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ISBN-13: 978-1-931971-81-2
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23 Mark Burgess and Carolyn Rowland A Sysadmin's Guide to Navigating the Business World

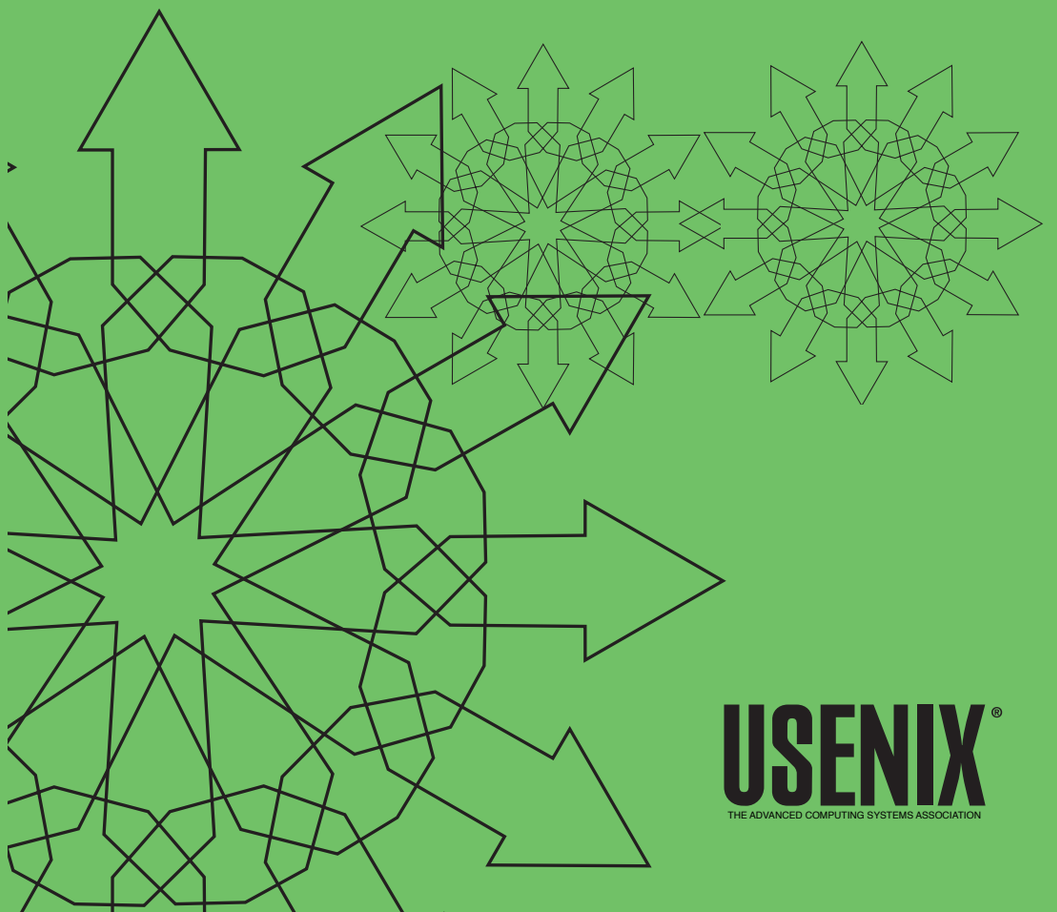
23

Short Topics in
System Administration

Jane-Ellen Long, Series Editor

A Sysadmin's Guide to Navigating the Business World

Mark Burgess and Carolyn Rowland



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Published by the USENIX Association
2010

ISBN 978-1-931971-81-2

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The USENIX Association
2560 Ninth Street, Suite 215
Berkeley, CA USA 94710

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Contents

Acknowledgments

This book benefitted from the input of a number of people on both sides of the North Atlantic. Mark would like to thank Claudio Bartolini, Anita Bilicka, Thomas Ryd, Jacques Sauvé, and Bob Whirley for helpful discussions. Carolyn would like to thank Kirk Dohne, David Pullman, Steve Barber, and Andrew Mundy for sharing their real-world experiences and suggestions to improve the message of this book. None of these innocents is responsible for errors or omissions by the authors.

Preface

This is a book about how system administrators can better support the strategic goals of the workplace. Aligning IT processes and infrastructure with "business" is a topic that has been largely ignored in the past, and we have set out to correct that.

Achieving business alignment should be the desired end-state both for system administrator and for the business for which they work. Getting there is a challenge for sysadmins, because they are often viewed as technicians, not strategic advisers. They need to think like business leaders, communicate their value and impact in a way that business leaders will understand, and establish a consistent value-driven model for IT within the organization. In essence, system administration must think strategically to bridge the gap.

We believe system administration is more than just the technical skills one maintains. There are those soft skills such as time management, project management, and the ability to document that separate the techie from the fully mature system administrator. The ability to create a partnership with business leaders should be added to that list.

We have highlighted some basic promises you can make to yourself as you read through the book. These promises are collected in an appendix for easy reference at the end of the book.

We hope this book provides you with useful insight into the world of business and some new tools for your system administration toolbox.

Mark Burgess
Carolyn Rowland
August 2010

1. The Problem

1.1 A Tale of Two Worlds

According to industry analysts, business leaders typically view IT services as a cost center or a sump into which funds disappear; they fail to see the strategic potential of IT services as a tool to support business growth or new opportunities.

Why? Are business people behind the times? Are they incapable of understanding simple technology? Or have IT departments failed to keep them abreast of the cost to implement today's technologies in the business world? As with most failures of communication, the problem lies on both sides.

Consider the following dialog: A business executive sees a business need and requests help from the IT department. Instead of saying, "I really need an email system that lets me do X," the executive says, "You must install product XYZ that my buddy recommended." The system administrator might respond, "It's impossible to support that product in this environment because it is insecure and not compatible with our other systems." The two parties are communicating on different planes.

There is a disconnect between technical services and business's perceived need; neither part gets what they want, due to poor communication. It demonstrates a lack of something very important in business: a *trusted partner* relationship. With a lack of trust comes lack of respect and low status, both for IT in the eyes of business, and for business in the eyes of the IT department.

1.2 Business Alignment Research

The concept of business alignment is about addressing this disconnect. Hewlett-Packard researchers originally brought this issue to the fore in the mid-2000s, asking, Can we find ways to manage systems to make them align better with business goals? Is there any science here?

This sparked a number of conferences called BDIM, or Business Driven IT Management, which proposed various ideas about improving efficiency in a Web-based e-commerce kind of environment. Two workshops were hosted at the USENIX Large Installation System Administration (LISA) conference to hear ideas directly from system administrators. The conclusions were pretty clear [1]:

- No technical issues or impediments stood in the way of business alignment.
- There is a need to improve communication between system administration and management.
- System administrators are not included in the decision-making processes, but are sometimes asked for advice on purchasing.

- System administration needs upward visibility.

Strikingly, these were all human management issues; nothing technical was considered central to the issue. The results pointed to the lack of a trusted relationship between business and IT. As a researcher, one might find this conclusion to be unsatisfactory. We are technical people, seeking technical explanations, but there is no such direct explanation. Instead, one must go a little deeper to see the science behind this phenomenon. We will do that in Chapter 3.

1.3 The IT Landscape Today

First, we need to set the scene for the rest of the book. Today's IT environment contributes to the business alignment problem in several ways. If we know the enablers that keep us in our current rut, then we have a chance to diffuse them as we attempt to change our situation for the better.

1.3.1 From System Administration to IT Support

Technology has improved steadily over the past 20 years, while system administration has basically stood still. We have been involved in the profession for most of this time, including attendance at the USENIX LISA conference,[1] and have seen very little business development in the field.

This is an extraordinary situation. Nearly all major industries have changed significantly over the same period, but not IT management? One explanation is that IT management has not been an industry; it has been an underground sweatshop endeavor, and thus there has been little impetus to bring about change from above and little knowledge of what to change from below.

This might seem a surprising assertion. System administrators have certainly retooled during this time, but many continue to use the same methods, and display largely the same attitudes in IT systems management.[2]

An example is the cultural division in IT support itself. Today, the term "system administration" barely exists in the industry, where once it held some meaning, at least to industry insiders. Today the term is heard within the system administration sub-culture but not much outside of that community. This suggests a marginalization of the UNIX administration community, once considered mysterious wizards but now reduced to IT janitors. Business often does not differentiate between IT support and system administration; it is all one and the same to them. More business-oriented IT, such as Microsoft Windows, has changed our perception of IT through such means as technical certifications aimed to help business hire qualified people. Windows supported visible business needs, while UNIX was left behind to support specialized research and techies.

System administration has been re-branded "IT services," and support personnel are "IT workers." Business-driven initiatives such as the Information Technology Infrastructure Library (ITIL) are partly responsible for (and certainly symptomatic of) this re-brand-

1. The scene was surveyed in the anniversary edition of selected papers in 2001 [2]. It was noted then that there was little progress, and there has been no significant change since then.

2. It would be fascinating to conduct an anthropological study of this. Here we are relying mainly on our combined experience from the early 1990s onwards.

ing. That means the term "system administration" or "system administrator" has not just failed to make an impact on business; it is actually meaningless in the business world.

More importantly, we want to address a failure of methodology that should be a concern for both business and IT.

1.3.2 Project-Oriented Thinking

IT operations have become project-oriented. Many organizations lock everything down and abhor change. When change must occur, organizations initiate a project to change in one fell swoop. ITIL, for instance, assumes that change must be managed in projects, governed by releases with version numbers and extensive preparation. This has been termed a "best practice"[3, 4], but it is mostly a compendium of *existing* practice.

Statistics indicate that as much as 50% of all IT projects are considered failures [5, 6, 7]. This suggests that, in spite of industry tools such as ITIL, a different approach to change management is needed. The reason is not hard to see. Project launches (often called roll-outs) are special events, so there is no rehearsal or opportunity to develop best practices. People are wired to deal with routine processes where mistakes can be managed or avoided. Projects often bite off too much in one go, have unrealistic expectations and unclear goals. How can you alter a large project in midstream when requirements or technology changes, and how does that impact the project life-cycle and deadlines? An organization commonly has much riding on the success of major projects. What happens when they fail?

Consider the following analogy: On which of these would you choose to travel?

- A rocket: an expensive and untried project, consisting of 90% overhead to deliver a 10% payload, with a many-month planning phase, multiple prototypes, and an unstable launch date, that explodes changes into the world in a single high-risk event that cannot be undone. Once it has exploded, there is no turning back: Make a mistake and you have to pick up the pieces and start planning the next rocket. This is our caricature of IT management today.
- A 747: a reliable, reusable multipurpose vehicle which can be adapted and altered continuously, turned around in an hour, used to carry a variety of payloads to any destination, and adjusted on the fly. This is where IT services need to be for business.

As a technical person, you might prefer to work on the rocket project, because it challenges your skill and creativity and it seems to provide job security,[3] but most people do not get rich by marketing a rocket. The rocket approach in the IT industry contributes to negative attitudes toward the IT department by business leaders, who are focused on the bottom line.

Frameworks for industry-labelled best practices—e.g., ITIL, Control Objectives for Information and Related Technology (COBIT), enhanced Telecom Operations Map (eTOM)—have been brought in to try to cope with high-risk habits by adding layers of management overhead to the mix, rather than changing the root cause of the failures. This is an attempt by business to rein in IT services using common business processes

3. Everyone wants to be special and appreciated. This often leads to defending your specialization, whereas engaging others and sharing knowledge actually makes you more appreciated and valuable.

and language, but business leaders trying to solve the problem without including the IT department further the alignment problem. It is typical of a broader issue: People generally fear change and will fight to the last to defend something broken rather than risk the unknown. These issues contribute to the high percentage of failing projects.

1.3.3 Packaging and Productization

Engineers do not often think of business colleagues as innovators, but business entrepreneurs contribute an important vision: simplicity and confidence-building repeatability. Without these qualities, businesses would fail.[4]

Two business words that capture this idea are "packaging" and "productization." The latter describes the attempt to turn the work of a minority of experts into a turn-key or packaged solution that could be sold to the mass market. Bringing innovation to the masses removes the need for wizards and specialists, by putting technology in the hands of non-experts.

Every generation of engineers has believed this to be impossible, and has seen this as a threat to their livelihood. How could complex machines such as cars, airplanes, and computers possibly be used by mere end users? Yet this is the genius of business entrepreneurs: to make this transformation from rocket to 747.

Packaging has been on the rise in IT since the 1990s. It began with packaging of software, taking us from individual media to à la carte menus of choice. Virtualization is the repackaging of hardware resources in a plug-and-play manner. Cloud Computing is using virtualization to sell machine capacity in a pluggable commodity fashion—as a 747 instead of as a rocket. Pervasive computing is packaging computers into everyday devices such as appliances and cars. People do not always know when they are using computers anymore.

Productization is about business, because the technically minded rarely simplify their efforts for a wide audience unless there is a business imperative.

1.3.4 Pervasive Computing Changes the Game

The growth of pervasive computing has changed the IT landscape. Ten or more years ago the system administrator was managing servers in a single room with clients clustered within the organization. Today customers demand full capabilities on home computers, laptops, smart phones, and tablets. There are computers in electronic books, gaming consoles, and cars. The work day is no longer restricted to Monday through Friday, 8:00–5:00; people now work all hours of the day and night. Customers are working in multiple time zones, at home, at the airport, in hotels, at conferences and meetings, even at their child's football practice. People demand wireless access to the Internet everywhere they go. Customers want the same level of access, security, and usability from wherever they are, whenever they need it, and on whatever device they happen to be using. The level of service expected by customers will drive the need for business competitiveness, bringing new challenges and the need for change. But there is one major thing standing in the way of this.

4. If you build rockets, you figure everything out anew each time you do something. It takes time and the result is unpredictable. The 747 engineers plug in standard parts using standard procedures.

1.3.5 Break, Fix, Break, Fix, Repeat

Despite available tools and technology, IT departments still spend much of their time firefighting. Some firefighting is normal and necessary, but too much firefighting indicates a lack of forward thinking, that the system itself is fundamentally broken. It leads to burnout of IT personnel and impedes innovation.

An over-dependence on firefighting is commonly caused by one or more factors:

- Lack of documentation
- Lack of knowledge
- Lack of automation for simple or repeatable processes

In some cases, firefighting is a comfort zone for born problem-solvers, like doing the crossword or sudoku each day. They place this comfortable pattern ahead of business needs.

How can the IT department innovate for the business if it is trapped in a cycle of constant firefighting? Both parties must break the cycle to move forward.

1.3.6 All the Responsibility but None of the Control

System administrators often have responsibility for IT without any of the control over budget or decision-making. Management, on the other hand, make decisions that affect system administrators often without any prior consultation and without knowledge of day-to-day constraints and realities.

Organizational leaders will commonly trust an outside consultant over their own in-house system administrators, because the in-house people are viewed as mere techies without business understanding—perhaps with good reason, as they seek out fires to avoid facing strategic initiatives. This can have a negative impact on the system administrator when business leaders make decisions in the vein of efficiencies (e.g., cost savings) without involving the IT department. The ideas behind these decisions often come from vendors who are wily at describing the impact of their solution.[5]

One of our goals in this book is to understand how to build a symbiotic relationship between business and IT so that these mistakes will not be repeated and both sides of the IT/business equation will see the value in mutual cooperation.

1.4 The Human Condition in Stereotypes

Stereotypes can act as a mirror, allowing for surprising self-discovery. These semi-comical characterizations are paraphrased from a survey that we conducted [8]. They might make us smile, but ask yourself: Do you recognize these types; do you see yourself?

- **Business or institutional leader**
  Talks in unnecessarily exaggerated superlatives. Wants to be in control, but oversimplifies and is detached from the reality of doing. Barks orders with too little knowledge about the day-to-day, but wants to change it anyway. Depends entirely

5. Business leaders make decisions based on their own trusted sources such as vendor or consultant recommendations, golf partners, trade magazines, getting involved in issues like centralize vs. decentralize, insource vs. outsource, Commercial Off the Shelf software (COTS) vs. Free/Libre Open Source Software (FLOSS).

on the technical skills of others. Thinks research and development are only useful for marketing. Pressures technical people to act quickly, sometimes overstepping the bounds of their competence in making recommendations. Puts up barriers to others' progress by overseeing all decisions and resources.

- **IT personnel, system administrators**
  Incomprehensible and evasive. Fuss over unimportant details, seeking perfection that never comes, and keeping business waiting. Like what they know above what is best. Lock down more than is necessary and will not share responsibility. Get in the way of developers who need to push the boundaries. Irritate leaders who want agility and continuous improvement. See the IT system as their baby. Frustrated programmers, scripting and doing impromptu programming, putting personal activities ahead of business interests. Constantly fighting trivial fires because they believe no one else is able to fix things properly.
- **Researchers and developers**
  Used to ruling their own environment, and would rather spend time reinventing a wheel than delegating or asking for help—but then need to be rescued from self-made messes, grabbing time from IT staff that could have been avoided. Strongly opinionated, and innovative; do not want to be locked down into a dead environment that does not support innovation and change. Refuse to standardize for efficiency. Ask for integration with new software and hardware, stretching support resources. The instinct is to fight against the flow rather than use it to advantage. This can get in the way of a larger order and business efficiency. Compliance is a four-letter word.
- **Other end users**
  They are our customers. A burden on resources by opening many tickets. Do not like when we reprioritize their tickets.

The stereotypes are deliberately harsh, and may or may not be accurate representations of these groups, but they share a common feature that is noteworthy. In each case, the stereotypes are accused of getting in people's way: hindering instead of helping.

As authors, we have been all these people at different times and can see the dilemma from all sides. Like it or not, it is business units (the ones who generate money) that drive the mission for the enterprise. That makes business priorities a matter of survival. Business leaders set the direction for the entire organization. They are also the arbiters of status and rank.

1.5 Whose Responsibility Is It to Align?

What about getting business to align with IT instead? In general, business leaders are too busy steering the organization to micromanage each unit within the organization. This is why business executives depend upon trusted people to manage each of these units and provide the necessary feedback to allow executive decision-making. IT is still relatively new and has crept in the back door, so many organizations are behind in taking addressing this gap.

Leadership usually comes from above, but not always. For instance, Machiavelli made a career out of leading from below by being a trusted adviser [9]. Analysis and initiative usually come from domain experts—from the bottom up.

To be viewed as valuable members of the business, IT departments need to be visible in a positive way and develop an ongoing relationship that communicates visible return on investment. One side effect of this is that aligning better could bring career advancement opportunities, because once you are seen as a valuable team player, business is going to want you on their team.

1.6 Is There Any Science Here?

We are not selling anything in this book. We expect our audience to be intelligent and critical; thus, we do not want to present opinions and stories without a chain of reasoning to justify them. It turns out that there is a basic science to explain the story we present here [10, 11, 12, 13]:

- There are empirical observations of IT from the technical and managerial levels [14, 15].
- There are principles that summarize years of such experiences as rules of thumb [11, 16].
- There is methodology that allows us to reason about cause and effect [12, 17].

We hope to explain some of these points in the coming chapters, and use them to motivate the advancement of the state of the art for IT. This short book is thus part science, part engineering, and part personal commentary from our own experiences as researchers, technicians, and managers.

1.7 The Goal of the Book

In this book, we want encourage IT personnel to think with a mind for business. Like it or not, business interests supersede IT services, as they provide the sustaining reason for all jobs in the organization. Business, on the other hand, cannot exist without an infrastructure, preferably an invisible one. Selling the importance of that infrastructure and its maintainers requires education and visibility.

It is a leader's job to avoid getting mired in details and to take infrastructure for granted. However, a smart leader never forgets about the infrastructure. Sometimes this requires help and support from trusted partners who are closer to it.

This is one way in which IT personnel can take System Administration or IT management to the next level. Our message is to encourage a strong working relationship with business, and in the coming chapters we hope to explain why this is the only effective answer.

To Do

- Assess your role in the organization: How do you contribute to its core goals?
- Step into your leaders' shoes; try to imagine the business from their perspective.

- See if you can write down the outcome and impact of what you are going to do tomorrow.
- See if you can put into words what value IT has now and what value it could have tomorrow. Start from the premise that it is not obvious, e.g., by explaining it to a Martian who sells water.
- Write down what you see as the main barriers to the success of IT in your organization. Think of your specific sector of industry and the challenges you face trying to be effective.

2. The Elements of Business

In this chapter we discuss some of the basics of how businesses work. The same principles apply quite well to both private and public institutions with only minor differences; today governments and public institutions use business-speak to define their services and customers.

2.1 Predictability vs. Agility: Can They Co-Exist?

Business brings predictability to products and services so that customers, leaders, and end users can form dependable expectations. But business also requires agility in change so that it can adapt to market trends and correct mistakes.

Predictability and productization motivate the following:

- Standardization of procedures—"best practices" that remove the need for rethinking known issues.
- Logistics of production and inventory—making sure that everyone has what they need to develop the product.
- Minimizing risks and uncertainties—bringing predictability to the operation. This leads to product consistency and quality, and trustworthiness with stakeholders.

Agility, on the other hand, motivates the following:

- Cost control—identification of relevant costs and scales of operation; understanding how to cope with the magnitude of the problem.
- Time management—treating time as a resource.
- Strategic thinking—where to go next, how to get to where the business needs to be, improving competitiveness.

Predictable services have become the packaged concept for all IT activity today. A service is a simple wrapper and interface between clients (customers) and servers (business) that can be optimized and made predictable. Service management has become a popular paradigm in IT too, since the ITIL/BS 15000 [18] and now ISO 20000 language-of-service provision and Service Level Agreements (SLAs). See also the work in the Telemanagement Forum with eTOM and DEN-ng [19, 20].

However, business also needs to generate new ideas. These focus areas seem at odds with one another. They are related, as innovation is needed to develop a marketable product or service. Paradoxically, leaders often forget about the importance of innovation as soon as they have found a pattern for scaling up sales. Research and development are then seen as a burden and a cost center, just like the IT department.

The key to balancing the two is to rehearse change and continuous improvement frequently.

Principle 1 (Practice makes perfect) *In a process of continuous improvement, you review, adapt, and improve all the time, making agility and predictability part of the same goal.*

2.2 Who's Who in Business

In business there are many roles that contribute to the health of the organization. Everyone should be aware of their organization's structure and how the main players interact. To align IT to business, we are not necessarily aiming for a one-to-one relationship with a single executive; rather, we are aligning IT with the organization as a whole.

- **C-level executives**
  They have names like Chief Executive Officer (CEO), Chief Technical Officer (CTO), Chief Information (Technology) Officer (CIO), Chief Financial Officer (CFO), Chief Strategy Officer (CSO), and others. Different businesses are organized in different ways. Some may have some or all of these roles, as well as others not named here. These people are the senior executives of the organization.

  Large organizations might have multiple levels of CIO and senior executives, subsidiaries, sub-agencies, colleges within colleges operating with separate CIOs, CFOs, CEOs, Directors, Presidents, etc.[1] (e.g., you may work with your organizational CIO but there may be a corporate or more senior CIO for the parent organization).
- **Other IT organizations**
  If your organization operates under a decentralized IT model, then you may work for a business unit but also work with a central IT organization. This is often the case at universities. You may be part of the central IT organization but also work with decentralized IT shops within your organization's business units. If you do not work with the CIO, then the CIO might be part of a larger central IT organization.
- **Middle management**
  Middle management works with senior executives to translate the work of the employees into the strategy of the organization. This level of business leader often has direct access to the actual doers or employees of the company. These leaders may operate units within the business such as marketing, sales, or research and development.
- **Local accounting department**
  In larger businesses, this is a group or person below the CFO level. This person or group may work with the CFO or may operate out of a local business unit but works with the CFO to ensure high-level budget deliverables are appropriately

1. At the National Institute of Standards and Technology (NIST), we have senior executive Laboratory Directors who work for a senior Director for all Laboratories, who works for the NIST Director, who works for the Commerce Secretary, who works for the President. There are several levels above the local organization.

managed. In larger firms, you will not see the CFO, but you probably have a local accountant or group of accountants who manage your local unit budget.

- **Researchers and developers**
  We break these users out from the rest because they are often the ones who drive innovation and push the IT department with requests for deviations from the standard environment. They can be a very vocal part of the business, depending on their status within the organization as a whole. If the organization is driven by innovation, the researchers and developers may have clout with senior leaders, because the entire organization is counting on strong results.
- **End users**
  The foot soldiers or worker bees within an organization are the secretaries, researchers, sales and marketing people, lawyers, technical writers, technicians, engineers, etc.

One can fall into a trap when writing about organizations, because of the hierarchical structure we use to define them. Placing an artificial emphasis on who has authority over whom impedes communication, because it creates the perception of a class system.

We want to avoid talking in terms of an us-and-them scenario. Organizational levels should be like different parts of an engine, not privileged classes. Each serves a purpose and should be considered in the big picture of IT alignment with the business.

Keep in mind that different organizations structure their organizational chart in different ways. It is useful to know to whom senior leaders turn for advice and how the chain of influence works.

2.3 Commerce

Economics is a highly complex subject, but it has two simple, commonly taught ideas:

- Everything is worth what people are willing to pay for it.
- When demand exceeds supply, items generally cost more.

Alas, neither of these principles explains why some things sell well and others do not. To understand that, we need to know the science of value and trust. We shall return to this in the next chapter.

Products are usually packaged or branded as one of two categories:

- Pain-killers: something that takes away a pain. Don't bother me, just work.
- Vitamins: something that enhances or improves our lives. Strategy.

These characterizations are often used as a packaged truth about business. The phrasing offers some insight into the way business leaders think in simplified terms about *impact*. There are no algorithms mentioned, only results.

Each role in an organization can also be viewed in these coarse business terms. The categorization is simplistic, but—as we reiterate throughout this book—business is all about making things simple. We aim to explain why below.

2.4 How Businesses Succeed

Business succeeds by finding a profitable niche.[2] An important part of making money is reputation.

Reputation is built on what is said about us. For better or for worse, marketing plays a large role in this. Marketing helps to build visibility, loyalty, and trust in brands. A product or service needs the perception of a unique value to its consumer. This is never about technical superiority. When marketing a product or service, organizations need to ask themselves a few questions:

- What separates the product or service from the competition?
- How are you perceived as being better, and by what criteria?
- Are you innovating to stay ahead of the competition—and, more importantly, does anyone care, or are other criteria in play?

Example 1 *Boeing and Airbus, as the major commercial aircraft producers, compete for the same share of the market. When the A380 Airbus positioned itself next to the Boeing 747 family, it had a compelling technical superiority. When Boeing came back with its smaller Dreamliner, it now had technical superiority over the smaller competition from Airbus. In both cases, the sides responded by attacking the competitor's offerings on a political level rather than a technical one. Reputations are complex and irrational by nature. We do not choose the best; we choose the one we trust or desire more.*

There are three cornerstones to business reputation that we have identified from our experiences and conversations with business experts:

- Trust—the perception of confidence in the product or service.
- Agility—the ability to turn ideas around quickly (i.e., time to market), positioning oneself in the right place at the right time.
- Core competency—the unique business value of what is being sold.

Let us expand on these to see how reputations develop.

2.4.1 Trust

As we shall explain in the next chapter, the ability to sell depends on the human mind forming a relationship with the product or service. It is a matter of perception and trust. The origin of all business value lies in the grooming of human-to-human relationships. If a company, an individual, or a product wants to be viewed as worthwhile, it must have the following:

- Visibility
- Recognizable value

Relationships are habit forming, and predictability is all about habits. Relationships make customers loyal to what they know. This establishes trust. Success has little to do with quality or superiority.[3]

2. As with evolution, it is not the most beautiful creatures that survive but simply those that find a sustainable niche in the ecosystem.

3. History is replete with stories where the best product did not win the competition. Value is not about quality; it is about expectations.

Businesses need to break people's natural reticence and change their patterns of behavior to win them over, so they need to be able to adapt to this challenge in a changing environment of fads and trends. Marketing is about trying to change customer habits.

Trust is largely built on predictability and expectation: keeping promises, and intimacy (How often do you use, work with, or have contact with the product?). Building trust is very hard work, and it is not the kind of work that most technical people enjoy. This is probably one reason for the poor state of business-IT alignment.

2.4.2 Agility

The difference between a start-up and an established institution (whether it is business or government-run) is that the start-up does not have a fixed pattern of operations. It has not yet set in its mold. It needs to learn as it goes, demonstrating agility. At this point, freezing into a simple pattern would be harmful.

Established companies that are not going to fail overnight do not need the same level of agility as start-ups. They freeze their operations into simple procedures in order to *scale* up their operations. By removing thought and human error from a task, you enable the use of unskilled labor, which is much easier and cheaper to find than skilled labor.

Both the start-up and the established organization need agility, but they go about it in different ways. The start-up must be highly agile, because it is still building trust with the customer. The established organization should have an established customer base but needs to be agile in order to keep it.

Agility does not mean that you cannot bring some level of predictability to operations; however, you do have to be ready to turn on a dime (or a ha'penny bit).

2.4.3 Core Competency

A business's core competency is the one thing it does well that separates it from its competition. However, being the best in a specific market area does not guarantee success. Reputation is built on trust and perception of value. This means the company must not only be the best, but it must convince the buying public that it offers the best value. Trust, agility, and core competency go hand-in-hand in building an organization's reputation.

Core competency has another important role for business: it scopes into an achievable mission. If business tried to be everything to everyone, it would fail by spreading itself too thin. By finding and developing a core competency, business can focus its efforts on success within that niche market.

2.5 Do These Principles Apply to the Public Sector?

In the private sector, money comes directly from sales. In the public sector, income is provided by the government, usually through taxation. However, this does not mean that public sector organizations do not have to worry about money or competition.

Budget allocations are commonly fixed or depend on complex initiative request processes for specific programmatic increases. Often only highest-priority initiatives are funded, so IT only receives an increase when it is tied to one of these high-visibility requests. Unfunded mandates from above are also common for IT in the public sector. Budgets may fluctuate due to changes in government leadership (elections, succession).

Public sector workers primarily differ from private sector workers in that they are often more isolated from the front line of bringing in money.[4]

2.6 Business Leaders' Perceptions of IT

Now that we have a basic view of business, let's look at IT from that side of the table. This is where we step into business leaders' shoes to evaluate IT investment.

✶ **Promise 1** *Try to see IT and business from business leaders' perspective.*

What kinds of issues face business leaders? They are not thinking about protocols and ports, the latest offering from vendor X, or how to tune the servers to get better performance.

Think about their world. Business leaders often view IT as a necessary overhead function. When an organization's mission is not IT or IT-related, understanding what IT brings to the business might also be a foreign concept to business leaders. In general, business leaders want answers to some high-level questions about IT:

- How does IT support the mission of the organization?
- How much IT does the organization need, and at what cost?
- How does IT keep costs from spiraling out of control?
- How does IT ensure that the technology just works?
- How does IT provide necessary service availability?
- How does IT manage risk?
- How does IT provide for better productivity and competitiveness?

We need to dig a little deeper into how business leaders think about these questions and how IT might address them. A useful exercise is to think about each of these questions in the context of your organization.

2.6.1 How Does IT Support the Mission of the Organization?

Business pays the IT budget, but there is seldom enough transparency in organizations for business leaders to know whether that investment provides the appropriate level of support to the organization's mission. How could a non-technical business leader be expected to grasp the big picture? What information do they need?

✶ **Promise 2** *Work to enable service transparency in relation to business goals. Show how money is well spent.*

4. The public sector has adopted private sector jargon by talking about products, productivity, service delivery, and customers. Products in these cases are usually services and their customers are the public.

Example 2 *IT decides to spend all its budget on upgrading hardware, throwing away perfectly adequate servers to avoid supporting multiple architectures and to have the latest cool kit. IT decides it can manage using only "free software" to save money elsewhere—everyone is doing it these days. Only later is it found that the hardware is under-utilized, the faster CPUs increase the electricity bill, and the "free software" is costing time and effort to debug and implement.*

Example 3 *Students today make decisions about which college or university to attend based on several factors, including the IT available to them. Are computer labs modern and high-end, and do students have access to specialized computing such as compute clusters or competitive environments that will teach them the necessary skills to help them land the best job possible? It is challenging for a Dean to stay abreast of the necessary competitive environments for each discipline, which are surely different for engineering students, graphic design, and computer science students. Are students going elsewhere because of poor IT offerings?*

2.6.2 How Much IT and at What Cost?

This is where Return on Investment (ROI) enters the picture. Imagine convincing the business to fund the latest technology in order to increase productivity or competitiveness in the market. How does the business know how much to budget?

ROI is the most talked about metric in business. It is supposed to represent what makes an investment worth your while, but as we point out in this book, value is not something that can easily be measured. Everyone measures it differently. The basic arithmetic around ROI compares the cost of a product or service with the profit or gain it generates. Arithmetically, it reduces to a simple percent.

$$\%ROI = \frac{(\text{Profit or Gain}) - \text{Cost}}{\text{Cost}} \times 100$$

Figure 2.1: ROI: Computing a simple return on investment

A good return on investment occurs when the benefit received exceeds the cost.

Superficially, it is similar to a financial investment. If you invest $10K in the stock market and your return is $5K, then you did not see an ROI. However if your return is $25K, then you saw an ROI of 150%.

Despite the simple formula, computing the cost of a product or service is not always clean. Should business include the staff time, raw materials, facilities costs, staff training, depreciation, hiring, and other management costs?

Additionally, real rewards could be several years down the road. They could be intangibles, such as higher productivity due to happier employees, which may translate indirectly to higher profits or more customers. Without sufficient transparency throughout the IT-business chain, this cannot be evaluated or computed with a simple formula. The term "business case" describes the process of justifying a business decision. A business case goes beyond the simplistic ROI to demonstrate potential returns for a particular business decision.

- ✶ **Promise 3 (IT)** *Formulate a clear and transparent business case for requests.*
- ✶ **Promise 4 (Business)** *Do not make it hard for IT to propose a business case; barriers encourage obfuscation.*

Example 4 *Your corporate network is old. You realize that your core switches are at the end of their life and the vendor does not support them anymore. You have been keeping the network operational with a store of spares, swapping them in as needed. You realize your parts store is depleted and another couple of failures will cause massive network outages in parts of your organizational infrastructure. You go to your senior leader and propose an upgrade to the entire network infrastructure. "But it's working now and you've been keeping it operational," says one leader. How do you make the case that upgrading does provide an ROI for the company?*

Hint: It is not about how the new technology on the market is cool. Business is principally looking for a justification that will address your aging infrastructure and reduce organizational risk. Think ROI. Consider how your organization uses the network. What critical services or processes could be affected (e.g., employee productivity, reputation with customers when services are unavailable, idle production line)?

2.6.3 Overhead and Cost

Business likes to see everything as either an enabler or an overhead—a vitamin or a pain to be killed. Cost control of overhead is a key concern for business.

Example 5 *When someone leaves the IT group, a departmental leader has to make the decision whether to replace that person or reduce the IT budget by that person's salary. IT personnel are service personnel and are not usually considered to be strategic enablers. The same goes for requests for more staff or new technology: what justifies replacing the IT staffer—new efforts or innovation, increased workload or customers, replacing lost capabilities?*

Every change in the IT budget means more or less money to apply to core mission objectives, paying researchers or professors, or funding projects directly related to the organization's core mission.

Suppose the IT department adds new functionality and new staff to increase support, but never decommissions anything, then costs will steadily increase. The organization will pay a premium to maintain legacy services, including local expertise, IT security workarounds, and integration with newer technology. It is difficult for business leaders to see these trends without micro-managing departments at even greater overhead. Trust is valuable because it removes the need for such overhead.

Example 6 *A cost-control strategy which would help in the previous example is building technology refreshment into an IT life-cycle plan. This is something senior leaders can understand, because you present a phased plan for the organization, on a planned schedule. This allows your senior leaders to budget for refreshment at the same time as planning for growth and innovation. Leaders do not like to be surprised. Smart organizations have a slush fund for unplanned expenditures, but you do not want a reputation for consistently asking them to dip into it for IT investments.*

IT expenditures are a part of the whole organizational budget. Every dollar spent on IT is taken away from some other area of the company. IT budgets should be relatively lean, but still provide the organization with the necessary capabilities to support the core mission.

We would like to offer a word of caution to business leaders and IT folk everywhere: An organization that is too lean may not have sufficient slack to allow innovation. Stressing employees at the margins is also not a good way to build morale, which in turn affects productivity and continuity.

✶ **Promise 5** *Budget wisely but with generous margins to allow for innovation and job satisfaction.*

2.6.4 IT That Just Works

In today's markets, business units understand the need for Internet connectivity, a reliable email service, a strong organizational Web presence, and desktop computing for employees. It is harder for them to appreciate the need for the following:

- IT security requirements such as encryption, role-based access, defense-in-depth, and incident investigation
- Use of social networking technologies
- Heterogeneity and "necessary complexity" in systems
- Sustainability and technology refreshment
- Expansion and growth of utilities (disk storage, Internet bandwidth, edge switch density, etc.)
- Changes requiring significant investment in IT infrastructure and support
- Basic utility management for machine rooms (primary and backup power, cooling, humidity, physical security, safety)

There is a burden of education by IT to business in these areas, and a burden of enablement on the business side.

✶ **Promise 6 (IT)** *Educate business on the background for budgeting and strategic decisions.*

✶ **Promise 7 (Business)** *Grant sufficient autonomy to IT specialists to enable innovation and greater productivity.*

2.6.5 Ensuring Necessary Service Availability

Organizations need to identify necessary services at appropriate scale and availability levels. This is a surprisingly hard problem, and few people in an organization even know where to begin choosing the right numbers. However, this is an area where technical measurements can help strategic decision-making by providing actual facts and extrapolations of data (i.e., where business needs IT input).

The industry marketing machine has taken the nines scale as a way of talking about availability:

Term	*Uptime*	*Downtime per Year*
Six nines	99.9999%	About 31 seconds of downtime per year
Five nines	99.999%	About 5 minutes of downtime per year
Four nines	99.99%	About 52 minutes of downtime per year
Three nines	99.9%	About 8.76 hours of downtime per year
Two nines	99.0%	About 3.65 days of downtime per year
One nine	90.0%	About 36.5 days of downtime per year

Table 2.1: Reliability system commonly used in marketing

Some organizations argue that five nines are necessary for mission-critical applications. Many organizations do not have such requirements, or perhaps they only have high uptime requirements for a portion of their infrastructure (such as e-commerce or financial sites). What is the cost for an organization to maintain five nines, and what is the ROI?

Availability is also a matter of perception. A service may be up but not available, or a system may be up but running in a degraded state or an unusable state. If users of the service experience slow-downs or failures when connecting to an active service, then availability may be considered to be compromised in the eyes of business.

2.6.6 Managing Risk and Compliance

Business leaders are often at a disadvantage when it comes to IT risk management. It is not their role to maintain the technical knowledge required to understand these issues. Common threats such as viruses and hackers have been popularized to the point where the basic premise can be understood by a majority, but how can business know if the IT team is actually protecting the organization's assets at the right level? How do they know how much funding to invest in IT security, when the solution is far more complex than anti-virus and firewalls? The need for a trusted advisor to aid in understanding these matters is clear once again.

IT security legislation, pressure from customers to protect trade secrets or privacy, and audit oversight from parent organizations all add to the complexity for business leaders trying to manage IT risks For instance, the banking industry focuses on the availability and integrity of transactions. Companies that trade on the New York Stock Exchange are forced by law to comply with the Sarbanes-Oxley Act (SOX). Credit card users have Payment Card Industry (PCI) compliance issues. The health care industry must deal

with patient confidentiality and Health Insurance Portability and Accountability Act (HIPAA) compliance. The US government focuses on protection of sensitive US citizen information such as social security numbers, credit card numbers, public assistance information, and any type of information that could be used for identity theft, along with Federal Information Security Management Act (FISMA) compliance. The list goes on.

Senior business leaders need to know the risks to their sector. What they may not know is how to mitigate those risks. This is where IT can make or break the organization. Particularly in the US and increasingly in the EU, external regulators get involved in jurisdiction.

Example 7 *In 2006 the US Department of Veterans Affairs lost a database containing more than 26 million veterans' privacy information. The reaction to this incident was mandatory policy and increased restrictions on any data that could potentially be used for identity theft. The US government mandated encryption on all mobile devices.*

The real risk for organizations is that they don't know what they don't know. Business leaders might think they are covered by policies, firewalls, and other IT security controls. Third-party testing found that, on average, anti-virus vendors detected less than 19% of malware attacks [21].

✶ **Promise 8** *Bring confidence to business by researching and mitigating the risks of attack, loss of continuity, and breaches of compliance with regulations.*

Compliance does not come without a cost. Billions of dollars are spent each year to maintain compliance.

Example 8 *The US Federal Government CIO blogged about FISMA [22]: "The State Department alone, in the past six years, spent $133 million amassing 95,000 pages of security documentation for about 150 major IT systems. This works out to roughly $1,400 per page." The process is changing from mostly reporting to more real-time monitoring, but there is still a significant cost to staying compliant.*

2.6.7 Employing IT to Improve the Business

Business leaders aren't paid to stay abreast of the latest information technology. How are they to know what technologies would bring greater productivity to the organization and which would have the opposite effect?

Sometimes IT inhibits productivity, which can hurt competitiveness. Maintaining legacy systems or networks can create bottlenecks, and implementing the wrong technology can create problems for staff trying to use the technology for their work. Business leaders are ultimately responsible for the productivity of their organization, which includes the IT infrastructure.

Example 9 *An organization implements a new enterprise calendaring system for the organization. All staff are to use the calendar for meetings and reminders. Unfortunately, the tool is designed to only work with a specific operating system and browser. Parts of the organization are very diverse due to research and development (R&D) needs. The staff in the R&D department find that the calendar seems to work with other browsers, so they start to use it. In time, they discover that sometimes meetings are scheduled on the wrong time or the wrong day or are not put on all meeting attendees calendars. The result: R&D loses productivity due to people waiting in conference rooms at the wrong time or not attending meetings that didn't appear on the calendar.*

On the flip side, IT is also close to the end users and sees their frustrations firsthand. IT can benefit the business by boosting productivity and shepherding innovation through improved use of IT and being responsive to end-user needs.

2.7 Too Much Management?

Like everyone else, business leaders grasp at solutions to perceived problems, using the tools they understand. Initiatives like ITIL [3] were initiated by business leaders, in collaboration with government, to try to tame IT infrastructure using management practices from the business world.

ITIL, COBIT, eTOM, and other frameworks encourage human management techniques such as formulating Service Objectives, working in teams, and having regular meetings. They implement schemes such as the balanced scorecard to try to measure the value of IT. Many technicians question the value of these methods, but if nothing else they are symptomatic of a need to understand and gain a measure of control over IT, which often seems to be out of control.

Principle 2 (Demonstrating control) *Demonstrate the ability to deliver, use, and change IT services at will, as well as manage costs and risk. This builds confidence and trust on all sides, and these are the foundations of everything else.*

All too often IT systems rule IT departments, not the other way around. This is a typical result when there are no well-rehearsed methods for work. In a crisis, there is a tendency to escalate by adding more management (overhead), which generally only compounds the problem.

Best practice frameworks help to productize IT services and rein them in as long as they are not taken too literally:

- Process management adds overhead that reduces agility.
- Service Level Agreements (SLA) used as a tool for keeping promises are often ineffective. SLAs are often artificial tools for internal processes that suffer from lack of realistic consequences. What if the service objective is missed? Will salaries be docked?
- Scorecards attempt to link IT to the organization's business strategy in a positive way. Commonly used metrics such as percentage of projects completed on time, time to close customer calls, and customer satisfaction (based on surveys) are used to align IT to business.

The problem with any single metric is that it can offer a false sense of value. For example, measuring the time to close customer calls only shows you how fast the help desk closes each ticket, not the quality of the service. Combining that with customer satisfaction surveys provides a more complete, but subjective, picture.

To Do

- Look at section 2.6.4 and write down the reasons why you think the points here are not obvious to business leaders. Do not try to tell them the answer, but try to understand why they do not already know. Understanding is more important than correcting at the outset.
- Explain in your own words what your company does.
- How does IT enable your organization?
- How does IT hinder your organization?
- What does the business expect from you?
- What expertise is needed to support the business IT strategy?
- What laws and regulations will affect you at work?
- What resources do you need to be effective? Write this down as the start of a business case and revisit it after Chapter 4.

3. The Science of Value

This chapter looks more closely at the meaning of value. It explains an unexpected result: why humans really identify value through contact relationships, even as they talk about money or cost. Understanding why value is about relationships explains why "cheapest" or "best" does not always win, but, conversely, why close friendships and back-scratching do (whom you know, not what you can do).

Example 10 *The system administration community has long debated the value of Free/Libre/Open Source software. This is based on the maxim that "no cost" implies "no value." Users still have to spend time making the software work, so its value could easily be perceived as negative.*

The "science of value" comes by an unexpected and circuitous route from the economics of human cooperation. The explanation is not so much an economic phenomenon as an anthropological one. Surprisingly, the science of value is not about who can save the most money or bring in the largest contract; it is all about who can form long-standing relationships.

If this sounds odd, think of money markets (the value of the dollar or the yen) and how the value of money itself fluctuates according to perceptions that are built on trust and certainty. One of the landmark changes that occurred in the 20th century was the abolishment of the trusted gold standard for money. This freed economists to implement what they already knew: that the value of a dollar is exactly what people around the world are willing to give you for it [23].

3.1 Cooperation

Robert Axelrod developed the work of a number of evolutionary biologists in the 1980s in order to study cooperation. He used the well-known Prisoner's Dilemma [10, 24] to explore the outcome of individuals acting out of self-interest, without a common authority to force them to cooperate. He demonstrated how pure self-interest led to altruism in groups, as previously predicted by others [25, 26].

As is shown in the table below, the payoff for keeping a promise can be high or low depending on the action of the other player. However, in the long term, value increases through repeated interaction if both players learn to keep their promises. The longer a relationship exists, the more valuable it is to both players.

	Keep promise	*Break promise*
Keep promise	4,4	0,5
Break promise	5,0	1,1

Table 3.1: The Prisoner's Dilemma payoff matrix

The model is simple, yet it seems to predict many well-known truths behind what motivates human interactions.

The Prisoner's Dilemma offers two players an equal chance to win. If both players keep their promises, they can both earn high points in a long and stable relationship. There is a small incentive for one player to renege on the promise (winning five points instead of four) leaving the other player with zero. If both players do this, they both end up with less (one point instead of four).

The significance occurs when the two parties meet regularly and play out this scenario: If the first player reneges on the second player in one round, then the second player can retaliate and renege on the first player in the next.

This is often the case leading to so-called "tit for tat" behavior that is observed in all manner of social interactions. Eventually these tit for tats can settle down into a stable cooperation.

Axelrod held a tournament using the Prisoner's Dilemma model. He invited professional game theorists to submit rules to try to beat the model. The winning rules were all "nice," meaning they retaliated when necessary but all had the concept of forgiveness, which allowed a long-term relationship to reap positive results for both players. A short-term relationship did not benefit from cooperation, as the players did not have repeat interaction. It did not matter if one reneged on the other, because there might not be an opportunity for the opposing player to retaliate in the future.

The game demonstrated how stable promise-keeping relationships required repeated interaction. It also showed that a player who cooperates, even in the face of retaliation, has a better chance of developing a positive relationship than a player who is only retaliatory.

Cooperation is necessary to develop valuable long-term relationships.

Principle 3 (Value in Cooperation) *Long-term cooperative relationships are valuable to both parties. Quick wins are insignificant in the long run.*

3.2 Engaging the Social Brain: Branding

One prediction of this work is that anyone who can generate intimacy, or even the illusion of intimacy, will likely succeed in being perceived as valuable. Our brains seem to be wired to believe this. One way to imply value is therefore to foster a perception of familiarity and loyalty by creating brands. This sounds as though we are in the dirty world of marketing, and indeed we are, but this is the same simple science.

An in-house worker who has no brand is always going to appear to be less valuable than the hired consultant from a brand like IBM or Accenture. By in-sourcing IT services and selling them back to the company, we can change this perception. It underlines the impact of what system administration does, not just once when there is an emergency, but repeatedly. It is this repetition that is important, because it forms the basis for long-term relationships.

Branding also has a simplifying effect—a productizing effect. You replace a complicated message with a simple name, logo, or interface, usually with some trade-off. In that way you change the perception of its complexity.

Example 11 *Cloud computing is a packaging of a simple service into a big concept. Identify yourself with the brand "cloud computing" and all the technical complexity falls away in favor of a simple catch phrase.*[1] *Thus, cloud computing itself is not necessarily valuable, but attaching oneself to the concept of cloud computing is.*

We see why some businesses are often more willing to pay money to hire a consultant than to spend the same money on internal resources: The internal system administrator has no brand, no identity. The outside consultant borrows the trust that comes from identifying with the brand and is therefore automatically worth more in the eyes of business.

The paradox is that, while system administrators often put a premium on technical difficulty, business levels go for simplicity. Knowledge or high-level jobs are considered more valuable than low-level system functions because they speak a more universal language and can therefore interact more effectively in the kind of exchange that generates the perception of value.

3.3 The Cost and Value of Social Networks

Anthropologist Robin Dunbar is now famous for developing the theory that animal brain size developed in order to service relationships in social groups. Dunbar showed that there is a remarkable correlation between the brain size of animals and the size of the social groups they can maintain [27, 28]. The implication is that our brains enable our ability to have complex relationships, but brain size sets the limit on processing capacity. His data are based on several species, and repeated studies show that the group sizes we can deal with as humans are fairly constant.

Close personal relationships	5–10
Working relationships	30–45
General acquaintances	100–150

Table 3.2: The Dunbar hierarchy for human groups

A number of scales recur in humans (see Table 3.2). The more intimate a relationship, the more brain power must be invested, and hence the fewer relationships we can manage. The fact that these limits exist means that there must be limitations on other kinds

1. Cloud computing is less technically complex than more traditional computing, but perception rules.

of relationships too, such as knowledge of systems and strategic issues. The exact number of limitations does not matter. Maintaining a relationship with business executives, compared to end users, requires greater discretion and a bigger investment. There are clearly some Machiavellian economic choices to be made here: Choose to become a superficial man of the people or a close friend of the king? [9]

Another related measure is the level of indirection we can maintain when thinking before getting lost. This indicates our ability to multitask. If we try to multi-thread our thinking, we are only able to manage about four to five levels of indirection without losing track of where we were [29, 30].

This says something about how system administration teams should be organized if they are going to succeed in maintaining strong relationships between customers, leadership, partners, etc. Broadcasting messages by email or Facebook is not a way around these limitations; instead, it creates false intimacy.

Our brains apparently limit us in how many of these relationships we can maintain, so we cannot simply increase the value arbitrarily. The closer the relationship, the more effort required to maintain it. Moreover, we can only work on about five things at once [27, 28] combined with about four to five levels of interruption [29, 30].

Principle 4 (Choice of relationships influences value) *The number of relationships we can manage is limited, so choosing partners becomes a strategic decision.*[2]

To increase perceived value to business, one must choose to build a trusted relationship with business.

3.4 Trust and Promises

Promises are a tool for managing expectations. We make promises to signal our intentions, so that others may better judge what the outcome is likely to be [31]. A promise affects only the entity that makes it, so it brings focus. Once that has been formulated, one can make an estimate of the expected outcome. Promises focus also on the fixed outcome, not on the possible processes for keeping them so they are effective communication. Promisers who repeatedly fail to keep their promises are written off as untrustworthy.

Principle 5 (Trust) *Trust is built when you keep promises.*

Example 12 *The network is down. I promise to investigate and either fix or report status within 30 minutes.*

Through working groups like ITIL, business representatives have thrust promises onto IT departments in the language of Quality Assurance (QA) and Service Level Objectives

2. We might not like the implication, but the conclusion is clear; we have to choose whom we consider most valuable. We are in large part responsible for our own success in given areas, by making human connections that are strategic to those areas.

(SLOs), codified as contractual Service Level Agreements (SLAs). Promises are a language that business leaders can understand. Money is a promise. Services are promises. Promises are a simple unifying concept.

The opposite of a promise is an obligation or demand, but the language of demands and regulation (deontics) has many problems, both technical and moral [31], not the least of which is that demands are rarely perceived as constructive. More importantly, demands are a poorer guarantee of a certain outcome, as they often bring confusion rather than clarity [31].

New promises are useful because they demonstrate an initiative for which leaders can identify. One can ask: What types of promises might align IT staff with business needs? There are two kinds of promise: service promises the team makes, and promises we make personally.

3.4.1 Service Promises

Service promises force us to think in terms of clear outcomes that are kept by a collective group. They suppress the details of *how* that are for domain experts. They are a tool for communicating between specialists and generalists, and they are things that humans evaluate (even implicitly) when building relationships.

3.4.2 Individual Promises

What seem to come out of the research by Axelrod and others are a couple of simple observations:

- Making the first cooperative move often increases your win in the long run. The symmetry between tit-for-tat conflict has to be broken, and the agent who makes the first move turns around mutual loss into mutual gain more quickly.[3]
- Avoid retaliation when others fail to keep their promises. Retaliation is a natural strategy for short-term gain, but reprisal only motivates negative long-term behavior, often at high cost. Avoiding reprisal has been shown to improve long-term rewards in some cases, one tit for two tats [24].

Lack of a relationship has pervasive and negative effects on organizations, often triggering passive-aggressive conflicts.

Example 13 *Conflicts arise in workplaces when there are poor or distant relationships between groups or levels within the organization. Many workers will not even admit to a direct conflict with their leadership or coworkers, claiming that they rarely actually meet them. Indeed, this is the problem. People will faction into groups and avoid meeting one other in order to manufacture an us-and-them division. This tribalization of identity happens in all areas of society when there is inadequate contact between different parties. Leaders often deny such thoughts as politically incorrect, but they are deeply ingrained human behaviors.*

3. We have known people who had the insight to take themselves out of a situation because they were the problem. We each have to be honest about our own strengths and weaknesses. Knowing these, we can work with and around them to maximum effect.

Cooperation is about give and take. It is always a dialog. People who ignore the interaction are perceived as difficult and rude.

Principle 6 (Alignment) *Alignment is a mutual understanding of goals. The two sides need to come to a common understanding.*

3.5 Metrics

Business leaders turn to metrics, or Key Performance Indicators (KPIs), in order to measure the value of a group or service.

A metric is simply a standard measure to assess performance of a product or service.[4] Let's take a look at some common metrics used in the IT industry:

- Mean time to repair on fault (minimize)
- Mean time to response or service time (minimize)
- Service availability (maximize)

Are there measurements we could make to guide technical people to provide better results for the business without all the touchy-feely stuff?

The answer to the question has two parts: yes and no.

- Yes: There are performance metrics that can be improved. Business can optimize and even save money if these metrics are improved. However, optimizing based on these metrics does not improve the IT department's status within the organization.
- No: The metrics commonly used to measure performance do not offer value in the eyes of business leaders. They are taken for granted, even expected.

To win favor from business, one must play by the rules of business, and that is why we focus on the perception of value, not hard metrics.

To Do

- Consider the important players in your organization and identify those whom you and your team should develop a business relationship.
- How can you use cooperation to improve relationships in your role?
- What promises should you make to your organization?

4. M: As a scientist, my first instinct was to look for some technical measurables. However, it quickly became clear that this was the wrong answer, because IT is about subjective qualities.

4. The Key to Communication

M: First rule of life: Try to never waste anybody's time.

In this chapter we will discuss how to develop best practices for communicating with business leaders.

Being a strong communicator does not mean you are headed down the "management track"—though it does open that door. Expert technical people who can communicate effectively with business leaders are uncommon. This skill increases your positive visibility within your organization and provides you with an important soft skill in the profession.

4.1 Effective Communication

Communication is hard. It is not only about putting words out there. It is about the right number of words, at the right time, sending the right signals, with the right body language, containing the right message. That is a lot to get right. Communication is not only what we send; it is also what is received. The sender in the example below believes he is communicating, but unless the intended meaning is clearly received on the other end, the communication is not successful.

Example 14 *Your director asks for your opinion on how IT could improve security of the corporate wireless network.*

You reply, "If we upgraded our WLC to the CLX6530 with GBICs that would support 802.1Q, we could then use trunked VLANS off of the edge switch, incorporating a primary and backup port for every SSID. Then we implement WPA2/AES-CCMP. For the visitor SSID we'd continue to do layer 2 security and layer 3 authentication via captive portal."

Your director blinks and makes a mental note to avoid meeting you.

- ✶ **Promise 9** *Learn to communicate so that others want to listen.*

Luckily communicating is not like an exam, where one has to deliver a finished product. Good communication can be learned with a little humility and trial and error.[1]

The key to effective communication is *preparation.* People who make it look easy have either prepared in advance or are rehearsing it all the time.

- ✶ **Promise 10** *Prepare for every encounter with someone, whether physical or virtual, and think about its long-term effect.*

1. Trial and error is another kind of repeated relationship that brings value.

Choice of words is important for effective communication, but words account for only about 7% of communication. The remaining communication lies in nonverbal cues such as tone and facial expression. How does that affect written communication? Obvously, the nonverbal cues are lost in email and other forms of written communication. There the words must stand alone.

4.1.1 Communicating: The Basics

Communication requires a connection. Think of the TCP/IP handshake: Syn, Syn-Ack, Ack. The Ack is particularly important. Only when both sides have acknowledged a connection can communication begin.

Here is a high-level checklist for strategic communication that comes from our personal experiences:

- Audience Analysis: Know your audience.
  - Pay attention to your audience's body language.
  - What is their level of experience or understanding?
  - What are their primary concerns? (Put yourself in their shoes.)
  - How much do they care about the topic?
  - How often do they expect to hear from you?
- Communicate at the right level.
  - Communicate at the level of your audience even if it seems beneath you.
  - Avoid IT or business jargon. Do not blind them with pseudo-science.
  - Use simple analogies to explain complex issues.
  - Avoid being condescending.
- Focus on the impact of an action or decision, not on the details of the action itself.
  - Highlight important points that will bring focus to a decision, and save time.
  - Do not mislead just to avoid confrontation. Face up to real issues with a mind to solve them. Try not to put up barriers to going forward.
  - Conclude with timelines, action items, "to dos."
  - Establish the reasons for deadlines (end of fiscal year, end-of-life equipment, money expires, deal expires, decision needed for a scheduled meeting?).

Remember, communication is a two-way dialogue.

Example 15 *At a stock sales presentation the presenter drones on about features that do not interest you in the least, providing no opportunity to ask questions. If you see your audience repeatedly checking the time or fiddling with a smartphone, then maybe the presenter has not honed the message for the right audience.*

Good audience analysis occurs when there is a clear and targeted message, offering value, that asks for very specific actions on the part of leadership. The presenter achieves a level

of business credibility by demonstrating a clear understanding of the leadership's needs. Effective communication is concise, easy to understand, and has clear intent.

Example 16 *To: Senior VP, IT*
From: Your sysadmin
Subject: Network upgrade: decision needed by [date]

Re: Approval needed by [date] on refreshment of aging network equipment

Per our discussion last week, I have assembled a quote for a refreshment of our network equipment:

- *This is the equipment that connects all of our desktop machines to the Internet and our internal servers.*
- *This purchase is to avoid downtime due to network equipment failure.*
- *This upgrade will replace hardware that is no longer supported by the original vendor and for which we have no in-house spare parts.*
- *Total Cost: $150K*

The procurement office says we need to submit this order by [date] to process it before the end of the fiscal year.

[If you have some way to ease the financial burden:]

We can use the money we had allocated in the IT budget for the old modem pool which was recently decommissioned. That provides us with $50K to put toward this procurement so the company outlay over and above the current budget is $100K.

[Alternative and better last paragraph:]

The money for this procurement is already allocated in the current year's IT budget because replacing the network equipment is part of our equipment refreshment plan for this year.

Thanks,

Your sysadmin

Communicating at the right level is an art. Whether the receiver of the information knows about IT or not, it is always best to leave out all technical jargon and detailed explanation to focus on impact. Impact is a critical factor in all communication, and especially in business as it is tied to ROI.

Example 17 *If making a purchase means correcting a deficiency, providing more robust services, or improving the company's productivity or competitiveness in its niche market, then that needs to be communicated. Leaders want to know why they should spend time thinking about the proposal: What will be the impact?*

4.1.2 When to Communicate

Knowing when to communicate is learned through repeated interactions with business leaders. This is part of good audience analysis but it is also key to maintaining the appropriate level of communication. The IT department can report too often, appearing as a pesky fly to business leaders, with constant reports, requests, and complaints. This is not

a good relationship to foster. On the flip side, business leaders do not like to be surprised by their peers, customers, or more senior executives when they were not apprised of a situation because the IT department did not report on it.

Business leaders want information, but they do not want too little or too much. Find a balance. Report willingly on efforts of the IT department considering the needs of business leaders in the organization. Often the rate of reporting depends more on individual preference and the personality of business leaders than anything else.

Example 18 *In some organizations, the senior executives thrive on information or are micromanagers and want to know about every aspect of their organization. Others are more concerned about their reputation or how others see them; these executives are least likely to enjoy surprises, even positive ones. Some executives are dismissive of anything coming out of the IT department; these may be the biggest challenge because your initial communications may not be well received.*

4.1.3 Meetings

Face-to-face meetings are the most potent form of communication; they build relationships most quickly. A meeting requests a dedicated slice of someone's time. Being prepared and demonstrating the qualities of a trusted partner (keeping promises, not wasting time—instead, acting as a pain pill or a vitamin shot) will be appreciated. This contributes to the development of a trusted partnership.

The following provides a map to help produce more efficient meetings:

- Clearly articulate the reason for the meeting.
  - Do you need a decision, to influence a decision, or support for a specific focus area, or is the meeting strictly informational?
  - If you need a decision, what are the factors that influence the time by which you need the decision?
  - Your leader may want to consult with someone else in the organization prior to making a decision.
  - If the meeting is informational, be prepared to explain why the information is important at this level (e.g., may come up in a senior leader meeting, may reach to your senior leader's boss, may reach stakeholders, may reach external customers).
- Determine how much meeting time is needed.
  - Know how the meeting is going to end. There is nothing more infuriating than a meeting with no direction or conclusion.
  - Business leaders spend a lot of time in meetings. Make the most of the time you have.
  - Have a clear purpose with a fixed duration.
- Consider providing a short handout to leave behind in case the decision is delayed. This preparation increases the chance that business leaders, when making the decision, will refer to what was said in the meeting.

- Be prepared to say, "I'll have to get back to you," to research an answer. Do not pretend to have the answer at the risk of losing credibility.
- Summarize the outcome of the meeting with action points on both sides and deadlines to show that there was comprehension and agreement.

4.1.4 Written Communication

Email and other written communication is most effective when it is short, containing only necessary information. Too much information overwhelms us and offers more opportunity to question.

Example 19 *In one organization, the CIO was known for drafting 500-word email messages to the staff and his peers. Even though he was considered a senior leader, his wordiness cost him respect among his peers. They viewed his emails as impossible and stopped reading anything he sent. This reduced his effectiveness because other senior leaders were not reading the missives to know what the CIO's organization was doing.*

A common mistake in writing is to repeat oneself endlessly to drive a point home. Writing is more formal than speech: choose words as if they were going to be seen in print. Check spelling and grammar as a sign of respect.

4.2 Discipline

Things we do not think of as communication are structure and discipline, but they are really just another way of being clear and consistent. We hear words like "discipline" as negative, but they contribute importantly to self-esteem. By disciplining ourselves to communicate differently with different audiences, we are enhancing the value of the relationship.[2]

4.2.1 Create a Service Catalog

One way to communicate to the world is to advertise services. A service catalog provides a menu for IT support. If it is well-written, anyone in your organization should be able to understand what value you provide to the organization in the services offered. Make sure your catalog presents services from the customer's perspective, not the perspective of the IT department.

Here are the basics for creating and maintaining a useful service catalog:

- Communicate services in business terms or terms customers will understand.
  - Avoid jargon and abbreviations (always).
  - Talk about the email service, not protocols such as SMTP, IMAP, POP.
  - Talk about spam filters, not Mailscanner, SpamAssassin, ClamAV.
- Make the service catalog available to everyone.

2. M: Interestingly, in the classroom, students often ask for more discipline, not less. Most people appreciate the effects of discipline and dislike only the implication that they do not have enough of it. Communication becomes ineffective without a rigid framework.

    - Make it accessible on the internal network in a format supported on every machine in the organization.
- Keep information updated, or do not keep it at all.
    - Assign someone in IT the role of updating the catalog in a process of continuous improvement—not merely when changes are made.
    - If the catalog is kept up-to-date, it can be a handy reference for new employees.
    - If users and maintainers do not interact with the information constantly, it will become stale, neither correct nor useful.
- Ask for feedback.
    - It can be frustrating to read a poorly prepared document. Before publishing the catalog, ask a sampling of customers to evaluate the organization and presentation.
    - Is the service catalog easy to use?
    - Can customers find what they need?
    - Is anything missing?

Business leaders can use the service catalog as a menu of services they receive for their IT investment. The service catalog also allows the customer to start a dialog on existing or missing services, because now all supported services are defined.

4.3 Priming Others to Cooperate

If you want something from someone, you generally have to give something first. It is said that deals can be made in the first few seconds of a meeting, by body language alone. If the first communication or signal is negative, it can place an insurmountable barrier to further communication.[3]

Here are some common faux pas we have observed:

- You bark orders instead of asking for buy-in.
- You interrupt people while they are talking because you are not listening to them.
- If someone interjects, you keep talking louder and louder to win the battle for supremacy, instead of pausing to hear what they have to say.

The essence of communication is to put yourself in the other person's shoes and show compassion for their predicament. Think positively about the person and empathize with the flaws he/she is having to deal with; we all have faults—why are theirs worse than ours?

Principle 7 (Compassion) *Compassion for others enables and strengthens cooperation.*

This might sound awfully touchy-feely, but it is actually an extremely pragmatic piece of social engineering. Making ourselves feel compassion for others defuses our own negativ-

3. M: As a friend of mine once told me, "Talk less, listen more, write less, read more. Expect less, give more."

ity towards them and reduces the anxiety of the contact. It also avoids the start of a possible conflict that builds from frustration.

To Do

- Write down a list of bad habits you observe in others. Do any of these apply to you also?
- Think about the one thing you would change about your communication style that could have the largest positive impact on your relationships.
- Effective communication comes from having something constructive to say. Try this: Write down your strategy for the next week and the next month. What personal goals do you have? If you find this difficult, it is probably a symptom of a general lack of direction. Start by writing down all of the day-to-day activities that go on in the IT department. If solving trouble tickets is the only answer, you are stuck in a rut and need to talk to someone about strategy and leadership.

5. Building a Trusted Partnership

In this chapter, we suggest some approaches to building a trusted partner relationship between business and IT. This goes beyond a simple one-to-one relationship with business leaders. IT provides value to the organization as a whole while generating opportunities to demonstrate this impact to business leaders.

5.1 Who Is Your Customer?

Customer satisfaction is our goal! This sounds very business-like and proper. Shouldn't we measure value by gauging customer satisfaction? This idea has some merit, but who is the customer?

The IT department typically has two sets of customers: business leaders who pay bills, measure performance, and manage people, and end users who benefit in a more hands-on fashion from the work done.

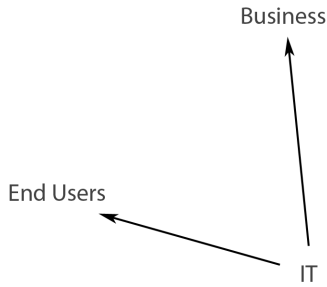

Figure 5.1: Priorities: Whom do we serve?

So who is the IT department trying to please? As the figure illustrates, these two groups are somewhat disconnected. End users might be satisfied with functional capabilities, but business leaders are more satisfied by strategic capabilities. In the end, business has to align all three legs of the triangle, but we are tacitly assuming that business and end users (sales staff, administration, etc.) have their own process of alignment.

5.1.1 Focus at the Right Level

IT should develop relationships with its customers. But which roles are the most critical?

- Senior leaders in the organization
- Executives above and at the same level as the senior leader
- Middle management

- Researchers and developers
- End users
- Colleagues and peers

The answer depends on the specific organization. IT has to evaluate the various roles within the organization to consider the value and impact for each.

System administrators tend to think of end users as their only customers, and spend their time firefighting end user complaints. By neglecting other efforts that impact leadership, such as maintenance and development, system administrators are not servicing the needs of the whole organization.

It is easy to focus on the end users because they are submitting the tickets and demanding more time. Maintenance and development are needed in all areas of the business mission. Servicing only the needs of end users means neglecting an important part of business: *operations* and *strategy*.[1]

You might think, "Well, end users includes management too, so I am not neglecting them," but when business leaders are busy being end users, they are struggling with an application or a badly behaved machine, not thinking about the strategy of the business.

Think roles and promises, not people. Again, IT needs to consider the various roles in the organization. A mission succeeds, like a well-oiled machine, when all the components deliver according to specifications (i.e., keep their promises). Alignment includes helping to keep every promise in the organization, not just one or two (e.g., help desk is only one aspect of IT's contribution to an organization).

5.2 Bootstrapping Business-IT Alignment

Recapping on previous chapters, we are proposing that a prolonged relationship between the business and the IT department is every bit as important as a prolonged relationship between the business and its customers. In some respects the business is a customer of its IT department, so the roles are reversed, but the principle is the same. Cooperation is about the trusted partnership, and promises are a language for that cooperation.

A highly effective way to bootstrap a relationship with someone is to make them look good professionally. This creates positive energy between the two parties. Demonstrating personal value in the relationship kick-starts a positive strategy of cooperation that can bring long-term value to both parties.

The relationships we are talking about in this book are not necessarily one-to-one. The same observations are true of the IT department as a whole and business as a whole. The story is about the roles rather than the individuals.

5.3 Building Trust: On Time, on Budget

Research shows, not at all surprisingly, that making promises and then keeping them builds trust between parties. Making no promises at all, on the other hand, is considered evasive and reduces trust. Finally, making promises that are not kept is deception and reduces trust again.

1. Realize that end users do not sign your paycheck.

Since IT projects often fail to meet all of their objectives, IT departments can engender trust by ensuring that projects are on time and on budget. This is confirmation of sound leadership and competence despite the complexity of projects. We know of several cases where strong business-IT relationships were formed in exactly this manner.

Why do many projects fail? Project managers are often tempted to underestimate budgetary requirements to business leaders in order to make a good initial impression. This can easily backfire when the project comes in over budget. Business leaders do not want surprises at the end of the budget cycle. Everyone has experienced contractors who provide a low quote, then charge an exorbitant amount to finish the job. Such deceit counts against them.

Poor time management is perhaps the most common reason for broken promises and distrust. Time management is a basic key to becoming predictable and dependable. Firefighting does not help anyone to grow, and system administrators shoot themselves in the foot by allowing anyone and everyone to interrupt, keeping them from accomplishing more strategic-level deliverables.

IT departments must prioritize. This means learning how to say no to some users, and not over-committing finite resources. IT can break some of the negative business stereotypes of IT departments by knowing their limitations and delivering on the promises of "on time" and "on budget."

5.4 Create Value

Creating value can begin by providing a valuable service to the organization as a whole. This goes beyond firefighting end-user tickets to building relationships within the organization. Small gestures can have a large impact in the game of cooperation. That is because value is not constant—it depends on context.

Example 20 *Wireless is not working in one of the conference rooms. It is a simple fix and you get to it before 9 a.m., when a big stakeholder meeting is scheduled. Result: External stakeholders can get on the network and the meeting is a success. The alternative would have meant frustration for your organization and, potentially, loss of face or loss of productivity because your company was counting on using the wireless for an interactive demo that was the centerpiece of the meeting.*

- ✶ **Promise 11** *Increase your value to the organization by being actively involved and responsive.*

Everyone looks for metrics to measure value but, as we have seen, this does not work. For IT services, value is more about perception than about quantitative measures. You may be a top system administrator running a state-of-the-art infrastructure, but if your end users do not see value in your operation, you have lost. Maybe your team just completed a two-year project that involved five staff and hundreds of thousands of dollars. Your end users may not even notice. However, a small fix that you performed with your eyes closed may have an enormous impact. Sometimes it is not what you did but how you did it that makes all the difference. So how do you define value when it is in the eye of the beholder? You ask for feedback. Why? Because asking grooms the relationship.

5.4.1 Request Feedback

Collecting customer feedback can be scary. What if the customer writes negative comments in the survey? They will. That's great! Okay, not so great if they only write negative comments. However, when someone takes the time to say, "The service was bad," it is a window of opportunity for the IT department to learn something and give back to the customer.

Principle 8 (Request feedback) *Asking for feedback is a way of reaching out to your customer to request greater intimacy. This feedback provides you with the perception your customers have of your value.*

Example 21 *A simple way to collect some feedback is to generate a survey sent to each customer for each closed ticket. If the ticketing system does not support this, it may be possible to script something to query closed tickets for the day and send an email with a link to a simple Web survey. Make sure to leave an open question for free-form comments because, when people use it, it provides more value than a score.*

One caveat on feedback: Ignore the tone and perceive the intended message. Anonymity, or the lack of close ties, often makes users think that they can forgo common courtesy and even throw insults and rude remarks. Show all users compassion and defuse a potential conflict; after all, by bothering to communicate at all they have provided valuable data, for which we can be grateful, no matter how they said it.

5.4.2 Making Customer Feedback Useful

Customer feedback is a good way to discover how the IT department is perceived by the organization. Anyone can ask for feedback and anyone can submit feedback, but how does one really make feedback valuable both to IT and to the customer? One critical component to feedback: The submitter needs to feel that someone is reading it. Here are some ways to show that IT is taking the feedback seriously and using the information to improve IT for the organization.[2]

Look at the survey instrument and determine a minimum acceptable response. When collecting numerical scores or letter grades, decide, for instance, that anything below a C or a 60% deserves a personal response. If the survey is made up of open-ended questions, read the responses for unsatisfied customers and poor experiences and use that as a guide. For each response below the baseline, develop a standard process for responding to the customer:

- Fix the customer's immediate problem.
  - Was the ticket actually resolved or is there still a pending issue?
- Talk to staff.

2. C: At NIST we say, "One person at a time." Each submission is important, but it is the one where someone takes the time to write explicit comments that gets our attention. When the submitter realizes we took their feedback to heart and are attempting to grow from it, they develop new respect for us and the process. Our reputation as a customer-oriented IT organization grows from this through word of mouth.

  - The customer may exaggerate the failing of the service, so it is good to get a complete picture.
  - The IT team may believe they provided good service but the customer obviously did not, so there was a misunderstanding or someone dropped the ball.
  - Somewhere in the middle is probably the truth because value is perception based.
- Come up with a fix, if possible.
  - Did someone go on vacation and leave the ticket open for two weeks?
  - Maybe IT needs a process whereby a team member has to transfer all open tickets before going on leave.
  - Or if someone is out sick for a few days, someone else on the team should be assigned to look at the absent person's queue.
- Contact the customer.
  - Do not argue about whether they were right or wrong.
  - Explain how you spoke to the IT team and what processes will change so this will not happen again (if that is the fix—sometimes tickets go bad for reasons out of the sysadmin's control and the IT department has to take its lumps).
  - Be positive and provide assurances that you are working to improve for the next ticket.
  - Thank them for the honest feedback because it helps IT to know where the team can improve.
- Be careful not to lay blame.
  - Makes it seem that IT is making excuses for poor service.
  - It is easy to do. "Well, it was the networking team that forgot to hook up your port, so that's why it took four weeks to get your new computer to you."
  - There are creative ways of letting the customer know that the problem is out of the IT department's control, but this is a sticky area. Be careful not to sound defensive.

Example 22 *Communicate with the customer when a ticket is out of your control.*

Customer: It's been a week since I contacted you to order my new computer. What's taking so long!

IT Department: We're working with the central purchasing department to fill your order. I've talked to the buyer's agent for your order, and she's working diligently to review the proposed quotes to ensure they meet your requirements. She estimates this will take n *days before she can place the order.*

The whole team benefits from improvements made as a result of customer feedback. Customers are elevated from anonymous "users" to unwitting partners in the improvement of the IT services for the organization. This act of closing the feedback loop also builds a reputation as a customer-focused organization, one customer at a time.

Remember the limitations we humans have for maintaining quality relationships [27, 28]. One person cannot maintain a relationship with everyone in a large organization. If there is a team of several IT people, use roles to delineate relationships.

Each person on the team could have different interactions with different customers. This can expand on the limitations on the number of relationships one person can maintain and can spread the relationship management across the whole team.

5.4.3 Attending to Cost and Benefit

IT staff need to think strategically to align with business. This includes understanding costs and benefits for the IT functions within the organization. IT can develop a plan for how costs can be reasonably maintained, taking into consideration staff salary increases or cost of living allowances, organizational growth that may increase the demand for IT (more helpdesk people, more developers), and innovation that may require new skills in the IT organization. A savvy IT manager can project these increases and look for ways to reduce costs in other areas. A good lifecycle plan for the IT infrastructure will decommission legacy services, investigate efficiencies of scale, and consider automation to reduce manual efforts. Below are some ways to communicate costs and benefits in an IT department.

Example 23 *Develop some cost models (even back-of-the envelope is better than nothing).*

- *Cost breakdown of IT for your organization:*
  - *Staffing (labor, hours of coverage)*
  - *Hardware and software refreshment*
  - *Maintenance contracts*
  - *Facilities setup and upkeep*
  - *Time to innovate (research and development)*
  - *Help desk (spare parts, break/fix, etc.)*
  - *Education and training*
- *Measure lights-on costs*
  - *Staffing efforts to support infrastructure (labor, hours of coverage)*
  - *Hardware and software (spare parts, equipment refreshment)*
  - *Maintenance contracts*
- *Cost of automation or standardization compared to manual processes*
  - *Estimated staff time for manual processes*
  - *Estimated staff time to implement automation*
  - *Estimated cost of hardware and software to support automation*
  - *Return on investment through recovered staff time in the years following automation*

- *Other, harder to measure, benefits of automation (e.g., successful audits, easier refreshment of IT, stronger disaster recovery capabilities)*

- *Other cost models you could potentially develop*
  - *Cost of compliance*
  - *Cost of a specific project or roll-out*
  - *Cost of a specific technology or innovation*
  - *Cost of centralization vs. decentralization*
  - *Cost of commercial off-the-shelf (COTS) solution vs. free/libre open source software (FLOSS) solution*
  - *Cost to develop an application in-house vs. contracting out development (include support)*
  - *Equipment/Infrastructure refreshment plan*

Saving money is not as easy as it sounds. Spending more now could buy the promise of greater savings later. Timing is key; indeed, one should also talk about time to return on investment. This is part of developing a sound business case for IT investment requests. IT does not normally have autonomy in spending decisions, so the business case encourages smart IT decisions by business leaders.

Example 24 *Planned server refreshment. Create a 5-year plan showing how to keep hardware and software in line with the needs of business and end users. This demonstrates strategic thinking. It is also good planning, allowing business leaders to budget for expenditures and providing business with a way to spread the cost of infrastructure refreshment over a period of 5 years.*

5.4.4 Productize the Method

Raise the level of professionalism for the IT department by productizing the method. This generates greater consistency for customers and higher value for the business.

This section introduces some of the basic glue that separates an overall consistent customer experience from a haphazard experience for the organization's end users.

Principle 9 (Method cycle) *Develop a consistent method:*

- *Research the problem.*
- *Model it.*
- *Keep your promise.*
- *Groom the relationship.*
- *Assess the outcome.*

Productizing the method:

- What specialized needs do customers have? What are the individual personalities?
  - Some customers always complain, even when service is good.
  - Some customers need special handling.[3]
- Practice active listening (research and grooming).
  - Eye contact and taking notes are good indicators of active listening.
  - Repeat back to the customer what was just said. Reword the problem.[4]
- Ensure that IT understands the real problem (modeling).
  - End users cannot always articulate what they need.
  - Instead they tell IT what they think should be done.
  - Get to the root of the problem.
  - This is why repeating what they say often uncovers the true nature of the problem.
- Have and show empathy and compassion.
  - IT sees customers at their worst.
  - Customers are frustrated or upset by a deficiency in their computing platform and they need someone who cares to listen and make it right.
  - You are that person.
- Show respect.
  - Look for teaching, not mocking, moments.
  - Do not be condescending.
- Timely response is often more important than timely resolution.
  - People will wait longer for a solution if IT has communicated an understanding of the problem and that someone is working on it.
  - Keep your promise.
  - If there are delays in service, IT should touch base with the customer.

Example 25 *IT has to report that they cannot implement a customer's wishes immediately. Instead of giving up, they offer a temporary workaround. This willingness to help builds trust and grooms the relationship.*

- How accessible is IT?
  - What time does the help desk close?

3. Do not discount personalities. Sometimes a certain customer reacts poorly or well to specific people in the IT department. If this customer truly needs special handling, consider assigning them to a specific member of the IT staff (only when available and unbeknownst to the customer). Sometimes two personalities just click, and a problem customer becomes a teddy bear with the right personality on the other end of the phone or keyboard.

4. Studies show that waiters who repeat customer orders back to them get better tips, as they are perceived as provided more caring service.

- When it closes, is there any way a customer can reach someone in the IT department?
- The work day is not 8–5 Monday through Friday for many organizations these days.
- With mobile computing and remote access, employees are working on the road, during evenings and weekends. They still may need IT support occasionally during these times.

Example 26 *Do tickets submitted after the help desk closes go to a paging service, or to email where IT support can triage remotely to determine whether the end user can wait for a response until the next official work day?*

- Be one-stop shopping for everything IT.[5]
  - This does not mean the IT department has to do it all.
  - IT should be prepared to direct a customer to the right person or department.
- Be well-versed in the service catalog.
  - Even the lowest helpdesk staff person needs to be able to articulate services.
  - Remember, the help desk is the face of the IT shop and first contact with the customer.
  - The staff of the IT department should know their own area of expertise, but should also be able to speak intelligently about other IT service areas.
- Assign someone to be the relationship manager.
  - This should be someone who can speak in business terminology about IT services.
  - The relationship manager is the conduit between the unsatisfied customer and the rest of the IT staff.
  - This person should be able to effectively speak truth to power.

5.4.5 Productize the Team

Treat IT as a business within a business. This is a strong way to communicate that IT works for the organization. When IT presents itself as a business inside the organization, then IT is asking the organization's staff to act like customers.

Productize the team:

- Get in front of key stakeholders at regular intervals (e.g., annually, semi-annually).
- Use high-level examples of impact since the last review.
- Present high-level deliverables that address the business concerns most relevant to the organization. Some potential concerns include the following:
  - Risk

5. One-stop shopping is obviously good for a client, but why is one-stop shopping good for IT? It means more relationship time, a stronger bond, greater loyalty.

    - Cost
    - Competitiveness
    - Productivity
    - Compliance
- Present a budget for review and approval by stakeholders/bill payers.
    - Be prepared to defend line items.
    - Compare with last year's (or last two years') budget to set the baseline.
- Present feedback from organization-wide customers.
    - How does IT enable them, make them more productive?
    - Include responses or a summary of metrics from customer surveys.
- Be prepared for challenging questions.
    - How does IT manage change?
    - What gaps exist in staff capabilities?
    - What is the cost of compliance?
    - What can IT do for the business?

The next step is to simplify the relationship for the customers and the business.

5.5 Applied Branding

The system administrator who fixes a problem once, with no repeat interaction with a customer, does not benefit from branding. It is the system administrator who has repeat contact with customers who benefits; the brand puts a name to this relationship.

Branding is about creating a *recognizable identity* that will generate customer loyalty. This means IT needs to bring *consistency* and repeatability to the product. It also simplifies how the customers see the IT department. Instead of "call Fred or Ann or Mauro or Jemal" customers will call "Acme IT Services." When Ann moves on to a new job and is replaced by Sue, customers will still call Acme instead of learning to call Sue in place of Ann. This also allows Jemal to go on vacation for two weeks without his laptop, because customers are not dependent on him for personal IT services.

A brand is more than just a logo on a T-shirt. Branding allows IT to create a standard vision for IT support, something all IT staff can represent. Customers will learn that the Acme group stands for agility, responsiveness, customer service, or whatever the IT department defines for the brand. Remember the three cornerstones of business: trust, agility, core competency. How does your brand address these?

How does IT begin to define "the brand"? Start by answering some questions customers might ask. This is where, as a business, IT can define the unique value of the service. What will the brand promise?

Create a brand:

- What separates the brand from others? Why should anyone go to the brand?
    - Unique service at high value

    - Able to explain the strategy
    - Market oriented—knows needs of organization
- Change the mindset of the IT department.
    - Model brand values.
    - Determine services and service levels as a team, not ad hoc as individuals.
    - Try to make customers' lives easier.
- Engage teammates.
    - They have to believe in the brand, too.
- Implement brand priorities.
    - The whole team must be involved.
    - It has to be repeatable.
    - Consistency is needed—productize the method.
- Training
    - This is especially important for new hires.
- Live it.
    - Get the IT department to buy in on the ground floor.
    - All of IT has to be on the same page with the brand priorities.
    - In every customer interaction, each IT person represents the brand.
    - Stimulate positive emotions: It is all about emotional engagement with the customer.

The brand proves its value when a customer calls for help and it does not matter who responds because everyone in the IT department practices the same brand priorities. You should also consider how the brand is different from other offerings available to the organization:

- Who is the competition?
    - Outsourcing (appearance of value, cost-effectiveness)
    - Central IT organization
    - Capable end users (invisible cost to management)
- How is the brand better and different?
    - Fast: time to first contact
    - Communication: active listening, quality of written and verbal communication
    - Accessible: do not have to go through bureaucracy to get to a live person
    - Business continuity: recovery of business capability as a priority
    - Risk management: defense-in-depth approach to IT security to protect organizational assets
    - Quality of solutions: solving the whole problem, not just symptoms
    - Empathy: caring about what happens to the customer

- Forward thinking: looking ahead to solve problems others think are too hard or problems others have not identified yet

Example 27 *Customer Bob calls Sue in Acme IT with a computer help request. Sue begins to work on Bob's issue but is unable to close his ticket before she leaves for the day. When Sue calls in sick the next day, Tom calls Bob, identifies himself as Sue's counterpart in Acme IT, and continues working on the ticket with no degradation in service for Bob. Bob calls Acme again with another question. This time he speaks with Liz, who references his original ticket and quickly provides Bob with the answer he needs. Bob realizes that it doesn't matter whom he works with in Acme, because they always come through and take care of him.*

In the example, Acme IT is demonstrating the strength of the brand. Each member of the team is versed in service delivery and each customer receives a consistent experience. Service levels are not dependent on specific staff; processes ensure that the normal ebb and flow of sick days and vacations does not interfere with a positive support experience for the customer.

Example 28 *Customer Sarah contacts Acme to request specialized IT to support a research test at an off-site location. Sarah needs laptops and a portable wireless network that will support the test equipment and communications between testers and real-time data, video and voice communications.*

This is outside of the normal Acme IT service catalog, but it is part of Acme's brand to work side-by-side with researchers to solve problems and provide specialized support to enable the mission.

Alex, from Acme, picks up Sarah's ticket and begins to collect requirements (how many laptops, what capabilities, what operating systems). Alex involves Jada for the wireless support. By the time Sarah's team is ready for the off-site test, Acme will have all of the necessary IT components assembled, configured, tested, and ready to support this research effort.

IT ensures that the organization's employees are optimally productive. This may mean specialized support to specific groups within the organization. Senior leaders are not always aware of the individual IT needs of employees or groups. This is not part of the job of a senior leader. It is your job.

5.5.1 Becoming Visible

IT needs visibility in order to integrate with the organization. Once IT has created a valuable service for the organization, the next step is for that to be made visible. Senior leaders do not always know what IT provides to end users. As a result, business leaders may make damaging business decisions based on their lack of knowledge. IT is in the unique position of understanding the customer's needs from the ground level. IT increases its visibility if it can communicate these needs to business leaders in a way that illustrates impact to the mission and in terms leaders will understand.

If there are special support needs, publicize them at the annual review, a newsletter, or in a status meeting with senior leaders. This is one way to improve the breadth of knowl-

edge the senior leaders have about the way IT is used within the organization. If Sarah's off-site test, for example, was mission-critical, IT could advertise how they pulled out all the stops to support mission-critical research for the organization.

Bring senior leaders into the world of the IT department. When is the last time one of the senior leaders stepped into the IT world? Show them the tangibles bought with their investment.

Example 29 *Give a tour of the machine room to senior leaders. Show off things they can understand, such as good cable management. Demonstrating attention to detail in one area means attention to detail elsewhere. Show off what you have, give them a visual of their ROI. Point out, "This is how you get email," "Here is the company Web server," or whatever would have visibility at their level.*

IT can also look for ways to increase visibility in daily interactions with customers. Sometimes it is worthwhile to meet with a customer face-to-face for a complex or contentious issue. It is easy with technology to try to do everything remotely. Face time increases visibility and puts a face to the IT department for the customer. Face time can be especially beneficial for customers who are business leaders or other influential players.

5.6 Impact on the Organization

We have already shown that IT cannot rely on traditional metrics such as ROI to measure and demonstrate value. If there are no metrics, how does IT demonstrate impact for the organization? It is a bit simplistic to assert that there are no useful metrics; however, metrics only paint a partial picture.

One way to attempt to piece together a picture is through combined metrics, customer feedback, and anecdotal evidence of the value IT brings to the business.

Stepping into business leaders' shoes, IT learns what issues are most critical to the organization (e.g., cost savings, innovation, customer service, agility).

Example 30 *Painting a picture for an organization where responsiveness is a key success factor for IT:*

- *Time to respond (metric)—measures how quickly IT responded to a customer ticket. Ticket may not have been resolved, but customer had first contact with IT. Demonstrates responsiveness.*
- *Time to restore business capability (metric)—measures how quickly IT was able to fully resolve a customer issue. This is not closing the ticket, this is confirming the resolution. Demonstrates timeliness.*
- *Customer satisfaction (metric + anecdotal)—measures how satisfied customers are with overall service. Can also include anecdotal evidence of customer satisfaction when IT uses examples of tough issues ending with positive customer feedback of impact of IT's involvement. Demonstrates customer satisfaction.*
- *Stories from the front lines (anecdotal)—provides real-world examples of positive impact on specific groups or whole organization. These could be examples of IT's*

proactiveness on support for a high visibility issue or project. Customer feedback may have been verbal or otherwise outside of the normal feedback channels (surveys). Demonstrates proactiveness, responsiveness, customer service.

Provide business leaders with an indication that their IT investment provides a benefit to the organization.

Use the cost models discussed earlier to develop a model for "lights on" costs. This documents to senior leaders how much of their IT investment goes toward maintaining the current infrastructure. This also provides data to illustrate the value of technology refreshment and how IT is planning for obsolescence. IT is demonstrating their impact by calculating the ROI and providing a justifiable business case for technology refreshment.

IT impacts the organization in several areas. Consider focusing on any of these when communicating value:

- Avoiding penalties through compliance and risk management (financial, regulatory, reputation)
- Empowering organizational employees, supporting optimal productivity
- Reducing duplication, supporting efficiencies of scale
- Reducing cost through automation of simple, repeatable, or manual tasks
- Delivering solutions for knowledge management
- Strengthening contingency and continuity of operations planning
- Increasing organizational competitiveness through new technology

Do not forget to foster relationships with people who interact with business leaders. If the business leaders interact with peers or others in a larger organizational structure, this can be fertile ground for communicating the impact of the IT department. When business leaders receive positive feedback from outside the organization regarding the success of their implementation of IT, that is powerful visibility for the IT department.

Example 31 *Director tells your senior leadership board one of the following:*

Your unit was chosen for audit because they can pass and would make the entire organization look good.

Your unit is the first one in compliance.

Your unit is the only one in compliance.

Your unit already solved this. Can we get your group to help implement this across the organization?

Demonstrating value may not be completely straightforward. Sometimes there is a conflict in serving two masters: end users (customers) and senior leaders (bill payers and customers). There are potentially separate and competing strategies for each:

- Senior leaders look for consistency, cost-effectiveness, compliance
- End users look for service delivery, agility, flexibility/innovation

Sometimes the two conflict:

- Power resides with senior leaders who control purse strings.
- However, influence may be in the hands of developers, researchers, or other end users who provide feedback to senior leaders on the effectiveness of IT to support them. If productivity is impacted, expect to hear about it. The same goes for standardizing or compliance efforts when they impact research, innovation, or mission work.
- Struggle for compliance may clash with innovation.

Be prepared to defend the path IT takes in the conflict.

5.6.1 Self-Sufficiency Leads to Autonomy

The organization pays a higher cost when business leaders must manage people unnecessarily. IT can save money by solving a problem before it becomes one. As soon as a manager gets involved, the interventions are time-consuming, and time is money.

Example 32 *Business has initiated a new greening of IT policy. The impact of this policy will increase IT costs due to required replacement of older hardware with new. This policy also requires IT to push settings to all computers that will turn off displays, hard drives, and computers after a specified idle time. These settings may have a negative impact on end users who run lengthy jobs on their computers overnight. IT may also have to rethink backup strategies, because the nightly backup window will have closed. Remote management may become more challenging because machines are off so you cannot access them remotely.*

Do not wait until your business leaders come to you to manage implemention of the policy. Prepare potential solutions to address the multiple impacts of the new policy. Demonstrate how IT is already on top of implementation issues.

However, before you set up that meeting with your business leaders, review the impacts. Business leaders may not care about a reduced backup window or remote management issues. What changes or impacts will rise to the attention of your business leaders? The cost of new hardware? Impact on researchers? Energy savings?

This is where you step into your business leaders' shoes and address those issues (e.g., cost is usually a good one) that appear to impact the business.

Propose how the IT department will proactively implement proposed solutions that will adhere to the new policy while preserving critical resources such as time, money, or employee productivity.

If you succeed, you have demonstrated that IT is proactive. Realize that you will probably still have to solve the backup and remote management issues, but those may not make the cut of topics to bring to business leaders.

By demonstrating consistent self-sufficiency, IT shows senior leaders that they are protecting the organization's IT investment. This eventually leads to more autonomy and less micromanagement from executives. The last thing senior executives need is to micro-manage a group they do not really understand. If they know IT is watching their corporate backs, they will be more likely to leave IT alone to work.

5.6.2 When to Initiate a Dialog

When should IT take something to the business leaders? This is an important question. Go to them too often, and IT looks too needy. Forget to go to them, and leaders get blindsided by an issue and IT looks like they are not doing a good job. There is a delicate balance between not enough communication and too much. It is different with each executive, so IT needs to get to know business leaders as individuals. Does the Director want to know everything, or only the necessary information he needs at his level?

Having an executive who is one of the former means IT needs to find a way to separate the important dialogs from the informational ones. Perhaps email is a good mechanism to forward the "For Your Information (FYI)" exchanges and save the more critical discussions for face-to-face. Hopefully, the majority of executives are too busy to want to be deluged with information about the IT department. Here is a guide to when IT should consider talking to your business leaders:

- When it may cost the company more money
- When there is a business risk (audit, loss of competitiveness, loss of productivity, loss of reputation, poor publicity, etc.)
- When it could come back to them from another source (good or bad, leaders do not want to be surprised)
- When it makes the IT team look good
- When a senior leader can use the information to demonstrate effectiveness, innovation, strength of the organization (i.e., bragging rights)
- When IT needs resources[6]

Remember to be prepared. Attempt to answer potential questions up front with sound information. Think about the discussion from the business perspective, not the IT perspective. Get champions in the room if it is potentially an incendiary issue. Sometimes it helps to have at the table, backing the idea, someone the business leaders already trust.

Learn to perform this skill effectively; it will go a long way toward developing a rapport with business leaders.

To Do

- Write down a plan to implement a process for collecting feedback from your customer base.
- What kinds of interactions should you have with your senior leaders that you do not have now?
- Who in your organization will be the best person to help you champion the kind of change discussed in this chapter?
- Who will be your biggest challenge when trying to make these kinds of changes?
- Write down a plan to bring your challenging person on board.

6. It is better to go to business leaders for the right solution than to allow IT to patch together a band-aid solution.

6. Some Hints and Tips

In this chapter we suggest ways in which you as an individual can contribute to a business alignment strategy.

6.1 How to Approach Business Leaders

There may be many levels between IT implementers and the CIO who sets policy and budget. If that is the case, then it may not seem possible to build a relationship with relevant business leaders directly.

How to get started:

- Engage through the chain of command, as you need to maintain that relationship.
- Try to sell your direct supervisor on the idea of engaging business leaders to discuss how IT can be more effective to the business. By including him or her in a constructive project, you will make your supervisor look good, too.
- Using the communication chapter as a guide, try to schedule an initial meeting as a small delegation with a clear and focused message that suggests value.
- Consider providing a short introduction to the IT department, if it has been a long time since there was any contact—but get to the point quickly. Remember to conduct an audience analysis and to think from the business perspective.
- At a first meeting, the topic could be as simple and clear as, "We have some ideas and would like to start a dialog."

In such a meeting, obvious questions come up. Good preparation means having the answers to these on hand or knowing where to find them quickly. Business might ask the following:

- What are your ideas for improving the organization through IT?
- What is the biggest IT expenditure today?
- What is the business continuity plan?
- What happened last week when I could not get to *x* service?
- I am having a problem with XYZ: can you look at it for me?

How you deal with the last question is important, as it might set the entire tone of the relationship going forward. Responding positively—"Of course, we'll look at that within the next *n* hours"—is the only option, but attempting to fix the problem then and there would probably be a mistake, for two reasons:

- It places the team in a subservient (even janitorial) role in a meeting where it is trying to present a strategic face.

- It derails the focus of the meeting.

Learning to give feedback to a superior is an important aspect of grooming relationships. An inappropriate response or interruption to the flow of the meeting must be answered, not merely passed over. There is potential resentment that should be defused immediately with a redirecting response, then keep the meeting on topic.

6.2 How to Ask for Resources

Start by figuring out exactly what kind of resources you need.

6.2.1 Capital Investment: Hardware or Software

It is often easier to ask for one-off items; recurring costs require more strategic decision-making.

The issue of cost is a tricky one. We have seen people mistakenly spend time and money to save a few pennies on a purchase when a better solution cost a little more or a decision could have been reached sooner. Business sometimes makes it too hard for IT departments to get what they need, which results in more time and money wasted through prevarication and fear of committing to a decision.

IT spins extra cycles when system administrators are afraid to approach business leaders for resources. The result? IT reinvents the wheel or patches together a home-grown solution. These solutions have resulted in spaghetti environments where scripts build upon scripts and servers cross-reference one another. The cost to the organization is generally higher in the long run due to increased complexity and dependence on specific IT staff who engineered the solution. The net result is higher cost when IT does not or cannot go to business leaders to request resources.

Instead, IT should write a business case explaining why an item is a good expenditure. The amount of effort spent on the business case should be proportional to the cost of the proposed hardware or software and the criticality of the request. If business does not agree quickly on the benefit of the decision, it could be a sign of a deeper disconnect between business and IT.

6.2.2 Staff

Staff acquisitions are long-term commitments to salary, and in some countries these are regulated. Once employed, a person cannot always be laid off. This makes hiring a thorny issue.

Motivate the need for an increase in workforce. Continuity, core competence, and problem-solving are common reasons to expand. The argument will be strengthened if you can show that IT is using automation and software to best advantage; IT has automated as much as possible and still needs more staff.

Once the justification for human help has been made, consider the length of the engagement and the competence of the individual required. Training and retraining of part-timers can be a burden and increases overall costs. Remember, too, that personnel have overhead costs: office space, insurance, etc. To convince business leaders that more staff are needed for the IT department, consider the following:

- Consider what will sell the request to hire temporary or permanent staff. Did someone in the group recently leave? Was the IT department given a new focus, or are you working on some high-visibility efforts? Maybe the organization as a whole recently increased, so the customer base is larger. Any kind of change that impacts the IT department could support the need for more temporary or permanent staff.
- Develop a business case. You can find business case templates by browsing the Web. Some basic areas to address include a short description of the problem you are trying to solve, the proposed solution, requirements, alternatives, advantages to the proposed solution, what will happen if you do not accept the solution, return on investment for the business and how long before the business should expect to see that return.
- Defend the organization's return on investment. What is the benefit to the organization if they add staff to the IT department? Will it enable innovation which in turn will enable the organization to be more competitive? Will it provide much-needed succession planning (lost knowledge is a risk)?
- Learn budget cycle deadlines. Do not ask too late or too early. You can get this information from the local accounting group or the CFO.[1]
- Do your homework on the state of your organization. Is there a hiring freeze or layoffs? Now may not be the best time to approach business leaders for more staff. Perhaps the organization received some new funding for a project or an increase in support from a parent organization. Knowing this information ahead of time allows IT to be prepared when senior leaders raise these points.

6.3 How to Organize a Team

There are essentially two ways to organize a team: organizing an existing team that currently is not organized, or creating a team of IT people who are not working together through hiring or reorganization.

- Organizing an existing team of people may require changing their culture. Tread warily, because culture is one of the hardest things to change and should only be done gradually. Reorganizations can easily break important bonds in an organization. People instinctively cling to the known.
- Organizing an existing team for better business alignment suggests a map to implement the desired state. What promise is IT trying to keep by making this change, and how can it be broken down into promises made by individuals? Start with small steps over time. Sharing the plan with the team offers the benefits of mutual ownership. Team members want to feel that they are contributors.
- Make the promise in writing; document desired changes. Arrange a single place where anyone on the team can go to see what the team is trying to implement. This is like an internal service catalog, only the customer in this case is the IT team.
- Organize a new team. There are existing references on how to hire system administrators, so we will not cover how to hire in detail. Consider communication skills

1. Depending on whom business leaders go to for budget analysis and financial questions.

and other soft skills such as customer service, writing, and public speaking skills. The ideal candidate is a fast learner and has excellent people skills.

- When building a new team or augmenting an existing one, consider people with different strengths instead of clones of one another. A team of people with varying strengths creates a team with better breadth, and teammates can learn from one another.
- Hiring new people or bringing new people into an existing team is an opportune time to indoctrinate them into the local model. If there is no model, now is a good time to build one and begin to work toward better business alignment.[2]

In both cases, one is trying to build alliances. Convincing the entire team to change might be too hard, so focus on the core team. Convincing the core team may prompt others to follow. As the Chinese philosopher Sun Tzu wrote of strategy, try to win hearts and minds first, then win or break alliances, and only confront people as a last resort.

6.4 Reducing Firefighting

Some level of firefighting will always be necessary, as the world is not predictable. However, when IT people only firefight without time for innovation (or business alignment), then the system is broken and change is needed. It may seem like an impossible task, but even small changes can have lasting impacts:

- Initiate process improvement. Look for manual repeated tasks that can be automated.[3] Where possible, stop performing repeated tasks or automate them. Humans are good at decision-making and problem-solving, but only machines are consistent and accurate when it comes to implementation.
- Learn from mistakes, to avoid reliving them. When a mistake is made, costing time and resources, figure out what went wrong and how it could have been prevented. Alter the local procedure manual to reflect the wisdom gained. This is part of the productization of IT. A process improvement will ensure that the mistake does not occur again.

Example 33 *The server disk fills up because a log file is not being rotated. Processes cease to run because there is not enough space. Run an automated log rotation program and do garbage collection. Also, configure a sentinel process to report when disk space is low.*

- Try to be more proactive and less reactive (see example above). If you had been monitoring that server or, better still, using desired state automation, no fault would need to be discussed. Look for ways to let the systems monitor themselves and report only when there is critical information.

Look for areas where there are repeated problems or user tickets. Can IT change something about the service or the infrastructure to eliminate the problem?

2. C: One of the first things we do with a new teammate is to provide them with our standard operating procedures (SOP), along with face-to-face orientation for the important areas of the guide. The SOP is basically our guidebook to living the brand identity. It covers how to treat people and route calls, escalate issues, deal with complaints, measure success, deal with feedback, etc.

3. C: A friend once said, "If you do something more than three times, it should be scripted."

6.5 How to Say No

No one wants to hear the answer "no," and as a result it is common for people to lie and make promises they cannot keep to avoid a face-to-face conflict. Unfortunately, this only pushes the problem downstream.

Example 34 *Your business executive just asked you to implement an insecure service. You know your risk profile and the threats to your organization. This service would undermine your security, and the executive only wants it because his tennis partner told him he would like it. How do you say no to this?*

First, make a brief case for why this is not a sound business decision, avoiding personal jabs and technical jargon; focus on impacts that communicate to business such as cost, risk, etc. Then replace the discussion with what IT is willing to do to resolve the issue.

Above all, people respect clarity. Saying, "Hmmm, maybe, but I dunno," is infuriating and worthless. A simple "no" is one possibility when talking to someone who understands the reasons. In most cases, bridging the IT-business barrier, there is no such understanding and the best way to say no is to offer an alternative.

6.6 How to Approach Business Leaders with a Problem

It is always easier to be the bearer of good news. Bad news spreads poor morale, and that can lead to an image of incompetence. Sometimes IT needs a decision and sometimes the meeting is informational only. IT should be clear at the outset of the meeting if a decision is needed. This allows business leaders to know if this is information IT is passing to keep leaders abreast of a bad situation or if IT is coming to the business leaders for a decision on how to move forward.

If possible, it is best to come up with potential solutions. Unless the problem is a business-oriented problem, business leaders are not IT specialists, so they are probably not the best people to create an IT solution.

Have more than one solution and provide them in order of preference. Be prepared to make a recommendation and support it with pros and cons that business leaders will understand.

6.7 Money to Attend a Conference

IT people can develop a narrow and distorted view of the world when they focus only on internal business and technical work. Often underrated reasons to attend conferences are the informal contacts one makes and the opportunity to see beyond the walls of the organization. Networking with peers in industry translates to a more knowledgeable IT staff, as they pick up inside information on the latest IT innovations and how peers are solving today's IT challenges.

A well-rounded IT conference:

- exposes IT staff to solutions for automating processes and services (offering cost savings)

- advances their technical capabilities (improving support services, problem solving for the business, and innovation potential)
- introduces them to new security techniques (increasing the level of risk management)
- teaches them time and project management, documentation, and other soft skills (creating IT staff who are well-rounded and can better understand and communicate with the organization).

Overall, conferences present opportunities for the business to send their IT staff to a sort of industry bootcamp not realized through vendor or on-site training.

Another benefit, which business leaders often fail to understand, is the importance of workplace morale that leads to higher productivity. A conference visit can inject a huge lift in morale to a team by saving hours of time spent trying to find out relevant and authoritative information by clicking around the Internet. Conferences are generally quality-assured sources of packaged research. Training courses provide specific skills, but conferences can bring context and shared experience. Submitting a paper to the conference provides visibility for the organization, which can be a form of marketing if the business has customers in the IT sector.

6.8 Champions

Every strategic change needs a champion, whether it is to make a large purchase or to bring about a change of vision. Finding a champion, who may also be a mentor, can help boost the IT department's credibility.

Champions need political support to make an impact. Support can come from below, but support from above is usually needed to make something happen. Champions therefore need a relationship to business more than ever. Effective champions provide instant credibility, because they already enjoy a trusted partner relationship with business leaders.

Becoming a champion for the business is an effective way of building a relationship, as we have seen in Chapter 3, because it shows initiative and visibility and suggests avenues of exploration to improve business value. These are values that business leaders can respect.

To Do

- Write down what you see as the biggest obstacles to making change in your organization.
- Make a list of the individuals who are receptive to change and new ideas.
- Write down proposals for new promises that you could keep and that send positive signals to business units.
- Imagine ways to build contacts, such as inviting leadership to an afternoon tour of the server facilities, demonstrating mastery of the environment.

7. Conclusion

We have attempted to describe the patterns and principles that we have learned over the years concerning cooperative work and its application to business integration. We have outlined a simple method: talking about outcomes rather than implementation details, making promises and keeping the promises, then assessing the results. In ITIL this is very much like the so-called Deming Quality Cycle. In Promise Theory, it is part of basic methodology. In fact, it is nothing more than the scientific method—a proven way of learning with honest self-criticism, and, of course, a way of improving.

Our core message throughout this book: Develop close relationships within your organization. You accomplish this through practice which engenders familiarity, trust, and an effective relationship with business leaders. Relationships come in several forms and are not limited to people:

- Relationships between people (bonding)
- Relationships between people and technology (skills)
- Relationships between entities (organization)

We come back to the image of the rocket and the 747. The aim of business is to change from high-risk endeavors to the practiced and reliable, recyclable service. If that is the only message that emerges from this book, it will have been worth our effort.

Simplifying something is the hardest task we are ever asked to do. The traditional answer to managing a problem is to wrap it in additional reporting and bureaucracy, but adding more layers rarely made anything simpler. Overhead can easily increase when complexity is applied without understanding why. Eventually, processes must stand on their own. One thing we can say about simplifying and productizing: If you are not working hard at it, you are not doing it.

7.1 Where to Begin

There are a lot of topics to digest in this book. If you attempt to implement everything at once, you are asking for failure. Often big change comes in small steps. Review the "To Do" sections at the end of each chapter. These should help you to develop a roadmap for your organization.

Also realize our limitations as we attempted to cover such a broad topic in so few pages. For example, one could write a whole book on the nuances of team building. There are certainly more detailed resources on the individual topics covered here such as communication, team building, customer service, and, of course, the business world. Example service catalogs and business cases can be found through an online search.

We hope that by pulling these topics, tools, and skills together into a short and accessible format, we have made it easier for you to take the first steps toward positive change in your organization.

To Do

- Write down the names of the tools you most frequently use.
- Write down the names of the people you most frequently interact with.
- Write down the names of the tools and people you try to avoid.
- Assess whether the choices you made above are strategically aligned with your long-term goals.
- Write down an idea for branding your identity. How do people think of you and remember you?
- What one thing could you do next week to start down a path to better business alignment in your organization?

Start by answering the challenges at the end of each chapter. Together these should provide you with a potential roadmap.

Please Assess This Book

Our book was an experiment. Please help us by telling us whether it helped you or your organization in any way. For example:

- What was the most useful or helpful information in this book?
- What could we add, remove, or address to make this book more useful?
- What challenges do you face that were not covered in this book?

Please send your comments to carolyn@nist.gov and mark@cfengine.com.

Appendix. Principles and Promises

Principles

1. Practice makes perfect: In a process of continuous improvement, you review, adapt and improve all the time, making agility and predictability part of the same goal.
2. Demonstrating control: Demonstrate the ability to deliver, use, avoid, and change IT services at will, as well as manage costs and risk. This builds confidence and trust on all sides, and these are the foundations of everything else.
3. Value in cooperation: Long-term cooperative relationships are valuable to both parties. Quick wins are insignificant in the long run.
4. Choice of relationships influences value: The number of relationships we can attend to is limited, so choosing partners becomes a strategic decision.
5. Trust: Trust is built when you keep promises.
6. Alignment: Alignment is a mutual understanding of goals. The two sides need to come to a common understanding.
7. Compassion: Compassion for others enables and strengthens cooperation.
8. Request feedback: Asking for feedback is a way of reaching out to your customer to request greater intimacy. This feedback provides you with the perception your customers have of your value.
9. Method cycle: Developing a consistent method:
    a. Research the problem
    b. Model it.
    c. Keep your promise.
    d. Groom the relationship.
    e. Assess the outcome.

Promises

1. Try to see IT and business from business leaders' perspective.
2. Work to enable service transparency in relation to business goals. Show how money is well spent.

3. Formulate a clear and transparent business case for requests.
4. Do not make it hard for IT to propose a business case; barriers encourage obfuscation.
5. Budget wisely, but with generous margins to allow for innovation and job satisfaction.
6. Educate business on the background for budgeting and strategic decisions.
7. Grant sufficient autonomy to IT specialists to enable innovation and greater productivity.
8. Bring confidence to business by researching and mitigating the risks of attack, loss of continuity, and breaches of compliance with regulations.
9. Learn to communicate so that others want to listen.
10. Prepare for every encounter with someone, whether physical or virtual, and think about its long-term effect.
11. Increase your value to the organization by being actively involved and responsive.

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About the Authors

Mark Burgess is professor of Network and System Administration at Oslo University College. He was the first professor with this title. Mark obtained a PhD in Theoretical Physics in Newcastle, for which he received the Runcorn Prize. His current research interests include the behaviour of computers as dynamic systems and applying ideas from physics to describe computer behaviour. Mark is the author of the popular configuration management software package cfengine and is the founder and chairman of the Cfengine company. He made important contributions to the theory of the field of automation and policy based management, including the idea of operator convergence and promise theory. He is the author of numerous books and papers on network and system administration and has won several prizes for his work.

Carolyn Rowland is a Supervisory System Administrator for the Engineering Laboratory at the National Institute of Standards and Technology. Her team of sysadmins provides heterogeneous support for 500+ scientists and administrative staff. Carolyn also performs risk management, ensures IT security compliance, and outsources her team's services to other laboratories within NIST. She acts as the liaison between IT and business leaders as she pursues successful business-IT alignment. Carolyn began her professional career as a sysadmin in 1991 and moved into a leadership position in 2000.