://www.microsoft.com/en-us/server-cloud/products/windows-server-2003/). There will be no new security updates for this operating system after this date, and because new threats are always being created, this is a significant security risk. Additionally, the version of the web server used for web based email access (IIS 6) is not PCI compliant, and may preclude the organization from certain business opportunities.

(http://download.microsoft.com/download/D/8/D/D8D30224-9CE4-444F-AC06-7BAFCEADBC59/Windows_Server_2003_Why_You_Should_Get_Current_IDC_Whitepaper.pdf)

   b. There are at least two Windows XP machines still in use ("EUN", "SAMLAPTOP")

7. Backups
   a. The mission critical application, Interactive Dialer (I3) is not being backed up at all.
   b. Backups for other servers are done to disk onsite, and further to a NetSwap Plus device which is removable. This is not taken offsite.
   c. Database backups are a work in progress.
   d. There is no written, or tested disaster recovery plan (though individual backups have been tested). This is essential to the health of the business. Additionally, Michael Somebody (Customer Success team) stated this may be important to some clients who would want a stable, reliable partner for expanded services.
8. Lack of modern tools
   a. There are no remote monitoring tools in place. These tools are designed to find issues in the system and alert team members so they can respond, and further debug.
   b. There are no remote control tools in place. Team members must physically touch machines in order to resolve issue. This reduces efficiency and further stresses a small team.
9. Database Issues
   a. There is no central, modern data warehouse – The organization's leadership has stated that managing by better use of data is essential. Predicative analytics (reference D5 project) and additional data sources / points (e.g social media feeds, Internet of Things (health tracking devices), etc.) are important to this. Additionally, users have numerous requests for ad-hoc reports which must be built by an IT resource. This is slow and expensive, so a self-service portal would be an advantage.
      i. Reporting is currently done from a flat table of data with over 100 columns of data. This approach is antiquated and inflexible, and does not handle changing dimensions (data points that are reported on, but which change rendering comparisons to previous periods impossible or tedious; example: Call Center Teams where personnel change often).
      ii. End users (notably James Lasky) have rights to write and run queries on the production database; this can and usually will lead to a "runaway query" that impacts performance system wide.
   b. Insufficient development environment
      i. There are no development or test systems - All database work is done in the live system. This is a considerable risk and should be resolved by building a development and test environment. Virtualization may help significantly here.
      ii. There is no significant use of version control on code – anybody can change code at any point and overwrite others developer's changes (or their own). A version control system would provide security, rollback capabilities, and change/configuration control.
   c. Nightly database jobs are not well maintained.
      i. There are numerous jobs that run at night to extract data, import data, create reports, etc. almost every morning there is a failed job that must be fixed. Sometimes as a team they make changes, it is not documented, so others are not

aware and do not know why the job failed. They just started using an Excel spreadsheet to track this.

ii. There is no record of what jobs run at night; in other words, the changes being made by scripted jobs are not well known.

d. Reports are not strategically managed

i. There are 450 reports in the system, and many are never used. This is a security risk and presents a significant management problem ("how do we know what a report shows"). This can also lead to erroneous reporting because a report is out of date.

ii. Only recently have reports been parameterized, so that one source file for a report can generate multiple data sets based on a set of parameters (such as start date, end date, client name, etc.). Using parameters reduces report development time and counts, and increases flexibility.

Remediation Projects

The following is improvement initiatives are recommended to address the key issues. This is a prioritized list based on required sequence and impact.

Seq #	Project	Impact	Cost (Estimated)
1	**Backups and disaster recovery** • Install and configure agent based backup solution that backs up all servers. • Backups are done daily and replicated offsite every night to secured datacenter. • Backups will be encrypted during transition and at rest. • Work with the Dialer vendor to come up with a backup and disaster recovery plan and test the plan with them. • Develop overall company disaster recovery plan.	HIGH • Current backups is not fully backing up all servers. Mission critical dialer not being backed up at all. • Current recovery will be difficult and take a long time (days to weeks). • Backups will be encrypted for security in the off-site process.	Total: $19,800 Services: $6,400 Hardware: $12,000 Software: $1,400 Other: Monthly fees of $525 to cover backup software and storage in BizTechSherpa's data center and cold servers for business resumption.

2	**New Infrastructure Platform** Use Microsoft Hyper-V • Install and configure new Hyper-V servers. • Install and configure replication server and enable replication. • Install new servers for Interactive Dialer and work with vendor to migrate to the new system. • Do Physical to Virtual conversions of existing servers • Migrate Physical Servers to Hyper-V • Implement performance SSD disks for SQL. The proposed hardware for this is shown in Appendix 2.	HIGH • Currently infrastructure design has poor performance and high risk • Reduce hardware and long term costs associated with that (more efficient use of hardware). • A much more flexible environment for testing, performance improvements. • Much improved disaster recovery capabilities, and adds five-minute replication server onsite.	Total: $ 83,600 Services: $20,000 Hardware: $61,500 Software: $2,100 Requires 3 new Dell 730XD, 3 Windows server standard licenses that supports 2 processors each. Does not include licensing for guests.
3	**Improve security of network** • PCI Compliance review • Implement BizTechSherpa Client safety data solution • Security Policies and provide end user training on best practices. • Implement additional security on network devices and change passwords.	HIGH • This is foundational for network security. • Prevents new breed of viruses and malware that anti-virus alone can't stop. • Secures systems and users to prevent viruses and malware. • Ensures client data is protected • Secure entry points from attack	Total: $4,800 + Ongoing software subscriptions Services: $4,800 Hardware: $0 Software: $ approximately 10 per end user PC per month.

4	**Active Directory Security** • Upgrade Active Directory to the latest version • Secure (Clean up groups, users computers) • Review Domain Admin memberships and implement best practices for admin accounts. • Implement best practices • Group Policy review, cleanup and best practices implementation.	HIGH • Tightens down internal security to prevent someone from high level compromises of network and data. • Simplifies and cleans up network.	Total: $4,000 Services: $4,000 Hardware: $0 Software: $0
5	**Office 365 Migration** • Migrate email to Office 365 • Reconfigure clients PCs and devices to connect to new system in cloud • Assumes 200 email accounts	MEDIUM • Save costs on email infrastructure • Higher uptime • Allow IT department to focus time on other critical systems.	Total: $19,200 + Migration software and ongoing subscription Services: $19,200 Hardware: $0 Software: $4.00 per user mailbox per month on Office 365. $1,500 Email Migration tools
6	**Server Network Consolidation** • Clean up and retire servers that are not being used • Consolidate applications and services into fewer servers • Retire Windows Server 2003 which is near end of life. Must work with Interactive to do this task (part of I3->I4 Migration?).	MEDIUM • Cleans up and simplifies the network • Reduces licensing and support costs • This is a strategic project to look at the health of the servers and improve that.	Total: $7,500 Services: $7,500 Hardware: $0 Software: $0

7	**SQL Database design review and implementation.** • Create official Dev testing environment for testing upgrades and program changes. Review application version control. • Create a data warehouse on separate SQL server to improve reporting speeds and to stop reporting on production database. • Review database maintenance and backup jobs and implement recommended changes.	MEDIUM • Allows for faster production environment. • Better and faster reporting • Allows for quicker recovery time for applications • Best practices for application upgrades and development.	Total: $19,200 Services: $19,200 Hardware: $0 Software: $0 Possible new SQL server licenses will be required. Build of true data warehouse not estimated here.
8	**QuickBooks Migration** • Migrate PC running QuickBooks from Windows XP to Windows 7. • Upgrade QuickBooks or migrate to QuickBooks online. • Review backups and disaster recovery plan for accounting data. This may also require: • New PC Hardware includes Windows 7	MEDIUM • Windows XP is a significant security, performance, and support problem. • Systems will be much more secure by just getting the upgrade • Systems will be much more reliable (less viruses or malware, better hardware support) • QuickBooks will be running on the latest version.	Total: $3,300 Services: $2,600 Hardware: $700 Software: $0
10	**Wireless** • Review current wireless implementation and do site survey • Implement fully managed wireless system with guest access.	MEDIUM • Reliable and secure wireless available for everyone in the building. • Reduce frustration and increase productivity of mobile users and smart devices.	Total: $6,000 Services: $6,000 Hardware: Unknown Software: $0

11	**Review data lines and phone system costs** • Identify what the services are • Price shop with other vendors • Advise on best value and use of lines	LOW • Improved reliability with redundancy or mode of delivery. • Improved speed • Potential cost savings	Total: $2,560 Services: $2,560 Hardware: $0 Software: $0

Appendix 1 – IT Team Skills and Interest Results

Area/Role/Skill						
	Skill Level			Interest		% of Time
Infrastructure Support	**Aggregate**	**Avg**	**# >= 3**	**Aggregate**	**Avg**	**Aggregate**
User Support (responding to user requests)	24	4.00	6	17	2.83	48%
Client Management (PCs, Operating system, mobile, etc.)	22	3.67	4	18	3.00	20%
Server Management (patching, Build, upgrades, etc.)	17	2.83	3	17	2.83	20%
Database Management (Server mgmt, backups, security, etc.)	18	3.00	4	19	3.17	26%
Network Management (switches, traffic analysis, WAPs, etc.)	15	2.50	2	17	2.83	14%
User Management (create, delete accounts)	20	3.33	4	15	2.50	12%
Security - Manage User Accounts and Rights, Groups, etc.)	18	3.00	4	17	2.83	35%
Security - Manage perimeter security, firewalls, etc.	14	2.33	2	16	2.67	33%
Backups	15	2.50	3	15	2.50	6%
Hardware Maintenance	17	2.83	4	16	2.67	11%

	Skill Level			Interest		% of Time
Application Development and Support	**Aggregate**	**Avg**	**# >= 3**	**Aggregate**	**Avg**	**Aggregate**
Application Design	18	3.00	4	18	3.00	20%
Database Coding (SQL Scripts, etc.)	18	3.00	4	20	3.33	120%

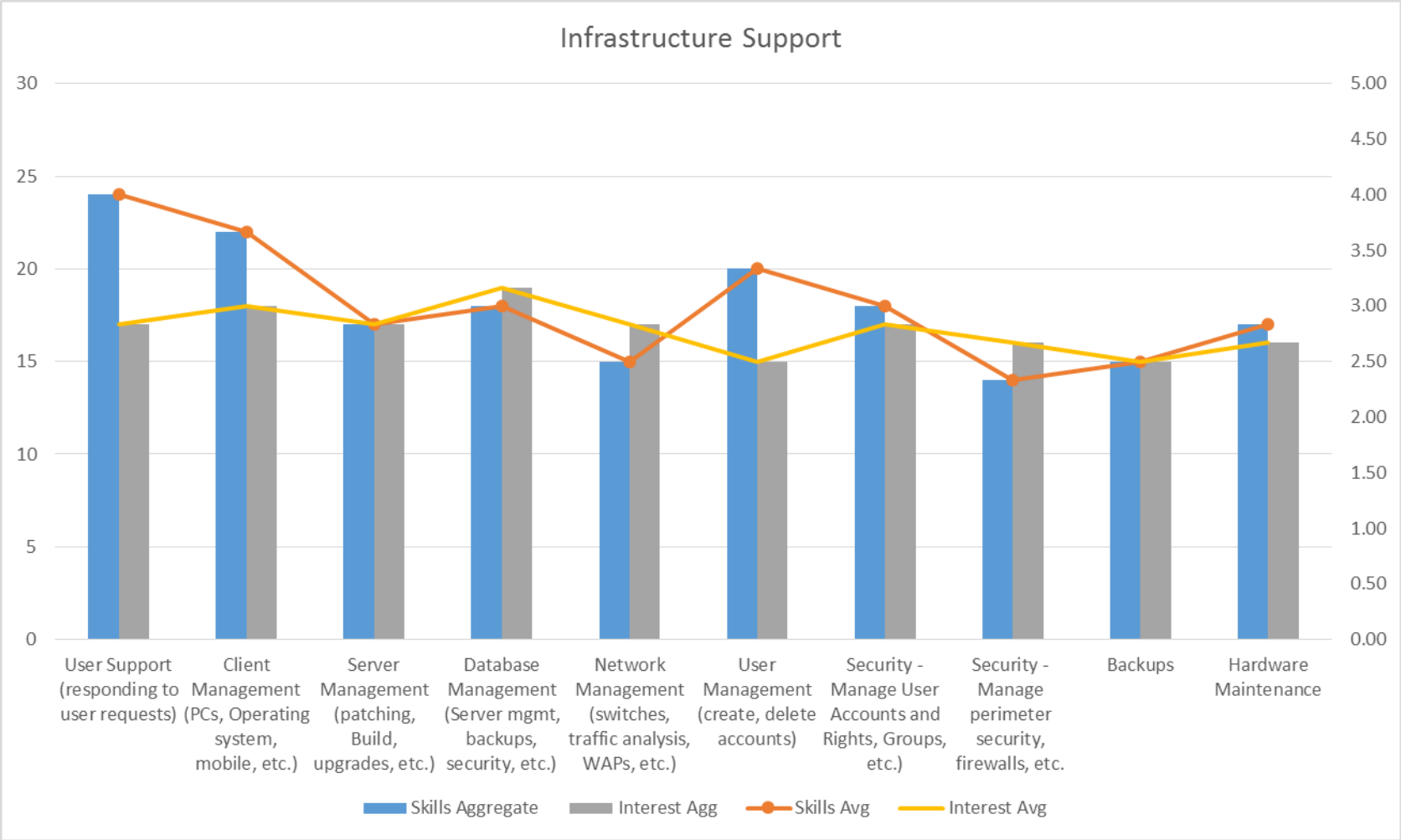
UI or Middleware coding (C#, HTML, Etc.)	17	2.83	4	17	2.83	33%
Report Development	18	3.00	4	19	3.17	75%
Extract/Import Development (SSIS, ETL, Scripts, etc.)	16	2.67	3	19	3.17	45%
Testing	20	3.33	5	18	3.00	17%
Documentation	19	3.17	3	14	2.33	19%
User Support for Applications (tickets, training, etc.)	19	3.17	4	18	3.00	15%

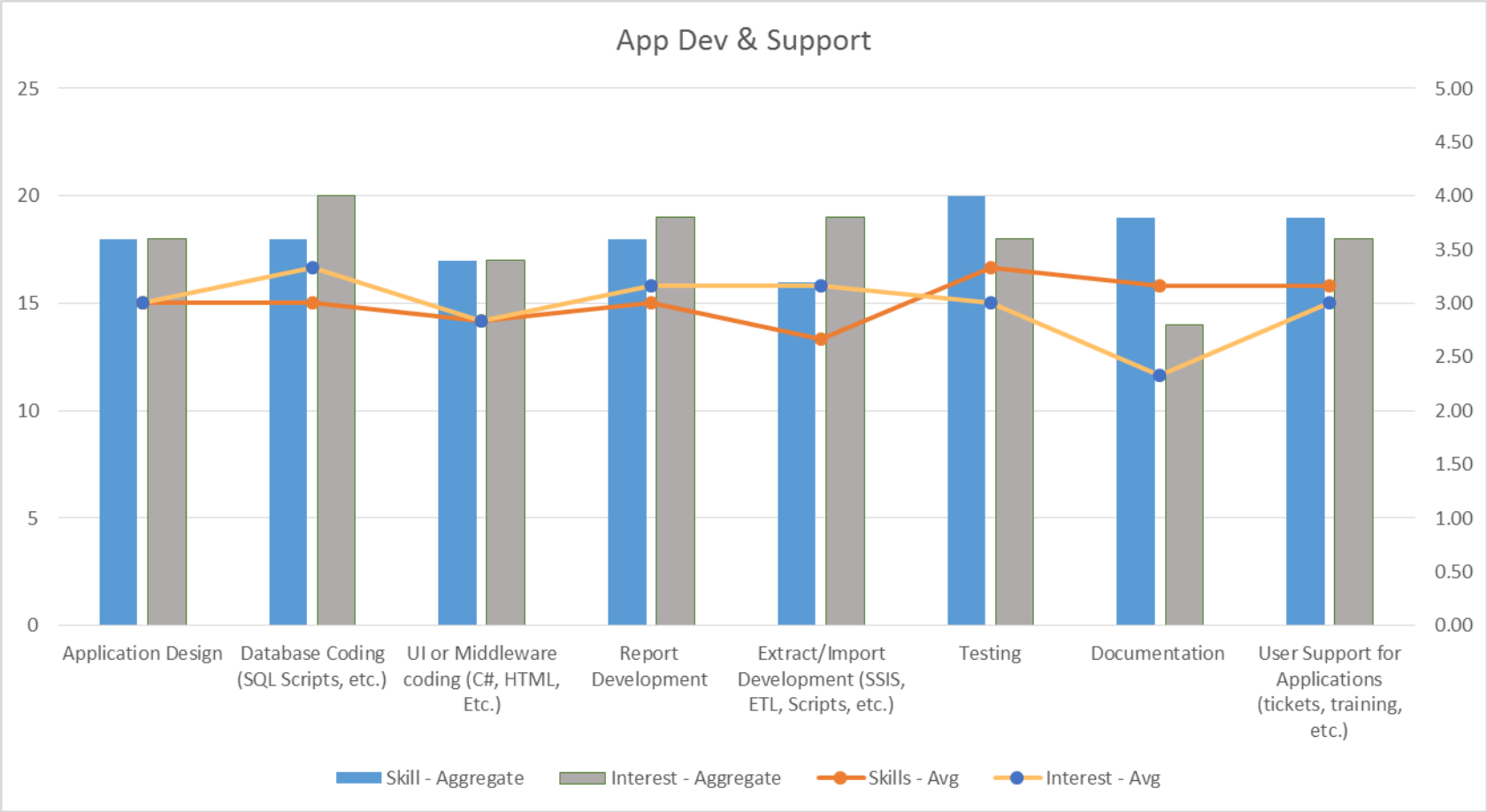
	Skill Level			Interest		% of Time
Management	**Aggregate**	**Avg**	**# >= 3**	**Aggregate**	**Avg**	**Aggregate**
IT Strategy (develop long term technology and team plans)	14	2.33	3	16	2.67	7%
Team Management (Planning, Reviews, Recruiting)	13	2.17	2	17	2.83	3%
Financial Management (Budgets, tracking, etc.)	11	1.83	1	13	2.17	4%
Business-IT Relationship Mgmt (manage expectations, etc.)	12	2.00	3	15	2.50	2%
Project Management	15	2.50	4	16	2.67	12%
Vendor Management	11	1.83	1	12	2.00	4%

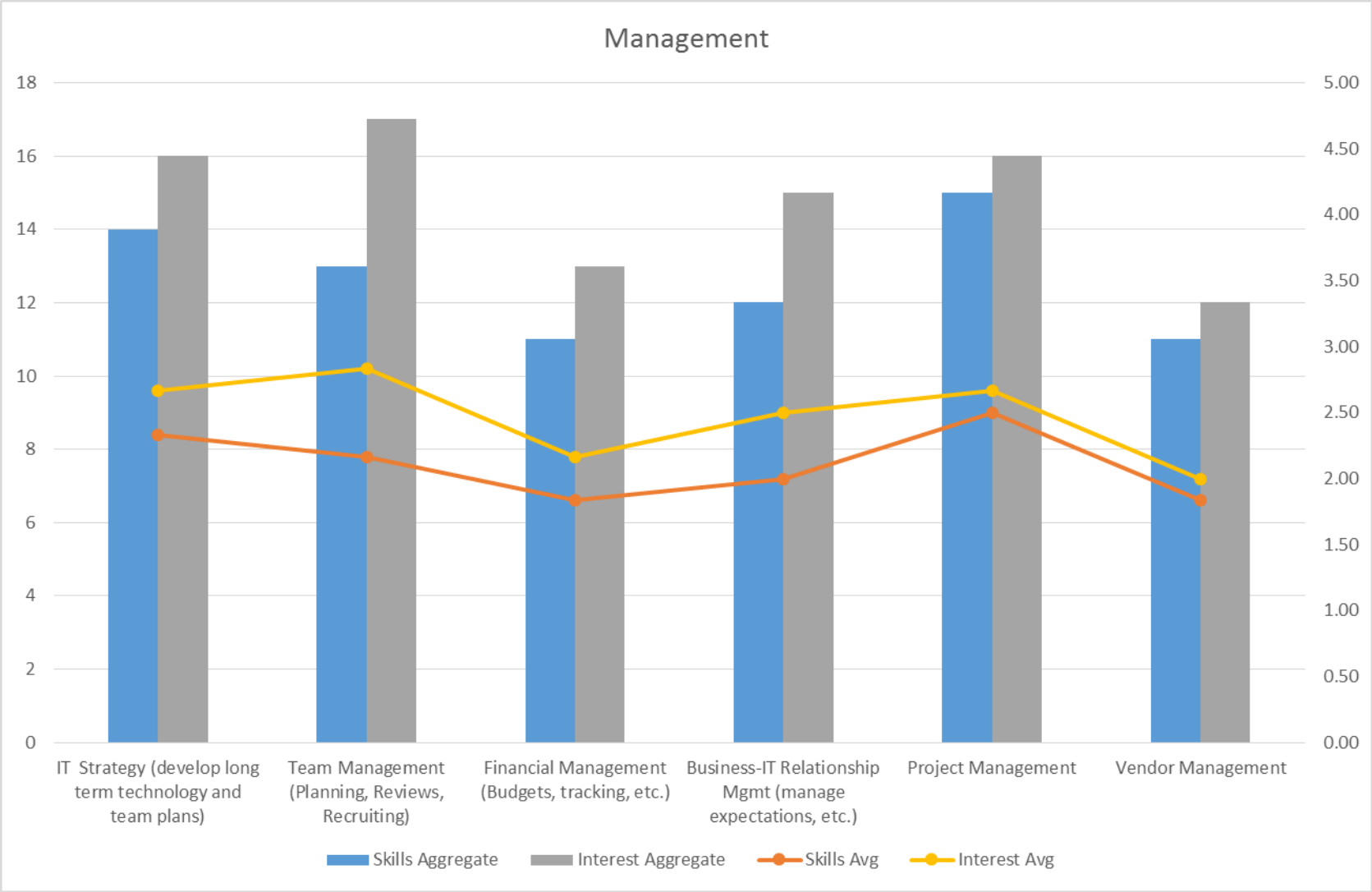
	Skill Level			Interest		% of Time
Other	**Aggregate**	**Avg**	**# >= 3**	**Aggregate**	**Avg**	**Aggregate**
Purchasing	15	2.50	4	12	2.00	2%
Inventory Control	14	2.33	3	10	1.67	1%
Administrative Support (scheduling, assisting, etc.)	12	2.00	2	11	1.83	1%

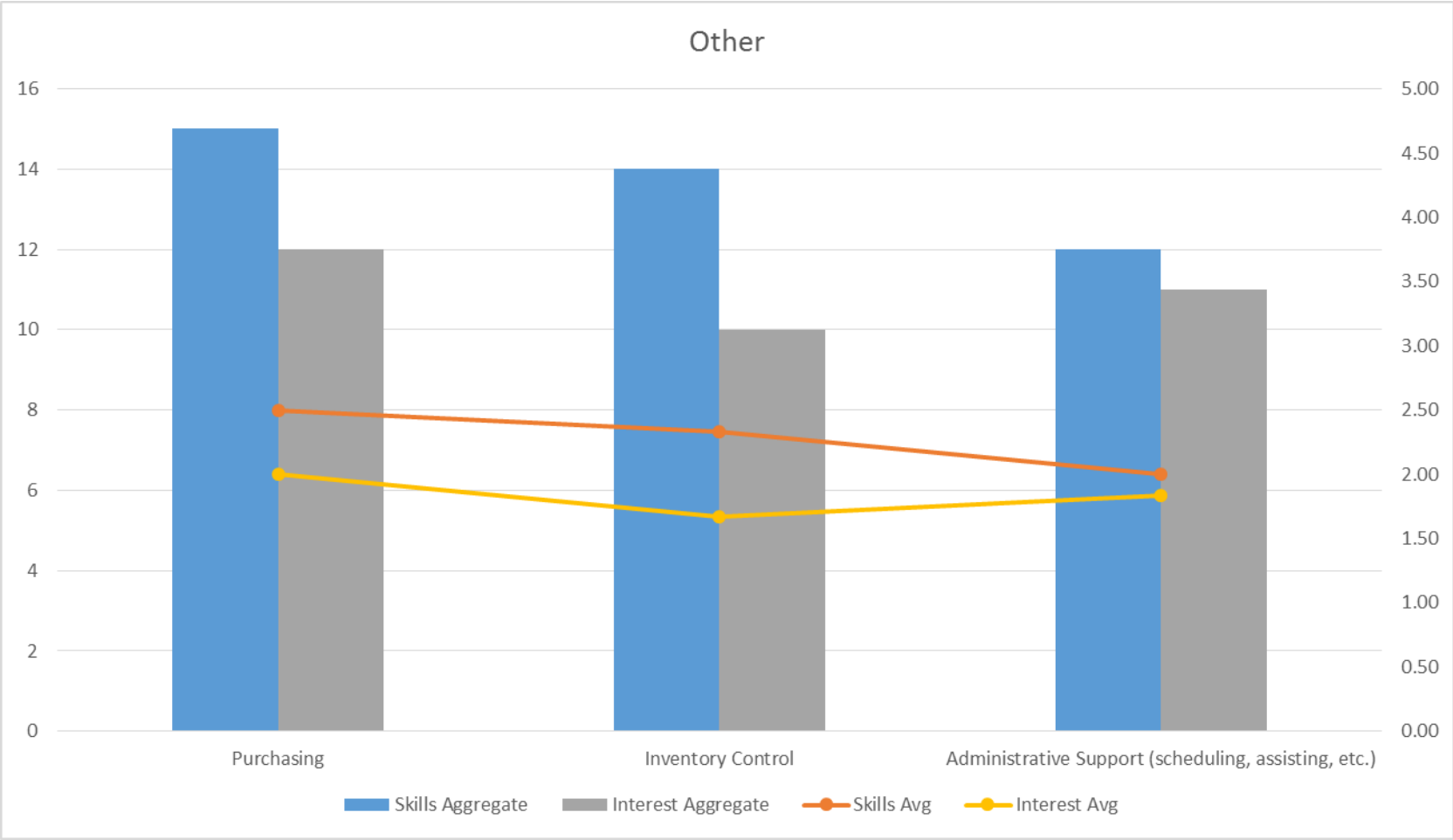
Summary of All Categories

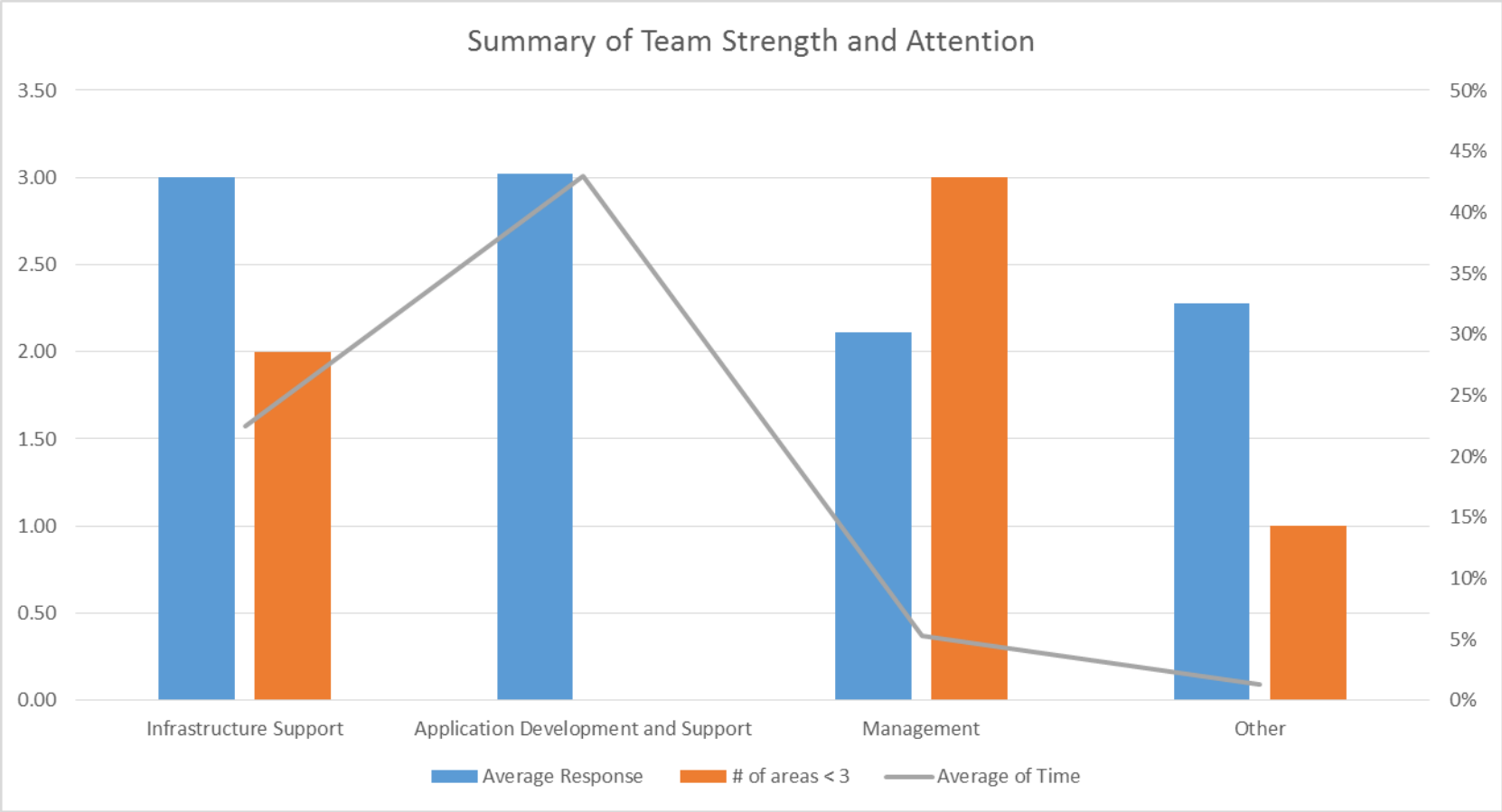
Area	Average Response	# of areas < 3	Average of Time
Infrastructure Support	3.00	2	23%
Application Development and Support	3.02	0	43%
Management	2.11	3	5%
Other	2.28	1	1%











Appendix 2 – Proposed Architecture