CHAPTER 18

Long, Formal Reports

▸REAL PEOPLE *in the workplace*

Cities, states, and the federal government constitute the largest employers in the United States. The government hires engineers, financial analysts, accountants, scientists, administrative assistants, fire fighters, police officers, employees in public works and utilities, and parks and recreation workers.

Do these employees have to write long, formal reports? The answer is "yes." Charles **Worth**, the assistant city manager/city clerk of Round Rock, Alabama, says that his city's engineers, police officers, fire chiefs, financial advisors, and parks and recreation employees often write formal reports to city council members and the city's mayor. These long reports help the city council members "make informed decisions" that impact the city's residents and business owners.

Sometimes topics for these reports are generated within city hall. Other times, topics for the reports come from concerns expressed by citizens. A citizen contacts one of the city council members, for example, to share a concern about streets, sidewalks, animal control, traffic, or taxes. Maybe a citizen wants to expand a business, improve safety guard training for school crosswalks, or build a skateboard park for resident recreation. City council members ask the city's staff to research the issues, write a report that provides information on relevant statutes and/or other cities' best practices for handling issues, analyze options, and then recommend follow-up actions.

In one recent instance, the city needed to expand an existing road. The two-lane, winding road, initially built in the early 1940s, no longer met the city's growing population needs. To accommodate city growth, the road had to be widened to four lanes and straightened to meet increased traffic and speed limits. This change would necessitate significant research and resources. City engineers needed to study the extent to which a road change would impact

- An adjacent animal refuge
- Current homeowners' land
- Sewage lines
- Easements
- Electrical and water lines
- New signage
- Traffic signals

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CHAPTER GOALS

When you complete this chapter, you will be able to do the following:

1. Understand the purposes of writing long, formal reports.
2. Distinguish among informational, analytical, and recommendation reports.
3. Follow guidelines for writing long, formal reports.
4. Include the major components of long, formal reports: front matter, text, and back matter.
5. Distinguish between primary and secondary research to develop your content.
6. Evaluate your long, formal reports using the report checklist.
7. Follow the P^3 process—planning, packaging, and perfecting—to create effective long, formal reports.

WWW

To learn more about long, formal, research reports, visit our Web Companion at http://www.prenhall.com/gerson.

The roadway project would be time consuming and costly. Only through a long, formal report could city engineers thoroughly provide the city council information about this project, analyze the options, and recommend appropriate construction steps.

Charles says that poor communication damages the city employees' credibility and diminishes their professionalism. Flawed reports—ones that aren't well written or clearly developed—suggest that the writers "lack interest in the city's residents and business owners," are unresponsive to their constituents, or "just don't want to help" the city's taxpayers. That's bad PR, potentially leading to citizen complaints and inefficient government. It's not surprising that Charles says, "One of the most important assets you can have in government is writing skills."◀

Charles's Communication Challenge

As assistant city manager/city clerk of Round Rock, Alabama, Charles Worth is responsible for city purchases. Charles says, "My accounting manager has informed me that the city's financial software is outdated. To get approval for the acquisition of new financial software, I need to write a long, formal report, which will be submitted to the city manager and members of the city council. The report must provide sufficient documentation to the city council to justify large, capital expenditures.

My communication challenge is as follows:

1. I must inform the city manager and the city council of the current software shortcomings. My audience does not consist of accountants or computer specialists. City council members are elected citizens from the community with varied backgrounds. Therefore, the report must be written at a lay person's level.
2. I must use details, language, and illustrations that persuade the audience to approve the new software.
3. I must analyze options for solving the city's problem with outdated software. This will require that I research optional vendors, taking into consideration the allotted budget for software replacement and our requirement to allow for open bidding.
4. Based on my research, I must persuasively recommend the best vendor."

See page 536–538 to learn how Charles met his communication challenge.

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WHY WRITE A LONG, FORMAL REPORT?

In some instances, your subject matter might be so complex that a short report will not thoroughly cover the topic. For example, your company asks you to write a report about the possibility of an impending merger. This merger will require significant commitments regarding employees, schedules, equipment, training, facilities, and finances. Only a long report, complete with research, will convey your content sufficiently and successfully.

You could have to write a long, formal report requiring research for a variety of reasons, such as the following:

1. When a subject is important
2. When documentation will reveal the importance of the topic
3. When large sums of money are involved
4. When large numbers of people are affected
5. When time and resources are devoted to development of the report
6. When research will explain and support the topic

Additional information:

See Chapter 17, "Short, Informal Reports."

TOPICS FOR LONG, FORMAL REPORTS

When you devote considerable time and energy to long, formal reports, you will be dealing with topics that often have serious and complex issues to be considered. The following are titles of long, formal, research reports:

- The Effect of Light Rail on Wyandotte County: An Economic Impact Study on Infrastructure
- The Increasing Importance of Mobile Communications: Security, Procurement, Deployment, and Support
- Managing Change in a Technologically Advancing Marketplace at EBA Corp.
- Information Stewardship at The Colony, Inc.: Legal Requirements for Protecting Information
- Remote Access Implementation and Management for New Hampshire State University

These examples share several common denominators including the significant costs required for implementation of large scale changes, the impact on large numbers of people, the time and resources required to research the topics, and the challenges of writing the long, formal reports expected by the intended audiences. Short reports would not suffice.

TYPES OF LONG, FORMAL REPORTS: INFORMATIVE, ANALYTICAL, AND RECOMMENDATION

Reports can provide information, be analytical, and/or recommend a course of action. Occasionally, you might write a report that only informs. You might write a report that just analyzes a situation. You could write a report to recommend action persuasively. Usually, however, these three goals will overlap in your long, formal reports.

For example, let's say that your company is expanding globally and will need a WAN (a wide area network that spans a large geographical area). In a long, formal report to management, you might first write to inform the audience that this WAN will meet the strategic goals of storing and transmitting information to your global coworkers. The report also will analyze the ways in which this network will be safe, reliable, fast, and efficient. Finally, the report will recommend the best designs for providing secure communications to clients, partners, vendors, and coworkers. Ultimately, you must persuade the audience, through research, that your envisioned network's design, hardware specifications, software, and estimated budget will satisfy both internal and external needs. Such a report would have to be informative, analytical, and persuasive to convince the audience to act on the recommended suggestion.

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Information

When you provide information to your audience, focus on the facts. These facts will help your readers better understand the situation, the context, or the status of the topic. For example, Nitrous Solutions asked Alpha/Beta Consulting, (A/B/C) to report on backup data storage options for software archives. To so do, A/B/C needed to present factual information about the importance of backup storage. In a long, formal report, A/B/C informed their client about the following: the threats to data, the cost of lost data, how often data should be backed up, and what data should be archived. See Figure 18.1 for information about backup data storage.

Analysis

When you analyze for your audience, you begin with factual information. However, you expand on this information by interpreting it and then drawing conclusions. Once Alpha/Beta Consulting presented the informational findings about backup data storage facilities, they followed this information with a more in-depth analysis of backup options and drew a conclusion for their client. See Figure 18.2 for analysis of backup data storage options.

Recommendation

After providing information and analysis, you can recommend action as a follow-up to your findings. The recommendation allows you to tell the audience why they should purchase a product, use a service, choose a vendor, select a software package, or follow a course of action. Alpha/Beta Consulting presented findings and analyzed information for their client Nitrous Solutions. Based on their analysis, the consulting company then made a recommendation. See Figure 18.3 for their analysis and recommendation.

FIGURE 18.1 Information About Backup Data Storage

Information is presented in a variety of ways. The consulting company details data in bulleted lists, asks questions and provides answers, and explains facts and findings in paragraphs.

Description of Backup Data Storage:

The following information provides facts about permanent storage to help Nitrous Solutions maintain a high degree of security in an off-site backup data storage location.

Facts:

Due to events such as 9/11 and Hurricane Katrina, the importance of maintaining mission-critical electronic data and backups has become evident for companies that wish to avoid a catastrophic outcome. Moving data to a separate off-site location dilutes risk and protects against data loss when, for example, the company's IT infrastructure or its critical electronic information is damaged by the following:

Threats to Your Data	Dangers and Costs of Data Loss
➤ Fire	➤ Loss of mission-critical files
➤ Flood	➤ Corrupted database
➤ Hurricane or tornado	➤ Corrupted operating system
➤ Lightning strike	➤ Loss of all files on hard drive
➤ Earthquake	➤ Laptop damage, theft, or loss
➤ Heat, sunlight	➤ Damaged computer hardware
➤ Humidity, moisture, spilled liquids	➤ Backup media loss or theft
➤ Smoke, dust and dirt	➤ Total loss of all data at your site
➤ Electrical surge or power failure	➤ Compromised data security
➤ Media failure	➤ Competitor access to your data
➤ Hard drive failure	➤ Lost business records

(Continued)

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FIGURE 18.1 Information About Backup Data Storage Continued

When and What Data Should Be Backed Up?
Some basic questions that are commonly asked when determining when and what data should be backed up are as follows:

How often should desktop PCs or Macs be backed-up?

- Data on desktop PCs and Macs should be backed-up at a minimum of at least once a week. This will prevent anyone losing more than one week's worth of information.

Should everything on my PC or Mac be backed-up once a week?

- This is not necessary. Only data needs to be backed-up once a week. Software, operating systems, and even static data do not need to be backed up that often. Backing-up everything on your PC or Mac adds time to the process and requires substantially more backup tapes, back-up disks, or other types of media.

How long should I keep computer backups?

- Some companies keep original backups up to seven years and have a set schedule that includes five different increments of backups: daily, weekly, monthly, quarterly, and yearly.

This is a topic for discussion with your key management, legal staff, information systems technicians, records management, and key personnel. Balancing the needs of a company's computer system protection with good records management takes informed decisions on the parts of all these departments.

FIGURE 18.2 Analysis of Backup Data Storage Options

Analysis of Backup Data Storage Options

Industry analysts claim that two out of five businesses that experience a disaster will go out of business within five years of the event due to information and service loss as a consequence of disasters.

This is an alarming statistic considering the high cost of not "expecting the unexpected." In the event of a disaster, a corporation could lose hundreds, thousands, or even millions of dollars through lost productivity. At worst the corporation could go out of business without the possibility of a second chance.

The two main types of off-site data storage are the following:

Off-site Data Storage Facility	Internet Data Storage Facility
Tapes, CDs, DVDs, or hard drives are sent to a predetermined off-site location for security and disaster recovery purposes, thus allowing a business to be safe in the knowledge that they will be able to recover quickly and seamlessly from any disaster. With simply a walk across the street or a drive downtown to the storage facility, the business can quickly begin to rebuild from the data they have stored.	Off-site Internet data storage, although relatively new, has quickly become one of the fastest growing arenas in the records and information management industry. A business can simply select the files and the time that they wish to have their files backed up with the off-site backup software. Their files are compressed, encrypted, and sent to a backup server over their existing Internet connection. The business can upload or download your files as often as needed, with usually no additional charges.

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FIGURE 18.2 Continued

Off-Site Location for Data Storage Options	
Off-Site Residential Location	**Off-Site Facility Location**
Costs	
• Completely free	• $5–$650 per month depending on space and features
Reliability	
• Data are accessible whenever you need it • Save and archive as much as you need with no restrictions or extra fees	• Insurance on data is automatic with contract • Data are fully accessible during normal business hours, or after hours by emergency only
Security	
• More secure than leaving your data in your office building	• Vault and/or building monitored by 24-hour surveillance and alarm systems • Security patrolled
Scalability	
• Can store as little or as much data as needed, with no restrictions, guidelines, rules, or regulations, free of charge	• Just like the Internet storage, as your company grows, so can data storage; of course, an increase of storage means an increase of monthly payment
Ease of Use	
• Your house, your rules • Maintenance of data management can be completed in your spare time	• Easy to set up and manage • Step-by-step instructions available • Some companies offer free technical help

When analyzing information, A/B/C presented facts and figures, pros and cons, and specific details. Then, the consulting company interpreted this information in a conclusion.

Conclusion

Regardless of how much or how little a business uses a computer, your company will create important and unique data. The unique data can include financial and project budget records, digital images, client profiles, and marketing sales. The data are priceless and constantly at risk.

Data loss is likely to occur for many reasons:

- Hardware failure = 42 percent
- Human error = 35 percent
- Software corruption = 13 percent
- PC viruses = 7 percent
- Hardware destruction = 3 percent

For these reasons, Nitrous Solutions should choose backup storage for its valuable data.

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FIGURE 18.3 Analysis and Recommendation

Off-Site Location for Permanent Storage:
Analysis and Recommendation

WEIGHTED ANALYSIS:

Type		Off-Site Residential		Off-Site Facility	
Criteria	Weight	*Rating	Score	*Rating	Score
Cost	15%	5	0.75	3	0.45
Performance	25%	-	-	-	-
Reliability	30%	4	1.20	4	1.20
Security	15%	3	0.45	4	0.60
Scalability	10%	5	0.50	5	0.50
Ease of use	5%	4	0.20	4	0.20
Total	100%		3.1		2.95

*Rating: The weighted analysis is based on a 1 to 5 scale; 1 is poor and 5 is excellent.

Recommendation:

Because Nitrous Solutions does not currently have a network infrastructure in place, the data storage decision should be considered a high priority since all new data that the company creates will be significant to the company's overall success. Alpha/Beta Consulting recommends that Nitrous Solutions use the residential off-site data storage option due to the slight advantage it has over a professional storage facility. The one and only real advantage between the two is cost. Whereas residential storage is free with no contracts or monthly charges, a storage facility will charge anywhere from $5 to $650 per month, depending on the size of data and equipment that needs to be accompanied with such data.

If Nitrous Solutions determines the need to have multiple backup solutions, rather than a single reinforcement to the backup data, another highly recommended means of storage would be that of an Internet storage facility. Due to the popular demand and increasing technology, many different companies are now offering free trials of their Internet storage facilities and software. Due to the unknown intentions of Nitrous Solutions, only the features for Internet storage will be researched because almost all options for Internet companies are either compatible or identical.

MAJOR COMPONENTS OF LONG, FORMAL REPORTS

Since short reports run only a few pages, you can assume that your readers will be able to follow your train of thought easily. Thus, short reports merely require that you use headings such as "Introduction," "Discussion," and "Conclusion/Recommendation" to guide your readers through the document or talking headings to summarize the content more thoroughly. Long reports, however, place a greater demand on readers. Your readers could be overwhelmed with many pages of information and research. A few headings won't be enough to help your readers wade through the data.

Additional information:

See Chapter 17 "Short, Informal Reports."

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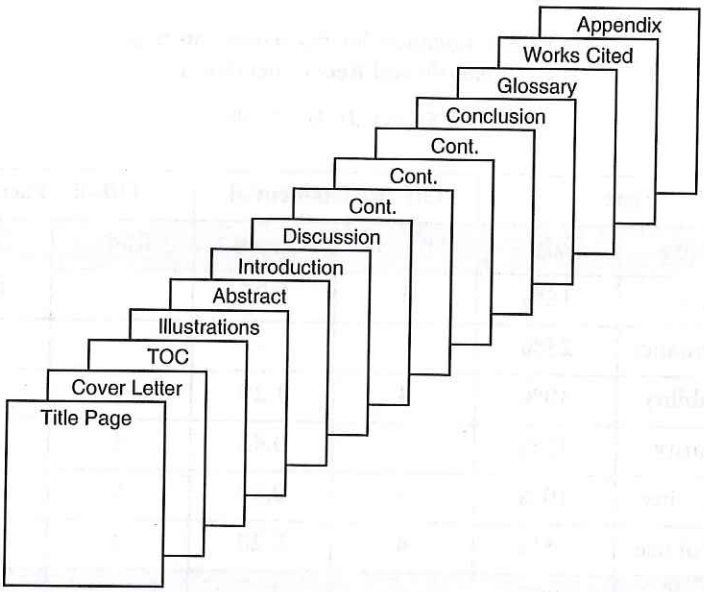
FIGURE 18.4 Components of a Long, Formal Report



In addition to the basic components of a short report, a long, formal report includes the following:

- **Front matter** (title page, cover letter, a table of contents, list of illustrations, and an abstract or executive summary)
- **Text** (introduction including purpose, issues, background, and problems; discussion; and conclusion/recommendation)
- **Back matter** (glossary, works cited or references page, and an optional appendix)

See Figure 18.4 for the components of a long, formal report.

Title Page

The title page serves several purposes. On the simplest level, a title page acts as a dust cover or jacket keeping the report clean and neat. More important, the title page tells your reader the

- Title of the long report (thereby providing clarity of intent)
- Name of the company, writer, or writers submitting the long report
- Date on which the long report was completed

If the long report is being mailed outside your company to a client, you also might include on the title page the audience to whom the report is addressed. If the long report is being submitted within your company to peers, subordinates, supervisors, or owners, you might want to include a routing list of individuals who must sign off or approve the report. Following are two sample title pages. Figure 18.5 is for a long report with routing information; Figure 18.6 is for a long report without routing information.

Cover Letter

Additional information:

See Chapter 10, "Traditional Correspondence: Memos and Letters."

Your cover letter of memo prefaces the long report and provides the reader an overview of what is to follow. It tells the reader the following:

- Why you are writing
- What you are writing about (the subject of this long report)
- What exactly of importance is within the report
- What you plan to do next as a follow-up
- When the action should occur
- Why that date is important

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FIGURE 18.5 Title Page for Long Report (with Routing Information)

Report on Multicultural Workforce at StartCo Insurance

Prepared by: _____ Date: _____
Pete Niosi
Assistant Director, Human Resources

Reviewed by: _____ Date: _____
Leah Workman
Manager, Accounting

Recommended by: _____ Date: _____
Greg Foss
Department Supervisor, Customer Service

Recommended by: _____ Date: _____
Shirley Chandley
Director, Human Resources

Approved by: _____ Date: _____
Ralph Houston
Vice President

Provide routing information for the long report.

FIGURE 18.6 Title Page for a Long Report (without Routing Information)

Title the report.

Computer Networking Report:
The Need to Upgrade Intranet Capabilities

Provide the company name and location.

for
Acme Products, Inc.
2121 New Line Avenue
San Antonio, TX 78666

Give the writer's name(s), title, and company.

Submitted by
Thomas Brasher
CEO, Technology Upgrades
3254 West King's Highway
San Antonio, TX 78221

August 13, 2009

Table of Contents

Long reports are read by many different readers, each of whom will have a special area of interest. For example, the managers who read your reports will be interested in cost concerns, timeframes, and personnel requirements. Technicians, in contrast, will be interested in technical descriptions and instructions. Not every reader will read each section of your long report.

Your responsibility is to help these different readers find the sections of the report that interest them. One way to accomplish this is through a table of contents. The table of contents should be a complete and accurate listing of the main *and* minor topics covered in the report. In other words, you don't want just a brief and sketchy outline of major headings. This could

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lead to page gaps; your readers would be unable to find key ideas of interest. In the table of contents in Figure 18.7, we can see that the discussion section contains approximately 16 pages of data. What is covered in those 16 pages? Is anything of value discussed? We don't know.

BEFORE

FIGURE 18.7 Flawed Table of Contents

Table of Contents

This poorly written table of contents omits second-level headings and has too many page gaps.

In contrast, an effective table of contents fleshes out this detail so your readers know exactly what is covered in each section. By providing a thorough table of contents, you will save your readers time and help them find the information they want and need. Figure 18.8 is an example of a successful table of contents.

In the example, note that the actual pagination (page 1) begins with the introductory section. Page 1 begins with your main text, not the front matter. Instead, information prior to the introduction is numbered with lowercase Roman numerals (i, ii, iii, etc.). Thus, the title page is page i, and the cover letter is page ii. However, you don't need to print the numbers on these two pages. Therefore, the first page with a printed number is the table of contents. This is page iii, with the lowercase Roman numeral printed at the foot of the page.

AFTER

FIGURE 18.8 Effective Table of Contents

Table of Contents

Second-level and third-level headings help the audience access all parts of the report in any order.

(Continued)

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FIGURE 18.8 Effective Table of Contents Continued

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Technology Tip

Creating a Hierarchy of Headings Using Microsoft Word 2007

When writing your long, formal reports, you will want to include headings and subheadings. To help your readers navigate the text, create a clear hierarchy of headings (also called "cascading headings") that distinguish among "first-level headings," "second-level headings," "third-level headings," and "fourth-level headings."

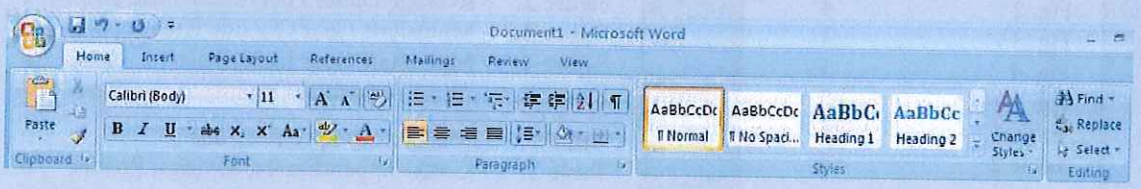
Microsoft Word 2007 will help you create this hierarchy of headings. You can apply a "style" to your entire document in Word's "formatting text by using styles" tool.

For example, let's say that you want your headings and subheadings to look as follows:

HIERARCHY OF HEADINGS	DESCRIPTION
HEADING ONE	First-level headings: Times New Roman, all cap, boldface, 16 pt. font.
Heading two	Second-level headings: Times New Roman, boldface, Italics, 14 pt. font.
Heading three	Third-level headings: Arial, boldface, 12 pt. font.
Heading four	Fourth-level headings: Times New Roman, italics, 12 pt. font.

To create a hierarchy of headings, follow these steps:

1. Click on the **Home** tab and then click on the down arrow to the right of **Heading 2.**



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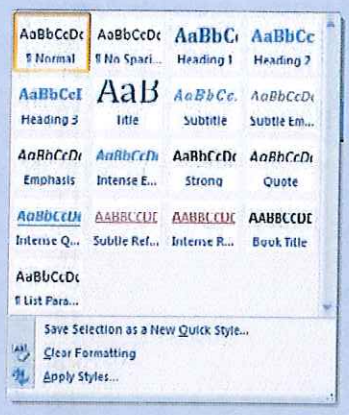
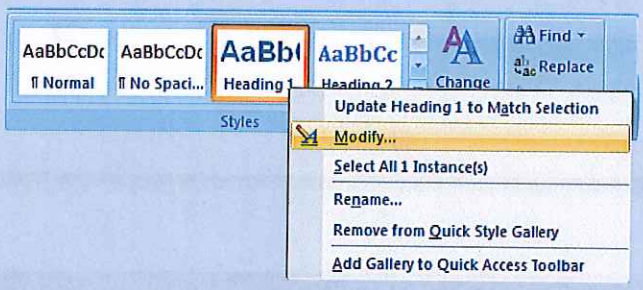
The following styles and formatting box will pop up.



2. Right click on the **Heading 1** button and scroll to **Modify**. Here, you can change font type, size, and color.



List of Illustrations

If your long report contains several tables or figures, you will need to provide a list of illustrations. This list can be included below your table of contents, if there is room on the page, or on a separate page. As with the table of contents, your list of illustrations must be clear and informative. Don't waste your time and your reader's time by providing a poor list of illustrations like Figure 18.9. Instead, complete an effective list of illustrations like Figure 18.10.

BEFORE

FIGURE 18.9 Flawed List of Illustrations

List of Illustrations

Fig. 1	2
Fig. 2	4
Fig. 3	5
Fig. 4	5
Fig. 5	9
Table 1	3
Table 2	6

AFTER

FIGURE 18.10 Effective List of Illustrations

List of Illustrations

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Abstract

As mentioned earlier, a number of different readers will be interested in your long report. Because your readers are busy with many different concerns and might have little technical knowledge, they need your help in two ways: they need information quickly, and they need it presented in terminology for a semi-specialist. You can achieve both these objectives through an abstract or executive summary.

The abstract is a brief overview of the proposal or long report's key points geared toward a semi-specialist. To accomplish the required brevity, you should limit your abstract to approximately one to two pages. Each long report you write will focus on unique ideas. Therefore, the content of your abstracts will differ. Nonetheless, abstracts might focus on the following: (a) the *problems* necessitating your report, (b) your suggested *solutions*, and (c) the *benefits* derived when your suggestions are implemented.

For example, let's say you are asked to write a formal report suggesting a course of action (limiting excessive personnel, increasing your company's workforce, improving your corporation's physical facilities, etc.). First, your abstract should specify the problem requiring your planned action. Next, you should mention the action you are planning to implement. This leads to a brief overview of how your plan would solve the problem, thus benefiting your company.

Another approach to an abstract for a long report is to summarize the content being analyzed in the report, setting the stage for the major issues to be discussed. In this abstract, you will highlight all the main points in the long report, omitting any supporting facts and documentation (to be developed in the discussion section of the report). You not only want to be brief, focusing on the most important issues, but also you should avoid terminology and concepts for specialists. The purpose of the abstract is to provide your readers with an easy-to-understand summary of the entire report's focus. Your readers want the bottom line, and they want it quickly. Therefore, either avoid all terminology for specialists, completely define your terms parenthetically, or refer readers to a glossary.

Additional information:

See Chapter 3 "Meeting the Needs of the Audience."

Figure 18.11 is a sample abstract for a long report.

Executive Summary

An executive summary, similar to an abstract but generally longer, is found at the beginning of either a formal report or a proposal and summarizes the major topics covered in the document. By reading the executive summary, your audience (the decision makers) gets an overview of the much longer report or proposal. Executive summaries can even take the

Summarizing the report in the abstract allows the reader to get a "snapshot" of the content. Since most people think that Microsoft Windows is the only option for desktop computing, this report discusses an alternative—Linux.

FIGURE 18.11 A Sample Abstract for a Long Report

Abstract

The Microsoft Windows desktop has established a dominant presence in the enterprise desktop marketplace. Currently, the Windows desktop has nearly total control over the enterprise desktop market primarily due to

- An aggressive marketing strategy
- Its intuitive ease of use
- Its apparent ease of installation and administration
- Readily available support

Windows, however, is not the only viable desktop solution in the enterprise marketplace. Because of potential risks and benefits associated with any technology product, as IT manager I must be alert for alternatives that are secure, reliable, and cost effective.

The IT manager who wrote this abstract lets the reader see that a recommendation will be made based on the facts in the report.

This report provides technical information regarding the issue of migration to a Linux enterprise desktop solution, analyzes the pros and cons of migrating to a Linux solution, and recommends appropriate action for our company, Design International, Inc.

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place of the much longer formal report or proposal. In this way, you save your reader's time and communicate only the most relevant parts of the report or proposal. To create an effective executive summary, follow these key points:

1. Begin with a purpose statement for the report or proposal.
2. Give an overview of the key ideas discussed in the report or proposal.
3. Inform the reader if any problems will affect the outcome of the report or proposal.
4. Suggest solutions to the problems, or encourage the reader to suggest solutions.
5. Conclude the executive summary and recommend a course of action.

Key Parts of an Executive Summary

To write an effective and concise executive summary, use only the most important details and supporting statistics or information. Omit details or technical content which your reader either does not need to know or which would unnecessarily confuse the reader. Details are used in the discussion section of the report or the proposal. To limit the length of your executive summary to one or two pages, choose the most important elements, and omit those that are secondary. An effective summary can include the following:

- Purpose and scope of the report or proposal, stating the problem, or need and your ability to improve the situation
- Research or methods used to develop your content
- Conclusions about your analyses of the topic
- Your qualifications showing that you can resolve the issue
- A project management plan and timetable
- The total project budget
- Recommendations based on your findings

Introduction

Your introduction should include the following: (1) purpose or overview and (2) background or problem.

Purpose or Overview

In one to three sentences or a short paragraph, tell your readers the purpose of your long report. This purpose statement informs your readers *why* you are writing or *what* you hope to achieve. This statement repeats your abstract to a certain extent. However, it's not redundant; it's a reiteration. Although numerous people read your report, not all of them read each line or section of it. They skip and skim.

The purpose statement, in addition to the abstract, is another way to ensure that your readers understand your intent. It either reminds them of what they have just read in the abstract or informs them for the first time if they skipped over the abstract. Your purpose statement is synonymous with a paragraph's topic sentence, an essay's thesis, the first sentence in a letter, or the introductory paragraph in a shorter report.

Background or Problem

Whereas the purpose statement should be limited to one to three sentences or a short paragraph for clarity and conciseness, your discussion of the problem must be much more detailed. For example, if you are writing a report about the need for a new facility, your company's current work and storage space must be too limited. Your company has a problem that must be solved.

Your introduction's focus on the problem and background, which could average one to two pages, is important for two reasons. First, it highlights the importance of your report and establishes a context for the reader. The introduction emphasizes for your readers the report's priority. In this section, you persuade your readers that a problem truly exists and needs immediate attention.

Second, by clearly stating the problem and background information, you also reveal your knowledge of the situation. This section reveals your expertise. Thus, after reading

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this section of the introduction, your audience should recognize the importance of the issue and trust you to solve it or understand the complexity of the topic being discussed.

Discussion

The discussion section of your long report constitutes its body. In this section, you develop the detailed content of the long report. As such, the discussion section represents the major portion of the long report, perhaps 85 percent of the text. What will you focus on in this section? Because every report will differ, we can't tell you exactly what to include. However, your discussion can contain any or all of the following:

- Analyses
  - Existing situation
  - Solutions
  - Benefits
- Product specifications of mechanisms, facilities, or products
- Comparison/contrast of options
- Assessment of needs
- Features of the systems or products
- Optional approaches or methodologies for solving the problems
- Managerial chains of command (organizational charts)
- Biographical sketches of personnel
- Corporate and employee credentials
  - Years in business
  - Satisfied clients
  - Certifications
  - Previous accomplishments
- Schedules
  - Implementation schedules
  - Reporting intervals
  - Maintenance schedules
  - Delivery schedules
  - Completion dates
  - Payment schedules
  - Projected milestones (forecasts)
- Cost analyses
- Profit and loss potential
- Documentation and researched material
- Survey results
- Lab report results
- Warranties
- Maintenance agreements
- Online help
- Training options
- Impact on the organization (time, personnel, finances, customers)
- Definitions

You will have to decide which of these sections will be geared toward specialists, semi-specialists, or a lay audience. Once this decision is made, you will write accordingly, defining terms as needed.

Defining Acronyms, Abbreviations, and Technical Terminology

We have all become familiar with common acronyms such as *scuba* (self-contained *u*nderwater *b*reathing *a*pparatus), *radar* (*r*adio *d*etecting *a*nd *r*anging), *NASA* (National *A*eronautics and *S*pace *A*dministration), *FICA* (Federal Insurance Contributions Act),

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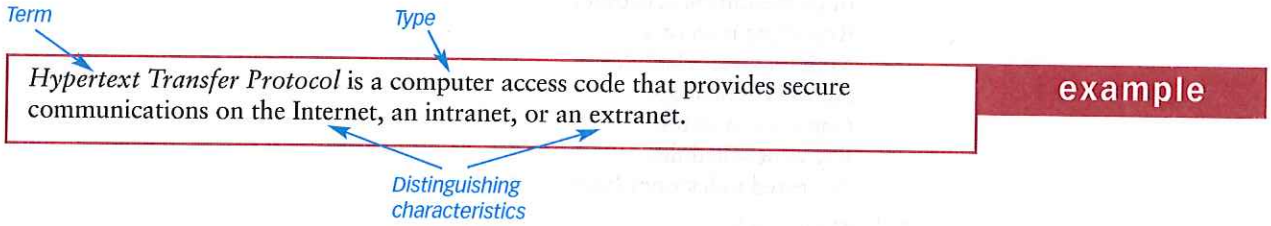
and *MADD* (*M*others *A*gainst *D*runk *D*riving)—single words created from the first letters of multiple words. We are comfortable with abbreviations like *CPR* (*C*ardio*p*ulmonary *R*esuscitation), *FBI* (*F*ederal *B*ureau of *I*nvestigation), *ATM* (*A*utomated *T*eller *M*achine), *NFL* (*N*ational *F*ootball *L*eague), *IBM* (*I*nternational *B*usiness *M*achines), and *LA* (*L*os *A*ngeles).

Sometimes, however, abbreviations and acronyms can have two or more definitions. CPR can also mean "Continuing Property Records." ATM can mean "Asynchronous Transfer Mode." More often than not, acronyms, abbreviations, and technical terminology cause problems, not because they are too common but because people misunderstand them. You have to decide when to use acronyms, abbreviations, and technical terminology and how to use them effectively. One simple rule is to define your terms. You can do so as follows:

- parenthetically
- in a sentence
- in an extended paragraph
- in a glossary (discussed below)

Defining terms parenthetically Rather than just writing *CIA*, write *CIA* (*Cash in Advance*). Such parenthetical definitions, which are only used once per correspondence, don't take a lot of time and won't offend your readers. Instead, the result will be clarity. If you use many potentially confusing acronyms or abbreviations, or if you need to use a great deal of technical jargon, then parenthetical definitions might be too cumbersome. In this case, supply a separate glossary.

Defining your terms in a sentence If you provide a sentence definition, include the following: ***Term* + *Type* + *Distinguishing characteristics.*** For example, using a sentence to define *HTTP*, you would write the following:



Using extended definitions of one or more paragraphs When you need to provide an extended definition of a paragraph or more, in addition to providing the term, type, and distinguishing characteristics, also consider including examples, procedures, and descriptions. Look at the following definition of a voltmeter.

The voltmeter is an instrument used to measure voltage. The voltmeter usually consists of a magnet, a moving coil, a resistor, and control springs. Types of voltmeters include the microvoltmeter, millivoltmeter, and kilovoltmeter, which measure voltages with a span of 1 billion to 1. By connecting between the points of a circuit, voltmeters measure potential difference.

example

Conclusion/Recommendation

You must sum up your long report in a page or so, providing your readers with a sense of closure. The conclusion can restate the problem, the important implications of your analysis, your solutions, and the benefits to be derived. In doing so, remember to quantify. Be specific—state percentages and amounts.

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Your recommendation will suggest the next course of action. Specify when this action will or should occur and why that date is important. The conclusion/recommendation section can be made accessible through highlighting techniques, including headings, subheadings, underlining, boldface, itemization, and white space.

Glossary

If you have not defined your terms parenthetically, in a sentence, or in a paragraph, you should use a glossary. A glossary is an alphabetized list of terms placed after your conclusion/recommendation. See Figure 18.12.

Because you will have numerous readers with multiple levels of expertise, you must be concerned about your use of specialist's language (abbreviations, acronyms, and terms). Although some of your readers will understand your terminology, others won't. However, if you define your terms each time you use them, two problems will occur: you might insult specialists, or you will delay your audience as they read your text. To avoid these pitfalls, use a glossary. A glossary is an alphabetized list of highly technical, specialized terminology placed after your conclusion/recommendation.

A glossary is invaluable. Readers who are unfamiliar with your terminology can turn to the glossary and read your definitions. Those readers who understand your word usage can continue to read without stopping for unneeded information.

Works Cited (or References)

If you use research to write your long report, you will need to include a works cited or references page. This page(s) documents the sources (books, periodicals, interviews, computer software, Internet sites, etc.) you have researched and from which you have quoted or paraphrased. Correct documentation and source citations are essential in your long report to enhance your credibility and demonstrate your ethical behavior. Remember that boilerplate content and templates, already created material in your company's document library, do not necessarily require documentation. However, if you research the material on the Internet or from any other published source, you must document this material or be guilty of unethical behavior.

Additional information:

See Chapter 1, "Communicating in the Workplace," and Chapter 16, "Research and Documentation."

Appendix

A final, optional component is an appendix. Appendices allow you to include any additional information (survey results, tables, figures, previous report findings, relevant letters or memos, etc.) that you have not built into your long report's main text. The contents of your appendix should not be of primary importance. Any truly important information should be incorporated within the report's main text. Valuable data (proof, substantiation, or information that clarifies a point) should appear in the text where it is easily accessible. Information provided within an appendix is buried, simply because of its placement at the end of the report. You don't want to bury key ideas. An appendix is a perfect place to file

FIGURE 18.12 Glossary

Glossary

CPA	Certified Public Accountant
FICA	Federal Insurance Contributions Act (Social Security taxes)
Franchise	Official establishment of a corporation's existence
Gross pay	Pay before deductions
Line of credit	Amount of money that can be borrowed
Net pay	Pay after all deductions
Profit and loss statement	Report showing all incomes and expenses for a specified time

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nonessential data that provides either documentation for future reference or further explanation or support of content in the report.

USING RESEARCH IN LONG, FORMAL REPORTS

You can use researched material to support and develop content in your long, formal report. Use quotes and paraphrases to develop your content. Workplace communicators often ask how much of a long, formal report should be *their* writing, as opposed to researched information. A general rule is to lead into and out of every quotation or paraphrase with your own writing. In other words, do the following:

- Make a statement (your sentence).
- Support this generalization with a quotation or paraphrase (referenced material from another source).
- Provide a follow-up explanation of the referenced material's significance (your sentences).

Research Includes Primary and Secondary Sources

Primary research is research performed or generated by you. You do not rely on books or periodicals. Instead you create original research by preparing a survey or a questionnaire targeting a group of respondents, by networking to discover information from other individuals, by visiting job sites, or by performing lab experiments. You may perform this research to determine for your company the direction a new marketing campaign should take, the importance of diversity in the workplace, the economic impact of relocating the company to a new office site, the usefulness of a new product, or the status of a project. You also may need to interview people for their input about a particular topic. For example, your company might be considering a new approach to take for increased security on employee computers. You could ask employees for a record of their logs which would highlight the problems they have encountered with their computer security. With primary research, you will be generating the information based on data or information from a variety of sources that might include observations, tests of equipment, interviews, networking, surveys, and questionnaires.

When you conduct *secondary research*, you rely on already printed and published information taken from sources including books, periodicals, newspapers, encyclopedias, reports, proposals, or other business documents. You might also rely on information taken from a Web site or a blog. All of this secondary research requires parenthetical source citations. In some instances, however, you will use already existing (boilerplate) material from your company's document files. This in-house material does not necessarily require documentation. Figure 18.13 is an example of a long, formal report.

Additional information:

See Chapter 16, "Research and Documentation."

FAQs

Q: Why do long, formal reports include research? Aren't research papers just assignments we have in freshman composition classes?

A: Research, a major component of long, formal reports, helps you develop your report's content. Often, your own comments, drawn from personal experience, will lack sufficient detail, development, and authority to be sufficiently persuasive. You need research for the following reasons:

- To create content
- To support commentary and content with details
- To prove points
- To emphasize the importance of an idea
- To enhance the reliability of an opinion
- To show the importance of a subject to the larger business community
- To address the audience's need for documentation and substantiation

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LONG, FORMAL REPORT CHECKLIST

1. Have you included the major components for your long, formal report (front matter, text, and back matter)?
2. In your long, formal report, have you written to inform, analyze, and/or recommend?
3. Have you used research effectively, incorporating quotes and paraphrases successfully?
4. Have you used primary and/or secondary research?
5. Did you correctly give credit for the source of your research?
6. Have you correctly used a hierarchy of headings to help your audience navigate the text?
7. Did you use tables and/or figures to develop and enhance content?
8. Have you met your audience's need for definitions of acronyms, abbreviations, and specialist's terms by providing a glossary?
9. Have you achieved clarity and conciseness?
10. Is your text grammatically correct?

FIGURE 18.13 Long, Formal Report Recommending the Use of VoIP

VoIP at Crenshaw Retail, Inc.

Submitted by
John Staples
Manager of Information Technology

March 2, 2009

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FIGURE 18.13 Continued

Date: March 2, 2009
To: Tiffany Steward, CEO
From: John Staples, Manager Information Technology
Subject: Recommendation for Migration to VoIP

Ms. Steward, thank you for allowing me to report on a possible solution to Crenshaw Retail's Internet Protocol challenges. This report is in response to a survey my team conducted and the information technology department's focus on improving internal and external communication.

Currently, because we use analog phone lines, we are having numerous communication problems both internal and external. Internally we are unable to handle the need for rapid response to customers. Externally we cannot respond quickly to either customer requests for information or placement of orders. Our revenues are down approximately 27 percent for the fiscal year. Based on substantial research, my team and I would like to present an option—VoIP. This report will provide you the following information:

- An explanation of VoIP
- How VoIP originated
- Justification for implementing VoIP
- Planning VoIP implementation
- Startup costs
- Return on investment (ROI)
- Current events that are happening around the VoIP community

I look forward to meeting with you to discuss the findings in this report on March 10 in your office at 10:00 a.m. Your assistance and support of this report's recommendations will prove invaluable in increasing our revenues for next quarter.

This effective cover memo uses bullets to highlight the key components of the report. It also achieves a personalized tone through positive words ("thank you," "look forward," and "prove invaluable") and pronouns. Finally, the cover memo is persuasive by showing how implementation of a new system will reverse the downward trend of revenues.

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FIGURE 18.13 Long, Formal Report Recommending the Use of VoIP Continued

List of Illustrations

Abstract

This report about Voice over Internet Protocol (VoIP) will help management better justify why or why not to implement VoIP at Crenshaw Retail, Inc. The topics in the report that will be discussed are as follows:

- An explanation of VoIP
- How VoIP originated
- Justification for implementing VoIP
- Planning VoIP implementation
- Startup costs
- Return on investment (ROI)
- Current events that are happening around the VoIP community

In the introduction, the writer establishes interest by emphasizing the company's lost revenue and its impact on the workforce. This "hooks" the reader by clarifying the report's importance. In addition, the writer highlights challenges created by the current telephone system.

Introduction

Purpose

Crenshaw Retail, Inc. needs to address decline in revenue. This report will explain how Crenshaw's analog phone lines caused the revenue decline. The company's antiquated phones should be replaced by Voice over Internet Protocol lines.

Background

Since 2008, Crenshaw Retail, Inc. has experienced a significant drop in revenues of approximately 27 percent from $44,000,000 to $33,660,000. Because of this severe decline in revenue, we have had to cut operating expenses primarily by terminating employees. Some of these employees have been with Crenshaw Retail since it began doing business in 1978. To terminate over 120 of these long-term employees, we have had to offer generous buyout packages including termination amounts of one-month's pay for every year of service, benefits to include healthcare and term-life insurance for as long as 12 months, and assistance with job-search preparation for these employees.

Challenges Created by Reliance on Analog-Based Telephony

Our research has discovered that revenues have declined to such an extent because of our dependence on analog phone lines. These lines have been causing the following problems:

1. Burned out Key, PBX, and Data equipment
2. Cut-offs and squealing on lines
3. Crosstalk, echo, or hollow sounds on lines
4. Off-site problems with equipment
5. Garbled data
6. Modems that can't connect

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FIGURE 18.13 Continued

7. Customer "can't hear" complaints
8. Dropped calls

We need to upgrade from these analog phone lines that are antiquated, inefficient, costly to maintain, and creating decreased productivity in our workforce.

Discussion

What Is VoIP?

Voice over Internet Protocol (VoIP) entails a phone system, either computer or traditional handset based, that resides on a network and uses data packages, instead of having to be bound by the traditional restraints of analog phone lines.

Figure 1 shows the method of connectivity for VoIP. The gateway is the first part of the network that is recognized. Although firewalls and other devices are not shown in the picture, it is primarily how the data stream gets to the user's desk.

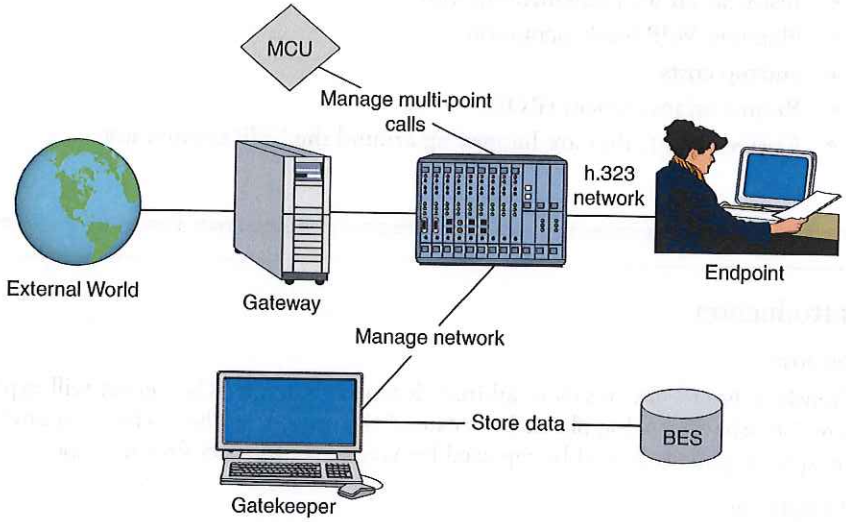

Figure 1 VoIP Connectivity (Source: Dept. of Commerce)

In this long, formal report, research contributes to the development of the topic. Both the Department of Commerce graphic and the wireless howto *steps help the writer explain a complex concept.*

Compression methods make packets travel faster and are easier to manage. Sending a signal to a remote destination could be done digitally. It must first be digitalized with an ADC (analog to digital converter), transmitted, and at the end, converted again in analog format with DAC (digital to analog converter) to be able to use the Voice signal (Valdes). Roberto Arcomano, author of *Wireless Howto*, explains the steps of VoIP compression.

1. ADC converts analog voice to digital signals.
2. The bits are compressed and formatted for transmission.
3. The voice packets are inserted in data packets using a real-time protocol.
4. The packets use the signaling protocol ITU-T H323 to call to users.
5. At RX packets are disassembled. The data is extracted, then converted to analog voice signals and sent to sound card, or phones.
6. This is all done in a real-time fashion because people don't want to be waiting to hear a vocal answer.

(Continued)

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FIGURE 18.13 Long, Formal Report Recommending the Use of VOIP Continued

How VoIP Originated

The journey of Voice over Internet Protocol is a long one. VoIP is almost as old as the Internet, but it really started being utilized around 1995 when only PC-to-PC communication was being handled. Later on during 1995, Vocaltec, Inc. released Internet Phone Software. This particular software was intended to run on a home PC (486/33 MHz). This worked as long as both the caller and the receiver had the same tools and software. However, the sound quality was inferior to that of the standard equipment in use at that time.

Once switches were made that were capable of switching these types of packets, around 1998, voice traffic picked up significantly and is still growing ("Cheaper"). The IDC estimates VoIP has grown at a rapid pace. About 1.5 million Americans use the phones now, but 27 million could be making calls over the Internet by 2009 (Suzukamo). According to Infonetics research, North American VoIP service revenue was up to $1.3 billion in 2004. Sales are expected to continue ringing up to $19.9 billion in 2009 (Francis).

Justification of Implementation

Crenshaw Retail should look at whether we want to switch from traditional PBX-based telephone systems totally over to VoIP systems, or if we want to just include VoIP in certain parts of our infrastructure. The main motivator for switching to VoIP is cost savings. VoIP is not nearly as heavily regulated as traditional telephony and so avoids the enormous burden of federal, state, and local taxes that is placed on traditional telephony. There is an 84 percent cost reduction in the already 26 percent of 2,000 global companies that have implemented VoIP (Senia). Even the NASDAQ estimates that it has cut $40 million of its $100 million annual network costs by using VoIP to consolidate its 15 networks into one.

There are many places in our network where we can save money. Jeffrey T. Hicks and John Q. Walker break down the overall basic premise of the cost savings, or return on investment (ROI). VoIP customers are able to make any call that they need, whether it be local or long distance, and are charged one flat rate. With an analog phone line, Crenshaw pays one flat rate also for local calls. A company will see a big difference in expenses with long distance rates. *Network World* discusses making a budget and budget case for an IT project. "A proposal for a project requires a five-step process, opportunity analysis, infrastructure analysis, process/organization analysis, tool analysis and project analysis" (Denoia and Randall). In the article the writers discuss how each one of these points is important, but opportunity analysis is the main factor when determining the cost, savings, and resulting ROI for the VoIP.

This bulleted list highlights the benefits the company could derive from implementation of VoIP. Providing the detailed list allows the audience to consider how implementation will apply to current and even future budgets.

Denoia and Randall list a guideline of cost saving elements to consider:

- Conference calling
- Long distance
- PBX avoidance
- Video/multimedia
- Adds and changes
- Lower cabling costs
- Toll bypass

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FIGURE 18.13 Continued

Paul Desmond from *Network World* explains that extending phone services to new locations is one of the biggest returns that users report on their IP telephony investments, even when they don't drop a PBX in the process. "Savings from reduced moves, adds and changes is probably the benefit touted most loudly—with good reason," according to Johna Till Johnson, president of Nemertes Research and a *Network World* columnist. "A Nemertes survey of 100 companies with average IT budgets of $10 million or more shows that employees move an average of 0.87 times per year—or almost once every year—at a cost of $100 per move. For a company with 1,200 employees, that amounts to $104,400 in annual costs that literally go away with IP telephony because users can move their own phones" (Desmond).

Planning for Implementation of VoIP

Crenshaw Retail needs to evaluate where there could be a possibility of added expenses before implementing a VoIP network; these are called the hidden costs. Ray Kriss, from NetGain Communications, points out a few hidden costs that some companies' networks overlook:

> Unlike traditional telephone systems that operate within their own networks, VoIP relies on the LAN and WAN, which means a VoIP system shares bandwidth with existing business communications assets. While there is usually enough bandwidth in the LAN for internal use, the WAN is often the most constricted point for any network, which leads to increased potential for congestion and delays in information. For a business to execute a full conversion to VoIP, it must consider an increase in network bandwidth. (Kriss)

Because of security reasons, most VoIP systems will be put on virtual local area networks, so the system can be better monitored. This is effective, but a security assessment costs money (Kriss).

Startup Costs for VoIP

The initial cost of implementing a new system can be expected to be expensive. The startup cost can be high, if you begin with a big project. "There's new network equipment, servers, IP phones, management software, and diagnostic tools to buy" (Hicks and Walker). A network infrastructure upgrade may be necessary also, because Crenshaw's equipment may not be able to handle the new VoIP system. In addition, there must be training done for the equipment and service (Hicks and Walker).

An Explanation of ROI

Barbara DePompa Reimers, from *Computerworld Magazine*, explains how achieving a speedy return on investment from VoIP technology has been hard, in part because upfront costs can be high and traditional long-distance phone charges have dropped in recent years. Most analysts have pushed out the time it takes to gain a return on VoIP to an average of 19 months, compared with earlier estimates of less than a year (Reimers). To name a few companies that have seen a good ROI from VoIP, Kevin Lopez, the national manager of telecommunications at Grant Thornton, explains how his network has been in place for 9 to 10 months. Grant Thornton has cut communication costs by routing voice traffic over its wide area network and eliminating toll charges. It has also reduced network management requirements and consolidated 28 stand-alone systems into four hubs all without replacing its existing private branch exchange (PBX) and digital phones. The payoff is Grant Thornton has saved $800,000 in its first year on intra-company long-distance toll charges and $160,000 on equipment lease

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To persuade effectively, this writer anticipates questions the audience might have by factoring in hidden costs of implementing a new system. For more information about the importance of refutation and persuasive writing, see Chapter 13.

Using headings breaks the long, formal report into manageable "chunks" for easy reading. In addition, these "talking headings" are informative and aid navigation for the audience.

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payments, Lopez says (Reimers). There are many occasions where companies have saved money from VoIP, from local school districts, like the Saugus Union School District, to multi-billion dollar companies (Hochmuth).

ROI does not have to be just financial; it can also deal with the morale of a company. These are the hard and soft benefits of implementation. Crenshaw must try to predict what type of impact the implementation of VoIP would have on its employees. This could improve productivity or slow it down; it could excite workers or turn them off to the idea. The soft benefits can be harder to predict than the hard benefits, because there are no numbers to check with to know that you are benefiting. "According to analysts and corporate customers, the key to achieving an ROI on VoIP is to plan carefully. Businesses should conduct an IT audit of their network infrastructures, including current data and voice traffic patterns. If users skip this step and don't know their current costs, they won't know whether the VoIP migration has saved them money" (Reimers).

In my opinion, an audit of Crenshaw's entire network should be done before implementing a project as large as this. As Reimers stated, you won't know how much you have saved, if any, and a company trying to save money will be doing so in vain. Planning is the key when it comes to all projects, and it is the key to getting a good ROI. Walker and Hicks suggest that part of the planning process starts with calculating a good ROI, by taking the expected returns from a project, subtracting the cost of implementing the project, and dividing by the amount of time required. The divisor is usually given in years, so that the resulting units are measured in annual ROI.

Table 1 is an example of an ROI for a fictitious business, which is provided by Quintums VoIP calculator.

The table makes complex information easier to understand. The audience then can make a financial comparison to their own company.

Table 1 Return on Investment Calculator

Table 1 Return on Investment Calculator for VoIP Installation		
Group	**Amount**	**Cost**
Average number of calls per hour	100	
Average call duration in minutes	5	
Number of working hours per day	8	
Number of working days per week	5	
Number of working weeks per month	4	
Total number of minutes per month	**80,000**	
Percentage of national calls	70	0.28 per minute
Percentage of international calls	30	0.80 per minute
Total number of national minutes	56,000	$15,680.00
Total number of international minutes	24,000	$19,200.00
Percentage of completion over IP	90	0
Percentage of completion over PSTN (Public Switched Telephone Network)	10	$1,673
Savings in call charges with VoIP		**$36,553**

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FIGURE 18.13 Continued

A Fair and Balanced Look at ROI

So far, the return on investments that have been discussed can be considered to be an optimistic ROI analysis. Robin Harris Foster, from the *Business Communications Review,* explains how companies often ignore considerations of human nature, accounting principles, and the true use and benefit of the investment in a given enterprise. Foster lists a few things to include in an ROI that should make the end result come out more fair and balanced.

- Credible ROI analysis depends on reasonable expectations of people, not on what's possible in an idealized model. A promising source of return from payroll savings may require compliance of workers. When human behavior can diminish or negate the benefits, you should assume less than 100 percent compliance and therefore less than 100 percent of the possible savings.
- Costs recur, but they also evolve, and the pace of evolution makes a big difference over the course of an investment. Purchasing the hardware and software for a proposed communications solution is only a beginning.

  To implement and live with the solution, Crenshaw will also incur maintenance charges after warranty; upgrade purchases or subscription costs, and administrative or technical staff costs (wages, benefits, bonuses, and costs such as training and real estate). ROI analysis should take account of the fact that labor and maintenance costs often increase year over year and must be factored into an analysis.
- Never give a benchmark the benefit of the doubt. They raise the red flag in any ROI analysis, as they can misstate the operational and financial impact of a solution, because they look at other company's increases and compare them to their own.

Current Issues in VoIP

VoIP in the workplace is still a fairly new concept, so there are still many legal issues to be resolved. One type of legality is the federal ruling to require Internet phone service to provide 911 emergency capabilities with their services. "After a 17-year-old girl couldn't call 911 when home intruders shot her parents, the state of Texas sued VoIP provider Vonage for deceptive trade practices for failing to offer built-in 911 services" (Suzukamo). VoIP services lack the essential 911 service it needs for critical emergency features like location detection. Vonage says they would like to have the 911 services but that the local exchange carriers (ILEC) won't offer the right network access. The ILEC's rebuttal was, "The real issue is cost. Vonage doesn't want to pay for integrating into the 911 infrastructure," they say. "There are existing procedures to connect to the 911 network today, which several [VoIP] providers utilize" (Suzukamo).

The key to the FCC's ruling is that Emergency-911 automatically provides emergency dispatchers with the street address of the caller. Some Internet phone services allow customers to move their phones to different cities or even countries and still use the same phone number. Combining both features would pose

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As achieved earlier in the report, the writer presents fair and unbiased information to anticipate questions. This allows the audience to make a decision based on pros and cons.

(Continued)

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FIGURE 18.13 Long, Formal Report Recommending the Use of VoIP Continued

a special challenge to VoIP providers and probably contribute to raising their costs. For companies like Time Warner Cable, this ruling will not affect them since they already offer the services, but the smaller VoIP will most likely be the ones that will feel the effect of the ruling.

The writer uses the conclusion to reiterate the key points. This helps the audience remember what has been discussed. In addition, the writer recommends the next course of action.

Conclusion/Recommendation

Crenshaw needs to fully investigate the options when deciding if we should or shouldn't implement VoIP into our business network. VoIP can be compared to the use of the Internet in companies. It's here to stay, and it is going to get nothing but larger. The benefits of companies that have implemented VoIP outweigh the negatives.

The topics that have been presented are the following: what VoIP is, where VoIP came from and where it is now, justification of implementation, planning, summary, startup costs, return on investment, a fair and balanced look at ROI, and current events that are happening around the VoIP community. My recommendation is that we perform further research on the possibility of migrating to VoIP beginning with a review of our entire communication network.

7

A glossary is an excellent place to define terms and abbreviations so that readers can quickly access the terms. Using a glossary also allows the writer to avoid disrupting content in the long report with definitions. Finally, a glossary allows the writer to prepare a report for multiple audience levels.

Glossary

ADC	analog to digital converter
Analog	a variable signal continuous in both time and amplitude
DAC	digital to analog converter
LAN	local area network
PSTN	Public Switched Telephone Network—analog phone systems
ROI	return on investment
Voice signal	allows users to access phone options with a single voice command
VoIP	Voice over Internet Protocol
WAN	wide area network

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FIGURE 18.13 Continued

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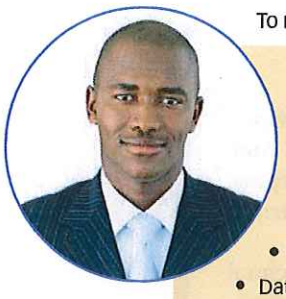
Charles Met His Challenge



To meet his communication challenge, Charles used the P^3 process.

Planning

To plan his long report, Charles considers the following:

- Goal—inform the audience of the need for new financial software, analyze findings from research, and recommend a preferred vendor
- Audience—lay readers (city manager and city council members)
- Channels—long, formal report
- Data—vendor options; software applications; cost of software, training, and implementation; payment schedules

To gather content for the long, formal report, Charles says he must do the following primary research:

1. "Meet with my accounting manager to determine the required software applications for the finance department.
2. Seek proposals from software vendors.
3. Determine how to allocate finances to pay for the software purchases."

To accomplish these steps, Charles plans by brainstorming a list of project requirements, as shown in Figure 18.14.

Packaging

After using primary research to find what the city employees needed in terms of financial software and receiving proposals from vendors, Charles drafted an executive summary. Because of the large amount of information to be covered in the report, Charles merely wanted to get the content down on paper. He says, "I knew that my accounting manager would review the draft and make suggestions for improvement before I perfected the long, formal report. We always try to edit each others' written communication." Figure 18.15 shows how Charles packaged his executive summary rough draft.

Perfecting

Charles met his communication challenge by perfecting the executive summary draft. He added talking headings, corrected grammar errors, achieved conciseness by avoiding semicolons, and added another table to clarify MEGS's fee of an additional $70,000. See Figure 18.16 for Charles' perfected executive summary.

FIGURE 18.14 Charles's Brainstorming List of End User Requirements

Prioritized List of Needs

1. End user ease of use, complete with extensive online help for inexperienced end users
2. Ability to accomplish specific finance tasks
   a. Automated interest allocations
   b. Pooled cash
   c. Seamless purchasing card interaction
   d. Superior budget module
   e. Project accounting
3. Lotus Notes compatibility
4. Seamless interaction with Excel and Word

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FIGURE 18.15 Rough Draft with Errors of Executive Summary and Comments from the Accounting Manager

Re: Procurement of new financial software

The financial software (ACS) that the Finance Department is currently utilizing is 16 years old. The current software is not Windows based and is extremelly cumbersome to accomplish the simplest tasks. Many staff hours are wasted retyping information into Excel spreadsheets for reporting purposes; dual and even triple data entry is common due to the shortcomings of the current software. Additionally, the current software currently resides on an AS/400. Many technology experts believe the AS400 is becoming obsolete. In their management letter for year ended December 31, 2009, the City's auditors, Cottrell and Kreisler, LLC made several references to the inadequacy of the current software. Attached is an excerpt from the management letter referencing these weaknesses. They site multiple internal control issues, inability to track vial information and redundant data entry. During the 2010 budget discussions a Decision Package was approved for $90,000 for hardware or software that might be required for a new financial software package. It was determined at that time to wait to make the decision on how to proceed.

Requests for proposals for new financial software were sent to seven software vendors. The following table illustrates the five responses received on March 14, 2009.

New Land	Utica, NY	$254,295
MEGS	St. Louis, MO	$159,538
MoonRay	Jupiter Beach, FL	$129,884
ACS	Springfield, IA	$123,800
Roedell	Taos, NM	$109,318

After a review of the responses, three vendors were selected to provide on-site demonstrations. Staff from finance and from other departments spent many hours comparing these vendor's products. The highest priorities were identified as end-user ease of use, ability to accomplish specific finance tasks and Lotus Notes compatibility. MEGS software met all of the department's needs including the following: automated interest allocation, pooled cash, seamless purchasing card interaction, superior budget module, project accounting, etc. Unfortunately MEGS is $70,000 over our allotted budget of $90,000. MEGS has offered to divide the payment over two years so the remaining $70,000 would be included in the General Fund in the 2010 budget. With the implementation of the software the Finance Department will have some cost reductions related to the constant need for temporary help to accomplish current requirement for redundant data entry.

After reading the draft, Charles's financial manager suggested the following changes: "Charles, great content! Thanks for your hard work on this project. My department really needs this update. Before we send the report to the city council, please consider these ideas for revision: (1) Add headings to break the text into more manageable units. (2) Avoid lengthy sentences. (3) You use the word 'current' a lot. (4) Let our admin. asst. check the text for grammar. (5) You need to explain MEGS's cost analysis to show why we need to go $70,000 over budget. I'd be very happy to review this again if you'd like."

FIGURE 18.16 Perfected Executive Summary for City Manager and City Council Members

Executive Summary

Background of Finance Department's Software Requirements

The finance department's current ACS software is 16 years old. Because the software is outdated, it has the following problems:

- The software is not Windows based.
- The software is not time efficient. Many staff hours are wasted retyping information into Excel spreadsheets for reporting purposes. Dual and even triple data entry is common due to the shortcomings of the current software.

(Continued)

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FIGURE 18.16 Perfected Executive Summary for City Manager and City Council Members Continued

- The ACS financial software resides on the AS400 hardware system. Many technology experts believe the AS400 is becoming obsolete.
- In their management letter for year ended December 31, 2009, the city's auditors, Cottrell and Kreisler, LLC, made several references to the inadequacy of the current software, including the following: multiple internal control issues, inability to track vital information, and redundant data entry.

During the 2010 budget discussions, a decision package was approved for $90,000 for hardware or software that might be required for a new financial software package.

Comparison of Vendor Proposals

Requests for proposals for new financial software were sent to seven software vendors. Table 1 illustrates the five responses received on March 14, 2009.

Table 1 Vendor Comparison		
Vendors	**Locations**	**Proposed Fees**
New Land	Utica, NY	$254,295
MEGS	St. Louis, MO	$159,538
MoonRay	Jupiter Beach, FL	$129,884
ACS	Springfield, IA	$123,800
Roedell	Taos, NM	$109,318

After a review of the responses, three vendors were selected to provide on-site demonstrations. Staff from finance and other departments compared these vendors' products. The highest priorities were identified as end user ease of use, ability to accomplish specific finance tasks, and Lotus Notes compatibility. MEGS's software met all of the department's needs including the following:

- Automated interest allocation
- Pooled cash
- Seamless purchasing card interaction
- Superior budget module
- Project accounting
- Extensive online help for inexperienced end users
- Seamless interaction with Excel and Word

Recommendation for Purchasing MEGS's Software

Although MEGS is $70,000 over our allotted budget of $90,000, MEGS has offered to divide the payment over two years. The remaining $70,000 would be included in the General Fund in the 2010 budget. With the implementation of the software, the finance department will have some cost reductions related to the constant need for temporary help to accomplish current requirement for redundant data entry. Table 2 illustrates MEGS's cost analysis of our software needs. MEGS was the only vendor to explain their bid through a cost analysis.

Table 2 MEGS Cost Analysis	
Software Needs	**Costs**
Software	$94,058
Training/Data Conversion	$47,040
Implementation	$18,440
Total	**$159,538**

We recommend purchasing MEGS's financial software, including training, data conversion, and implementation. Doing so will benefit our finance department, allowing it to provide cost- and time-efficient services to our city.

Charles says, "Whenever I write to the city council, I know that they are extremely busy and not necessarily proficient in all areas discussed. I try to write text that is easy to access, clearly stated, and persuasive. Without good communication, I can't help the City to stay on budget and to meet our citizen's needs. The P³ process lets me be a successful communicator."

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CHAPTER HIGHLIGHTS

1. Long, formal reports require time, people, and money, and have far-reaching effects.
2. Long, formal reports often deal with topics that consider serious and complex issues.
3. Long reports can provide information, be analytical, and/or recommend a course of action.
4. Long, formal reports include front matter (title page, cover letter, table of contents, list of illustrations, and abstract); text (introduction, discussion, conclusion/recommendation); and back matter (glossary, works cited, and optional appendix).
5. To help your readers navigate the report, create a clear hierarchy of headings.
6. When you write your long report, consider your audience and enhance your discussion with figures and tables for clarity, conciseness, and cosmetic appeal.
7. Primary research is research performed and generated by you.
8. Surveys or questionnaires are primary sources of research.
9. When you conduct secondary research, you rely on already printed and published information.
10. Secondary research is from books, periodicals, databases, and online searches.

WWW *Find additional long, formal research report exercises, samples, and interactive activities at http://www.prenhall.com/gerson.*

MEETING WORKPLACE COMMUNICATION CHALLENGES

CASE STUDY

Alpha/Beta Consulting (A/B/C) solves customer problems related to hardware, software, and Web-based applications. The consulting company helps clients assess their computing needs, provides training, installs required peripherals to expand computer capabilities, and builds e-commerce applications, such as Web sites and corporate blogs. Their client base includes international companies and academic institutions. A/B/C works extensively with FIRE industries (Finance, Insurance, and Real Estate).

A new client, Home and Hearth Security Insurance Company, has asked A/B/C to build its e-commerce opportunities. Home and Hearth's current Web site is outdated. Since the Web site was created, Home and Hearth has added new services, including insurance coverage for electronic commerce, employment-related practices liability, financial institutions, management protection, and medical professional liability. In addition, Home and Hearth has expanded globally. It now has a presence in the Far East (Japan, Taiwan, and Singapore), the Mid East (Dubai, Jordan, and Israel), and South Africa. Home and Hearth's new services and new service locations are not evident on the current Web site.

An additional challenge for Home and Hearth is client contact. Currently, Home and Hearth depends on a hard-copy newsletter. However, corporate communications at Home and Hearth believes that a corporate blog would be a more effective means of connecting with its modern client base.

A/B/C can meet Home and Hearth's needs by building a new Web site and by creating a corporate blog.

Assignments

1. Write the abstract that will preface A/B/C's long, formal report to Home and Hearth Security Insurance Company.
2. Write the introduction that will preface A/B/C's long, formal report to Home and Hearth Security Insurance Company.
3. Create a survey questionnaire asking Home and Hearth employees what they would like to see on the company's Web site and corporate blog.

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4. Outline what you believe Home and Hearth's new Web site should include to cover its new international focus. This constitutes the discussion section of the report.
5. Conduct any research you need to find more information about either Web design or the development of a corporate blog.

ETHICS IN THE WORKPLACE CASE STUDY

Jordan Benjamin is a marketing manager for an online distributor of healthcare-related equipment and supplies. As manager of 300 employees worldwide, she has to write a report documenting employee use of company-owned PCs. This report will be delivered to both management and company stockholders at the annual meeting. Jordan decides that the only way to obtain information about PC use is by e-mailing a questionnaire to her employees. Some of the questions she asked in the questionnaire are as follows:

1. Do you use your PC for personal activities?
2. Do you maintain a personal blog?
3. Do you send and receive personal e-mails over your PC?
4. How much time each day do you spend on your PC for personal use?
5. Do you order from any online stores using your company-owned PC?

When Jordan writes her report, she bases her analyses on the 77 percent response rate she received from employees. She also used many of their verbatim comments in her written report.

Question:

Is it ethical for Jordan to require employees to respond to personal questions in a questionnaire she disseminated through the company? By e-mailing the questionnaire to the employees, does Jordan suggest that the company "expects" employees to respond? Is this ethical? Is it ethical for Jordan to use comments solicited from the employees on the questionnaire? Justify your answer based on information provided in Chapter 1.

INDIVIDUAL AND TEAM PROJECTS

1. Read a long, formal report. It might be one your instructor provides you or one you obtain from a business or online (see the links provided in this chapter's Web Workshop). If the report contains an abstract or executive summary, is it successful, based on the criteria provided in this chapter? Explain your decision. If the abstract or executive summary could be improved upon, revise it to make it more successful. If the report does not have an abstract or executive summary, write one.
2. Read the following abstract from Alpha/Beta Consulting, written for their client Nitrous Systems. It needs revision. How would you improve its layout and content?

> Nitrous Systems, a multi-discipline architectural design firm, is a start-up business with plans to begin operation in October 2009. The company currently has no information technology network for internal and external communication. Alpha/Beta Consulting will recommend a server to meet Nitrous Systems' unique needs, a backup solution for archiving architectural materials and critical communications, software for digital asset management, and a proposed network design. After implementing these suggestions, Nitrous Systems will have an IT network that will be safe, secure, dependable, and prompt. The system that Alpha/Beta Consulting is recommending also can be restructured with simplicity as the company's needs grow. By installing the IT network recommended in this report, Nitrous Systems will be able to fulfill their company's mission statement.

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Table 18.1 Time Sheet

Staff	Hours Worked Each Week														
	wk 1	wk 2	wk 3	wk 4	wk 5	wk 6	wk 7	wk 8	wk 9	wk 10	wk 11	wk 12	wk 13	wk 14	Total Hours for Project
Kenyon Patel	6.0	10.5	7.0	7.5	7.0	8.5	6.0	11.0	8.0	8.0	7.0	6.5	12.0	8.0	**113.00**
Randy Butler	6.5	5.5	5.5	3.0	5.5	8.0	4.0	5.5	6.0	8.0	7.0	9.5	15.0	8.0	**97.00**
Maria Villatega	0.0	0.0	3.5	4.0	4.5	5.0	3.0	1.5	10.0	17.0	8.0	9.0	8.0	4.0	**77.50**
James Soto	4.5	3.5	4.0	5.5	5.0	5.0	3.0	2.0	14.0	12.0	8.5	10.5	7.5	3.5	**88.50**
Total	**17.00**	**19.50**	**20.00**	**20.00**	**22.00**	**26.50**	**16.00**	**20.00**	**38.00**	**45.00**	**30.50**	**35.50**	**42.50**	**23.50**	**376.00**

3. Alpha/Beta Consulting, as agreed upon in a meeting with their client Nitrous Systems, determined that their research for a contracted long, formal recommendation report would take no less than 350 hours and no more than 400 hours. As detailed in Table 18.1, A/B/C's four employees assigned to the project worked 376 hours. Using the information provided in the time sheet, create a line graph that tracks the employees' hours and a pie chart showing the percentage of time each employee worked.
4. At the conclusion of their long, formal report, the employees at A/B/C wrote a recommendation. Their recommendation, though excellent in terms of its content, needed to be reformatted for easier access and better emphasis of key points. Read the employees' recommendation and improve its layout.

Recommendations to Meet Nitrous Systems' Network Needs

To ensure a secure and dependable network that can be restructured to meet Nitrous Systems' developing needs, Alpha/Beta Consulting recommends the following:

You can improve your computing system's "Application Layer." The applications software programs that Alpha/Beta Consulting recommends consist of the Adobe Creative Suite 2, for imaging, editing, illustrations, file sharing, Web designs, and digital processing; Microsoft Office, for spreadsheet and Excel documents, word processing files, project timelines, and maintenance; and Internet communication utilities, such as Web browsers and FTP clients, to guarantee rapid deployment of company communications and contract sales. All these applications will be run on both the current Macintosh and Microsoft operating systems.

You also need to add a "Data Layer" to your new computing system. The data transferred on the new network will consist of large graphic files and fonts being accessed from a centralized server, postscript printing, voice, and messaging. TCP/IP will be the main communication protocol, but Appletalk may also be used.

To meet Nitrous Systems' network infrastructure requirements, Alpha/Beta Consulting recommends Category 6 (Cat 6) cables connected to 1 Gbps switches. These constitute your "Network Layer." The logical star topology network will enable a higher degree of performance for all users associated with the production of architectural designs, meet all organizational duties and communications requirements, and provide a centralized server as the main point of access for all the client machines.

Finally, once installed, the physical network must have a "Technology Layer." This will enable the company to perform at a competitive level. This communication system will be a vital piece of the overall success of the company. The server will provide quick and reliable data storage, meet Nitrous Systems' data backup needs, and allow for streamlined work flow.

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DEGREE-SPECIFIC ASSIGNMENTS

Restful Inn Hoteliers is a growing international company with corporate headquarters in Seattle, Washington; Boston, Massachusetts; Barcelona, Spain; and Singapore. As it builds more hotels around the world, Restful Inn is confronting numerous issues related to growth in emerging markets. Restful Inn Hoteliers' employees in management, business information systems, accounting, international sales and marketing, and finance must consider these new challenges, such as the need for

- Managing dispersed teams
- Expanding computer systems and networks
- Handling international accounting regulations and standards
- Marketing goods and services in the new locations
- Meeting international finance and banking standards

Assignments

Drawing from these challenges and any others that you find through research, choose a topic unique to your major field as an employee of Restful Inn Hoteliers. Based on your research, write an abstract or executive summary to your boss at Restful Inn. Refer to the chapter for samples and criteria.

PROBLEM-SOLVING THINK PIECES

Read the following text from a long, formal report written by Alpha/Beta Consulting. Based on the explanation in this chapter, decide whether the text informs, analyzes, and/or recommends. Explain your decisions.

Purpose Statement

This report will recommend the design parameters, hardware specifications, and estimated expenses needed to build and install external and internal computer network technology to meet Nitrous Systems' communication needs.

This report's recommendation will focus on the following key areas:

- A solution for Nitrous Systems' server needs
- Recommendations for a backup solution
- Possible software for digital asset management
- A proposed network design

Needs Analysis

1. Company Background

Nitrous Systems, a multi-discipline architectural design firm located in Raleigh, North Carolina, is a start-up company. Nitrous Systems will occupy a 2,000 square foot office space. They plan to begin operations in October 2009. The company will provide industrial, interior, landscape, and green architecture services for an international client base. Communication is a major component of their business plan. Thus, a reliable, efficient, creative communications/IT technology system is mandatory.

2. Basic IT Requirements

Currently, Nitrous Systems has no network. The company needs an infrastructure plan that allows for the following:

- An IT platform that will be compatible with Macintosh and Windows.
- Eight Windows workstations and four Macintosh platforms.
- A network based on WiMAX impact.
- An internal and external network that is safe, secure, reliable, and fast.
- An internal and external network that can store, execute, and transmit architectural materials.
- A network that will allow for successful communications to clients, partners, and vendors.

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- A data backup solution.
- Digital asset management software.

3. Detailed IT Requirements

In addition to the basic network requirements for Nitrous Systems, the company also has asked for recommendations to meet the following micro-network needs:

- Information about the most efficient server operating system for reliable communication in a cross-platform environment.
- Requirements for different file and storage server hardware and software.
- An analysis of which FTP server software would transfer secure data reliably to external clients.
- The need for scripts to scan recently modified files and back them up to a server.
- Reliable backup solutions and backup media types.
- A comparison of different software applications that would prevent data duplication in the permanent backup archives.
- A comparison of software that could catalog backup storage.
- A software solution allowing Microsoft Word documents to be converted and catalogued into one PDF file.

WEB WORKSHOP

You can find many examples of long, formal reports online. Compare the format of the online reports with the criteria for long, formal, researched reports discussed in this chapter. Explain where the online reports are similar to or different from this chapter's criteria. Do the online reports successfully communicate information and analyze issues and problems? Check out these sites, for example:

- Formal Reports: Carnegie Commission on Science, Technology, and Government (http://www.carnegie.org/sub/pubs/ccstfrep.htm)
- Reports from the American Society of Civil Engineers Following Hurricane Katrina (http://www.asce.org/static/hurricane/whitehouse.cfm)
- International Narcotics Control Strategy Report, Released by the Bureau for International Narcotics and Law Enforcement Affairs (http://www.state.gov/p/inl/rls/nrcrpt/2003/vol2/html/29910.htm)
- The Use of Radio Frequency Identification by the Department of Homeland Security to Identify and Track Suspicious Individuals (http://www.dhs.gov/xlibrary/assets/privacy/privacy_advcom_rpt_rfid_draft.pdf)
- Report on "GreenDC Week: Earth Day Celebration" (http://dceo.dc.gov/dceo/lib/dceo/Green_DC_Week.pdf)
- The United States' Government Accountability Offices' Report on "Women's Participation in the Sciences" (http://www.gao.gov/new.items/d04639.pdf)

QUIZ QUESTIONS

1. What are the reasons for writing long, formal reports?
2. Explain informative formal reports.
3. Explain analytical formal reports.
4. Explain recommendation formal reports.
5. What are the components of a long, formal report?
6. What do you include in an abstract?
7. What are the reasons for using research in a long, formal report?
8. Explain primary research.
9. Explain secondary research.
10. What is the purpose for using a hierarchy of headings in a long, formal report?

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