U.S. Department of Justice
Office of Community Oriented Policing Services

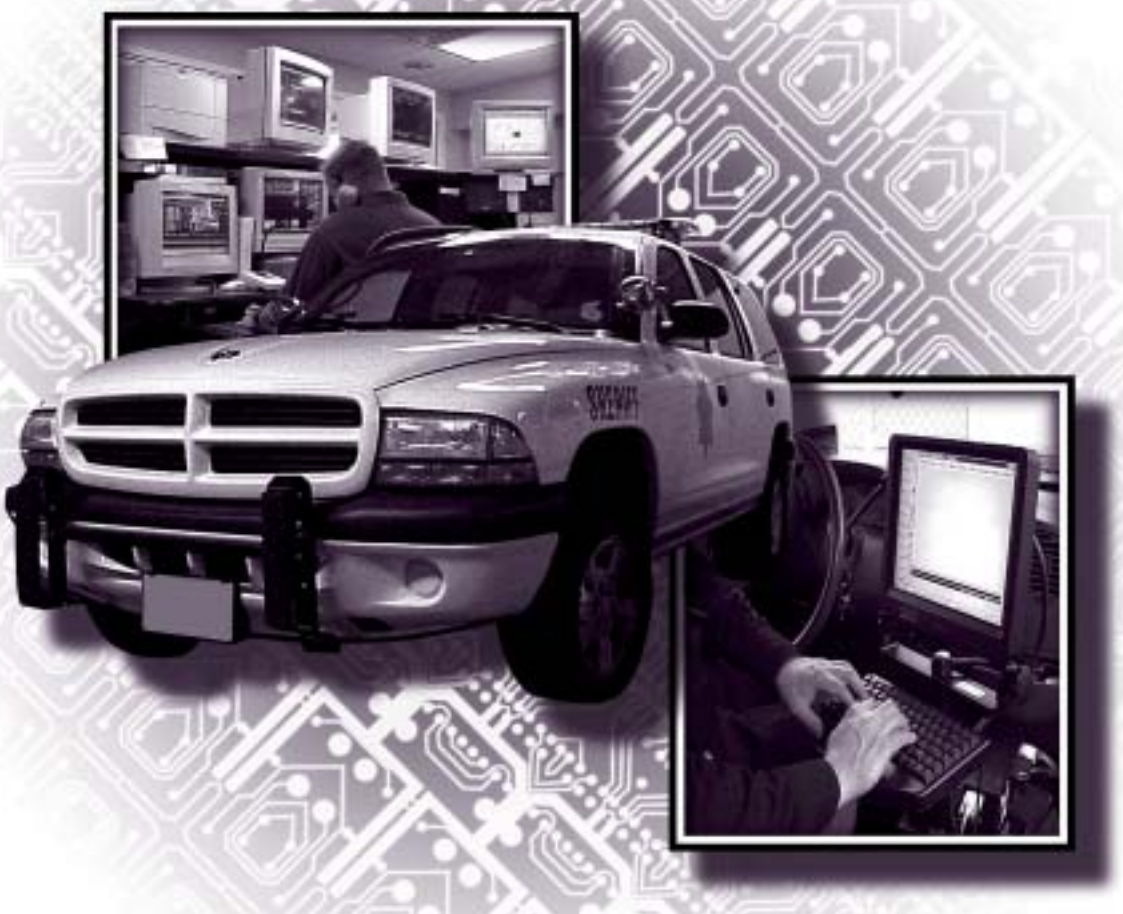
COPS
COMMUNITY ORIENTED POLICING SERVICES
U.S. DEPARTMENT OF JUSTICE

LAW ENFORCEMENT

Tech Guide

How to plan, purchase and manage technology (successfully!)

A Guide for Executives, Managers and Technologists



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How to plan, purchase and manage technology (successfully!)

A Guide for Executives, Managers and Technologists

By Kelly J. Harris and William H. Romesburg

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U.S. Department of Justice

Office of Community Oriented Policing Services

Office of the Director

Washington, D.C. 20530

August 2002

Dear Colleague,

Technology has long been a two-edged sword for law enforcement. While the benefits of implementing technology are obvious, the obstacles to getting the most from that technology often are not. In a time when growing responsibilities greatly increase the duties of local law enforcement agencies, a natural response is to turn to technology as a force multiplier. The COPS Office presents this guide in an effort to make the process of fully leveraging new technologies as seamless as possible.

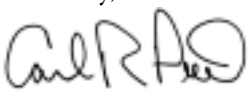
Technology can help law enforcement agencies better serve their communities by automating time-consuming tasks, dispatching personnel more efficiently, and improving an agency's ability to collect and analyze data as well as disseminate it to both internal and external audiences.

Implementing technology can be a long and difficult process. Before new technology can be implemented, the organization's needs must be determined, its relevant business processes analyzed, and its full range of options evaluated. Many law enforcement agencies have difficulty dedicating personnel, expertise, and funds for such a project. COPS grants help support agencies in their efforts to embrace new technologies.

This guide is designed to help law enforcement agencies implement new technologies. It contains step-by-step analyses of the technology planning, acquisition, implementation, and integration processes that focus clearly on supporting public safety and community policing objectives.

This guide is designed to help you reduce crime and disorder through the successful utilization of information technology. I wish you the best of luck in harnessing technology to better serve your communities. Now more than ever, community policing keeps America safe.

Sincerely,



Carl R. Peed
Director

Contents

Acknowledgments

This publication was prepared by SEARCH, The National Consortium for Justice Information and Statistics, Gerald E. Wethington, Chair, and Gary R. Cooper, Executive Director. The project director was David J. Roberts, Deputy Executive Director. Kelly J. Harris, Director, Justice Information Technology (IT) Services, and William H. Romesburg, Consultant, wrote this publication. Twyla R. Cunningham, Manager, Corporate Communications, and Juliet S. Farmer, Writer/Researcher, edited this publication. Jane L. Bassett, Publishing Specialist, and Mark Navarro, Webmaster, provided layout and design assistance. The Federal project monitor was Nancy Leach, Social Science Analyst, Program/Policy Support and Evaluation Division, U.S. Department of Justice (DOJ), Office of Community Oriented Policing Services (COPS).

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About Us

SEARCH, The National Consortium for Justice Information and Statistics, is a nonprofit organization of the States dedicated to improving the criminal justice system and the quality of justice through better information management, the effective application of information and identification technology, and responsible law and policy.

We serve the Nation's justice agencies — police and sheriffs' departments, courts, prosecution and public defense, juvenile justice, corrections/jails, probation/parole and criminal history record repositories — through a broad array of activities, resources and products. Our focus is on criminal history systems, integrated justice information systems, information technology (planning, purchasing, managing) and cybercrime investigation. Our services include in-house and onsite technical assistance and training, resource development (Websites, publications, white papers, conferences, workshops), public policy assistance and model development (model legislation, standards and procedures, best practices) in these focus areas. SEARCH online resources provide information on law enforcement IT, integrated justice, justice software solutions and IT acquisition at **www.search.org**.

About the Authors

Kelly J. Harris is Director of Justice IT Services for SEARCH, where she develops and directs activities and manages staff under three programs: the National Technical Assistance Program, the National Clearinghouse for Criminal Justice Information Systems, and the Community Oriented Policing Services Making Officer Redeployment Effective (COPS MORE) Technical Assistance program, all funded by bureaus and agencies of the U.S. DOJ. Kelly has organized numerous national symposia on justice integration, conferences on justice, e-government and the Internet, and workshops on justice IT issues. She also has written many articles, technical bulletins and reports for publication by SEARCH or the U.S. DOJ on justice system automation and integration. Kelly has a bachelor's degree in Political Science and Communications from the University of California, Davis.

William H. Romesburg is a SEARCH Consultant, as well as a Public Safety Consultant for Cit Com. Inc., where he manages programs to ensure that planned and developed methods and procedures are in place for successful implementations of public safety technology. Bill has served as consultant to dozens of law enforcement agencies throughout the United States on public safety and automation projects, including agencies in Alaska, California, Texas and Ohio. He has also held several law enforcement positions, including police and fire dispatcher for 3 years and sworn police officer for 6 years. Bill has a master's degree in Public Administration from California State University, Fullerton, and earned a Level 2 certification from the Project Management Institute.

During 2001, Kelly and Bill presented a series of five national technical assistance workshops on "Law Enforcement Technology IT Planning and Implementation" to the COPS MORE Top 100 grantees (those grantees with the largest dollar amount in grants and, therefore, the most full-time officers to redeploy). The regional workshops, funded by a COPS Office grant, provided tools and resources to help those agencies overcome obstacles to technology implementation. Kelly's and Bill's efforts focused on mobile computing issues and technologies, as well as computer-aided dispatch and records management systems (CAD/RMS), procurement processes and other issues.

Kelly and Bill have provided technical assistance to dozens of State, local and regional law enforcement agencies that addresses their IT needs. This assistance includes technology planning, development, improvement, acquisition, management and integration of justice information systems, including CAD/RMS, mobile computing, field reporting, jail management and crime analysis technologies. Their background in IT project management, combined with the onsite work they have conducted nationwide and the valuable lessons they learned from the COPS MORE workshops, means they have seen what works and what doesn't. Their experience has shown that employing tools to improve information management — such as decisionmaking structures, strategic plans,

project management best practices and policies and standards — are critical to the success of law enforcement IT acquisition. They have compiled best practices, procedures and strategies for successfully undertaking complex law enforcement IT initiatives, and are ready to share their knowledge and expertise.

Law Enforcement Tech Guide Review Committee

SEARCH extends its deepest thanks and appreciation to the following members of the Law Enforcement Tech Guide Review Committee, who participated in an advisory capacity during the preparation of this Guide. These individuals have direct experience in law enforcement IT planning, procurement, implementation and management and generously contributed their time and expertise over a period of many months, providing critical review and comments on early drafts of the Guide, as well as insights on law enforcement IT projects that were incorporated throughout this document. Their contributions to the successful completion of this Guide cannot be overstated.

Piper Charles
Major, Charlotte-Mecklenburg (NC) Police Department

Ronald Glensor
Deputy Chief, Reno (NV) Police Department

William Telkamp
Commander, Altamonte Springs (FL) Police Department

Gordon Wasserman
Chief of Staff, Philadelphia (PA) Police Department

About the Guide

About the Guide

Your agency needs a new computer-aided dispatch, records management, automated vehicle location, evidence management, fingerprint identification, crime analysis and/or some other automated information system. So where do you start?

Sure, there's lots of literature out there on project planning and management, information technology (IT), strategic planning and the like (and we encourage you to read it, so please see Appendix 3 of this Guide for references to publications we recommend). But there are some special challenges that government agencies and law enforcement, in particular, must contend with when they plan, buy, install and use new technologies. Unfortunately, as many of you who have already experienced purchasing and implementing new technologies know, the process is simply not as easy as buying a product, plugging it in and flipping a switch. **Whether you buy an off-the-shelf solution or build a custom system in-house, it is essential that certain steps be taken to ensure that the project has the proper user support, is clearly defined, stays on track and within budget, is designed to meet specific business needs or solve a particular problem, and can operate within the constraints of a new or existing technical environment.**

This Guide presents accepted and standard project management principles and strategies, but it has been adapted to and designed for the unique needs, limitations, challenges and opportunities faced by the law enforcement community. It details how an agency can plan for, purchase, implement and use computer-aided dispatch, records management, jail management and mobile data systems, to name a few. Regardless of the technology your agency would like to pursue, these are standard processes that you should follow in planning, purchasing and implementing a solution.

This Guide is particularly beneficial because much of the material and information has been shaped by the successes, failures and lessons learned by law enforcement agencies across the country as they navigated through these difficult projects.

HOW TO USE THIS GUIDE

The Law Enforcement Tech Guide is intended to provide strategies, best practices, recommendations and ideas for successful IT planning and implementation. This Guide should not be construed as specific legal advice for any specific factual situation. This publication is meant to serve as a guideline for situations generally encountered in IT planning and implementation environments. It does not replace or supersede any policies, procedures, rules and ordinances applicable to your jurisdiction's procurement and contract negotiations. This Guide is not legal counsel and should not be interpreted as a legal service.

Assumptions...

...About You

To prepare this Guide, we had to make some assumptions about you, the reader. We think you could be one of many different people within your agency, and perhaps a combination of several. Perhaps you are the Chief or Sheriff who must lead this effort. Boy are we proud of you for picking up this book — keep reading, you are critical to this effort! Or you may be a supervisor, manager, records clerk, dispatcher or detective. In any case, you were imprudent enough to volunteer to shepherd this effort, or you inherited this project unwittingly (or unknowingly), but certainly not by choice. Your knowledge of the agency's operations, the movement of and need for information to accomplish your daily business needs, and your talent for making critical law enforcement decisions is integral to this project's success.

You may be the person in your agency responsible for technical support (and that does not exclude you from also being one of the other types of readers as well!). If so, you will be called upon to analyze existing and new technologies and help determine the best technical solutions to meet the business needs of your agency.

Finally, you may be a project manager who possesses useful project management skills, yet who has little experience with law enforcement. Or, you may not have any project management skills, but you've been assigned to manage this task nonetheless. Either way, your role of project manager is pivotal to this effort. You're the "go-to" person for project information and coordination. You have the unenviable responsibility of keeping the project on track and within budget while adhering to the established timeframes.

In most law enforcement agencies, both sworn and civilian personnel must wear many different hats; very few agencies have the resources for a fully staffed IT support department or to hire a dedicated project manager. We assume many of our readers will fall into one or more of the categories above. If so, this Guide is for each of you.

...About Your Project

This Guide makes the assumption that your project has already been funded, and/or a decision has been made to move forward with the project. It does not assume, however, that funding has been set aside for project management because all too often we find that is not the case.

How this Guide is Organized

This Guide is organized into six Parts that reflect key elements of the IT planning, buying and implementation process:

Part I	Build the Foundation
Part II	Conduct a Needs Analysis
Part III	Create a Project Plan
Part IV	Acquire the Technology
Part V	Implement the Technology
Part VI	Maintain the Technology

If your project is already underway, you could easily skip right to the "Part" that best reflects where you are in your current project. However, because each Part builds upon the preceding, we encourage you to read *all* parts and chapters, regardless of your project's current status. You may, for example, be at the point of purchasing your technology, so Part IV would be most suited to your immediate information needs. In this case, we suggest that you also review the previous chapters, as they provide key guidance on strategies to make the purchasing process easier and ensure that you buy the right solution for your agency (for example, how to garner end-user involvement and support for the solutions selected, precisely identify the operational requirements for the system, establish risk management plans and formulate a solid budget, among other tasks).

This Guide is also packed with a variety of tools. In the margins and throughout the pages of the Guide, you will find tips, checklists, suggested techniques, definitions and other helpful how-to information. Each chapter, for example, begins with a section that answers the four "W"s about the topic: **What** is it, **Why** do it, **Who** is involved and **When** to do it. At the end of each Part is an Assignments Table, where we provide specific action items for key members of the project team for a "quick and easy" reference to major tasks and responsibilities relevant to that Part. We have included appendices with references to resources, sample documents, checklists and other tools to assist you during your project planning, purchasing and implementation process. Icons used throughout the Guide will direct your attention to specific issues or topics.

Definition of Icons

Throughout this Guide, icons are used to draw your attention to important concepts, ideas and, in some cases, warnings. We also use icons to highlight sections that certain personnel within your agency should pay particular attention to. Below are the icons and what they represent.

Executive Sponsor

The Executive Sponsor (defined on page 24) is the project spokesperson, decisionmaker and leader. Executive Sponsors, primarily the Chief or Sheriff or other high-ranking decisionmaker within an agency, will find recommendations and advice just for them when they see this icon in the margins.

Operational Experts

Operational Experts are the end users of the technology and those intimately involved with the business processes of the law enforcement agency, and can include patrol officers, records clerks, dispatchers, detectives, crime analysts, community-oriented policing experts, etc. Words of advice for Operational Experts will accompany this icon.

Technical Experts

Technical support staff will be busy not only analyzing the existing technological environment, but also evaluating technical solutions. These Technical Experts will benefit from recommendations indicated by this icon.

Project Manager

The Project Manager has a lot to juggle when it comes to overseeing the planning, purchasing and implementation of IT. This icon will alert Project Managers to activities, issues and concepts they must be careful not to overlook during each of these phases.

Stop Sign

Remember what we said: Lots of IT projects fail. When you see a stop sign icon, pay particular attention, as it will indicate where others have encountered trouble in their projects. The stop sign indicates pitfalls to avoid.

Grant Requirements

Be accountable to your grants. This icon will alert you when grant requirements may come into play.

Regional

More and more IT efforts involve more than one agency and jurisdiction. This icon symbolizes multijurisdictional and regional efforts. When you see it, it will provide special advice for dealing with the unique nature of regional IT projects.

Tips

If we've heard or know of shortcuts or have useful ideas on how to tackle a particular issue, we'll use this icon to let you know.

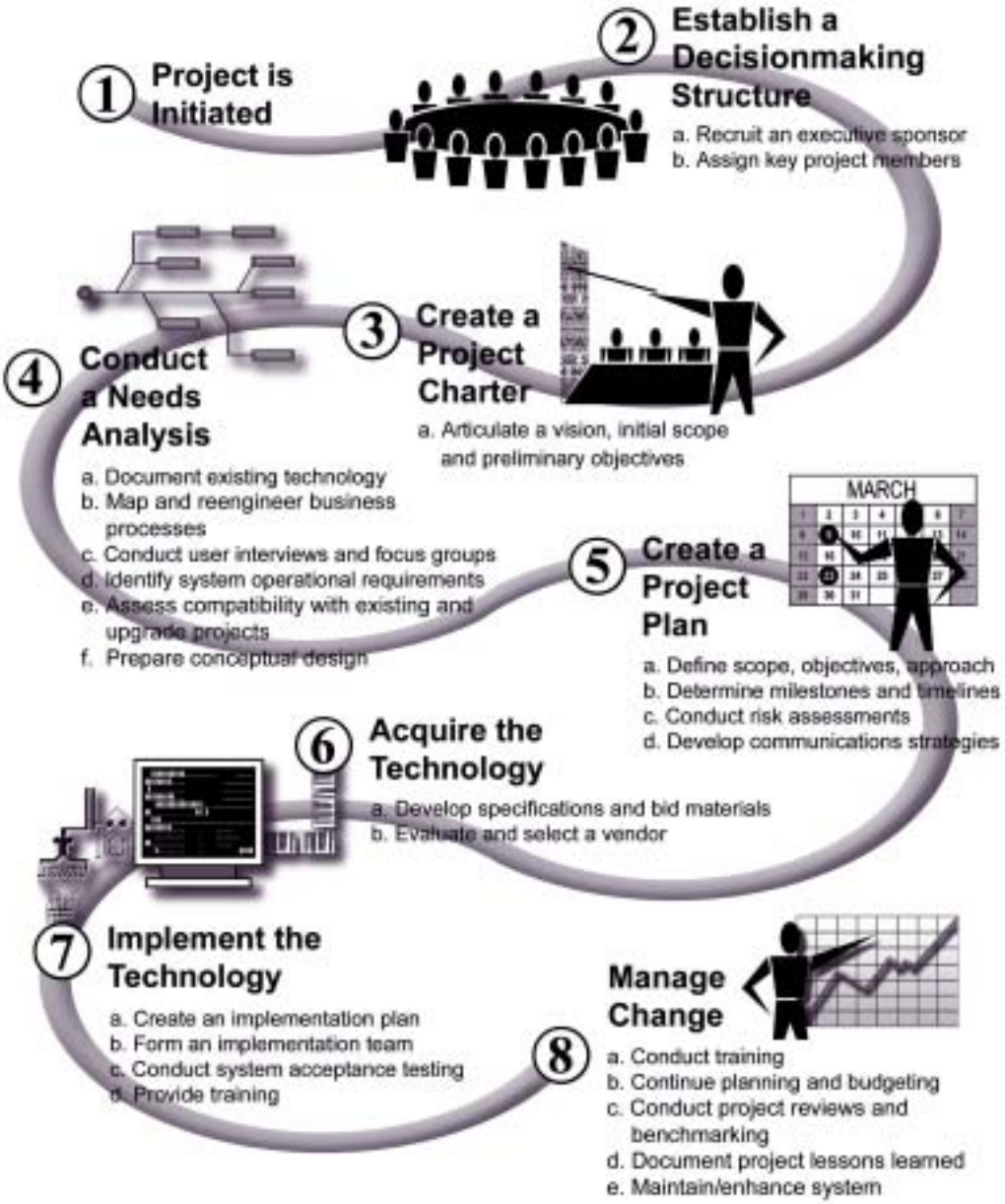
Checklists

Checklists are always handy tools for making sure all the bases and steps are covered. We'll use this icon when we can provide a handy list of ideas or to-dos for your project.

Where to Go from Here

So, how does your law enforcement agency navigate this minefield of IT projects and planning? How do you set up an appropriate chain of command to provide leadership and decisionmaking on these projects? What are the critical elements that shape a successful plan for IT purchase and implementation? What do you need to be aware of when you buy technology? How do you appropriately manage risk associated with these projects? How do you manage change and ensure user support for the solution your agency purchases? If you are asking these questions, congratulations! You have made the first steps toward a rational and strategic approach to your IT initiative. Keep up the questioning and follow the strategies in this Guide, and you'll be doing your best to ensure IT success within your agency.

Law Enforcement IT Projects: A Roadmap to the Guide



Seven Facts You Should Know BEFORE Reading this Guide

Fact #1
Implementing IT is difficult.

Fact #2
Planning and installing IT is different than other projects.

Fact #3
IT planning and implementation is not a one-time activity.

Fact #4
IT must support the strategic business mission, goals and objectives of the law enforcement agency.

Fact #5
Successful projects require strong project management.

Fact #6
All projects require a plan.

Fact #7
Successful IT implementation can happen!

Seven Facts You Should Know BEFORE Reading this Guide

Information System: A purposefully designed system that brings data, computers, procedures and people together in order to manage the information that is important to an organization's mission.

— *Webster's New World Dictionary of Computer Terms*, Seventh Edition

Automated **information systems** are a critical component of effective policing. Immediate access to information benefits virtually all levels of the criminal justice system. It means arming patrol officers with real-time information about people, places and criminal incidents. It means providing jailers with immediate access to an inmate's criminal record, religious preference and gang affiliation. It means providing Chiefs and Sheriffs with access to crime statistics at a moment's notice. Simply put, information systems arm everyone from cadets to Chiefs with tools to make better decisions. And that can mean only one thing: *improved officer and public safety*.

But getting there isn't going to be easy. There are some things you should know *before* you undertake an information technology (IT) project. After reading these seven facts, share them with all of the individuals who will be involved in your project.

Fact #1

Implementing IT is difficult.

While the benefits to automation are numerous, planning and implementing IT is a major undertaking that is not always met with success. In fact, consider what the Standish Group found in a study of over 8,000 public and private IT projects:

Source: *The CHAOS Report* (1994), **www.pm2go.com**.

IT initiatives are difficult because:

- They are big projects that often take more than several years and several budget cycles to complete.
- They often cross lines of authority.
- They deal with technology AND with aligning technology to an agency's specific business processes.
- They are time-sensitive.

There are many issues that challenge successful IT implementation. That's why there is such a detailed process for doing it right. We can't list the multitude of things that could go wrong on any given day in any particular project, but we will warn you of the biggies, the sure-fire clues that indicate an IT project is endangered.

IT projects are particularly in jeopardy when:

- IT is considered a technology issue to be handled by technical staff only, rather than a business issue with technical solutions.
- Users and upper management fail to understand how IT can enable law enforcement agencies to meet their business mission. It makes it difficult, then, to create a strategic vision for IT in the agency.
- Upper management and/or end users are not involved in the IT planning, purchasing and/or implementation processes.
- Users do not see the benefit of IT or how it makes their jobs easier and better.
- Project management best practices are not followed in the planning and implementation of the project.
- Budgets do not fund or agencies are not authorized to hire (or outsource) dedicated IT staff and skilled project managers.
- Funding streams exist that:
  - — have such tight timeframes that they don't allow for effective planning;
  - — fund the purchase of technology only, and not critical planning; and
  - — provide one-time funding for IT, and fail to provide ongoing support.
- Failure to follow systems development lifecycle principles (more information on that later) that include long-term and continuous maintenance, planning, enhancement and budgeting for technology.
- Allowing the mere availability of technology to drive the decision to automate, rather than the business needs of the agency driving the decision.

Fact #2

Planning and installing IT is different than other projects.

Procuring technology is different than, say, purchasing office furniture. Okay, this may seem to be an obvious statement, but you may be surprised to learn that many agencies (and maybe yours has been one of them) do not put much more effort into IT procurement than buying a new desk, for example. The catalog comes, the furniture looks great, the vendor promises complete satisfaction and that the piece is top-of-the-line and state-of-the-art. It's also, they promise, made for any law enforcement agency. So you buy it. Case closed.

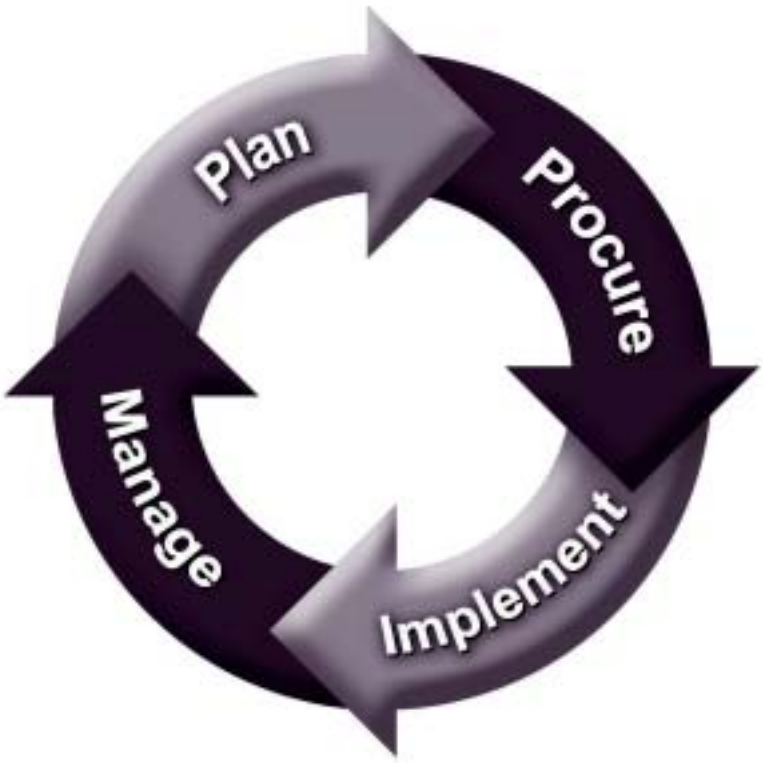
But buying a desk that perhaps isn't perfect won't affect how many criminals are apprehended and how quickly officers respond to an emergency. Information technology, on the other hand, often radically changes the way an agency does business — and it should! It can help officers better identify and deal with suspects, make dispatchers more effective, aid analysts in identifying crime patterns and detectives in solving cases. If chosen hastily, however, technology can jeopardize mission-critical law enforcement activities, and/or hamper users and management, so its potential benefits may never be realized.

Furthermore, because IT impacts mission-critical activities, its implementation causes major changes and most folks are reluctant when it comes to accepting change. So, while a desk may be criticized for not having enough writing space or drawers, these issues will not readily cause the department to throw the desk away and waste a great deal of taxpayer dollars. Dissatisfied users of an information system, on the other hand, can (and in numerous instances have) cause an information system's downfall and demise, despite large investments of time and money.

Fact #3

IT planning and implementation is not a one-time activity.

Read and repeat this sentence: "Technology planning, acquisition and implementation is not a one-time activity." The process is cyclical in nature (see graphic on page 14), following what is known as the **systems development lifecycle** (SDLC), a process with several stages, including planning, procurement, implementation and management. However, the successful implementation of a system does not signal the end of the planning process. Systems implementation really signals the *beginning* of a new phase of evaluating the recently adopted system and planning for systems maintenance, upgrade, enhancement and replacement.



■ **Systems Development Lifecycle**

With rapid advances in hardware and software, new system functionality is available almost immediately after a system is implemented. That is not to suggest an agency postpone acquisition in anticipation of the "latest" system. It only means that after a system is installed, the planning process continues to take new technology, functionality and capability into consideration. In addition, you'll find user expectations change quickly when new systems are implemented, and the demands placed on the systems escalate.

Also, new State and Federal laws will continue to require automation from law enforcement agencies. Budgets must reflect this commitment to SDLC. Funding agencies must be convinced to apply **lifecycle costing** methods when allocating funds to account for downstream expenses associated with operation, maintenance, training and coordination of change. **Remember that one-time grants will not fund a lifetime of technology support and replacement.**

Fact #4

IT must support the strategic business mission, goals and objectives of the law enforcement agency.

Information technology can be an effective tool for any business to meet its overall strategic objectives. But first, those business objectives must be outlined in a strategic plan. Then, information systems can be designed that meet those strategic business objectives.

Like any business, a law enforcement agency should first prepare a strategic business plan that articulates the organization's overall mission, goals and objectives. From this strategic business plan, an agency can develop a strategic vision for information technology and its role in the agency. The strategic IT vision directly supports the mission, goals and objectives of the agency.

This means the Chief/Sheriff must:

1) *Have a **strategic business plan** in place that articulates the organization's mission, goals and objectives;*
2) *Recognize the mission-critical role of IT in policing;*
3) *Create a systematic process for continual planning, maintenance and support of information systems; and*
4) *Develop a **strategic IT vision document**.*

■ **Strategic Business Plan Drives Agency IT Vision**

"If an agency's business mission is vague or not clearly understood, the IT projects developed are much less likely to successfully support the strategic goals of the organization."

— **Maj. Piper Charles**
Charlotte-Mecklenburg (NC) Police Department

A strategic IT vision will articulate how technology will assist the agency in meeting its core business mission and establish an ongoing process to evaluate, upgrade and enhance those technologies as business goals and technology change. Agencies meet this broad strategic IT vision through a series of individual **projects** that build the IT capabilities of the agency, as illustrated on page 15.

This level of planning and coordination is essential for the various individual projects to come together, integrate properly and collectively support the agency's goals.

INFORMATION TECHNOLOGY AND ITS ROLE IN THE METROPOLITAN POLICE DEPARTMENT, WASHINGTON, DC (MPDC)

"Information technology…makes it easier for the MPDC to share information with the community quickly and effectively. As such, new information technology is a critical part of the MPDC's evolving strategy of community policing and crime prevention."

"Technology does not drive itself; it is not created for its own purpose. New technology must be reflective of, and advance, the new strategy of the Department."

From *Information Technology and the MPDC: Moving Into the Next Century*

Fact #5

Successful projects require strong project management.

A successful project is one that is **completed on time and within budget, and meets user needs and expectations**. That's a tall order. That's where **project management** comes in.

What is project management and why is it so important?
The Project Management Institute (**www.pmi.org**) gives us a definition of project management in its publication *A Guide to the Project Management Body of Knowledge* (PMBOK®): "The application of knowledge, skills, tools and techniques to project activities in order to meet or exceed stakeholder needs and expectations from a project. Meeting or exceeding stakeholder needs and expectations invariably involves balancing competing demands among:

- Scope, time, cost and quality.
- Stakeholders with differing needs and expectations.
- Identified requirement (needs) and unidentified requirements (expectations)."

Quality project management is critical to ensuring a successful project.

Fact #6

All projects require a plan.

Successfully automated and integrated information system projects are preceded and accompanied by continual, comprehensive and strategic planning, which allows system stakeholders to develop a roadmap for the future.

A good plan determines the range of user needs, identifies automation priorities and considers technology and data standards. It focuses on the human and funding resources required to support these systems. It embraces the systems development lifecycle. The plan addresses operational systems specifications, hardware and software standards, existing systems and the environment in which the automated system will work. Planning ensures that *all* users have their needs addressed by the system. Planning also includes a complete business process review to find better, more effective and more efficient ways of doing business. It contemplates future needs of the agency and users, scheduled upgrades and replacements.

A **project** is a temporary endeavor undertaken to create a unique product or service. 'Temporary' means that every project has a definite beginning and a definite end. 'Unique' means that the product or service is different in some distinguishing way from all similar projects or services.
— PMBOK®

Fact #7

Successful IT implementation can happen!

Now that we've scared you into returning to the pen and paper, let us also tell you that IT initiatives can and have been successful. But they are successful because project leaders and team members followed best practices for planning and managing the projects from idea to inception, such as clearly defining the project; getting the right people involved; setting realistic goals, objectives and timelines; developing a thorough project plan; accurately and honestly assessing risk; properly negotiating contracts; developing structured implementation and training plans; and establishing benchmarks and performance metrics for assessing and evaluating the project's success.

And that is what this Guide is intended to do — walk you through the process of properly planning and implementing an IT initiative. It will focus specifically on how to tackle individual technology projects within a law enforcement agency. It's a Guide that the Chief/Sheriff, Project Manager, end user or technologist can pick up the minute the phrase is uttered "let's get a new _____"(enter the information technology of your choice in the space provided).

So read on! The rest of this Guide will tell you step by step how to prepare and execute a plan for your technology project. Good luck!

Part I: Build the Foundation

Technological progress is like an axe in the hands of a pathological criminal.

— Albert Einstein

Have you read the
“Seven Facts” section
yet? If not, it is important
that you read it *before*
you continue any further.

CHAPTER 1

ESTABLISH A DECISIONMAKING STRUCTURE

Chapter 1: Establish a Decisionmaking Structure

What

A *decisionmaking structure* for your IT project that:

- provides leadership and accountability,
- defines the business of the agency,
- analyzes technical environments, policies and solutions, and
- effectively manages projects.

Why

To ensure that there is a well-defined decisionmaking structure with clear responsibilities and authority, that the structure is officially sanctioned and that it involves users to address business problems.

Who

Agency leadership (Chief, Sheriff and upper management), users (patrol officers, investigators, dispatchers, records clerks, crime analysts, community policing experts, etc.), a dedicated Project Manager and technical staff.

When

Immediately — before your project gets underway.

Projects, like police organizations, require structure and disciplined rules if they are to be successful. The **decisionmaking structure** defines the project's "**chain of command**," documenting the **roles and responsibilities** of the various people responsible for project actions.

This chapter provides **strategies** and **best practices** for getting the right people involved and developing a **formal structure** for governing a project from planning to implementation. The decisionmaking body will provide oversight and is integral to carrying out all of the work identified in this Guide.

Technology project success depends on user involvement, strong project management and a sound structure for project planning and decisionmaking. Without these essential elements, even the most well-intended and state-of-the-art technology is likely to fail, as it would be designed without strong leadership, effective management, proper planning and the support, input and commitment of the end users.

IT projects require significant buy-in at all levels. The Chief or Sheriff must support the initiative from a financial, personnel and business perspective. Users must be willing to use the technology once it is in place. Technologists must understand the technical environment and successfully support the automated systems.

Thus, planning for technology is not simply a technical issue to be resolved by the agency's technical staff. Planning, purchasing, implementing and using IT successfully is a complicated process that can be impacted by political, organizational, legal, technical, cultural and personality issues. Furthermore, the decision to implement IT must be based upon a particular business need within an organization, rather than the mere availability of technology driving the decision to automate.

Step 1
Identify an Executive Sponsor

Without agency leader involvement, projects can be hampered by personality and turf issues, lack of funding or any multitude of issues that require the agency executive to mediate and/or neutralize.

You must first identify an Executive Sponsor, one who will accept the ultimate accountability for the project and who has the authority to sanction the project and make it a priority. This individual will serve as the champion, spokesperson and leader for the technology initiative.

Additionally, the Executive Sponsor will serve as the project's ultimate decisionmaking authority, committing resources (both human and financial), approving budgets and seeking funding to support the project.

Obviously, this individual must hold a significant rank within the organization, or at least be vested with appropriate decisionmaking authority. We have found that the most successful projects are led by an Executive Sponsor who is a Chief or Sheriff. In larger agencies, or if a project affects a single unit within the agency, sometimes the Deputy Chief or Sheriff who presides over the unit is the Executive Sponsor.

Step 2
Identify Stakeholders

It is critical at the earliest stage in your IT project to identify those people who will be affected by it. Make sure to consider not only those folks who will be using the system, but also those who indirectly play a role in achieving the success of the system. As an initial step, the Project Management Institute advises that it is critical to:

- identify the stakeholders,
- determine their needs and expectations, and then,
- manage and influence those expectations to ensure a successful project.

Obvious key stakeholders will include the Project Manager, system users, your law enforcement agency, and the Chief/Sheriff or Executive Sponsor. But also consider the variety of internal and external project stakeholders:

Project stakeholders are individuals and organizations who are actively involved in the project, or whose interests may be positively or negatively affected as a result of project execution or successful project completion.
—PMBOK®

- **City Council or County Commission**, and any other policymakers and purse-string holders.
- **The public**. The public is increasingly interested in law enforcement information and requesting crime maps and statistics for their communities. Law enforcement agencies will also need to solicit public input for their community policing and other programs. In addition, some policing agencies answer to a police commission and/or an independent public board. (The Los Angeles Police Department, for example, answers to a Board of Police Commissioners, comprised of five civilians appointed by the mayor whose role is to "serve as the citizens' voice in police affairs ... .")
- **The media**.
- **Other government and public safety agencies**. Integration and information sharing with other authorized justice agencies should be considered, such as with the fire department, prosecuting attorney and the courts. Agencies outside of public safety, such as housing, public works, parks and traffic engineering, are critical to community policing and problem solving.
- **Others** as dictated by your unique needs.

Step 3
Create a Project Decisionmaking Structure

One thing is for certain: Successful IT planning and implementation cannot be achieved without a well-defined decisionmaking structure. There are many ways to set up a decisionmaking structure to govern IT initiatives.

In this section, two decisionmaking structure models are offered that specifically reflect the differences between large-scale IT initiatives (undertaken by large, regional or multijurisdictional policing agencies) and narrowly focused projects of smaller scope (in small- to medium-sized agencies). We suggest that you review both models, as one or a combination of both may suffice for your initiative, given the size of your agency and the scope of your project.

Follow Structure #1 if:

See page 27.

— Your agency is large (typically, an agency is considered "large" if it employs over 100 sworn officers).

— Your project is large (involving multiple technologies, or a technology that affects multiple units or the entire department).

— Your project is a regional effort (involving multiple agencies and/or jurisdictions).

Follow Structure #2 if:

- — Your agency is small- to medium-sized (fewer than 100 sworn officers).
- — Your project is narrowly focused (for a large agency, perhaps it is a project within a specific unit).
- — Financial limitations restrict the amount of human resources that can be allocated to project planning.

See page 32.

MAKE A NOTE OF IT!

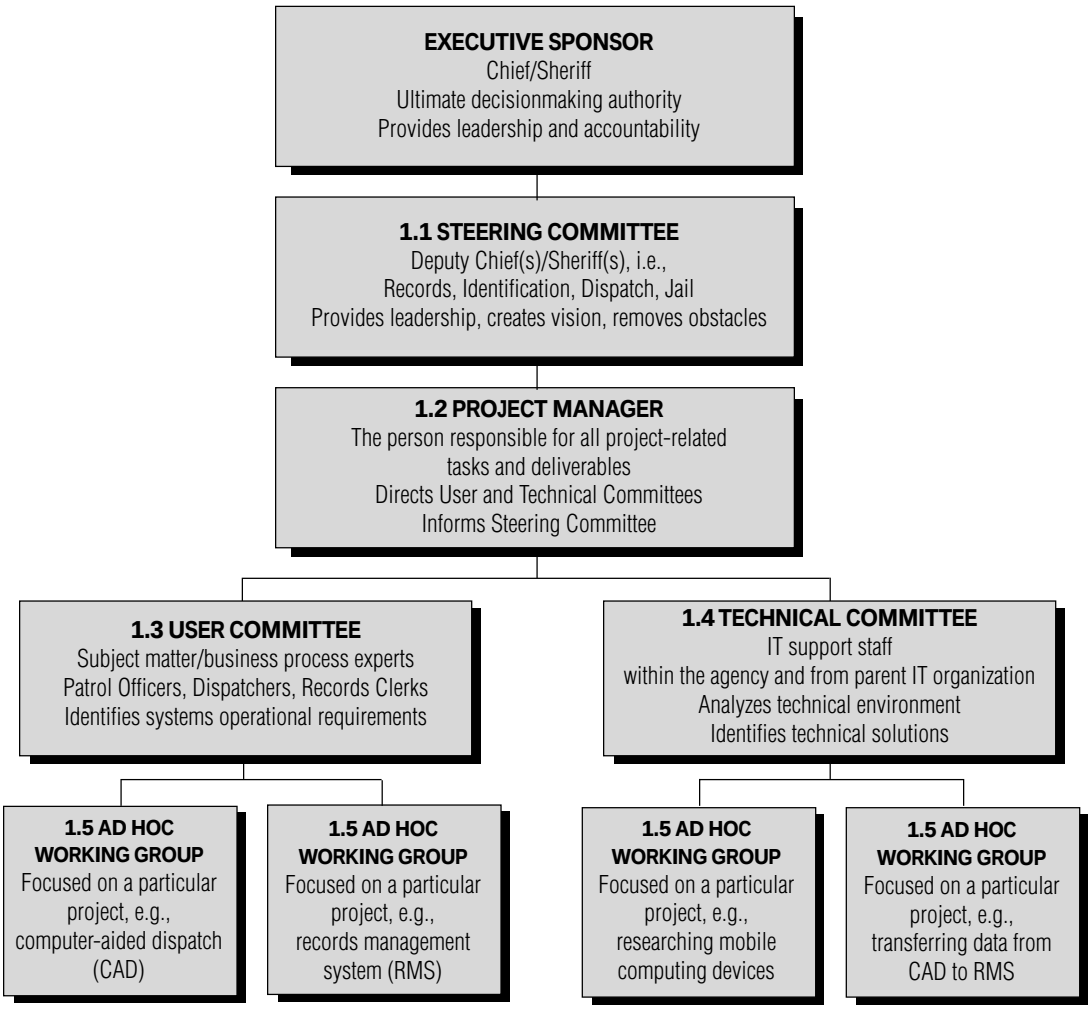
Representatives of the Decisionmaking Structure will:

- ✓ Articulate a united vision and determine the scope and focus of your IT project.
- ✓ Identify legal, policy, administrative, funding, technical and political obstacles to achieving automation and integration.
- ✓ Define and sanction project objectives, tasks and timetables.
- ✓ Garner support from other relevant decisionmakers (City/County Council).
- ✓ Monitor planning, implementation and management of IT.
- ✓ Define the operational requirements for an automated solution.
- ✓ Oversee systems acquisition.
- ✓ Resolve obstacles to implementation.
- ✓ Review system performance.
- ✓ Make recommendations concerning systems improvements, enhancements and next steps.

Structure #1

Suggested for Large Agencies/ Multijurisdictional Efforts

Although there are many ways to configure a project decisionmaking structure, the following illustrates a common and basic structure comprised of a **Steering Committee** to which two additional groups report: a **User Committee** and a **Technical Committee**. **Ad hoc working groups** may be convened for specific short-term tasks.



■ **Sample Project Decisionmaking Structure #1**

1.1 The Steering Committee

Who Captains, Lieutenants, high-ranking nonsworn employees (i.e., dispatch supervisor, records supervisor, IT manager).

Role Adopt a shared vision; commit to and guide the project; dedicate staff resources; keep abreast of project progress, risks, challenges, successes; provide update reports to Executive Sponsor; remove project barriers; deal with policy and personnel obstacles; and render decisions on issues that impact project scope, time and cost.

> *"It's essential to have a unified department approach with all senior management around the table."*
>
> — **Timothy Bray**
> Illinois State Police

Members of the Steering Committee are generally high-level managers and/or supervisors within the agency. These individuals can assign and commit staff within their department, division or unit to participate in the project as needed. This group will ensure that a structured project management process is adopted and followed for the IT project. The Steering Committee will provide constant guidance and oversight to the project, its progress and deliverables, and will make most decisions related to the project. They will keep the Executive Sponsor informed of project progress and advise the Sponsor of specific action the Sponsor may need to take to remove project barriers or to garner resources. Additionally, Steering Committee members are often individuals from the agency who are involved in broader agency strategic planning initiatives and will make sure that the IT project is properly aligned with the agency's budget, as well as overall business objectives, such as community oriented policing.

*For regional efforts, the Steering Committee should be comprised of the Chiefs/Sheriffs of **each** of the agencies involved in the initiative. Appointing alternate representatives for the Chiefs/Sheriffs is **not** recommended, unless they are given full decisionmaking authority for their agency.*

1.2 The Project Manager

Who Ideally, an individual who has project management skills, experience and/or training, dedicated in a full-time manner to the success of the initiative.

Role To provide overall project direction, manage the project's schedule, serve as a single point of contact with vendors, direct/lead team members toward project objectives, review and approve project deliverables, handle low-level problem resolution, serve as liaison to the Steering Committee.

Note: A detailed discussion of how to hire, assign and/or train a Project Manager can be found in Chapter 2.

The Project Manager must be selected with careful consideration and may need to be empowered to forego his or her normal duties and assignments, sometimes for periods of up to 2 years or more, depending on the project. The Project Manager is responsible for virtually all aspects of the initiative and is formally accountable to both the Steering Committee and the Executive Sponsor. (Informally, the Project Manager is accountable to the User and Technical Committees.) In the event that outside assistance is used (such as contract consultants), the Project Manager will also be responsible for coordinating activities in terms of adopting any recommended project methodology and/or deliverables and facilitating resources (i.e., ensuring that a group of individuals are available for a meeting). The Project Manager assumes the greatest degree of project responsibility and accountability within this framework.

To complete the decisionmaking structure, two other components are essential: User and Technical Committees. While the Steering Committee sets policy, makes key decisions and commits agency resources, its members are not generally involved in the daily operational information flow within and between the agencies, nor do they (or should they) know the technical solutions to these issues. The User Committee is essential for understanding, analyzing and defining the business of the law enforcement agency, while the Technical Committee assesses current technical environments and formulates the technical solutions that enable automation and information sharing.

1.3 The User Committee

Who Subject matter and business process experts for the functions to be addressed (i.e., patrol officer, detective, dispatcher, records clerk, crime analyst, property manager).

Role To assist and support in creating a project charter (Chapter 3) and ultimately the project plan (Part III). To analyze existing workflows, define business processes (Chapter 4), look for efficiencies and establish the requirements of any new system.

The User Committee should be focused on defining the business, not technical, solutions for the system.

The User Committee will include the "front-line" personnel and key users of the technology. Think of it this way: If a particular group of individuals, patrol officers, for example, will use the technology, they MUST be represented on the User Committee. Obviously not every patrol officer needs to be included, but key representative(s) who are in the field and know the day-to-day business of a patrol officer should have a seat on the Committee. Individuals serving on this Committee can include patrol, detectives, dispatch, records clerk, crime analysts and managers. Determining who should be on the Committee will be governed by the specific business processes being addressed (see example next page).

Committees should follow **the rule of 12**: the maximum number of individuals who should participate on a committee for effective decisionmaking.

This group will be charged with analyzing current business processes and practices, identifying ways to improve workflow and efficiency, and defining how the system will support their business needs to make their work more efficient and effective and solve particular problems. The User Committee will evaluate software and technical solutions to their business requirements.

EXAMPLE

Anycity's Chief has decided to replace or enhance the department's CAD/RMS. In assigning individuals to the "User Committee," the Chief appointed the following individuals for the following purposes:

DISPATCHER	Uses the system on a daily basis to properly dispatch units and capture critical call information.
PATROL OFFICER	Enters incident reports on a mobile computer that directly accesses and feeds the new records system.
DETECTIVE	Uses the system to build cases.
RECORDS CLERK	Enters, validates and maintains information entered in the system.
CRIME ANALYST	Uses data stored in the system to provide valuable information on crime trends.
POLICE SUPERVISOR AND MANAGER	Uses information captured in the new system for management of statistics and staff allocation.
CITY GIS REPRESENTATIVE	Explores the integration of CAD and RMS with the Geographic Information System (GIS).

The decisionmaking structure should not be disbanded. It will be dynamic, perhaps changing scope, focus and membership over time, as priorities, project phases and projects change. A decisionmaking structure remains intact to continually assess the technology initiative and plan for its next phases and future enhancements.

1.4 The Technical Committee

Who Dedicated technical staff from the agency, as well as City/County/State IT staff if support is provided to the agency by the parent organization or central data processing shop of the local jurisdiction.

Role To understand the vision proposed by the Steering Committee and the User Committee's workflow and business needs. To analyze the agency's existing technical environment. To research and propose solutions to the agency's business needs and problems.

The Technical Committee will take its cues directly from the User Committee. Once the User Committee has defined what it needs from a business perspective, the Technical Committee will analyze those needs with a focus on the agency's current technical environment and potential industry solutions. The Technical Committee may be heavily involved in either "building" the solution in-house or evaluating solutions proposed by vendors. This Committee will also have to make important recommendations about training, assigning and hiring staff to implement, support and maintain the new system.

1.5 Ad Hoc Working Groups

Throughout the course of the project, it may be necessary to convene ad hoc working groups to focus on particular issues. These groups may be formed to look at specific tasks and business processes that require more in-depth research or analysis, or to carry out research on and development of a variety of project-specific plans, models, policies and directions. Ad hoc working groups are assembled on a temporary basis to address a specific issue or task.

EXAMPLE

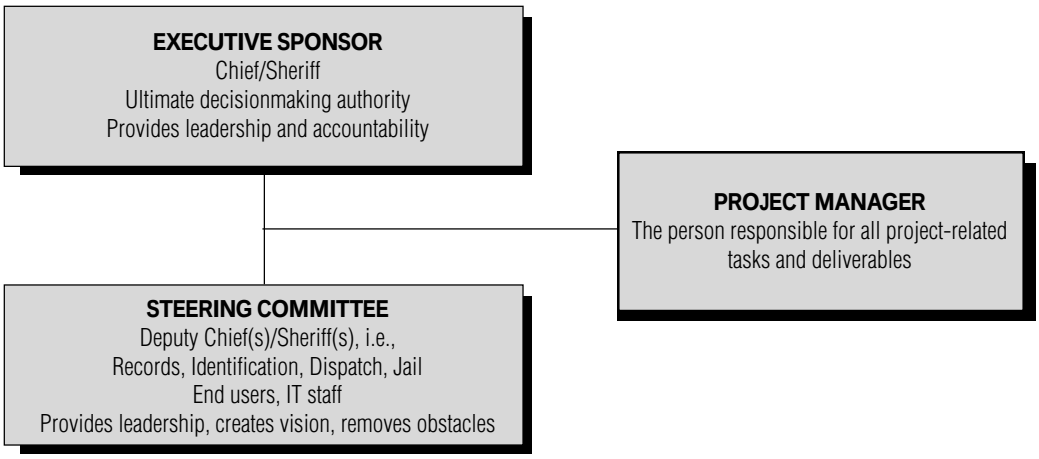
XYZ police department is planning for a new CAD/RMS. The following ad hoc working groups were formed:

- ✔ Crime Analysis
- ✔ Data Transfer from CAD to RMS
- ✔ Mobile Access to CAD and RMS Data
- ✔ Management Statistics
- ✔ Automated Field Reporting

Structure #2
Suggested for Smaller Agencies/ Narrowly Focused Projects

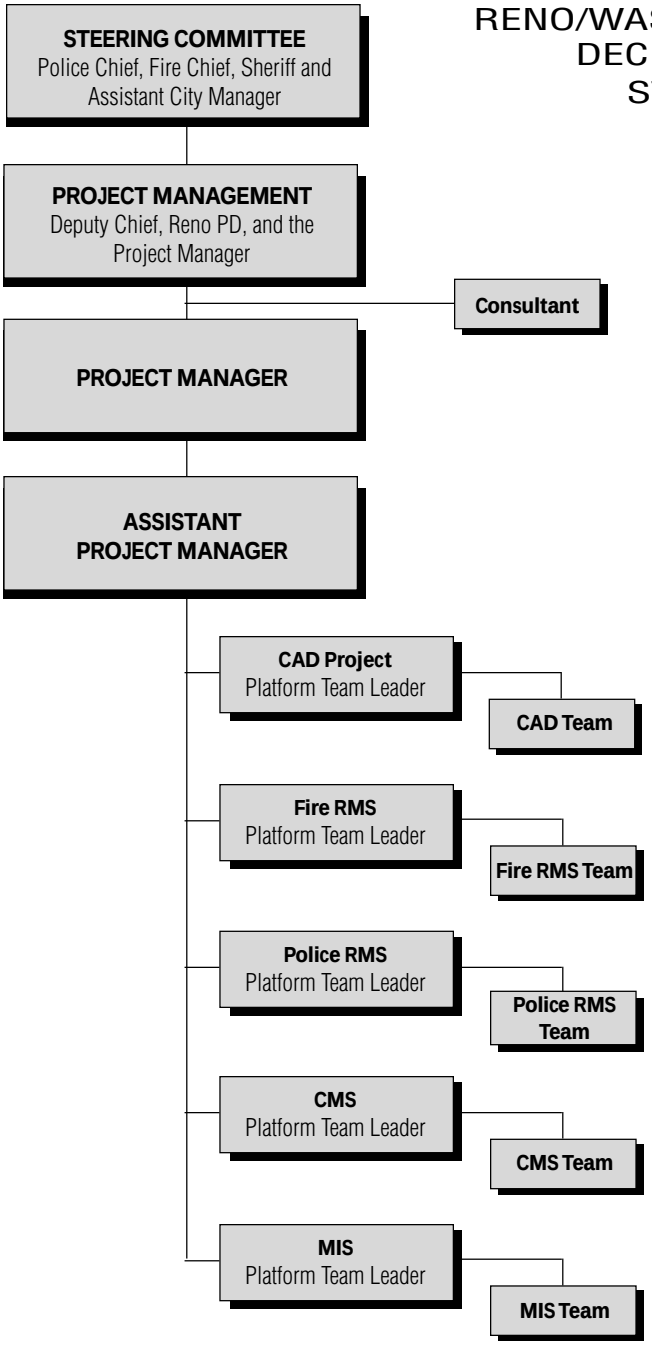
Obviously, if your agency is a small one, or if the project is relatively narrow in scope, your decisionmaking structure may, for example, consist of one committee in which the Chief, users and technical experts all participate. The important concept to note is that representatives from the leadership, business *and* technical specialties should participate on the committee.

The following structure illustrates how small- to medium-sized agencies generally arrange their project's decisionmaking structure. This approach is more common in projects with limited staff size and responsibility. In this instance, the Steering, User and Technical Committees are merged together in one Steering Committee. The chain of command in this example is more direct, as there are fewer individuals involved in the project. Also, agency personnel with specific expertise can be called upon to advise and assist the Committee with research and other tasks on an as-needed basis.



■ **Sample Project Decisionmaking Structure #2**

RENO/WASHOE COUNTY (NV) DECISIONMAKING STRUCTURE



As we said in the beginning of this section, decisionmaking structures can be configured in a variety of ways. The key point is that Executive Sponsors, upper management, users and technologists play an important role in any structure. This is the decisionmaking structure established to govern the City of Reno and Washoe County's Public Safety and Justice Project.

In this decisionmaking structure, the Steering Committee is comprised of the executive sponsors (Chiefs, Sheriff and Assistant City Manager). The project management team, comprised of the Deputy Chief of the Reno Police Department and the Project Manager, oversee the daily project activities. A consulting firm has been hired to work on this project, and reports directly to the project management team. The committee structure is organized so that there is a "team" for each major IT project underway. Each team has a designated leader, and each team is comprised of both the user representatives and technology support staff.

Step 4
Involve Other Subject Matter Experts in Committee Deliberations

Make sure not to plan your project in a vacuum! Carefully assess other information systems (new and old) and technology projects taking place around your initiative and gather information on them. As discussed in the "Seven Facts" section of this Guide, any IT project you undertake should be managed in relationship to the broader IT vision your agency has adopted. In other words, receiving a grant to purchase and implement a new CAD system means that you must plan and purchase the system while considering its integration with new and/or existing records management, geographic information, automated vehicle location systems and other law enforcement technologies.

But your agency should also look beyond in-house technology to identify potential information sharing with other justice agencies that will provide efficiencies and leverage the benefits of automation. For example, when implementing a new RMS, a law enforcement agency should look at the potential of electronically sending incident information to the prosecuting attorney's office and the court. Automating the warrant process and sharing the data with the court is another way law enforcement agencies benefit from electronic capture, storage and sharing of information.

To appropriately do this, representatives of other agencies and/or internal or external projects that can impact the primary project should be asked to provide input and coordinate efforts. For example, if the current project focuses on a new CAD/RMS, other individuals asked to provide input and consultation to Committees or Working Groups could include a representative from the court automation team, a representative from the City who is working on a new citywide GIS, and the architect designing a new communications center. This may also be an appropriate time to consider input from a member of the public (if the public is identified as a key stakeholder).

Step 5
Make the Most of Committees: Conduct Effective Meetings

Nothing is more frustrating for overworked law enforcement personnel than participating in meetings that fail to yield tangible results or make marked progress and that are held just for the sake of it. For the most part, folks who participate in the decisionmaking structure have full-time jobs in addition to this project. When those groups are called upon to meet and work, it is essential to make the most of their valuable and limited time. Make sure each Committee agrees to follow structured meeting procedures by:

What makes a good meeting?

- Short and to the point
- Well organized
- Clearly defined and understood meeting objectives
- Everyone contributes fully
- Everyone feels comfortable if they wish to disagree
- Any conflict is constructive and creative
- Decisions are made and action is planned
- The group openly reviews their effectiveness
- Meetings begin and end on time

How to conduct a meeting:

1. Define the purpose
2. Set an agenda
3. Set a timeframe with start and end times for the entire agenda, as well as individual agenda items
4. Start on time
5. Always keep minutes
6. Keep everyone focused

—www.telstra.com/business

- ✓ Electing or appointing a Committee **Chair** who will commit to leading the Committee and respond to task requests.
- ✓ Establishing consistent **meeting times and dates** (e.g., every other Wednesday at 2 p.m.).
- ✓ Preparing and distributing an **agenda** for each meeting. The agenda should be complete with time allocations for the full meeting, as well as breakdowns for each topic. The Project Manager and Committee Chair are responsible for making sure the meeting sticks to the agenda and the times allotted. Agendas should be:
  - ➔ Focused — stick to a subject and have specific objectives or goals;
  - ➔ Not have too many topics — cramming an agenda with too many major issues is overwhelming;
  - ➔ Complete with background information (if available) on each topic; and
  - ➔ Distributed a few days before the meeting so members have time to review the topics and prepare.
- ✓ Determine **voting** procedures for each meeting. For most projects handled within a single agency, a simple majority vote is generally acceptable.

In large-scale or regional efforts, equality in voting should be established. Each agency participating in the effort will have one vote, and decisions must be unanimous.

- ✓ A note taker should be present at all meetings. **Meeting minutes** should be prepared and distributed for every Committee meeting. This prevents returning to previously resolved issues or covering the same topics time and time again.
- ✓ Adopt a **problem escalation and resolution process** so the rules are clearly established at the outset of the project. Here's an example:

Record major ideas and action items on a flip chart so all team members can review them. Before each meeting is over, prepare a list of action items and the person/persons responsible for them and display on the flip chart.

EXAMPLE

The following problem escalation and resolution process will be followed for problems (e.g., resource availability or scheduling) that may arise during the course of the project:

Step 1 A Committee member will report problem to Project Manager.

Step 2 Project Manager will research the issue, identify resolution options and make a recommendation to the Steering Committee.

Step 3 Based on the nature of the issue, the Project Manager will seek resolution approval from the Steering Committee.

Step 4 The Project Manager will keep track of problems and their formal resolution.

Step 5 Following an approval or denial by the Steering Committee, the Project Manager will notify the original requestor of the action taken. There is no appeal process.

See Appendix 3 for recommended reading and World Wide Web sites regarding best practices for conducting effective meetings.

Step 6
Make Determinations about Staffing In-house or Outsourcing Project Staff Support

After reviewing this chapter and understanding more about your own project, you may be concerned about staffing for this effort. Perhaps you are concerned about the availability and/or skill levels of existing staff. Perhaps there are personalities within the organization that have a difficult time working together or that could use a mediator or skilled facilitator to guide and referee discussions. Perhaps you just need objective, neutral and outside input during each phase of your project.

In determining whether you should handle this project in-house or outsource it, you should ask yourself, at a minimum, these questions:

- Who will guide/steer this project through its entire lifecycle?
- Who will establish action items and make task assignments?
- Who will be responsible for documenting project deliverables?
- Who will set meeting agendas and conduct follow-up?
- Who has expertise in project management best practices and planning?
- Who has expertise regarding the technology and current law enforcement IT applications and their potential uses?
- Do we know enough about technology projects to ensure success?
- Do we have the time necessary to do this properly?
- Do we want to do this?

Outsourcing: The Force Multiplier
In addition to using in-house staff, outsourcing a number of project activities to a third party can help an agency get more work done in a shorter timeframe.

At this point, it may be time to consider outsourcing some staff functions if you find there are not sufficient or skilled resources in-house to do so. This involves some honest assessments about existing staff, their capabilities and current commitments. Project leaders often base their decision to outsource on the following criteria:

- **Skill levels** of current staff. An objective and honest assessment must be made regarding the skill levels of current staff to handle the initiative, specifically in the areas of project management and the specific technology you are trying to implement.
- **Project complexity**. Aside from the obvious large-scale or multijurisdictional efforts, remember that even projects that appear relatively simple can require expert knowledge and skills (consider the complexity of some interfaces: the scope may be small, but the coordination and skill requirements can be immense). If a

project involves a high degree of complexity or will have a major impact on agency operations, a detailed assessment of staff skill levels and availability will be required.

- ❏ **Budget allocations**. Is there sufficient funding in the budget to allow outsourcing of staff activities? Is there sufficient funding to compensate for overtime costs associated with using in-house staff? As a general rule, consulting services will cost approximately 10–15% of the project's budget. An important concept to consider is the likelihood that outsourcing will actually *reduce* project costs by preventing costly project mistakes and by capitalizing on a consultant's ability to negotiate prices with vendors.

Many agencies turn to professional consultants or firms to assist with their projects. The role of a good consultant includes one, or a combination, of the following:

- **Expertise**. The consultant provides knowledge or skills the agency does not have in-house (e.g., an in-depth knowledge of the planning process or operational technology such as CAD/RMS/Mobile systems).
- **Additional staffing**. The consultant often performs tasks that an agency knows *how to do,* but just doesn't have *time to do* (e.g., organizing meetings, drafting documents, conducting interviews, etc.).
- **Partnership**. The consultant often participates as a Project Team member, contributing knowledge and guidance while empowering agency staff with the ability to accomplish various tasks (e.g., providing guidance in the key elements of building a business case, conducting strategic planning or facilitating meetings). The outcome of such a partnership can be a more a structured initiative, with agency personnel in command of their project.

Although outsourcing may enhance your chances of success, it will not relieve you from the burden of project accountability. Therefore, it is critical that you appoint an agency staff member to serve as the Project Manager, *and* you must insist upon using the guidelines presented in this book (or some other accepted and structured methodology) to properly plan and implement ***your*** technology initiative.

What is the biggest mistake that companies make with regard to IT outsourcing?

"Companies believe they no longer have to manage IT because it is outsourced."

— Peter Pijawka
President, Aligne

If you choose to outsource, at the very least make sure to:

- Detail the expected scope of work and other expectations for the consultant.
- Determine a realistic budget for the services.
- Request proposals for scope, timeline and cost of work from the consultant.
- Develop a clear contract with the consultant that includes the above items.
- Get at least three references.
- Request the consultant identify a strategy for his or her exit from the project when concluded.

Remember: Consulting costs allowable under grants are usually subject to rate caps. Be sure to check these limits prior to outsourcing.

CHAPTER 2

HIRE, ASSIGN AND/OR TRAIN A PROJECT MANAGER

Chapter 2:
Hire, Assign and/or Train a Project Manager

What An *individual* accountable for all project-related activities and solely responsible for the project's scope, quality and budget.

Why To facilitate project accountability and organization. As the single point of contact for agency leaders, project committees and working groups, vendors and subcontractors, the Project Manager is the center of the project universe.

Who A full-time individual either currently on staff or hired specifically for the project. Ideally, assigning existing staff should be done when the employee can be dedicated exclusively to the project (not as an "additional assignment"). Your agency should try to choose someone with strong project management experience.

When As early as possible in the project, before major decisions are made about project scope, goals and objectives, etc. A skilled Project Manager will possess a vast range of experience to help complete all of the important project planning tasks.

If you don't have someone at the helm of your project who is responsible for all aspects of the initiative, it can quickly and easily spin out of control or fall apart completely. Furthermore, a Project Manager keeps the "paper trail" on the project, so to speak, documenting all issues, actions, decisions and phases. The Project Manager is the individual responsible for all project stages, phases, tasks and deliverables, and is answerable to the Executive Sponsor and Steering Committee.

This chapter will help define what the Project Manager does and help you assess whether you have someone within your agency who can fulfill this critical role.

SAMPLE PROJECT MANAGER

JOB OVERVIEW

The Project Manager will:

- Oversee, plan, schedule and control activities related to planning and implementing new law enforcement information systems.
- Fulfill project objectives by applying theoretical, managerial and communications skills to satisfy project requirements.
- Lead, coordinate and integrate Committee and individual efforts in this regard and build positive professional relationships with users.
- Report to the project's Executive Sponsor and Steering Committee, and preside in the User and Technical Committees and ad hoc working groups throughout the course of the project.

RESPONSIBILITIES

- Structures projects and activities.
- Develops project plans and schedules (using the work breakdown structure (WBS) discussed in Chapter 9).
- Manages projects within the established schedule constraints.
- Controls project costs to ensure budget performance and compliance with grant requirements.
- Ensures compliance with agreed-upon project management procedures.
- Manages, coordinates, integrates and facilitates the efforts of individuals and Committees and other resources associated with the project.
- Supervises subcontractors and outside professional services.
- Coordinates project planning activities.
- Coordinates project purchasing activities. Interfaces with vendors to ensure conformance to specifications/standards and the Project Plan, and with City/County procurement officials to ensure compliance with purchasing/contracting regulations.
- Effectively communicates in meetings, conversations and presentations in a concise, clear and professional manner.
- Professionally directs and leads meetings.
- Prepares and issues written correspondence, including progress reports, meeting agendas and minutes, proposals and project summaries to project leadership, committees, stakeholders and staff.
- Ensures timely follow-up to all commitments.

JOB DESCRIPTION

- Compiles all project files.
- Researches and applies appropriate technologies to support scope of work documents, designs and specifications.
- Keeps in touch with technological developments within specific discipline/area of expertise.
- Supports and interacts with other Project Managers, where appropriate, to ensure the success of their projects and the successful integration between projects.
- Provides employee and contractor performance feedback as required.
- Develops a workload management plan (resource planning) that organizes and forecasts personnel allocation to assignments.
- Develops task estimates.
- Continually evaluates Project Plan for alignment with the agency's overall strategic IT vision.
- Performs other duties as required.

REQUIRED SKILLS

- Ability to effectively organize and structure activities.
- Strong analytical capabilities.
- Ability to grasp strategic concepts.
- Strong strategy development skills.
- Exceptional verbal and written communication skills.
- Good understanding of business and financial principles.
- Ability to lead and facilitate multiple activities and resources.
- Ability to develop master project schedule, complete with work breakdowns and assignments.
- Direct and control all work performed within the WBS.
- Ability to assign tasks.
- Effective problem-solving skills.
- Basic computer usage skills.

PERSONAL ATTRIBUTES

- Strong interpersonal skills.
- Strong managerial skills.
- Team-building skills.
- Ability to motivate and develop others.
- Tenacious.
- Thick-skinned.
- Effective communicator.

WORKING CONDITIONS

This project may require the following:

- Extended hours.
- Travel throughout the United States to review other law enforcement automated systems and attend applicable conferences and/or training.

As we noted in "About the Guide," this book is written with the assumption that your agency can dedicate existing staff or will hire a full-time, in-house Project Manager. This Guide is intended to walk you and your staff through a project management strategy for law enforcement information systems planning and implementation. If, after reviewing this chapter, you determine your agency does not have the in-house resources or will not be hiring a full-time Project Manager, you may need to outsource the project management role. We want you to be aware that any firm or individual that you may outsource this role to will (and should!) have established project management methodologies and techniques that they follow. Those methodologies may differ from this Guide in the order they are completed or what they are called. This Guide, in that case, will serve to educate you — prior to outsourcing — about key project management issues and tasks, and can be used as a reference in working with the contractor you have chosen. It may become a particularly useful tool if your contractor has little or no experience in law enforcement information systems planning and implementation (we would discourage you from contracting with one who doesn't have much experience, but we realize that sometimes budget limitations and availability can limit your choices). In any event, we want you to know that when you outsource, you will be following your contractor's methodology for project management, but that the Guide, nevertheless, will be a useful tool in that process. **Even if your agency elects to outsource project management activities, there *must* be an agency staff member who is responsible for overseeing the entire project and representing the agency' s interests; no vendor can do that.**

Project Manager's Responsibilities

See: ***The rest of this Guide!***

Seriously, the Project Manager will be involved in all aspects of the agency's IT project and, indeed, should coordinate and lead the activities outlined in this book. The Project Manager ensures that all appropriate planning requirements have been addressed throughout the course of the project.

Project Manager Tool Kit

Now that you've gone to the trouble of securing a good Project Manager, make sure you provide this person with tools to make him or her effective at this job, such as those listed below.

- Ongoing training in effective project management is worth its weight in gold, or at least the registration fees. If you are reassigning someone in your department to manage this project, find a 3- to 4-day project management course that person can attend.
- Encourage your Project Manager to join a professional project management organization and to network with Project Managers from other police agencies in your area.
- Suggest the Project Manager review helpful online resources, complete with online project support information, such as those listed in Appendix 3.
- Purchase a solid project management software package.
- Check out colleges and universities for project management information and courses.
- The Project Management Institute (**www.pmi.org**) is one of the best resources for tools and support for the Project Manager. Information on PMI can be found in Appendix 3.

Executive Sponsors: Make the Most of Your Project Manager

As you've gathered so far, many agency staff will be important to the success of an IT implementation. However, two individuals in particular are critical to a project's survival, and their relationship with each other is key. As we have mentioned, your role as the Executive Sponsor cannot be overemphasized, particularly in relation to providing continuous support and direction to the *other* critical project person: the Project Manager.

The rest of this Guide will focus on the critical tasks that will occur throughout the life of the project to continually ensure that the project is on track, properly focused and within budget. As Executive Sponsor, you must do the following to effectively complete these tasks and realistically deal with the project's challenges, opportunities and difficulties:

- Supply the Project Manager with **training,** if needed, and the appropriate tools (mentioned above).
- **Empower** the Project Manager — i.e., give the Project Manager authority to call meetings, assign tasks to team members and enforce completion of those assign-

Roles Played by Project Manager
- Task master
- Coach
- Cheerleader
- Social Worker
- Advocate
- Defender

—Taken from *A Practitioner's Guide to Managing Projects in the Information Age.*

ments. Ensure that the Project Manager has sufficient authority to provide teams with the necessary resources (i.e., time, personnel, funds, research, education, etc.) to complete their assignments in an effective and timely manner. The Project Manager must either have direct authority to make these assignments, or at least have the authority to meet with other agency staff who control these resources to make the assignments.

- Understand and embrace the principles of **risk management** (see Chapter 12). Risk management will allow Project Team members to assess the challenges and opportunities of the project from the start and help craft contingency plans to deal with them effectively. It is important that the Project Manager understand your commitment to effective risk management and planning.

And, perhaps most importantly:

- **Encourage and commit to open lines of communication with the Project Manager**. It is critical that the Project Manager be able to openly and honestly discuss the project, its status, challenges and opportunities with the Executive Sponsor and the Steering Committee. You should provide an open, comfortable forum for discussing the project, its progress and obstacles on a regular basis. Projects invariably slip in deadline and sometimes budget, and always experience challenges and difficulties. It is critical that when these challenges occur, the Project Manager is able to openly communicate issues with members of the decisionmaking structure and agency leadership. This will allow appropriate and immediate corrective actions to take place to avoid the project spiraling out of control.

> *"Every project, no matter how complex or apparently simple, must have a single point of leadership with overall responsibility and commensurate authority, if it is to have any hope of success."*
>
> — **David J. Roberts**
> SEARCH

Daunted by the task of finding a Project Manager who has law enforcement, IT ***and*** project management experience?

It's true, finding a single individual with all of these skills is a challenge. If you can't assign or hire a person with all three of these skills, an individual with solid project management experience is preferred, as he or she will most likely be capable of seeking out good technology advice while helping craft a solution that **meets the business needs of the agency** . That, many say, is more important than someone with a great deal of technical experience who has little understanding of the business needs of the law enforcement agency.

CHAPTER 3
DEVELOP A PROJECT CHARTER

Chapter 3:
Develop a Project Charter

What A *document* that contains an IT project description, complete with scope, objectives, organization and staffing, a decisionmaking structure, the project management approach and initial resource requirements.

Why The Charter provides guidance to project staff and team members in planning and designing a system to meet the guiding vision of the Executive Sponsor and Steering Committee.

Who The Project Manager and Steering Committee, with the advice and input of the User and Technical Committees.

When Shortly after the decisionmaking structure is formed and prior to developing the full Project Plan.

The **Project Charter** is a document that formally recognizes the existence of a project. It should include: 1) Business need that the project was undertaken to address; and 2) The product description.
—PMBOK®

The Charter defines the **scope and objectives** of the project and is a reference point by which all activities can be **measured** to see if they meet the **vision** for the project, as defined by the Executive Sponsor and Steering Committee. It defines what the project is committed to deliver, a budget for doing so, the human resources available and the methodology to be followed for project planning and implementation. In short, the Charter defines the **rules of engagement** for a project.

A Charter puts everyone involved and/or affected by the project on the "same page." Leaders, managers, users and supporters of the system have a clear understanding and a reference document to constantly assess the project's direction. The Charter is *not* the Project Plan document. It does, however, form the basis for the Plan and lays out the strategy and methodology that will be followed in creating the Plan.

This chapter will outline the components of a Project Charter and help you build this important first guiding document for your project.

A 12-Step Program for Developing the Charter

"The charter is a document that conveys the purpose and requirements of the project to the Project Team — the 'who,' 'what,' and 'why' of the project."

— The Project Management Memory Jogger

When final, the Project Charter will include:

- Business Case Statement
- Background
- Vision Statement
- Scope Statement
- Objectives
- Planning Methodology
- Initial Timelines
- Preliminary Budget

Step 1
Write the Vision Statement

The first order of business for the Steering Committee is to craft a vision statement for the project. It is a means to garner consensus and buy-in at the very start of the project from the principal decisionmakers. The vision brings a tangible reality to what the agency will address with the new system and plays a major role in defining the project scope and developing realistic project objectives and milestones.

A vision is a guiding image of success formed in terms of a contribution to society. If a strategic plan is the "blueprint for an organization's work, then the vision is the 'artist's rendering' of the achievement of that plan."

— From "Strategic Planning FAQs" at www.allianceonline.org/faqs.html

"Vision answers the question: What will success look like?," says the Alliance for Nonprofit Management (**www.allianceonline.org**). "A vision statement should be realistic and credible, well articulated and easily understood, appropriate, ambitious and responsive to change. It should orient the group's energies and serve as a guide to action. It should be consistent with the organization's values."

From the vision statement, the Project Manager, project committees and ad hoc working groups can drill down deeper to define the project. It will allow these groups to set a realistic scope for the effort, articulate the problem IT will solve and/or the functionality it will provide, and the business requirements for doing so.

How do you create a vision statement? The Executive Sponsor and Steering Committee should hold a meeting just to develop the vision statement. Brainstorm, encouraging everyone's input, and think about these questions:

- How do you want this IT effort to impact your agency?
- What role will this project play in your agency?

- How do you see business processes changing as a result of the new technology?
- How will things be different when this problem is solved?
- What will success look like?

Each individual should share his/her vision of success with the group. The key will be to look for commonalities, as well as differences, in vision/ideas.

***Project Managers**: You should facilitate this discussion and help the group explore its individual and collective vision. You should record the results and draft a concise vision statement to be presented back to the Steering Committee for review, revision and approval. The vision should be reworked and revised until all members are in agreement. (Note: The vision can and may evolve throughout a strategic planning process, particularly after what may be learned in the environmental scan process discussed in Step 3.)*

SAMPLE VISION STATEMENT:

To establish and maintain an integrated CAD/RMS that maximizes efficiency of agency personnel and management, while making complete and accurate information available on a timely and secure basis, thereby enhancing public and officer safety.

Step 2
Give the Project a Name

This step is pretty straightforward, we think. The name should be descriptive about the product to result from this effort (e.g., Integrated CAD/RMS Project), which helps give the initiative an identity among the stakeholders.

Step 3
Get the Big Picture, Conduct an Environmental Scan

Now that you have a name and vision statement for your IT initiative, you should conduct an environmental scan (ES). The ES is simply an initial step in the planning process that helps the Executive Sponsor, Steering Committee and others on the Project Team gain a perspective on their initiative. It is the "forest from the trees" exercise that ensures that the project does not simply become an "island" in the "sea" of other projects.

Internal and External Issues to Scan

Codes, Rules and Ordinances
At the City and County levels, which codes, rules and ordinances will affect your project and how? If you are a State-level law enforcement agency that plans to roll out technology to locals, will these have an impact? In either case, an understanding and compliance with codes, rules and ordinances will be necessary.

Economy
The economic situation, whether in your jurisdiction, statewide and nationally, will impact your project in a variety of ways. Will IT professionals be available for hire? Will the cost of equipment and technology plummet or soar? Will your agency face a staffing shortage, or will its budget be cut?

Federal and State Legislation
Review both existing and potential Federal and State policies and laws that may impact your project. Mandates for gathering and sharing information can have a major effect on the design of your systems. Requirements to collect racial profiling information, for example, have impacted the types of information and the methods for collecting it in policing agencies across the country. With the renewed focus on counter-terrorism, new State and Federal laws are bound to impact law enforcement information gathering and sharing.

Human Resources
Assess the availability of personnel within your agency, as well as those outside your agency, that will be needed to support system planning and implementation. What are some of the roadblocks? Are there other major IT projects underway that may impact the ability of County IT to support your effort (if that is their role)? Does your agency have sufficient IT staff and/or are those staff sufficiently trained to support new technologies? How will your staff be impacted by this large project?

Budget and Capital Resources
For most jurisdictions, there is no question: Money is tight. You need to carefully assess the budget for this project and look at realistic cost comparisons to projects similar to yours in size and scope. What other monetary resources do you have available for this effort (grants, donations, etc.)? What are the unique budget issues in your jurisdiction? What are some of the major capital improvement projects underway and how do they impact this project? How will long-term maintenance be funded?

Organizational Structure
Particularly from an IT support perspective, you should determine how IT will be managed, both in planning and implementation and long-term. Does your agency have an in-house IT staff, or will the City or County IT shop support the system? Perhaps a combination of both? What is the chain of command for making decisions about IT?

Policies and Procedures
Research the published policies and procedures that pertain to your agency. Don't forget to also consider business practices that may not be formally prescribed, but that are done out of historic practice (e.g., "we've always done it that way").

Politics
And we're not just talking Election Day politics here. We know each agency has its own internal politics. Don't forget to take an honest look at how that may affect your project and its priorities. Also, if City, County, State or agency leadership is changing, it is important to make every effort to predict whether priorities will shift.

Public Opinion
The public sentiment about crime, technology and policing in general may impact your project. A formal public opinion poll is probably not necessary; however, you should assess the climate of public opinion in your jurisdiction related to these issues. Strong public support is important, particularly if the agency's IT initiatives require funding such as a bond referendum.

Stakeholders
As mentioned in Chapter 1, it is important to properly identify those stakeholders who will be affected by the project and the technology implementation. Now, and as the project moves forward, continuous assessments should be made to ensure that the right individuals are involved. As the project progresses, different stakeholders may come into the picture as different activities take place.

Technology and Standards
What technology is your agency working with now? Does the broader government structure (City, County or State) have IT standards with which you must comply? Where is technology going in general? How will this impact what you may be able to do in the future? What technologies are other law enforcement agencies testing at this time? Is the proposed technology proven reliable or leading edge? These are some of the questions you should be asking during this assessment.

Regional Decisions
Assess what other public safety and justice agencies in your region are doing. For example, if your agency is interested in sharing information with law enforcement agencies in neighboring jurisdictions, you should determine whether those agencies have made specific decisions that may impact your project. Have they developed strategic plans for their IT initiatives? What technologies are they pursuing? Is there a justice information system integration initiative underway at the City, County or State level?

The ES allows you to systematically assess factors that present opportunities for improving the success of, or that present major obstacles to, the project. It requires a continuous **gathering and analysis of internal and external data** available to an organization from a variety of sources. (See the chart on pages 54-55 for typical issues to scan.)

Sometimes referred to as a situation or "SWOT" assessment, an ES contains the following:

- An *internal scan* that identifies the **strengths (S)** and **weaknesses (W**) of the agency.
- An *external scan* that identifies external **opportunities (O)** and **threats (T)** to the agency.

Some of the results from the ES will be specifically outlined in the Charter, while other results will help to craft components of the Charter and the Project Plan. In any case, the ES helps identify emerging issues that will be of strategic importance during the life of the project and help the Project Team identify potential opportunities and threats, and craft appropriate responses to both.

Step 4
Build the Business Case

One of the key tasks in project planning is to educate current, future and other potential stakeholders about the benefits and payoffs of the new IT system. Even if all the stakeholders seem to support the idea, it is still critical to **articulate the need and state the benefits of the new system**. Building a business case that clearly justifies the project is critical for the Project Team, those who will be affected by the end product, and key policymakers and funding entities. **Think of the business case as your project's marketing plan**.

"A well-crafted business case is a powerful communication tool that can increase support for the effort."
— From *And Justice For All: Designing Your Business Case for Integrating Justice Information*

The business case should be built on two tracks:

1) to address issues pertaining to direct users of the system, and
2) to address issues essential to funding and other decisionmaking bodies.

So, how do you build the business case? As a Project Manager, think about how you would justify a large commitment of money and resources in technology to your Chief/Sheriff. What would you say to convince him/her of this project's importance? How will you convince the users of the new system that the initiative is important for them? What would you say to the patrol officer who will be using new laptop computers, for example, to create reports in the field?

***Executive Sponsors**: You will most likely have to appear before a funding agency or policymaking body that will ask why it should support and fund this project (particularly in light of other competing government priorities). What will you say?*

A strong argument should be crafted in terms of *operational benefits* to the agency and public. So for the benefit of direct users of the system and the Executive Sponsor, for example, you may want to discuss broadly how implementing IT results in myriad benefits, such as:

- More accurate and complete data available in a more timely fashion.
- Reduction of redundant data entry, which leads to greater efficiency and accuracy.
- Significant reduction of paper documents.
- Better decisionmaking by officers in the field, detectives investigating a crime and management in allocating resources.
- More complete, accurate, timely and accessible information will improve reporting and trend analysis, streamline data processing and workflow, and will ultimately enhance public and officer safety.

In preparing the business case, make sure to account for expenditures and investments already made in existing or "legacy" technologies and the benefits realized from those systems. Also describe how those investments will be leveraged in the new effort.

Users of the system will want to know how it will make them more efficient and effective, and how they can work better and faster. For example, you may explain how the new integrated system will automatically provide officers with call for service information and incident and arrest history, as well as any alerts for a particular address while the officer is en route to the call (without having to initiate a query).

If you are pursuing a new automated field reporting system, you may want to extol the virtues of the system's built-in edit checks that will allow officers to accurately fill out reports. Drop-down menus, spell check and automatically-populated fields will make an officer much more efficient in report generation. Explain how reports prepared on laptops in the field are generally more accurate (no need to translate officer handwriting) and are available much more quickly than a paper form that is returned to the records bureau for data entry. Officers can also benefit from the automated systems' ability to identify suspects, crime patterns and potential crime problems much more quickly than manual systems, and at an earlier stage, allowing a proactive approach to policing.

The **business case** articulates why the project is important in terms of *operational benefits* to the agency, the justice system in general and the public, which ultimately results in the enhanced administration of justice and increased public safety.

Obviously, there will be other unique benefits in your agency or jurisdiction that you will want to highlight in the business case.

Funding bodies and policymakers will want to know how public safety will be improved, and how agencies will leverage existing technology investments and work with other agencies to maximize technology investments (i.e., police designing systems to share information with fire, courts and other justice agencies).

Other business case builders include unfortunate, yet powerful, anecdotes of human loss and tragedy that could have been avoided or averted due to technology availability.

Discuss alternative solutions to the problem. Building a strong business case means that you have also considered other potential solutions to the problem but ruled them out for one reason or another. The business case for this project will be stronger if decisionmakers see the justification for the proposed project compared to alternative solutions.

Step 5

Include Background or Historical Information, if Relevant

If information is available about the results of previous project activities and the decisions made and lessons learned, include this in the Charter. It can also be useful to document the major reasons for past project failure to avoid the same mistakes in the future. Similarly, include information on approaches that have been successful.

Step 6

Establish the Project Scope

"Scope: The first phase of the project where the who, what, where, why, when and how are determined at a very high level."

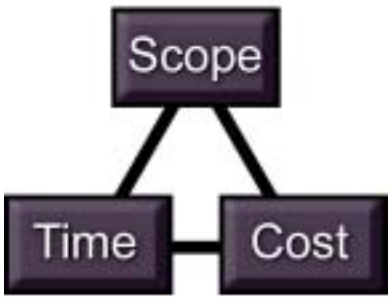
— IT Professional's Guide to Project Management

A written scope provides a basis for developing, articulating and confirming a common understanding of project scope among the stakeholders. **Scope clearly defines the boundaries of the project**. Defining scope also identifies which activities are "in" the project and which activities are excluded.

Scope addresses:

- **What** users want (functions).
- **How** well the user requirements are met (quality of).
- **When** and how it must be developed (constraints).
- **Why** (the value in the project).

At this stage, scope should be defined in a relatively concise statement. Later, during the Project Plan development, scope will be fleshed out in very specific detail by the User Committee and the Project Manager (see Chapter 9).



We will introduce the concept of the **scope-time-cost triangle** here. As you are developing scope, both initially for the Charter and later in more detail for the Project Plan, keep in mind that

should any one of the three "triangle" components grow, there is a direct effect on the other "corners" of the triangle. Thus, as scope "grows," so does the cost of the project and its scheduled completion time.

Step 7

Establish Preliminary Project Objectives

The User Committee should spend some time developing preliminary project objectives for the Charter. Objectives break down scope to the next level of detail. Objective statements should be quantifiable in terms of time, money and technical quality that the project must achieve to be considered successful. These will be further detailed and explored during the needs assessment (Chapter 5) and developed more fully in the full Project Plan.

Step 8

Note Major Project Assumptions and Constraints

Be careful what you promise IT will do … Many agencies have over-promised returns on investments in technology, only to have to explain later why these expectations have not been met. Make sure to back up arguments by providing empirical research and examples based on research and statistics.

Assumptions and constraints are circumstances and events that can affect the success of the project and are generally out of the control of the Project Team. Many of these issues will be explored during the ES. Those with high likelihood of occurring should be listed in the Charter. For example, a constraint may be that there will not be ample or additional funding for hiring new or additional IT staff to support the project. An assumption for an RMS project, for example, may be that the current CAD will not be replaced and must remain operational for two more years.

Listing these assumptions will provide assistance in making decisions and, in some cases, justifying those project decisions.

Step 9

Develop Initial Timelines and Preliminary Budget

Based on the scope of the project, it is useful in the Charter to articulate some general timeframes and deadlines for the full project, as well as broad timelines for major milestones and deliverables. These timetables will be honed and detailed in the full Project Plan.

Step 10

Include Project Planning Methodology

The Charter should include a discussion of the major project planning tasks that will take place, such as conducting a needs assessment, developing a requirements definition, doing a risk assessment, completing budget estimates and developing the full Project Plan. This will give all stakeholders an outline and order for project planning tasks.

It is important to have buy-in up front from the Chief to the users, and you do this with an aggressive marketing plan.

Step 11

Provide Project Team Organizational Chart and Membership Roster

The project planning structure is important to detail in the Charter. Obviously, not all agency users of the system can participate on the planning team, but through an organizational chart and roster, they can see those who are representing them. Those not on the team, but interested in contacting members to provide input or comments about the project, can do so.

Step 12

Sign, Seal and Deliver

That's right, the Charter should be signed! The Executive Sponsor and members of the Steering Committee should sign the finished document. The Project Manager should distribute the Charter to anyone who has a stake in the project.

What's Next?

PART I ASSIGNMENTS

EXECUTIVE SPONSOR

Role

1. Ultimate decisionmaker
2. Provide oversight and guidance
3. Align project priorities with parent organization
4. Resolve management issues
5. Commit human and financial resources

Build the Foundation Tasks

1. Make sure your agency has a strategic business plan in place (Seven Facts You Should Know, page 15)
2. Commit to the project (Chapter 1, page 23)
3. Appoint the Steering Committee (Chapter 1, page 28)

STEERING COMMITTEE

Role

1. Allocate resources
2. Provide knowledge and recommendations
3. Remove project barriers
4. Update/inform Executive Sponsor

Build the Foundation Tasks

1. Assign staff to User and Technical Committees (Chapter 1, pages 29, 31)
2. Assign/hire Project Manager (Chapter 2)
3. Adopt a vision for the initiative (Chapter 3, page 52)

PROJECT MANAGER

Role

1. Manage project (e.g., activities, deliverables, schedule)
2. Provide overall project direction
3. Single point of contact with vendors
4. Direct/lead team members toward project objectives
5. Review and approve project deliverables
6. Handle problem resolution
7. Update/inform Steering Committee

Build the Foundation Tasks

1. Develop meeting schedule and agendas (Chapter 1, page 35)
2. Facilitate Steering and User Committees in developing a Project Charter (Chapter 3)
3. Conduct an environmental scan (Chapter 3, page 53)

PART I ASSIGNMENTS, CONTINUED

USER COMMITTEE

Role

1. Business experts who will analyze and document existing business processes and develop new processes for information flow and management within the agency
2. Provide input to the Steering and Technical Committees

Build the Foundation Tasks

1. Assist in developing the Project Charter (Chapter 3)
2. Build the business case (Chapter 3, page 56)
3. At the direction of the Project Manager, begin developing project scope (Chapter 3, page 58)
4. Advise/inform Steering Committee

TECHNICAL COMMITTEE

Role

1. Review existing technologies
2. Make recommendations about new technology based on business needs, as defined by the User Committee

Build the Foundation Tasks

1. Form Committee (Chapter 1, page 31)
2. Include IT staff from parent organization, if appropriate (Chapter 1, page 31)
3. Assist in developing the Project Charter (Chapter 3)

Part II: Conduct a Needs Analysis

"If you don't know where you want to get to…it doesn't matter which way you go!"

— Lewis Carroll, *Through the Looking Glass*

CHAPTER 4
ASSESS CURRENT BUSINESS PROCESSES

Chapter 4:
Assess Current Business Processes

What An *objective assessment* of how your agency does business today with a focus on improving efficiency and effectiveness.

Why Technology acquisition **must** be driven by business objectives. Documenting current business processes and identifying how they can be improved establishes the starting point of a conceptual system design.

Who The Project Manager is responsible for coordinating the tasks within this chapter. The User Committee and other select employees will be involved in defining business processes, while the Technical Committee will assist with defining the current technology environment. All project participants may take part in identifying opportunities for improvement.

When After the project's decisionmaking structure and Project Charter are in place, and simultaneously with the development of the Project Plan, but before any decision is made regarding technology procurement.

In Part I, you learned about the importance of preparing a Project Charter, which defined your project's scope in very broad terms. In this chapter, we'll discuss how you can begin gathering information that will help refine those broad terms into a conceptual design. Specifically, this chapter is designed to help you gather the following information:

1. What are your organization's current "business processes?"
2. What technology does your agency have in place today?
3. How does your agency use its technology to accomplish business objectives?
4. Are there opportunities for improvement both with and without the use of technology?

In addition to serving as the starting point for determining technology needs, conducting a thorough business process analysis will yield many ancillary benefits. Agencies that have taken these steps routinely report the discovery of antiquated policies, old habits and other obsolete practices that give way to newfound efficiencies and improvements, many of which are unrelated to technology!

In order to define how your organization uses technology to accomplish its business objectives, you must define both your current business processes and technology environment.

Define the Organization's Business Processes

Just about everyone has used or seen a map (especially in law enforcement!). The purpose of a map, of course, is to provide perspective and direction: two key elements that guide people and prevent them from getting lost. Business process mapping seeks to do the same thing by helping to "map out" how people, information and paperwork travel through your organization.

So, what is a business process? It's nothing more than a written description of the things that employees do every day. While business processes are simple enough to define, their importance in determining the technical approach cannot be overstated; business processes are at the center of all *successful* technology initiatives, as they are what technology seeks to enhance or improve. Here's an example of a common business process:

> While booking a prisoner, the jailer completes form X. The original is placed in the records "in-box," copy 1 is given to the arresting officer, and copy 2 goes into the prisoner's property bag.

***Project Managers**: You probably have a solid understanding of the major business processes in your organization (after all, most police departments have only slightly more than a dozen major processes). Despite your general knowledge, the focus of this chapter requires the participation of employees who specialize in various processes. As the Project Manager, you will be responsible for coordinating and facilitating Steps 1 and 2.*

The following three steps are designed to enable the Project Manager to effectively guide the User Committee through documentation of the existing business processes.

Step 1

Review User Committee Membership, Augment if Necessary

Review your User Committee members and be sure that they adequately represent all of the major business areas of your agency, supplementing the committee with new members, if necessary. Remember, you'll be relying on these people to define how business is done, so they need to be thoroughly familiar with their own assignments, as well as understand how their area of expertise relates to the organization as a whole.

Step 2
Put the User Committee to Work!

This is a relatively simple task that is often met with confusion, as participants tend to "overthink" their assignment. So, the rule here is: *KEEP IT SIMPLE!*

The next step will be to convene the User Committee and request that they define and categorize their business processes. The Committee should be tasked with defining each specific *process,* and then breaking the process down into *subprocess* and then further into *activity,* each concept drilling down a bit more than its predecessor as to the "who, what, where, when, why and how" involved in a particular process.

Review the following examples that break down two common business processes — filing a report and booking a suspect:

FILING A REPORT

PROCESS

The highest level for process mapping purposes

Example: The records bureau processes reports from patrol

SUBPROCESS

A greater level of detail, describing who does what and when

Example: The on-duty watch commander delivers approved reports to the records bureau every hour

ACTIVITY

The greatest level of detail, describing who does what, when they do it and how much they do

Example: The on-duty watch commander delivers an average of 12 approved reports to the records bureau at least 20 times each day

"The trick to defining your needs is to describe what you want to do with technology, not what you think you need to buy."
— From *The Planning Process: Define Your Needs*, by Anna Mills, **www.techsoup.org**

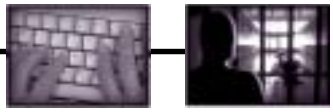
BOOKING A SUSPECT

PROCESS

The highest level for process mapping purposes

Example: Patrol books suspects into jail

SUBPROCESS



A greater level of detail, describing who does what and when

Example: Upon arrival at the jail, the arresting officer must book his/her suspect

ACTIVITY

The greatest level of detail, describing who does what, when they do it and how much they do

Example: Within 30 minutes of arriving at the jail, the arresting officer must complete forms 811, 836 and 122 prior to leaving

Most departments cannot obligate an employee to do business process mapping full-time. Therefore, be sure to allocate a substantial amount of time for participants to conduct this assignment (3 or 4 weeks is usually required).

With the basics defined, it's time for the Project Manager to assemble the User Committee and start the process by asking each participant to identify as many processes, subprocesses and activities as possible. The Committee should review the above examples to clarify the concept.

Step 3

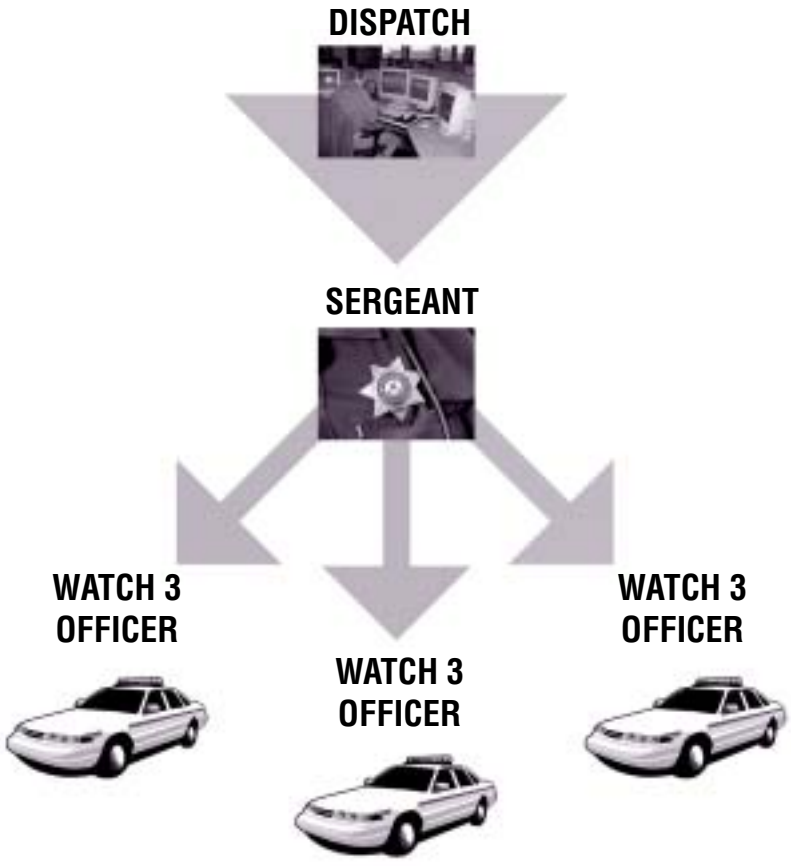
Get It in Writing

Once each of the participants has completed his or her assignment, the Project Manager should reconvene the group. The purpose of this meeting is to allow the participants to share their defined processes with the rest of the group in an effort to refine and clarify the organization's business processes.

***Project Managers**: Business process mapping is often outsourced by police agencies because internal assessments can be met with resistance, and challenging long-standing beliefs is often discouraged. As the Project Manager, you must recognize that such bias may exist and encourage participants to openly identify inefficient or ineffective operations.*

During the meeting, participants should literally draw out their processes, subprocesses and activities on large sheets of paper, and spread them out across a large table (butcher paper is great for this assignment), with each participant using a different colored ink pen. To illustrate what a simple process should look like, review the following, which describes the simple process of relaying briefing information at the start of a shift:

We suggest convening the meeting in a room with ample free table and wall space. Also, these meetings usually require a full day, so plan ahead!



***Project Managers**: During this step, you will serve as the meeting facilitator. As such, you must encourage participants to work with each other in terms of showing how related processes overlap. As an example, ask a dispatch representative to work with the patrol representative in drawing the relationship between dispatch assigning calls for service and patrol responding to them.*

At the conclusion of the day's meeting, the Project Manager should hang the drawings around the room (if adequate wall space is available) and invite *all* Project Team members to visit the room during their shifts to review the newly formed business process maps for supplemental information.

After about a week (or whenever a day goes by without new comments), the Project Manager should carefully document the newly defined processes in a **Business Process Baseline** report. Most business process mapping professionals use a software application like Microsoft Corp.'s Visio to translate written work descriptions into an electronic format; however, clear hand drawings are perfectly acceptable and require far less time to prepare.

The report signals the conclusion of documenting the organization's business processes. You will use this document throughout the remainder of Part II as reference for understanding how the organization currently accomplishes its business objectives.

***Executive Sponsors**: Be ready for resistance to business process mapping. It is strikingly similar to an organizational "time and motion" study, which sometimes leads to the elimination of jobs by revealing inefficiencies. To mitigate the issue, meet with union representatives and other leaders prior to authorizing the study. You should explain that business mapping is designed to reveal new opportunities for advancing the organization's efficiency and effectiveness through the use of technology. The net benefit and goal is to improve officer safety, not eliminate jobs.*

Define the Current Technology Environment

Before your agency can determine what technology is required, it must identify what it has today. In terms of identifying critical information, the Project Manager should rely upon the Technical Committee (and/or City/County Chief Information Officer) to supply a written description of the existing technology and infrastructure, including:

- Description of manual and automated information systems.
- Listing of computer systems and networks.
- Identification of databases that are accessible.
- Description of volumes of transactions.

- Identification of existing configuration for CAD/RMS/Mobile applications.
- Relationship between applications, including CAD, RMS, Jail, Court, Substations, Fire, GIS, etc.

Technical Experts: In the event your project will rely upon mobile data devices, you will also need to gather information on the existing radio technology, including:

- A description of existing facilities and their ability to support mobile applications and report writing.
- Availability of bandwidth.
- Type of infrastructure (radio, cellular, etc.).

Place all of the compiled information into a **Technology Baseline** report, thus concluding the process of documenting the existing technology. You will use this document as the basis for the following:

1. Identifying how *current technology* is used to accomplish business objectives in the following section.
2. Determining how business processes could become more efficient or effective through the introduction of *new technology* (how the application of new technology can help streamline and improve processing can be discussed during stakeholder interviews/Focus Group meetings, which are addressed in Chapter 5).
3. The *written summary* of the existing technology environment in any procurement documents (vendors will want to know what exists today).

Define How Technology is Used to Accomplish Business Processes

Armed with descriptions of the current business and technology environments, as spelled out in the **Business Process Baseline** and **Technology Baseline** reports, it's time to overlap the two reports, seeking to identify how the existing technology is used to accomplish the agency's business processes. You should take this opportunity to carefully review the agency business processes to determine where inefficiencies or bottlenecks currently exist that prevent the agency from reaching its established business goals. This is the perfect time to consider reengineering or changing processes to streamline workflow if you do identify less-than-optimum workflow procedures.

For example, consider how computers are used to receive, dispatch and monitor calls for service, including telephone devices, enhanced 911 interfaces, CAD applications, wireless infrastructure, etc. Or, seek to identify the technology that is used when booking a prisoner (i.e., digital cameras, LiveScan devices, etc.).

***Project Managers**: Facilitate a meeting of the User and Technical Committees. During the meeting, ask participants to identify how the technology described in the **Technology Baseline** report is used in each process defined in the **Business Process Baseline** report. For example, ask dispatchers to explain how an existing CAD is used (or not used) to accomplish various processes, subprocesses and activities described by dispatch, patrol, records and other participants. Update the **Business Process Baseline** report to include the newly defined use of technology. The resulting document will be used throughout the balance of Part II as a "snapshot" of the organization's current environment.*

Find Room for Improvement

The **Business Process Baseline** report now includes not only the current business processes, but also a summary of how existing technology is employed.

The document is an invaluable tool for examining methods to improve service delivery, efficiency and overall effectiveness. The Steering Committee should seize the opportunity to review the content of the report by recruiting as many internal and external stakeholders as possible.

The completed report should be disseminated to each key project stakeholder with a request to identify methods for improvement both today and in the future, with the use of new manual or automated processes.

Once the report is returned by the stakeholders, the Steering Committee should ask the Project Manager to collect and compile the recommendations, which should summarize the following:

- The identification of current manual business processes that could be improved through the use of existing technology.
- The identification of current manual business processes that could be improved through the use of future technology, identifying the major technology categories associated with the recommendation (i.e., CAD, RMS, Mobile, Automated Field Reporting (AFR), Jail Management Systems (JMS), etc.).
- Current business processes that are likely to change as a consequence of implementing new technology.
- The identification of specific technology that may be gained, lost or modified as a consequence of business process improvements.
- The identification of efficiency gains and other benefits (including new functionality) likely to be achieved as a consequence of changing business processes.

Once complete, the report should be returned to the Steering Committee for a thorough review that would focus on the following:

- What (if any) suggestions for improvement should your organization enact?
- How does the organization benefit from implementing new manual or automated processes?
- Is the organization ready for change?
- What collateral issues would be impacted by changing any operations?

The decisions that stem from such a review not only improve the health and growth of the organization, but also define the purpose of any technology initiative(s).

CHAPTER 5
DETERMINE STAKEHOLDER AND USER NEEDS

Chapter 5: Determine Stakeholder and User Needs

What Project success depends on *user and stakeholder input*. There are various methods for getting key project stakeholders involved in expressing their needs for a new IT system and their views on organizational change that may be caused by a new system.

Why To reach out to as many people who are impacted by your project as possible to make sure all stakeholders have a voice and an opportunity to provide input. The more input, the more likely your project will be a success.

Who The Project Manager will be primarily responsible for meeting with virtually all project stakeholders.

When Shortly after documenting your business processes and current technology environment.

In the simplest terms, this chapter offers techniques for soliciting ideas from project participants about what they need to make their daily work more efficient, their "wish list" for new and improved methods of accessing and using information, and to encourage them to "look outside the box" at the potential enhancements IT can offer them. While that may seem like an easy task, it is actually one of the most difficult — especially when one has to interview dozens or hundreds of people!

This chapter is designed to capitalize on the Project Manager's communication skills by relaying best practices for conducting interviews and Focus Groups within law enforcement organizations. It offers techniques to determine the best forum for eliciting feedback from stakeholders, as well as what to say during the meetings and how to record the findings.

***Project Managers**: We assume that you will be responsible for conducting the interviews and Focus Groups discussed throughout this Chapter.*

During this phase, you will gather information that will ultimately help craft the *general* hardware, software and interface requirements of any new system(s). The need to collect feedback from the people who will ultimately use the system is critical. Equally important is the method by which their feedback is sought and obtained.

Note: How to develop the more detailed functional requirements and specifications necessary for procurement documents is addressed in Part IV, Acquire the Technology.

The Project Manager will meet with a variety of project participants, including key stakeholders and committee members. Determining the best approach for gathering information is usually based upon the size of the Project Team and the nature of the initiative. However, a mix of individual interviews and Focus Groups is almost always required.

To help determine when to use individual interviews versus Focus Group techniques, we have assembled the following guidelines:

Interview Technique			
Interviewee	**Individual Interviews**	**Focus Groups**	**Explanation**
Administrators (including Executive Sponsor and Steering Committee)	X		Administrators, by their rank, can inhibit the communication process and should be interviewed individually rather than participate in Focus Groups.
User and Technical Committees		X	When five or more people share a common area of knowledge, it is best to interview them as a group, rather than individually. Based upon the scope of your project, it is possible to have many Focus Groups emerge from the User and Technical Committees.
External Stakeholders (e.g., County officials, funding bodies, other justice agency representatives, etc.)	X		By their nature, stakeholders (both internal and external) possess unique knowledge and are not generally interviewed as a group.
Subject Matter Experts (i.e., individuals needed for a specific component of the project, such as an expert on the message switch)	X		These participants possess unique and specific knowledge that would not be well suited to a Focus Group format.

User participation is one of the critical success factors in any law enforcement technology initiative. The more users who contribute to the system's design, the more successful the project will be!

***Project Managers**: User involvement in law enforcement initiatives is often stymied by chain-of-command and shift barriers. You must overcome such obstacles if your project is to be a success. Approach the Steering Committee and request assistance in making various employees, or groups of employees, available for interviews or Focus Groups. If necessary, arrange for meetings with employees during hours that are beyond your usual work shift. Most importantly, be creative in reaching out to your stakeholders — they won't reach out to you! If you want your project to be a success, you need to go out of your way to solicit their input.*

***Executive Sponsors**: Project Managers are often frustrated with their inability to access key personnel due to shift work or chain-of-command barriers. As the Executive Sponsor, you may be relied upon to flex employee schedules or to temporarily waive existing chain-of-command structures in order to foster communications. We suggest that you speak to your Project Manager during this phase and ask if you can be of assistance (subordinates are often reluctant to go to the Chief or Sheriff for assistance).*

Individual Interview Techniques

As the design of your agency's new technology initiative starts to take shape, you must interview key stakeholders to identify their priorities and aspirations for the new technology. Generally, these meetings require approximately 1 hour and should be conducted in an environment and at a time that is convenient for the interview subject.

While interviews are fairly straightforward, advance planning will vastly improve the quality of information you collect. Therefore, we recommend that the interviewer provide the following information to participants, at least a week prior to the interview:

1. **A Brief Introduction**: Provide subjects with an overview of the interview purpose and a copy of the Project Charter. For example:

   We plan to replace the existing records management system and this interview will mark the beginning of the system design. The interview will give you a chance to speak with the Project Manager about your opinions and goals for the new project.

2. **A Summary of Responsibilities**: Always let participants know what is expected of them. Few things are more uncomfortable than interviewing someone who hasn't prepared for an interview. We suggest providing the participant with some advice on how to prepare for the interview, such as:

During the interview, you will be asked to discuss your needs as they pertain to our planned new records management system. You should be prepared to respond to the following questions:

- *What are the functions and responsibilities of your current assignment?*
- *What information systems do you use in your work (e.g., CAD/RMS, etc.)?*
  - *computer hardware and software used*
  - *manual methods used*
  - *analysis and reporting performed*
  - *connectivity to outside agencies (e.g., interfaces)*
- *What are the strengths and weaknesses of the technology you are using?*
- *To what degree are the manual systems meeting your needs?*
- *What are your ideas for improving current operations?*
- *Are there other systems issues that we should be aware of?*
- *What new technologies have you seen or heard about?*

3. **A "What-To-Bring" List**: Interview participants may prepare for meetings by jotting down notes or collecting forms. Rather than rewriting this information, ask participants to bring copies of their "wish lists" and other documents that they want to talk about during the meeting.

At the conclusion of the interview, be sure to thank the participant and carefully organize any notes taken. (This is especially valid when conducting dozens or hundreds of interviews.)

Focus Group Techniques

Focus Groups are a somewhat informal technique that can help to assess user needs while designing the system. In a Focus Group, bring together six to nine users to discuss issues and concerns about the features of the new system. Focus Group sessions typically last about 2 hours and are run by a moderator who maintains the Group's focus. We assume that the Project Manager will moderate the Focus Groups for the technology initiative.

FOCUS GROUP FORMATS

There are two general Focus Group formats: SWOT and Traditional. Generally, a SWOT format is used when asking users to plan for replacement systems, while a Traditional format is preferable when introducing entirely new technology.

SWOT Focus Groups

Think **SWOT!**
STRENGTHS
WEAKNESSES
OPPORTUNITIES
THREATS

The **SWOT** format is an effective tool for identifying the **Strengths** and **Weaknesses** of existing systems, as well as for defining the **Opportunities** and **Threats** presented by the initiative. The following techniques are similar to those presented in developing the broader environmental scan, discussed in Chapter 3.

Facilitating the SWOT format is simple and the outcome of the process will provide valuable information on what to include and exclude in the conceptual design of your new technology.

To conduct a SWOT analysis:

1. Gather a group of users from within a particular functional area to talk about a specific aspect of the current environment (i.e., dispatchers to talk about CAD).
2. Provide them with relevant sections from the **Business Process Baseline** report (described in Chapter 4) at least a week in advance of the Focus Group meeting.
3. Advise participants to familiarize themselves with both the current business processes, as well as the current technology presented in the report.

***Project Managers**: Remember that facilitating Focus Groups requires advance research and knowledge. You must be sufficiently knowledgeable about both the business of the law enforcement agency and the technology (both what is existing in your agency and what is available in the industry) if you are to push the conversation forward and elicit substantive input from attendees. Bringing in outside experts for input and assistance in facilitating these groups can often be of great benefit.*

During the Focus Group session, pose the following questions to attendees and write down their responses on a flip chart. Feel free to use as many sheets as necessary. When a page is full, tape or tack it to the wall, so that the group can continue to view the information as new topics are discussed.

- What are the **Strengths** of the current technology?

  Encourage honesty in this exercise, as participants should feel free to express their own opinions, not those of the group. The moderator should be scanning

Regardless of the Focus Group approach you choose, both require that the moderator take copious notes. If you have the resources available, use a note-taker who is objective and nonthreatening to the group (such as a cadet or, perhaps, an assistant from your parent organization). As you will learn, the moderator is often busy speaking with participants. Interrupting a Focus Group meeting to take notes can be distracting to the process.

participant answers for key elements that must be retained in the new technology. It may be necessary to occasionally remind users of any inherent strengths of the existing system, such as its stability, existing knowledge base or years of customizing it to perfect its capabilities.

- What are the **Weaknesses** of the current technology?

  Usually, this question produces a lengthy list. Try to extract very specific elements from broad answers. For example, if an attendee says, "the current system is too slow," the moderator should probe by asking, "What do you mean?" Or, "When do you notice that the system is slow?" These are important elements to consider in designing the new system.

- What **Opportunities** for improvement exist?

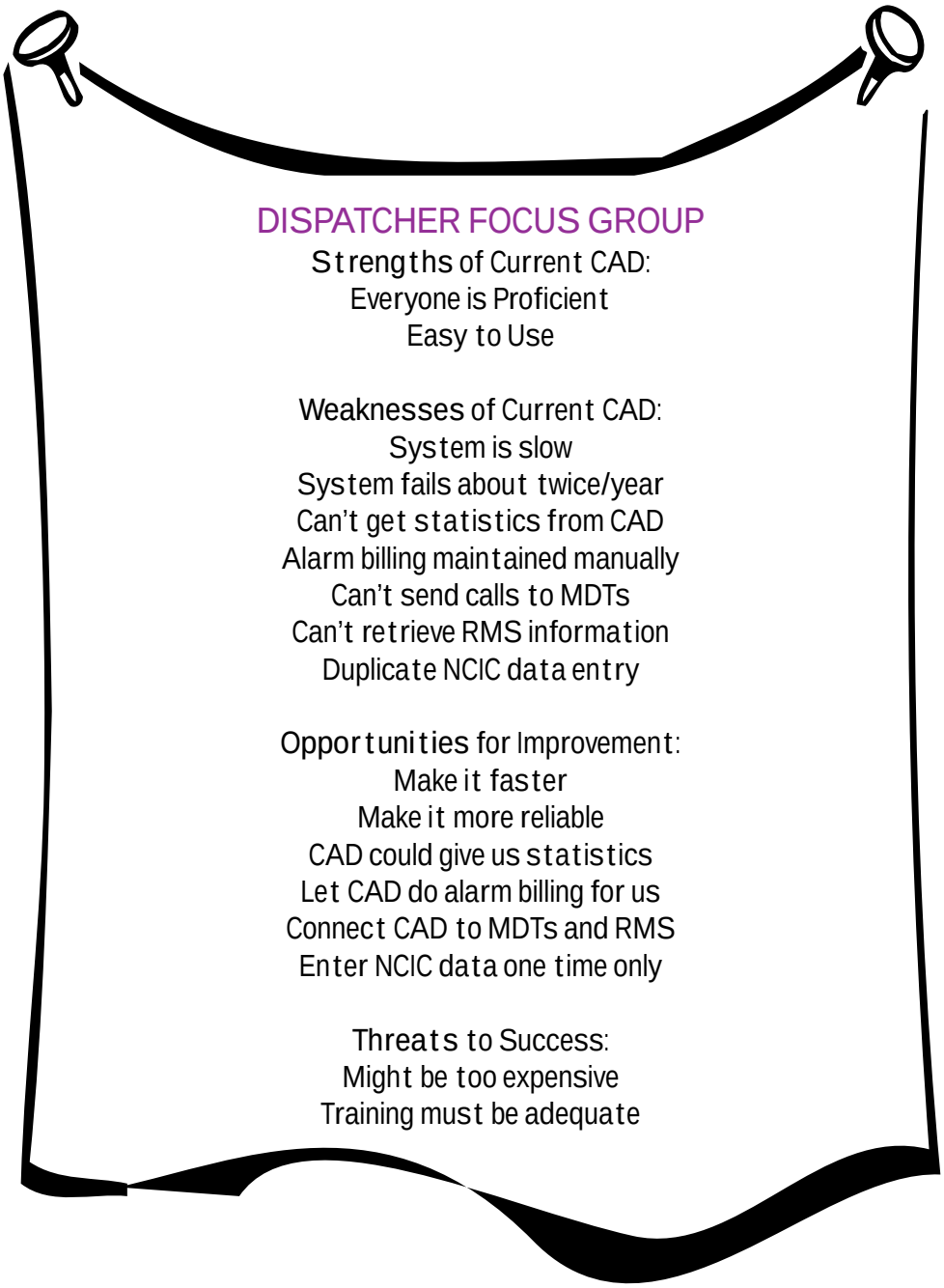
  The moderator should point out to the attendees the relevant portions of the **Business Process Baseline** report that identify current business processes and technology. The moderator should then ask the attendees to identify what opportunities exist for improving the current business processes and technology to better support the business goals of the organization. Their responses will define the focus of the technology initiative. After all, if there are no benefits to be had by introducing new technology, then why even consider it? Try to identify specific modules and functionality that should be improved. The participants should be encouraged to cast aside their assumptions about *"the way things are done around here"* and state what, in a perfect world, they hope to accomplish through the project.

***Project Managers**: Remember that attendees may not know what opportunities exist unless they have somehow been exposed to vendor products or external agencies. Consequently, you may find yourself educating attendees on the types of functionality afforded by modern applications and then inquiring about how the users would view such a transition.*

- What **Threats** will emerge from this process?

  Participants should identify the major obstacles and risks to a successful project. This is often a difficult question that can require you to coax responses from them. Suggest to the participants some sample answers, such as, "What about funding?" The goal is to gain insight into the barriers that need to be avoided while managing this project.

After the participants have provided all of their answers, these should be listed on several sheets of flip chart paper and hung on the walls around the room. Some of those pages might look like the following, which is taken from a Dispatcher Focus Group that talked about its CAD system:



DISPATCHER FOCUS GROUP

Strengths of Current CAD:
Everyone is Proficient
Easy to Use

Weaknesses of Current CAD:
System is slow
System fails about twice/year
Can't get statistics from CAD
Alarm billing maintained manually
Can't send calls to MDTs
Can't retrieve RMS information
Duplicate NCIC data entry

Opportunities for Improvement:
Make it faster
Make it more reliable
CAD could give us statistics
Let CAD do alarm billing for us
Connect CAD to MDTs and RMS
Enter NCIC data one time only

Threats to Success:
Might be too expensive
Training must be adequate

At this point, the moderator should ask the participants to indicate the three most important responses for each question. Based on our experience, the easiest way to accomplish this task is to provide each attendee with several red, yellow and green stickers.

For each of the four questions, participants individually place a red sticker next to the issue that they feel is the most important, followed by a yellow sticker for the second most important and, finally, the green sticker for the third most important issue.

If you don't know how technology could improve operations for a particular group, just ask them! Often, the attendees have been exposed to technology beyond the organization (through trade shows, colleagues, local agencies, etc.), and they have seen the new capabilities of IT and how it could make certain aspects of their job better.

Once your participants have completed their prioritization, take some time to review the findings and ask the group if there are any surprises. You should attempt to foster discussion on unanticipated findings, seeking to reveal even more information that will be useful in designing the new system.

Traditional Focus Groups

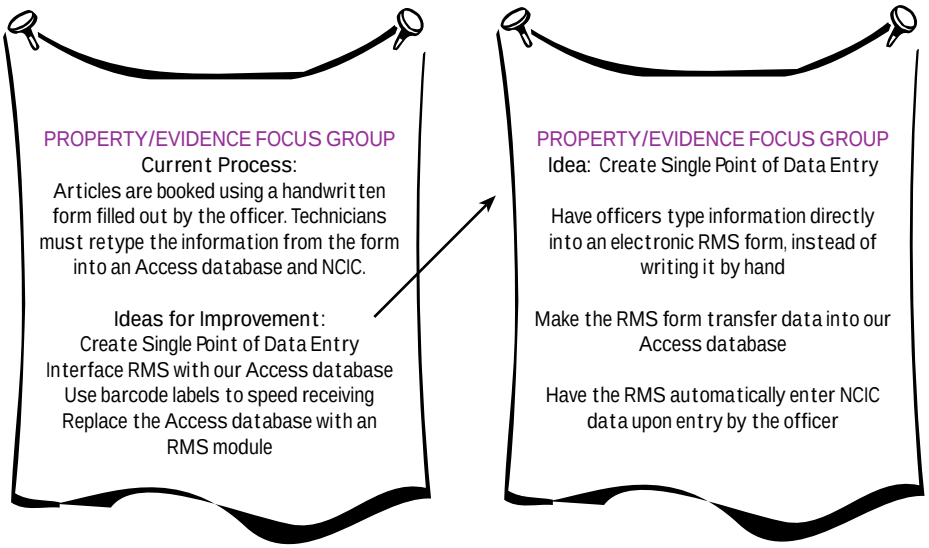
If your agency is introducing entirely new technology (such as an RMS, where there is none presently), it may be more useful to approach users in a Traditional Focus Group environment.

Like the SWOT format, the moderator will assemble a small group of users who are knowledgeable about a particular subject area (i.e., detectives, patrol, etc.) to discuss the concept of new technology and ask for feedback regarding the design.

During these sessions, the moderator generally starts the meeting by describing how the participant's specific area of knowledge is commonly impacted by new technology. For example, during a meeting with a group of property/evidence technicians, the moderator would want to describe how most modern RMS applications allow officers to create printed barcode labels that can be affixed directly to articles during the booking process. Then, as the technicians receive the items, they simply use an RMS barcode reader to scan the items, which would retrieve all of the data related to that item and, in some cases, conduct national and local database inquiries and updates automatically.

The moderator should use the **Business Process Baseline** report and ask the Focus Group participants to envision how technology could improve the speed or quality of their specific business processes. The moderator should summarize each response and write it across the top of a flip chart page. Then, the group should be asked to provide additional information about the idea and write it in the space below the idea. Once an idea has been sufficiently documented, the sheet should be hung on the walls of the meeting space.

After the various business processes presented in the report have been discussed, there should be several sheets of paper hanging on the walls. Based on our property/evidence example, they may look like this:



Recognizing that not every idea will become a reality, the moderator should ask the users to prioritize the various ideas presented during the Focus Group. Similar to the SWOT format, the participants should be asked to indicate their individual choices for the three most important ideas by using the same three color-coded stickers.

Once the participants have completed their prioritization, the moderator should take some time to review the findings and ask the group if there were any surprises, attempting to foster discussion on unanticipated findings, and seeking to reveal even more information that will be useful in designing the new system.

Regardless of the interview technique, the net outcome should be enough information for the Project Team to use as a basis for documenting the general system requirements, the subject of Chapter 6.

CHAPTER 6

DEVELOP GENERAL SYSTEM REQUIREMENTS

Chapter 6: Develop General System Requirements

What Translating research, interviews and Focus Group meetings into general hardware, software and interface *requirements for the new system(s).*

Why The requirements will become the core material of the conceptual design and procurement documents.

Who The Project Manager uses the Technical and User Committees to draft the various system requirements.

When Documenting requirements can only occur after you have defined the project's scope and have interviewed the project's stakeholders and users.

Once an organization has completed the difficult task of envisioning what their new technology should accomplish, the next step is to begin describing what tools will be needed in order to achieve those goals.

In this chapter, we'll focus on the principles behind coordinating the Project Team's technical and operational resources for the purpose of defining (for the first time) precisely what hardware, software, interface and performance standards will likely be required.

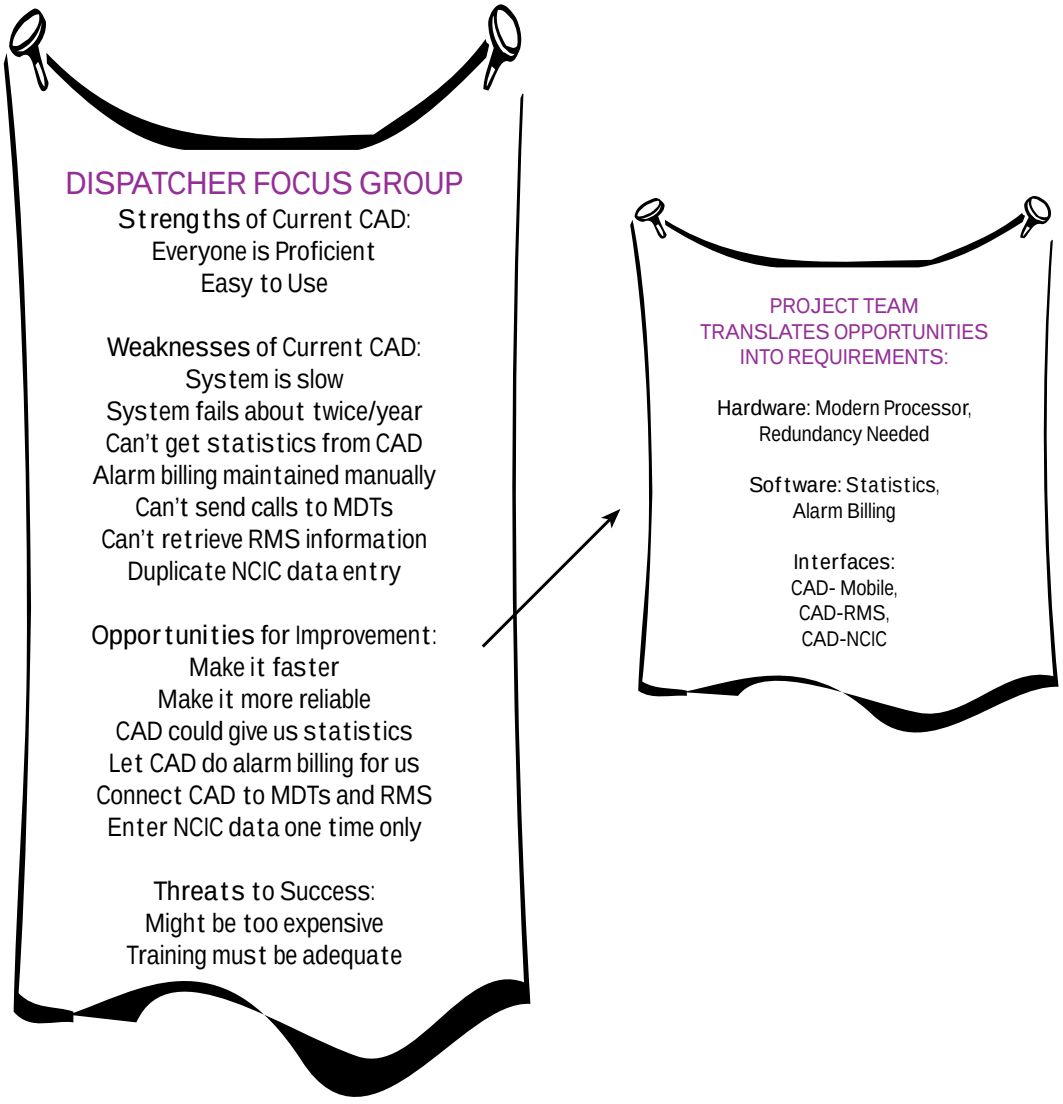
Compile the Requirements

By now, your project's basic scope should be fairly well defined in terms of major categories (CAD, RMS, Mobile, etc.), depending on the scope of your project. Using the tools developed in Chapters 4 and 5, the major categories must now be further defined.

In Chapter 4, we established a baseline of existing technology that the organization uses for accomplishing its business objectives. In Chapter 5, stakeholders analyzed how effectively that technology baseline meets their needs, and discussed what specific tools they would require in the future to improve efficiency and effectiveness.

Under the direction of the Project Manager, the Project Team must now translate the information culled from Focus Groups and interviews into specific hardware, software and interface requirements. This step is interpretive, and requires the Technical and User

Committees to carefully review the flip charts and notes from the stakeholder meetings. Using the Dispatcher Focus Group example from Chapter 5, this step might look like this:



In this example, the Project Manager would have supplied the User and Technical Committees with the Dispatch Focus Group flip chart, requesting that they review the notes and develop general hardware, software and interface requirements. The requirements would be written and returned to the Project Manager for assembly.

Define General Hardware Requirements

***Technical Experts**: In order to identify the size of various hardware components (i.e., disk size, processor speed, etc.) that may be required for the new initiative, the Technical Committee will need to review the organization's relevant transaction volumes, both current and projected, for a period of 5 years.*

The Project Manager should collect and provide the following information to the Technical Committee, in advance of preparing the general hardware requirements:

General Sizing Questions:

- Number of facilities where CAD/RMS will be accessed
- Number of vehicles equipped with mobile data devices
- Number of CAD workstations
- Number of concurrent CAD users
- Number of RMS workstations
- Number of concurrent RMS users

Specific Transaction Volumes:

- Total Calls for Service
- Incidents/Crime Cases
- Arrests
- Field Interviews
- Accident Reports
- Traffic Citations
- Pawn Slips
- Warrants Issued
- Subpoenas Served
- Temporary Restraining Orders on Record
- Registrants
- Licenses
- False Alarms

Client: The client part of a client/server architecture. Typically, a client is an application that runs on a personal computer or workstation and relies on a server to perform some operations. A **thin client** is a client designed to be especially small so that the bulk of data processing occurs on the server.

A critical success factor is ensuring that the new technology is designed in concert with the parent organization's hardware and software standards, as well as future or strategic IT plans. For the overwhelming majority of police agencies, this means ensuring that the technology uses the same operating system, network standards and hardware manufacturer as that of the City or County (if such standards exist). By doing so, the agency can capitalize upon existing human and financial resources while preventing fractured support and high vendor maintenance costs in the future.

Projects may require more or fewer transaction volumes, depending on the scope of the project. For example, if the project scope is limited to a mugshot imaging system, it may not be necessary to gather statistics on CAD workstations.

The Technical Committee is responsible for developing the general hardware requirements, including, at a minimum:

Module: A portion of a program that carries out a specific function and may be used alone or combined with other modules of the same program.

- General Hardware Environment (client/server, thin client, etc.)
- Network Design
- Operating System
- Database Standard
- Hardware Manufacturer Standard (server, desktop PCs, mobile devices, handhelds, monitors, etc.)

In addition to reviewing the interview or Focus Group documentation, the Technical Committee must supplement the general requirements with their expertise and knowledge of the current and planned technical infrastructure.

Define General Software Requirements

***Users**: The User Committee is responsible for developing the general software requirements, which are modules of the major software categories. In our dispatch example, the User Committee identified two required modules (Statistics and Alarm Billing) of the CAD application (major category).*

In order to identify required software modules, the User Committee should understand which modules are commonly associated with the major categories. Listed in the chart on the next page are modules that are commonly associated with the most common police technology initiatives. Committee members should use these modules as a starting point, recognizing that additional site-specific modules may also be required.

	Module	Functionality that relates to…
Computer Aided Dispatch (CAD)	Incident Entry	entering calls for service into CAD
	Dispatching Unit/Incident	assignment of personnel to incidents
	Status Monitoring Dispatch	how CAD monitors units, calls and responders
	Support Files	supplying CAD with required data, such as a geofile or AVL data
	Messaging	how CAD communicates with other users (within CAD and RMS)
	Supervisory Functions	the specific needs of supervisors
	Training Functions	using the CAD for training new dispatchers
	CAD Inquiry Tools	the tools that are made available for CAD to access (premise history, etc.)
	Statistics	CAD's ability to supply real-time statistic information
	Alarm Billing	preparing alarm bills, warnings, etc.
	Permits	allowing CAD to issue and store various permits (alarm, party, etc.)
	Mapping	screen mapping tools
Records Management System (RMS)	Master Name Index	how RMS captures and maintains files related to people
	Master Vehicle Index	how RMS captures and maintains files related to vehicles
	Master Location Index	how RMS captures and maintains files related to addresses/locations
	Incident Reporting	how the records bureau processes reports
	Field Reporting	enabling officers to write/submit reports from remote locations
	Case Management	case receipt, distribution and document management
	Crime Analysis	analyzing crime statistics
	Property/Evidence	how articles are entered and maintained within the RMS
	Arrest/Booking	initial booking of prisoners
	Personnel	maintaining human resource information
	Training	scheduling, assigning, managing required training and certifications
	Inventory	tracking police equipment
	Administration	internal affairs, administrative reporting
	Pawn	entry and maintenance of pawn ticket information
	Traffic	collision reporting, citation issuance (parking and moving)
	Activity Log	tracking officer activity for statistical purposes
	Permits	issuing and maintaining various agency-issued permits (weapons, etc.)
	Licensing	issuing and maintaining various agency-issued licenses (bike, alcohol, etc.)
	Animal Control	specific animal-related calls for service and subsequent reporting
	Report Writing	entering report information directly into RMS
Mobile Data	Messaging	the device's ability to communicate with CAD, RMS and external entities
	Display	the screen layout
	Forms	the number and type of inquiry forms that may be used (NCIC, etc.)
	Call Receipt	how the device receives a dispatched call for service
	Commands	what type of CAD and RMS commands are available on the device
	Touch Screen	how a touch-screen device is controlled
Automated Field Reporting (AFR)	CAD Data Capture	which data elements are imported from CAD into the report forms
	Error Correction	how the AFR will assist officers with report completion
	Report Writing	creating, filing and correcting reports, narratives and forms
	Case Management	electronic case filing and distribution
	Approvals	how reports are corrected, approved and/or rejected by supervision
Jail Management System (JMS)	Detention Processing	the initial receipt of a prisoner
	Identification	how prisoners are conclusively identified
	Classification	detailing all prisoner profile data
	Housing	assignment of quarters/cell
	Transportation	prisoner transports to/from court and other facilities
	Food Service	ordering, preparing, auditing food preparation/service
	Accounting	financial software for managing inmate spending and commissary
	Medical	monitoring prisoner health-related matters
	Commissary	store ordering, purchases
	Mental Health	psychological units within the jail

The User Committee should consider additional issues that may not be present in interview or Focus Group documentation, such as integration with existing systems (local and regional).

Define General Interface and Integration Requirements

Defining the general interfaces and integration requirements is often conducted by both the **User and Technical Committees**. While most user requests will be recorded, be sure to consider the following interfaces as well:

Integrated Justice: Local, regional, State and Federal databases may need to be integrated with your new application. Be sure to consider the possibility of sharing information with these databases, even if the project budget cannot sustain such costs at the present time.

CAD or RMS to Parent Organization: Cities and counties maintain databases on building/safety (which show blueprints), permit issuance (which can reveal owner information), personnel and many other valuable resources. Be sure to investigate the possible uses of such interfaces.

CAD or RMS to Geographic Information Systems (GIS): Virtually all modern CAD applications must be able to access a valid street file in order to operate properly. Many RMS products require access to GIS resources for crime analysis, statistics and address verification. **This often-overlooked interface is crucial to the success of a CAD/RMS installation.**

City or County engineering departments should be able to provide the status of "base-maps," which contain core map information. If your project calls for automated vehicle location (AVL) capabilities, you will need a base-map that includes x/y coordinates (for the longitude and latitude readings for any point on the map).

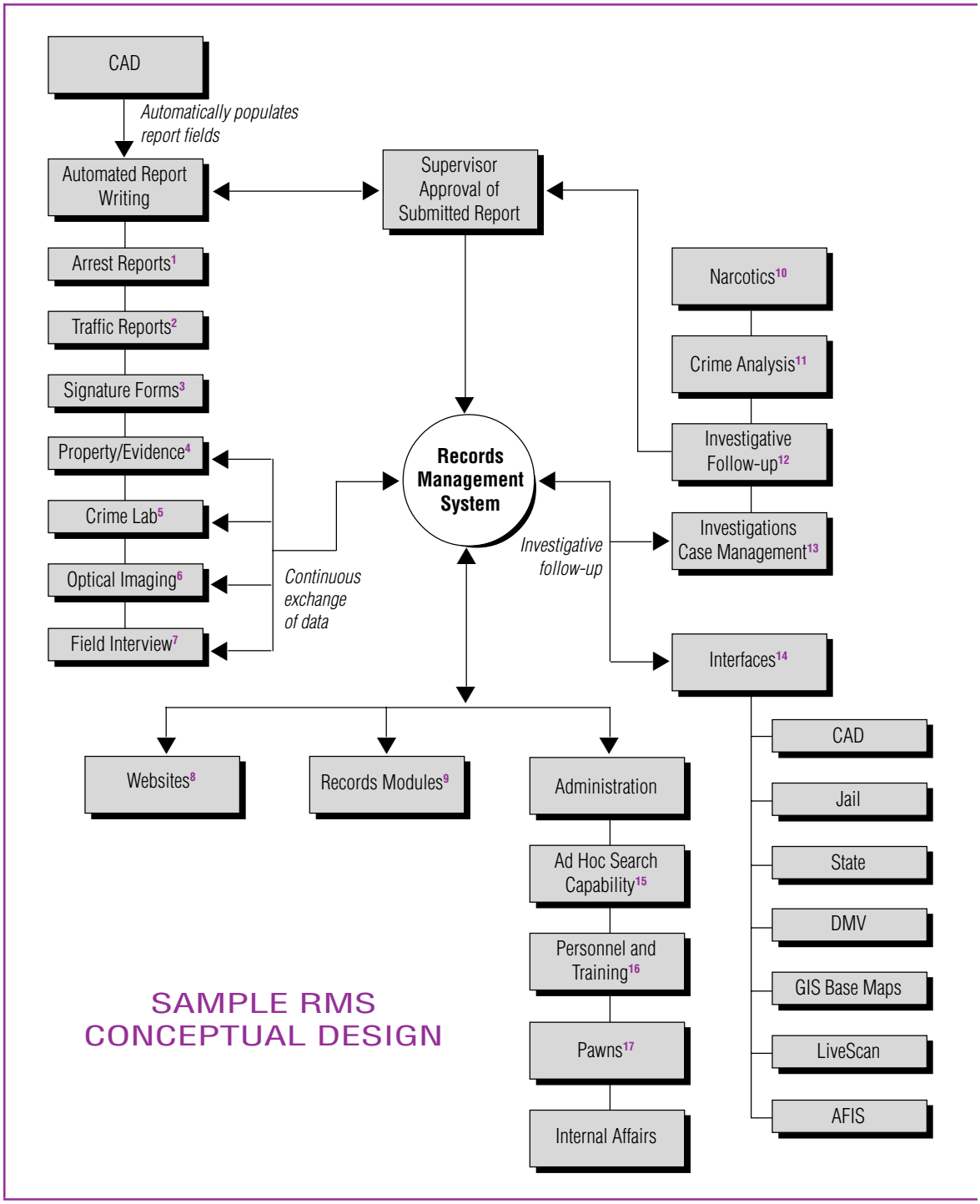
Create a Conceptual Design Illustration

Once the committees have submitted their findings, it is useful to document the information in a graphic display that will represent the conceptual design of the technology initiative. The conceptual design is useful for conveying a high-level perspective of the project's scope, general requirements and connectivity with internal and external resources.

Each project will necessitate various inclusions within the conceptual design, as determined by the project's scope. For example, an RMS conceptual design prepared for a Sheriff's Department is shown on the next page.

The Project Team should prepare the conceptual design and distribute it among project participants for review and comment, updating the document based on user feedback. Ultimately, the conceptual design would be included in any procurement-related documents.

The conceptual design will be the foundation for developing more detailed performance and functional requirements, as addressed in Chapter 14.


CAD
Automatically populates report fields
Automated Report Writing
Supervisor Approval of Submitted Report
Arrest Reports[1]
Traffic Reports[2]
Signature Forms[3]
Property/Evidence[4]
Crime Lab[5]
Optical Imaging[6]
Field Interview[7]
Records Management System
Continuous exchange of data
Investigative follow-up
Narcotics[10]
Crime Analysis[11]
Investigative Follow-up[12]
Investigations Case Management[13]
Interfaces[14]
CAD
Jail
State
DMV
GIS Base Maps
LiveScan
AFIS
Websites[8]
Records Modules[9]
Administration
Ad Hoc Search Capability[15]
Personnel and Training[16]
Pawns[17]
Internal Affairs
SAMPLE RMS CONCEPTUAL DESIGN

1 Interface with AFIS and LiveScan to prevent redundant entry of booking information.

2 Includes all standard State traffic forms and interfaces with local RMS, DMV and automated citation programs.

3 A blank, universal signature form.

4 Pre-formatted property/evidence forms will be supplemented with deputy-provided data. A barcode label will be generated and affixed onto the property. Property/evidence staff will receive the property and scan the item into RMS, which will retrieve all case data online. Any serialized property will be automatically checked through State/NCIC and local databases. As property is moved and ultimately disposed of, barcode readers scan the item at each point of movement.

5 Building on the property/evidence barcoding usage, evidence submitted to the lab for processing is also tracked via barcode technology. As evidence is processed and lab supervisors approve results, the status and ultimate disposition is updated into the originating online case file for viewing.

6 Optical scanning equipment will be used for storing various objects related to crime reports (e.g., bad checks, photographs, etc.).

7 CAD will also populate known information into field interview forms, which are then uploaded to the RMS master name and vehicle records.

8 RMS will be capable of posting records data to various Websites (based on preset guidelines and security).

9 When a report written online arrives in the records bureau, copies are automatically distributed to preset recipients. For example, RMS will automatically prepare press releases, deleting preset information and language. Automated UCR/NIBRS coding occurs as reports are received by the records bureau for automated weekly, monthly and annual statistic reporting. A Warrants module will enable receipt, update and abstraction of warrants. A Temporary and Permanent Restraining Order database will enable online access and verification of existing court orders.

10 In addition to case management functionality, the Narcotics module also includes a confidential informant database, accounts payable features and access to subpoena files.

11 Comprehensive, flexible search and select criteria with ability to conduct analysis on all database elements, including geographic crime analysis tools essential to creating crime prediction models.

12 All case notes, supplemental reports and documentation may be amended to the original report. Based on the work completed, the system will reevaluate the solvability of the event, notifying supervisors of the investigative status.

13 Initially, the Case Management module will check reports for content, then assign solvability factors and make a recommendation to investigative supervisors regarding case assignment, based on existing investigator workload.

14 Can also include Court, District Attorney's Office, NCIC and Building and Safety interfaces, Internet access, automated citation programs, and message switch for mobile access to RMS.

15 Ad hoc searching enables user-friendly record searches from the simple (tell me how many auto thefts occurred in the County yesterday) to the complex (find all field interview subjects with a tattoo of a knife on their left arm who own a red car). More complex search routines may be saved for automatic daily, weekly or monthly reporting.

16 Maintains comprehensive employee database regarding employment history and training qualifications. The module also makes training recommendations, schedules training and can prepare reimbursement documentation automatically upon course completion.

17 Enables receipt and upload of pawn data via disk or manual entry.

CHAPTER 7
MAKE THE DECISION — BUILD OR BUY

Chapter 7: Make the Decision — Build or Buy

What A critical *decisionmaking process* involving whether to purchase the required software from a vendor or build a custom solution from scratch.

Why Because the methods, issues, costs and impact of buying a law enforcement software package from a vendor are very different from those that are involved with creating a customized solution.

Who The Executive Sponsor and Steering Committee, on the advice of the Project Manager and User and Technical Committees.

When This decision must be made *after* the conceptual design has been prepared, and *prior* to the start of any type of procurement.

Based on all the project activities and work to this point, the Project Manager and the User and Technical Committees will provide a recommendation on the "build or buy" decision to the Steering Committee.

With the completed conceptual design, your project's technology goals are well defined. Now, the challenge is to find the right tool for the job. In the world of law enforcement IT, there are two options:

1. "**Buy**" the necessary technology from a vendor that specializes in public safety hardware and/or software.
2. Use internal or external technologists to "**build**" the technology based exclusively on the needs of the organization.

The scope of this chapter excludes hardware, as it is assumed that law enforcement agencies will not attempt to design or develop actual hardware devices such as laptops or radio towers. (Although the authors have been exposed to such ingenuity, this development is extremely rare and not advised.)

Therefore, this chapter focuses on the considerations your agency must address prior to deciding whether to buy or build a software solution.

It is a closely held belief within public administration that law enforcement agencies (and government in general) should almost always buy "off-the-shelf" packaged software, because building custom government applications is wrought with risk, unanticipated costs and seemingly endless development cycles. Government technology "build" horror stories have become urban legends. Ever heard the following "build" nightmares?

LEARN FROM THEIR MISTAKES!

California Department of Motor Vehicles: A 1987 drivers' license and registration overhaul project was expected to cost $26 million and last for 5 years. The project was cancelled in 1993 after $45 million was spent, with no net benefit.

Pacific Gas & Electric: This 1995 customer information system project was expected to cost $80 million and last for 2 years. The project was cancelled in 1996 after $60 million had been spent, with only 10 percent of the project goals complete.

While different analysts have reached different conclusions about the causes of such failures, there is a general sense that they were largely doomed from the onset because of a failure to carefully consider whether buying a solution would have been the best course of action.

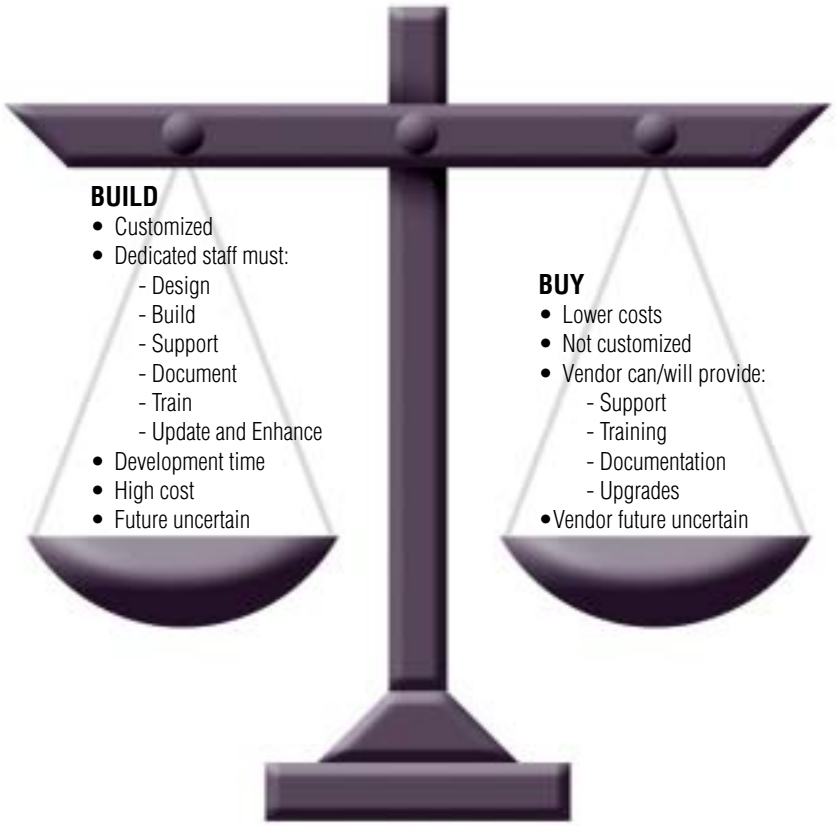
***Note**: the build or buy decision may be easy for many agencies. Recognizing that the majority of police agencies in America probably **don't** have their own dedicated software engineers, the concept of designing and building a solution in-house may be academic to most. In this case, your obvious choice would be to pursue a vendor-supplied option.*

However, for those agencies that *do* possess dedicated technology resources (whether in-house or supplied by a City or County parent organization), it is imperative to objectively assess the basic feasibility of building a software package. To do so, your project's Steering Committee should examine and discuss the following project cost and technology resource issues.

Project Cost Considerations

As a general rule, police agencies should expect the "buy" option to be considerably less costly, and more readily available, than the "build" option. Agencies building their own customized applications will bear all of the dollar costs for a single use of the application, with little or no ability to recover costs. For example, an agency that invests $2 million in a customized CAD/RMS solution must bear all development, testing and installation expenses.

Conversely, a vendor would view a $2 million CAD/RMS "build" as an investment to be recovered *(at a minimum!)* by licensing the software to multiple clients. Thus, a vendor could offer a CAD/RMS software package, valued at $2 million, to hundreds of police agencies for a fraction of the cost while still accomplishing their primary goal: *profitability*.



In Chapter 11 we discuss methods for developing one-time and recurring cost estimates for the purpose of budgeting. When considering a "buy versus build" decision, agencies must supplement those costs with both direct and indirect costs.

Direct Costs: Because off-the-shelf packages are designed for "Anywhere PD," they rarely meet an agency's needs perfectly. Police customers are typically faced with three choices:

1. Use as-is.
2. Change the way the agency does business to fit the product.
3. Customize the software.

While the first and second options will likely compete with the project's stated objectives, the third option will certainly result in actual project cost inflation. (To measure the rate of inflation, simply contact various vendor client references and ask how much the vendor's price changed from proposal to live date.)

Indirect Costs: While agencies can be lured to "build" solutions because of the benefits that can accrue from customization, the recurring costs can be staggering. Simply compare a vendor's annual maintenance fee for an off-the-shelf package (which averages 17.5 percent of initial software costs) with the cost of retaining or replacing full-time technology employees dedicated to support a built application. Assume you'll need a minimum of four employees: a software engineer, database manager, network specialist and help desk/support technician.

After carefully analyzing the identifiable project costs, your agency's Project Team and Steering Committee must determine the relative importance of cost as it relates to the project's objectives.

Managing Technology Resources

Assuming that an agency is equipped with available *technology* staff and is considering building an application, it must consider how best to use such resources. For example, if your organization has two software developers, the Steering Committee must decide whether they would be most effectively used in writing software code that is available commercially or in developing unique systems that simply cannot be purchased at any price. Additionally, the use of technology staff may negatively impact their initial duties, such as managing legacy systems and running the daily IT operations.

Remember that the more a vendor's package is customized, the more the project actually resembles a "build" decision. In addition, when it comes time to "upgrade" the package, you will have to pay for the customization to the new version, as the vendor's standard upgrade will no longer work with your customized product.

Another consideration is the potential impact of *staff instability* on a "build" project. Most public organizations experience significant IT staff turnover in any given 5-year period. Although vendor software developers and contractors face the same prospects, they recognize that their contractual obligations cannot be altered by the loss of staff and they typically have more flexibility to react to such changes than their public-sector counterparts.

Skill sets required within most organizations change rapidly as technology evolves. The Steering Committee and Project Team must realistically assess your jurisdiction's ability to develop and maintain the skill levels required to keep pace with technology shifts that can bring value to the agency.

In addition to managing technical resources, the Steering Committee must consider the importance of *ancillary staff* who are crucial to any software initiative, such as technical writers and trainers. Both training and documentation are considered critical success factors and require the use of skilled and experienced experts in each field, regardless of whether your agency chooses to "build" or "buy." All too often, training and documentation are the first victims of cost overruns. Therefore, it is particularly important that your agency carefully examine its approach toward these critical project elements.

Finally, it is important to remember that most "build" solutions require significantly more time to complete than "buy" solutions. Build solutions are the result of a software development lifecycle that can last anywhere from 6 months to 6 years, depending on the size of the initiative. Conversely, vendors have already developed, installed and tested such applications well before an agency buys them. If a build decision is made, your project's decisionmakers must evaluate whether the additional time required is justified by an increase in the quality of service delivered by the resulting software.

The Decision

Regardless of whether your agency chooses to "build" or "buy," we recommend that your agency proceed with conducting a comprehensive procurement process. Agencies that choose to build a solution should have their own in-house staff compete with the private industry vendors, responding to procurement documents and enabling them to be objectively compared to their competitors.

The purpose of such competition is twofold. First, it's likely that a "build" decision will need to be justified to various project stakeholders, such as elected officials, who will require such information prior to making a decision. A bid response is an excellent instrument for articulating the various ways that an in-house solution could best meet the objectives of the organization. Second, compelling internal staff to articulate their work plan in writing is the first step toward defining their roles and responsibilities, thus establishing a client relationship with the agency.

Part IV of this guide is designed to provide insight into the best practices for conducting procurement under the assumption that the agency will proceed with a "buy" approach.

What's Next?

Undertake the Project Planning Process ..... Chapter 8
Define the Project Scope and Objectives ..... Chapter 9
Create Project Schedules, Deliverables and Milestones ..... Chapter 10
Develop the Project Budget ..... Chapter 11
Create a Plan to Manage Risk ..... Chapter 12
Communicate and Document Project Activities ..... Chapter 13

PART II ASSIGNMENTS

EXECUTIVE SPONSOR

Role

1. Ultimate decisionmaker
2. Provide oversight and guidance
3. Provide leadership and support for needs analysis tasks
4. Make personnel available for interviews and Focus Group meetings

Needs Analysis Tasks

1. Meet with union representatives and other leaders prior to business process review to explain why this activity is important and to allay fears (Chapter 4, page 72)
2. Make personnel available to participate in committees, interviews and Focus Groups (Chapter 5, page 81)
3. With input of Steering Committee, make the "build" or "buy" decision (Chapter 7)

STEERING COMMITTEE

Role

1. Provide knowledge and recommendations
2. Remove project barriers
3. Update/inform Executive Sponsor
4. Review key documents

Needs Analysis Tasks

1. Review Business Process Baseline report (Chapter 4)
2. Review General System Requirements, Interface and Integration Requirements, and Conceptual Design Illustration (Chapter 6)
3. Advise Executive Sponsor on the "build" or "buy" decision (Chapter 7)

PART II ASSIGNMENTS, CONTINUED

PROJECT MANAGER

Role

1. Coordinate all tasks and activities
2. Facilitate meetings and Focus Groups
3. Understand business process reengineering principles
4. Research technology and its application to law enforcement agencies
5. Document all findings

Needs Analysis Tasks

1. Review User and Technical Committee membership to make sure they represent the major business processes in the agency (Chapter 4, page 68)
2. Prepare a final Business Process Baseline report with input of User and Technical Committees (Chapter 4)
3. Prepare agendas for interviews and conduct individual interviews (Chapter 5, page 81)
4. Lead Focus Group sessions (Chapter 5, page 83)
5. Research other agencies using technology (Chapter 5, pages 83, 84)
6. Document results of interviews and Focus Groups (Chapter 5)
7. Prepare General System Requirements (Chapter 6, Page 93)
8. Prepare General Interface and Integration Requirements (Chapter 6, page 96)
9. Prepare Conceptual Design Illustration (Chapter 6, page 97)
10. Make a “build” or “buy” recommendation (Chapter 7)

PART II ASSIGNMENTS, CONTINUED

USER COMMITTEE

Role

1. Analyze and document existing business processes and develop new processes for information flow and management
2. Provide input to the Project Manager and Technical Committee

Needs Analysis Tasks

1. Define and categorize business processes (Chapter 4, page 69)
2. Participate in interviews and/or Focus Groups (Chapter 5)
3. Compile General Software Requirements (Chapter 6, page 94)
4. Define General Interface and Integration Requirements (Chapter 6, page 96)
5. Recommend whether to "build" or "buy" a solution (Chapter 7)

TECHNICAL COMMITTEE

Role

1. Review existing technology
2. Make recommendations about new technology based on business needs, as defined by the User Committee

Needs Analysis Tasks

1. Develop a written description of existing agency technology and infrastructure (Chapter 4, page 72)
2. Participate in interviews and/or Focus Groups (Chapter 5)
3. Compile General Hardware Requirements (Chapter 6, page 93)
4. Define General Interface and Integration Requirements (Chapter 6, page 96)
5. Recommend whether to "build" or "buy" a solution (Chapter 7)

Part III: Create a Project Plan

If you fail to plan, plan to fail.

— Anonymous

CHAPTER 8
PROJECT PLANNING:
WHAT IS IT AND WHY ARE WE DOING IT?

Chapter 8: Project Planning: What is it and Why are We Doing it?

What A dynamic *process* that results in a *document* that guides the entire IT project design, procurement, implementation and future enhancements. It articulates each of the **deliverables,** the **procedures** and **resources** needed to produce them, and the **quality** measures they must meet to be accepted. This document can grow and change during the project's lifecycle.

Why The Plan is the repository for all project-related research, decisions, deliverables and documents. It is the *playbook* for the entire project. Project planning increases the success of projects through early detection of problems via constant monitoring of the projects' "vital signs."

Who The Project Manager and the User and Technical Committees are involved in discussions, decisions and research. The Project Manager should be responsible for Project Plan documentation. The Steering Committee and Executive Sponsor must endorse and sign the Plan.

When Following formal development of the decisionmaking structure (Part I) and in conjunction with the development of the needs analysis (Part II).

The Project Plan serves as the detailed roadmap guiding continued project planning, procurement, implementation and management. It is a disciplined effort to produce decisions and actions. The resulting Plan will catalog the decisions about what to do, and when, why and how to do it. It is an inclusive process, and is designed to keep all project stakeholders "on the same page."

While the Project Charter (Chapter 3) is a succinct document that illustrates the vision and intent of the proposed project and its key sponsors, the Plan articulates the specifics of getting the project done. The Project Charter is a key building block and starting point for the Plan.

A thorough Project Plan also assists in managing user expectations by detailing exactly what will be accomplished, how and when, and by whom. The process and subsequent documentation keeps things focused and moving forward. By documenting issues that have been dealt with and decided upon, it prevents "covering the same ground," which can often bog a project down.

Five Important Facts to Know about Project Plans

1. **Project Plans are dynamic**. The Plan will evolve and change as the Project Team, Project Manager and others conduct research and more clearly define the scope and objectives of the project. In addition to printed versions, the Plan can also be posted electronically so that the nature and evolution of the project can be charted for everyone involved. Doing so will not only enforce a singular vision of the project, but will also enable all those involved to see and constantly track progress that has been made, achievements they can be proud of, and decisions that have shaped the project to date.

2. **Project planning is a creative process.** Given the pace at which technology and business are changing, ideas and decisions made at a particular point in the process may be altered significantly as new thoughts and information become available. As noted by the Alliance for Nonprofit Management (**www.allianceonline.org**), "The fresh insight arrived at today might very well alter the decision made yesterday."

3. **Project planning is not necessarily a linear process.** Some planning activities are related to and dependent upon other decisions. For instance, developing project objectives is dependent upon finalizing the scope statement, while detailing deliverables can only occur after both scope and objectives are completed. However, scope, objectives and deliverables may be revisited and modified pending the results of a thorough risk assessment and/or the resource requirements analysis.

4. **To be effective, Project Plans must be *used*, reviewed, maintained and updated constantly**. This sounds obvious, but too often organizations go through the planning process only to shelve their Plan and never actually use it. The Plan will be the litmus test, if you will, for all project-related activities. The Project Team must constantly reaffirm the scope and objectives of the project so that when, for example, they are negotiating a vendor contract, they can always consult the Plan to compare the organization's needs versus the vendor's proposals.

5. **Planning should not go on forever.** Do your employees sneer or groan when "planning" is mentioned? Often, they do so for a reason. Planning needs to be *managed* (hence the Project Manager!) and kept on a tight schedule. Too often the planning process is drawn out indefinitely, causing participants to lose interest or feel as though they will never begin to see the results of their planning efforts. The point is not to get paralyzed in the process. Set realistic timeframes and develop a schedule for the Plan that establishes a timeframe and planning goals.

> *"A thorough Project Planning Process provides the structure and procedures to ensure that adequate time and effort is put into identifying the project scope, deliverables, resource requirements and risks."*
>
> — Chief Information Officer Web Site, Treasury Board of Canada (**www.cio-dpi.gc.ca**)

Executive Sponsors: Prepare Your Organization for Change

An aspect of change management you must be extremely sensitive to and involved in is the organizational/human resources impact. You must help prepare the organization to support the changes that result from the introduction of automation.

During the needs analysis, current processes are identified, mapped and analyzed to identify ways to improve them for efficiency. Job positions may be redefined and processes streamlined. This may threaten some employees: some may believe their jobs will be eliminated and others may simply perceive that they will be removed from their "comfort zone" by change. Be aware that employees often begin their resistance to change early in the process. As Executive Sponsor, you must continually espouse the benefits of the change and manage the expectations of employees, adjusting the organization's infrastructures in order to prepare employees for the changes that will be supported by the implementation of IT. You must also prepare them for the fact that their job responsibilities may shift and change (say from data entry to quality control), but that the intent is to improve the department's operations, not to eliminate jobs.

You must establish *formal* procedures for managing change throughout the life of your project. (Don't worry, we'll help you do that.) We wanted to point out, however, that this is a critical factor in successful project planning and implementation. Things change. Scope will change. Timelines will be altered. Budgets will shift. But there MUST be a formal, thoughtful and controlled procedure for each alteration to any aspect to the project. This will ensure not only that the change is well researched and documented, but also that there are proper methods for approval and that all project participants are notified about the change and its impact on other parts of the project.

Once your Project Plan is complete, you will have defined formal procedures for making changes to the project scope, timeline, budget and other resources. And, in each chapter describing these concepts, we'll address change management procedures.

The Project Plan's Table of Contents

Obviously, your Project Plan can be structured in many ways, but these are the main components that should be included in any plan:

I. ..... **Project Charter**
II. ..... **Scope, Project Objectives and Scope Management Plan**
III. ..... **Project Schedule and Milestones**
IV. ..... **Budget**
V. ..... **Risk Management Plan**
VI. ..... **Communications Plan**

Project planning is…
- Disciplined
- Research-based
- Continuous
- Dynamic
- Inclusive

The Project Charter was created in Part I of this Guide. The remaining chapters in Part III will address the other major components of your Project Plan — from scope through communications.

CHAPTER 9
CONDUCT SCOPE PLANNING

Chapter 9:
Conduct Scope Planning

What A *process* to precisely define and document specific activities and deliverables for a particular project.

Why Defining the project scope and objectives clarifies and defines the project focus and keeps activities in control and within agreed-upon boundaries. It also establishes a formal process for proactively managing changes in project scope.

Who Led by the Project Manager, the User and Technical Committees will be most involved in defining scope, objectives and approach, to be adopted by the Steering Committee.

When Following the needs analysis (see Part II).

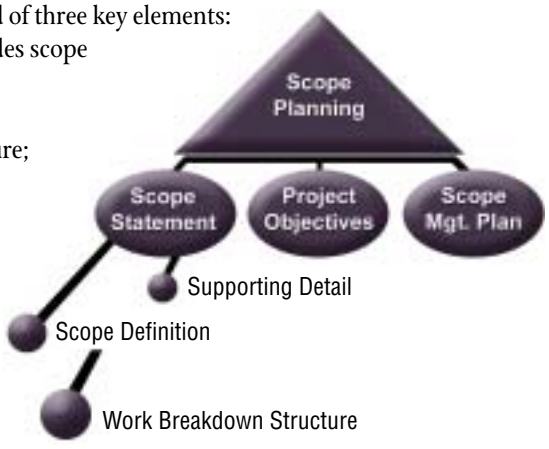
When your Project Team developed the Project Charter, that document served as the formalization and kickoff for the project. It was assembled to garner stakeholder commitment and authorization to move the project forward. While some initial scope boundaries and high-level objectives were included in the Charter, the Project Plan must contain *very* detailed and specific scope requirements.

This chapter will help you and your Project Team dive into scope planning and develop a substantively detailed scope statement, project objectives and a Scope Management Plan.

Careful scope planning is comprised of three key elements:

1. A **scope statement** that provides scope definition with:
   a. Supporting detail
   b. Work breakdown structure;
2. **Project objectives**; and a
3. **Scope Management Plan**.

Each of these elements is essential to establishing and justifying a clear scope definition, and creates a process to manage potential scope changes.



1. The Scope Statement: What's In, What's Out

The scope statement "provides a documented basis for making future project decisions and for confirming or developing common understanding of project scope among the stakeholders," says the Project Management Institute (PMI). The scope statement should make very clear what is "in" the project and what is "out." For example, agency X has decided that the computer-aided dispatch (CAD) system will be redesigned and replaced. Although the agency also recognizes the need to replace the existing records management system (RMS), it simply cannot afford to do so at this time. Therefore, during scope definition, the agency decides that while CAD is "in," RMS is "out."

How do you Prepare the Scope Statement?

The Project Manager and User Committee should work together to develop the scope statement using the following input:

- Executive Sponsor and Steering Committee vision.
- Results of the environmental scan.
- Business process review, needs analysis and analysis of the existing technological environment.
- Available human and financial resources.
- Quality desired from the project.

The User Committee should consider and document:

- The major **functionality** to be implemented (decision support, data entry, management statistics).
- Types of **deliverables** that are in scope and out of scope (e.g., CAD, but not automated vehicle location (AVL)).
- **Types of data** that are in scope and out of scope.
- **Data sources or databases** that are in and out of scope.
- Which **units** will be affected and/or expected to use the system (dispatch, patrol, crime analysis, etc.).
- What is specifically ***out* of scope**.

a. Supporting Detail

Much of what was prepared for the **"business case"** in the Project Charter (Chapter 3, page 56) will become the supporting detail for the scope statement. Additional detail may be identified as the Project Team fleshes out the scope statement.

For once it's safe to make an assumption! In fact, it's *required*. Project Plans rest upon certain assumptions regarding various project themes and participant responsibilities. The assumptions will be used primarily for decisionmaking and sometimes for dictating participant responsibilities. (To the extent possible, verify that your assumptions are valid.) Consider the following examples:

- Patrol and records employees are willing to change business operations to take advantage of the functionality offered by the new CAD/RMS.
- The Steering Committee will participate in the timely execution of the Project Plan (i.e., timely approval cycles and meeting when required).
- The Project Team will abide by the guidelines identified within this Plan.

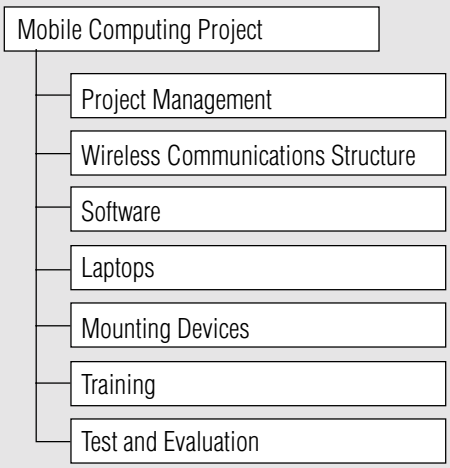
Major project **assumptions and constraints** should also be catalogued in the scope statement's supporting detail. The assumptions and constraints should relate back to the agency's business objectives and overall mission and goals. For example, the agency's overall mission may be to move toward a problem-solving paradigm. Thus, the technology implemented must be developed to support that goal. It is critical, then, that the scope be continually assessed to ensure that it is aligned with the organization's mission, goals and overall objectives.

If there are specific **grant requirements** and/or directives for the project, they too should become part of the supporting detail for the scope statement.

b. Work Breakdown Structure

Once the scope has been sufficiently detailed and defined, it can be broken down into smaller elements or projects that produce specific deliverables. Dissecting scope in this manner is commonly referred to as a work breakdown structure (WBS). Each of these subcomponents of the scope must, obviously, be directly related to and descendant from the scope. Therefore, no activities that are outside of the scope of the project should be included in the WBS. Breaking the scope into manageable pieces begins to define activities and milestones that, once completed, will comprise the full project scope.

A WBS FOR A MOBILE COMPUTING PROJECT



2. Project Objectives: Measures for Success

Project objectives are "quantifiable criteria that must be met for the project to be considered successful," says PMI. They are the yardsticks by which success is measured. Objectives are a critical part of scope because they help the Project Team, stakeholders and users assess whether or not the finished product(s) did what it was supposed to do, how well it did and, ultimately, if it was a success. Thus, objectives must include measures of **quality**, **time**, **cost**, **performance**, **reliability** and/or **functionality**.

Objectives are important to review in the context of scope to ensure that the Project Team is not trying to do something that is clearly impossible, too broad (or narrow), or simply not consistent with the scope.

Project objectives should be specific and achievable if they are to be of any value. Over-reaching or generic objectives create unrealistic expectations and should be avoided. Consider the following examples:

Think **SMART!**
Objectives are:
SPECIFIC
MEASURABLE
ACCEPTABLE
REALISTIC
TIME-SENSITIVE

— Instead of saying, *The new RMS will help our citizenry*, say
The new RMS must provide online case summary statistics to inform community watch groups and the public in general.

— Instead of saying, *The new RMS should reduce paperwork*, say
The new RMS should include an optical imaging component that must reduce paper document storage by at least 50 percent.

— Instead of saying, *The new RMS should offer improved access to data*, say
The new RMS should enable users to create ad hoc reports.

Objectives offer the organization principles by which decisions are based. As the project matures, it is likely that the decisionmaking structure will be confronted with difficult choices. During the decisionmaking period, the Project Team should be able to turn back to the project's objectives for guidance and direction.

3. Scope Management Plan: Prevent 'Scope Creep'

Scope planning is not finished until you have developed a thorough Scope Management Plan. This is a critical activity designed to effectively guide and control projects. Many projects fail due to a shift in focus to deliverables that were not part of the original project scope. The Scope Management Plan should be a formal process and it should be documented in the Project Plan.

Scope planning is INCOMPLETE without the Scope Management Plan!

The issues to be addressed in the Scope Management Plan include:

- How scope will be managed throughout the project and how to establish a formal process for managing change.
- An assessment of the project's scope, as originally defined, and how likely and how dramatically it may change during the course of the project.
- A clearly defined process for how scope changes will be:
  - — identified,
  - — classified, and
  - — prioritized.
- A requirement that any change requests must be documented on a *Project Change Request* form that details the proposed change, the individual or group proposing the change, why the change is being proposed and the Project Manager's review decision. If accepted, the Executive Sponsor (or his or her designee) must approve the change.
- A process for measuring the impact the change in scope will have on the project, particularly in terms of quality, time and cost.

***Executive Sponsors**: You (or your designee) must approve scope changes. After all, scope changes will definitely impact the project's quality, timeline or cost (remember the scope-time-cost triangle introduced on page 58). Only the Executive Sponsor, or his or her designee, can approve project and potential funding changes.*

The goal, of course, is to spend sufficient effort defining the scope up front to minimize the need for major scope changes later.

Keeping the scope of a project focused is difficult. In his informative paper, "Scope Containment in Information Systems Projects" (**www.newgrange.org/white_papers/scope_containment_ininformation_.htm**), Ted Marcus explains that once a project is underway, some new dynamics occur:

- Project Team members (and other users) learn more and realize that what they

originally asked for may not be exactly what is needed, so a change in scope or requirements is necessary;

- The business needs may change during the course of the project, so that what was originally articulated in scope is no longer needed; or
- The marketplace and IT offerings have changed.

The bottom line is that scope changes *will* occur during your project. A structured process for documenting, analyzing and approving such changes is key to avoiding an out-of-control project or unanticipated surprises, such as changes in timeline or cost.

According to Gary H. Anthes in a *Computerworld* article titled, "No More Creeps!," one survey found that 44% of respondents said poor requirements definition is the reason for scope creep, while another found that only 16% of Project Managers say "no" to user requests for "significant changes."

CHAPTER 10
DEVELOP THE PROJECT TIMELINE

Chapter 10:
Develop the Project Timeline

What A *mechanism* to ensure the project is completed on time within the resources available, and avoids delays and associated cost overruns.

Why Overdue projects cost more money, impact deadlines on existing and other projects, can cause sacrifices in quality, and can result in stakeholder and user frustration and loss of confidence.

Who The Project Manager will set realistic schedules, as well as deliverable and milestone deadlines.

When Following scope planning.

Throughout the life of your project, you will need to constantly balance the constraints of time (length of time the project takes to complete), quality and cost. As we've mentioned before, these three sides of the triangle are constant rivals throughout the project — when one "point" on the triangle grows, so do the others. A good Project Manager can usually contain two of the three triangle points; achieving all three is a real challenge. In Chapter 9, we discussed how to carefully define your project's scope. In this chapter, we'll deal with how to nail down an aggressive, yet realistic, project schedule.

How to Develop an Estimated Project Schedule

PMI says effective project time management is comprised of five processes:

- Activity Definition
- Activity Sequencing
- Activity Duration Estimating
- Schedule Development
- Schedule Control

First you must define which **activities** will produce the various project deliverables, determine their **order** and their **dependence** on one another, and how **long** each activity will take. By analyzing the appropriate activities, order and dependence, you will be able

to create an actual schedule and, finally, as we have reiterated in earlier chapters, a means to **control** the schedule and any changes to it.

Determine Project Activities and Their Order

You will want to use the work breakdown structure developed in the scope definition (Chapter 9) to assist you in determining both the **activities** and **deliverables** that will be captured in your project timeline. You will then have to logically sequence those activities. That's easy to do when you're dealing with some of the initial planning and needs assessment activities. It gets a little more complex when you get into systems implementation issues.

PMI Definitions

Activity: An element of work performed during a project that normally has an expected duration, as well as cost and resource requirements.

Deliverable: A measurable, tangible, verifiable outcome that must be produced to complete a project or part of a project.

Milestone: A significant event in the project, usually completion of a major deliverable.

In any event, create a logical flow of activities. Clearly delineate when one activity depends on the completion of another before it can get underway, as well as when the completion of that activity signals the start of a different, new activity. Also look at what activities can run parallel to one another.

As you are determining the various activities, make sure to define the major deliverables and milestones and indicate if they have a preset "due" date. This will be particularly important when we get to milestone reviews (page 134 of this chapter).

Be careful not to establish "unrealistic" milestones that can cause major schedule problems down the line, such as:

- Creating an end date designed to impress, rather than one based on the actual work necessary to complete the project.
- Not having quality objectives, as we discussed in Chapter 9, so that a milestone is not complete until it meets certain quality controls.
- Shifting activities into the next milestone without a careful evaluation of the impact and a reschedule of the rest of the project.

Estimate How Long the Activities will Take

Now that you've listed all the activities, deliverables and milestones, think about how long each activity will take. This will be based on some understanding about just how long the activity would take under ideal circumstances, augmented by several other things: staff resources, availability and capabilities; any historical documentation on past projects; and the assumptions and constraints you catalogued during the scope definition process.

Executive Sponsors: It is tempting to want to impose a schedule on your Project Team. DON'T! While your priorities are important and will be built into the schedule process, you will set the project up for failure if you dictate a schedule rather than direct your Project Manager and staff to conduct this detailed assessment of the timeframe needed to realistically and successfully complete the project. You can help by adjusting resources and priorities, but you should not force a schedule on the team.

— Staff Availability and Capability

When determining how long a task will take, you must consider the percentage of time an individual (or several individuals) can devote to the task. You should also involve those who will be working on the task to help you estimate the accuracy of the time allotments. You must also take into consideration the staff expertise in the areas they will be working on. If this is the first time an individual is working on a project of this nature, training may be needed, and there may be a learning curve that will add to the project timeline.

Schedules should be built "from the bottom up." Schedules built by people other than those who will be doing the work won't be accurate. Obviously, appropriate oversight and management of this task is necessary.

— Historical Documentation

Look at the schedules from past projects to help you get a realistic look at timelines, where the project may have gone astray and what tactics kept it on track. Or ask another department or agency for historic records to review. Remember to keep the current project's timeline up-to-date in order to track "estimated versus actual" timelines for use in future projects.

— Assumptions and Constraints

You'll also want to consult the assumptions and constraints that you documented in the scope definition process. These issues may directly impact the timeline of your project. For example, you may have documented that a particular "constraint" to your project would be that County IT staff are busy rolling out a new financial system that won't be complete until 2 months into the projected start date of your project. The County IT staff availability will impact your deliverables schedule and you'll want to plan accordingly.

Draft a Project Schedule and Seek Input

By this point, your schedule should be relatively detailed. It should have:

- Project start and finish dates.
- Activity duration estimates.
- Deliverables and milestones.
- Resources assigned to activities.
- Calendars: one for the entire project and another for staff resources that details when each individual works, takes time off, is on vacation, etc.

Take a look at the example of an RMS project timeline on the next page and then run your project schedule by the Project Team for a reality check.

Create a Schedule Management Plan

Scheduling, like many activities throughout the project, will be an iterative process — but it must be managed. There will be changes to the schedule, and those changes must be "thoroughly integrated with the other control processes," such as scope and overall project change control, says PMI. Aside from activity and other estimations that just may be "off," scheduling will change when there are scope or other major project changes.

Project Managers: Schedules should be detailed. Some sources indicate that if the schedule is in increments longer than 1 week, it is not detailed enough. Project Team members need a weekly goal — otherwise they risk being off by a week. Multiply that by multiple tasks and people, and the project could easily end up way off schedule.

With scheduling, there is a fine balance between creating a detailed enough schedule, yet avoiding one that is so tightly drafted and so granular in detail from the outset that frequent changes are necessary just to make the schedule realistic. Too many schedule changes resulting from an unrealistic or overly detailed schedule at the outset will frustrate managers and Project Team members, and will almost accustom them to ignoring set deadlines.

Schedule control should be comprised of these things:

Schedule Management Plan. This plan will discuss how changes to the schedule will be managed. Change requests, for example, should be required in writing.

Performance Reports. Regular performance reports provide details about project status, including which deadlines have been met and which have not. We recommend that performance reports — whether prepared by the vendor or internal staff — be provided on a weekly or biweekly basis. Monthly reports are not recommended because if a problem surfaces, it can go unchecked for a month or longer before it is reported to and addressed by the Project Manager. This amount of lag time can make it much more difficult to correct the problem and get the project back on track. The Project Team should also have a "milestone review" session following the completion of major milestones.

We suggest you use a project management software program to assist you in building, maintaining and appropriately tracking your project schedule. Programs with Gantt and other activity dependency charts are most useful to allow a visual display of your project's activities and their dependencies, milestones and timelines.

Estimated Project Schedule

ID	Task Name
1	**Phase I: Project Orientation**
2	Project Kick-Off, Interviews, Data Collection
3	**Phase II: Develop the Project Plan**
4	Deliver Conceptual Design
5	**Phase III: Prepare Request for Proposal (RFP)**
6	Prepare Document (Interviews, Review, Regular Meetings
7	Vendors Respond to RFP
8	**Phase IV: Proposal Evaluation and Selection**
9	Demonstrations, Site Visits, Identify Finalist Vendor
10	**Phase V: Contract Negotiations**
11	Negotiate Contract, Seek County Approval
12	**Phase VI: Implementation**
13	Project Initiation Session
14	Requirements Validation/Finalize Hardware Requirements
15	Develop Project Plan
16	Hardware Off-site Installation
17	RMS Software Installation
18	RMS Subsystem Tailoring and Customization
19	RMS Equipment On-site Installation
20	RMS Subsystem Interfaces
21	RMS Ancillary Systems Installation
22	Deliver RMS As-Built Specification Documents
23	RMS Functional Testing
24	Final RMS Equipment Installation
25	RMS Subsystem Performance Testing
26	RMS User Training
27	RMS Production Cutover/Final Certification
28	RMS Refresher Training
29	Program Evaluation
30	Conduct Redeployment Tracking

Milestone Review. Taken together, milestones complete your entire project. Their importance, and the quality with which they are met, are critical to the project's success. It is important that as each milestone is met, you gather the Project Team together to review and analyze the milestone completion itself and the process for its completion, and adjust the schedule for future deliverables and milestones, if necessary.

Post It!

Once the project schedule is complete, post it in a high profile location so all team members can easily review it. The timeline will also be a component of the project Web site to be developed, which we will discuss in Chapter 13: Prepare a Comprehensive Communications Plan.

And remember: Keep the timeline up-to-date for archival and historical purposes!

CHAPTER 11
ESTIMATE COSTS AND DEVELOP A BUDGET

Chapter 11: Estimate Costs and Develop a Budget

What Estimating *initial* and *recurring* costs in terms of people, materials, equipment and services (both internal and external) to complete and maintain the entire project.

Why So your agency and funding bodies will know how much money to allocate toward initial and recurring costs in order to make the project a success.

Who Project Manager, your parent organization's finance representative and possibly your grant writer (if your agency or jurisdiction has one).

When Once the scope is defined and the schedule completed.

A typical annual law enforcement budget is divided between human and capital resources, with each half competing for a shared slice of government revenue. While agencies generally excel at budgeting for manpower and equipment, the practice of preparing initial and recurring budgets for IT initiatives continues to evade most agencies.

Consequently, many IT initiatives are challenged by a lack of financial and human resources, particularly following implementation, when unanticipated support and maintenance costs commonly arise.

In this chapter, we'll focus on the key elements for properly estimating initial and recurring costs for a technology initiative.

Initial Costs versus Recurring Costs. Initial costs are one-time expenses your agency incurs, such as the purchase of a squad car. Recurring costs are comparable to the continuing costs necessary to operate the squad car, such as fuel, maintenance and insurance.

The Project Budget

Agencies preparing an IT project budget will generally fit into one of three "starting point" scenarios:

1. Our agency has been preparing for years as part of a capital improvement project, and has X dollars dedicated for the initiative.
2. We want to buy technology, but aren't sure of what it will cost.
3. Our agency applied for and received a grant — so let's start spending because time is running out!

The budget should include estimates for:
- Hardware
- Software
- Operating Costs
- Staff Costs
- Training
- Skills Development
- Maintenance
- Consultants

Despite varying levels of planning, each of the three scenarios begins with the agency preparing a "guesstimate" of how much money needs to be set aside to cover the human and material costs for the project, both today and in the future.

During our research, we found that many agencies that failed to create a budget reported that they either didn't know how to do it or thought someone else (in the City or County) was doing it for them. Therefore, in an effort to prevent the further waste of thousands, if not millions, of dollars, we wish to definitively state: **YOU ARE RESPONSIBLE FOR CREATING YOUR OWN PROJECT BUDGET!**

Now, let's show you how ...

Preparing the project's budget is not rocket science. It is actually very simple, and requires only a few steps — and a little bit of research:

1. Gather Internal and External Cost Data.
2. Create a Project Budget of Initial Costs.
3. Estimate Recurring Costs and Include in Budget.
4. Plan for Ongoing Updates to Project Budget.

The fundamental element on which all project budgets are built is **knowing what you want to buy**. Therefore, start with the project scope you developed (Chapter 9). Your scope statement specifies the technology that is being sought (i.e., CAD, RMS, Mobile Computing, etc.). Using those broad terms as the foundation, the first step in actually preparing the budget is to gather the two types of cost information that are related to the project scope: internal and external.

Gather Internal and External Cost Data

Internal Costs

Q&A: What are cost recovery fees? Some agencies must transfer funds from their budget to that of their parent organization's IT management division in order to "pay for" technology support, management, etc.

Essentially, the internal costs are those over which your agency has direct financial responsibility and control, including: *personnel costs* (i.e., Project Manager, technical support staff, etc.), *infrastructure costs* (i.e., network connectivity, possibly hardware), *cost recovery fees*, etc. Internal costs are the easiest to identify because *they already exist* within your budget framework; they simply need to be mined and identified. Internal costs are almost always left out of a project's budget because they are considered "in-kind," or existing costs. Regardless of their pre-existing condition, you must identify internal costs for two reasons:

1. **Recurring Costs** - Although we explore the calculation of recurring costs later in this chapter, you need to recognize that the failure to identify internal costs as part of the overall project budget will skew recurring cost calculations and lead to unanticipated costs in the future (a very bad thing).
2. **Grant Compliance** - Agencies that receive grants are usually required to produce matching funds as a condition of the grant. Although internal costs can translate into matching funds when properly budgeted, remember a COPS grantee cannot use Federal funds in place of any local funds previously appropriated or regularly spent on any item.

A Note About Matching Funds: Agencies should look within the organization to identify all the costs for which they are responsible. Allowable matching funds will vary, however, depending on the requirements of the grant award or program.

External Costs

These are the costs that most agencies associate with procurement and are generally lumped together in three main categories: hardware, software and services. External costs encompass more than just the vendor-supplied products and services. They also include the staff, resources, supplies, infrastructure, consultants and virtually all project elements that fall *beyond the direct financial control* of the agency or the parent organization. Specifically, the following are considered external costs:

Agencies should consider procuring their own hardware, independent of any vendor contracts, for two reasons:

1. Law enforcement agencies are eligible for hardware discounts from many manufacturers (vendors are not).
2. Vendors almost always levy a surcharge of between 5% – 10% on the client for having to order/purchase hardware components.

Make sure you discuss this approach with your Technical Committee, including their ability/desire to manage this acquisition themselves. You must also place the burden on your software vendor to provide you with a complete and detailed list of the hardware specifications required for their software solution.

"IT is a significant cost to organizations; often, IT is cited as the number two expense, following personnel."

— 'What Every Manager Needs to Know About Budgeting' Tutorial at **www.rms.net**

Hardware: This includes the actual servers, workstations, laptops and other computer hardware that will be necessary for the project, including infrastructure (network components) and telecommunications devices (including wireless modems). Hardware costs are usually any "capital" expense related to the project. Think of these expenses as objects that are purchased by and reside within the organization.

Software: This includes all the software required to make the system operational, including: operating system software (e.g., Windows NT, XP), vendor-supplied application software (e.g., Vendor X's CAD application), third-party software (e.g., software that is required for the proper operation of the application, such as Crystal Reports) and any network management tools.

Services: These are the hourly costs that can be attributed to people doing something for the project, including:

- project management,
- installation (if applicable, don't forget to include mobile data device installation fees into this category if your in-house maintenance staff will not be installing the devices),
- training,
- support,
- consulting, etc.

In addition to the "people costs," there are some indirect service costs that are necessary for some types of law enforcement technology initiatives. For example, agencies may be required to pay a recurring "service fee" to a cellular wireless infrastructure provider for mobile data.

Other External Costs: Generally, "other costs" are exception-based. That is, these may or may not be included in your budget, depending on special circumstances, such as new building construction or a communications center remodel.

The cost of services may be difficult to ascertain from the vendor without asking for the costs directly — vendors are often unwilling to divulge hourly rates for specific services (such as training) unless the client demands they be identified. What is the risk of not doing so? Vendors can manipulate and escalate services and software customization costs after the system is implemented, when the agency has very few options. These costs should be identified prior to signing the contract, and should be included in the contract.

Identifying External Costs: Unfortunately, there are no hard and fast rules for identifying the external costs of specific law enforcement technology components. For example, it's virtually impossible to identify an "average cost" for a CAD system simply because there are so many variables: agency size, vendor selected, number of required licenses, number of workstations, level of customization and much more! The list of variables that impact project cost is staggering and prevents the identification of averages.

Now, some good news: you aren't the first agency to enter into an IT initiative! So don't reinvent the wheel. *Consider the following sources for identifying your initial external costs*:

■ **References (Networking)**: The least technical, and fastest, method for seeking basic budget information is simply contacting agencies that have already purchased the solution you seek. Most agencies are pleased to offer such information as a courtesy to fellow law enforcement organizations. Simply ask them for a copy of their project's budget (remember, this stuff is public-accessible information, so in the rare event an agency declined your offer, it would still be possible to access the information through the City or County Clerk's office). If they procured their solution through competitive bidding (i.e., Request for Proposal process), ask them if cost summaries are available. While information from references is usually the fastest source, it is also the least reliable because it will not be a true apples-to-apples cost comparison. However, it should provide you with a range of external costs that can be amended as more knowledge is obtained.

Note: See page 176 for more information on RFIs.

■ **Request for Information (RFI)**: Prepare and issue a request for information, or RFI document. Basically, it's a written request from you (the issuing agency) to the vendor community, asking for "ballpark" pricing and product information. The responses will likely yield more reliable price ranges than reference checks alone, given that RFIs usually provide the vendors with the project's basic information, including: project scope, internal resources and basic expectations for the project. RFIs are not without detriments: First, the RFI boldly announces to the vendor-world that you are a marketable client. Consequently, expect a deluge of literature and phone calls shortly after issuing the document. Second, RFIs can lead to becoming "married" to a vendor, thus skewing the Project Team's objectivity.

■ **Outsourcing**: Not surprisingly, outsourcing the cost estimating portion of the project is generally the most reliable. Consultants are continuously exposed to vendor proposals and can predict most project costs within a 5% margin of error. Naturally, such service comes with a cost (and, ironically, becomes a budgetary line-item itself).

Create a Project Budget of Initial Costs

Before we discuss the method for preparing a project budget of the initial (or one-time) costs, we should clarify our use of the term "one-time." Remember, information technology is *never* a one-time-only expense. Rather, it is an *ongoing and permanent* element of the law enforcement business. For our purposes in this chapter, we must refer to the need for creating a budget of the initial costs as a critical element of the overall project budget, which must include recurring costs as well. **Remember, agencies that fail to plan for ongoing, recurring project expenses are more likely to fail**.

After you gather data on the basic internal and external costs, most of the ingredients are in place to prepare an "initial project budget" that represents the costs associated with the initial cost impact of the project. However, you need to identify three additional costs in the budget that are based upon project subtotals: contingency, bonding and consulting costs.

Contingency costs: Funding set aside for unforeseen, and generally unbudgeted, expenditure requirements.

■ **Contingency costs**: Traditionally, contingencies are calculated at 10% of the hardware and software costs. However, in recent budgets, we have witnessed contingencies that are based on 15% of total project costs. The decision should be based on the agency's level of knowledge of vendor performance. If your agency is conducting initial budget planning, a larger contingency is reasonable. If your agency already has a vendor quote, the decision should be based on feedback from previous vendor clients (remember to ask them the percentage difference between estimated and actual costs).

Budgeting for contingencies is also important to protect your agency from unanticipated additional costs it may have to incur. For example, your agency may find that the computer room is too small to house additional servers once they are delivered, or that the air conditioning system is inadequate to cool the computer room. Perhaps new T-1 lines must be added or additional software licenses were not anticipated, but are needed at the time of implementation. Contingency funding could help offset the costs for vendor or agency issues not anticipated, even in the most thorough planning process.

The Budget Duration Timeline: ***Initial, one-time costs*** occur between project start date and system acceptance. ***Recurring costs*** occur after system implementation.

■ **Bonding costs**: Many governmental agencies require vendors to supply various forms of bonding, including performance, maintenance and payment. There are nuances to each, but for budgetary purposes, assume a cost of 1% of the total project costs for each bond. (**Note**: It is possible to have the vendor pay for these costs through rigorous contract negotiations, but for budgetary purposes, assume that you will be responsible.)

■ **Consulting costs**: As a rule of thumb, "full-service" project consultants — those who provide needs analysis, project planning, procurement assistance, contract negotiations and implementation assistance — will receive an average of 15% of total project costs.

In terms of budget duration, refer to the project timeline that you developed in Chapter 10. The initial, one-time costs should cover all of the internal and external expenses that occur during the period between project start date and system acceptance. All other costs will be post-live date and should be considered recurring.

We suggest that agencies prepare their one-time budget using a spreadsheet application and begin by listing the primary internal and external costs, using a range of pricing as determined through references, RFI or outsourcing. To illustrate our suggestion, review the following sample one-time cost summary for a fictitious RMS/JMS project. Note: The example is a cost *summary*. Behind the summary would be the breakdown of individual costs associated with each category (i.e., the specific cost of each server, workstation, etc.).

■ Sample Initial Costs

	ITEM	DESCRIPTION	ONE-TIME	
			LOW	HIGH
RMS/JMS-External	Hardware	Primary/Backup Server, Infrastructure, Desktops	$ 175,000.00	$ 260,000.00
	Software	RMS, JMS, 300 Concurrent, Minor Customization	$ 750,000.00	$ 1,600,000.00
	Services	Installation, Management, Interfaces, Modifications	$ 675,000.00	$ 1,150,000.00
	Subtotal		*$ 1,600,000.00*	*$ 3,010,000.00*
	Professional Services	Consulting	$ 350,000.00	$ 400,000.00
	Contingency	10% of Hardware/Software	$ 92,500.00	$ 186,000.00
	Bonding	Vendor Performance Bond	$ 16,000.00	$ 30,100.00
	Project Subtotal		**$ 2,058,500.00**	**$ 3,626,100.00**

	ITEM	DESCRIPTION	ONE-TIME	
			LOW	HIGH
RMS/JMS-Internal	Hardware	None	$ -	$ -
	Software	Existing City Oracle and Windows License Fees	$ 32,000.00	$ 34,000.00
	Services	Existing Project Manager, 1 Support Technician	$ 140,000.00	$ 150,000.00
	Subtotal		*$ 172,000.00*	*$ 184,000.00*
	Contingency	10% of Hardware/Software	$ 3,200.00	$ 3,400.00
	Project Subtotal		**$ 175,200.00**	**$ 187,400.00**
Project Totals			**$ 2,233,700.00**	**$ 3,813,500.00**

The initial project budget will naturally change as the project evolves. Depending on which of the three starting point scenarios best applies to your agency, you may have to adjust the initial budget on a monthly or semimonthly basis as new facts are discovered. However, once the project nears the point of contract signing, the initial budget should become more concrete, with the ranges of high vs. low narrowing to a margin of 2.5% error.

This initial budget will be closely linked with the project's Risk Management Plan (Chapter 12), as acceptable cost over-runs must be tracked using this document.

Estimate Recurring Costs and Include in Budget

Recurring costs are generally predicted on an annual basis, although we have seen recurring cost prediction models created on a biannual basis during the first 5 years of a system's usage.

Very large organizations may need to track recurring costs more frequently, given the volume of cashflow for internal and external support costs.

The recurring costs are based upon percentages shown below, and are generally determined by whether your agency will be purchasing a vendor's maintenance package or conducting in-house maintenance with existing staff. The difference is clear, but be sure to note that support costs may be internal or external, depending on your support choice. If they are internal, be sure to include these in your budget so that funding for these support resources continues post-implementation.

Recurring Cost Calculations

Hardware ..... 10% of One-time Costs
Software ..... 12.5% of One-time Costs
Services (Internal Only) ..... Dependent on Agency Compensation
Contingency ..... 10% of the Recurring Hardware and Software Costs

■ Sample Recurring Costs

	ITEM	DESCRIPTION	ONE-TIME		RECURRING	
			LOW	HIGH	LOW	HIGH
RMS/JMS-External	Hardware	Primary/Backup Server, Infrastructure, Desktops	$ 175,000.00	$ 260,000.00	$ 17,500.00	$ 26,000.00
	Software	RMS, JMS, 300 Concurrent, Minor Customization	$ 750,000.00	$ 1,600,000.00	$ 93,750.00	$ 200,000.00
	Services	Installation, Management, Interfaces, Modifications	$ 675,000.00	$ 1,150,000.00	$ -	$ -
	Subtotal		*$ 1,600,000.00*	*$ 3,010,000.00*	*$ 111,250.00*	*$ 226,000.00*
	Professional Services	Consulting	$ 350,000.00	$ 400,000.00	$ 17,500.00	$ 20,000.00
	Contingency	10% of Hardware/Software	$ 92,500.00	$ 186,000.00	$ 11,125.00	$ 22,600.00
	Bonding	Vendor Performance Bond	$ 16,000.00	$ 30,100.00	$ -	$ -
	Project Subtotal		**$ 2,058,500.00**	**$ 3,626,100.00**	**$ 139,875.00**	**$ 268,600.00**

	ITEM	DESCRIPTION	ONE-TIME		RECURRING	
			LOW	HIGH	LOW	HIGH
RMS/JMS-Internal	Hardware	None	$ -	$ -	$ -	$ -
	Software	Existing City Oracle and Windows License Fees	$ 32,000.00	$ 34,000.00	$ 34,000.00	$ 36,000.00
	Services	Existing Project Manager, 1 Support Technician	$ 140,000.00	$ 150,000.00	$ 150,000.00	$ 160,000.00
	Subtotal		*$ 172,000.00*	*$ 184,000.00*	*$ 184,000.00*	*$ 196,000.00*
	Contingency	10% of Hardware/Software	$ 3,200.00	$ 3,400.00	$ 18,400.00	$ 19,600.00
	Project Subtotal		**$ 175,200.00**	**$ 187,400.00**	**$ 202,400.00**	**$ 215,600.00**
Project Totals			**$ 2,233,700.00**	**$ 3,813,500.00**	**$ 342,275.00**	**$ 484,200.00**

Plan for Ongoing Updates to Project Budget

You may also hear the term **Total Cost of Ownership** (TCO) as you do research and prepare your budget. Like recurring cost calculations, TCO refers to the total costs associated with ownership, usage and maintenance of the system over time.

Once the one-time and recurring cost estimates have been developed, the only thing left to do is prepare the Project Team (and your stakeholders in general) for budgetary updates and changes, as new information is learned or as project risks become reality.

It is critical to communicate with all Project Team members that budgets are **prediction models** up to the point that a contract is signed, and then they become **guidelines**. Budgets are always subject to change, based upon unknown factors. Therefore, it is important to create a realistic expectation that the **budget may change** as the project progresses.

The extent to which cost overages are allowable will be determined by the Steering Committee's Risk Management Plan (Chapter 12) and available funding.

Final Advice

Before you embark upon preparing your project budget, consider the following tips:

Supplanting: Okay, we said it — the "**S**" word. Supplanting occurs when agencies budget money for a project, then receive grant money and replace the budgeted money with the grant funds. This action is forbidden by most granting agencies. Therefore, when preparing a project budget, be sure to discuss potential grant funding sources with your parent organization *before* committing funds to ensure that your grant funds are supplementing — rather than supplanting — locally budgeted funds.

Finance Representation: Remember that one of your key Steering Committee members should be a representative from your parent organization's finance department or division. Such representatives are invaluable, as this is their specialty, so be sure to rely upon their expertise for conducting budget and planning sessions that are in concert with your organization.

CHAPTER 12
CREATE A RISK MANAGEMENT PLAN

Chapter 12:
Create a Risk Management Plan

What Risk management is a *planning process* that prepares the agency for dealing with potentially harmful events that could happen in a technology initiative.

Why To be proactive about identifying and managing potential risks and developing contingency plans to mitigate or avoid the negative impact of the risk. Preparing for potential risks helps to ensure that the agency's response is planned, measured and controlled.

Who The Executive Sponsor, Project Manager and Steering, User and Technical Committees.

When Risk management is conducted continuously throughout most projects, however, formal risk management planning can only start once the scope of the project has been identified. This is because it is difficult to identify risks until your project scope is refined.

Executive Sponsors: Project teams are often tempted to drop risk avoidance from their "to do" list, in favor of more tangible and pressing tasks. As the Executive Sponsor, you must motivate your Project Team not only to develop the Risk Management Plan, but also to update it on a regular basis. Think of the Risk Management Plan as your team's insurance policy.

Most public employees correlate risk management with insurance, or perhaps the City or County's Risk Manager. While they both manage exposure, that's where the similarity ends. In technology initiatives, risk management is a forward-thinking process that requires project leaders to envision challenges or threats to the project and develop contingencies for handling such events. In law enforcement, this concept is similar to the proactive vs. reactive approach to fighting crime. So, think of this chapter as your technology initiative's prearrival contingency planning guide!

Risk management is an essential component that project participants often sidestep because it requires forward thinking about events that may be inconceivable at the project's onset. Consequently, the vast majority of law enforcement technology initiatives never take into account how the agency will handle events that can threaten the project's quality, time or budget.

Based on our contact with hundreds of law enforcement agencies, we've learned that most project managers simply don't know how to pull a Risk Management Plan together. So, we'll start with the basics: How to create a Risk Management Plan.

How to Create a Risk Management Plan

Step 1
Identify the Risks

Products that involve proven technology will, all other things being equal, involve less risk than products that require innovation and invention.
— PMBOK®

The initial step in preparing a Risk Management Plan is to convene the project's User, Technology and Steering Committees to introduce the concept that "sometimes, bad things happen." In fact, they happen more often than not. Remember the Standish Group report's statistics (see page 11), which indicate that more than half of the projects cost nearly twice their budget and resulted in less than half of the required functionality? Thwarting the unexpected isn't always possible, but it is usually predictable and manageable.

During the initial meeting, the Project Manager should ask the Project Team to identify potential "bad things" that could happen during the course of the project. The members should be encouraged to share war stories from other agencies, attendance at conventions, or even first-hand experiences. (This is rarely a quiet meeting!)

Examples of ideas should range from the basic to the complex, as illustrated in the list to the left. Using Focus Group meeting techniques like those described in Part II, the Project Manager should write each idea on a white board or flip chart so that each idea is clearly visible to the participants. That way, new ideas can be measured against existing ones, ensuring that there are no duplications. After there are about 25 to 50 items, take a break and get ready to quantify!

Step 2
Categorize and Quantify the Identified Risks

The next step in creating a Risk Management Plan is categorizing the identified risks in three ways:

1. **Likelihood**: The first question that the team must resolve is how likely the risk is to occur, based upon what is known today (remember that as new information is discovered, these categories should be updated). Categorize the likelihood in one or more of these categories:

Some agencies prefer to quantify risks numerically, particularly the larger agencies that need to deal with a large number of issues. For example, an agency may give each identified risk a number from 1 to 10 based on the perceived probability (likelihood) and severity, with 10 being the most probable/severe. Those risks with higher ratings could be dealt with first and most aggressively.

Remote: This risk will probably not occur.

Possible: This risk might occur.

Likely: This risk will probably occur.

2. **Area of Impact**: Next, the Project Team should determine which of the three critical project areas (time, quality and/or budget) will be impacted by the risk. Some risks may impact one or all of these areas.
3. **Severity**: The team must consider the severity of the consequences of a particular risk, based upon the overall impact that such an event would have upon the initiative. The decision on ranking the severity of a risk is clearly subjective, and is usually based on the Project Team's judgment and knowledge of the specific conditions that surround the initiative. The categories for this section are:

   Low: The risk is manageable through planning and action, and may not impact project time, quality or budget.

   Medium: The risk may be manageable through planning and action, although the event will probably have a negative impact on the project's time, quality or budget.

   High: The risk will seriously impact project time, quality or budget. Planning or action may not be capable of saving the initiative.

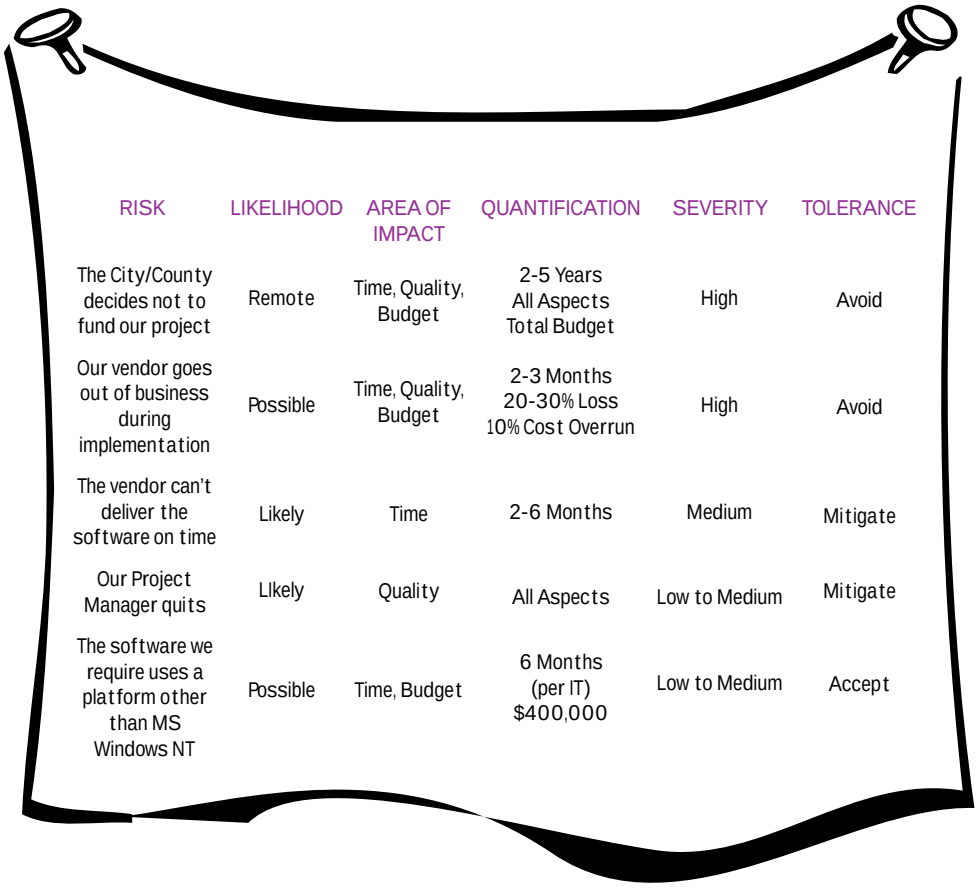
Using our examples gained during the risk identification process, we've categorized them as illustrated in the graph on page 152:

RISK	LIKELIHOOD	AREA OF IMPACT	SEVERITY
The City/County decides not to fund our project	Remote	Time, Quality, Budget	High
Our vendor goes out of business during implementation	Possible	Time, Quality, Budget	High
The vendor can't deliver the software on time	Likely	Time	Medium
Our Project Manager quits	LIkely	Quality	Low to Medium
The software we require uses a platform other than MS Windows NT	Possible	Time, Budget	Low to Medium

After identifying and classifying the potential risks, the Project Team is ready to drill down even further into the details of the three areas that could be impacted by a risk occurrence, including:

- How much **time** is likely to be lost?
- How much of the project's **quality** would be sacrificed?
- How much could it impact the **budget**?

Quantifying each risk may require the Project Team to make predictions that can be refined later, as more details are discovered. In keeping with our example, the graph on page 153 shows how we quantified our risks:



RISK	LIKELIHOOD	AREA OF IMPACT	QUANTIFICATION	SEVERITY	TOLERANCE
The City/County decides not to fund our project	Remote	Time, Quality, Budget	2-5 Years All Aspects Total Budget	High	Avoid
Our vendor goes out of business during implementation	Possible	Time, Quality, Budget	2-3 Months 20-30% Loss 10% Cost Overrun	High	Avoid
The vendor can't deliver the software on time	Likely	Time	2-6 Months	Medium	Mitigate
Our Project Manager quits	Likely	Quality	All Aspects	Low to Medium	Mitigate
The software we require uses a platform other than MS Windows NT	Possible	Time, Budget	6 Months (per IT) $400,000	Low to Medium	Accept

COMMON SOURCES OF RISK INCLUDE:

- Changes in requirements
- Design errors, omissions, misunderstandings
- Poorly defined or understood roles and responsibilities
- Poor estimates
- Insufficiently skilled staff

— PMBOK®

Liquidated Damages: A contract provision that compels the vendor to pay the police department money if the vendor misses a promised deadline. As an example, a department may require a vendor to compensate them at a rate of $1,000 per day for each day an interface is delivered late.

Holdbacks: A contract provision that allows the Sheriff's office to keep a percentage of a vendor's invoice until after the vendor successfully completes certain milestones (like project completion). Holdbacks are useful for keeping the vendor interested in completing all of the tasks associated with a project, even those that are less profitable than others.

Step 3
Determine Your Tolerance Level for Risks

Once the risks have been identified, categorized and quantified, the Project Team must adopt an initial level of acceptance for each risk in advance of developing a response plan.

For each risk, the Project Team must identify one of three levels of tolerance (as illustrated in the graph on page 153):

Avoid: The avoidance label is often used for risks that have the capacity to negatively impact the project's budget, timeline or quality but have little known recourse. For example, the risk within our chart regarding the vendor going out of business may be labeled as a risk to avoid (through careful vendor evaluation and selection).

Mitigate: The majority of risks will be categorized with this label. Generally, these are risks that can be compensated or resolved through the development and execution of a response plan.

Accept: The Project Team will likely find some risks to be acceptable, not requiring the development of a response plan. Generally, acceptable risks are either strategic in nature or have minimal impact on the project's budget, timeline or quality.

Step 4
Create a Response Plan

With each of the risks identified, classified and quantified, the Project Team should be ready to develop a response plan. The response plan seeks to identify how the Steering Committee and Executive Sponsor will minimize the negative impacts associated with any risk occurrence.

The actual response will be creative and based upon the unique circumstances surrounding the initiative. Generally, however, the Steering Committee and Executive Sponsor should consider the following:

For an impact on project time: Consider methods for preventing the slippage in the first place through (a) careful *contract language* (including liquidated damages, holdbacks, etc.) and (b) the creation of a *realistic timeline* that assumes delays (in other words, increasing the time necessary for various tasks based upon the assumptions of the Steering Committee and Executive Sponsor about the risk(s) involved in various project tasks). The response would then be predicated upon the use of contract language and predefined actions that would help to minimize the impact on the initiative.

> *"Risk management helped make us successful and meet our deadlines."*
>
> — **Tom Hennig**
> San Joaquin County (CA) Sheriff's Department

For an impact on project quality: Attempt to verify the vendor's full range of capabilities very early on in the procurement process. Many Risk Management Plans call for vendors to verify their ability to perform before contract signing, while others refuse to consider vendor products that cannot supply 80% or more of the required functionality. Additional tools include the insistence that vendors subscribe to fulfilling the letter of the contract as well as the spirit. In such circumstances, agencies identify both the *functional specifications* (the precise description of how a product should operate), as well as the *conceptual* goal (a high-level description of how a product should function). Again, the enforceable contract language would determine the response.

For an impact on project budget: In general, projects will cost more than original estimates. By identifying the extent of a budget overage in the Risk Management Plan, the Steering Committee and Executive Sponsor can identify a project contingency that should be a concrete budgetary line item. As a general rule, agencies should assume that their project will require 10%–15% more funds than those originally estimated. The response for these occurrences should identify those situations in which the Steering Committee is willing (and unwilling) to approve budgetary overages.

Maintaining the Plan

As referenced throughout this chapter, new risks are continuously being identified, while existing risks are refined. Therefore, each Project Team meeting should include a few minutes to discuss the Risk Management Plan, providing for new discussions and updates throughout the entire project lifecycle. Remember, devastating risks could arise even in the final phases of a project!

Risk Management Plan: Essential and Indispensable

Armed with a comprehensive Risk Management Plan, the project leaders are much more likely to manage events as they occur in a manner that takes advantage of available human and financial resources, rather than simply reacting randomly. A Risk Management Plan allows the project's Steering Committee and Executive Sponsor to control the project, rather than allowing unscheduled events to steer the project.

Aside from the clear benefits of accountability and management, projects that are designed with a comprehensive Risk Management Plan are perceived more positively by project sponsors and elected officials, because these key individuals are made aware of potential problems well in advance of their occurrence. Consequently, the project's management demonstrates control of the project's time, quality and budget.

CHAPTER 13
PREPARE A COMPREHENSIVE COMMUNICATIONS PLAN

Chapter 13: Prepare a Comprehensive Communications Plan

What *Strategies* for communicating project status and activities to key stakeholders, and *methods* for developing historical project records and archives.

Why First, to keep users and stakeholders informed, involved and up-to-date on project activities. Second, to create a "paper trail" of historical documentation critical when personnel change, for grant reporting purposes and for future project planning.

Who Project Manager.

When Begins at any time during the Build the Foundation or Project Planning phases and continues through the life of the project.

We'll talk about communications in this chapter on two tracks: First, disseminating information to groups of individuals through status reports, written documentation, messages, electronic media, etc. Second, the need to document project information for historical and reporting purposes. Both of these strategies should be outlined in the "Communications Plan" chapter of your Project Plan.

Keep the Right People Informed

It should be a major priority during your project to keep the lines of communication open among not only all Project Team members and the decisionmaking structure, but also with all end users and interested parties. There are different types of information needed depending on the group you are communicating with, and many ways to communicate the information.

Communications planning involves determining the information and communication needs of the stakeholders: who needs what information, when will they need it and how will it be given to them.
— PMBOK®

First, determine the different groups who need project information, such as:

- The Steering Committee
- The Project Team
- Users and stakeholders not directly involved in project activities
- External agencies
- Funding bodies and granting agencies
- The public

Second, for each of these groups, you must determine the **type** of information they need, the level of **detail** they need and **how often** they need it. For example, the Project Team members will *frequently* (weekly, or depending on deliverables, daily) need a great deal of *detailed* information (accomplishments, deadlines missed, problems, risks, issues, decision items) about the project.

The Steering Committee, however, will need *regularly scheduled* (monthly) *status reports* (major accomplishments, any challenges or setbacks that require their intervention) and *decision issues* (major issues that require policy, funding or operational decisions).

You should determine a consistent schedule and method(s) for communicating project status, information and updates. For some agencies, a departmentwide newsletter distributed on a monthly basis is sufficient. Others provide oral briefing reports, and yet others use email to share weekly project status and updates.

Creating a project Web site is one of the most effective methods of tracking the project accomplishments and issues, posting documents and making other stakeholders outside your agency aware of the project. Web site development for projects that include **multiple agencies and jurisdictions** is the best method for communicating among the agencies. Many agencies find that a combination of two or more of these methods works best.

You may want to build a chart like the one on the next page to help develop your communications plan with each group. You should involve representatives from each group to provide input and feedback as to the details of what each group will need, when, and in what format.

Group	Info Needed (Type)	Detail	Frequency	Communication Method
Steering Committee	Project status: Major accomplishments, problems or issues that need resolution	High-level	Monthly or during regularly scheduled project-related meetings	Written status report and oral report by the Project Manager during the meeting
Project Team Members	Detailed information about project schedule, activities, deadlines, plans, issues, risks and problems	Very specific	At least weekly	Variety: Email, written memos, oral reports during meetings, both scheduled and ad hoc (if reports are oral, all discussions must be captured in minutes)
Users	General updates about project activities, achievements and any variations in schedule	General	Monthly	Monthly newsletter or Web site (big events, activities, achievements may warrant a special email alert)
Public	General update about project activities, achievements and status	General	Monthly	Web site
External Agencies	General update about project activities, achievements and status	General	Monthly	Web site or Intranet
Funding Bodies	Project activities, accomplishments, deadlines, funds expended to date and related budget issues	Detailed with regard to funding	When reports are due or requested	Formal, written documentation

Get Input and Feedback

You should not only send out information, but also create a means for gathering information and feedback on the project. Examples of input/feedback procedures you can establish include Web-based forms, suggestion boxes, email messaging, chat sessions and online editing.

Establish a Paper Trail: Create the Project Filing Cabinet

It's not uncommon in law enforcement agencies for personnel to "inherit" a project from a predecessor. In career development, sworn personnel are often assigned on an annual or biannual basis to different units within a department, including those dealing with information technology. IT projects are often handed off mid-stream or before they've officially begun, and often change hands several times before they are complete. Nothing is worse than picking up a project mid-stream and having little or no documentation about what has been done so far, what has been promised, what reports have (or have not) been filed, and most importantly, how much money has been spent!

Key players in your technology initiative may come and go over the duration of the project. All, however, will be held accountable by parent organizations and elected officials. That's why *all* key players must commit to developing and maintaining accurate communication plans.

Part of your Project Plan is to create a strategy and methodology for documenting and maintaining files on project activities. You should have a method and organized means for keeping the following items:

1. **Project Records**. Any documentation regarding the project, including correspondence, reports, memos, grant applications and awards.
2. **Performance Reports**. Also known as status or project reports, these documents provide analysis on project scope, schedule, budget and performance on a regular basis to the stakeholders, funding agencies and other users/requestors.
3. **Change Requests**. As we've discussed in previous chapters, all changes (to scope, schedule, cost) must be handled through a formal and established *written* approval process. All change requests should be documented and kept in the project files.
4. **Problem Escalation and Resolution**. In Chapter 1 (page 36) we discussed creating a formal mechanism for how problems were to be resolved throughout the life of the project. You should keep documentation of the problems and their resolution in the project file cabinet.
5. **Formal Acceptance**. Include documentation on system acceptance testing (covered in Part V, Chapter 17) and the signed acceptance itself.
6. **Lessons Learned**. This is an extremely useful document that will assist you in future technology projects. Once your project is complete, take the time to document things that worked, things that didn't work and the lessons you learned from beginning to end. Don't think you will remember for the "next time." **Write it**

down! And remember, someone else may need to refer to this document for a new project they are planning.

7. **Project Archives**. At some point, all project records will need to be archived. Historical databases, financial records, etc. may require formal processing and archiving. A fully indexed project records set should be organized and stored at your agency.

The Project Web Site

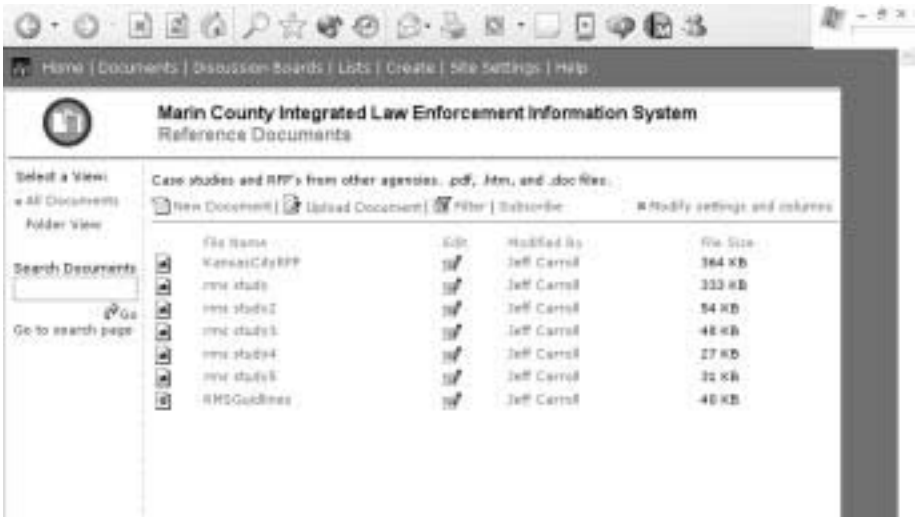
A project Web site is an excellent means for providing project documents and status reports to a wide variety of interested parties. If you develop a project Web site, make sure that you keep it up-to-date with the latest project news, activities and documents to keep visitors coming back. If developing your own Web site isn't possible, consider the use of a Microsoft SharePoint Web service, which provides a preformatted project management Web environment.

■ **Marin County (CA) Integrated Law Enforcement Information System Project Web Site Screenshot #1**

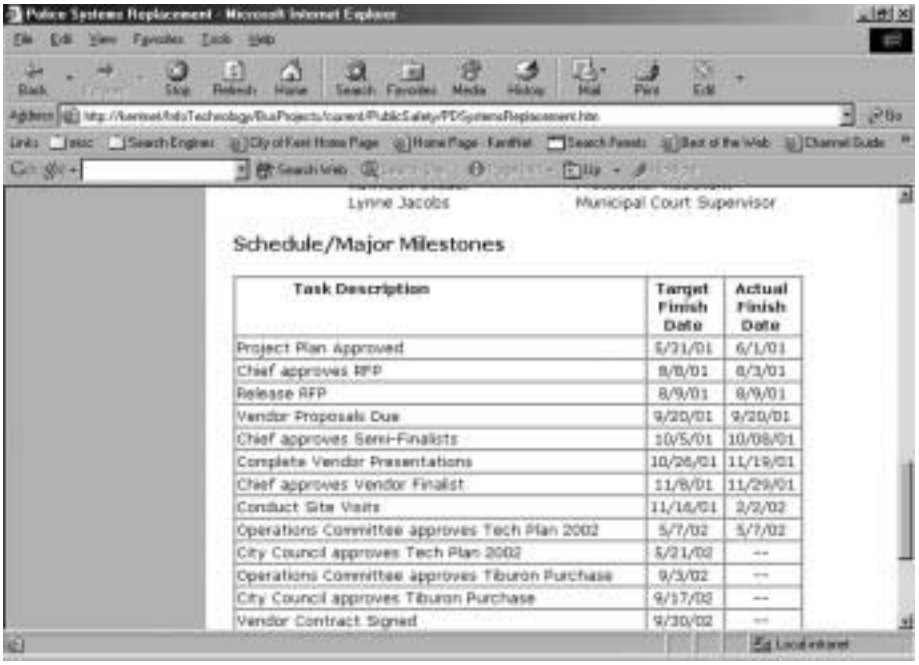
"The project status Web page was by far the single most important tool to keep our vendor committed to the project timeline."

— **Ronald Glensor**
Deputy Chief,
Reno (NV) Police
Department

- **Marin County (CA) Integrated Law Enforcement Information System Project Web Site Screenshot #2**



- **Kent (WA) Police Department Police Systems Replacement Project Web Site Screenshot #1**



Task Description	Target Finish Date	Actual Finish Date
Project Plan Approved	5/31/01	6/1/01
Chief approves RFP	8/8/01	8/3/01
Release RFP	8/9/01	8/9/01
Vendor Proposals Due	9/20/01	9/20/01
Chief approves Semi-Finalists	10/5/01	10/08/01
Complete Vendor Presentations	10/26/01	11/19/01
Chief approves Vendor Finalist	11/8/01	11/29/01
Conduct Site Visits	11/16/01	2/2/02
Operations Committee approves Tech Plan 2002	5/7/02	5/7/02
City Council approves Tech Plan 2002	5/21/02	--
Operations Committee approves Tiburon Purchase	9/3/02	--
City Council approves Tiburon Purchase	9/17/02	--
Vendor Contract Signed	9/30/02	--

PART III ASSIGNMENTS

EXECUTIVE SPONSOR

Role

1. Ultimate decisionmaker
2. Provide oversight and guidance

Project Planning Tasks

1. Commit to structured project planning; endorse and sign Project Plan (Chapter 8)
2. Be sensitive to change management (Chapter 8, page 117)
3. Use the Project Plan (Part III)
4. Approve final project scope and ANY changes made to scope from this point on (Chapter 9, page 125)
5. Do not force a schedule on the Project Team if at all possible; instead, direct the team to develop a realistic timeline (Chapter 10, page 131)
6. Review and approve project budget (Chapter 11)
7. Make risk management planning a priority (Chapter 12, page 149)

STEERING COMMITTEE

Role

1. Provide knowledge and recommendations
2. Remove project barriers
3. Update/inform Executive Sponsor
4. Review key documents

Project Planning Tasks

1. Endorse and sign Project Plan (Chapter 8)
2. Review and approve scope statement, project objectives and Scope Management Plan (Chapter 9)
3. Provide input to, review and approve project timeline (Chapter 10)
4. Provide input as needed during budget development process (Chapter 11)
5. Participate in risk management planning (Chapter 12)

PART III ASSIGNMENTS, CONTINUED

PROJECT MANAGER

Role

1. Coordinate all tasks and activities
2. Keep aggressive meeting schedule to get the Project Plan completed
3. Facilitate meetings
4. Solicit input and approvals from the Steering Committee and Executive Sponsor
5. Conduct research regarding elements of project plans and look at other agency plans
6. Document all findings

Project Planning Tasks

1. Lead User and Technical Committees in detailed project scope definition (Chapter 9, page 121)
2. Detail scope based on a variety of inputs (Chapter 9, page 122)
3. Produce work breakdown structure (Chapter 9, page 123)
4. Prepare Scope Management Plan (Chapter 9, page 125)
5. Prepare the project timeline based on User and Technical Committee input (Chapter 10, page 129)
6. Create a management plan that will control the project schedule (Chapter 10, page 132)
7. Develop the project budget (Chapter 11)
8. Lead meetings to identify project risks and their associated ratings and tolerance levels, and create the Risk Management Plan (Chapter 12)
9. Develop and implement a communications plan to address information needs of various stakeholders (Chapter 13)

PART III ASSIGNMENTS, CONTINUED

USER COMMITTEE

Role

1. Provide input to Project Manager on scope, timeline, budget, risk, communications
2. Conduct research within your own unit/area of responsibility to gather comprehensive information for the Project Plan
3. Meet on a weekly basis with Project Manager during development of the plan

Project Planning Tasks

1. Assist in detailing project scope (Chapter 9, page 122)
2. Define project objectives in terms of quality, time, cost, performance, reliability and functionality (Chapter 9, page 124)
3. Help develop the project timeline by accurately estimating staff availability and capability in relation to the project (Chapter 10, page 131)
4. Assist with development of project budget (Chapter 11)
5. Participate in risk management planning (Chapter 12)

TECHNICAL COMMITTEE

Role

1. Provide input to Project Manager on scope, timeline, budget, risk, communications
2. Conduct research within your own unit/area of responsibility to gather comprehensive information for the Project Plan
3. Meet on a weekly basis with Project Manager during development of the plan

Project Planning Tasks

1. Assist in detailing project scope (Chapter 9, page 122)
2. Define project objectives in terms of quality, time, cost, performance, reliability and functionality (Chapter 9, page 124)
3. Help develop the project timeline by accurately estimating staff availability and capability in relation to the project (Chapter 10, page 131)
4. Assist with development of project budget (Chapter 11)
5. Participate in risk management planning (Chapter 12)

What's Next?

Part IV: Acquire the Technology

“Obstacles are those frightful things you see when you take your eyes off the goal.”

— Henry Ford

GRANT COMPLIANCE NOTICE

Recipients of COPS Office grants are obligated to comply with certain requirements when implementing grant-funded technology projects. These requirements include Federal regulations. We recommend that your agency be thoroughly familiar with these regulations:

- 28 CFR 23, **Criminal Intelligence Systems Operating Policies**
- 28 CFR 66.36, Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments: **Procurement**
- 28 CFR 66.32, Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments: **Equipment**

The full text of these regulations can be accessed online at **http://www.access.gpo.gov/nara/cfr/cfr-retrieve.html#page1**. For more information on other areas of compliance, see Chapter 19, Grant Management and Compliance.

CHAPTER 14
THE ART OF PROCUREMENT

Chapter 14:
The Art of Procurement

What A *structured method* for determining the required hardware, software and services needed to fulfill the project goals and objectives.

Why In addition to meeting government mandates for purchasing, a well-planned procurement will (a) ensure that the chosen vendor can supply the agency's functional requirements, (b) foster competitive vendor pricing and (c) offer the agency choices with regard to products and services.

Who Steering Committee, Project Manager, User and Technical Committees, and the parent organization's finance and purchasing representatives.

When Once the decision has been made to purchase new technology.

Conducting a procurement is oddly similar to playing a game that is replete with rules, penalties and winners. Most would agree that the biggest difference lies in the fact that procurement is rarely fun.

Procurement is a process that enables your agency to create functional requirements and seek qualified providers. While the requirements should be sufficiently detailed to allow the vendors to supply an accurate technical and cost solution, it should not be so detailed as to border on data modeling or system design (after all, if that were the case, you would be hiring programmers and not seeking a vendor solution).

Law enforcement agencies are often frustrated by the complexity of purchasing products and services. In this chapter, we seek to simplify some of the more complex components of procurement by providing an overview of the process, a review of how to select the right tool to get the job done, a suggested outline for how to evaluate vendor offerings and, finally, a simple method for creating functional specifications.

Procurement is governed by many rules that must be adhered to as a condition of being a governmental agency. Those rules generally dictate how the procurement must be conducted, although there is normally a good deal of agency discretion with regard to creating the requirements and evaluating the vendors' proposals. **Nevertheless, requirements should be well defined and the process should always be thoroughly followed**.

A *bid protest* occurs when one or more vendors object to an element of the procurement process, usually caused by the agency's failure to follow the selection process outlined in the bid document. When a bid protest occurs, the vendor's attorney files a legal notification with the City or County, notifying them of the protest. The City or County will ordinarily suspend the procurement until such time that the matter has been fully resolved (which usually requires several months). Therefore, playing by the rules is absolutely imperative.

Failure to adhere to rules or to clearly define requirements can result in a legal action called a "bid protest" (or can cancel the process entirely — see sidebar).

After receiving the vendor proposals, your agency has the opportunity to carefully review the various choices, seeking to identify the product that most closely meets your agency's needs. Ultimately, a winner is chosen and the project will move from the procurement phase into the contract negotiations phase (see Chapter 15). The process normally requires between 4 and 10 months, and it all starts in your own backyard.

LEARN FROM THEIR MISTAKES!

One Michigan city learned the importance of clearly defined requirements the hard way. It was forced to issue its RFP three separate times because of technicalities found by the City's purchasing department after the documents had been released.

Step 1
Research Your Jurisdiction's Procurement Requirements

You must start the procurement process by gathering the specific procurement requirements of the parent organization. Normally, the purchasing division or the City/County attorney's office will be able to provide you with a list of these required elements, which often include the following:

■ **Procurement Thresholds**: Most City or County governments have ordinances that require competitive procurement if the value of the purchase exceeds a certain dollar amount (usually, the range is between $10,000 and $50,000). Therefore, the budget that was developed in Chapter 11 will likely determine whether a competitive procurement is necessary.

■ **Advertising Requirements**: Per local, regional or State law, governments are often required to advertise their procurements in at least one publication for a specified period of time. This requirement is often overlooked and is a common cause of bid protests.

■ **Delivery Rules**: Aside from the due date (which is usually set by the agency), there may also be rules for *how* vendor proposals are to be submitted, including:

- The acceptability of electronic or faxed responses.
- The ability to submit responses via "overnight" delivery.
- The ability to include both vendor pricing and product offerings in a single package.

Be sure to prevent vendors from establishing "sidebar" meetings with agency employees — such action can create the appearance of "collusion" and is detrimental to the procurement process. Also, be prepared for the vendors to ask whether the project is fully funded and whether an extension in filing proposals could be granted.

■ **Preproposal Conferences:** Many organizations require that a preproposal conference be held 2 or 3 weeks after the bid is released. Normally, conference attendance is optional, but some City/County ordinances make them mandatory (i.e., if the vendor fails to show up for the conference, the company is automatically disqualified). The conferences usually last about 90 minutes and include the following: a vision statement from the Executive Sponsor(s), a response to questions submitted by vendors (in writing or orally), and a tour of the agency facilities.

■ **Bid Opening Processes**: There are rules that dictate how to open a vendor's response. For example, some agencies are required to open the envelopes (or boxes) in a public forum, while others must have specific government employees present at opening (e.g., purchasing agent, attorneys, etc.). We also strongly suggest at this stage that you designate a **single point of contact** from your agency with the vendors. The procurement process requires clear and unambiguous communication between the two parties. You must ensure there is a single source of information and communication with the vendors.

Step 2
Form an Evaluation Team

It's a good idea to form an Evaluation Team comprised of a cross-section of the Project Team plus a representative from purchasing and, possibly, a City/County attorney (the attorney will be useful in preparations for contract negotiations).

We suggest that you try to keep the Evaluation Team's size to a minimum (around 6-10 people) because they will take on many time-consuming responsibilities during the procurement process, such as analyzing all the proposals that are received, attending vendor demonstrations, making telephone calls to vendor references, visiting references (site visits), and attending Project Team meetings. Also, from a financial perspective, remember that the Evaluation Team will likely be required to attend site visits that can be costly if the sites are remote. The first task of the newly formed Evaluation Team is to select the right tool for procuring the required technology.

Step 3
Select a Procurement Tool

Although a request for proposal is the most widely used tool for conducting a procurement, there are several other options that may be better suited to your agency's needs. Review the following five procurement tools to determine which is best suited to your particular needs:

1. Request for Proposal (RFP)

An RFP is a classic tool used by agencies seeking to obtain actual hardware, software and services proposals from vendors, including proposed costs that address the agency's *specific* needs.

When to use an RFP: While an RFP delivers a complete proposal package, it requires a significant investment of time from the agency (particularly with regard to preparing functional specifications related to the application that you need to purchase). Therefore, an RFP is best suited to agencies that require a complete proposal response from vendors (including costs) *and* that have ample time (at least 4–6 months) and resources to properly prepare and execute the RFP process.

Resist the "full disclosure" temptation. While it is important to inform vendors of the project's purpose and history, it is unwise to inform them of the project's budget, grant information or issues that may be compelling your agency to act quickly. Otherwise, these issues could come back to haunt you come contract negotiation time!

Normally, an RFP is used by agencies that are "serious" about procuring technology, rather than those that are merely "testing the water" or seeking information. Aside from the complexity of the process, an RFP will cost both the agency and the proposing vendors a significant amount of money. Preparing an RFP costs an average of $50,000 in agency "in-kind" costs, while vendors spend an average of $25,000 to respond to RFP documents (personnel time, document preparation, printing, attendance at preproposal conferences, etc.).

Sections of an RFP Document:

A. **Project Background**: Provides the project's history and outlines the major applications being sought.

B. **Rules of Preparation**: Informs vendors of your agency's rules for conducting the procurement.

C. **Volumes**: Describes various statistics that help the vendors to size their proposal (e.g., number of workstations to be licensed).

D. **Vendor Response**: Provides questions that pertain to the vendor's qualifications, experience, proposed solution and pricing.

E. **Functional Response**: Provides functionality questions that are specific to the type of applications (see Step 5).

2. Request for Information (RFI)

An RFI is a document used to elicit *generalized* information about vendor products and services. Pricing, if included at all, is generic and based on averages.

When to use an RFI: An agency that seeks general information about a vendor's products and services should use an RFI. Due to the fact that a proposal is not requested, the RFI is noncompetitive and, therefore, does not require the same level of planning and action of other procurement-related tools (such as an RFP). An RFI can also be used as a precursor to an actual bidding document (i.e., RFP).

Sections of an RFI Document:

A. **Project Background**: Defines the project's purpose and informs vendors of the scope of your inquiry (i.e., which applications you are interested in learning more about).

B. **Rules of Preparation**: Briefly informs vendors of when your agency expects to receive a response and any other general conditions of the RFI.

C. **Volumes**: This optional section provides information on your agency's particular environment.

D. **Requested Information**: In this section, your agency should define exactly what it is interested in knowing about the vendor's products and services (e.g., references, descriptions of products, normal implementation timeline, budgeting guidelines, key contact information, etc.).

Note: In addition to the procurement tool sections described in this chapter, all of the tools — whether RFP, RFI, RFQ, ITB or Sole-source — should include an appendix that contains agency-specific information (e.g., Application Program Interface information, organizational charts, glossary and definition of terms, etc.) that would be useful for vendors in preparing their responses.

3. Request for Qualifications (RFQ)

An RFQ seeks to determine whether a vendor meets minimum *qualification standards* set by the issuing agency. Like an RFI, the RFQ does not request a proposal response with prices and specific proposal details.

When to use an RFQ: Agencies frequently use an RFQ to establish a bidder's list in advance of conducting an actual procurement. The RFQ sets the bar for vendor attributes and seeks to identify those vendors that will meet the agency's minimum standards. An RFQ, like an RFI, is a generally harmless document because it does not place vendors in competition with one another. However, unlike the RFI, vendors often respond quickly to an RFQ *if they can meet the agency's requirements* because the RFQ is an indication of a near-term RFP process. Although the RFQ is noncompetitive, it definitely needs to be reviewed by purchasing and City/County attorney staff before release to ensure that your agency is not defining unlawful or unreasonable standards (e.g., the vendor's name must start with a Z, etc.). Such mistakes could corrupt the bidder's list and, ultimately, a future procurement.

Sections of an RFQ Document:

A. **Project Background**: Provides vendors with basic information about the history and purpose of the project.

B. **Rules of Preparation**: Briefly informs vendors of when your agency expects to receive a response and any other general conditions of the RFQ.

C. **Qualifications Request**: This section can assume two formats: It can either ask vendors to define their qualifications in various areas (references, hardware standards, software platform, etc.), or your agency can define the standards and ask if the vendor can meet or exceed them (e.g., System must be Microsoft XP compliant - Yes/No).

4. Invitation to Bid (ITB)

The rarest of all procurement tools, an ITB defines the agency's requirements and contract inclusions, offering vendors an opportunity to "*take it or leave it.*" The ITB is competitive in the event more than one vendor accepts the bid.

When to use an ITB: Rarely. An ITB is a complex document that includes *all* of the agency's requirements, contractual terms and pricing mandates. Most importantly, the contents of an ITB are not subject to negotiation — vendors either accept all the terms or none. Therefore, preparing such a document is usually best left to professional external entities (consultants or attorneys). ITBs are usually only used when the parent organization mandates that such an approach be taken.

Sections of an ITB Document:

A. **Project Background**: Provides the project's history and outlines the major applications your agency is seeking.

B. **Rules of Preparation**: Informs vendors of your agency's rules for conducting the procurement, including the contract that vendors must agree to, without exception.

C. **Volumes**: Describes various statistics that help the vendors to size their proposal (e.g., number of workstations to be licensed).

D. **Vendor Response**: Identifies your agency's requirements for vendor hardware, software, service, performance and pricing.

E. **Functional Response**: Identifies your agency's functional requirements, asking the vendors to identify any exceptions. In an ITB, it is assumed that vendors will supply all of the listed functionality.

5. Sole-source

In a sole-source procurement, the agency can show that the chosen vendor is the *only vendor capable* of supplying the required hardware, software and services in the best interest of the agency.

When to use a Sole-source Justification: In instances involving upgrades, or when an agency is certain that only one vendor can supply the required technology. When upgrading, justifying a sole-source procurement is fairly simple (functionality, training, implementation, costs and speed are usually compelling issues that favor an upgrade). Conversely, crafting a sole-source justification for a CAD, RMS or Mobile Computing vendor is risky unless the vendor truly offers a very unique solution. Otherwise, losing vendors can protest a sole-source justification in a maneuver similar to a bid protest. (Vendors routinely check local, regional, State and Federal registers that show government purchases.)

Sections of a Sole-source Justification: Agencies are required to use the U.S. Office of Management and Budget guidelines (*see* 28 CFR 66.36) for preparing a sole-source justification. In summary, the guidelines require the following sections: Expertise of the Contractor, Management and Responsiveness, Knowledge of the Engagement, Experience of the Contractor Personnel, Time Constraints, Uniqueness of the Vendor, Additional Information and Declaration.

Step 4
Develop Functional Specifications

We previously made reference to functional specifications, which are simply detailed descriptions of exactly what you expect the new applications to do. The specifications are extremely important because during procurement, vendors are required to divulge how closely their product matches your functional requirements.

Most proposals contain thousands of specifications for each major application (CAD, RMS, etc.) and are derived from the general specifications that you developed in Chapter 6. Your agency can compile specifications by asking the **operational experts** (users) to write descriptions of the functionality they hope to attain by implementing new technology. Encourage users to be as specific as possible: the more detailed the description, the more valuable the specification.

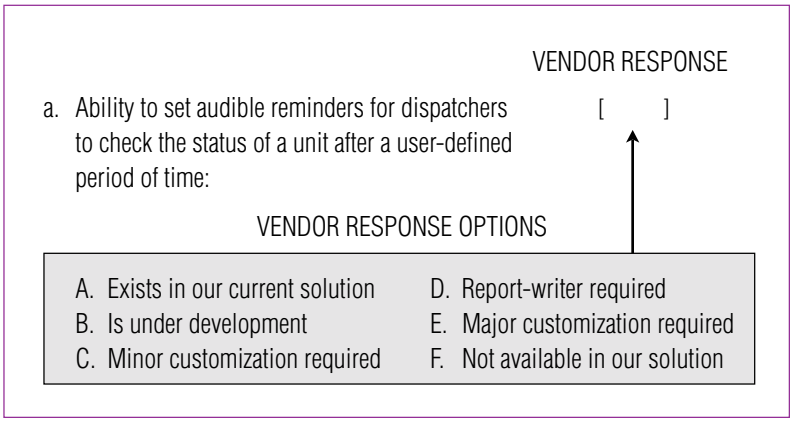
For example, if the broad requirement is to provide dispatchers with additional tools to check on unit status, the specification may read: *"Ability to set audible reminders for dispatchers to check the status of a unit after a user-defined period of time."*

We recognize that developing functional specifications can be an enormous challenge for your agency, particularly if staffing is limited. Again, agencies that can't (or don't want to) develop their own specifications are left with the standard choices: either outsource this element to an external specialist (consultant) or network with other law enforcement agencies that have recently completed procurement. **Whenever possible, avoid reinventing the wheel**!

Borrowing another agency's functional specifications does come with some degree of risk. After all, what if your needs don't exactly match up to theirs? To manage this, it will be necessary for you (and your staff) to **read and amend every single specification**! Otherwise, you run the risk of ranking your vendor responses based upon the needs of others.

Regardless of how they are developed, functional specifications should be categorized into a logical order (e.g., all dispatching specifications should be contained within a single section titled "CAD Functionality," etc.) and inserted into the appropriate location within a bidding document (RFP, ITB, etc.). Then, response codes should be created to

allow vendors the opportunity to define how their proposed solution can meet the specification. We suggest the use of codes that represent narrative responses that *you* control. Allowing vendors to provide a narrative response greatly enhances the ambiguity of their proposal and should be avoided. Once the codes are established, simply place some brackets in the margin next to each specification to allow the vendors to "fill in the blanks" with one of your codes. In keeping with our previous example, a common specification with ordinary response codes would look like this:



Upon receipt of the vendor's proposals, these functional responses should be tallied and compared (see Step 6 for the evaluation and selection process).

A couple of words of caution regarding the creation of functional specifications:

- Occasionally we see agency RFPs that have functional specifications that all start out with "System **must have** the ability to...". Be judicious about using the words *must have* because they represent an imperative that negates most of the response codes. More importantly, if something is a *must*, then vendors will try to develop a technical option for supplying it, which could result in higher-than-normal customization costs.
- Avoid lengthy descriptions of functionality that contain more than one tightly-focused specification. It might prevent vendors from accurately responding with a single response code.

Remember: Failure to follow local procurement requirements could result in a failed procurement!

Step 5

Create Evaluation and Selection Criteria

Most agencies must include the evaluation and selection criteria in the bid documents, per governmental requirements. However, it's a good idea to include the information *even if you don't have to* because it allows vendors to better understand how you will be evaluating their responses, and it compels you to plan ahead for how the evaluation will occur. Like many procurement-related concepts, the evaluation and selection criteria may be determined by the parent organization, so always remember to include a purchasing representative in planning meetings.

The list below represents some standard criteria that are frequently used in the industry. If your agency requires a mathematical ranking of each proposal, simply assign a numeric value to each of the 16 criteria that will total 100 points. For illustrative purposes, we have inserted some sample rankings:

NUMBER	CRITERIA	POINTS
1.	Adherence of the proposal to the specified format	3
2.	Completeness of the proposal	5
3.	Quality and depth of references	10
4.	Level of service and responsiveness that the vendor commits to providing to the agency	13
5.	Financial stability and resources of the vendor	5
6.	Experience and technical expertise of staff	5
7.	Design, capability and functionality of system and application software, as determined by the Evaluation Team	11
8.	Current availability and ability to demonstrate installation of the proposed software applications required by the agency	11
9.	Level of integration between applications and demonstrated interfaces with external systems/devices	5
10.	Capability, design, reliability, warranty and expandability of proposed hardware	5
11.	Economic feasibility and justification of all costs	5
12.	Vendor willingness and ability to negotiate a contract acceptable to the agency	5
13.	Feasibility, timeliness and quality of the software implementation schedule and conversion plans	5
14.	Level of vendor assistance to be provided to the agency during the implementation process	4
15.	The number of hours and extent of user training	5
16.	Quality and extent of the documentation to be provided	3

As spelled out in detail in Step 6, the Evaluation Team should carefully review each proposal using these 16 criteria. If necessary, a quantitative score could be assigned to each proposal based on a scale of 100, and the top two scoring vendors could be deemed qualified to present an oral demonstration of their system's capabilities to your Evaluation Team. If there is no need for a mathematical ranking, simply state that the Evaluation Team, at their sole discretion, will identify two semifinalist vendors that will be invited to make oral demonstrations.

In terms of evaluating a vendor's performance at an oral demonstration, we suggest the use of survey instruments to gauge the feedback of personnel who will observe the demonstration. Again, if a mathematical ranking is necessary, we suggest that the 16-criteria scale be modified (to reflect the oral presentation instead of a written proposal) and reused for the demonstration.

Shortly thereafter, the Evaluation Team should identify a single finalist vendor that will undergo a comprehensive review (including telephone reference checks, site visits and a possible secondary interview). Ultimately, the finalist vendor would be invited to enter into a contract negotiation process with your agency (if negotiations are permitted by your agency) and a contract would be signed. (See Chapter 15 for details on contract negotiations.)

Step 6
Evaluate Bid Responses and Select a Finalist

Upon receipt of the proposals, your agency should review each response to determine which systems are best able to meet your agency's requirements. Evaluation Team members should review each proposal for completeness and to ensure that it properly addresses the functionality requirements of the bid document. You should take the vendor's specification responses to each category (CAD, RMS, etc.) and plot them side-by-side, for an easy-to-view comparison.

Evaluation Team:
- Review
- Summarize
- Evaluate
- Rank
- Clarify
- Choose semifinalists

Vendor Demos:
- Create an agenda
- Define scope
- Establish timeframe

During this portion of the project, the methodology established in Step 5 (Evaluation and Selection Criteria) should be applied, thus eliminating those vendors that fail to meet the requirements.

Using the evaluation criteria as a guide, the Evaluation Team should evaluate qualified proposals in depth. For each proposal, the team should (a) summarize, evaluate and rank information pertaining to each major area of the specifications, and (b) obtain additional information and clarification from responding vendors as required. Finally, the team should narrow the list of vendors to two semifinalists that will be evaluated through vendor demonstrations.

In the City of Reno/ Washoe County (NV) Public Safety and Justice Project, the Project Team developed specific scenarios and provided data for the vendor to demonstrate with its products. The team found that this approach avoided the "canned" sales demo and required the vendor to prove its products could handle the scenarios and the agency's data.

During vendor demonstrations, your agency should prepare an agenda that identifies *what you want to see*, rather than what the vendor wants to show you! You should insist upon vendors demonstrating the products that have been proposed, instead of those that are in development or planned for future release. The duration of the demonstration is subject to your particular scope and need, ranging from a couple of hours for a specific product demonstration (e.g., a laptop device) to a full week for a comprehensive, multi-application review.

Ordinarily, the consultant or Project Manager will distribute survey forms that ask evaluators to rank the vendor using the relevant criteria discussed earlier (Evaluation and Selection Criteria). Following the demonstration, the survey results should be tabulated and presented to the Evaluation Team for review. Based on the results, the team should be capable of identifying a single finalist vendor for further review.

Once a finalist vendor has been identified, the Evaluation Team must undertake some additional steps before determining whether the ranking vendor is "the one," including:

■ **Telephone Reference Checks**: Evaluation Team members should contact their peers at the reference sites listed in the vendor's proposal response, as well as any others who are identified through the process, seeking to learn more about the vendor's performance. The team should meet prior to conducting the calls and develop a list of questions that are pertinent to the project. In addition to technology-specific questions, be sure to ask some of the following:

- Was the project completed on time?
- Was the project completed within budget?
- In general, was your experience with the vendor favorable?
- If you had to do it over, would you still choose vendor X?

Be sure to allow at least 2 weeks for telephone interviews to be conducted (to allow for call backs, missed calls, etc.) before reconvening the team.

Obviously, vendors will provide their top references and successes. You should do a little extra work and find out about other agencies using the products to get a full understanding of user satisfaction. Make sure to spend ample time talking to end users of the product. Sometimes technical staff will love an application, but users may have major problems with the functionality of the product.

■ **Assess Vendor Fit**: Following the telephone reference checks, the team should meet again to determine whether to continue with the review of the finalist, or select the "runner-up" vendor, as an alternative.

■ **Site Visits**: Assuming the vendor passes the reference checks, the next step is to schedule and conduct operational site visits of reference agencies that are the most similar (in terms of project scope and size) to your agency. Usually, two visits will suffice, although we have seen agencies conduct as many as six.

After paying a site visit to another agency, your Executive Sponsor should follow up with a thank you letter to the agency's Chief or Sheriff. This point of etiquette is often overlooked, but can pave the way for future consultations with successful users of the product, should you contract with the same vendor.

Like vendor demonstrations, we strongly suggest preparing an agenda for the site visit that maps out what your Evaluation Team hopes to accomplish. The agenda usually includes:

- An interview with the agency's project manager.
- An opportunity to speak with users of the technology.
- An opportunity to witness the technology "in action" (e.g., visit a communications center, see a laptop operating in the sunlight, etc.).

■ **Discuss Site Findings**: Following the site visits, the Evaluation Team should meet again and discuss the findings based upon the selection criteria identified in the proposal documents.

If, after the various examinations, the vendor remains a viable candidate, your agency should notify the vendor that the company has been identified as a finalist vendor and that contract negotiations may begin shortly. As a courtesy, you should also send notifications to semifinalist vendors as well, requesting that they keep their proposals valid in the event that your agency is unable to reach a successful agreement with the finalist.

Now that you've identified the finalist, it's on to contract negotiations!

CHAPTER 15
CREATE THE CONTRACT

Chapter 15:
Create the Contract

What A *binding agreement* between the agency and the chosen vendor that defines the obligations between the parties, including deliverables, services and responsibilities. **Note**: The terms "contract" and "agreement" are used interchangeably throughout this chapter and mean the same thing.

Why Failure to negotiate a favorable agreement will leave the project exposed to tremendous risk and probable destruction.

Who A single authorized negotiator must be identified on both the side of the agency (usually the Project Manager), as well as the vendor. Additional resource persons, such as the parent organization's legal counsel (City or County Attorney), should also participate.

When As soon as your agency identifies a finalist vendor.

Disclaimer: You must follow the policies and procedures governing contracts within your jurisdiction. This chapter is meant to provide guidance and offer best practices in doing so, but is not intended nor should be construed as providing legal advice specific to your situation and jurisdiction. Please see general disclaimer on page 3.

For most police agencies, the contract negotiation process is the most difficult and foreign project task. It's particularly foreboding because the agency is at an immediate disadvantage: your Project Manager is likely not an attorney and may never have negotiated a contract, whereas the vendor will assign one or more attorneys who negotiate contracts for a living.

Further increasing the difficulty is the immense pressure that agency negotiators often feel during the process as they recognize that a leading factor in law enforcement technology failure is a poorly-worded contract.

This chapter seeks to take the mystery out of contract negotiations by explaining the basic process and elements of a well-crafted vendor contract. In addition to providing an overview of what to expect during the process, we'll also explore the actual documents that should be included, adding advice along the way for securing the most advantageous language. Finally, we'll review some tips for helping to keep negotiations running smoothly and, ultimately, successfully. We strongly recommend that your agency get help from the start of this process from an attorney who is an expert in ***IT*** contract negotiations. Not that it can't be done without one, but you must realize that your agency is at a disadvantage when inexperienced agency staff negotiate with a vendor's experienced team of contract negotiators and attorneys.

Understanding the Process

Agencies should ***never*** use the vendor's base agreement, as it places the vendor in a commanding position over the contract structure and, ultimately, the entire project.

The entire contract negotiation process will likely require several months of dedicated effort from both the agency and the vendor. An average duration is approximately 4 months, yet more complex engagements have been known to require more than a year to complete. The lengthy time requirements are driven by the multitude of documents that must be prepared, as detailed in this chapter.

From the standpoint of the contract negotiation process, the following six steps are normally required:

1. The agency prepares a draft primary agreement based upon advice from legal counsel.
2. The primary agreement is supplemented with information from consultants and/or the Project Team about the project's scope.
3. The agency and vendor hold a discussion to identify the appropriate exhibits that must be developed and combined with the agreement.
4. The agency prepares an initial draft of the contract with the related exhibits and provides it to the vendor.
5. Meetings are held between the parties to identify the debatable issues — including pricing — and suggest language changes.
6. A final agreement is reached and the contract is provided to elected officials for ratification (or, in rare instances, a single project sponsor may have signatory authority to approve a document without elected official approval).

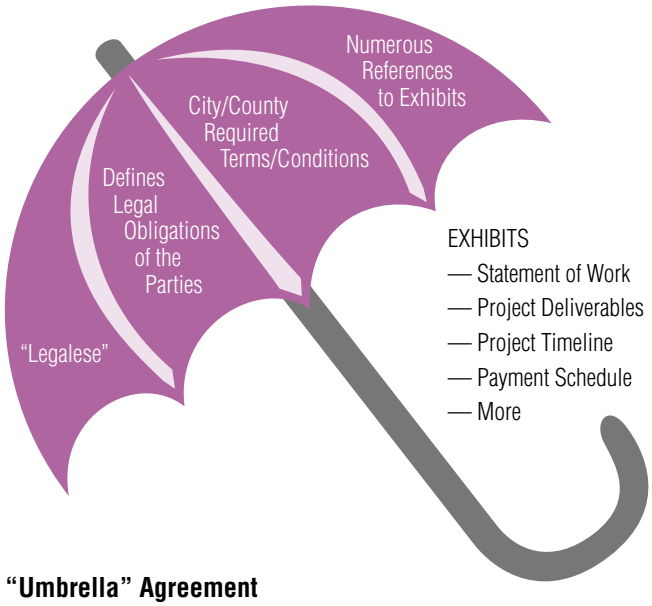
Pricing is always negotiable. Rely upon your budget, prepared in Chapter 11, to determine what the products and services should cost. If the vendor pricing appears too high, request a percentage discount to bring the prices within the project's budget. Remember, it ***never*** hurts your position to ask for reduced pricing or other incentives (e.g., additional services or software licenses).

Usually, step 5 is repeated many times over, with the parties debating various contractual issues and refining the related agreement documents.

Crafting the Contract Documents

The creation of a solid contract is often a collaborative effort involving Project Team members and external experts, including consultants and City/County attorneys. Your agency's legal counsel will ordinarily supply the contract's framework, along with various terms and conditions that are jurisdictionally required, ultimately creating a primary, or "umbrella" agreement. Contract consultants are often useful for supplementing the City/County attorney's work, offering unique insight into the field of public safety software. Finally, the Project Team is responsible for "filling-in" the project-specific information that is gleaned from the vendor's proposal response, usually in the form of exhibits to the primary agreement.

From a global perspective, the contract itself has a clear hierarchy, with the primary agreement taking precedence over the exhibits, which fall beneath it:



■ **Primary "Umbrella" Agreement**

Components of a Contract

The most common contract "sticking points" usually relate to indemnification and penalties for failure to perform (such as liquidated damages, defined in Chapter 12).

Before we get into the details of what topics should be included in the primary agreement and related exhibits, a word of caution: Although this chapter reveals major categories that should be included in any public safety software contract, it cannot substitute for the experience of your legal counselors and expert consultants.

Primary Agreement

The place to start is with the City or County Attorney. He or she will probably provide a copy of the City or County's "standard boilerplate" agreement and begin to make adjustments, based upon the scope of the project. If the attorney has never negotiated a public safety contract, or is unfamiliar with software or hardware contracts, consider the use of an external contract consultant who specializes in law enforcement software/hardware contracts. Ordinarily, the primary agreement includes language that addresses the following:

THE PRIMARY AGREEMENT

■ STATEMENTS OF FACT

Definition of the Parties
Purpose of the Agreement
System Price
References to Exhibits
Form of the Agreement
Time for Performance under the Agreement

■ GENERAL CONTRACTS LANGUAGE

(modified for software contracts)
Contractor Rights
City/County Rights
Grounds/Procedures for Termination
– Default
– Bankruptcy
– Convenience
Laws to be Observed
Governing Law
Permits/Licenses
Taxes, Insurance, Expenses
Limitation of Liability
Indemnification and Hold Harmless
Force Majeure
Third-party Beneficiaries
Nondiscrimination Standards
Conflict of Interest
Notices
Modifications
Waiver
Headings
Number/Gender
Severability
Counterparts
Order of Precedence
Patents/Royalties
News Releases
Immigration Laws
Time is of the Essence
Confidentiality
Bonding
– Performance, Payment

■ SPECIFIC PROJECT REGULATIONS

Order/Delivery of Hardware
Equipment Condition
Site Preparation
What Constitutes Acceptance of Hardware and Software (see Chapter 17)
Rights to Source Code
The Role of Third-party Software Applications
The Role of External Equipment/Software
Documentation Standards
Training Requirements
Right to Conduct Background Checks on Vendor Employees

■ RECURRING VENDOR RESPONSIBILITIES

Contractor Commitments, Warranties, Representations
Basic Maintenance
Upgrade Process
Enhancement Procedures

■ PROJECT MANAGEMENT LANGUAGE

Problem Resolution (Arbitration, Other Methods)
Delivery and Installation Procedures
Certifications
Payment Terms
Management of Delays
Liquidated Damages for Contractor-caused Delays
Storage of Materials
Change Orders
Status Reporting
Contractor Obligations
The Right to Replace Vendor Project Manager/ Employees

These general terms and conditions will comprise the umbrella agreement, while project-specific material will need to be developed, based upon the vendor's proposal and as a consequence of meeting with the vendor and agreeing as to what the vendor will be providing throughout the project.

Exhibits

Normally, attorneys will not offer advice on the exhibit-related content, simply because they don't understand it! Further, they generally assume that their client (the police agency) is sufficiently knowledgeable in the product and services to create the related exhibits to their own satisfaction.

Executive Sponsors: City/County Attorneys will often equate technology contracts with public works or other infrastructure contracts. While there are similarities (i.e., high-dollar deliverables, multiple and complex services, bonding requirements, etc.), the two are vastly different. Using a public works contract "template" for a technology endeavor can leave gaping holes (i.e., the absence of language regarding performance, licensing, etc.) and is strongly discouraged.

Therefore, it's up to the Project Team to prepare a list of exhibits and draft their general content. The exhibits will be unique for each contract. Nevertheless, there are some exhibits that we strongly suggest be included, as follows:

■ **Statement of Work (SOW) Exhibit**: The blueprint for your implementation, this element of the contract defines each task involved in the entire project, which usually includes the following for each purchased application (or technology):

- Project Kickoff
- Requirements Validation and Hardware Review
- Project Schedule Delivery
- Hardware Installation
- Base Software Installation
- Software Customization (if any)
- Interface Development and Testing
- Geofile Building (usually only for CAD)
- Ancillary System Installation and Connection (e.g., NetClock, etc.)
- File Building
- Documentation Delivery
- Training
- Interface Testing
- Production Cutover
- Functional Testing
- Reliability Testing
- Performance Testing
- Product Certification
- Refresher Training

Think SOW!
The SOW defines the "who, what, where and when" for virtually every aspect of the project.

Then, for each of the tasks listed above, the SOW should:

- Provide a description of the task.
- Identify personnel involved in the task.

Remember: If it's not in the SOW, it's not going to happen!

- Identify the dates/times when the task is scheduled to occur.
- Identify the vendor and agency responsibilities related to the task.
- Describe what is considered to be completion of the task.

■ **Training Plan Exhibit**: A critical, and often overlooked, section of the SOW is the development of a comprehensive training plan. Agencies must carefully evaluate the vendor's training options and craft a training plan that ensures adequate training for both users and technical support staff. To better prepare you for developing the training plan aspect of the SOW, consider the following:

— ***Training Types***

Direct Training. Direct training is often used when the pool of students is relatively small and requires intensive training (e.g., CAD dispatcher training). Due to the one-to-one training relationship, this type of training is usually the most expensive.

Train the Trainer. The most common training approach, this method provides direct training to a small group of employees focused on both learning the application, as well as how to train the balance of the organization's employees. It is generally the least expensive training option because it uses the fewest vendor resources and relies heavily upon the agency to train its own.

Refresher Training. About 6 weeks after going live with an application, many agencies benefit from "refresher training," wherein the vendor's training staff returns to the agency to revisit various training concepts and address questions from users.

Mobile Patrol Training. For large agencies, herding the entire patrol staff into classroom training sessions can be difficult, especially with reduced workforces and insufficient overtime budgets. To compensate for both, some agencies take the training to the officers in the form of mobile training centers. Using a van or even a vehicle (preferably without the cage), trainers can provide training to various employees during their shift, in their area/beat.

Many agencies have found that video or audiotaping training sessions is an invaluable tool. The tapes can be used as "refresher" training for existing employees or to partially train new employees.

— ***Training Location***

Few police agencies are blessed with their own technology training centers, requiring the agency to carefully consider where training will occur. Most vendors will require that the agency supply a training facility with variable equipment requirements, depending on the technology being implemented. Generally, vendors recommend that agencies provide a room that is equipped with about a dozen networked PCs, with a large overhead projector and screen toward the front of the room.

If your agency does not have additional space that can be dedicated for several weeks to a training effort, consider relocating training to your parent organization's facilities or outsourcing to a local private technology training center.

Don't be tempted to reduce training to satisfy budget constraints: Lack of adequate training is the third most common reason for project failure!

* * *

In the rare event the vendor doesn't supply a list of project deliverables in a spreadsheet format, insist on it!

— ***Training Costs***

External: As you review the project budget, you will find that training is one of the most costly elements. Training usually requires the vendor to provide on-site visitations over an extended period of time. The visits can be costly to the vendor in terms of travel and resources: While the trainer is working with your agency, he/she cannot be actively involved in vendor sales, demonstrations or development. Consequently, training costs tend to be very high, with the vendor seeking to provide as little training as you are willing to accept.

Internal: The financial impact of training employees on new technology is obviously influenced by the type of technology being implemented and the size of your agency. The least expensive internal costs are usually associated with CAD implementations because the training is usually focused exclusively on the dispatch employees. Conversely, the highest costs tend to be associated with RMS products, as they usually require the training of a broad mix of employees, including patrol, records, detectives, etc. Whenever line-level employees require training, remember to forecast overtime expenses into your agency's annual budget.

■ **Project Deliverables Exhibit**: This section of the contract identifies *everything* that is being supplied by the vendor that has a direct cost, including: **hardware** (description of equipment), **software** (full description of modules, interfaces, licenses, etc.) and **services** (e.g., 100 hours of training at a rate of $500/hour, etc.).

Items that are excluded from this exhibit will reappear as change orders, so be extraordinarily diligent when reviewing the information. Because so much of the project deliverables exhibit is of a technical nature, the project's Technical Committee must review the document before contract signing.

Note: Make sure to stipulate that the vendor provide the *most recent versions* of software and hardware at the time of delivery. This is critical, as there may be new releases between the time the RFP is released, a vendor is selected, the contract is negotiated and installation begins (sometimes upwards of 18 months).

■ **Payment Schedule Exhibit**: A key component of the contract, this document serves to identify when the vendor will be paid for tasks that are identified in the SOW. We suggest a milestone-based payment schedule, in which the vendor is paid a percentage of the contract for the successful completion of a particular project element. Here is an example:

Remember: Delivery does *not* equal acceptance. See Chapter 17, page 213, to learn more.

EXHIBIT X — SAMPLE PAYMENT SCHEDULE			
SOW Task Number	**Description**	**% of Total**	**Amount**
1	Contract Signing	2%	$ 30,000
2	Hardware Delivery	8%	120,000
3	CAD *Acceptance*	15%	225,000
4	RMS *Acceptance*	25%	375,000
5	Training Completion	15%	225,000
6	Documentation Delivery	10%	150,000
7	Total System *Acceptance*	25%	375,000
	TOTAL	100%	$1,500,000

■ **Project Timeline Exhibit**: The project timeline is a critical document because it defines the amount of time that will be required for the tasks identified in the SOW (plus a few extras like project status meetings, etc.). That definition is crucial to the main agreement language that controls various time-sensitive issues (such as liquidated damages, time-triggered payment incentives, or time-triggered holdbacks). The project timeline exhibit is different from the overall project timeline that was developed during the creation of the Project Plan. The project timeline exhibit is ordinarily prepared and maintained by the vendor.

When negotiating the agreement, be sure to insist that the project timeline be finalized *before* contract signing, to maximize the advantage and usefulness of related agreement language. Also, consider mandating that any change in schedule be approved in writing by both Project Managers (agency and vendor). Finally, be sure that the schedule is prepared and maintained in a project management software format for ease of management and update.

■ **Geofile Construction Document Exhibit**: Agencies that are purchasing CAD applications must often convert their parent organization's base geographic information systems (GIS) into the CAD vendor's preferred format. The GIS data are used for creating a geofile in the CAD that verifies the addresses that are entered into CAD. Ordinarily, undertaking such a procedure is exceptionally complex and warrants an individual contract exhibit dedicated exclusively toward defining how the GIS material will be converted, tested and ultimately installed into the CAD. Elements of this exhibit often include:

- Defining all of the known information regarding the existing GIS resources (e.g., format, date of creation, accuracy in terms of x/y coordinates, human resources, etc.), and
- Defining the vendor's roles and responsibilities in the conversion, testing and installation phases.

■ **License Agreement Exhibit**: Unless the attorneys have spelled out licensing agreement language in the primary agreement, it will have to be developed as an exhibit. This exhibit defines what rights the agency has with regard to the use of the vendor's software, which is normally licensed in one of three ways: *individual workstation, concurrent user* or *site license*. The type of licensing will ordinarily determine the content of this exhibit. If you are unfamiliar with license agreements, delegate their preparation to an expert (attorney or consultant).

Be sure to negotiate an escalation procedure into the Agreement for Extended Services, in which various priority issues are upgraded to the next highest level after a specified period of time. Also, try to have the severity level changed based on "aggregate" complaints (i.e., if you have 50 little problems, that in and of itself becomes a problem at the next highest level).

■ **Agreement for Extended Services Exhibit**: Agencies that require the vendor to provide continuous product support will need to prepare this exhibit. The document will identify the type of service (telephone, on-site, etc.), the availability (e.g., 8-5 each day or 24/7, etc.) and the allowable timeframe for response and correction of various types of problems (e.g., on-site within 24 hours if the system completely shuts down, or a phone call within 10 minutes of a report of trouble). Finally, the document will detail the pricing that has been negotiated for recurring support (ideally, with a 5-year cap). If you are unfamiliar with support agreements, delegate their preparation to an expert (attorney or consultant).

■ **The Vendor's RFP Response Exhibit**: That's right! The vendor's claims and assertions that were made in their response to your bid document are included as an exhibit. Countless engagements have been saved by this simple procedure, which is linked to the order of precedence language in the primary agreement (just identify the RFP response as being the arbiter of functionality disputes). Because the response is often hundreds of pages in length, a simple reference will suffice (in lieu of copying/inserting the whole thing into the agreement). Make sure to include reference to all addendums and negotiated changes to the RFP. The contract should also mention which specifications prevail, should the contract and RFP response be in conflict.

- **Software Warranty Exhibit**: Vendors generally offer a 1-year warranty on parts and labor. However, the duration is negotiable and can be 2 years or longer. After negotiating the duration, this exhibit includes the details about what constitutes a warranty-related repair issue and the procedures for activating the document. Again, unless you are very comfortable with the language of the software warranty, ensure that experts have reviewed and approved of the language before signing the contract.

- **Subcontracts Exhibit**: Occasionally, vendors will partner with subcontractors to fulfill a portion of the SOW. Be sure to have a copy of the agreement that exists between the prime vendor and any subcontractors. That information is instrumental in preventing finger pointing and getting results! The contract should specify that the primary vendor is responsible for the action and/or inaction by the subcontractor, not the agency.

- **Acceptance Test Criteria Exhibit**: Acceptance test plans and criteria are a must for any software project. See Chapter 17 for information on creating portions of this document.

- **Interface Control Document (ICD) Exhibit**: If the project includes interfaces, it must also include an ICD, which articulates how the interface(s) can and will operate. As a general rule, the agency **cannot supply too much information about any given interface**. Interfaces that are concretely defined are less subject to delays and excuses! As a sample ICD format, consider the following:

Interface Name	Vendor X CAD data to Vendor Y RMS
Interface Summary	Transfer of Vendor X CAD data to Vendor Y RMS product.
Vendor X CAD Version	V 2002.1
Vendor Y RMS Version	V 3.45
Vendor Y System Interface	Custom software development for Anywhere PD to use message switch device to transfer data from CAD.
Data Elements to be Exchanged	List of specific fields that need to be transferred from CAD to RMS (i.e., call number, location, etc.).
External System Interface	TCP/IP
Protocols	TCP/IP
Vendor Y Hardware Interface	CAD server Ethernet adapter.
Vendor Y Tasks	Install and test internal communications software and connect to City-provided network hub or switch equipment.
City Tasks	Provide City message switch communications and associated equipment beyond hub.
API Locations	See Appendix B for CAD API.
Comments	None

■ **Documentation Exhibit**: This exhibit clearly defines the type of documentation to be provided under the contract, specifying the medium (CD, paper, other) and whether the documentation is site-specific. (Some agencies must have the vendor's documentation amended by technical writers to reflect customization — this is often called "as-built documentation.")

■ **Other Exhibits**: Remember, each contract is unique and requires site-specific documents that would be developed over the course of the contract negotiation. There is never a limit to the number of exhibits that can be attached to a contract.

Tips for Negotiating a Solid Contract

Single Points of Contact: Negotiating a contract of complexity requires clear and unambiguous communication between the parties. To accomplish this, it is necessary to assign a single representative from the Project Team (usually the Project Manager) to communicate with a single representative from the vendor's organization. This clearly defined channel of communication will go a long way toward ensuring that neither the agency nor the vendor are making promises that are not referenced in the contract.

Consider Videotaping Negotiation Meetings: Recently, some agencies have recorded or videotaped their negotiation meetings with the vendor. The recording can be used as an exhibit to the primary agreement for use in clarifying contract language (or showing intent). While this approach has benefits in solving disputes, be sure to remember that the agency's assertions are also captured in the recording and are equally useful to the vendor.

Handling Disputes: During the course of contract negotiations, disputes will occur! Handling them in a professional manner will convey a sense of authority and place the agency in a more commanding position. First, let's review a few "*Nevers*":

1. Never scream.
2. Never become violent.
3. Never embarrass yourself or the agency with unprofessional behavior.

You may be surprised that we would go to the length of listing these three "nevers" in a publication written for peace officers. However, the authors have witnessed all three, more than once *(including a memorable moment when a project manager leapt across a table and attempted to stab a vendor with a pen)*. In each instance, the behavior became the issue and, ultimately, weakened the agency's position.

How will you know when an issue has reached impasse? When one or more of the following occur:

- A party says they simply cannot negotiate the issue.
- A party repeats their position more than once.
- An issue is debated for more than 10 minutes, with no apparent resolution in sight.

These three are just a few of the triggers for shelving the issue or taking a break. Remember that the party who takes command of the situation is in a stronger position, so don't hesitate to make a judgment that an issue should be temporarily suspended.

Ultimately, issues that are impassable usually will be resolved through concession from both parties. In such difficult issues, consider using language that enables "mutual agreement," such as "system acceptance will be determined by mutual agreement" as a potential solution. Parties are often willing to agree to this because it enables both sides to reserve the right to further debate the issue, should it ever arise.

Controlling Changes: During the process, hundreds of changes will be made to contract documents. It is imperative that changes be evident to both parties (it is never advisable to "sneak" one past your vendor). We suggest using a word processing application that enables revision tracking and comment insertion.

Renegotiating the Contract: Surprisingly, few agencies are aware that contracts are often subject to amendment and renegotiation. While making changes to a contract after it has been ratified is not optimal, it is nevertheless possible so long as both parties are mutually agreeable to the change.

What's Next?

Plan for System Implementation ..... Chapter 16
Conduct Quality Assurance Testing ..... Chapter 17

PART IV ASSIGNMENTS

EXECUTIVE SPONSOR

Role

1. Ultimate decisionmaker
2. Provide oversight and guidance
3. Provide leadership and support
4. Make personnel available for vendor evaluations and site visits

Acquire the Technology Tasks

1. Attend the preproposal conference and articulate the agency's goals with regard to the project to the competing vendors (Chapter 14)

EVALUATION TEAM (A SUBSET OF THE PROJECT TEAM)

Role

1. Provide knowledge and recommendations
2. Update/inform Steering Committee
3. Participate in all phases of procurement and contract negotiations
4. Review, evaluate and select vendor

Acquire the Technology Tasks

1. Form the Evaluation Team to participate in procurement and contract negotiations; augment with parent organization's finance representative and, possibly, the City/County attorney (Chapter 14, page 175)
2. Select a procurement method (Chapter 14, page 175)
3. Review and approve procurement documents and functional specifications (Chapter 14)
4. Evaluate responses from vendors (Chapter 14, page 182)
5. Conduct interviews, reference checks and site visits (Chapter 14, page 182)
6. Select finalist vendor (Chapter 14, page 182)
7. Assign a single point of contact for the vendor/contract negotiations, usually the Project Manager (Chapter 15, page 187)
8. Participate in contract development (Chapter 15)
9. Prepare a list of and draft contract exhibits (Chapter 15, page 191)
10. Develop a payment schedule and project timeline to be included in the contract (Chapter 15, page 194)

PART IV ASSIGNMENTS, CONTINUED

PROJECT MANAGER

Role

1. Coordinate all tasks and activities
2. Conduct all phases of procurement research
3. Prepare the procurement tool
4. Coordinate vendor demonstrations, site visits and interviews
5. Act as single point of contact with vendor authorized for contract negotiations

Acquire the Technology Tasks

1. Research jurisdiction's procurement requirements (Chapter 14, page 174)
2. Coordinate Evaluation Team duties, such as procurement document development, evaluations, vendor demonstrations, site visits and reference checks (Chapter 14, page 175)
3. Lead User and Technical Committee focus groups to develop functional specifications (Chapter 14, page 179)
4. Prepare the procurement document (Chapter 14)
5. Prepare draft contract based on legal advice and jurisdictional requirements (Chapter 15)
6. Prepare a list of and draft contract exhibits (Chapter 15, page 191)
7. Develop a payment schedule and project timeline to be included in the contract (Chapter 15, page 194)
8. Formally track changes to contract documents (Chapter 15, page 199)

PART IV ASSIGNMENTS, CONTINUED

USER COMMITTEE

Role

1. Provide input to the Project Manager and Evaluation Team on procurement documents and vendor responses/ demonstrations

Acquire the Technology Tasks

1. Participate in focus groups and develop written descriptions of functionality for new technology (Chapter 14)
2. Develop vendor response criteria for functional specifications (Chapter 14, page 180)
3. Create evaluation and selection criteria (Chapter 14, page 181)
4. Participate in vendor demonstrations (Chapter 14, page 183)

TECHNICAL COMMITTEE

Role

1. Provide input to the Project Manager and Evaluation Team on procurement documents and vendor responses/ demonstrations

Acquire the Technology Tasks

1. Participate in focus groups and develop written descriptions of functionality for new technology (Chapter 14)
2. Develop vendor response criteria for functional specifications (Chapter 14, page 180)
3. Create evaluation and selection criteria (Chapter 14, page 181)
4. Participate in vendor demonstrations (Chapter 14, page 183)

Part V: Implement the Technology

"Those parts of the system you can hit with a hammer (not advised) are called hardware; those program instructions that you can only curse at are called software."

— Anonymous

CHAPTER 16
PREPARE AN IMPLEMENTATION PLAN

Chapter 16:
Prepare an Implementation Plan

What An Implementation Plan is the *blueprint* that enables project management to define the rules that will guide the project toward completion.

Why Failure to conduct implementation planning could lead to missed deadlines, vague responsibilities and, almost certainly, costly change orders.

Who The Project Managers (for both the agency and the vendor) work together with the respective Project Teams to form an Implementation Team; the Steering Committee and Executive Sponsor review and approve the Plan.

When Implementation planning starts once the Statement of Work has been finalized. If the project kick off is next week, you've waited too long!

This chapter may seem familiar *if you prepared a Project Plan* (as outlined in Part III). An Implementation Plan is merely a variation of the Project Plan that includes new material related to the vendor's obligations. This chapter defines the documents that need to be collected or prepared in order to develop the implementation blueprint, also known as the Implementation Plan.

Creating the Implementation Plan

Did we mention that successful technology initiatives require careful planning? Like the Project Plan that guided the Project Team to this point, the Implementation Plan is the blueprint for *completing* the project. It is different from the Project Plan because your Project Team now has an important new member — the vendor!

Remember: The vendor agreement is also known as the contract, and consists of a primary agreement and a variety of exhibits. See Chapter 15.

Although the primary agreement (as discussed in Chapter 15) includes a Statement of Work and an "initial project plan," nothing specifically addresses the "who, what, where, when and why" like a solid Implementation Plan that can be used by both the agency and the vendor.

The good news about creating an Implementation Plan is that most of your work should already be done. Creating the plan merely requires that the Implementation Team modify the "Project Plan" that was created in Part III to accommodate the role of the vendor. Therefore, before you begin to craft the plan, you'll need to retrieve two documents: your Project Plan and your vendor agreement.

What to Put in the Plan

The following is a description of the primary elements of a useful Implementation Plan. Remember, each plan is unique, so adding or subtracting elements is normal.

CHAPTER 1: PROJECT SUMMARY	
Overview	This is merely a one-paragraph summary of the project's general scope, timeline and budget.
Deliverables	Look to your contract for the Project Deliverables Exhibit *(you do have one, don't you?)*. Simply cut-and-paste it into this section, which defines what will be delivered and when.
Audit Trail	Use this section to record what has happened and when. Because this will become a living document, it's very important to record when something is scheduled to be complete and, ultimately, when it was completed. Usually, a simple three-column chart will suffice (Who, What, When).
Definitions	All projects have unique terms and acronyms that need to be clearly defined for all members to prevent confusion. You probably already have a glossary in your RFP, so just cut-and-paste it into this section.
CHAPTER 2: PROJECT ORGANIZATION	
Approval Process	In keeping with the concept of planning ahead, this section mimics the Project Plan's approval process, in which the actual approval processes for deliverables are defined. The only difference here is that you must be sure that the approval process for vendor deliverables is consistent with the agreement language. If you're not sure, have your attorney or consultant review the language first.
Organizational Structure	Again, taking the project organizational chart from the Project Plan, modify it to include the vendor's staff.
Relationships	This brief statement addresses the potential use of subcontractors (e.g., your vendor is supplying mobile hardware from a third-party vendor). This section articulates the relationship between the vendors. NOTE: As recommended in Chapter 15, your contract should specify that the primary vendor — not your agency — is responsible for the action and/or inaction by the subcontractor! Be sure this language makes it into the Implementation Plan as well.
Responsibilities	Refer to your vendor agreement for the specific responsibilities of the contractor and the agency. Inserting those responsibilities into the Implementation Plan ensures that project participants without access to the agreement documents clearly understand each party's obligation.

CHAPTER 3: MANAGEMENT PROCESS	
Project Objectives	Include the objectives from the Project Plan.
Assumptions/ Constraints	Include those listed in the Project Plan and supplement the list with any implementation-specific issues (e.g., elected officials impose a new time restriction on the project, change orders up to $5,000 can be approved without Steering Committee approval, etc.).
Risk Management Plan	The original Risk Management Plan from the Project Plan should be valid and recent, so cut-and-paste it into this document.
Staffing Plan	Describe the numbers and types of personnel needed to conduct the project. Describe the required skill levels, start times, duration on the project, method of obtaining the personnel, training required and phasing out of project personnel.
CHAPTER 4: WORK, SCHEDULE AND BUDGET TOOLS	
Select Contract Exhibits	Take the following sections from the Agreement and insert them into the plan (remember, not everyone has access to the agreement, so this information is helpful to the wider Project Team audience): • Project Costs • Payment Schedule • Initial Project Schedule

Yet Another Plan to Maintain

Once the Implementation Team has drafted the Implementation Plan, it goes to the Steering Committee for review and approval, with the Executive Sponsor having final approval/authority.

Similar to the Project Plan, the Implementation Plan will require updates at least once per month (although in the early stages of the project, weekly updates are more appropriate). Generally the Project Manager is assigned to update the Plan and identify any changes to the Steering Committee during regularly scheduled meetings.

Some agencies post the Implementation Plan to an agency Intranet site for widespread communication of the project's status and detail. We encourage agencies that have such resources to take advantage of them (the more eyes the better!).

CHAPTER 17

DEVELOP AND USE QUALITY ASSURANCE TESTS

Chapter 17: Develop and Use Quality Assurance Tests

What Quality assurances are actually *tests* that ensure the vendor's hardware and software perform according to specification.

Why Failing to conduct any type of quality assurance testing could allow defective hardware or software to be installed at your agency with little or no recourse.

Who Depending on the type of test, users, technical support staff, the Project Manager and vendor staff may be involved. The Steering Committee and Executive Sponsor are involved in evaluating vendor/product performance.

When The type of test dictates when it is to be performed.

This chapter addresses the key elements associated with identifying and executing the three most common benchmarks used for evaluating the quality of a public safety vendor's products (hardware and software), including: Functionality, Reliability and Performance. Additionally, we have included sample text for use in planning for any of the three testing scenarios. Whenever possible, the content of these tests should be agreed upon by the agency and the vendor during contract negotiations (see Chapter 15).

Quality Assurances and Testing

As the name implies, quality assurances (QA) are measurements by which agencies can determine whether or not a vendor's offering meets or exceeds minimum quality standards. In the vast majority of cases, QA is measured by the success or failure of a product as measured against various forms of acceptance testing.

Acceptance testing is the process that an agency uses to verify that the delivered and installed product meets requirements specified in the procurement documents and contract, and is ready for use. From the agency's point of view, this usually means that every user-oriented function should be thoroughly exercised and that any purchased hardware should be free from defect.

A typical test is organized as a *multi-layer script* that guides the tester through a series of data entry/retrieval actions:

- The first layer would seek to verify that the major functions are properly operating in their most common mode.
- The next layer would seek to test specific modules.
- Lastly, the script may call for the tester to do something very specific, hoping to examine functional specifications.

In the public safety software arena, agencies should employ the following types of acceptance testing:

Note: Agencies should attempt to include all forms of acceptance testing as elements of the vendor contract.

- **Functionality**: This testing is designed to ensure that the vendor's software is functioning as described in product literature and, possibly, in their response to the agency's RFP. Functionality testing usually starts after users have been trained and the software is in a "live environment." The duration of the test can range from no less than 30 days on up to 90 days, depending on the vendor's willingness to agree to the agency's terms during contract negotiations.
- **Reliability**: This testing is designed to determine the "uptime" of a vendor's solution. Typically, this testing involves the use of special software (e.g., WinRunner, LoadRunner) that simulates the volume of transactions that the vendor claims to be acceptable. Reliability tests can be performed at any time or place, although usually it is best to perform the test on-site after any software customizations have been made to ensure that the "as-built" software conforms with the vendor's assertions regarding reliability. Reliability testing is often run over a period of 5 to 7 days, with results being extrapolated to simulate a period of 1 year.
- **Performance**: This testing is designed to determine the speed of the combined hardware and software package during various transactions. This involves using scripts that instruct a user to enter various commands, input data, conduct search routines, generate reports and perform other functions while the time it takes to execute the command, task or search is recorded (either by a human with a stopwatch or with approved software). Performance testing is usually conducted late in the project, well after customization and interfaces have been built.

REPORT CARD DAY

Generally, there are three scores a tester can assign: **Pass**, **Fail** or **Reservation**. A "Reservation" score indicates that the system passed the majority of tests within the script, but failed to accomplish 100% of the tested features.

How to Prepare a Test

Aside from outsourcing the preparation of testing materials to a consultant, many agencies start the process by relying upon vendor-supplied test plans. Generally, vendors will provide a "sample test plan" to agencies as a courtesy during the RFP response period, or upon request. This is usually a good starting point, although agencies often have to tighten the pass/fail parameters because the tests are naturally biased in favor of the vendor.

Other options include (a) using the test plans of other agencies that have recently installed and tested the products, or (b) creating your own test plan based on the vendor's response to the RFP and the vendor's product documentation. While the latter suggestion is possible, it is both labor- and time-intensive and not recommended for most agencies.

Sample Test Language

Each test plan is unique and can include virtually thousands of testing requirements, making the provision of multiple samples impractical. However, on the next four pages we have included sample testing procedure language for each of the three tests described above. In an actual contract, the text would be followed by actual functional specification tests and scripts, which would naturally be specific to the vendor's product.

FUNCTIONAL SYSTEMS TEST — SAMPLE LANGUAGE

At least sixty (60) days prior to commencement of the functional systems testing, the vendor shall submit for approval a detailed functional systems test plan based on the general procedures described herein and that shall certify that the desired functionality has been delivered and meets all performance and load benchmarks.

The test plan shall document how each functional specification is to be tested, the method of testing and the anticipated results. This documentation shall describe each scenario to be used for each functional specification. The functional systems test shall be conducted jointly by the agency's Project Manager and designees and the vendor. The functional systems test will:

- Demonstrate every functional attribute of the software, including system software, operating system, utilities, interfaces, system administration procedures, all ancillary application program modules and all management information requirements.
- Verify that all transactions with external systems are performing as specified.
- Test and verify that real-time recovery and switching to the backup system(s) operates as specified by the vendor.
- Conduct full-scale load benchmarks based on scenarios jointly developed with the vendor and approved by agency staff.

The test results shall be included in the test report and the agency's Project Manager or designee shall have the option of conducting an independent test of all or any of the functional requirements, as specified in the Response Document.

Within fourteen (14) days after completion of functional systems testing, the vendor shall provide a written report to document completion of the test, and to indicate test results, problems, solutions and a schedule to implement such solutions. When the operating system, software and interfaces have been delivered, installed and fully tested, including the functional systems test, and the system is ready for reliability testing, the vendor shall provide written certification to the agency's Project Manager that the installation phase of the contract has been fully completed and all requirements have been met.

RELIABILITY TEST — SAMPLE LANGUAGE

The reliability test shall run for a period of thirty (30) consecutive days, twenty-four (24) hours a day for a total of seven hundred twenty (720) consecutive hours after the system is implemented in production mode. This period shall be known as the performance period. During the performance period, the agency shall have the option to run in parallel mode all subsystems that will be replaced by the system until the system is fully accepted. The performance period shall begin on the date the vendor notifies the agency that the system is ready for reliability testing.

If there is a system failure, as defined below, deficits shall be corrected and the reliability test and the performance period shall start over. The following criteria constitute the standard of performance:

The system shall operate in conformance with the vendor's technical specifications and functional descriptions, which shall satisfy the requirements of this proposal at a 100% accuracy level:

- As quoted in the vendor's proposal
- As amended in the contract negotiations
- As amended throughout the design and development stages
- As formally documented

Operation use time and downtime shall be measured in hours and whole minutes. System failure downtime is that period of time during which the scheduled productive workload, or simulated workload, being used for reliability testing cannot be continued on the system due to failure of a software system component. If simulated workload is being used for reliability testing, it shall be consistent with the data processing requirements set forth elsewhere in this contract. Operational use time for performance testing for a system is the accumulated time during which the system is in actual operation and can be used by the agency.

Downtime for each incident shall start from the time the agency contacts the vendor's designated representative at the prearranged contact point until the system(s) is back in proper operating condition. The vendor shall provide continuous telephone coverage to permit the agency to make such contact. Any single failure or any series of failures of the system software that results in any of the following conditions shall be considered a system failure:

- Complete shutdown of the system. This includes failures that cause human intervention to maintain critical operations or to restart the operating system or server applications software to restore the system function.
- If three (3) seconds is the specified response time, then an increase to nine (9) seconds or longer in five (5) transactions is a system failure.
- An increase in any single transaction response time of four (4) times the response time proposed in the RFP, or longer. For example, if three (3) seconds is the specified response time, then an increase to twelve (12) seconds in one (1) transaction is a system failure.

RELIABILITY TEST — SAMPLE LANGUAGE (CONTINUED)

- Loss of any of the basic system functions, such as the inability to transfer event messages between workstations, loss of the use of all communication functions, or the inability of the system to maintain folder status or event status on a current basis.
- Loss of all or a major part of the mobile functions; loss of the ability to communicate with most or all of the mobile devices.
- Repeated failures of the same function or equipment component is unacceptable even if it does not cause the conditions listed above for a system failure.
- More than two incidents of downtime per week for the same problem.
- Any critical entry or information control capability is not available at all active workstation positions.
- The loss of the ability of the system to communicate (in either direction) with agency systems, interfaces, data sources.

During the reliability test period the system shall be fully available, in excess of seven hundred sixteen (716) hours, i.e., a total of four (4) hours or more of downtime (unavailable time) shall be considered system failure.

The agency shall maintain appropriate daily records to satisfy the above requirements and shall notify the vendor in writing of the date of the first day after the successful performance period. The date of acceptance shall be the first day after the successful performance period. If the system fails to meet the standard of performance after ninety (90) calendar days from the installation date or start of the performance period, whichever is later, the agency may at its option request a rescission of the contract and request the immediate removal of the system. The impact on prior payments of such a rescission shall be determined in contract negotiations.

PERFORMANCE TEST — SAMPLE LANGUAGE

All files and tables shall be capable of being updated online without adversely affecting performance or degrading response time, as described below. The system shall provide the option of batch updates for all files and tables in addition to the online updates described above. All necessary backups shall be able to be done online without adversely affecting system operations, and without lockouts for updates. The system shall provide the option of cold backups in addition to the online backups described above.

Appropriately formulated queries to interfaced databases shall be made without adversely affecting system performance, i.e., asynchronous messaging capabilities. Such inquiries shall not tie up or lock up the workstation.

The vendor shall provide the exact transaction response times for the proposed system, based on the network and hardware requirements proposed in the RFP. These shall be used as the basis for the response time testing and acceptance. Response time for data retrieval shall be measured from the point of issuing the request (pressing the enter key) to displaying the record to the client.

The following method shall be used to measure response time: A representative mix of system transactions based upon the peak daily loading from field operations, normal processing, records operations and mobile computing activities shall be entered into the system for a period of twenty (20) minutes via an automated product such as Mercury Interactive Corporation's product "Load Runner" or its equivalent. The vendor shall provide software to measure and print out transaction response times. The response time shall be measured under peak workloads and meet or exceed the following:

TRANSACTION	CRITERIA
Mean response time	7 seconds
Simple queries	3 seconds
Complex queries	10 seconds
Document retrieval request	7 seconds
Concurrent transactions per second	50
Transactions per minute	3,000

Capacity and Growth: The initial system software configuration shall be expandable to handle an anticipated increase of workload comparable to the expected growth rate for the agency of 10% for each of the five (5) years following implementation. This expansion shall allow the system to maintain the specified system performance requirements, including response time.

System Availability: The system shall provide overall system availability (uptime) of 99.5%, excluding planned downtime.

Use Test Results to Evaluate Vendor and Product Performance

Following the actual testing process, agencies must evaluate the performance of the vendor and its product(s), seeking to determine whether or not the vendor successfully passed the various tests. Usually, agencies withhold acceptance of the technology until after the vendor's products have passed the testing phase (remember, acceptance is linked to payment; thus, vendors have a shared interest with the agency in successfully executing the testing process).

The Project Manager should work with the Steering Committee to interpret QA test results. The Steering Committee is responsible for reaching a formal evaluation decision regarding the vendor/product performance and making recommendations to the Executive Sponsor regarding system acceptance/nonacceptance. Final acceptance authority rests with the Executive Sponsor.

What's Next?

Undertake Project Closeout and Recurring Tasks ..... Chapter 18
Manage, and Comply With, Your Grant Award ..... Chapter 19

PART V ASSIGNMENTS

EXECUTIVE SPONSOR

Role

1. Ultimate decisionmaker
2. Provide oversight and guidance

Implement the Technology Tasks

1. Approve Implementation Plan (Chapter 16, page 209)
2. Based on outcomes of Quality Assurance (QA) testing and Steering Committee's recommendation, determine whether to accept/withhold acceptance of technology (Chapter 17, page 220)

STEERING COMMITTEE

Role

1. Evaluate post-implementation vendor and product performance
2. Provide knowledge and recommendations

Implement the Technology Tasks

1. Review and approve Implementation Plan and continual updates (Chapter 16, page 207)
2. Using QA test results and staff input, formally evaluate the performance of the vendor and its products (Chapter 17, page 220)
3. Report acceptance/nonacceptance recommendation to Executive Sponsor (Chapter 17, page 220)

PART V ASSIGNMENTS, CONTINUED

PROJECT MANAGER

Role

1. Coordinate and oversee all tasks and activities
2. Work closely with vendor
3. Seek input of City/County attorney and project consultant (if any) as needed
4. Advise Executive Sponsor, Steering Committee and other players on implementation issues

Implement the Technology Tasks

1. Organize an Implementation Team, comprised of staff from the vendor and agency Project Teams; start implementation planning (Chapter 16, page 207)
2. Gather documents needed to prepare the Implementation Plan (Chapter 16, page 207)
3. Organize and oversee regular meetings of the Implementation Team as it drafts and updates the Implementation Plan (Chapter 16, page 209)
4. Oversee Implementation Plan approval by decisionmakers (Chapter 16, page 209)
5. Post the Implementation Plan to your agency Intranet (Chapter 16, page 209)
6. Determine appropriate QA testing procedures, oversee testing, help interpret QA testing outcomes and report to decisionmakers (Chapter 17)

PART V ASSIGNMENTS, CONTINUED

IMPLEMENTATION TEAM (A SUBSET OF THE PROJECT TEAM)

Role

1. Create the Implementation Plan

Implement the Technology Tasks

1. Create the Implementation Plan document, modifying the Project Plan to accommodate the vendor's role (Chapter 16, page 208)
2. Participate in regular meetings to draft and continually revise the document (Chapter 16, page 209)

TECHNICAL STAFF

Role

1. Participate in QA testing

Implement the Technology Tasks

1. Assist with QA functionality, reliability and performance testing, focusing particularly on the performance of hardware and software (Chapter 17)
2. Provide advice and expertise to staff and decisionmakers (Chapter 17)

OPERATIONAL EXPERTS (USERS)

Role

1. Participate in QA testing

Implement the Technology Tasks

1. Assist with QA functionality and performance testing, focusing particularly on exercising user-oriented functions (Chapter 17)
2. Provide advice and expertise to staff and decisionmakers (Chapter 17)

Part VI: Maintain the Technology

“Technology makes it possible for people to gain control over everything, except over technology.”

— John Tudor

CHAPTER 18

ENSURE THE SUCCESS OF YOUR TECHNOLOGY INITIATIVE: ONGOING TASKS

Chapter 18: Ensure the Success of Your Technology Initiative: Ongoing Tasks

What A *process* to ensure that your agency's new technology is maintained, its upgrades and enhancements are planned, and that your staff continues to get the most out of the new system.

Why Technology projects fail when a system is implemented, then neglected.

Who The Project Manager is responsible for keeping the technology initiative and related issues in front of the decisionmaking structure.

When At the conclusion of the project's implementation phase (shortly after Project Closeout).

Remember in "Seven Facts You Should Know," (Fact #3, page 13 to be exact) we told you that IT planning was a cyclical process. We said, "The successful implementation of a system does not signal the end of the planning process. Systems implementation really signals the *beginning* of a new phase of evaluating the recently adopted system and planning for systems maintenance, upgrade, enhancement and replacement." To maintain this process, follow the retrospective and recurring tasks presented in this chapter to ensure the post-implementation success of your technology initiative.

The roles of project participants do not evaporate once the technology "goes live." The Project Team must continue to meet on a regular basis (albeit far less frequently), to conduct retrospective project reviews, prepare for technology enhancements and manage support/warranty issues. In terms of frequency, most project management committees continue to meet on a quarterly basis during the first year following the system's "live date," and semiannually in the years that follow.

Project Closeout Tasks

Marking the conclusion of your technology project's implementation phase is a task called Project Closeout, which is the appropriate time to undertake the following "retrospective tasks":

- **Reassignment**: Reassign or release Project Team members to other projects (or previous assignments) as their full-time tasks are completed.
- **Project Post-evaluation**: A thorough review, spearheaded by the Project Manager, which seeks to confirm that all project tasks have been accomplished. This task requires an examination of the Project Plan and its details, including time, costs and vendor deliverables.
- **Vendor Transition Meeting**: A meeting between your agency's Project Team and the vendor representatives to review any issues that may arise from the project post-evaluation review and also to discuss warranty/maintenance responsibilities.
- **Post-project Meeting**: Like the Kick-off Meeting, this gathering invites all project participants to a large-scale discussion that focuses on project review, accomplishments, challenges and next steps. Usually, the Executive Sponsor recognizes and rewards team members for their achievements.
- **Final Report Preparation**: Prepare a final report that includes the project's final schedule, costs and quality results, as well as comparisons to the baseline, explanations and implications for the future. The report should include:
  - A comparison of actual costs to projected costs.
  - A summary of "lessons learned" for future technology projects.
  - The signatures of Project Team members, which indicate internal acceptance of the technology.

Although Project Closeout signals the end of the implementation, the project doesn't stop there!

The 70/30 Rule

"One should consider the Total Cost of Ownership (TCO) when purchasing computer systems. Only 30 percent of the total cost of owning a computer system is the initial purchase of the hardware, software and peripherals. Seventy percent of the ownership cost goes to technical support, repairs, training and upgrades."

— From "Technology Budgeting Basics," by John Kenyon (**www.techsoup.org**)

Checklist of Recurring Tasks

Given the broad range of issues that need to be addressed following Project Closeout, we offer this checklist of recurring tasks related to your project:

Keep the decisionmaking structure and committees intact. The main committees formed in the decisionmaking structure should continue to meet on a regular basis to discuss the project. These committees may be dynamic, with representatives changing over time based on responsibilities or changes in personnel, but they nevertheless must continue to actively monitor the technology initiative. The important recommendation here is that representatives from the executive, operational and technical levels continue to play a role in the governance of the initiative.

Actively use the communications plan. Keep open lines of communication with all users and stakeholders about the technology initiative. This will keep the interest alive in the technology and signal to users that the agency is interested in (and committed to) making sure the technology is used properly and meets user needs.

Continuously monitor and document project activities, issues and user satisfaction. Continue to journal all project activities and issues (successes as well as problems) and give users an opportunity to express their feelings about the technology and suggest enhancements or changes. User feedback can be obtained by inviting user groups to speak at project meetings or via suggestion boxes (electronic or otherwise).

Do not "shelve" the Project Plan. Too often Project Plans get relegated to the library where they merely gather dust. The Project Plan really is a living document and should be treated as such. We've yet to see a project that accomplishes every single feature or function originally envisioned in the initial project plan. It is common that some features, goals or objectives must be sacrificed due to budget, policy reasons or some other factor. But these are important considerations for enhancements or next phases of the project. The plan is also an important mechanism for benchmarking performance to make sure the system is meeting anticipated goals and objectives. Review it now and again for a refresher.

Review your contract. ***Again***! Why should you continue to read contract legalese (other than for its stimulating nature)? Because failure to review the contract may mean that important and required tasks don't get done! There have been too many instances where agencies have put away the contract and failed to realize that important conditions have not yet been met. Some agencies have even gone to the extent of preparing a new fiscal year budget for "enhancements" that were really

part of the original contract! Take it out every now and then, brush off the dust, and give it a good read. You may be surprised at what you find!

Revise your recurring costs budget and prepare for technology upgrade, replacements and enhancements. We talked about lifecycle planning throughout the Tech Guide. The "lifecycle" also applies to budgeting. Now that the technology is operating in a live environment, you may have even more concrete ideas about the type of recurring costs you will have. Review the budget you created in Chapter 11 and update the recurring costs based on the existing contract.

Assess how your IT staff is handling support of the new system. Spend a good deal of time with your agency and your parent organization's IT support staff to determine if the staffing levels and staff expertise are adequate for system support. You may find that you need new skill sets or additional support staff. Also, take into consideration the project's next phases and whether you will be increasing equipment roll out (e.g., purchasing more mobile computers to deploy in the field may mean that more support staff will be required).

Remember that training should not be a one-time activity! Plan and budget for continued training for users. Solicit feedback from users at all levels about what types of additional or refresher training they need. This should be a budget item each year.

Complete the "lessons learned" document. You'll want to make sure that you finalize the lessons learned document we discussed in Chapter 13, page 162. This will be an important learning tool for future technology initiatives about what worked and what didn't.

In summary:
Don't forget the system lifecycle!

CHAPTER 19
GRANT MANAGEMENT AND COMPLIANCE

Chapter 19: Grant Management and Compliance

What Undertaking the proper *steps* to ensure that your agency is complying with the conditions of a grant.

Why Because the granting agency requires compliance and failing to do so may result in the withdrawal of grant funds.

Who Agency grant managers, finance employees and others, depending on the type of grant received.

When As soon as a grant award is received.

Many police agencies fund their technology initiatives, in whole or in part, with local, State or Federal grants. By accepting the grant, agencies are expected to comply with various conditions, including grant compliance, monitoring and proper financial accounting. This chapter will address the planning steps necessary to prepare an agency for the complexity of achieving grant compliance in a technology initiative.

Recognizing that there are dozens of grant programs available to law enforcement agencies, this chapter does not attempt to guide agencies through the complexity of any individual grant program. Rather, it attempts to identify some common threads of grant management.

Congratulations! The majority of police agencies are thrilled upon notification that they have received a grant award. The supplemental funds offered to police agencies by local, State and Federal granting agencies can be the "make it or break it" factor in many technology initiatives.

Now, manage it! Accepting a grant award is rarely condition-free. Most grants are directly linked to objectives, such as addressing a particular social issue or redeploying officers from reporting activities to street patrol or other community-oriented policing activities, as directed by the granting agency. Consequently, there are usually conditions that must be met as a term of using the funds, often referred to as program-related requirements.

In addition to program compliance, there are also financial and reporting compliance issues that your agency must address. By accepting a grant, your agency must agree to the requirements that are identified in the grant award package. Usually, these conditions are based on grant compliance mandates set forth by the U.S. Office of Management and Budget (OMB). Because the Federal government distributes more grants than any other entity, many State and local agencies defer to the OMB guidelines as a de facto standard.

In addition to the OMB guidelines, there are often additional program-specific conditions that must be upheld. For example, MORE technology grantees also must subscribe to these Federal regulations regarding the implementation of grant-funded technology/equipment:

- 28 CFR 23, Criminal Intelligence Systems Operating Policies

  and these sections of Part 66, the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments:
- 28 CFR 66.36, Procurement
- 28 CFR 66.32, Equipment

The OMB provides published standards that dictate how Federal grants are to be managed. See **http://www.whitehouse.gov/omb/grants/**

Access Federal regulations online at **http://www.access.gpo.gov/nara/cfr/cfr-retrieve.html#page1**

Also, refer to the "Grantee Toolbox" section of the COPS Office Website for grant compliance information: **http://www.usdoj.gov/cops/toolbox/grant_programs/more/default.htm**

Manage Your Grant

While managing grant requirements is not difficult, it does represent a new set of responsibilities that may be foreign to many law enforcement personnel. Like most topics covered in this Guide, pre-planning will go a long way toward better grant management.

Start planning early in the process. Shortly after submitting a grant application, the agency should determine who will be responsible for managing the various elements of the grant, should it be awarded.

We suggest that your agency assign two people to manage the two areas of a grant: one to manage and be accountable for the program requirements, and a second for the fiscal/reporting requirements. Based on our experience, successful grant management is most often achieved when the law enforcement agency and the parent organization's finance division work in concert on managing the grant. For example, the agency focuses on the program requirements, while the City/County finance representative assumes responsibility for the fiscal/reporting requirements.

Should the grant be awarded, a grantee award package will likely be included, which will illustrate all of the grant's program, financial and reporting requirements. Both representatives should carefully review the requirements and determine who is responsible for overseeing the various aspects of the grant.

The grant conditions should be provided to the Steering Committee to ensure that program requirements become project objectives. Additionally, Steering Committee

oversight in grant-funded technology initiatives adds an additional layer of responsibility, which can help to ensure that the project ultimately fulfills the grant requirements.

From that point on, the respective parties simply execute their responsibilities to the grant. Typically, managing the grant includes the following activities:

- Preparing quarterly or semiannual financial status reports.
- Preparing annual program status reports.
- Occasional visits from the granting agency.
- Financial audits (depending on grant amount).
- General project oversight to ensure grant compliance.
- Organizing all grant-related documents.

To ensure proper organization and maintenance, we suggest that agencies create and maintain a grant filing cabinet that contains the following folders:

File 1:
Application and "pre-award" data

File 2:
A journal of all correspondence (internal and external) related to the grant

File 3:
Official award documents from the granting agency

File 4:
All grant application corrections and adjustments

File 5:
A log of all financial status reports (mandatory quarterly or semiannual reports submitted to the granting agency that identify how the grant money was utilized, when it was drawn down and other financial data)

File 6:
All supporting data related to the grant

Grant management underscores the importance of setting realistic objectives and building in useful measurement procedures to demonstrate the impact and effectiveness of your project. Be sure to plan effectively by:

- proposing realistic, measurable and accomplishable objectives (which are written into your grant application), and
- developing adequate procedures for constantly measuring and reporting on these objectives.

Top 5 Grant-related Blunders

During our research for the Guide, we encountered MANY grant-related mistakes, but the following warrant mention as the Top 5 Grant-related Blunders:

1. *"We found out that we had a grant a month before it was set to expire, so we paid our vendor the entire grant amount up front."*

   Readers may be surprised by how many times this has occurred. If you need more time to expend the grant funds, call your Grant Program Specialist and ask for an extension!

2. *"After we accepted our grant, we drew down the whole amount at once so we could collect interest on it."*

   Oops! Granting agencies generally do not allow agencies to collect interest on the grant funds they receive. In this case, the agency was forced to pay back the earned interest.

3. *"After we got the grant, the City was able to take back the money budgeted for the new CAD and use it for overtime shortfalls."*

   The idea of replacing budgeted money with newfound grant money is known as "supplanting" and it is **forbidden by virtually all grant programs**. See Chapter 11, page 145.

4. *"When we found out our Grant Program Specialist was conducting a site visit, we called our City Attorney and asked him to represent us."*

   The Grant Program Specialist is your friend, not an enemy to be shielded against. Grant Program Specialists are knowledgeable allies whose mission is to ensure your success, so welcome their arrival and ask them for help whenever warranted!

5. *"After getting the grant and beginning implementation, we changed our objectives, altered our Project Plan and didn't buy the technology originally planned."*

A definite issue here! Remember, if you make changes to your grant application, they have to be approved in writing by the granting agency **before** you implement the change. In some cases, using grant funds for purposes other than those approved by the granting agency can result in civil and criminal prosecution, or at a minimum the return of grant funds.

Who Can Help?

If you should ever find yourself confronting problems with a grant, remember just one thing: CALL YOUR GRANT PROGRAM SPECIALIST! During our research, we found literally dozens of agencies that believed that their Grant Program Specialist was an auditor who would immediately "turn them in" if they were to place a call asking for help. Nothing could be further from the truth!

Grant Program Specialists have a shared interest in the successful completion of your project and can often solve problems directly over the phone. They can also send you copies of your grant application or other documents you may have misplaced. For more complex issues, they can work with the agency over time to reach a resolution.

State and Federal grant funding plays a critical role in providing necessary "seed monies" for many technology issues. Grants are often a one-time deal, however, so you must identify other State and local funding streams that will help provide ongoing support, enhancement and upgrade for your technology initiatives. Your annual budget must contain funding for technology and its support. Therefore, agency directors, City and County leaders, legislators and other funding decisionmakers must be educated on the need to fund technology on an ongoing and continuous basis.

PART VI ASSIGNMENTS

EXECUTIVE SPONSOR

Role

1. Ultimate decisionmaker
2. Provide oversight and guidance

Maintain the Technology Tasks

1. Attend Post-project meeting; recognize/reward team members (Chapter 18, page 230)
2. Make decisions regarding maintenance, upgrade and enhancement of the technology initiative, as well as replacement issues (Chapter 18, page 231)
3. Sign off on all grants and meet with visitors from granting agency (Chapter 19)

STEERING COMMITTEE

Role

1. Reallocate resources
2. Provide input, make decisions and present recommendations to Executive Sponsor
3. Actively monitor the technology initiative
4. Provide oversight of grants

Maintain the Technology Tasks

1. Reassign/release Project Team members to other projects (Chapter 18, page 230)
2. Attend/participate in project closeout meetings and tasks (Chapter 18, page 230)
3. Continue to meet regularly to discuss issues and make recommendations related to technology maintenance, upgrade, enhancement and replacement (Chapter 18, page 231)
4. With input of Project Manager and committees, make and approve changes to Project Plan and other documents (Chapter 18, page 231)
5. Revise recurring costs budget and plan for the next round of funding (Chapter 18, page 232)
6. Provide grant oversight: review program requirements in grants to ensure they become project objectives, and ensure the technology project fulfills the grant requirements (Chapter 19, page 236)

PART VI ASSIGNMENTS, CONTINUED

PROJECT MANAGER

Role

1. Coordinate and oversee all tasks and activities
2. Report to decisionmakers and liaison with technical and operational experts
3. Stay involved with grant management and compliance

Maintain the Technology Tasks

1. Organize and lead Project Post-evaluation, Vendor Transition Meeting and Post-project Meeting (Chapter 18, page 230)
2. Prepare project's Final Report, submit to Project Team for acceptance/signatures (Chapter 18, page 230)
3. Participate in ongoing committee/project meetings (Chapter 18, page 231)
4. Report regularly to Steering Committee and Executive Sponsor regarding system performance, maintenance, upgrade, enhancement and replacement issues (Chapter 18, page 231)
5. Continue to report to public regarding status of technology initiative (Chapter 18, page 231)
6. Work with Technical and Operational Committees to monitor technology initiative and document project activities and issues (Chapter 18, page 231)
7. Work with Steering Committee regarding reviews and updates to the Project Plan and other documents (Chapter 18, page 231)
8. Monitor vendor agreement periodically to ensure that important and required tasks are completed (Chapter 18, page 231)
9. Assess adequacy of staffing levels and determine whether new skill sets or additional support staff are needed (Chapter 18, page 232)
10. Oversee provision of continual user training (Chapter 18, page 232)
11. Prepare and disseminate the "lessons learned" document (Chapter 18, page 232)

PART VI ASSIGNMENTS, CONTINUED

PROJECT MANAGER (CONTINUED)

12. For grant management and compliance, assist in preparation of financial status reports and program status reports; meet with granting agency staff; and report to Steering Committee regarding grant compliance issues (Chapter 19, page 237)

TECHNICAL COMMITTEE

Role

1. Provide input

Maintain the Technology Tasks

1. Attend/participate in project closeout meetings and tasks (Chapter 18, page 230)
2. Continue to meet regularly to discuss issues related to technology functionality and performance, maintenance, upgrade, enhancement and replacement (Chapter 18, page 231)
3. Document project activities and issues; provide to Project Manager (Chapter 18, page 231)
4. Advise Project Manager regarding adequacy of staffing levels and staff expertise (Chapter 18, page 232)

USER COMMITTEE

Role

1. Provide input

Maintain the Technology Tasks

1. Attend/participate in project closeout meetings and tasks (Chapter 18, page 232)
2. Continue to meet regularly to discuss issues related to technology functionality and performance, maintenance, upgrade, enhancement and replacement (Chapter 18, page 231)
3. Document project activities and issues; provide to Project Manager (Chapter 18, page 231)
4. Advise Project Manager regarding adequacy of staffing levels and staff expertise (Chapter 18, page 232)

PART VI ASSIGNMENTS, CONTINUED

GRANT MANAGEMENT/COMPLIANCE STAFF

Role

1. Ensure the agency is meeting its local, State or Federal grant conditions
2. Inform Project Manager and Steering Committee
3. Keep comprehensive/complete documentation related to grants

Maintain the Technology Tasks

1. Follow the steps to assure grants are properly managed and the agency is in compliance with program, fiscal and reporting requirements (Chapter 19, page 236)
2. Regularly inform the Project Manager and Steering Committee of grant and compliance issues (Chapter 19, page 236)
3. Prepare financial status reports and program status reports and oversee financial audits (Chapter 19, page 237)
4. Organize and maintain all grant-related documents (Chapter 19, page 237)
5. Identify various funding streams and inform decisionmakers (Chapter 19, page 239)

Appendix 1: Information Technology Descriptions

Appendix 1: Information Technology Descriptions

The following are descriptions of Computer-Aided Dispatch, Mobile Data Computing/ Automated Field Reporting, Records and Jail Management, and Geographic Information and Computer Mapping Systems. While there are other law enforcement information technologies, we chose to describe these in detail because they are the primary technologies funded through the COPS Making Officer Redeployment Effective (MORE) Program. For information on other law enforcement technologies, please visit the SEARCH Web site at **www.search.org**.

Each technology described in this section offers *core* data management capabilities, such as data capture and entry; search, retrieval and display; messaging; and forming complex linkages between data elements.

Computer-Aided Dispatch

The computer-aided dispatch (CAD) system has become an indispensable technology tool in policing and public safety, designed to handle all information related to receiving and dispatching emergency calls for service. For law enforcement, the system is often the first point of data entry, whether processing an emergency 911 telephone call for service (CFS) or managing an officer-initiated car stop.

CAD fully automates the call-taking and dispatching functions of a law enforcement agency and initiates and manages dispatch and incidents. Used with automated vehicle location (AVL) systems that track vehicle status information (see page 257), CAD systems can help prioritize calls for service and make recommendations for unit and resource dispatching based on beats, zones, closest resources and/or current unit activities. Some CAD systems can also provide immediate access to incident location history and information, such as number and type of prior calls to the location, whether there are existing warrants for residents, or if there are specific hazards related to the location.

Based on a "geofile" or geographic database using map-based x and y coordinates, CAD pinpoints and verifies the location of a caller and incident regardless of whether it is an address, intersection, common place, business, etc. The geobase is a critical component of a CAD system, as it can link and identify locations via the x/y coordinate, regardless of how a user enters an address or location — this is important not only for accurately verifying a location, but also for statistical analysis of incidents and CFS.

The latitude and longitude of a cellular caller, when available, can also be used directly as a valid incident location.

An E911 interface maximizes the dispatch process by importing the automatic name index (ANI) and automatic location information (ALI) directly into the CAD.

Effective handling of an emergency CFS through a geo-based CAD:

HOW IT WORKS

- A 911 CFS is received by a call-taker.
- E-911 ANI/ALI information automatically populates the CAD screen and the dispatcher adds call details to CAD.
- The computer assigns a priority rating to the call based on the information entered; checks the validity of the address using the geofile; searches for historical location information (previous calls for service, hazardous conditions, weapons, warrants, etc.); then makes recommendations about dispatching available officers and units (car, wagon, foot/bike beats, etc.) to handle the assignment based on unit proximity, availability, etc. The dispatcher can use a radio for voice dispatch and/or "silent dispatch" the call to officers with mobile computers in their patrol cars (silent dispatch involves sending dispatch information to a laptop in the field).
- The system constantly updates unit and call status for the dispatcher and officers to view.
- When officers have been dispatched, they may use CAD to query various systems, such as State and Federal crime information centers, NLETS, motor vehicles, local records systems, etc.
- The computer automatically maintains status information, listing all vehicles working on a specific tour, their status and current assignment. Response times are documented and reports are captured.

Typical CAD Features*

Technology Components

- — Dual displays (with computer mapping)
- — Enhanced 911 (E911)/telephony
- — Integrated radio

Primary Modules

- — Incident entry (call-takers)
- — Dispatching
- — Status monitoring
- — Administrative
- — Training
- — Statistics
- — Alarm billing
- — Permits
- — Mapping

Inputs

- — E911 ANI/ALI
- — Radio data acknowledgments (ACKs/NACKs)
- — Event data
- — National Crime Information Center (NCIC)
- — Geographic information systems (GIS)
- — Automated vehicle location (AVL)
- — Records management system (RMS) information
- — Parent organization data
- — Mobile updates from field officers

Outputs

- — RMS
- — Incident dispatch to mobile devices
- — Messages

Human Interface

- — Who uses it?
  - • Call-takers
  - • Dispatchers
  - • Supervisors
  - • Patrol (via mobile data computers)
- — Who supports it?
  - • Small-medium agency: at least 1/2 FTE
  - • Large agency: 1 or more FTEs
  - • Vendor
- — How long should it take to learn?
  - • Application: 40-60 hours
  - • Administrative support: 60-80 hours
  - • Depending on skill set

*This is not intended to be a comprehensive list of CAD features.

Mobile Data Computing and Automated Field Reporting

Mobile computing has become the catchall phrase for outfitting an officer's vehicle or person with the technology that, in effect, allows him or her to be a "mobile office." Mobile computing is actually comprised of several law enforcement hardware and software technologies working together to allow officers to access, receive, create and exchange information wirelessly in the field.

Outfitted with wireless communication technologies, officers can proactively query local, State and national databases; receive and initiate CAD events; view unit status; send e-mail; prepare and file incident reports; issue citations; capture field interview information; access department policies and procedures; research penal codes; and perform many other activities, all via laptops or hand-held units. The goal, of course, is to allow officers to do anything in the field that they can do in-station — including accessing electronic photos.

Some of the real benefits of mobile computing come through the use of automated field reporting (AFR) software. AFR automates the incident and other reporting processes from the patrol car. Optimally, AFR allows the capture of incident and report information and then electronically sends the report to a supervisor for approval and submission to the records management system (RMS). Modern AFR software can increase officer productively and streamline the reporting process by allowing the officer to capture critical information in the field at the time of an incident. AFR packages offer a variety of features to ensure data integrity, such as drop-down menus, spell-checking, prefilled fields, pre-population of multiple forms, error correction and more.

Increasing the effectiveness of law enforcement personnel in the field with mobile devices:

HOW IT WORKS

- After receiving dispatch information via the mobile laptop computer, the officer responds to the incident, running queries and other inquiries against databases remotely.
- When the incident is closed, the officer completes a required report (incident, citation, accident, other) via laptop or hand-held unit.
- Information is electronically forwarded to a supervisor for approval via wireless communications network.
- The supervisor makes a decision whether to approve the report. If approved, the report is electronically submitted to the records unit. If it is not approved, the supervisor can send the report back to the officer for corrections.
- Once received by the records unit, records staff performs quality assurance on the report prior to formally submitting it to the RMS, but this entire process is done electronically.

The benefits of mobile computing are clear: Officers who can receive dispatch information and conduct their own instant queries from the laptop have more immediate access to information that assists them in on-the-spot decisionmaking. Preparing reports in the field allows for more accurate and timely data due to its capture in the field at the time of the event. Additionally, the ability to transmit reports to supervisors and headquarters means officers do not waste valuable time returning to the precinct or station to complete paperwork. Finally, the instant access to (and exchange of) information can make officers more effective in community policing strategies and interacting with citizens.

Typical Mobile Data Computing Features*

Technology Components

- — Laptop computers
- — Hand-held personal digital assistants
- — Public or private radio systems

Primary Modules

- — AFR
  - • CAD data capture
  - • Error correction
  - • Report writing
  - • Case management
- — Incident retrieval and display
- — Forms
- — Call receipt
- — Administrative

Inputs

- — CAD incident data
- — RMS data
- — NCIC
- — Other Federal, State and local databases

Outputs

- — Incident reports
- — NCIC uploads
  - • Stolen vehicles
  - • Warrants
- — CAD scheduling data
- — Data for integrated justice
- — Variable exports
  - • Jail management system
  - • Ticket processing
  - • Parent organization applications

Human Interface

- — Who uses it?
  - • Sworn personnel
  - • Command staff
  - • Supervisors
  - • Detectives
- — Who supports it?
  - • Small-medium agency: at least 1/2 FTE
  - • Large agency: 1 or more FTEs
  - • Vendor
- — How long should it take to learn?
  - • Application: 20-30 hours
  - • Administrative support: 80-100 hours
  - • Depending on skill set and database design

*This is not intended to be a comprehensive list of mobile computing features.

Records Management System

A law enforcement records management system (RMS) is not just a means to electronically collect and store reports and information. Indeed, records management systems of the 21st century have become a key asset to effective policing, offering robust analytical tools, the ability to seamlessly share information, develop complex linkages between myriad data and information, and assist in effective management strategies. The police RMS is a key component to informed and intelligent decisionmaking and the basis for sound integrated justice information systems.

In its simplest form, an RMS captures, maintains and analyzes all police agency and incident-related event information and is vital to the day-to-day operations of tracking and managing criminal and noncriminal events, investigations and personnel information. An RMS automates the daily business practices of entering, storing, retrieving, retaining, archiving, viewing and exchanging records, documents, data, information or files related to persons, vehicles, incidents, arrests, warrants, traffic accidents, citations, pawn tickets, civil process paper service, gun registration investigations, and property and evidence. Information can also be captured in a variety of forms, including digital photos (crime scenes, mugshots, evidence, etc.), audio and video.

Standard RMS components include integrated information tracking and management systems for each of these entities. Modern RMS applications can form complex linkages between each of these components, offering enhanced analysis and multifaceted use of the data, including decisionmaking along the following lines:

Information stored, linked, accessed and analyzed via a robust RMS:

HOW IT WORKS

- Officers prepare reports via desktop computer or mobile unit in the patrol car and submit them electronically to a supervisor, who reviews them.
- Once the supervisor's approval is given, the report is automatically added to the RMS.
- If property or evidence has been received, it can be bar coded and linked directly to the record in the RMS.
- Information stored in the RMS becomes available to agency users (whose access is controlled by system security), such as detectives, crime analysis and community-oriented policing divisions, command staff and others in the department for tactical use and for developing strategies in crime prevention and response.
- A public interface is built into most records management systems to provide information to the community (in compliance with privacy guidelines as mandated by 28 CFR 23).
- Appropriate RMS data and information can be shared and exchanged with other justice agencies.

- **Strategic**: Offering the organization critical information that assists in tactical planning, resource deployment, performance assessments (individuals and units), risk assessment and management, and accountability.

- **Tactical**: Providing officers and other employees with immediate access to complete, accurate, timely and integrated information in a variety of formats (data, images, photos and video). Allowing effective analysis of crime trends and hotspots, thus contributing to proactive — rather than reactive — policing and to tactical decisionmaking.

- **Investigative**: Enabling the use of advanced case management tools (case distribution, tracking and disposition) for all personnel assigned or involved with a case, including modern property and evidence collection, analysis and disposition tools, such as bar coding and enterprisewide access to the status of property and evidence.

- **Administrative**: Providing information on personnel, training and scheduling, as well as information that can assist with developing annual budgets and setting departmental policies and procedures.

Modern RMS applications are focused on improving data accuracy and the speedy retrieval of information. They are designed to reduce data entry (thereby reducing errors and duplicate information entry into separate systems) and the use and storage of paper documents. In general, these systems can significantly streamline data processing and workflow while improving the overall quality of information captured.

Typical RMS Features*

Technology Components

- — Workstations
  - • Networked PCs
  - • Wireless devices
  - • Displays
- — Servers
- — Optical storage
- — Hand-held devices
- — Bar coding (property and evidence)
- — Printers

Primary Modules

- — Incident entry/Management
- — Persons
- — Vehicles
- — Locations
- — Arrests/Bookings
- — AFR
- — Crime analysis
- — Uniform Crime Reporting
- — National Incident-Based Reporting
- — Traffic (citations, collisions, etc.)
- — Investigations
- — Property and evidence
- — Personnel, training, scheduling
- — Activity logs
- — Crime alerts, hot sheets
- — Inventory
- — Administration
- — Pawn
- — Permits
- — Licensing
- — Animal control

Typical RMS Features (continued)

Inputs

- — CAD incident data
- — Mobile data (field officers)
  - • AFR
  - • Field interview cards
  - • Citations
- — Personnel data entry
  - • Records
  - • Property
  - • Reports
  - • Detectives
  - • Officers
- — NCIC data

Outputs

- — Reports
- — NCIC uploads
  - • Stolen vehicles
  - • Warrants
- — CAD scheduling data
- — Data for integrated justice
- — Variable exports
  - • Jail
  - • Ticket processing
  - • Parent organization applications

Human Interface

- — Who uses it?
  - • Sworn personnel
  - • Records
  - • Command staff
  - • Supervisors
  - • Detectives
  - • Jailers
  - • Property/evidence clerks
  - • Crime analysts
  - • Dispatchers
- — Who supports it?
  - • Small-medium agency: at least 1/2 FTE
  - • Large agency: 1 or more FTEs
  - • Vendor
- — How long should it take to learn?
  - • Application: 20-30 hours
  - • Administrative support: 80-100 hours
  - • Depending on skill set and database design

*This is not intended to be a comprehensive list of RMS features.

Jail Management Systems

An effective jail information management system (JMS) will assist with the full management of a jail or correctional facility, including tracking inmate and facility data. A JMS operates very similarly to a traditional RMS, only it is tailored to the information management needs of a detention facility. The JMS provides capabilities for inmate processing, classification, cell management, property, commissary, scheduling and inmate programs. Inmate information, such as medical history, gang affiliation, detention history and visitor logs, as well as digital images like fingerprints and mugshots, can be stored and linked within the JMS.

The effective JMS is integrated with automated fingerprint identification and mugshot systems to handle digital fingerprint and mugshot capture, searches, verifications and identifications against a variety of internal and external databases. Property can also be tracked and integrated into the JMS through the use of bar coding technology. In some facilities, bar coding is also used to track inmates as they move about the facility.

A key feature of JMS is its ability to assist in decisionmaking, such as the objective classification of inmates based on their risk level and gang affiliations; housing; and identifying inmates who may be eligible for early release or specific programs.

Like the RMS, the JMS offers robust tools for data linkage, analysis and sharing with other justice information systems. The JMS can also be relied upon to assist with administrative and personnel management features.

Improving the inmate management and identification process through integrated jail and imaging technologies:

HOW IT WORKS

- A suspect is arrested and brought to the booking station
- If outfitted, arresting officers may transmit arrest information directly to the JMS.
- At the station, fingerprints are captured via a livescan device, along with some basic information on the individual for identity verification and initial "match" with the local database. In many cases, the automated fingerprint identification system (AFIS) then electronically submits the prints to the State and then on to the FBI in participating States.
- Upon identification, information about the offender is returned from the State, Federal and local queries and stored in the JMS.
- Meanwhile, a mugshot is also captured digitally and stored in the JMS.
- JMS pulls historical and other information gathered and/or stored within JMS to assist in making classification and housing decisions.
- JMS links photographs, fingerprints and property to the inmate's record.
- A bar code label is affixed to the inmate's property and/or identification wristband for tracking purposes.

Typical JMS Features*

Technology Components

- — Workstations
  - • Networked PCs
  - • Monitors
- — Identix/Livescan
- — AFIS
- — Mugshot cameras/Workstations

Primary Modules

- — Booking/Inmate processing
- — Identification
  - • Wristbands/ID badges
- — Classification
- — Accounting
- — Transportation
- — Food processing
- — Housing
- — Commissary
- — Medical screening
- — Pharmacy
- — Property
- — Scheduling
- — Cell management
- — Inmate programs
- — Mental health

Inputs

- — CAD
- — RMS
- — AFIS
- — NCIC data
- — Mugshot
- — Jail employees
- — Arresting officers
- — Patrol officers via mobile computer

Outputs

- — State/Federal corrections databases
- — Other justice information system partners

Human Interface

- — Who uses it?
  - • Sworn personnel
  - • Records
  - • Command staff
  - • Supervisors
  - • Jailers
  - • Property/evidence clerks
  - • District Attorney's Office
  - • Public Defender's Office
  - • Courts
  - • Probation
  - • Parole
- — Who supports it?
  - • Small-medium agency: at least 1/2 FTE
  - • Large agency: 1 or more FTEs
  - • Vendor
- — How long should it take to learn?
  - • Application: 30-40 hours
  - • Administrative support: 80-100 hours
  - • Depending on skill set and database design

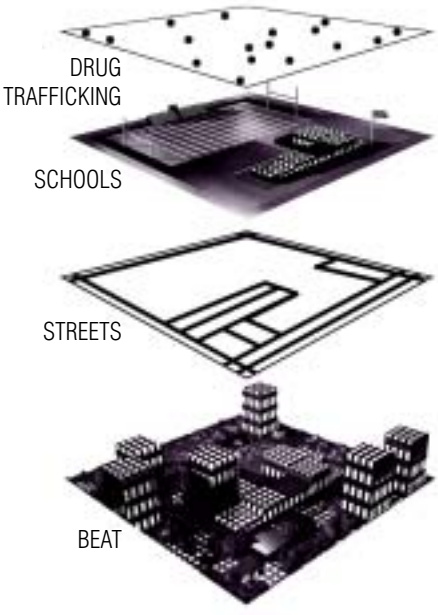
*This is not intended to be a comprehensive list of JMS features.

Geographic Information Systems, Computer Mapping and Automated Vehicle Location

For law enforcement agencies, the combination of geographic information systems (GIS), computer mapping software, and automated vehicle location (AVL) creates a powerful tool set for responding to and fighting crime. GIS facilitates effective planning for emergency response and helps agencies determine crime mitigation priorities, analyze current and historical events, and effectively analyze crime to assist in predicting and responding to future events. Furthermore, GIS allows for complex linkages and searches against a database, rather than storing information in flat files that maintain few relationships. GIS also provides critical information to emergency responders en route to an incident to assist in tactical planning and response.

Emergency Response

To develop an effective police response to an incident or emergency means that law enforcement agencies must have precise information about the location of a crime, incident, suspect or victim. The ability to access and process information quickly while displaying it visually allows decisionmakers to more efficiently determine the appropriate tactical response.

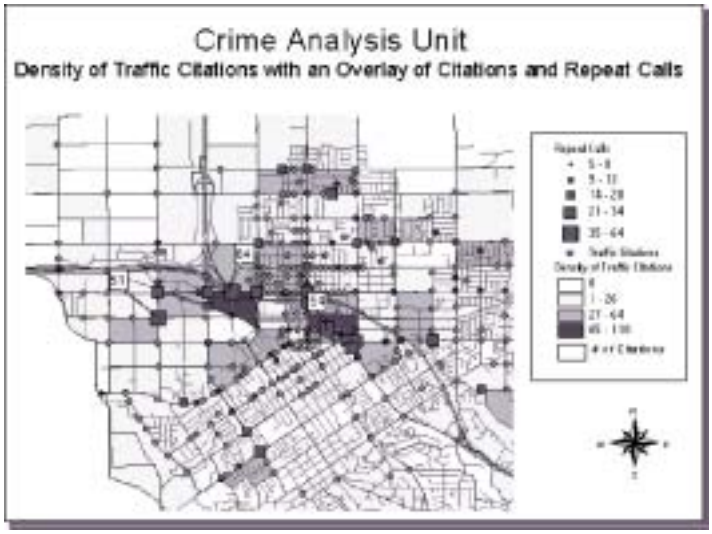


GIS is complex in that it stores information about a region in the form of "layers" connected by a common frame of reference (x/y coordinates). In addition to the specific coordinates, GIS also contains a variety of other geographic references to a specific location, such as addresses, place names, ZIP codes, phone numbers and even indirect references to geography (i.e., "300 yards from the County Jail"). This is where the true power of a GIS application comes in to play. The ability to layer the multiple pieces of informa-

Improving agency responses to crime and enabling complex analysis for crime prevention and preparedness through GIS and computer mapping:

HOW IT WORKS

- When a call for service is received, E911 ANI/ALI data populates the CAD, and the GIS identifies the x/y coordinates for the location.
- AVL provides information on agency unit location and the CAD draws upon GIS and AVL to assist in formulating a response strategy.
- Post-incident, command staff and others can review the incident and the agency's response and use GIS/AVL to assist in analyzing the effectiveness of the response and determine areas for improvement.
- Crime analysts can conduct comprehensive and complex analysis of crime, location and geographic data to identify hotspots, trends and potential emerging criminal activity. New and/or improved strategies for preventing and/or responding to crime can be developed based on these analyses.
- Community groups can access similar information via the Web or during meetings with law enforcement officials to help organize a more effective community awareness and response.

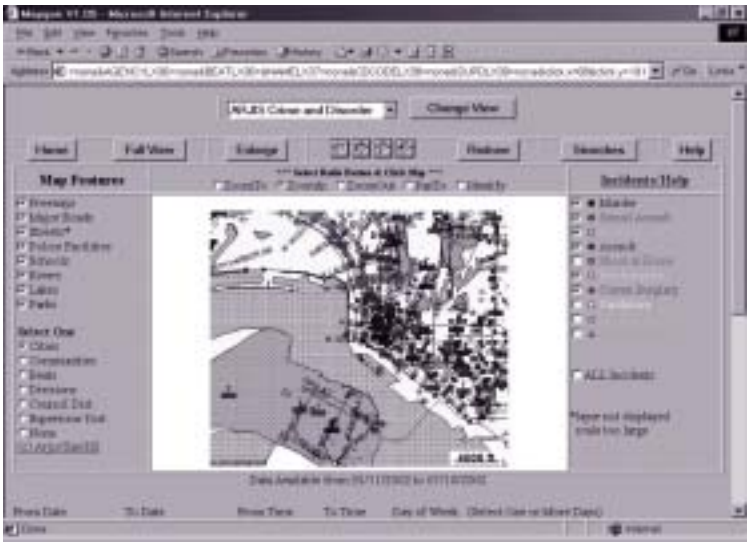


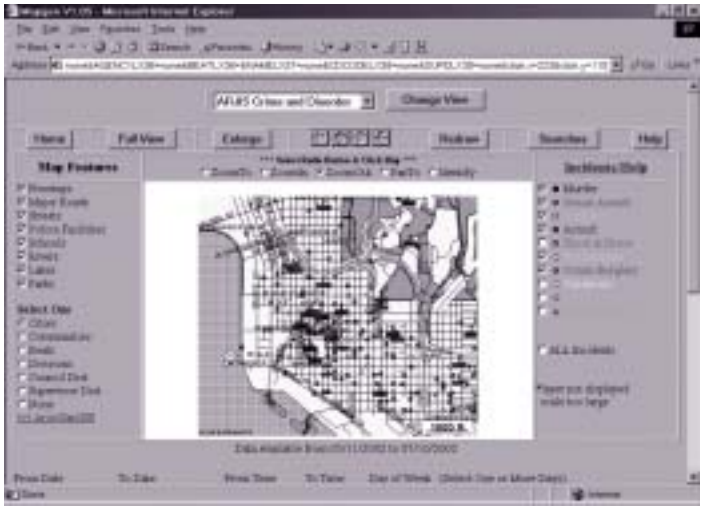
tion about a location allows a GIS to view either discrete pieces or levels of information or to increase the complexity of an analysis by layering many levels of information together to create a detailed picture.

Thus, GIS, working with computer-generated mapping, has several important applications in a law enforcement agency. A geo-based CAD system, as discussed earlier, will pinpoint the precise location of a 911 caller, an incident or a location so that law enforcement response is accurate. Used in conjunction with AVL and global positioning systems (GPS) that provide exact positioning of law enforcement units through satellite tracking, GIS can assist in deploying the right units and resources to a scene.

Crime Analysis

GIS and computer mapping have revolutionized the capabilities of law enforcement to conduct comprehensive crime analysis. GIS software, combined with computer-generated mapping programs, have replaced the traditional pin maps on the wall at headquarters that literally used push pins to identify one-dimensional criminal activity. GIS and mapping now act as an interface for integrating, accessing and displaying massive amounts of location-based information. With GIS, users can visualize crime occurrences and multiple layers of criminal activity in relationship to a variety of other factors. For example, analysts can look at drug activity in a particular jurisdiction and its relationship to school locations or to public telephone locations. So the GIS analysis not only identifies areas of criminal activity, but also the factors that may contribute to the activity taking place in a particu-





lar location or the particular population that could be affected by the activity. In addition, simply looking at crime density in particular locations is an important tool in making patrol allocation decisions.

GIS has also become more accessible to all agency users. Not only is this information directly accessible to a variety of users through desktop computer stations, but more and more, agencies are "pushing" the GIS and map software and capabilities to officers via laptops in the patrol cars and to the public via the World Wide Web.

Typical GIS Features*

Technology Components

- — Server
- — Displays
- — Scanners

Inputs

- — Base maps
- — Layers from governmental agencies (assessor, tax records, building/safety, etc.)
- — CAD
- — RMS
- — Users

Outputs

- — Maps
- — World Wide Web
- — RMS

Human Interface

- — Who uses it?
  - • Sworn personnel
  - • Crime analysts
  - • Detectives
  - • Command staff
  - • Supervisors
- — Who supports it?
  - • 1/2 FTE
  - • Vendor
- — How long should it take to learn?
  - • Application: 10-20 hours
  - • Administrative support: 80-100 hours
  - • Depending on skill set and database design

*This is not intended to be a comprehensive list of GIS features.

Appendix 2: Glossary

Appendix 2: Glossary

Acceptance testing Chapter 17, page 213

The process that an agency uses to verify that the delivered and installed product meets requirements specified in the procurement documents and contract, particularly regarding functionality, reliability and performance.

Activity Chapter 10, page 130

An element of work performed during a project that normally has an expected duration, as well as cost and resource requirements.

Ad hoc working groups Chapter 1, pages 27, 31

Groups that are formed as a subset to the project's formal decisionmaking structure to look at specific tasks and business processes that require more in-depth research or analysis, or to carry out research on and development of a variety of project-specific plans, models, policies and directions. Assembled on a temporary basis to address a specific issue or task.

Agreement for Extended Services Chapter 15, page 195

An exhibit in the contract that should be included if an agency requires continuous vendor product support. It should identify the type of service, the availability and the allowable timeframe for response and correction of various types of problems. The exhibit should detail the pricing that has been negotiated for recurring support.

Assumptions and constraints Chapter 3, page 59 and Chapter 10, page 131

Circumstances and events that can affect the success of the project and are generally out of the control of the Project Team. Include in the Project Charter to provide assistance in making/justifying decisions. Consult also when developing the project timeline and Risk Management Plan.

Automated Field Reporting (AFR) software Appendix 1, page 250

AFR automates the incident and other reporting processes from the patrol car. Optimally, AFR allows the capture of incident and report information and then electronically sends the report to a supervisor for approval and submission to the records management system (RMS).

Automatic Vehicle Location (AVL) software Appendix 1, page 257

Used by law enforcement agencies to remotely track the location of agency units via satellite global positioning systems (GPS). AVL combines GPS technology, wireless communications, street-level mapping and a user interface.

Best practices Chapter 1, page 23

Industry-proven processes or methods that, when executed effectively, lead to enhanced or superior project performance and ensure the success of an undertaking (such as planning, procurement, implementation and management).

Bonding costs Chapter 11, page 142

Bonds required may include those dealing with performance, maintenance and payment.

Business case Chapter 3, page 56

The project's marketing plan that articulates why the project is important in terms of operational benefits to the agency, the justice system in general and the public. Used to educate and inform all project stakeholders.

Business process Chapter 4, page 68

A written description of the things that employees do every day in their job functions assessed on a "what," "why," "when," "how" and "where" basis. Business processes are what technology seeks to enhance or improve.

Business Process Baseline report Chapter 4, page 72

A report created by the Project Manager that documents an organization's business processes. It is used as a reference for understanding how the organization currently accomplishes its business objectives.

Client/Server Chapter 6, page 94

An application that runs on a personal computer or workstation and relies on a server to perform some operations. A *thin client* is a client designed to be especially small so that the bulk of data processing occurs on the server.

Communications Plan Chapter 13, page 159

Formal and agreed-upon strategies for communicating project status and activities to key stakeholders, and methods for developing historical project records and archives.

Computer-aided Dispatch (CAD) System Appendix 1, page 248

Fully automates the call-taking and dispatching functions of a law enforcement agency and initiates and manages dispatch and incidents.

Consulting costs Chapter 11, page 142

Generally, a full-service consultant who provides needs analysis, project planning, procurement assistance, contract negotiations and implementation assistance, and will receive an average of 15% of the total project costs.

Contingency costs Chapter 11, page 142

Funding that is set aside for unexpected and, therefore, often unbudgeted activities. On average, contingencies range from 10–15% of the hardware and software costs.

Contract Chapter 15, page 187

A binding agreement between an agency and a chosen vendor that defines the obligations between the parties, including deliverables, services and responsibilities.

Decisionmaking structure Chapter 1, page 23

A group of agency staff that provides leadership and accountability; defines the business of the agency; analyzes technical environments, policies and solutions; and effectively manages projects. Requires participation from three key representative groups within an agency: executive, business or operational, and technical.

Deliverable Chapter 10, page 130

A measurable, tangible, verifiable outcome that must be produced to complete a project or part of a project.

Environmental scan (ES) Chapter 3, page 53

An initial step in the planning process that helps the Project Team gain perspective on the initiative by allowing the team to systematically assess factors that present opportunities or threats to the success of the project. Sometimes referred to as a situation or "SWOT" assessment, an ES contains an internal scan that identifies strengths (S) and weaknesses (W) of the agency and an external scan that identifies external opportunities (O) and threats (T) to the agency.

Executive Sponsor Chapter 1, page 24

The individual who has the ultimate accountability for the project, having authority to sanction the project and make it a priority. Serves as the project's ultimate decisionmaking authority.

Exhibit Chapter 15, page 191

Subsets of information related to the contract, usually created by the Project Team. Includes such documents as: Statement of Work (SOW); Project Deliverables; Payment Schedule; and Project Timeline.

External costs Chapter 11, page 139

The costs that most agencies associate with procurement, which are generally lumped together in three main categories: hardware, software and services. They also include the staff, resources, supplies, infrastructure, consultants and virtually all project elements that fall beyond the direct financial control of the agency or the parent organization.

Focus groups Chapter 5, page 82

A somewhat informal technique that can help to assess user needs while designing the system. Usually 6-9 users gather to discuss issues and concerns about the features of the new system.

Functional specifications Chapter 12, page 155 and Chapter 14, page 179

Precise descriptions of how a product should operate. These statements should be succinct. A Project Plan and procurement document often contains numerous such functional requirements. During procurement, vendors should be required to divulge how closely their product matches an agency's functional specifications.

Functionality testing Chapter 17, page 214

A type of acceptance testing designed to ensure that the vendor's software is functioning as described in product literature and, possibly, in their response to the agency's RFP.

Funding streams Seven Facts, page 12

Variety of means by which an agency may obtain funding for a project, including internal budgets, State and Federal grant programs, bond measures, etc.

Gantt chart Chapter 10, page 133

A popular project management charting method in which a schedule is displayed graphically. It consists of a horizontal bar chart with time as the horizontal axis and either resources, jobs or orders as the vertical axis. Individual operations are displayed as horizontal bars in the chart, indicating the time at which the job begins and ends. Many variations on the Gantt chart exist to display additional kinds of information. Gantt charts can be drawn physically on paper, but are usually implemented through computer software.

Geofile Construction Document Chapter 15, page 195

An exhibit included in the contract if an agency is purchasing a CAD application. Often the agency's base geographic information systems (GIS) must be converted into the CAD vendor's preferred format. The GIS data are used for creating a geofile in the CAD that verifies the addresses that are entered into CAD. This is a very complex procedure and warrants an individual contract exhibit dedicated exclusively toward defining how the GIS material will be converted, tested and installed into the CAD.

Geographic Information Systems (GIS) Appendix 1, page 257

Stores information about a region in the form of "layers" connected by a common frame of reference (x/y coordinates). In addition to the specific coordinates, GIS also contains a variety of other geographic references to a specific location. Other data sets include addresses, place names, ZIP codes, phone numbers and indirect references to geography.

Hardware Chapter 11, page 140

Tangible devices that enable the use of various software programs. Includes servers, workstations, laptops, infrastructure (network components) and telecommunications devices (i.e., wireless modems).

Holdbacks Chapter 12, page 154

A contract provision that allows an agency to keep a percentage of a vendor's payment until after the vendor successfully completes certain milestones. Useful for keeping the vendor interested in completing all of the tasks associated with a project, even those that are less profitable than others.

Implementation plan Chapter 16, page 207

The blueprint that enables project management to define the rules that govern how technology will be installed, tested and managed.

Information system Seven Facts, page 11

A purposefully designed system that brings data, computers, procedures and people together in order to manage the information that is important to an organization's mission.

Initial costs Chapter 11, page 137

One-time expenses to purchase technology and services for a project. Must be considered in conjunction with recurring costs (see page 269).

Internal costs Chapter 11, page 139

Those costs over which your agency has direct financial responsibility and control, including personnel costs, infrastructure costs, cost recovery fees, etc.

Invitation to Bid (ITB) Chapter 14, page 178
A procurement tool used to define an agency's requirements, contractual terms and pricing mandates. Used rarely, an ITB requires a vendor to either accept all of the terms or none.

Jail Management System (JMS) Appendix 1, page 255
Assists with the full management of a jail or correctional facility, including tracking inmate and facility data.

License Agreement Chapter 15, page 195
An exhibit included in the contract that defines what rights the agency has with regard to the use of the vendor's software.

Lifecycle costing methods Seven Facts, page 14
Methods to determine the total cost of owning the technology, from procurement through upgrade and/or replacement.

Liquidated damages Chapter 12, page 154
A contract provision that compels the vendor to pay the agency if a contracted deadline is missed.

Milestone Chapter 10, page 130
A significant event in the project, usually completion of a major deliverable.

Milestone review Chapter 10, page 134
A session in which the Project Team gathers together to review and analyze milestone completion and the process for its completion, and adjust the schedule for future deliverables and milestones, if necessary.

Mobile Data Computing Appendix 1, page 250
Comprised of several hardware and software technologies working together to allow law enforcement officers to access, receive, create and exchange information wirelessly in the field.

Module Chapter 16, page 94
A portion of a program that carries out a specific function and may be used alone or combined with other modules of the same program.

Outsourcing Chapter 1, page 37 and Chapter 11, page 141
The act of hiring an outside source to perform a service that is beyond the agency's existing resources, usually a consultant.

Performance testing Chapter 17, page 214
A type of acceptance testing that is designed to determine the speed of the combined hardware and software package during various transactions.

Performance reports Chapter 10, page 132
Provides details about project status, including which deadlines have been met and which have not. Whether prepared by the vendor or internal staff, performance reports should be provided on a weekly or biweekly basis.

Primary Agreement Chapter 15, page 189
The terms and conditions that govern the agency's relationship with the vendor. The agency's City or County legal staff often prepare the primary agreement document.

Problem escalation and resolution process Chapter 1, page 36
A formal and agreed-upon process established by the decisionmaking structure for resolving disputes and problems during a project. Includes documenting any such problems and their disposition.

Project Charter Chapter 3, page 51
A document developed early in the process (prior to the full Project Plan) that contains an IT project description, complete with scope, objectives, organization and staffing, a decisionmaking structure, the project management approach and initial resource documents. Provides guidance to project staff in planning and designing a system.

Project management Seven Facts, page 16
The application of knowledge, skills, tools and techniques to project activities in order to move the project forward to completion and to meet or exceed stakeholder needs and expectations from a project.

Project Management Institute (PMI) Chapter 2, page 47
One of the best resources for tools and support for the Project Manager. *See* **www.pmi.com**.

Project Manager Chapter 1, page 28 and Chapter 2, page 43
An individual dedicated to and accountable for all project-related activities and solely responsible for the project's scope, quality and budget. Responsible for virtually all aspects of the initiative and is formally accountable to the Steering Committee and the Executive Sponsor.

Project objectives Chapter 9, page 124
Quantifiable criteria that must be met for the project to be considered successful. A critical part of scope, objectives must include measures of quality, time, cost, performance, reliability and functionality.

Project planning Chapter 8, page 115
A dynamic process that results in a document that guides the entire IT project design, procurement, implementation and future enhancements. The Plan is the repository for all project-related research, decisions, deliverables and documents.

Project scope Chapter 3, page 58
Clearly defines the boundaries for the project. Scope addresses what users want (functions); how well the user requirements are met (quality of); when and how it must be developed (constraints); and why (the value in the project).

Project timeline Chapter 10, page 129
A mechanism to ensure the project is accurately and realistically scheduled so that it can be completed on time within the resources available. The timeline is critical to help avoid delays and associated cost overruns. Includes activities, deliverables and milestones.

Quality assurances (QA) Chapter 17, page 213
Tests that ensure the vendor's hardware and software perform according to specification.

Records Management System (RMS) Appendix 1, page 252
A system that captures, maintains and analyzes all police agency and incident-related event information and is vital to the day-to-day operations of tracking and managing criminal and noncriminal events, investigations and personnel information.

Recurring costs Chapter 11, pages 137, 139, 144
Continuing costs that must be considered to support, maintain, and enhance hardware and software and user skills. Determine in concert with initial costs (defined on page 266).

Reliability testing Chapter 17, page 214
A type of acceptance testing designed to determine the "uptime" of a vendor's solution. Typically, this testing focuses on hardware and involves the use of special software that simulates the volume of transactions that the vendor claims to be acceptable.

Request for Information (RFI) Chapter 11, page 141 and Chapter 14, page 176
A procurement tool used to elicit generalized information about vendor products and services. Pricing, if included at all, is generic and based on averages.

Request for Proposal (RFP) Chapter 14, page 176
A procurement tool used to obtain actual hardware, software and services proposals from vendors.

Request for Qualifications (RFQ) Chapter 14, page 177
A procurement tool used to determine whether a vendor meets minimum qualification standards set by the issuing agency. Does not request a proposal response with prices and specific proposal details.

Risk management Chapter 2, page 48 and Chapter 12, page 149
A planning process that prepares the agency for dealing with potentially harmful events that could happen in a technology initiative. The Risk Management Plan is prepared by the Project Manager and Steering, User and Technical Committees.

Schedule Management Plan Chapter 10, page 132
Provides a structured process for documenting, analyzing and approving changes in the project schedule. The Schedule Management Plan should be a formal process that is documented in the Project Plan.

Scope Management Plan Chapter 9, page 125
Provides a structured process for documenting, analyzing and approving changes in project scope. The Scope Management Plan should be a formal process that is documented in the Project Plan.

Scope planning Chapter 9, page 121
A process to precisely define and document specific activities and deliverables for a particular project. Clarifies and defines the project focus and keeps activities in control and within agreed-upon boundaries. Establishes a formal process for proactively managing changes in project scope.

Scope statement Chapter 9, page 122
Defines what is to be included in the project, as well as what is to be excluded. Developed by the Project Manager and User Committee.

Scope-time-cost relationship Chapter 3, page 58
The project elements of scope, time and cost are inextricably linked and have a proportional relationship. Should any one of these elements grow or reduce, the other two elements grow or reduce proportionally.

Software Chapter 11, page 140
What is required to make a system operational, including operating system software, vendor-supplied application software, third-party software and any network management tools.

Sole-source Chapter 14, page 178
A procurement tool used when an agency can show that the chosen vendor is the only vendor capable of supplying the required hardware, software and services in the best interest of the agency.

Stakeholders Chapter 1, page 25
Individuals and organizations who are actively involved in the project, or whose interests may be positively or negatively affected as a result of project execution or successful project completion.

Statement of Work (SOW) Chapter 15, page 191
Included as an exhibit in a contract, the SOW defines each task involved in the entire project. It is the blueprint for implementation.

Steering Committee Chapter 1, pages 27, 28
Members are generally high-level managers and/or supervisors within the agency. This group will ensure that a structured project management process is adopted and followed. Provides constant guidance and oversight to the project, its progress and deliverables, and will make most decisions related to the project.

Strategic IT Vision Document Seven Facts, page 15
Articulates how technology will assist an agency in meeting its core business mission and establish an ongoing process to evaluate, upgrade and enhance those technologies as business goals and technology change.

SWOT Chapter 3, page 56 and Chapter 5, page 83
An acronym sometimes used in referring to a situation assessment, SWOT stands for Strengths, Weaknesses, Opportunities, Threats. *See* Environmental Scan.

Systems development lifecycle (SDLC) Seven Facts, page 13
A cyclical process regarding IT, with several stages, including planning, procurement, implementation and management.

Technical Committee Chapter 1, pages 27, 31
Includes technical staff from the agency, as well as others from the agency's parent organization (e.g., City, County or State), if such support is provided. This committee's role is to analyze the agency's existing technical environment and to research and propose solutions to the agency's business needs and problems.

Technology Baseline Report Chapter 4, page 73

A report that documents an organization's current technology environment. Created by the Project Manager, with assistance from the Technical Committee, it is used to show how the current technology is used, as well as in determining how new technology could improve efficiency. The Technology Baseline Report is also used in the procurement process.

Total Cost of Ownership (TCO) Chapter 11, page 145 and Chapter 18, page 230

Used in budget planning, TCO refers to the total costs associated with ownership, usage and maintenance of the system over time.

User Committee Chapter 1, pages 27, 29

Includes subject matter and business process experts for the functions to be addressed. This committee's role is to assist and support in creating a Project Charter and ultimately the Project Plan. This committee will analyze existing workflows, define business processes, and look for efficiencies and establish the requirements of any new system.

Vision statement Chapter 3, page 52

Written by the Steering Committee, the vision brings a tangible reality to what the agency will address with the new system.

Work breakdown structure (WBS) Chapter 9, page 123

A component of the scope statement. Dissecting scope by breaking it down into smaller elements or projects produces specific deliverables and indicates who is responsible for enacting them. This ultimately defines activities and milestones of the full project scope.

Appendix 3: Bibliography of Resources

Appendix 3:
Bibliography of Resources

■ Project Charter issues

Vision Statement

- **http://www.allianceonline.org/faqs.html**

  Website of The Alliance for Nonprofit Management. Provides details of what is in a vision statement, how a vision statement is used and the benefits of a vision statement. Also details risk management and strategic planning.

Business Case

- **http://www.solutionmatrix.com/**

  Business case analysis site, offering tools, training and practical help for everyone who builds the financial business case. Also offers resources, guides and a newsletter.

■ Needs Analysis

- **http://www.isdesigners.com/serv01.htm**

  Provides a brief summary of a needs analysis and its benefits. The company conducts a training needs analysis and designs the best solution based on their findings. The site provides "Tips for Writing Training Objectives" and links to Instructional Techniques, Project Management and Evaluation topics.

■ Project Planning

- *Tips for Ensuring Successful Technology Implementation.* COPS Office Fact Sheet, November 26, 2001. *See* **http://www.usdoj.gov/cops/pdf/fact_sheets/e10011344.pdf**
- **http://www.prosci.com/t1.htm**

  Offers an excellent project planning toolkit for order. This resource tool addresses such issues as project management, planning, methodology selection, team building, team selection, consultants, team readiness, objective setting, project scope and project leadership. Website offers a toolkit overview and table of contents.

- **http://books.mcgraw-hill.com/cgi-bin/pbg/0071360506.html**

  Offers this best-selling book: *Project Planning, Scheduling & Control, 3rd Edition, A Hands-On Guide to Bringing Projects in on Time and on Budget.* This practical, proven and easy-to-use book provides guidance for effective project management. The site provides a description of the book, the table of contents and online purchasing.

- **http://www.wilsonmar.com/1projs.htm**

  An extensive online guide to using project plans. Includes: Project Management Frameworks; Project Phases and Milestones; Project Goals and Outcomes; Project Processes, Roles and Deliverables; Roles: Advisors and Consultants; Project Tasks; Risk Management; Project Management Software Tools; Project Plan Views; and Best Practices for Project Management. Comments and questions can also be submitted to a support contact via email.

- **http://www.planxpert.com/**

  PlanXpert is a practical project planning tool in the form of software for IT professionals. The PlanXpert products provide a set of easy-to-use tools for creating a customized IT project plan, accompanied by a methodology of proven practices. The site offers descriptions of the three products, methodology concepts, planning and executing a project with the product. You can also request more information about the products and order them online.

- **http://gartner11.gartnerweb.com/public/static/hotc/hc00075520.html**
  Offers online article from the Gartner Group: "What to look for in an IT strategic plan."

■ Project Management

- **http://www.pmi.org/**

  Website of the Project Management Institute, a professional organization for project managers. Includes: a detailed description of a project and project management, information about annual seminars and symposia, as well as membership and education information.

- *A Guide to the Project Management Body of Knowledge*. Project Management Institute. *See* **http://www.pmi.org/publictn/pmboktoc.htm**.

- **http://www.mde.net/cio/**

  A practical guide on how to manage any project. Offers a free project management template.

- **http://www.projectmanagement.com/main.htm**

  Informational project management site includes these links: Resources (who can help), Links (to other project management sites on the Web), Tools (what tools can be used), and Online (where help can be found online).

- **http://www.project-manager.com/**

  A complete online guide for anyone who must plan, implement and complete a commercial project. Get professional advice, upgrade personal skills, exchange ideas or, above all, get your project up and running on time and within budget.

- **http://www.planview.com/**

  Offers project managing software. Includes product information and an extensive Support/Services link that not only supplies online help, but also email addresses and telephone numbers of service personnel.

- **http://www.microsoft.com/office/project/**

  Offers project management software with a free 60-day trial period to see if their features are right for the project at hand. Provides information about the product, including support.

- **http://www.tenstep.com/**

  Provides the information necessary to successfully manage projects, including processes, procedures, techniques, best practices and templates. The site starts with the basics in a step-by-step approach and becomes more and more sophisticated according to your specific project.

- **http://www.4pm.com/articles/pplanning.html**

  Resource site for project managers and executives offers project management articles, books, tools and training courses. Includes brief descriptions, prices and online purchasing.

- **http://www.performanceweb.org/default.htm**

  Website of the Performance Institute, a leading authority and repository on performance-based management practices. Site includes sections on IT and law enforcement.

- *The Accidental Project Manager: Surviving the Transition from Techie to Manager*. Patricia Ensworth. This "cheat sheet" provides practical advice and critical information to manage successful software projects. The companion Website, **http://www.wiley.com/compbook/ensworth**, provides downloadable templates, forms and links to valuable resources.
- *A Practitioner's Guide to Managing Projects in the Information Age*. Robert Ambrosino, Ph.D. Government Technology Press.
- *IT Professional's Guide to Project Management*. Tech Republic. *See* **http://www.techrepublic.com**.
- *Project Management Memory Jogger*. Paula K. Martin and Karen Tate PMP, Martin Training Associates. This pocket-sized book is an easy-to-use guide for working through any project. It features step-by-step directions for the Martin Training Associates' CORE Project Management® method that includes the activities needed to complete any project successfully. See **http://www.martintraining.net/resources/pmmj.html**.
- **http://www.allpm.com/**

  This Website, the Project Managers Home Page, is intended to help project managers succeed by building a worldwide community of project managers.
- **http://www.projectmagazine.com/**

  This online magazine is a useful resource for project managers.
- **http://www.newgrange.org/**

  Website of the New Grange Center for Project Management, an international Web-based organization.
- **http://www.projectnet.co.uk/pm/pmt/pmt.htm**

  Project Manager Today: an online journal with links to articles dating back to 1998.
- **http://www.pmboulevard.com/home.jsp**

  Project Manager Boulevard Website, which offers a knowledge center, online training, articles and other resources.
- **http://www.infogoal.com/pmc/pmchome.htm**

  Project Management Center Website, which offers links to project management news, articles and white papers, events, organizations and experts.
- **http://www.pmforum.org/**

  Website for the Project Management Forum, including links to a project management library, best practices and online forums.

■ Risk Management

- **http://www.netcomuk.co.uk/~rtusler/index.html**

  Site addresses project risk management methods and disciplines to improve the chances of completing the project on time, within budget and to meet the users' requirements.
- **http://www.aeat.co.uk/consulting/prm.htm**

  Describes the benefits of project risk management. Offers a service portfolio: definition of project risk management, when it should be used, and a plan to ensure that the whole project team is aware of what the risks are, their responsibilities in managing those risks, and how that will be achieved.
- *Managing the Risks: A Guide for Improving RFP and Procurement Practices in Justice Technology Acquisitions*. Institute for Law and Justice, for National Institute of Justice, U.S. Department of Justice.

February 23, 2000. Helps law enforcement agencies learn how to use an RFP to communicate effectively with vendors and begin the process of developing shared expectations for the project. Provides references and organizational contacts of practical, legal and educational use to justice professionals. See **http://www.ilj.org/infotech/casestudies/rfpbook.pdf**

- **http://www.allianceonline.org/default.htm**

  Website for the Alliance for Nonprofit Management offers great resources on strategic planning and risk management.

- **http://www.risksig.com/**

  PMI's Risk Management Special Interest Group. Offers forums for the professional exchange of ideas on topics related to project risk management. Includes links to newsletters, articles and resources.

- **http://fcw.com/civic/articles/1998/civic_101298_77.asp**

  Article on civic.com on risk management for IT projects.

- **http://www.cio.com/archive/041596_risk_content.html**

  Article in *CIO Magazine* on risk management.

- **http://members.ozemail.com.au/~thomsett/form/index.htm**

  Online risk assessment survey.

■ Procurement

- **http://www.itpba.com/#mission**

  Website of the Information Technology Procurement Benchmarking Association, representing IT procurement professionals. The ITPBA conducts studies to identify the practices that improve the overall operations of its members, and offers free membership and newsletter.

- **http://www.search.org/it-clearinghouse/default.asp**

  IT Clearinghouse offers database of justice agency procurement documents to use as models.

Outsourcing

- **www.outsourcing.com**

  Website of the Outsourcing Institute, a global professional association that provides outsourcing information, networking, resources, services and solutions.

- **http://www.cio.com/research/outsourcing**

  Website of the Outsourcing Research Center.

Budgeting

- **http://www.srcsoftware.com/**

  Company offers software to help businesses meet budgeting and financial reporting needs. Site provides: information about the product, contact information, and a demonstration CD-ROM.

- **http://www.techsoup.org/articlepage.cfm?articleid=197&topicid=11&CFID=2022037&CFTOKEN=35938665**

  Article on "Technology Budgeting Basics: How much should you be spending?" in TechSoup.org.

Meetings

- *Roberts Rules of Order*, 2nd ed.
- *How to Make Meetings Work*. Michael Doyle and David Straus. Berkeley Publishing Group.
- **http://www.telstra.com/business**

  Provides useful information on running meetings.

Dictionaries

- *Webster's New World Computer Dictionary.*
- *Random House Webster's Computer and Internet Dictionary, 3rd edition.*
- **http://www.pcwebopedia.com**

  Online dictionary and search engine for computer and Internet terminology.

General Reference

- **http://www.startwright.com/**

  A resource Website for IT project managers. Includes links to business process reengineering tutorials, best practices, managing change, outsourcing and procurement resources, among others.
- **http://www.rms.net/lc_briefs.html** (issue briefs)
- **http://www.rms.net/lc_tutorial_series.htm** (tutorials)
- **http://www.rms.net/lc_visitor_forum.html** (forum)
- **http://www.rms.net/self_test.htm** (self test)

  This information resource offers issue briefs, tutorials and visitor forum areas on key IT issues, such as IT budgeting and performance management, project funding and project proposals. It also offers a self test to see how your agency's IT decisionmaking process stacks up against those of "best practices" organizations.
- **http://www.search.org/integration/funding.asp**

  Provides links to grant/funding opportunities.

Websites (Agencies, Organizations and Associations)

- **http://www.search.org**

  Website of SEARCH, The National Consortium for Justice Information and Statistics. Offers sections on integrated justice and law enforcement IT, with links to news, articles, organizations, standards, vendors and other resources.
- **http://www.usdoj.gov/cops/home.htm**

  Website of the Office of Community Oriented Policing Services, U.S. Department of Justice. Provides links, news and information regarding COPS grants, programs and activities. A grant toolbox link provides useful information for recipients of COPS grants.
- **http://www.communitypolicing.org/**

  Website of the Community Policing Consortium. Offers a resource toolbox, publication, chat room and other resource.

- **http://www.iacptechnology.org**

  Website of the International Association of Chiefs of Police's Technology Clearinghouse, which offers many useful links, including articles and publications, funding resources, RFIs/RFPs and practitioner links.

- **http://www.ialep.org/**

  Website of the International Association of Law Enforcement Planners. Offers members access to an online Planning Abstract Service database.

- **http://www.techsoup.org/index.cfm**

  The Website of TechSoup, the technology assistance site.

■ Integrated Justice Information Systems

- *Defining Integration in the Context of Justice Information Systems: Toward a Common Understanding.* SEARCH, The National Consortium for Justice Information and Statistics. Provides a common framework and vernacular for justice systems integration to assist practitioners, developers and other stakeholders involved in planning efforts. See **http://www.search.org/integration/about_integration.asp#publications**
- *Toward Improved Criminal Justice Information Sharing: An Information Integration Planning Model.* International Association of Chiefs of Police.
- *And Justice for All: Designing Your Business Case for Integrating Justice Information.* Center for Technology in Government. Offers a series of lessons and tools justice officials can use to build business cases to win support and funding for integrated justice information systems.
- **http://www.search.org/integration**

  This special SEARCH Website provides articles and news, resources, publications, and technical assistance and funding information regarding integrated justice.

■ Law Enforcement IT

- **http://www.search.org/it-clearinghouse/default.asp**

  The National Clearinghouse for Criminal Justice Information Systems, which provides justice agencies with online access to a host of justice information resources, including impartial information on available software solutions and a comprehensive, interactive database of justice agency RFPs.

- *A Guide for Applying Information Technology in Law Enforcement.* National Law Enforcement and Corrections Technology Center (NLECTC). The Center offers support, research findings and technological expertise to help State and local law enforcement and corrections personnel perform their duties more safely and efficiently: **http://www.nlectc.org**
- *The Design of Information Systems for Law Enforcement. A Guide for Executives.* Charles Drescher and Martin Zaworski. A step-by-step process for determining agency needs for information — from gathering to processing to utilization.
- *Making Smart IT Choices.* Center for Technology in Government. An IT guide for public managers who are responsible for choosing, funding and building IT innovations.
- **http://www.itmweb.com**

  The Information Technology Management Web offers a variety of online resources such as benchmark tools, forums, books and white papers.

For More Information:

U.S. Department of Justice
Office of Community Oriented Policing Services
1100 Vermont Avenue, NW
Washington, D.C. 20530

To obtain details on COPS programs, call the
U.S. Department of Justice Response Center at 1.800.421.6770

Visit the COPS Internet Web site by the address listed below.

www.cops.usdoj.gov