BEFORE THE BOARD OF COUNTY COMMISSIONERS
FOR MULTNOMAH COUNTY, OREGON

In the Matter of Accepting the Multnomah County Strategic Plan for Information Technology (IT), Commending the Strategic Planning for Information Technology Team, and Adopting Strategic Goals, Policies and Objectives for Multnomah County IT	)))))	RESOLUTION 96 - 34

WHEREAS, the Multnomah County Board of Commissioners directed that the Data Processing Management Committee (DPMC) develop a comprehensive plan to provide strategic direction to the County's management, acquisition, and use of information technology; and

WHEREAS, the DPMC appointed a team of County employees and outside experts, the Strategic Planning for Information Technology team (fondly known throughout the County as SPIT) to develop this plan; and

WHEREAS, SPIT employed a strategic planning approach that included the following elements:

- **Broad-based representation** of all functional areas of Multnomah County, including a cross-section of County employees and elected officials.
- A **phased process** for plan development, including development of a Countywide **vision, values, strategic goals, five-year objectives, and guidelines for implementation.**
- Extensive **self-education** of the project team, including a variety of current reading materials on information technology, visits to area businesses to observe the successful implementation and use of new technologies, attendance at several IT-related conferences, and expert guest speakers.
- Use of **continuous quality improvement** tools and techniques to identify issues and problems, generate and evaluate alternative solutions, and develop group consensus on the best alternatives for Multnomah County.
- Adoption of the following underlying **philosophies** as guidelines to development of the plan:
    a) **Support the strategic direction** of the County.
    b) **Strive for the good of the entire County**, while balancing the interests of operating departments.
    c) **Focus on customer service.**
    d) **Achieve fiscal responsibility.**
    e) **Integrate services.**
    f) **Build consensus** for decision making, to secure organizational commitment to the plan.
    g) **Focus on the future.**

WHEREAS, during their year-long planning process, SPIT identified several problems and issues to be addressed by the strategic plan. These include the following:

- **Inadequate infrastructure** to establish internal and external connectivity;
- **Internal inefficiencies**, including excess and unnecessary paper documentation;
- **Increasing customer expectations** for more efficient and accessible government services;
- **Inadequate training and technical support** for County employees to effectively perform their jobs;
- A **proliferation of systems that don't "talk" to each other** and are expensive to maintain;
- **Lack of effective coordination** among County programs and external partners;
- **Disparity in job classifications and pay** for IT positions across the County;
- **Lack of clear direction** for County information technology;
- **Inadequate and disparate funding levels** for IT in the County;
- **Confusion about roles and responsibilities;**
- **Lack of capacity** in significant technologies, such as GIS, imaging, kiosks and others; and
- **Duplication of effort** in the collection and management of data; and

WHEREAS, the Data Processing Management Committee has reviewed and approved the strategic goals, five-year objectives, and guidelines for implementation contained in the Multnomah County Strategic Plan for Information Technology, as developed by the Strategic Planning for Information Technology Team; and the DPMC has recommended that the Board of Commissioners adopts the goals and objectives contained in this plan;

NOW, THEREFORE, BE IT RESOLVED by the BOARD OF COUNTY COMMISSIONERS as follows:

l) The Board of County Commissioners **accepts the Multnomah County Strategic Plan for Information Technology, and commends the Strategic Planning for Information Technology Team and the Data Processing Management Committee** for their excellent work in developing this plan.

2) The Board of County Commissioners **adopts the following strategic goals**, as recommended in the strategic plan, as guiding principles for future County decisions regarding the management, acquisition and use of County information technology:

- Improve access to County information to the public, County employees and other public and private agencies through a cost-effective, widely available electronic infrastructure.
- Improve the quality of service delivery to the public through the effective use of IT.
- Improve public involvement in County processes that formulate County ordinances, policies and budget priorities through the use of information technology.
- Improve the quality of County decision making by making current and accurate data and information available through the use of information technology.

- Improve the efficiency and effectiveness of internal County business processes through the effective use of information technology.

3) The Board of Commissioners **adopts the policies for information technology**, as specified in the Policy Objectives section in the Strategic Plan. These policies provide the ideological framework for the rest of the objectives identified in the plan and for the use of data and information technology in Multnomah County. These policies reflect specific behaviors and attitudes which must become pervasive in Multnomah County in order to achieve the Strategic Goals.

4) The Board of Commissioners directs the County Chair and other County elected officials, department managers, the Operating Council, and the Information Technology Council to aggressively **pursue implementation of the five-year objectives** identified in the Strategic Plan, which have been grouped into the following categories: **Service, Technology Infrastructure, Information Management, and Organizational** and that implementation of these objectives be consistent, to the extent possible, with the **Guidelines for Implementation** also contained in the Strategic Plan.

5) The Board of Commissioners directs the County Chair to develop ordinance amendments to the current Multnomah County Code and budgetary actions that are required to implement the goals and objectives set forth in the Multnomah County Strategic Plan for Information Technology, for consideration by the Board no later than June 30, 1996.

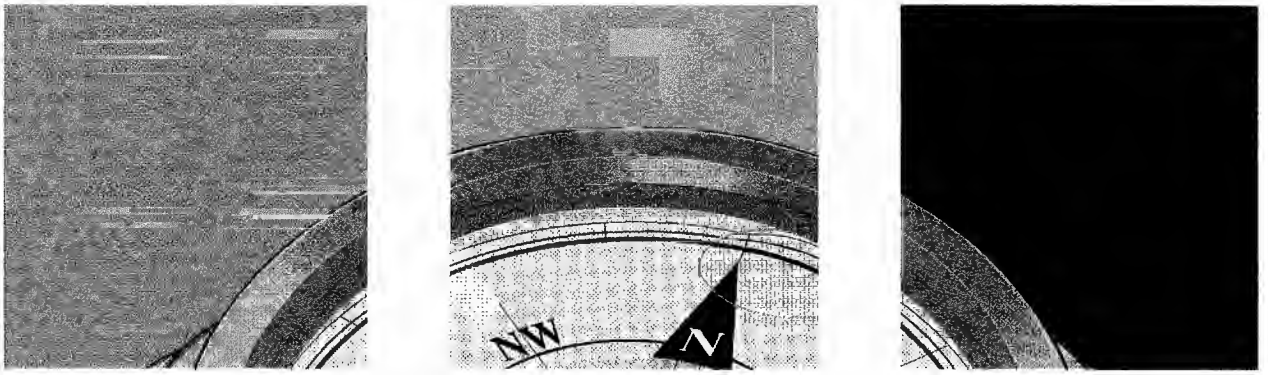
ADOPTED this 7th day of March, 1996.

BOARD OF COUNTY COMMISSIONERS FOR MULTNOMAH COUNTY

BY _____
Beverly Stein, Chair

REVIEWED:
LAURENCE KRESSEL, COUNTY COUNSEL
FOR MULTNOMAH COUNTY, OREGON

By _____
Laurence Kressel



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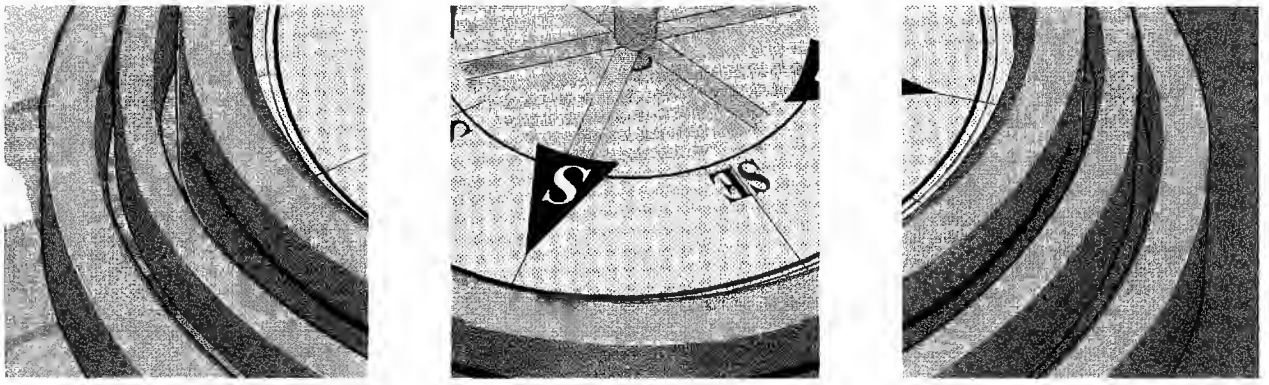

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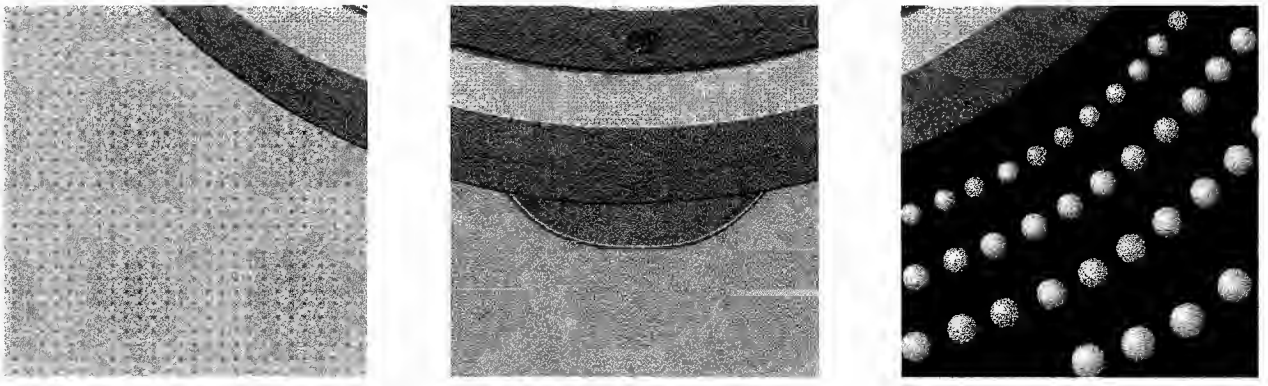

C O U R S E

STRATEGIC PLAN FOR INFORMATION TECHNOLOGY

Multnomah County, Oregon • Fiscal Year 1995-96

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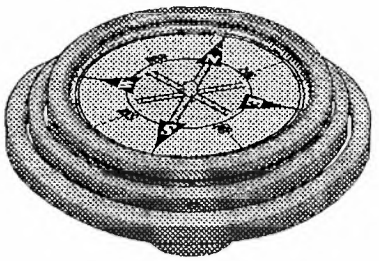

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PROJECT TEAM

CHAPTER 1

The Strategic Planning for Information Technology team was appointed by the County's Data Processing Management Committee (DPMC 1) in September, 1994. Membership grew over the course of several months to include additional departments and representatives from outside the County. The team, commonly referred to by the acronym, "SPIT," is comprised of the following individuals:

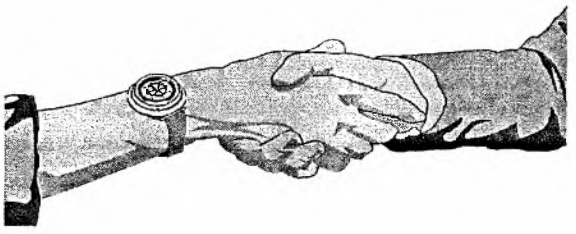
Name	Title	Representing
Jann Brown	Information Systems Manager	Juvenile Justice Department
Janice Druian	Director, Assessment & Taxation	Facilitator Phase 1, Assessment and Taxation Division
Lance Duncan	Financial Specialist	Department of Environmental Services
Tom Fronk	Business Services Manager	Health Department
Jeanne Goodrich	Deputy Director	Library Department
Kathy Gillette	Administrative Services Officer	Aging Services Department
John Hamlin	News Systems Director	The Oregonian
Keri Hardwick	Budget Analyst	Management Support Services, Tax Supervising and Conservation Commission, County Auditor, Citizen Involvement Committee
Susan Kaeser	Management Assistant	Department of Community Corrections
Jim Munz	Director, Information Services	Information Services Division
Sharon Owen	Sr. Research Analyst	Sheriff's Office and Emergency Management
Ken Phillips	Director, Marion/Salem Data Center	Marion County/City of Salem
Tom Simpson	Sr. Fiscal Specialist	District Attorney's Office
Meganne Steele	Assistant to the Chair	Chair's Office, Board of County Commissioners
Kathy Tinkle	Administrative Services Officer	Community & Family Services Department
Betsy Williams	Director, DES	Facilitator Phase 2, Department of Environmental Services

[1]This is the first of many acronyms found in this document. "Translations" can be found in the Glossary.

THANKS TO OUR CONTRIBUTORS

CHAPTER 2

This project would not have been possible without the help of many people beyond the project team. People from outside Multnomah County, Department Managers, Division Managers, technical personnel, and line staff contributed to discussions and to reaching an understanding of various issues throughout the course of the project.



The members of SPIT would like to extend a heartfelt *THANK YOU* to each person who contributed to the creation of this plan. On the project team, several individuals went beyond the call of duty, and deserve special mention:

- **Janice Druian** and **Betsy Williams** for facilitating our meetings with patience and humor;
- **Keri Hardwick** for the level of dedication and hard work involved in assembling the strategic planning document, especially for her expertise in pulling the diverse elements of the project into a cohesive whole; and
- **Lance Duncan** for providing extraordinary staff support, elevating minute-taking to a higher plane, and for creativity in laying out the final document.

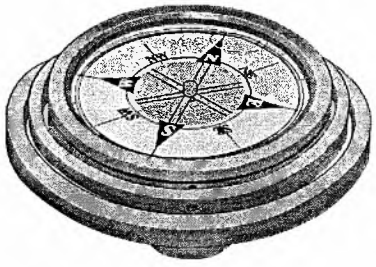
Special thanks are also extended to the following individuals and organizations for graciously sharing their time, expertise, employees and insights with SPIT:

- The Oregonian
- Marion County/City of Salem, Oregon
- State of Minnesota
- The Babicky Consulting Group
  - Jackie Babicky
  - Dave Hughes
- Christine Rains Design
- Jay Cosnett Communications
- Intel Corporation
  - Kevin Kahn
  - John Gray
  - Jim Campbell
  - Rob Haubner
  - Dorothy Tannahill-Moran
- METRO
  - Dick Bolen
  - Alan Holsted
- ODS Health Plan
  - Bill Hockett
  - Eric Hall
- George Beard, Unisys Corporation
- Brian Patterson, IBM
- Steve Willard, Willard & Associates
- Susan Yasko, Digital Equipment Corporation
- Creative Assets
- All Multnomah County employees who attended the two work sessions
- Barry Crook, Multnomah County Budget & Quality Office
- Suzanne Kahn, Multnomah County Health Dept.
- Karen Rhein, Multnomah County Dept. of Community Corrections

EXECUTIVE SUMMARY

CHAPTER 3

This Executive Summary is intended for the reader who would like a quick overview of the entire strategic planning document. More comprehensive discussion of these topics can be found in subsequent sections of this document.



MULTNOMAH COUNTY IS UNDERGOING A SIGNIFICANT ORGANIZATIONAL transformation, moving from a traditional government structure to a high-performance, outcome-oriented organization with a focus on customer needs, continuous quality improvement, and collaboration and partnerships. Efforts that have been initiated to accomplish this transformation include the Multnomah County Benchmarks, performance-based budgeting, outcome-oriented employee performance evaluation; and the RESULTS initiative (Reaching Excellent Service Using Leadership and Team Strategies).

The success of all these initiatives depends on information. Data is a critical strategic asset, and the County's ability to work and communicate effectively is dependent on increasing the capacity to gather, analyze, and distribute data and information. In addition, the public—the County's customers—increasingly expect responsive and well coordinated government services and convenient access to public information. County programs need timely, accurate, and understandable information to meet their public's expectations and achieve their organizational goals.

Purpose

The purpose of this Strategic Plan for Information Technology is to guide the County's future in making and optimizing funding decisions for the entire scope of its information resources, including but not limited to data management, equipment and software, applications development, employee training, technical support, and organizational roles and responsibilities. It is intended that this plan provide the necessary framework to ensure countywide communication and cooperation in the fulfillment of individual and collective information technology (IT) needs.

This Strategic Plan provides an overview of the current IT situation in Multnomah County and an identification of the issues/problems the plan addresses. The plan includes recommendations for the strategic direction for County information systems (strategic goals); suggestions for future priorities and investments (objectives) and parameters for beginning the next steps (guidelines for implementation). This plan is not a detailed analysis of current systems, a budget or funding document, nor a detailed implementation plan. These steps must happen next.

Project Approach

This plan was developed by the Strategic Planning for Information Technology team, who were appointed by the County's information policy group, the Data Processing Management Committee (DPMC) in September, 1994. Membership included representatives from each County department, elected officials, as well as two IT professionals from outside organizations. Several key elements were at the core of the strategic planning approach, including **broad-based representation**, use of a **phased process** for plan development, **self-education** of the project team, use of specialized quality **tools and techniques**, and a unique **philosophical approach** to the project.

The underlying philosophies which guided development of this plan were to:

- Support the strategic direction of the County
- Strive for the good of the entire County, while balancing the interests of operating departments
- Focus on customer service
- Achieve fiscal responsibility
- Integrate services
- Build consensus for decision making, to secure organizational commitment to the plan
- Focus on the future

Overview of Current Information Systems

Multnomah county currently uses information technology in a variety of ways: to facilitate communication within the County and with the public; to provide public access to County data, information and resources; to provide County employees with the information they need to do their jobs; to provide management information to guide County decision-making; and, most importantly, to provide direct services. The Library is a leader within the County in providing services via telephones, personal computers within their facilities, and dial-up capabilities for external computer users. They provide methods for these computer users to not only access County library information and services, but also to provide Internet access to information worldwide.

Deep Thoughts

"O Deep Thought computer," he said, ". . . We want you to tell us. . ." he paused, the Answer!"[2]

"The Answer?" said Deep Thought. "The Answer to what?"

"Life!" urged Fook.

"The Universe!" said Lunkwill.

"Everything!" they said in chorus.

"Yes," said Deep Thought. "Life, the Universe, and Everything. There is an answer. But," he added, "I'll have to think about it."

"How long?" he said.

"Seven and a half million years," said Deep Thought.

"Yes," declaimed Deep Thought, ". . . Everyone's going to have their own theories about what answer I'm eventually going to come up with, and who better to capitalize on that media market than you yourselves? So long as you can keep disagreeing with each other violently enough and maligning each other in the popular press, and so long as you have clever agents, you can keep yourselves on the gravy train for life."

. . . Several million years later . . .

"Now?" inquired Deep Thought.

"Yes! Now. . ."

"All right," said the computer, and settled into silence again. The two men fidgeted. The tension was unbearable.

"You're not going to like it," observed Deep Thought.

"Tell us!"

"All right," said Deep Thought. "The Answer to the Great Question. . ."

"Yes. . . !"

"Of Life, the Universe and Everything. . ." said Deep Thought.

"Yes. . . !"

"Is. . ." said Deep Thought, and paused.

"Yes. . . !"

"Is. . ."

"Yes. . . ! ! ! . . ?"

"Forty-two," said Deep Thought, with infinite majesty and calm.

So, if you're looking for an answer, it's forty-two. If you're looking for more details, history, direction, and a road to take to get there, read on. . .

Deep Thought
(a.k.a. "SPIT")

[2] Excerpted from The Hitchhikers Guide to the Galaxy, Douglas Adams, 1979

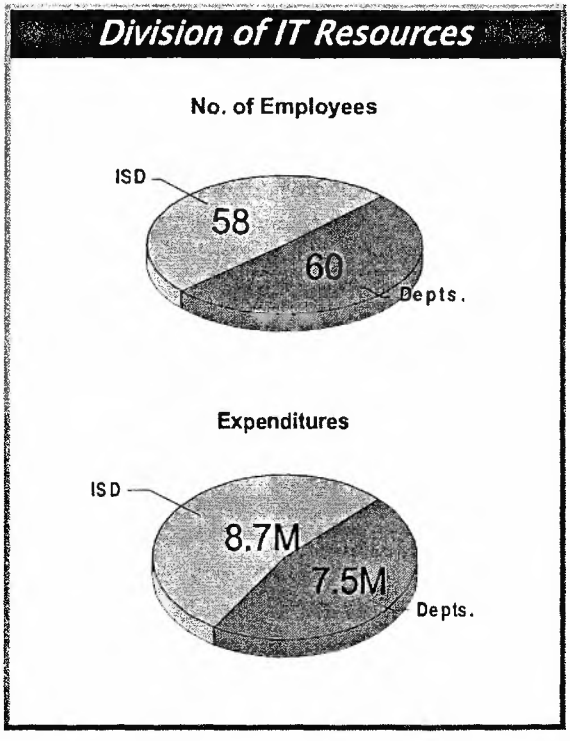
In 1995-96, the Multnomah County Adopted Budget included over $16 million for expenditures related to information technology (excluding telecommunications). Of this amount, approximately 54% is budgeted in the Information Services Division; the other 46% is budgeted directly within the departments. In other words, almost one-half of the County's IT capability currently resides in the departments.

Organizational Highlights

Within the County departments, which operate out of 70 buildings throughout the County, there are six mid-range systems and approximately 2,000 personal computers. Although there are over 30 Local Area Networks (LANs) within the County, more than half of these PC's are not connected to a LAN. Several County systems have interfaces with external agencies. For example, the Health Department runs their mainframe applications on a computer at Oregon Health Sciences University, several of the County's social services programs use the State Department of Corrections mid-range system. County mid-range systems are found in the Sheriff's Office, Assessment & Taxation, the Library, Elections, and Fleet Services.

The County's departments collectively employ almost 60 employees to operate and support the systems mentioned above. Many work units also use contractors or other outside service providers to meet their technological support needs. Funding for IT is part of each department's operating budget and must be carefully weighed against other programmatic needs. Programs with outside and/or dedicated funding sources have often been more successful in funding IT than programs that rely solely on the County's General Fund for their funding. This situation has resulted in an imbalance among departments in their ability to meet their technological needs.

Centralized IT services in Multnomah County are provided by the Information Services Division (ISD), currently a division of the Department of Environmental Services. ISD's 1995-96 budget is approximately $8.7 million, with 58 employees. Services provided by ISD include analysis, design, and implementation of new or replacement computer information systems; maintenance and enhancements to existing computer applications (primarily mainframe); mainframe computer operation, technical services, and data administration; network support for the County's wide area



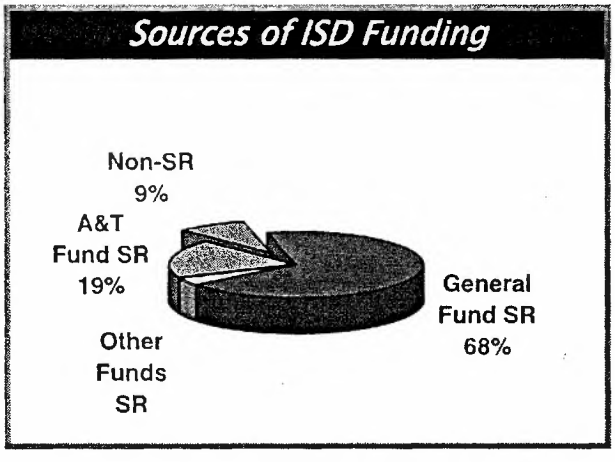
network and local area networks; and telecommunications services. ISD does not provide LAN administration or personal computer technical support or training. To the extent that these services are available within the County, they are provided and funded by the departments.

ISD operates one central mainframe computer, which is accessed via approximately 580 "dumb" terminals and over 600 PC's via local area network gateways. 32 major applications

run on the County's mainframe, ranging from the Sheriff's Office Corrections Population Management System (1674 users) to the Accounting System (113 users). In addition, ISD has begun installation of a Wide Area Network (WAN), which will link the County's local area networks, mainframe and other computers both within and external to the County. ISD has the responsibility for the development, operation and maintenance of this WAN.

Funding

Funding for ISD comes primarily from two sources: service reimbursements from all departments and external users and "New Development" money from the General Fund for new projects. For all funds except the General Fund, users are billed based upon mainframe usage and work requests. Although General Fund programs' usage is tracked and billed, the funding is from one special appropriation and the user departments are not held accountable for their costs. This situation creates a funding problem for the County, because the General Fund pays almost 90% of the service reimbursements to ISD.



Policy Setting

The Data Processing Management Committee (DPMC) is currently authorized by Ordinances 511 and 671[3] to act as the policy setting body and provide management control and monitoring for all County data processing and telecommunications. This approach worked well in the past, when most data processing activity in the County was centralized on the County's mainframe computer. In more recent years, however, with the growth of IT capability within the departments, roles and responsibilities vis-à-vis IT have become blurred, and the continuation of the DPMC in its present form is appears to be a less-effective use of valuable resources than other alternatives.

Findings

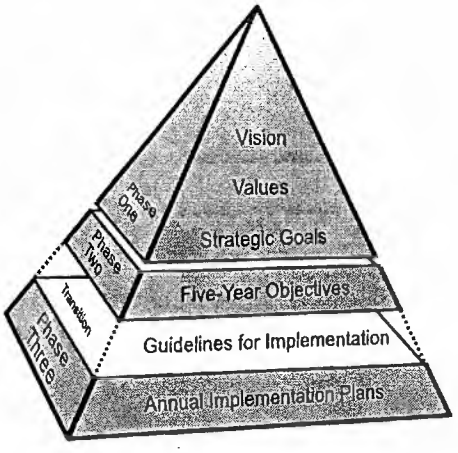
In their year-long planning process, SPIT identified many problems and issues that the goals and objectives of the Strategic Plan address. These include the following:

- **Inadequate infrastructure** to establish internal and external connectivity;
- **Internal inefficiencies**, including excess and unnecessary paper documentation;
- **Increasing customer expectations** for more efficient and accessible government services;
- **Inadequate training and technical support** for County employees to effectively perform their jobs;
- **A proliferation of systems** that don't "talk" to each other and are expensive to maintain;
- **Lack of effective coordination** among County programs and external partners;
- **Disparity in job classifications** and pay for IT positions across the County;
- **Lack of clear direction** for County information technology;
- **Inadequate and disparate funding levels** for IT in the County;
- **Confusion** about roles and responsibilities;
- **Lack of capacity** in significant technologies, such as GIS, imaging, kiosks and others; and
- **Duplication of effort** in the collection and management of data.

[3] The complete ordinances can be found in the appendix

Elements of the Strategic Plan

The first steps taken in the development of the strategic plan were the establishment of the vision and values that would provide the underpinnings for the entire plan. These were developed in a participatory process involving County employees, the DPMC, and the Board of Commissioners.



Vision

The **Vision** describes a picture of the future, desired state of our organization. Its purpose is to direct our resources in that direction and to provide motivation for our employees. The County's vision for information technology is as follows:

> Multnomah County information technology enables our employees, our public and private partners and the community to interact and use information when, where and how they need it.

Values

The **Values** are the underlying principles which guide the ways in which the County will act in pursuit of its vision. These will require a similar level of conviction from each employee and elected official:

As Multnomah County pursues its vision for information technology, the employees and elected officials will:

- Focus on and involve the people we serve;
- Work for the greater good, with:
  - Respect
  - Integrity
  - Creativity
  - Responsiveness
  - Collaboration
  - Fiscal Responsibility

Strategic Goals

Five **Strategic Goals** were established to move the County toward achieving its vision for information technology:

1. Improve access to County information to the public, County employees and other public and private agencies through a cost-effective, widely available electronic infrastructure.
2. Improve the quality of service delivery to the public through the effective use of information technology.
3. Improve public involvement in County processes that formulate County ordinances, policies and budget priorities through the use of information technology.
4. Improve the quality of County decision making by making current and accurate data and information available through the use of information technology.
5. Improve the efficiency and effectiveness of internal County business processes through the effective use of information technology.

Five-Year Objectives

A variety of **strategic actions** must be taken within Multnomah County to successfully achieve these strategic goals:

- Establish connectivity
- Provide access to County information
- Develop data sharing and integration
- Ensure information usability
- Reduce paper
- Provide training and technical assistance
- Create a supportive organizational climate and structure
- Eliminate unnecessary duplication of effort
- Support the RESULTS initiative
- Commit ongoing resources
- Continue the strategic planning process

In order to maximize the County's investment in information technology and to achieve the Strategic Goals, five-year objectives were established and recommended by SPIT. The objectives encompass the broad realm of information systems and have been grouped into major categories:

- Policy
- Service
- Technological Infrastructure
- Information Management
- Organizational

These objectives are detailed beginning on page 36 of this report.

Based on the importance, sequencing, and interconnectedness of the entire list of objectives, the SPIT team assigned **high priority** to the following:

- Development of departmental and strategic systems information technology plans;
- Pursuit of interactive, public electronic access to government information and services;
- Installation of a County-wide Wide Area Network;
- Provision of access to the Internet;
- Adoption of County-wide standards for information technology;
- Achievement of data sharing and integration;
- Provision of technical support and training;
- Restructuring of policy and management decision-making for IT issues;
- Development of effective funding strategies to fund IT needs over time; and
- Creation of a new position Director of Information Technology, who will report to the County Chair, to provide leadership and direction in achieving the County's strategic vision for information technology and to manage the central information services organization.

The chapter following the five-year objectives provides **Guidelines for Implementation** for those who will be responsible for implementing the Strategic Plan. These Guidelines discuss implementation issues, and give further detail about the objectives. They provide the link between this Strategic Plan and subsequent department and County-wide information technology efforts.

Next Steps

Recommended **Next Steps** include the following:

1. Adoption of Multnomah County Strategic Plan for Information Technology by the Board of Commissioners.

2. Repeal Ordinances 511 and 671, thereby eliminating the Data Processing Management Committee.

3. Creation of the position, recruitment and hiring of the Director of Information Technology and transfer of Information Services Division to the County Chair.

4. Development of preliminary departmental information technology plans to identify needs in advance of development of the 1996/97 budget.

5. Development of funding policy and priorities for inclusion in the 1996/97 and future Multnomah County budgets.

INTRODUCTION

CHAPTER 4

We cannot be an outcome-driven government if we can't get the information we need to evaluate our programs. And all the data in the world is not useful if we don't have the capacity to evaluate and use it. We cannot be customer-focused if we can't communicate easily internally and externally.

Beverly Stein, 1995-96 Executive Budget Message

MULTNOMAH COUNTY IS IN THE MIDST OF A MAJOR ORGANIZATIONAL transformation, moving from a traditional governmental structure, focused on regulation and control, to a high-performance, outcome-oriented organization with a focus on customer needs, continuous quality improvement, and collaboration and partnerships.

A variety of efforts have been initiated in the County to accomplish this transformation. In 1994, the County Chair, the Board of County Commissioners, and the community worked together to create the Multnomah County Benchmarks, which were adopted to focus efforts on specific quality of life goals desired for the community, and to create the necessary partnerships to achieve those goals. In the last two years, the County has converted to a performance-based budgeting process and a new, outcome-oriented employee performance evaluation system to ensure the efficient and careful use of resources and increase accountability to the public. Also launched in 1994 was the RESULTS campaign, (which stands for Reaching Excellent Service Using Leadership and Team Strategies). The quality and productivity of County services to the community depends largely on the skills of its workers. RESULTS is intended to provide line employees and managers with the skills they need to work in teams, redesign business processes, evaluate data, and provide customer service. Also developed during 1994 was the County's Strategic Space Plan. This plan relies on projecting growth trends in demand for services along with demographic data in order to make services convenient for customers, and allow for cost-effective investments in Multnomah County's facilities infrastructure.

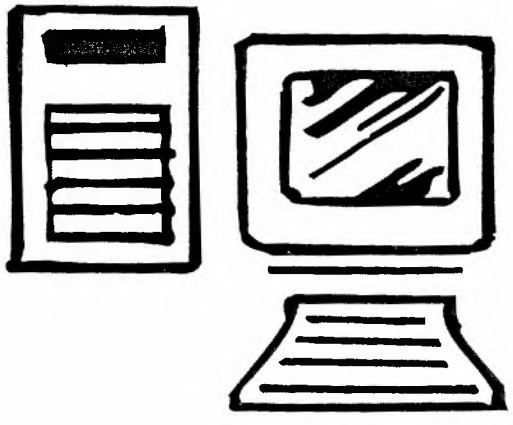
The success of all of these efforts depends on timely, accurate, and reliable information. Data is a critical strategic and public asset, and the County's ability to work and communicate effectively is dependent on increasing the capacity to gather, analyze, and distribute data and information. The public--including other jurisdictions, private citizens, and private and public partners--increasingly expect responsive and well coordinated government services and convenient access to public information. Managers and employees of County programs need timely, accurate, and understandable information to meet their public's expectations and achieve their respective missions. This recognition is clearly stated in County Chair Beverly Stein's 1995-96 Budget Message.

The purpose of this strategic plan for information technology is to guide the County's future in making and optimizing funding decisions for the comprehensive scope of its information resources, including but not limited to data management, equipment and software, applications development, employee training, technical support, and organizational roles and responsibilities. It is intended that this plan provide the necessary framework to ensure countywide communication and cooperation in the achievement of individual program and collective information technology goals and objectives. Given the complexity of this task, this document is also intended to be educational and informative for a wide audience of County employees, managers, business partners, taxpayers, and the general public.

In order to provide an understanding of the rationale for this plan's recommendations, this document attempts to capture the significant issues in our current information technology environment. While the architects of this plan felt it was more important to focus on the future direction rather than dwell on the problems of the past, it is necessary to understand the current organizational and systems dynamics in order to plan effectively for transition. In order to contribute this context of understanding, this plan gives an overview of the scope of services provided to residents of Multnomah County, and the ways in which information technology is involved in providing these services (including organizational structures, management strategies, and methods of allocating resources). This document also identifies some significant issues that must be addressed in order to more cost-effectively meet the needs of Multnomah County's employees, residents, and business partners.

Because of the variety of needs Multnomah County programs strive to meet, it is not possible for one document to address the unique information technology needs of all the departments. Therefore, this document is not an attempt to provide a centralized, prescriptive approach to planning for the County's investments in information technology. Rather, it is clear there are aspects of planning which should be conducted departmentally as well as centrally. It must further be stressed that this document provides a framework--goals and objectives--which business units will use in developing their plans of action. Each department employee, from top management to line staff, must take responsibility to ensure that their information technology efforts help the County to achieve its overall goals, while simultaneously meeting the needs of the public they serve.

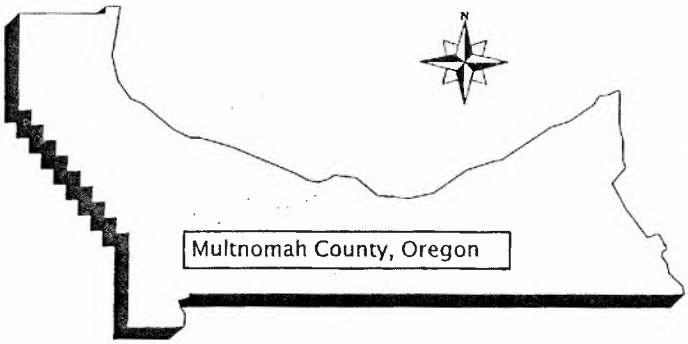
This document is also not intended as an implementation plan. Although it contains a list of specific objectives to be attained within the next 5 years, and although the SPIT team had many excellent ideas on how to begin the next phase of the planning process, the fully detailed, specific steps that need to be taken for each project will be found in an annual implementation plan. This implementation plan will be developed based on emerging opportunities, available resources, and the necessary inter-workings of the various objectives.



COUNTY PROFILE

CHAPTER 5

Multnomah County provides a wide variety of services to a diverse population of customers. Many employees and contractors provide several million dollars of information technology services in a geographically dispersed area.



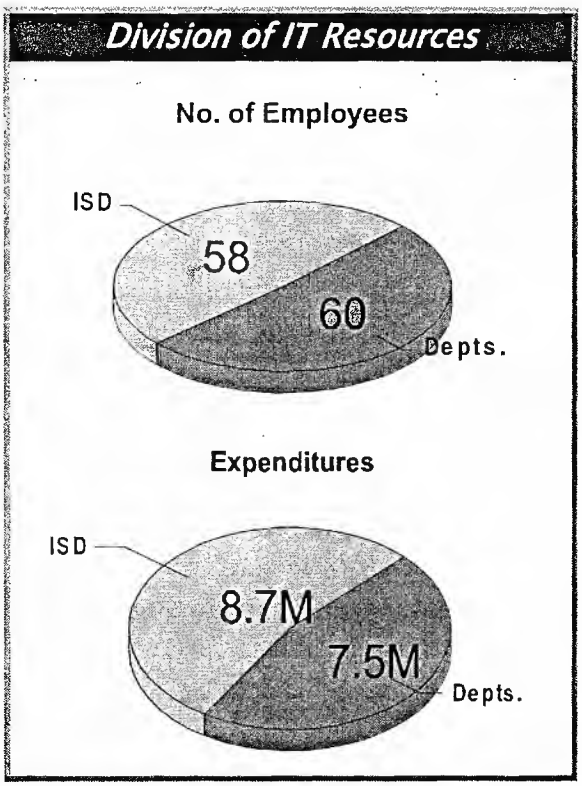
MULTNOMAH COUNTY WAS INCORPORATED IN 1854, CREATED FROM parts of Clackamas and Washington Counties as they existed at that time. Multnomah is the smallest county in the state (470 square miles) but is the most populous; as of 1994, approximately 620,000 people from a broad spectrum of social, economic, political, educational, and professional backgrounds lived within its boundaries—and steady growth continues.

The County is governed by a Board of County Commissioners (BCC) consisting of four nonpartisan members elected from designated districts within the County, and a Chair of the Board elected at large. The BCC has policy and budget authority for all County functions.

Under the County Charter, the Chair also serves as the County Executive and is charged with the administrative management of those functions under the Chair's direction. There are currently seven departments and a variety of "non-departmental" functions reporting to the Chair's Office. The departments are: Aging Services (ASD), Community & Family Services (CFS), Community Corrections (DCC), Environmental Services (DES), Health (HD), Juvenile Justice (JJD) and the Library. Management Support Services (MSS) are included in the non-departmental group. Other elected officials are the Sheriff, the District Attorney and the Auditor. These individuals have independent administrative management over the operations of their functional areas. They do not report to the County Chair. The Sheriff's and District Attorney's offices are roughly analogous to the departments in size and scope of work; the Auditor's Office is similar to an MSS division.

Multnomah County provides a broad scope of services to a wide variety of customers. Multnomah County functions are housed in over 70 buildings located throughout the County. The County operates jails, public libraries, family service centers, health clinics, Willamette River drawbridges and a juvenile justice complex. The following examples of functions performed by County programs illustrate the complexity of its operations: maintain roads, prosecute felonies, arrange for long term care of the County's elderly, provide animal control services, patrol rivers, enforce the collection of child support, provide access to library resources, provide family services, supervise offenders and conduct all County elections.

As of June, 1995, there were approximately 3,700 County employees, not including temporary workers. These employees are as diverse as the services provided. Job functions include nurses, clerks, engineers, truck drivers, managers, social workers, attorneys, deputy sheriffs, computer programmers, and librarians.

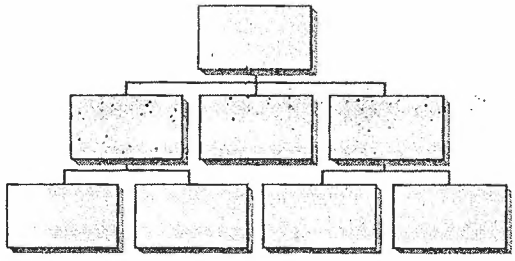


Multnomah County's 1995-96 adopted budget (excluding transfers between funds and unappropriated fund balances) is approximately $570 million. The County's funding sources include property taxes, which provide the largest source of "discretionary" funds; federal, state and private grants; user fees; and gasoline and business income taxes.

Of the 3,700 employees described above, there are 58 employees within the Information Services Division (ISD), and there are approximately 60 employees providing technical data processing functions within the departments. In the County's 1995/96 adopted budget, total expenditures related to data processing are approximately $15.5 million (excluding telecommunications). Of this amount, 56% is budgeted for ISD, and 44% is budgeted directly within the departments. These figures demonstrate that the County has a data processing capability within the departments roughly equivalent in staff and budget to that within ISD. The next section describes the current information systems and support structures within the County.

OVERVIEW OF CURRENT INFORMATION SYSTEMS

CHAPTER 6



Our current information systems have been developed over many years in response to a changing set of needs. The charge of improving services and realizing efficient use of resources in a dynamic environment will require continued investment in information technology.

MANAGERS AND EMPLOYEES OF MULTNOMAH COUNTY USE INFORMATION technology in three primary ways: to provide operational support for their daily work, to directly provide County information and services to their customers, and to promote access to and use of County and non-County information and services. Each particular use brings a set of corresponding management issues.

Information technology is used by County employees in the provision of services in many ways. Personal computers are used by thousands of employees, ranging from engineers doing computer-aided drafting to legal secretaries taking advantage of the power of word-processing to more easily prepare court documents. Deputy sheriffs can assemble a virtual "line-up" of digital inmate images for identification. The Health Information System provides a wide range of functions, from appointment scheduling to Medicare billing. Indeed, there are few, if any, programs which do not use information technology to support their business.

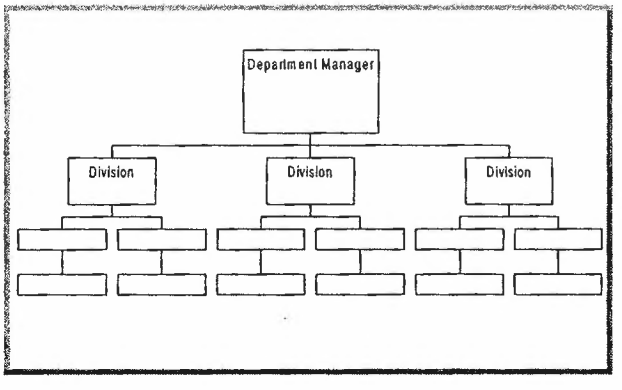
Information technology provides a public interface to County services in many areas as well. The most pervasive and obvious example is the telephone. Voice mail and automated attendant functions continue to expand the uses for this versatile tool. Other examples include computer access to Assessment and Taxation's tax roll database for title companies; computer media with voter information which is provided to many organizations; and the District Attorney's World Wide Web home page. The Library is a leader in providing services via telephones, personal computers in their facilities and dial-up capabilities for external computer users. They provide methods for these computer users to not only access County library information and services, but also provide Internet access to information worldwide.

More common than public access to County systems today is access for other governments and service partners. Nearly all major District Attorney's Office systems interface with the Portland Police Bureau and/or the State of Oregon. Major Sheriff's Office systems can be accessed by local criminal justice agencies. Examples of vital connections to State systems are found in the Aging Services, Community and Family Services, and Community Corrections Departments. Assessment and Taxation's tax roll information and automated base maps are used by several local jurisdictions.

In order for Multnomah County to effectively use technology as a tool in the provision of its many services, there must be a viable and effective internal systems support structure. There are three major components of the current information systems and supporting structures in Multnomah County:

- Departmental Services, Staffing, Funding, and Technology
- Centralized Services, Staffing, Funding, and Technology
- Policy Setting and Compliance

The following overview is intended to provide the reader with a general idea of these current systems and structures. The examples given are not intended to be an exhaustive accounting of all County technology, but rather to illustrate the complexity of the current situation, and to give an idea of the issues that must be addressed when creating any future direction.



Current Departmental Services, Staffing, Funding and Technology

Please note that for this discussion, "department" refers to any County work unit other than the Information Services Division.

Services

The internal information systems support provided by department staff varies significantly across the County. This variance is due to the types of systems found in the departments, available funding, and technological propensities of the department decision makers. Examples of support services provided in the departments include network administration, operations, maintenance, applications acquisition and development, support for mid-range systems, database development and programming, user training, and PC/LAN hardware and software installation, technical support, troubleshooting, repair, maintenance and acquisition.

Staffing

As every program uses technology in some form or another, in essence, every employee is involved with information technology. To contrast with the support services provided by ISD, it is most important to consider the approximately 60 employees providing the internal support functions as described above. The efforts of these people are supplemented by many "power users" who provide support to others in their work groups, although it is not part of their official "job." There are also many work units who use contractors or other outside service providers to meet their technological support needs.

Most departments have some sort of formal or informal information systems committees. The members and functions of these committees vary significantly across the County.

Funding

Funding for technology is part of each department's operating budget, and must be carefully weighed against other programmatic needs. This difficult situation has led to an unevenness in the abilities of different departments to meet their technological needs. Specialized grants or other inter-governmental funds have also been used for the acquisition and support of information technology. Although ISD receives "new development" money from a "non-departmental" appropriation, the projects it pays for are in support of one or more operating departments. More in-depth analysis of departmental funding is

complicated by the variety of strategies employed to pay for information technology—expenditures may occur in budget categories for supplies, maintenance contracts, temporary employees, professional services, capital equipment, and lease payments.

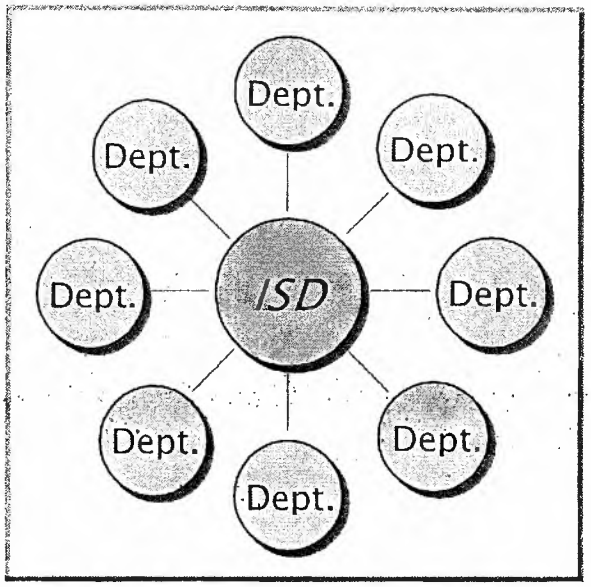
Technology

Within the departments there are six mid-range systems and approximately 2000 personal computers (PC's). Although there are 30 Local Area Networks (LANs) within the County, over 50% of these PC's are not connected. Other systems have more existing connectivity. As discussed earlier, the County's systems have interfaces to a variety of external entities, including computers at the State, the City of Portland and educational institutions.

The Health Department runs their mainframe applications on an OHSU computer, several social service departments use the State Department of Human Resources mainframe applications, and the Department of Community Corrections uses the State Department of Corrections mid-range system.

Mid range systems are found in the Sheriff's Office (2), Assessment & Taxation, the Library, Elections, and Fleet Services, and run applications such as Dynix (Library operations), MAINSTEM (Fleet maintenance) and X-Image (inmate photo images).

County applications which take advantage of client-server capabilities include Applicant Processing, and systems in Facilities Management, the District Attorney's Office and Alcohol and Drug programs. A large variety of personal computer applications are also being run on individual machines and local area networks. The most prevalent are word processing, spreadsheet and database programs. Many employees have taken advantage of the capabilities of these products to develop customized applications to meet their service needs.



Current Centralized Services, Staffing, Funding and Technology

Services

Services provided by ISD include analysis, design and implementation of new or replacement computer information systems; maintenance and enhancements to existing computer applications (primarily mainframe applications); mainframe computer operation, technical services and data administration; network support for the County's wide area network and local area networks; analysis and design of telecommunications needs and coordination of moves and changes to existing telecommunications equipment, voice mail and other telecommunications services. ISD does not provide LAN administration or personal computer technical support or training.

Staffing

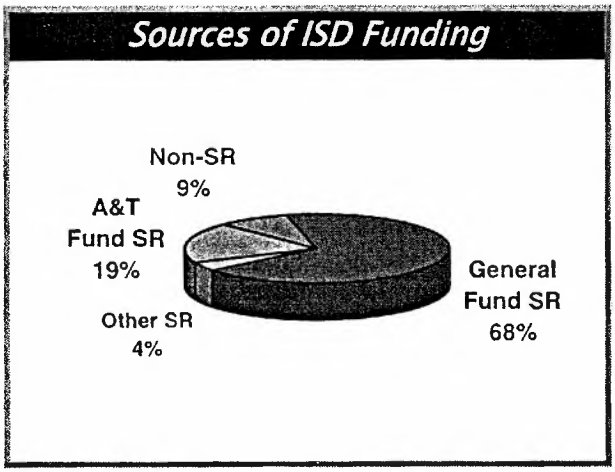
The majority of the functions described above are performed by ISD's 58 employees. Workload demands often necessitate adding contractual programming support. Many telecommunications technical duties are contracted to the local telephone companies.

Funding

Funding for ISD comes primarily from two sources:

- Service reimbursements from all departments and external users. For all funds except the General Fund, the user department is billed based on mainframe usage and work requests. Although General Fund programs' usage is tracked and billed, the funding is from one special "non-departmental" appropriation and the user departments are not held accountable for their costs. This creates a significant problem because the County's General Fund provides the majority (73%) of the service reimbursements to ISD.

- "New development" money from the General Fund for new projects. This is the funding for which the DPMC creates the Information Systems Plan each fiscal year.



Technology

The County has one central mainframe computer, which is accessed via approximately 580 "dumb" terminals and over 600 personal computers via local area network gateways. 32 major applications run on the County's mainframe, ranging from the Sheriff's Office Corrections Population Management system (1674 users) to the Accounting System (113 users).

Work has recently begun on a wide area network (WAN) which will link the County's local area networks, mainframe and other computers both within and external to the County. ISD has the responsibility for the development, operations and maintenance of this WAN.

Policy Setting and Compliance

The Data Processing Management Committee (DPMC) is authorized by County Ordinances 511 and 617[4] to act as a policy setting body and provide management control and monitoring for all County data processing and telecommunications. By ordinance, the DPMC is comprised of each department manager, the Sheriff, the District Attorney and one private sector business executive. The DPMC Operating Staff Committee (DPOC) provides staff support to the DPMC.

The DPMC has delegated to ISD the review of software and hardware purchases over $1,000 for basic compatibility with existing County policies. Each year the DPMC reviews and approves ISD's budget and an Information Systems Plan for the upcoming fiscal year, which is then submitted to the Board of County Commissioners. Prior to 1995, this plan generally consisted of mainframe issues, and was only for projects that were to be funded by a special appropriation for new development. In recognition of the preliminary findings of the strategic planning effort, the majority of funding in the 1995 plan was for network connectivity and personal computer infrastructure, and included other non-mainframe applications development.

Conclusion

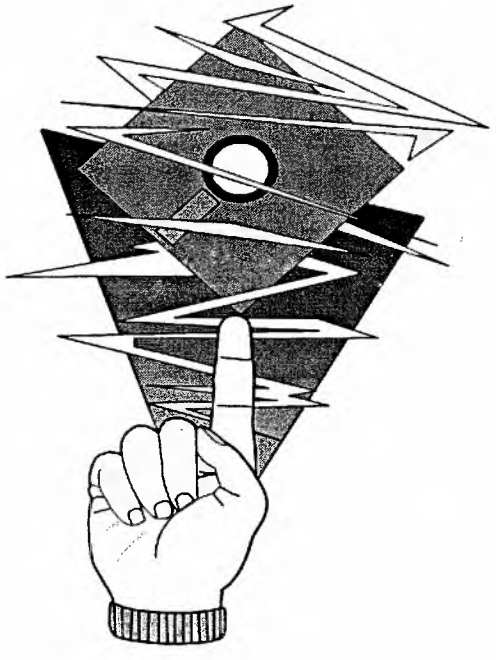
Multnomah County's current information systems and supporting structures have been developed over a long period of time, using a wide variety of sources. Although every work unit now uses some form of technology, each

[4] The complete ordinances can be found in the Appendix

day there are new examples of the ways internal and external services could be improved, streamlined or made more accessible via information technology.

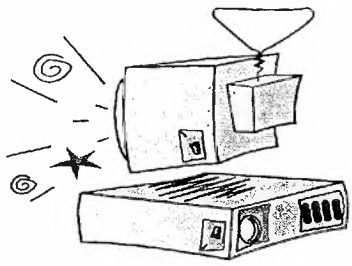
Historically, there has been little coordination, guidance or overall strategic direction for the County with respect to exploiting the potential uses for information technology. This lack of County-wide perspective was not limited to information technology, however. The focus for the majority of the County's operations was the maximization of use of resources *within* each department.

The result is a wide disparity across programs in the quality and quantity of data, equipment, software, support and training available for the County's employees and customers. As County programs now work together to provide information and services, the independently developed systems and unequal support structures are creating barriers. The recognition of some of the inadequacies of current systems provided the "wake up call" that began this strategic planning effort. The next section discusses some of the other factors that led to the creation, and influenced the content, of this plan.



WHY A STRATEGIC PLAN?

CHAPTER 7



Multnomah County is at the confluence of major changes in the expectations of its citizens, in approaches to business management, and in the capabilities and uses of information technology. In order to bring about congruent change in all business components, a systems view of planned change is required.

CITIZENS ARE DEMANDING THE SAME KIND OF RAPID, TECHNOLOGICALLY-assisted services from the County that they receive from their banks, the airlines on which they fly and a host of other areas of daily life. "Government hours" of 8:00 a.m. to 5:00 p.m., Monday through Friday at a County office, are simply no longer acceptable. In addition, citizens do not understand why services are divided by jurisdiction, when they perceive them as provided by the "government". All agencies must work together to make these boundaries transparent to our customers. Ways to provide information and service in a manner convenient for the customers, rather than the providers, must be found.

Citizens also look to the County for assistance in accessing and using the information technology makes available. As indicated in the description of current services, the libraries have been using technology to provide more accessible services for many years, and are expanding the scope of these services each year. The libraries have also assumed a special role in providing access to technology services for those who do not have private access.

It is not only systems for the public that need improvement. County employees look to technology as well, to meet increasing demands for the services they provide in a rapidly changing environment. Internal County systems must enable efficient service to the community, not create bureaucratic entanglements. Yet the County's current systems are often inadequate, inflexible and obsolete. Significant findings regarding our internal information technology include:

- It is a cumbersome or impossible task for an individual to get up-to-the-minute information from the County's centralized systems to make informed business decisions.
- Many employees currently lack the training and support necessary to effectively use the systems that are available.
- Network infrastructure is not in place to allow ready sharing of information among personal computers or to facilitate the cross-functional teamwork envisioned by the RESULTS campaign.

Shifting Paradigms

Concurrent with significant changes in our economy and political environment, our use of information technology resources is also changing dramatically, as Don Tapscott and Art Caston explain in their best-selling book, Paradigm Shift [5]:

For its first few decades, ... data processing was pursued primarily to reduce clerical costs.... Today, however, technology has moved to the front line in most organizations. Today, however, technology has moved to the front line in most organizations. It has become strategic in the sense that it is a necessary component in the execution of a business strategy.... [Many organizations] have scrambled to expand computing beyond back-room data processing to the front-line delivery of services and products to customers.

A change has also occurred in terms of who uses computers. In the first era the focus was on technical specialists, professionals, and managers who designed, implemented, managed, controlled, and usually owned the computing infrastructure of the enterprise. With the transition to the new era, business users of technology have moved to the fore. [They are larger in number] and are more sophisticated and demanding. They are also no longer content to depend on management information systems departments to achieve the benefits that technology can bring. Users want to shape the technology that is implemented in their organizations.... They are rapidly understanding that their effective use of technology coupled with a change in how they do business will determine their personal and organizational success. They have become the vanguard of an information technology revolution that is quickly altering the old ways of organizational computing.

Information technology is simply a tool to provide better information and service. Therefore, the issues addressed by this Strategic Plan must be related to the provision of County services, not just automated systems. The 1990's brought a national recognition of the lack of confidence citizens felt for government and their demand for a new way of doing business in the public sector. In Multnomah County, a new administration brought a change of focus to County operations. Some of the major elements of this change are: taking programs directly to the communities they serve, responsiveness to internal and external customer needs, collaboration with others who share the County's interests and concerns, and program level evaluation of services provided.. The common thread among the values, benchmarks, RESULTS initiative and the programs is information. It is widely recognized that the County's information systems are how data gets to all of those who need it, from the direct service providers, to the Board of County Commissioners, to the citizens the County serves.

Many different committees, task forces and teams are working hard to improve the service Multnomah County provides. Over and over, technology is seen as a critical component of service changes.

"The County's Information Systems guided by the Strategic Planning and Information Technology (SPIT) plan will play an increasingly larger role in data collection and analysis to assure quality in the County. This service will provide assistance to both County-wide teams and department work units in determining the best data collection systems and how to best link those systems with other County data collection systems."

RESULTS Roadmap, *Multnomah County, 1996*

"Finally, the County needs to respond to current and future technological innovations. This can be accomplished by utilizing flexible building and operational systems to allow for incorporation of technological advances as they occur"

Multnomah County Strategic Space Plan, *1995*

"As we undergo the transformations associated with the Information Age, libraries will have to become even more dynamic institutions. We will lose much of our conservator role and play a very active role as information facilitators and information access advocates."

Automation Plan 2005, *Multnomah County Library, 1995*

"Effective use of technology enhances citizen access to services by minimizing citizens' having to visit a site to receive a service and by linking geographically dispersed sites with systemwide resources. When making facility decisions, the County will actively pursue opportunities to take advantage of technological improvements."

Multnomah County Strategic Space Plan Sub-Committee Report, 1995

"Agencies cannot report on their activities, or plan new ones, without a strong ability to collect, maintain, analyze and react to hard data. . However, it was clear from this example, that comprehensive management, tactical and planning data is not readily available within the current management information systems structure."

Multnomah County Sheriff's Office Operational Analysis, *International Association of Chiefs of Police, February, 1995.*

Video and teleconferencing for arraignments in all facilities; an integrated database, enhancements to existing Sheriff's Office systems and a common assessment tool were all identified by the 1995 Public Safety Task Force as critical components of justice services in the immediate future.

An integrated database for government and private service providers was identified as a key requirement by the Commission on Children and Families.

[5] Excerpted from Paradigm Shift, Tapscott & Caston, 1993

Performance measurement is central to the "high performance" government envisioned for Multnomah County. Yet in preparing the first report on these performance measures in September of 1994, 271 (52%) of the County's "Key Results" had no data available. A key component to the County's RESULTS program is achieving the criteria of the Malcolm Baldrige National Quality Award. Data collection and planning for such collection are key criteria of the program, yet time after time County programs find they are not collecting, or are collecting and can not access the data needed.

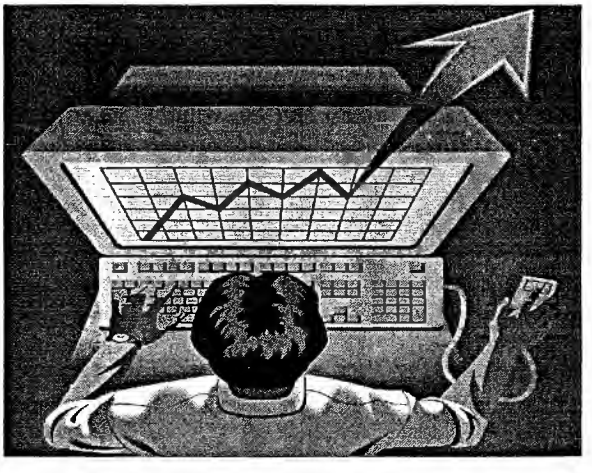
These issues have not developed overnight, nor have they been unnoticed until now. A variety of factors have contributed to the current situation. A review of these factors helps to provide direction for future actions. In the 1970's and 1980's the County pursued and funded technology at a level consistent with necessary services, and often was seen as a leader in implementing new technologies. The confluence in the early 1990's of Ballot Measure 5, the explosion of personal computer technology and an administration for whom technology was not a priority dramatically changed that situation. Budget cuts imposed to meet the fiscal constraints of the property tax limitation measure caused ISD to focus solely on the mainframe, and primarily on legacy applications. These applications were then, and are still today, essential to accomplishing the work of the County.

As ISD turned its focus to these mainframe applications, the departments became aware of the extraordinary productivity and service gains personal computer technology could provide and their focus began to turn to this new technology. In the early 1990's the departments functioned largely as autonomous units, with little central coordination. Even the new systems on the central computer were developed in conjunction with specific department needs. There was little perceived need to integrate systems across different programs.

Because of a lack of central resources and guidance, support for data processing other than the central mainframe was also developed in a totally decentralized way, and the resultant situation is a vast disparity in availability and level of support throughout the County.

The policy and decision making structures around information technology have also contributed to the current situation. The current composition of the DPMC and the lack of a consistent forum for technical professionals to provide input on IT decisions have resulted in high-level managers and policy makers being charged not only with setting policy, but with operational decisions regarding technology for which they are not, and should not need to be, technically competent to make. Additionally, there has been a lack of definition of various entities' roles and responsibilities with regard to information technology, as well as a lack of any consistent, overall guidance to the County's efforts. Finally, the outside perspective called for by Ordinance 511 has not been present in recent years, and it is a perspective the County should make the effort to obtain.

The combined force of all the factors discussed here have made it clear that Multnomah County must change from its current course of action with respect to information technology. The remainder of this document is devoted to charting the new course for the future.



PROJECT APPROACH

CHAPTER 8

The strategic planning committee used a variety of techniques to involve managers, end-users, customers and information technology experts, and used data-driven quality improvement and planning tools to ensure they produced a plan that would be consistent with the County's strategic direction.

IN RECOGNITION OF THE IMPORTANT ROLE THAT TECHNOLOGY WILL PLAY in the future of County operations and service delivery to the public, County Chair Stein included as an action item in the 1994/95 Multnomah County budget the development of a comprehensive strategic plan to guide the County's future investment in and management of information technology. In September, 1994, the Data Processing Management Committee (DPMC), the County's policy board for information services, convened a planning team with representation from each County department to develop the plan.

Several key elements were at the core of the strategic planning approach. These included:

- **Broad-based representation** in the planning process;
- Use of a systematic **phased process** for plan development;
- A variety of **educational activities** for planning team members;
- Use of specialized **tools and techniques**;
- A unique **philosophical approach** to the project.

Broad-Based Representation

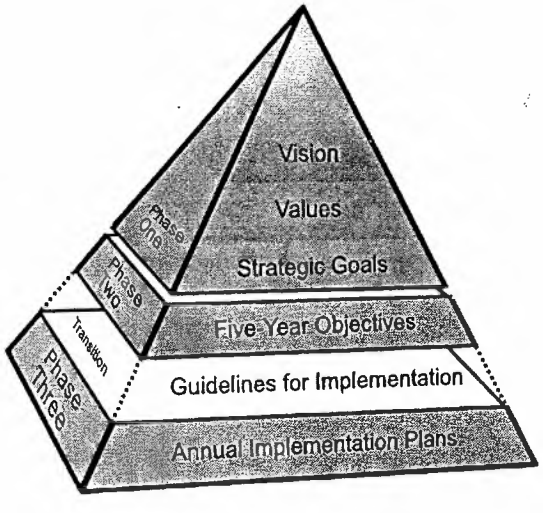
All County departments, as well as elected officials and non-departmental divisions and agencies were represented by a member on the Strategic Planning for Information Technology Team (SPIT), which met weekly during the development of this plan. These members made periodic reports to the DPMC, which has current responsibility for information technology planning. The Board of Commissioners and the Chair were represented on the working team, and were also given periodic update presentations.

In addition to County representatives on the working team (SPIT), two other members graciously gave their time, Ken Phillips, the Director of the Marion County/City of Salem Data Center and John Hamlin, News Systems Director from *The Oregonian*. Outside experts, including George Beard, currently of Unisys Corporation, and a former systems director for the State of Oregon, and Susan Yasko from Digital Equipment Corporation each also attended a SPIT meeting and shared their ideas and insights with the group.

For input from a broader cross section of the county, two half-day work sessions were held. The first was to validate and modify the vision and develop preliminary objectives. This work session had approximately 120 attendees, across all job functions, levels and organizational units. The second session was to get specific input regarding the issues of standards and technical support. This was attended by approximately 80 people, from all organizational units, in a variety of technology-oriented positions. The strategic planning team also held work sessions with the DPMC and the Board of County Commissioners. All four of these sessions helped the team to improve completed work and refine the focus of future activities.

Phased Process

This strategic planning process is comprised of three phases:



- Phase 1 defined the strategic vision, and associated values, assumptions and strategic goals (5 year) goals.
- Phase 2 defined specific objectives; the implementation of which will enable the County to achieve the strategic goals. The results of these two phases are contained in this document.
- Phase 3, the implementation phase, will be the actual detailed implementation plan for the information technology objectives, and will be updated annually to assure that plans reflect the current and near term technologies and funding available to support the County's businesses.

Team Education

The strategic planning team pursued a variety of methods to understand not only the current and emerging technologies and how they improve business performance, but to also understand customer needs and expectations and to recognize the organizational implications (culture change, costs, etc.) of implementing needed technologies. These educational opportunities included:

- **Site visits** to:
  - ODS Insurance, to observe how imaging technology greatly increased efficiency in office work flow;
  - METRO for a GIS demonstration; and
  - Intel Corporation for an in-depth look at how their internal systems function.
- **Demonstrations/videos** regarding kiosks, the Internet and the City of Santa Monica's Public Electronic Network
- **Attendance** by individual team members at the Government Technology Conference and the Urban and Regional Information Systems Association (URISA) GIS Conference. Information from these two conferences was presented to the rest of the team by the attendees.
- **Reading** numerous journal articles, books, research reports, and other strategic plans.

Tools and Techniques

A wide variety of quality improvement and other team process tools were used to guide the strategic planning effort. Exercises were chosen to:

- **Target** specific problem areas;
- **Identify** which elements of the plan influence other elements, so that those processes which drive others could be addressed first;
- **Challenge** each team member to broaden their expertise in problem-solving and idea generation.

Examples of the techniques used were brainstorming and affinity exercises, customer needs identification matrix development, hissy fits, organizational modeling and multi-voting.

Philosophy

There were several underlying philosophies which guided the development of the elements of this plan:

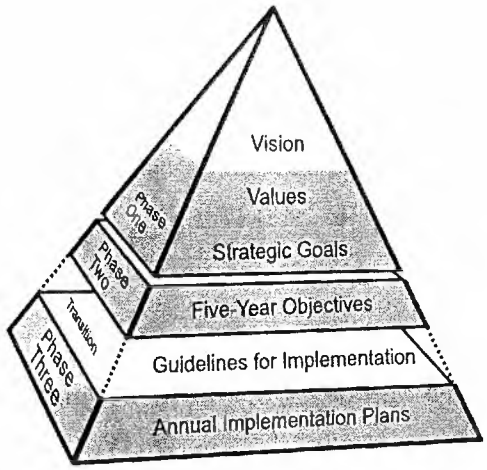
- **Support the strategic direction of the County** as envisioned by the County Chair, the Board of County Commissioners and the Data Processing Management Committee.
- **Strive for the good of the entire County**, while balancing the interests of the operating units.
- **Focus on customer service.** Improvements in information systems should be made to increase service to the County's customers, not merely for the sake of adopting popular technology or organizational models. The County's business needs should drive systems development, rather than the systems driving the business practices.
- **Achieve fiscal responsibility.** Recognize that as a public entity, the County has an obligation to balance technological development with prudence in expending public funds.
- **Integrate services** among County programs and their outside partners, which has been identified as a critical goal of the County.
- **Build consensus** for decision making, to secure organizational commitment to the plan and address departments' diverse concerns.
- **Focus on the future.** Shortcomings of current technological and organizational systems should not limit the vision of where the County can go. Although such issues must be recognized and addressed, it is important to focus on future possibilities rather than dwell on current or historic problems.

VISION

CHAPTER 9

What will it look like?

The vision describes a picture of the future, desired state of our organization as it relates to the use of information technology. Its purpose is to direct our resources in this direction and provide motivation for our employees. It also provides an anchor or reference point against which all actions or progress can be measured.



THE VISION WAS THE FIRST ELEMENT OF THE STRATEGIC PLAN DEVELOPED by the planning committee. It underwent several revisions during the planning process which solicited input by managers, end-users, the DPMC and the Board of County Commissioners. As it describes the ideal state of our organization in the broadest terms, all subsequent elements of the plan must support, and be in alignment with the vision.

Achieving the vision is the ultimate goal of the strategic planning, policy, funding, and organizational development efforts resulting from this plan. Although our vision is relatively simple and straightforward, achieving it will require a dedicated, concerted effort on the part of every county employee and elected official in the years to come. It is important to note that the vision does not specify technological improvement as the ultimate goal; rather, it makes it clear that information technology is a tool to improve the quality of information and services provided to our customers.

Multnomah County's information technology enables our employees, our public and private partners and the community to interact and use information when, where and how they need it.

VALUES

CHAPTER 10

What principles will we act upon?

The values provide an additional reference point for judging whether we are behaving ethically and responsibly, and in a matter consistent with the County's overall values in the pursuit of our vision.

THE VALUES EXPRESSED IN THIS STRATEGIC PLAN WERE SYNTHESIZED from the perspectives of a wide cross-section of County managers and employees, gathered during a brainstorming session designed to provide guidance and context for the strategic planning effort.

The values are the underlying principles which guide the ways in which the County will act in pursuit of its vision. These principles will require a similar level of conviction from each employee and elected official. They were developed in association with the values for the County Benchmarks and the Strategic Space Plan. The strategic planning committee believes these values should not only support County activities with respect to information technology, but that they should be pursued in all aspects of County government.

As Multnomah County pursues its vision for information technology, the employees and elected officials will:

- Focus on and involve the people we serve.
- Work for the greater good, with
  - *Respect*
  - *Integrity*
  - *Creativity*
  - *Responsiveness*
  - *Collaboration*
  - *Fiscal Responsibility*

STRATEGIC GOALS

CHAPTER 11

What will we achieve?

The strategic goals describe, in a broad sense, the major accomplishments necessary in order to realize the vision. These were developed based on a county-wide brainstorming session, and help establish priorities and sequencing of the steps to accomplish them.

BECAUSE INFORMATION TECHNOLOGY IS A TOOL FOR IMPROVING THE services the County provides, the vision must be achieved for these service improvements -- not for the sake of improving information technology. The Strategic Goals indicate the ways information technology can effect changes in the way the County does business.

1. Improve access to County information to the public, County employees and other public and private agencies through a cost-effective, widely available electronic infrastructure.

2. Improve the quality of service delivery to the public through the effective use of information technology.

3. Improve public involvement in County processes that formulate County ordinances, policies and budget priorities through the use of information technology.

4. Improve the quality of County decision making by making current and accurate data and information available through the use of information technology.

5. Improve the efficiency and effectiveness of internal County business processes through the effective use of information technology.

In order to achieve all goals, #1 - #5, the County must develop its information technology in such a way as to ensure connectivity, access, data sharing and integration and information usability. In order to do this, the County will:

- Establish connectivity linking County departments with other governmental agencies and other key partners in the provision of public services.
- Provide access to the County's information for all potential internal and external users, while eliminating barriers related to navigation and location.
- Develop common data elements, allowing integrated systems that track clients, services, performance and costs across programs and agencies while protecting data integrity and client confidentiality.
- Assure usability, such that the user can quickly and easily navigate the systems needed.

In addition to the strategies noted above, to achieve strategic goals #4 and #5, the County must:

- Adopt data and document sharing processes that are electronically based, capturing data while reducing the need for handling paper.
- Provide the training and technical assistance necessary to ensure optimal utilization of the County information systems.
- Create a cultural climate in which organizational roles, responsibilities, resources and decision processes are adjusted to support the achievement of information technology goals quickly and cost effectively.
- Eliminate unnecessary duplication of effort and optimize benefits from technology by cultivating the willingness and ability of County programs to share information and resources.

While realizing these five strategic goals, the County must also support the RESULTS campaign and employ continuous quality improvement, business process re-engineering and other appropriate analytical tools and methodologies to examine the processes of doing its work so that bad process are not automated, and that the methods of providing service continue to meet customer needs.

Finally, in order to pursue strategic goals, it is critical that the County's commitment be ongoing and that the effort be continually renewed, by:

- Recognizing the need to make the commitment for short term resources and continuing investments in information technology to realize long term gains.
- Recognizing the dynamic nature of information technology and periodically assess and update the strategic plan.

FIVE-YEAR OBJECTIVES

CHAPTER 12

What are the landmarks along the way?

The five-year objectives describe the milestones—more specific accomplishments or outcomes to be achieved as we make progress toward realizing our vision.

IN ORDER TO MAXIMIZE THE COUNTY'S INVESTMENT IN INFORMATION technology and to achieve the Strategic Goals, many objectives must be achieved. The objectives listed here are those which the members of the Strategic Planning Team felt it was most imperative to complete in the next five years.

Because of the rapidly changing technological environment, attempting to project that environment even five years from now is not possible. For that reason, the objectives listed here are concerned with outcomes more than methods. An implementation plan will be prepared each year which will specifically describe what projects and tasks will be performed that year in order to achieve these objectives, based on department planning efforts and projected resources available for the following year. The next chapter in this plan, *Guidelines for Implementation*, describes ideas and issues that it is imperative for the implementation plans to include and address. These *Guidelines* provide the link between this Strategic Plan and subsequent department and County-wide information technology efforts.

The objectives encompass the broad realm of information systems; including technology, training, support, funding, organizational structure, the data itself and the myriad of related policies, procedures and support systems. The objectives have been grouped into major categories: Policy, Service, Technological Infrastructure, Information Management, and Organizational.

- **Policy** objectives communicate the global intent and concerns which will guide the County's information systems progress and must be considered when implementing the other objectives.
- **Service** objectives describe ways in which technology can improve the services the County provides.
- **Technological Infrastructure** objectives describe projects and goals which will create a desired computing and communications structure, including both equipment and applications.
- **Information Management** objectives are concerned with the data and information needed to conduct County business, including the identification, structure, security and integrity of that data.
- **Organizational** objectives are in the areas of organizational structure, funding, training, support and administrative procedures.

Objectives are listed in the following pages by category. The SPIT committee analyzed the organizational readiness, immediate feasibility, interconnectedness or necessary sequencing, and importance of all objectives. Those objectives receiving top priority for the coming year are marked with the following symbol—★. Many objectives are multi-year, and the priority indicates when work could *start*, relative to the other objectives. A table at the end of this chapter lists the objectives and their priority for the next year, identifies which strategic goals each objective will help the County achieve, and indicates those parties who will have to be involved in accomplishing them.

Policy Objectives

The policies listed here provide the ideological framework for the rest of the objectives and for the use of data and information technology in Multnomah County. These policies reflect specific behaviors and attitudes which must become pervasive in Multnomah County in order to achieve the Strategic Goals. Please note that all policy objectives are prioritized for adoption at the time of acceptance of the strategic plan.

P1. Adopt the following policies for Multnomah County:

P1.a. Multnomah County will pursue improvements in information technology in order to improve the quality, efficiency and customer service of County programs, not merely for the sake of improving the technology.

P1.b. Multnomah County recognizes that information technology is not only the purview of technical staff, but involves the entire organization, from the policy makers to the employees and contractors providing services to the public. High-level management has the responsibility to learn about best practices and plan for incorporating technology into the services provided. Elected officials will support and encourage the development and implementation of this knowledge.

P1.c. Multnomah County recognizes that data is a corporate asset and must be treated as such. Systems must be developed with the necessary accessibility, security, disaster protection and recovery processes and quality monitoring necessary to ensure data integrity. County programs must strive to balance the confidentiality and access to information required by law.

P1.d. Multnomah County will strive to design information systems which will eliminate barriers to access caused by location and language, and will accommodate those with special physical or learning/access needs.

P1.e. Multnomah County will actively seek public and private partnership opportunities for the development and acquisition of information technology. Furthermore, the County will assume a leadership role in facilitating intergovernmental cooperation in the region.

P1.f. Multnomah County will establish a level of security for its information systems commensurate with the sensitivity of the information, risk and magnitude of loss or harm that could result from improper operation of the system. As external access to County systems is increased, security precautions will be properly upgraded.

P1.g. Multnomah County's applications are the responsibility of the chief work unit to which the application applies. These responsibilities include new applications development, maintenance and support of existing applications, technical and user documentation, troubleshooting for users and the coordination or provision of training. In the case of County-wide applications, the appropriate central support division will have the

the aforementioned services, merely that the work unit, not a central information services organization, is charged with ensuring that these functions occur.

P1.h. Multnomah County's intent is to meet its software applications and data processing requirements by internal and interagency sharing, public and private partnerships for development, and using commercial or public "off the shelf" applications wherever possible to do so. Furthermore, if these options are not possible for PC level applications, internal applications development should take advantage of the capabilities of the standard office suite whenever possible. Projects will have to demonstrate a compelling cost benefit or inability to meet business needs through these methods before internally developing custom code.

P1.i. Multnomah County will develop future policies, standards and guidelines for information technology by processes which include employees across departments and across job functions, in order to secure organizational commitment to these new policies and to ensure the recognition of unique work unit needs.

Service Objectives

Achieving the objectives in this section is the key to realizing the strategic goals of improved access to information and improved quality of service to the public. These objectives approach these goals from two directions - internal and external. External service objectives are concerned with systems and processes that impact service provided directly to the County's customers; internal service objectives are concerned with providing the support and information needed to those providing the external services. Addressing both areas is critical to achieving the strategic goals. Improving and expanding the systems that impact the way the County delivers services will have obvious benefits to both the providers and clients of County programs. Improving internal systems should provide cost and time efficiencies, freeing resources for more direct services. Furthermore, the internal systems will be used to provide external information, and so the data in those systems must be improved and transformed into useful information if it is to provide benefit to the community. The County must strive for a balanced approach to achieving these objectives, so that the gains from each side can be realized.

S1. **Each department will be responsible for creating a five-year information technology plan, with annual updates, in order to provide direction to the departmental IT efforts, to ensure that these efforts are in line with the County-wide strategic goals, and to provide policy makers with information for decisions.**

S2. **In recognition of the interdependence between various County functions, and with external agencies and governments, information technology plans will be created for strategic "systems" of public services, in order to coordinate efforts and maximize the value to all partners of resources invested.**

S3. **Pursue interactive, public electronic access to government information and the provision of government services to the public via telecommunications, the Internet and kiosks in public venues. Specific projects will be determined by the department plans. They should include, but not be limited to, providing users with the ability to:**

S3.a. **Display and/or download of published government documents (BCC agendas, budget document, audits, etc.)**

S3.b. **Display and/or download of other published materials**

S3.c. **Write/read electronic bulletin board messages to/from elected officials and County programs**

S3.d. **Participate in interactive electronic public meetings**

S3.e. **Have 24 hour access to property information**

S3.f. **Access a database of adult foster care facilities**

S3.g. **View court dockets**

S3.h. **Apply for pet licenses**

S3.i. Record documents

S3.j. Apply for land use permits

S3.k. Schedule a health clinic appointment

S4. Implement electronic data interchange (EDI) with outside service partners, banks, title companies, and other government agencies in order to reduce or eliminate the need for:
- paper forms;
- travel and other expenses incurred in the physical exchange of information;
- time, expense and error probability caused by redundant data entry.

S5. Implement applications for electronic data access and sharing within the County to reduce or eliminate:
- the need for paper forms;
- multiple databases containing the same information;
- travel and other expenses incurred in the physical exchange of information
- time, expense and error probability caused by redundant data entry.

S6. Provide on-line access for County employees to current versions of all County published documents, policies, procedures, administrative rules, phone directory, agendas and ordinances. Include external documents as necessary and possible (e.g., ORS, State administrative rules, etc.)

Technological Infrastructure Objectives

The objectives in this section reflect specific technological goals the County must achieve to reach the Strategic Goals. None of the systems, or systems related projects described here will cause the Strategic Goals to be manifest; however, they will provide the communications, access and efficiencies which will enable people to achieve those goals for Multnomah County.

T1. **Build wide area network (WAN) links to all County programs, partners and agencies.**

T2. Provide on-site and remote access to the County's information systems and the Internet in order to ensure that *all* employees have computer access to the information they need to do their jobs when and where they need it.

T3. Provide user-friendly ad hoc report creation and database search tools which allow any authorized user to access and use (not change) data from any County application.

T4. Develop and implement a comprehensive strategy for making geographic information systems (GIS) tools available throughout the County.

T5. Develop and implement a comprehensive strategy for making document imaging tools available throughout the County.

T6. **Develop and implement a comprehensive strategy for making Internet and World Wide Web tools available throughout the County.**

T7. Expand electronic conferencing/meeting/work group capabilities throughout the County to reduce the need for the time, travel and space that face-to-face meetings require.

Standards

The objectives in the area of standards are designed to facilitate making data widely available and improving internal effectiveness. The standards are intended to provide consistency and interoperability, and to remove the necessity of research by a multitude of County programs each time a technological purchase is planned - not to create a rigidity which eliminates the benefits inherent in desktop computing. **The creation of an assessment and migration plan is a critical and required component of implementing each standards objective.**

T8. Adopt and implement the Open-Systems standards described in State of Oregon Senate Bill 1210[6] (1990) and related documentation for:

- equipment and software above the desktop level, including LAN/WAN hardware, software and cabling;
- interoperability across platforms;
- protocols.

[6]Complete text of SB 1210 and related procedures and rules can be found in the Appendix

T9. Create and implement a "two-tiered" desktop hardware standard. Tier 1 outlines the minimum configuration for new acquisitions and Tier 2 the minimum configuration to be retained by County operations. A "minimum configuration" specifies a processor type, processor speed and amount of RAM.

T10. Determine and implement a one vendor, office "suite" which contains at least word processor, spreadsheet, database and e-mail capabilities to be used as the County standard for desktop applications of these kinds.

T11. Create communications/electrical standards for County workspaces, which will become a mandatory requirement in all County new construction and remodeling projects.

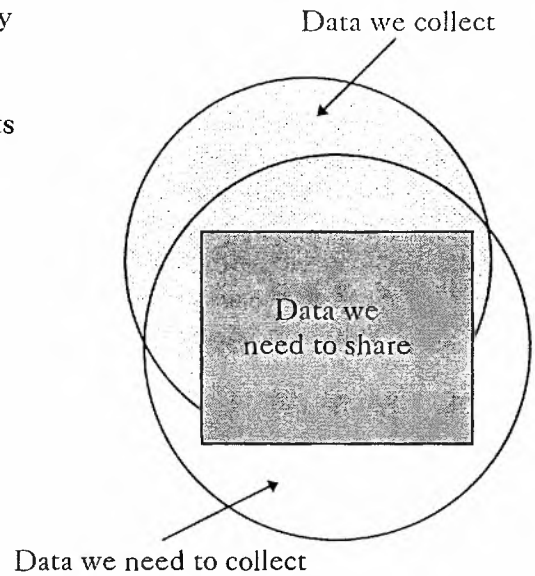
T12. Develop and implement a set of standard application development tools and methods in order to facilitate application sharing and provide a similar "look and feel" of applications County-wide.

T13. A list of recommended PC configuration and peripheral equipment should be developed to provide guidance for departmental purchases in areas the standards do not address.

Information Management Objectives

In order to meet the goals of data sharing and integration, and improve the speed, efficiency and service of County programs, and improve decision making, it is imperative to move away from the current data model where many work units are maintaining the same or similar data in a vast variety of formats, often unreadable between work groups. It is a key requirement of the County's RESULTS initiative to have databases of performance measurement information that can be accessed by anyone within the organization. Data and information, quite simply, are critical components of all County operations. Developing the desired organizational capabilities in the areas of data management, access and sharing will be a major effort, and is a key element of this plan. Achieving the objectives in this section will allow the County to develop information systems which are accessible, non-duplicative, secure, timely and accurate.

11. Identify the following data in Multnomah County operations:
    - Data currently collected by the work unit
    - Data currently needed *by the work unit* to serve its customers, by customers and service partners *from the work unit*, by customers and service partners *about the work unit or its customers and to measure the performance* of the work unit
    - Of the needed data, what elements are necessary to share among work units, among customers, among other partners in providing service?



12. Develop and implement data standards around shared data elements that support current/planned business needs and applications.

13. Develop and modify systems such that data is entered by that person or program with "custody" of the source of the data, but can be used by all parties who need it. The custodial programs are then responsible for the initial timeliness and quality of the data available.

14. Create and implement minimum standard security protocols for hardware and software in order to facilitate a similar "log in" procedure across platforms and applications.

15. Develop and implement a County-wide program for disaster avoidance and recovery for data and applications.

16. Develop a countywide database of existing applications which identifies the platform, authorized users, processing functions, data elements, sources of these data, outputs and customers of each application.

Organizational Objectives

Achieving the Organizational Objectives will require some of most significant changes in the way the County does business. They are listed last to emphasize that organizational changes must be driven by all of the other objectives and goals - the County must decide what it wants to achieve and then build the foundation which supports those goals.

O1. Create and fill the new position of Director of Information Technology (DIT), reporting to the County Chair, who will provide leadership and direction in achieving the County's strategic vision and will be responsible for the central information services organization.

O2. Place all centralized IT functions under the DIT, thereby moving the current ISD from DES to Non-Departmental. See the *Guidelines for Implementation* for this objective for further information of what functions should be centralized.

O3. Adopt the Strategic Plan by resolution, and repeal Ordinances 511 and 671 to eliminate the Data Processing Management Committee by December 31, 1995.

- The DPMC created the DPMC Operating Staff and the Strategic Planning for Information Technology Team; therefore, those groups will also be eliminated.
- Because technology is a means to meet business needs, IT issues and policies follow directly from business or operations issues, concerns and needs. Take advantage of the expertise on the County's existing Operations Council to provide business and policy guidance regarding IT.
- Create a new on-going committee called the Information Technology Council (ITC) which will consist of the department IT Coordinators, *and* other appropriate technical professionals in order to provide input on County-wide IT issues and provide a forum for the discussion of technical topics.
- See *Guidelines for Implementation* for further discussion of the roles of the Operations Council and the ITC.

O4. Provide an annual review of centrally provided IT services, the costs of providing those services (including comparison to other providers), and the quality of the services provided.

O5. Departments will designate one person as the departmental "IT Coordinator." This person will be the focal point for IT in the department, and will be responsible for coordinating activities and information regarding IT-related budget, people, systems and needs. Important: This person does not necessarily perform the IT functions, he/she is just responsible for acting as an information repository and providing coordination.

O6. Develop departmental capacity to perform IT functions which are most appropriately determined at the business unit level. Many of these activities will be centrally coordinated or tracked; however, the responsibility for making them happen lies with the business units. Given the disparate nature of County operations, each business unit will have to determine how to best perform these duties within their operations. See the Guidelines for Implementation for this objective for further information about these functions.

O7. **Create and implement standard information systems-related job classes in order to attract and maintain a high-quality technical workforce and ensure equity of pay and responsibilities across the County.**

O8. Create and implement a "central stores"-type process in order to streamline and facilitate the acquisition of IT equipment and software and take advantage of volume purchasing discounts.

O9. Create and implement a training program that provides the necessary information technology training for each employee in order to ensure optimal utilization of County information systems.

O10. Create the organizational capacity to diagnose users' problems in a timely, efficient and cost-effective way, so that a user does not have to determine the source of the problem in order to receive technical support.

O11. Create and implement a system of services to solve users' problems in a timely, efficient and cost-effective way.

O12. Create and implement a system of services to provide for the on-going operations needs of County information systems in a timely, efficient and cost-effective way. See Guidelines for Implementation for a description of these functions.

O13. Create and implement a system of services to provide for applications development and maintenance in a timely, efficient, functionally effective and cost-effective way. See Guidelines for Implementation for a description of this issue.

O14. Develop and implement a centralized network of coordination, structure and standards to facilitate knowledge transfer between dispersed functions.

O15. Develop and implement a comprehensive telecommuting strategy to enable employees to perform job functions from home or alternate work locations

Funding Objectives

The objectives around funding are designed to address the question of how to pay for all the new information technology objectives on the prior pages. The following objectives address using current resources more effectively, determining and providing appropriate funding to maintain the County's IT investments, and the development of new resources. See the Guidelines for Implementation for definitions of IT capital, "hard" and "soft" cost savings

O16. **Convene a panel of outside experts in IT/Finance to advise on IT financial policies, The purpose of this group is to establish appropriate capital benchmarks, and provide a community/customer perspective on "aggressiveness" of replacements, upgrades, etc.**

O17. Create a system to adequately plan for, maintain and acquire IT capital in order to maximize and preserve the County's investments in these assets. Elements of this system include:
- Replacement funding accounts
- A revolving "pool" of funds to finance IT projects which cause enough "hard dollar" savings to pay back this "pool"
- The use of the current General Fund "new development special appropriation" for capital projects by refining and expanding the "internal RFP" process, requiring some % of match from departments for these funds.
- The IT equivalent of the facilities Capital Improvement Program (CIP) Plan, and using this plan to make capital funding decisions.

O18. Develop an information systems capital funding policy for inclusion in the County's Financial *and Budget Policy*, in recognition of the fact that maintenance and upgrade are as necessary to the County's information systems as they are to its facilities.

O19. Develop ways to use County financial systems to more readily identify what the County spends for information technology in order to provide a basis for maximizing the value received for the IT dollars spent.

O20. Make no immediate change to the current funding or support of mini-/mid-range computers at this time. Future goals are to:
- Simplify and reduce costs of operations and maintenance of the hardware by centralizing the mid-range/mini-computer "boxes".
- Optimize the total County investment in these technologies by centrally coordinating capacity planning for mid-range/mini-computers, especially when new purchases or upgrades are planned.

O21. Establish a funding policy in which "soft" cost savings should remain with the departments, due to the difficulty of quantifying them, and to provide incentives to streamline and automate operations.

O22. Actively and aggressively pursue funding ideas other than the General Fund or "regular" program revenues, such as

- Grants;
- "Entrepreneurial" activities;
- Fees for "value added" information;
- SIP Community Service Fee;
- "Hard" dollar cost savings from IT projects;
- Partnerships;
- Advertising;
- Finding markets for applications developed by Multnomah County;
- Public sponsorships.

O23. Account for General Fund ISD service reimbursements in the appropriate departments/ divisions/programs rather than the current non-departmental special appropriation for data processing in order to begin to provide business units with responsibility and accountability for their mainframe applications.

O24a. Fully develop a conceptual model and implementation plan for funding PC costs via a "flat fee." See *Guidelines for Implementation* for a description of this concept, and the issues regarding its implementation.

O24.b. Implement the plan for funding PC costs via a "flat fee."

GUIDELINES FOR IMPLEMENTATION

CHAPTER 13

What are the subtle details?

While it is beyond the scope of this document to provide the specific, detailed steps necessary to implement the objectives, the guidelines for implementation provide some suggestions for important points not to miss along the way.

DURING THE DEVELOPMENT OF THIS STRATEGIC PLAN MANY IDEAS AND issues surfaced relative to the implementation of the plan, although it is beyond the scope of this document to list the specific steps necessary for each objective. This section identifies those issues and concerns which must be addressed by those charged with implementing each objective. Furthermore, the objectives were chosen and prioritized with the assumption that the concerns could be adequately addressed.

Service Objectives

Obj #	Description	Guidelines
S1	Department Plans	• This plan will be reviewed prior to budget development by the Department and the DIT. • The plans will be used for making operational and funding decisions. • The Operations Council and the DIT should work together to create a plan format, and begin with the Library's Automation Plan as a model. Some ideas of what this plan should contain are: ♦ Vision of where the business unit will be in 5 years ♦ Analysis of where the business unit is currently ♦ Identify critical issues/opportunities with respect to IT ♦ Identification and discussion of "best practices" in the department's area of business; analysis of how the department compares.

Obj #	Description	Guidelines
S1	Dept. Plans, Continued	♦ Discussion of inter-departmental/inter-agency linkages and cooperative efforts ♦ Discussion of how the department's plans fit with the county-wide Strategic Plan ♦ Action plans/project identification ♦ Appendix that does a year by year project/process roll-out • The plan prepared in 1995-96 should be a "short form" due to time constraints. (Proposed completion 12/31/95) This short plan should build on the work necessary for the Infrastructure Fund "RFP," and efforts for the two should mesh. The Operations Council should develop the "short form" format. Ideas for this short plan's contents are: ♦ Describe what you are doing currently. ♦ Describe what is known at this time about where the business is going technologically. ♦ Identify a limited number of critical issues/opportunities. ♦ Listing of inter-departmental/inter-agency linkages and cooperative efforts ♦ Describe how the department plans to migrate to the county standard desktop hardware and software. ♦ Describe plans for making PC access available to all employees. • Ultimately, the departmental IT Coordinators will be responsible for ensuring that the IT plan is completed. The department's Operations Council representative should have this responsibility in FY 1995-96. • One plan should be created for Non-departmental functions. • Each member of the BCC, the Chair, and the Auditor should decide whether they want to create separate plan, a plan for some combination of them, or combine with the non-departmental plan. • ISD will create a business plan which would contain many of the same elements as the department plans. The review of their plan should be a piece of the proposed customer review process.
S2	"System" Plans	• The data index, as described in Objective I1, is a critical component of these plans.
S3	Electronic information and services	• Projects to meet this objective listed here should be considered the minimum projects which must be accomplished in this area. • Implementation plan must provide a mechanism by which departments annually determine further projects toward this objective

Obj #	Description	Guidelines
S3	Electronic information and services (cont.)	• Implementation of this objective must include customer input as to the types of information and access most desired. • Implementation of this objective as a whole, and of individual projects, must discuss ways to partner with other governments in order to make jurisdictional boundaries more transparent to citizens. • Projects should actively seek public and private partnerships to reduce costs. • Implementation plan should explore the use of fees to recover costs for "value added" County information and services. • Implementation of this objective should include clarification of the roles of the Library, the departments and central Information Services in the provision of services, information and equipment to achieve this objective.
S5	Electronic data access and sharing	• Priorities for implementation should balance simplicity and cost of an individual project against the urgency of the business need. Agenda placement, budget and personnel systems are high priority projects. • New systems should take advantage of applications already developed whenever possible. • Security/sign-off provisions should be implemented in electronic form. County Counsel clarification regarding legal status of electronic "signatures" should be part of implementation. • New applications should be developed within standard office suite whenever possible. • Implementation should strive for a similar "look and feel" and learning curve between the various areas in which there will be electronic data sharing. • Data standards (objective I3) should be used to facilitate this process.
S6	On-line documents	• Implementation of this objective should begin immediately and continue until all relevant documents are available. • Implementation plan should include methods and responsibilities for continual update of available materials.

Technological Objectives

Obj #(s)	Description	Guidelines
T2	Remote and on-site computer access for all employees	• The intent of this objective is not for each employee to have a computer, but to have access to one. It is recognized that in many work situations, a kiosk, or dial-in capabilities for field employees with laptops is a better solution that a desktop computer. Departments will need to prepare individual plans about how best to achieve this objective. • It is intended to provide dial-in capabilities from the appropriate employees homes, and from other remote sites. The implementation plan will need to address security, labor laws and other relevant issues in conjunction with technically achieving the objective. • Implementation should strive to create a consistent and cost effective method for County employees to access the Internet. Graphics capabilities should be provided.
T3	Ad-hoc report writer	• Implementation of this project should begin with databases contained in County-wide mainframe applications and progress throughout the organization.
T4	GIS	• This effort must be in pursued in conjunction with other local governments • The strategy must: ♦ recognize the importance of both the development of the maps and the development of the data; ♦ identify the business needs that can be met using the technology; ♦ include non-traditional uses of GIS; ♦ include steps to minimize the duplication of development efforts across the County and between jurisdictions; ♦ include methods to achieve desired outputs for both internal and external customers; ♦ be developed in close conjunction with the strategy regarding document imaging (objective T5) in order to reduce redundancy of equipment and efforts; ♦ include a discussion of the roles and responsibilities of various County and non-County entities; ♦ include a funding plan. ♦ Data standards developed under objective I3 should enable the use of the data on a GIS.

Obj #(s)	Description	Guidelines
T5	Imaging	• The strategy must: ♦ be developed in close conjunction with the strategy regarding GIS (objective T4) in order to reduce redundancy of equipment and efforts; ♦ identify the business needs that can be met using the technology; ♦ address how imaging can be used to reduce the need for data entry; ♦ address legal concerns regarding storage of images rather than paper; ♦ include methods to make images available to authorized users throughout the County, not only where the image is originally created;
T6	Internet	• The strategy should: ♦ describe current efforts; ♦ clearly define roles and responsibilities for different County agencies, especially the Library and ISD; ♦ discuss security issues; ♦ address guidelines for employees' and elected officials' usage of County access to the Internet and World Wide Web.
T7	Electronic conferencing	• Although the implementation of this objective should ultimately include voice, video, and document sharing capabilities, the project should begin by including whichever of these features are currently possible given the capacity of current wiring. • This objective specifically includes expanding video arraignment capabilities.
T8-T12	All standards objectives	• It will be necessary to create a process by which a work unit can demonstrate a "compelling business need" and be granted an exception to following County standards. Definition of "compelling business need" is an outstanding issue. Furthermore, exceptions granted may not interfere in participation in or communication across the County-wide information infrastructure. • Standards must be developed using a process which involves people from a variety of departments, in a variety of job functions. • Migration feasibility must be strongly considered while developing the implementation plan for the standards objectives, and a migration plan must be developed for each standard.

Obj #(s)	Description	Guidelines
T8	Open Systems	• An assessment of current systems and planned/funded systems upgrades and how well they comply with Open Systems standards is a necessary first step in implementing this objective. • Protocols include naming conventions. • Migration for non-compliant systems should be prioritized by factoring in: ♦ the barriers non-compliance is or is not creating; ♦ the functionality of the current system; ♦ cost of upgrades; ♦ availability of compliant systems for the particular business process.
T9	2-Tiered Desktop Hardware Standards	• It is imperative to remember these are minimum standards, and that department needs may warrant a more powerful desktop machine. • Development of the minimum "purchase" standard should balance technological foresight with technical and cost effectiveness. • Development of the minimum "keep" standard should balance cost of upgrades against the ability of hardware to run desired applications. Minimum hardware must be able to run any County standard software. • A migration plan for those machines which do not meet the minimum "keep" standard must be developed and funded.
T10	Office Suite	• Standard selection process must compare the abilities of the different products to meet Multnomah County needs; the historical and long-term viability of the products; and the willingness and ability of the vendor to assist with migration. • Implementation must include a thorough inventory of current licensed software (of application types in suite) currently in use in the County, as well as an inventory of applications/documents or macros that have been developed using office suite-type applications. • Migration plan must include: ♦ Funding plan for purchase of software; ♦ Coordination with migration to minimum hardware standard for machines that can not run standard office suite; ♦ Resources and plan to convert existing documents, applications and macros developed using non-standard products; ♦ Definition of roles and responsibilities to enable the migration; ♦ A consideration of the barriers that non-complying products are creating when prioritizing the order of migration;

Obj #(s)	Description	Guidelines
T10	Office Suite, Continued	♦ Interim guidelines regarding the acquisition and upgrade of software until the migration is complete; ♦ Training, training, training! Both a plan and funding must be included. Scope of training must recognize various types and levels of training needed (for example, there will be users who have never used any database software; users who know a product in DOS, but not Windows; users who are changing from one Windows package to another; and so on.)
T11	Workspace standards	• It is intended that different requirements be developed for different types of space

Information Management Objectives

Obj #(s)	Description	Guidelines
I1	Data Index	• This inventory index should be of data collected in automated and non-automated ways, across all media and platforms. • Data elements "needed" should include those for program evaluation and outcome measurement. • This process is a critical element in creating the "system" plans as described in Objective S2.
I2	Data standards	• It will be necessary to create a process by which a work unit can demonstrate a "compelling business need" and be granted an exception to following County standards, as described under the Guidelines for Technical Objectives. • Data standards developed should: ♦ enable the use of the data on a GIS (Objective T8); ♦ facilitate electronic data sharing (Objectives T2 and T5); ♦ enable cross-department applications development.
I3	Data "custody"	• Implementation of this objective should be in conjunction with those for Data Standards (Objective I2) and Electronic Data Sharing (Objectives T2 and T5).
I4	Data security	• Systems with more intensive security requirements should be designed with more robust security features in addition to these standards.
I5	Disaster recovery	• The implementation plan for this objective should include an audit of mission-critical applications to ensure the appropriate controls are in place. • The implementation plan should address regular back-up and archival procedures. • The implementation plan should include the identification and use of work unit "data stewards" who will have primary responsibility for the integrity of the data of that work unit.

Organizational Objectives

Obj #(s)	Description	Guidelines
O1	Director of Information Technology	• Recognize that this position is designed to facilitate improvements in service delivery through the use of information technology to both internal and external customers; performance evaluation and functions of the central Information Services should reflect this purpose. • Qualities of the "perfect" candidate for this position include: ♦ Leadership ♦ Customer service orientation ♦ Knowledge of quality tools and techniques ♦ Recognized leader in the field of technology ♦ Excellent negotiation/partnership building skills ♦ Visionary ♦ Ability to bring out the best in others ♦ Sense of humor ♦ Intelligence ♦ Experience ♦ Vision and values aligned with those in this strategic plan • This person will provide the leadership and coordination necessary to implement this plan. • This person will be responsible for the central Information Services Division.
O2	Central Information Services Division	• The centralized functions should include the following: ♦ Mainframe hardware operations, maintenance, and problem resolution ♦ WAN development, operations, maintenance, and problem resolution ♦ Telecommunications operations, maintenance, and problem resolution ♦ Maintenance of central database of IT-related contractors/vendors ♦ Maintenance of central database of existing applications and the data elements they contain ♦ A small core group of project managers ♦ Maintenance of library of documentation of County standards/applications ♦ Evaluation of new technologies, and coordination of other evaluations of new technologies ♦ Strategic planning coordination ♦ Training program content coordination

Obj #(s)	Description	Guidelines
O2	Central ISD, Continued	♦ Facilitation of compliance with standards and policies, including coordination of activities, education, dissemination of information and documentation ♦ Audits of IT projects ♦ Intergovernmental agency coordination (proactive) ♦ Leadership for IT direction (not decision making) ♦ Coordination and review of department and "system" IT plans ♦ Coordination and oversight in the areas of inventory, license compliance, disaster planning and recovery and security • The central Information Services' mission will include the following principles: ♦ Emphasis on customer service ♦ Team work with our customers and vendors ♦ Take a whole-County and regional point of view ♦ Look for regional opportunities
O3	Committees	• If an issue contains policy implications beyond the scope of the Operations Council, any of the County's elected officials may convene a forum of high-level management (department managers/elected officials). • Role of the Operations Council: ♦ Prioritize business issues; ♦ Identify policy issues; ♦ Define general IT guidelines; ♦ Operationalize IT policies; ♦ Service review (Objective O4). • The ITC: ♦ It is expected that the attendees will vary somewhat depending on the subject of any given meeting. • This Council will: ♦ Meet regularly to discuss technical issues; ♦ Provide support to the DIT and the Operations Council in implementing plans, policies and procedures; ♦ Raise issues to the DIT; ♦ Respond to issues raised by the IT or the Operations Council; ♦ Discuss linkages (efficiency possibilities, coordination) between business units; ♦ Share department plans; ♦ Figure out how to specifically implement technical aspects of policies; ♦ Share technological knowledge; ♦ Form ad-hoc sub-committees as needed for specific issues.

Obj #(s)	Description	Guidelines
O4	Annual service review	• The Operations Council should be the audience for this review. • This review is intended to replace an outside committee (other than the BCC) reviewing the central ISD's actual budget. • The central ISD's budget should be built based on the input received during this review.
O5	IT Coordinator	• One coordinator will be designated for the combined Chair/BCC/MSS/Auditor/TSCC.
O6	Departmental IT functions	• Functions that should be performed in the business units: ♦ IT professionals understanding the "business" of the unit. ♦ IT Plans (Objectives S1 & S2) ♦ Training and pro-active assistance on non-County-standard IT hardware and software ♦ IT planning ♦ IT budgeting ♦ Research new/appropriate technologies - especially for business unit specific things ♦ Inventory ♦ License compliance ♦ IT acquisitions ♦ Data collection/statistical analysis/reporting ♦ Disaster planning/recovery/data management ♦ Security/controls
O7	Job classes	• These include job classes for technical employees in both the central IS and in the departments. • The goals of these new job classes are to: ♦ Provide consistency in classification and pay among people performing similar functions ♦ Provide a cross-County career path for technical employees ♦ Be competitive in the Portland metropolitan area market ♦ Identify skill gaps within the County, and create positions and hire employees to fill them. • The job classes should be regularly reviewed and updated to reflect the rapidly changing technologies with which they are aligned.

Obj #(s)	Description	Guidelines
O8	"Central stores" acquisition process	• The implementation plan for the "computer store" must demonstrate how to achieve the following goals for the new acquisitions process: ♦ Full-service operation ♦ Optional to participate or use ♦ Competitive pricing and excellent service ♦ Eliminate duplication in ordering/creating product specifications/consulting ♦ Centralized management of vendor relationship ♦ Single point of contact within County from (users or buyers) perspective. ♦ PC's delivered fully configured, fully loaded to the desktop, fully tested, fully functional ♦ Ensure quality and County-wide compatibility of products /services (a clearinghouse function) ♦ Track problem calls ♦ Maintain good record-keeping on equipment County-wide, good working knowledge of needs of departments ♦ Provide flexibility to meet user needs ♦ Maintain current market knowledge and ability to translate for county users ♦ Expedite and streamline the process of purchasing and delivery ♦ Provide just-in-time delivery arrangement (do not stock inventory unless cost-effective to do so)
O9	Training	• Training should be available during all shifts, in a variety of media and formats (classes, video, audio, on-line, etc.) • Standard skill sets and desired competency levels should be developed by job class or job function. • A standard set of training tools should be developed around County-wide and standard applications. • This standard training should be included with and coordinated with other standard County training. • A individual who demonstrate the necessary standard skills would be trained to a higher competency. (Don't train people in things they already know how to do) • A cost-benefit and service level analysis should be performed to determine whether this service could be effectively outsourced. • The implementation plan must address migration from the County's current methods. • The implementation plan must include a performance measurement feedback loop. • A centralized database of all (not just IT) necessary and performed training for each employee should be developed and maintained.

Obj #(s)	Description	Guidelines
O9	Training, Continued	• The training plan should include peer training and user groups. • The implementation plan should include developing an assessment of the current technology skills of every employee.
O10	Problem Diagnosis	• The major goals for this service are that it is expedient, convenient to the user, and is available 24 hours/day, 7 days/week, 365 days/year. Service may be delivered differently at different times. • The points of contact for the user should be minimized. • Minimum service standards should be developed; the implementation plan should first be concerned with how to bring all County organizations to at least this minimum acceptable standard. • Those performing this diagnostic function should be dispersed geographically throughout the organization. Deployment method need not follow "departmental" lines. • The diagnostician role must be acknowledged as a legitimate job function, and not delegated to "power users" with other full-time responsibilities. • A cost-benefit and service level analysis should be performed to determine whether this service could be effectively outsourced. • The implementation plan must address migration from the County's current methods. • The implementation plan must include a performance measurement feedback loop.
O11	Solving Problems	• This function includes troubleshooting, answering questions and repairs for existing, installed hardware and software. • This function should be outsourced from a centrally managed contract for the standard desktop operating system and office suite. • This function should be provided from a centrally managed unit for ♦ WAN ♦ Telecommunications ♦ Mainframe hardware • The responsibility for applications support lies with the primary business unit for that application. Further study must be completed to determine how best to provide that applications support. It is likely that the best method will vary by application/business unit. • Undecided: LAN and PC hardware support[7]

[7]Definition and discussion of "LAN administration and PC support" can be found in the Appendix.

Obj #(s)	Description	Guidelines
O12	Operations & Maintenance	• This objective refers to the functions of installation of new software and equipment, upgrade of existing systems, routine maintenance, and enabling users to access and use County systems. • This function should be provided from a centrally managed unit for ♦ WAN ♦ Telecommunications ♦ Mainframe hardware • The responsibility for applications operations and maintenance lies with the primary business unit for that application. Further study must be completed to determine how best to provide that applications support. It is likely that the best method will vary by application/business unit. • Undecided: LAN and PC hardware operations and maintenance.
O13	Applications Development and Maintenance	• The scope of projects under consideration are those that would encompass a design for multiple users, or for repetitive (ongoing) use. For these applications, the use is independent of the original developer (i.e., the need will continue independent of the employment of the developer and should be tied to a specific job function). This definition will include applications where the data isn't shared. • A full discussion of the issues and concerns regarding applications development and maintenance is found in the Appendix.
O14	Knowledge transfer	• It is recognized that there are many services which are provided better when the personnel and responsibility for them are dispersed throughout the organization. This objective requires a method to be developed for those performing these dispersed functions to exchange information, so that they can: ♦ Provide each other with problem solutions; ♦ Work collaboratively on common projects; ♦ Be educated and aware of what is going on County-wide; ♦ Consider potential impacts on others; ♦ Develop a peer support network.
O15	Telecommuting	Strategy and policy development should begin with the State of Minnesota's *Telecommuting Guideline*, and Alameda County's *Telecommuting Program Handbook*,[8] which should be modified to meet Multnomah County's needs.

[8]These two documents can be found in the Appendix.

Obj #(s)	Description	Guidelines
O16-O24	Funding	• Definitions for the funding objectives: ♦ Define "IT capital" to include the following: ° Mainframe ° WAN ° Minis/midrange ° Telecommunications ° Other hardware with a useful life of (x) years or a cost of (y) dollars ° Software/applications with a useful life of (ξ) years or (ψ) dollars ° *The variables above should be defined with the help of the "outside experts" - see Objective O16.* ♦ Define "hard dollar savings" as: ° Specific, identifiable expenditures that will no longer have to be made, or will be reduced, as a result of an IT project. Examples are maintenance contract charges, system upgrade fees, etc. ♦ Define "soft dollar savings" as: ° Savings which result from IT projects which are not exactly attributable to the project itself, or are not identifiable. An example is a clerk's ability to process more forms due to an imaging system and change in paper flow process.
O16	Outside Experts	• Encourage one of our Strategic Investment Program (SIP) partners to take a leadership role in convening this panel. • Panelists should include representatives from financial institutions, technological leaders, other public entities, and other businesses of similar size to Multnomah County. • County programs should provide this group with necessary information about County programs and our projected suppliers'/customers' needs, so that they can make informed recommendations.
O17	Capital	• Recommendations around funding IT capital: ♦ Replacement funding should be amortized over the useful life of the capital asset and charged to the users during this time. Determination of this "replacement cost" should include known upgrade, expansion or technology change needs that will be incurred at replacement.

Obj #(s)	Description	Guidelines
O17	Capital, Continued	• Recommendations around funding IT capital, continued: ♦ Recognize that there are many capital projects, especially software projects, for which we would incur substantial "up-front" costs to upgrade or replace, but would generate enough "hard" cost savings (via elimination or reduction of maintenance contract costs, etc.) to pay for the project in a relatively short time, after which these savings would truly reduce overall costs to the County, in addition to "soft" cost savings due to efficiencies and productivity increases. Therefore, projects should move forward when these factors are present. ♦ In order to provide this "up-front" funding, create a revolving "pot" of money that would be repaid from the savings incurred. ♦ The "internal RFP" process is being piloted with the "infrastructure" money for FY 95-96. ♦ The development of the IT CIP plan should link with the development of the department and "system" IT plans.
O18	Mid-range systems	• The initiative to centralize hardware can not be studied in-depth, nor implemented in any area, until WAN technologies evolve and are implemented. • Any future analysis or implementation should build in capacity for departments to choose from service level "options."
O23	General Fund Service Reimbursement	• The General Fund constraint should be on these work units, not on ISD. Departments will be (to the best extent possible) held harmless the first year (as in the deployment of the Facilities Fund). The DP fund will no longer pay indirect; customers will pay indirect on their service reimbursements. • When billing for ISD services, programming support/maintenance will be billed separately from access time. In general, the billing system and statements should accurately reflect individual behavior and allow for customers to identify the results of their choices, and to be able to exercise choices in the type of service they receive from ISD. • Migrating to this service choice/charge-back model will be a cooperative effort which is likely to require several iterations before it satisfies all participants.

Obj #(s)	Description	Guidelines
O24	"Flat-fee" PC funding	• The concept: ♦ Determine "adequate minimum" service, replacement, upgrade and support levels for: ° PC standard hardware ° PC standard software ° Training on these standards ° Technical support and LAN administration "utility" functions ♦ Add up what it would cost annually to provide these services to all PC users, via whatever mechanisms were determined to be optimal for the County. ♦ Divide this total by the number of PC's in the County. The result would be an annual charge that each department would pay for each PC, to receive the services listed above. • A discussion of the issues and concerns associated with this concept can be found in the appendix.

ANNUAL IMPLEMENTATION PLANS

CHAPTER 14

What course corrections do we need to make?

Annual implementation plans make this a flexible document. It is intended to cover a five-year horizon, during which time much will change. Annual implementation plans allow the strategic plan to be continually updated.

The world of information technology is changing rapidly, and so is the organizational environment in which this plan is constructed. For these reasons, and to have the opportunity to continuously improve the implementation process, the SPIT team concluded the best approach would be to have annual implementation plans. These annual plans will give further specificity to the guidelines for each objective. New issues are expected to arise, and the organization's capacity for new technology initiatives will increase, and some steps begun earlier may need minor adjustments.

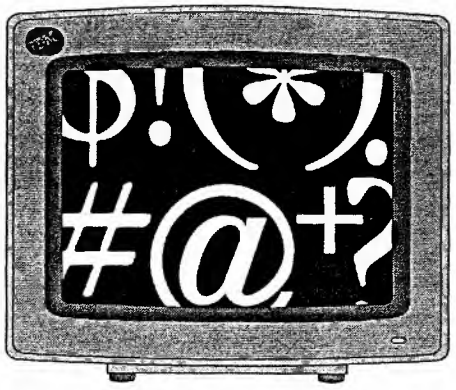
The first full annual planning process will not begin until the next fiscal year. In order to maintain the momentum established by the initial planning process, and in order to ensure that responsibility for implementation is clearly conveyed, the SPIT team recommends the following:

Next Steps

SPIT recommends the following actions commence immediately:

- County Commissioners adopt this Strategic Plan by resolution; thereby adopting the policy objectives found in the Plan.
- County Commissioners repeal Ordinances 511 and 671 as of December 31, 1995; thereby abolishing the Data Processing Management Committee.
- County Commissioners approve budget modification to create the position of Director of Information Technology.
- County Chair, in conjunction with representative County users, hires Director of Information Technology.
- Hardware standards as developed by SPIT are incorporated into purchasing decisions.
- Standard "Office Suite" software is chosen by the Standards Selection Committee by November 20, 1995 and approved by the DPMC.
- Departmental plans are prepared following the format developed by the Operations Council by December 31, 1995.
- Information Services division and General Fund programs work together to allocate costs and services to the programs for FY 1996/97.
- Continue other projects in progress, including, but not limited to, the allocation of infrastructure funding and development and installation of the WAN.
- The new Director of Information Technology is charged with developing a full implementation strategy for this plan in consultation with department personnel and elected officials.

GLOSSARY/ ACRONYM DEFINITIONS



ASD	Aging Services Department
BCC	Board of County Commissioners
Benchmarks	1) In general, a standard of performance against which other performance is measured. 2) Multnomah County has adopted 85 "Benchmarks" to provide quantified targets for specific quality of life conditions desired for the future. Of these 85, 12 have been determined to be "Urgent Benchmarks" and are considered to be the primary foci of the County's efforts.
Bit	Shortened form of binary digit. Computers use information in combinations of bits.
Browser	Software required to access the World Wide Web; may be text-only (such as Lynx) or allow a graphical interface (such as Mosaic and Netscape).
Byte	A series of 8 bits; generally indicates one character.
CFS	Community & Family Services Department
Chair	Chair of the BCC; also serves as the County executive.
CIC	Multnomah County Citizen Involvement Committee
DA	District Attorney

DCC	Department of Community Corrections
DES	Department of Environmental Services
Desktop	When used as an adjective (e.g., "desktop hardware"), this term refers to a personal computer or the software found on it.
DPMC	Data Processing Management Committee. Under current County ordinance, this group is charged with information technology policy and oversight.
DPOC	The operating staff of the DPMC. This group provides analysis and staff support to the DPMC.
Electronic Conferencing	Meetings or other interaction between two or more parties in separate locations enabled by audio, video and data/document sharing technologies. Examples include conference calls, video arraignment, and full audio, video and concurrent document editing between employees at their PC's.
FREDS	Fleet, Records, Electronics and Distribution Division of the Department of Environmental Services
FTE	Full Time Equivalent, used to measure the fraction of a full time position (40 hrs/wk) an employee is budgeted for.
GIS	Geographic Information System (OK, URISA people - fill in the rest!!)
GUI	Graphical User Interface. Pronounced "gooey". A GUI uses words and pictures on a monitor as software output, and receives input from a keyboard and mouse.
Gigabyte (GB)	1,024 MB
Gopher	A text-based menu system for moving around in the Internet. Customized gophers can be created to provide access to commonly used sites.
Health	Health Department
Home page	The Web page that loads when you start your browser; entry point or "top" for readers of your content.

Hypertext	Text which has been marked in such a way that non-linear connections can be made among highlighted terms. A user can select a highlighted topic and jump to related topics. Hypermedia allows similar sorts of jumps from a text document to pictures, video, sound clips, etc.
IBM Compatible	A description of a personal computer based on the technology implemented by IBM on the first PC's. Indicates the kind of software the computer can run.
Imaging	Imaging systems use digital pictures ("images") of paper documents and allow those images to be moved, copied, viewed, stored, reprinted, etc. via data processing equipment. Images are simply pictures, they can not be manipulated like an electronic form or word processing document.
Internet	International network of networks that allow users to share information using a number of different features (file transfer, gophers, World Wide Web, etc.)
ISD	Information Services Division
JJD	Juvenile Justice Department
Kilobyte (KB)	1,024 bytes
LAN	Local Area Network; a means of allowing personal computers and other peripheral devices (printers, modems, etc.) in one geographical location to be linked electronically.
Legacy Applications	Applications which are currently functional and are vital to the business operations of an organization, although they may employ outmoded technologies.
Library	Department of Library Services
Mac	An Apple Macintosh computer
MCSO	Multnomah County Sheriff's Office
Megabyte (MB)	Also referred to as "meg." 1,024 KB.

METRO	Regional government in the Portland Metropolitan area. Comprises portions of Multnomah, Clackamas and Washington Counties.
Mouse	Little animal with skinny tail
MSS	Management Support Services divisions: Budget & Quality, County Counsel; Employee Services; Finance; Labor Relations; Risk Management
Navigation	A user's movement through a computer system, for example, from a menu to a specific set of information.
Office Suite	Donuts and candy people bring to their co-workers
Network	A means of connecting computers and related devices. In general, a Local Area Network (LAN) connects hardware in one location, a Wide Area Network (WAN) connects LANs and stand alone equipment in multiple locations.
PC	Personal Computer
Personal Computer	Computer on which one stores Willamette Week personal ads
PORTALS	Portland Area Library System, a cooperative endeavor among academic and research libraries in the Portland metropolitan area. Services include an electronic network providing access to member libraries catalogs, on-line access to selected databases, a gateway to the Internet and its resources, and improved access to member collections.
RAM	Random Access Memory. This is where the active computing takes place on a personal computer. Currently measured in megabytes.
RESULTS	Reaching Excellent Service Using Leadership and Team Strategies: this is the Multnomah County's initiative to improve the quality and performance of County programs.
SPIT	Strategic Planning for Information Technology team.

SWIS	Sheriff's Warrant and Inmate System. This system will be used to manage the inmate population and a variety of support services, including counseling and medical; also used to track warrants issued by County Circuit and District Courts.
Technology	Technology is not limited to hardware or software, but includes any tools or processes that: 1) enhance the communication of information; 2) support the manipulation of audio, visual or alphanumeric data; or 3) facilitate access between audiences.
Text based user interface	A text based user interface uses words on a monitor as software output, and receives input from a keyboard.
TSCC	Multnomah County Tax Supervising and Conservation Commission.
User Interface	The method by which a user interfaces with computer software. It includes the method for providing input to the computer (keyboard, mouse, voice, touch-tone, etc.), and the method for receiving information from the computer (monitor, sound, printer, etc.). Current common usage of the term describes the method of interaction with a PC - the most often heard are GUI and text.
WAN	Wide Area Network; a means of allowing LAN's and other data processing equipment in a variety of geographical locations to be linked electronically.
Windows	An operating system for IBM compatible computers with a GUI interface.
World Wide Web	A vast array of information which can be in text, graphic, video, sound or picture form; the arrangement is non-hierarchical; hypertext links are used to take the user from place to place. Requires a browser to use.

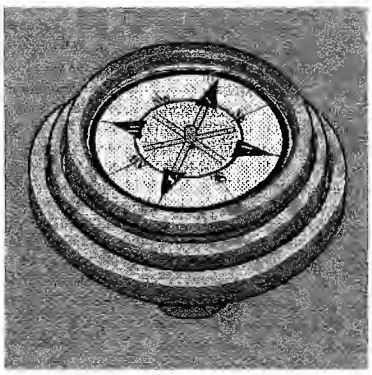
Reading List

Document Title	Author	Subject	Source/Date
1. Information Services Strategic Plan	ISD	Strategic Plan for Multnomah County IT	County Document 1/93
2. DPMC Roles and Responsibilities	DPMC	Statement of Roles & Responsibilities - DPMC	County Document
3. Ordinance 511	DPMC	Ordinance creating DPMC	County Document 4/21/86
4. DPMC Policies	ISD/DPMC	Policies re: information technology purchases	County Document 7/16/87
5. Strategic Information Technology Plan	Dept of IS	Strategic Planning for Washington IT	State of Washington 1/93
6. Gaining the Upper Hand	Bob Violino	How to regain control of IT spending	Information Week 4/10/95
7. The 'Centrally Decentralized' IS Organization	Ernest von Simon	How to centralize IS & retain responsiveness	Harvard Business Review 7/90
8. Charting the Seas of Information Technology	N/A	Causes / Responses to Application. Development Failures	Standish Group 1994
9. Intergalactic Client/Server Computing	Robert Orfali	Explanation/Application. of 4 Client/Server Paradigms	BYTE 4/95
10. The Public Involvement Network	PIN	Description of PIN services/contacts	NOVALINK
11. Reconnecting the City with the People	Advisory Committee	City of Los Angeles Strategic IT Plan	City of LA
12. Results Strategic Design	Results Design Team	Info about the RESULTS project to date	County Document 5/95
13. Lane Education Network Proposal	U of O/Lane Co.	Demonstration of Partnering re Info Tech.	TIIAP 5/94
14. Everyone Needs Access to Information	NACO	New Ways to Provide Public Access	County News 12/19/94
15. A Guide to Award Winning Technology	John Cranford	Designing Innovative IT Applications	Governing 1/95
16. Tech Talk	Stephen Plain	Overview of Database Architectures	Computer Shopper (?)
17. Data Access for Everyone (and Make it Fast)	Cheryl Currid	Overview of Client Server Databases	Windows Magazine 1/95
18. Telecommuting: Back to the Future	Various	Newspaper clips re: Telecommunications Forum	Various
19. Cost of Computing: Comparative Study	Intl.. Tech. Group	Comparison of Mainframe, PC/LAN Setups	International Tech. Group
20. Intel Hooking Computers to Cable	Fran Gardner	Cable's Role on the Info Highway	Oregonian 5/9/95

Document Title	Author	Subject	Source/Date
21. The E-Mail Explosion	Ron Rassner	The future of E-mail technology	Windows Magazine 11/94
22. It's In The Mail	Stephanie Stahl	Upcoming E-Mail Upgrades	Information Week 12/12/94
23. Achievement Award Trend Setters	NACO	Description. Of Outstanding IT Projects	County News 9/26/94
24. A Guide to Managing Government's Documents	MJ Richter	Paperless Offices/Imaging Technology	Governing 4/95
25. Strategic Goals (Draft)	SPIT	Draft Organization of Brainstormed Ideas	SPIT Document 5/95
26. Standards	SPIT	Key Questions/Strategies to address topic	SPIT Document
27. Balance of Focus - Operations/Access	SPIT	Key Questions/Strategies to address topic	SPIT Document
28. Access	SPIT	Key Questions/Strategies to address topic	SPIT Document
29. Strategies	SPIT	Key Questions/Strategies to address topic	SPIT Document
30. Support	SPIT	Key Questions/Strategies to address topic	SPIT Document
31. Applications Development	SPIT	Key Questions/Strategies to address topic	SPIT Document
32. Training	SPIT	Key Questions/Strategies to address topic	SPIT Document
33. Structure	SPIT	Key Questions/Strategies to address topic	SPIT Document
34. Information Systems Evaluation	SPIT	Key Questions/Strategies to address topic	SPIT Document
35. Abbreviations	ISD	Standards for Data Fields - Abbreviations	County Document 6/30/94
36. Security & Access to Data	Various	Implications of Public Access to Co. Info.	County Document 12/88
37. Data Management & Integration	SPIT	Key Questions/Strategies to address topic	SPIT document
38. Query Tools Help Users Dip into Data	Jay Ryo	Comparative Review of DB Query Products	Information Week 10/95
39. Old Computers, New Challenges	Rob Gurwitt	Merging Old/New Info Technology	Governing 7/94
40. IT Outsourcing: Maximize Flexibility & Control	Mary C. Lacity	Variations of IT Outsourcing/implications	Harvard Business Review 5/95
41. Re-engineering Government:: Advice from Experts	Jae Hong	Re-engineering/pros & cons, implications	Governing 5/95
42. Managing IT: Transforming Co. Governments	School of Info Stud.	Analysis of various aspects of Co. IT Mgmt.	Syracuse University 7/92

Document Title	Author	Subject	Source/Date
43. GTC Conference Debrief	Sharon Owen	Debrief GTC-Performance Meas/Strategic Plan	SPIT document 4/95
44. Government's. Information Access Council Guideline	IPO	Requirements for Public Access/Government's Info.	State of Minnesota 2/95
45. Telecommuting Guideline	IPO	Requirements for Telecommuting/Planning	State of Minnesota 2/95
46. Reaching Across Organizational Lines	Jerry Mechling	How to Manage Cross-Org. IT Initiatives	Governing 6/95
47. Teledemocracy for Better or Worse	Christopher Conte	Pros/Cons of Public/Govt. Billboards	Governing 6/95
48. Standards: Statement of Direction	I.P.O.	State I.T. Standards/Rationale	State of Minnesota 3/90
49. Issues & Opportunities - Info Technology	Keri Hardwick	Considerations re: County I.S. Issues	County Document 3/18/94
50. PEN Lessons: An Interview w/Ken Phillips	Bruce Kirschner	Implications of Implementing PEN	Public Management 12/94
51. Mult Co PC Inventory	ISD	Inventory of all County PC's	County Document 1994
52. Business Transformation Model	George Beard	Conducting Holistic Organization Change Efforts	Unisys Corp. 11/94
53. Oregon Wan Man	Carl Grzybowski	Map of the Oregon Wide Area Network	State of Oregon 3/7/94
54. Finding Funds for Technology	Jerry Mechling	Creative approaches to funding I.T.	Governing, 11/94
55. PEN: Public Electronic Network	I.S. Dept	Description of Santa Monica's PEN system	City of Santa Monica 9/93
56. Information Kiosk Demonstration	Ginnie Cooper	Debfiefing of Modular Systems kiosk demo.	County document 11/23/94
57. State Officials Unveil new self-service kiosks	(press release)	Government information kiosks-Washington	Washington Info Network 11/94
58. Re-engineering: Ways to Do it with Technology	Sandra O'Connell	Re-engineering vs. Redesign/Technology	HRM Magazine 11/94
59. Government Info Kiosk Unveiled at Seattle	N/A	Description of SPL info Kiosk	Library Hotline 9/19/94
60. Strategic Planning for Info. Resources	SPIT	Phases of SPIT Workplan	County document
61. Strategic Plans Key to County Success	John Bertot	Strategic Planning for Govt. I.T.	American City/County 9/94
62. Current Network Users	Admin Svcs	List of sites on Oregon Backbone	State of Oregon
63. Technology Trends	Jim Munz	Promising I.T. Trends	County document
64. Great DP Picture	Jim Munz	Co. Lan Admin/DP Applications	County document 3/95

Document Title	Author	Subject	Source/Date
65. Draft Strategic Plan	SPIT	Vision/Values/Goals/Strat Objs/Etc.	County document
66. Feedback from SPIT Retreat	SPIT	Draft Vision/Goals, Etc.	County document
67. Debriefing NTIA/TIIAP	Lance Duncan	TIIAP Grant Guidelines	County document
68. Online Discussions: Collaborate via Mail	Jerry Gropp	On-line Discussion Groups	PC World 4/95
69. Super Cyber Surfers	Jennifer Tanaka	How to navigate the Worldwide Web	Newsweek 3/20/95
70. Come Together	James E. Powell	Explanation/Uses of Groupware	Windows Magazine 12/94
71. High-Tech Training	Mickey Williamson	Effective Uses of I.T. in Training Employees	BYTE 12/94



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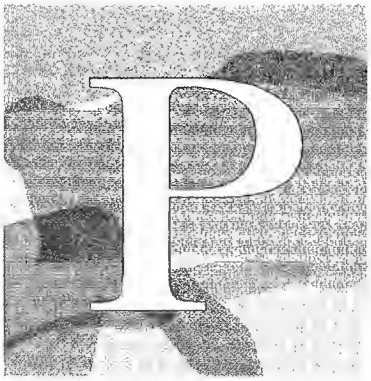

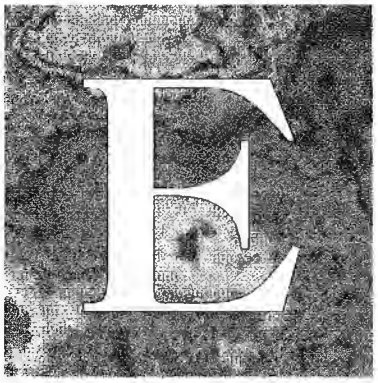

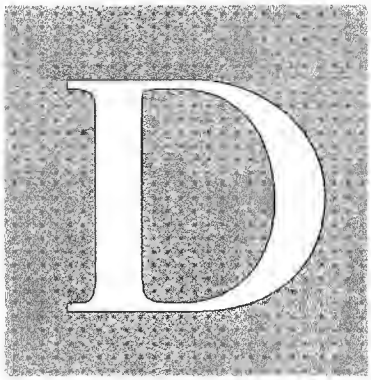

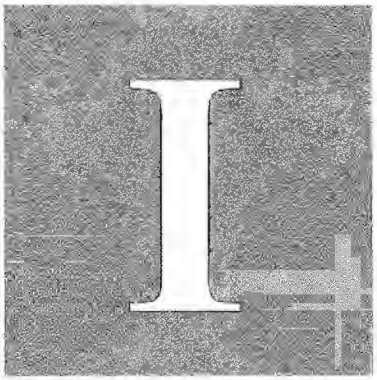

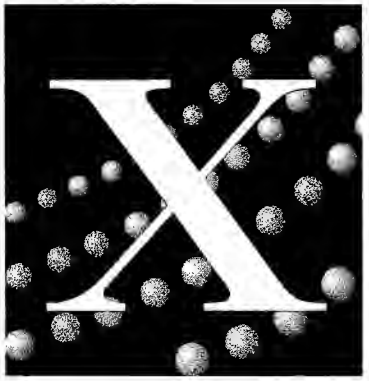

STRATEGIC PLAN FOR INFORMATION TECHNOLOGY

Multnomah County, Oregon • Fiscal Year 1995-96

BEFORE THE BOARD OF COUNTY COMMISSIONERS

MULTNOMAH COUNTY, OREGON

ORDINANCE NO. 511

An ordinance establishing committees to assist in data processing planning, funding and project management.

Multnomah County ordains as follows:

SECTION I. FINDINGS

1. The Board finds that a need exists for ongoing planning and management in the area of data processing.

2. There is a need to clearly define the goals and objectives of data processing planning and funding.

3. Committees should be established to provide for the organization and management of data processing planning, funding and project management.

SECTION II. ESTABLISHMENT OF MANAGEMENT COMMITTEE

There is hereby established a Data Processing Management Committee, which shall function as described below.

1. The purpose of the Management Committee shall be to:

   A. Act as the policy setting body for all County data processing.

      1) Authorize, monitor, and annually approve a Data Processing Plan.

      2) Authorize funding levels for new systems development and establish a funding mechanism necessary to finance the development of those applications set forth in the Plan.

      3) Review and approve data processing service objective, and the Capital Replacement Plan.

   B. Provide management control for all County data processing.

      1) Review and approve the County annual budget request for all data processing needs.

      2) Review and approve requests for data processing support and determine the method by which projects will be monitored.

   C. Monitor all County data processing activity.

      1) Review quarterly DP spending for compliance with the budget.

2) Review progress on major projects for schedule and budget compliance.

2. Membership: The membership of the Management Committee shall consist of each County Department Head, the Sheriff, the District Attorney, and a private sector business executive appointed in accordance with charter provisions who shall be appointed for a two-year term.

3. Organization and Support: The chair person shall be chosen by committee members for a term that is mutually acceptable to all members. The Management Committee shall meet monthly the first year and no less than quarterly thereafter. The Director of Information Services shall be responsible to staff the committee.

SECTION III. ESTABLISHMENT OF USER STEERING COMMITTEE

There is hereby established a Data Processing User Steering Committee for each County department, which shall function as described below:

1. Purpose: For each department, a User Steering Committee is established to:

   A. Identify and define new systems opportunities and monitor the progress of ongoing systems development efforts within the Department.

   B. Develop a long-term data processing development plan for the Department which will subsequently be incorporated into the Data Processing Plan for the County.

   C. Assume responsibilities for the specifications of DP systems and the justification for such systems as may be required for planning, budgeting, or other purposes.

2. Membership: Members shall be user representatives from each functional organization affected by data processing systems. Each Department Head shall appoint the members to serve on the Steering Committee for his/her department. The Sheriff and the District Attorney shall appoint members from the respective organizations to serve on the Justice Services User Steering Committee.

SECTION IV. ANNUAL REPORTS

The Management Committee shall submit to the Board of County Commissioners an updated Data Processing Plan as set forth in Section II above, no later than November 30 of each year.

ADOPTED this 17th day of April 1986, being the date of its second reading before the Board of County Commissioners of Multnomah County, Oregon.

BOARD OF COUNTY COMMISSIONERS
FOR MULTNOMAH COUNTY, OREGON

(SEAL)

By Gretchen Kafoury
Gretchen Kafoury
Presiding Officer

AUTHENTICATED by the County Executive on the 21st day of April, 1986.

Dennis Buchanan
County Executive

APPROVED AS TO FORM:

JOHN B. LEAHY, COUNTY COUNSEL
FOR MULTNOMAH COUNTY, OREGON

By Peter Keating
Assistant County Counsel

2411E/KB/js

BEFORE THE BOARD OF COUNTY COMMISSIONERS

FOR THE MULTNOMAH COUNTY, OREGON

ORDINANCE NO. 671

An ordinance amending Ordinance No. 511 by adding provisions for telecommunications planning, funding and project management.

Multnomah County ordains as follows:

SECTION I. FINDINGS

1. Ordinance No. 511 established a Data Processing Management Committee, provided for membership and assigned functions.

2. The assigned functions related entirely to data processing and did not include reference to telecommunications.

3. The Board wishes to expand the assigned functions of the Data Processing Committee to include management review for all County telecommunications.

SECTION II. AMENDMENTS

1. Section I, Findings, of Ordinance No. 511 is amended to read as follows:

A. The Board finds that a need exists for ongoing planning and management in the area of data processing and telecommunications.

B. There is need to clearly define the goals and objectives of data processing and telecommunications planning and funding.

C. Committees should be established to provide for the organization and management of data processing and telecommunications planning, funding and project management.

2. Section II A of Ordinance No. 511 is amended by adding the following:

4. Provide management review for all County telecommunications.

a) Review the County annual telecommunications needs and budget.

b) Review telecommunications projects prior to initiation for conformance with County telecommunications policies.

3. Section IV, Annual Reports, of Ordinance No. 511 is amended to read as follows:

The Management Committee shall submit to the Board of County Commissioners an updated Data Processing Plan as set forth in Section I above, no later than February 15 [November 30] of each year.

ADOPTED this 13th day of December, 1990, being the date of its second reading before the Board of County Commissioners of Multnomah County, Oregon.

BOARD OF COUNTY COMMISSIONERS
FOR MULTNOMAH COUNTY, OREGON

By Gladys McCoy
Gladys McCoy
Multnomah County Chair

REVIEWED:

LARRY KRESSEL, COUNTY COUNSEL
FOR MULTNOMAH COUNTY, OREGON

By ~~Deputy~~ County Counsel

SENATE BILL 1210

SECTION 1. The Legislative Assembly finds and declares that:

(1) Information is a strategic asset of the state which must be managed as a valuable state resource.

(2) The expanding need, use and importance of information resources in this state require strong and effective management by both individual agencies and the state as a whole.

(3) The state must establish management procedures to assure a framework for the review, improvement, integration, development, security and use of information resources. Principal objectives for information resources management are improved productivity of state workers, better public access to public information, increased effectiveness in the delivery of services provided by the various agencies, and enhancing development of the telecommunication infrastructure available to the public.

(4) Effective information resources management requires:

(a) A specific statewide strategic plan, including management and technical policy;

(b) Comprehensive planning of the design, acquisition, security and use of information resources;

(c) The operation of communications systems and information resources that respond to the management information needs of agencies and programs; and,

(d) Consideration of the impact of information resources management activities on the development and vitality of telecommunications infrastructure available to the public.

(5) Although each agency is responsible for its information resources, centralized information resource management must also exist to:

(a) Provide statewide rules and standards;

(b) Monitor and insure compliance with those rules and standards;

(c) Provide management and technical assistance; and,

(d) Insure that the information resources management needs of state government and its programs are addressed along with the needs of the individual agencies.

SECTION 2. ORS 291.038 is amended to read:

(1) The planning, acquisition, installation and use of all information technology by state government and its agencies shall be coordinated so that statewide plans and activities, as well as those of individual agencies, are addressed in the most integrated, economic and efficient manner.

(2) To facilitate accomplishment of the purpose set forth in subsection (1) of this section, the Executive Department shall adopt by rule policies, procedures, standards and guidelines to plan for, acquire, implement and manage the state's information resources. In developing rules, the department shall consult with state agencies having needs that may be satisfied by use of information resources. State agencies shall cooperate with the department in preparing and complying with rules. The rules must be formulated to promote electronic communication

and information sharing among state agencies and programs and between state and local governments, and with the public where appropriate.

(3) Rules, plans and specifications shall be formulated to insure that information resources fit together in a statewide system capable of providing ready access to information, computing or communication resources. Rules, plans and specifications shall be based on industry standards for open systems to the greatest extent possible. Prior to adoption of rules referred to in subsection (2) of this section, the Executive Department shall present the proposed rules to the appropriate legislative committee. The Executive Department shall have the review and oversight responsibility for insuring that agencies' planning, acquisition and implementation activities support the statewide information resources management plan. The Department of General Services shall be responsible for the fair and competitive procurement of information technology consistent with the rules of the Executive Department.

(4) As used in this section:

(a) *'Information resources'* means media, instruments and methods for planning, collecting, processing, transmitting and storing data and information.

(b) *'Information resources management'* means the state's program for managing data and information in its various forms in furtherance of program and agency objectives, and in such a way that program and agency managers are able to obtain and use information easily, efficiently, effectively and economically.

(c) *'Information technology'* includes, but is not limited to, all present and future forms of hardware, software and services for data processing, office automation and telecommunications.

(d) *'Data'* and *'information'* represent facts and representations about the state's human, natural and commercial resources.

(e) *'Open systems'* means systems that allow state agencies freedom of choice by providing a vendor-neutral operating environment where different computers, applications, system software and networks operate together easily and reliably.

SECTION 3.

(1) The Executive Department shall produce procedures and guidelines for the development of a statewide information resources management plan by September 1991, for review by the appropriate legislative committee. The Executive Department shall also produce procedures and guidelines for the development of agency information resources management plans by December 1991, for review by the appropriate legislative committee.

(2) The Executive Department shall produce the first biennial statewide information resources management plan by January 1992, for review by the appropriate legislative committee. Agencies shall produce their first biennial information resources management plans by May 1992.

SECTION 4. This Act being necessary for the immediate preservation of the public peace, health and safety, an emergency is declared to exist, and this Act takes effect on its passage.".

Oregon

EXECUTIVE DEPARTMENT

April 12, 1993

MEMORANDUM

To: State Data Processing Managers

From: George Beard, Planning Manager
Information Systems Division

Subject: Standardizing the Corporate Network Environment

The Network Promise

With tough financial times now upon us there is no doubt *we need to do more with less.* A sensible strategy for doing more with less is to do more together: share ideas, information, people, and even machine resources. This requires a versatile and far-reaching network capability and tactical plan that maximizes our investment in network resources, and minimizes communication problems among agencies.

The Network Challenge

The Information Systems and Telecommunications Divisions are in the process of defining a network environment, installing the infrastructure, building the facilities, and adding services to make an enterprise network happen. Standards for wiring, local area networks, electronic mail, and the network communication protocol are necessary building blocks. You probably are familiar with the work that has been done the past couple of years in designating international standards, such things as X.400 for electronic mail, TCP/IP for the network communication protocol, and so forth. What we have discovered through this exercise is that these *standards, while useful, tend to lag behind practice and product.*

We have also discovered that, even with standards, Oregon state government struggles to get the products that are now is use to interoperate. Consider the fact that there are more than a dozen electronic mail products used across the face of government today. Trying to master each assures that we will not master any. We can do better. We can leverage our investment in people and products if we will limit the number of environments that will be supported on the corporate network to a reasonable number. There are probably just a couple of local area network operating environments, a couple of electronic mail products, and a narrow band of end user applications we should support through our contracting, training, and help desk activities.

Standards & Standardized Products

Pursuant to our statutory charge, the Information Systems Division is able to establish specific standards. Working together with a committee of agency information technology managers, we have set some additional network standards and have begun to specify particular product environments. (Please see attachment) **The emboldened text shows new standards that have been set; the outlined** text shows environments we are considering.

With this latest release of our standards, we have identified physical control, data

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Governor

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link and network components. As agencies consider new systems or applications, they are expected to adhere to these standards when their requirements can be met by these corporate products. These standards are expected to be in effect for the next three years. A reassessment will be made after that period.

- Please pay particular attention to the LAN environments. After many meetings and much deliberation, we selected NetWare and UNIX as our local area network (LAN) operating systems. Here's why. A network operating system standard is very crucial to providing global directories and minimizing our technical complexities and variables as we interconnect individual agency LANs into the larger wide area network. Both UNIX and Novell's NetWare provide a collaborative and versatile network operating system platform that will continue to grow together.

Why UNIX?

For disk and file sharing, the UNIX-oriented network approach is NFS (Net File System). It was championed by Sun and is usually included with all UNIX workstations. From its beginning, NFS has been based on open TCP/IP protocols. Today, third-party vendors provides NFS support for non-UNIX enviornments. At the same time, Novell is offering NFS support. It is as universal as we can get today.

Why Novell?

Novell commands the lion's share of the global market and has gained critical mass within the State of Oregon as well. Forecasts provided by agencies to the Executive Department ISD suggest that 80% of our LAN- based network operating systems are NetWare. State agencies with investments in Novell include: ODOT, Corrections, Mental Health, State Police, Energy, Education, Housing, LCDC, Parks, AFS, Health, Justice, VRD, Economic Development, Sec. of State, Building Codes, OLCC, General Services, Marine Board, Arts Commission, UO, OSU, WOSC, SO, PSU, OIT, K-12 schools, Cities, Counties, ESDs and special districts. NetWare supports a broad range of server CPUs and desktop clients, including DOS, Windows, Macintosh, OS/2 and Unix. Much of Novell's success is a result of its strategy of embracing and encouraging third-party developers as well as its strategic migration to UNIX and TCP/IP.

We are entering into a key corporate account licensing agreement with Novell by the middle of April. It will be extremely flexible with competitive pricing. This new licensing approach is a radical change from the current server-based method. Its pricing focuses on the individual users of the system and the types of services they require. It will be much easier for agencies to budget. Agencies will be able to install any number of servers at no additional cost. Therefore, the number of servers to best support the performances and functionality needs would no longer be an issue. Since a licensed node is entitled to the latest release of the product, version fragmentation would no longer exist. We also expect improved technical support. And added to all of these operational benefits, we expect to save substantial amounts of money. All agencies are eligible and will benefit through a statewide licensing agreement with Novell.

More Coming!

In the next couple of months we intend to conduct Novell 4.0 planning workshops, and to identify messaging and desktop application environments. Please call Carl Grzybowski (378-4929)if you wish to participate in the definition of the enviornments that will be selected. In the meantime, gives us a call if you have questions or other ideas about the standards program.

cc: Sandi Burt, Purchasing Division

Corporate Network Environments

With tough financial times now upon us, *we need to do more with less*. To leverage our staff and knowledge, *we need to minimize our technical complexities and variables*. To improve interagency productivity, *we need a shared network infrastructure*. As agencies consider new systems or applications, they are expected to adhere to these standards when their requirements can be met by these corporate products.

SERVICE	PRODUCTS	RATIONALE
LAN Connection		
PHYSICAL (new)	Level 5 four pair 24 ga. UTP	Supports Ethernet, Token Ring, and CDDI. State standards, EIA/TIA - 568
DATA LINK	Ethernet & Token Ring	Wide range of support. State standards, IEEE 802.3, 802.5
Network		
LAN PROTOCOL	TCP/IP, Novell, AppleTalk	Installed base. Netbios not routable or pervasive.
WAN PROTOCOL	SNA to TCP/IP	Session path to routable protocol. Supports state standard TCP/IP.
OPERATING SYSTEM (file sharing)	Novell Netware (latest release) Unix	Novell's installed base, broad market appeal, multi-client support, CPU independent, and Unix integration. Supports TCP/IP, AT and IPX. Single LAN NOS with Unix direction positions state for global directories and easier network management.
Messaging	2-3 products TO BE DETERMINED	
Desktop Applications		
Operating System	Transition into a 32bit OS	Future applications and network services will likely demand a more robust operating system, a powerful GUI and multi-tasking capability.
Word Processing	2-3 products TO BE DETERMINED	
Spreadsheet	"	
Lite Database	"	
Page Layout	"	

INFORMATION TECHNOLOGY STANDARDS-BASED ARCHITECTURE

POLICIES AND STANDARDS

STATE OF OREGON
DEPARTMENT OF ADMINISTRATIVE SERVICES
INFORMATION RESOURCE MANAGEMENT DIVISION

October 27, 1992

This material provided by:
Management Information
Services

Multnomah Education
Service District

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POLICY

INFORMATION TECHNOLOGY ARCHITECTURE

STATUTORY AUTHORITY

ORS291.038 . This statute states that "the Executive Department shall adopt by rule policies, procedures, standards, and guidelines to plan for, acquire, implement, and manage the state's information resources."

PURPOSE

To satisfy the intent of ORS291.038, rules shall be formulated to insure that information resources fit together in a statewide system capable of providing ready access to information, computing, and communication resources.

OBJECTIVE

To define a Standards-based Information Technology Architecture which allows for the development of cost effective, highly portable applications, which are capable of residing on all processing levels (desktop workstations to large scale systems), and have a high degree of interconnectability to support cross organization information access, message handling, and inter/intra state government communication and data transfer.

APPLICABILITY

This policy and related information technology standards apply to hardware and software acquired and/or developed by all Executive Branch agencies.

EFFECTIVE DATE

This policy and related standards are effective January 1992 for new acquisitions or development efforts.

POLICY

Agencies will apply adopted information technology standards to new procurement and application development projects to the maximum extent possible. Information technology which complies with the state's approved standards will be the preferred implementation approach.

By 1995, all new applications developed by state agencies or existing applications which have reached the end of their life cycle, will be developed to comply with the State of Oregon's information technology standards.

By 2000, all applications and IRM technology supported by the State of Oregon will conform to the state's information technology standards.

Some individual standards specify more aggressive implementation dates due to the maturation and stability of applicable base industry standards.

Migration and implementation plans required to comply with these standards shall be included in each agencies' biennial IRM Plan.

EXEMPTION PROCESS

There are occasions when agencies have special conditions or extraordinary requirements that prevent them from conforming with a standard. Agencies may request an exemption from an approved standard by writing to the Administrator, Information Systems Division.

Situations that may lead to exemptions include:

- Federal restrictions when funding of the acquisition is predominantly federal;
- Legislative or regulatory mandates require exceptional measures;
- The standard would preclude the ability to transfer a system from another organization;
- Upgrades to the installed base of existing systems.

However, **exceptions shall be granted only if:**

- Compliance with the standard would adversely affect the ability of the agency to accomplish mission critical functions; or
- Compliance would cause a major adverse financial impact on the agency which is not offset by statewide savings.

MAINTENANCE

The establishment of this initial set of IRM standards is a starting point, not an end result. Since they are based upon international and industry standards, technology advances will necessitate periodic revisions and additions to the standards adopted under this policy. The Planning and Review Section of the Information Systems Division is responsible for the ongoing refinement of these standards. For more information contact the Planning and Review Section at 378-4929.

STANDARD

INFORMATION TECHNOLOGY ARCHITECTURE

STRATEGIC DIRECTION

The unprecedented business, political, and social issues facing the government of the State of Oregon during the 1990's require the development of a state-wide information technology architecture that is flexible and responsive to support rapidly changing business requirements and significant organization changes.

The development of an enterprise-wide technology architecture will require the establishment of a suite of technical standards which will be based upon international standards to the maximum extent possible.

The Executive Department will be responsible for the establishing, updating, and communicating the state's information technology standards. Only those standards which have been approved by an industry standards committee, fully documented, and released to the public will be adopted.

De facto industry standards may be adopted when international standards do not exist and can be used as interim or migration standards.

FUTURES

Standards for the State of Oregon information technology architecture will continue to evolve over time in response to emerging international standards, technology advances, and changing business requirements.

Additional technology areas will be addressed in future standards.

ADDITIONAL INFORMATION

Contact the Information Systems Division's Planning and Review Section at 378-4929. The Oregon State Library maintains copies of the international and industry standards cited in this document.

STANDARD

ELECTRONIC MAIL

SUBJECT

Electronic mail is the storage and transport of electronic information across a heterogeneous environment among people, among applications, and among people and applications.

Electronic mail is becoming just as much a necessity for office work as the telephone. Both are needed to communicate and conduct business. Effective use of electronic mail can reduce costs, improve staff productivity, and expedite the exchange of information.

POLICY

The Oregon State government encourages the use of electronic mail in order to promote efficient communication within and among agencies.

Agencies' computers must be capable of connecting to the state backbone electronic mail system in order to extend electronic mail to the computer users within their organizations.

Agencies with electronic mail systems shall develop policies governing proper use and privacy of electronic mail.

STANDARD

- **Electronic mail systems must be able to exchange mail using standards compliant with ANSI X.400 Message Handling System (1988 or later) or SMTP (RCF 1123) transport protocol.**

- **Mail directory standards will be developed consistent with** ANSI X.500.

SCHEDULE

Existing mail systems will comply with these standards by December 1993.

By December 1995, all employees who use terminals or microcomputers connected to a network will have access to standard-compliant mail systems.

STANDARD

LOCAL AREA NETWORKS

SUBJECT

Local Area Networks (LAN) support working relationships among individuals and groups in our agencies today. Tomorrow, they will form the foundation of a far-reaching statewide network. So it is critical that today's LAN investments position state agencies to connect easily.

POLICY

Oregon state government needs to achieve communication among its many computers from different manufacturers, both on local and wide-area networks. LANs are building blocks that must integrate easily to achieve a statewide network government's Wide Area Network and with each other. Agencies are encouraged to install the LAN environments listed in the guideline portion of this standard.

STANDARD

- **LANs must be Able to communicate via TCP/IP to external networks.**
- **Specific agency LANs will be the *IEEE 802.X series-802.3, 802.4*, and 802.5.**
- **Intra-campus LAN backbone will be Fiber Distributed Data Interface *(FDDI)*.**
- **Metropolitan Area Networks will follow the *IEEE 802.6 recommendation*.**

GUIDELINE

Agencies are encouraged to select one of these local area network products which exist in adequate numbers across state government and are reasonably easy to connect and support: Novell's Netware and Microsoft's LAN Manager.

SCHEDULE

Agencies shall covert existing non-compliant LANs to meet these standards by December 1994.

STANDARD

RELATIONAL DATA BASE MANAGEMENT SYSTEMS AND STRUCTURED QUERY LANGUAGE

SUBJECT

Data base management systems organize data for efficient storage and retrieval. They currently work well in single computing environments. In many areas, however, the data needed to perform a function reside in more than one location. This is particularly true in government, where there are multiple jurisdictions, and within jurisdictions, multiple agencies and divisions. Distributed data base management systems combined with new data access and communication technologies allow the use of one computer system to easily access data stored in other systems.

This standard has been established to facilitate data sharing between and among databases through the use of a standard database access language, and to improve transferability of programming staff and skills within and among state agencies.

POLICY

Oregon state government needs to manage its information and information resources as strategic assets. Today, agencies typically manage their information resources independently. The result is data and information that are often incompatible, redundant and inaccessible by other agencies.

Funding priority will be given to data acquisition and development projects using relational data base technology, when appropriate for the application, that comply with this standard. Preference will be given to interagency and intergovernmental data base projects that serve the greatest number of users.

STANDARD

Purchases of database products, new database application, and existing production systems that are remodeled must comply with the following requirements:

- **Support a relational data model.**
- **Support local and remote access using a Structured Query Language(SQL) interface that complies with ANSI X3.135 (-1989 or successor) Specification.**
- **Support native format for import and export including, at a minimum, ASCII text.**

STANDARD

NETWORK COMMUNICATION PROTOCOLS

SUBJECT

Just as a common language is necessary to allow two people to communicate effectively, a common language is required for communication between heterogeneous computers connected to the same or different networks. Additionally, as the state's data networks expand and become more complex, management tools and practices must be standardized in order to maintain demanding service levels.

A myriad of standards for computer communication exist today. The Transmission Control Protocol/Internet Protocol (TCP/IP) suite has evolved as the most widely adopted language of inter-system networking. It is currently the only set of protocols that is completely open and manufacturer-neutral, has a large installed base and widespread implementation experience on a wide variety of hardware platforms, and supports a wide variety of network media.

POLICY

Oregon state government will develop a statewide management and technical capability for exchanging information and achieving communications among its many computers. All major computer system and data communications acquisitions and expansions must include support for statewide standards.

STANDARD

- **All major computer system acquisitions shall include support for TCP/IP. Computers can operate and support several different protocols as long as one of them is TCP/IP.**

- **All new data communication networks shall support TCP/IP. Networks can operate and support several different protocols as long as one of them is TCP/IP.**

- **All TCP/IP-capable computers must comply with the standards detailed in "Requirements for Internet Hosts" (RFC 1122/RFC 1123), Internet Engineering Task Force or its successor.**

- **Devices providing router capability on the network must be manageable by SNMP (Simple Network Management Protocol) as detailed in "Simple Network Management Protocol" (RFC 1157) and "Management Information Base for Network Management for TCP/IP-based Internet (RFC 1158), Internet Engineering Task Force. Devices providing router capability on the network must also comply with "Requirements for Internet Gateways" (RFC 1009, June 1987), R. Braden and J. Postel, Network Working Group. This standard is expected to be superseded by "Requirements for Internet IP Routers" when that document is issued by the IEEE in late 1991. Compliance with these documents is required of all IP routers, and hence defines the IP network.**

GUIDELINE

A gradual transition to the OSI protocol suite over the next 5 to 10 years is expected. In addition, new standards identifying additional networking functionality are likely. In the long run, Oregon state government shall: (1) develop an Oregon OSI profile based upon a subset of the federal GOSIP standard or its successor as a co-standard to TCP/IP; (2) track other communication protocol standards for possible adoption, such as other ISO standards, open proprietary standards such as Appletalk, and manufacturer extensions to TCP/IP and OSI standards (e.g., DEC's Distributed Name Service, the NFS and AFS distributed file systems, the OSF DCE).

SCHEDULE

Effective immediately, acquisition of all multi-user computer systems, and major system expansions, must be compliant with these standards or their successors.

Effective immediately, acquisition of new wide-area data communication networks or major expansion of existing networks shall be compliant with these standards or their successors.

Existing networks and networked computers shall meet compliance by December 1994.

STANDARD

COMMON COMPUTER OPERATING ENVIRONMENT

SUBJECT

The State of Oregon is evolving its information technology environment to a local area network and client-server architecture. This implies a highly networked, workstation-based, distributed database architecture, which conforms to international standards for information technology. More importantly, this environment will be "transparent" to the end-user, for he/she will be presented with a consistent interface to the "system" and will have access to commonly defined data and information services, regardless of where they are stored.

The move towards this architecture is driven by the following factors:

Decentralization - the relocation of applications and associated computing resources closer to the end-user.

Downsizing - the use of smaller, less expensive, yet powerful processors to support agency application requirements.

Mainframe Evolution - technology developments and applications development trends will transform the role of the mainframe (and large mid-range) systems into one of central database server.

The state has, as much as technology would allow, pursued decentralization during the past decade. This effort was, however, executed by agencies in an independent fashion and at a time when there was a lack of industry and international standards. A consequence of this approach to information technology is an unacceptable percentage of incompatible, proprietary computing systems installed throughout state government.

Fortunately, customer forces in the past few years are causing vendors to offer operating systems which are designed and implemented in accordance with independent standards or which support standards-based interfaces and which can participate in a decentralized, multi-vendor environment. This development, coupled with a client-server architecture, provides a technical alternative to the closed, proprietary systems of today.

POLICY

Agencies shall migrate from proprietary to "open" operating systems as rapidly as possible in order to begin building a compatible computer operating environment within the State of Oregon. Unless specifically exempted by this standard, all future computer processor acquisitions will include a POSIX compliant operating system. Agencies shall not make new investments in proprietary systems, develop new applications which execute only in a proprietary operating environment, or make purchases which perpetuate the use of proprietary systems, without the approval of the Information Systems Division, Executive Department.

Requests for upgrades to existing processors or operating systems will include an alternative which evaluates the investment of the planned expenditure into a standards-compliant platform.

STANDARD

- State agencies shall acquire only operating systems which conform to the appropriate Federal Information Processing Standards(FIPS) and Application Procurement Profiles(APP) for Portable Operating System for Computer Environments (POSIX) as they are adopted. At the time of publication, these standards were FIPS 151-1 (Systems Interface).

- All "UNIX-like" operating systems must conform to the X/open Corporation's Portability Guide, XPG3-Base, as evidenced by receipt of the X/Open brand. It is desirable that agencies acquire operating systems which conform to the X/Open Common Applications Environment (CAE).

SCHEDULE

Attachment B, Migration to a Standards-Based Architecture, depicts the implementation strategy for this standard by platform type.

The state will need to support much of its proprietary computing base for years to come. However, the current status of the industry indicates that all processor vendors offer POSIX compliant operating environments. Therefore, the state can now begin to move incrementally towards a standards-based architecture by minimizing new investments in proprietary systems.

New applications or current applications which have reached the end of their life cycle must be closely examined as candidates for migration to a non proprietary environment. Before any investment is made in a proprietary system, open systems options must be examined.

EXCEPTIONS

Because of the highly embedded nature of operating system software and the scope of hardware platforms impacted, additional exemption criteria is required for this particular standard. In general, an exemption to this standard may be granted only. if one of the following conditions pertains:

- A microcomputer (any single-user personal computer which can operate independent of a networked computer system) is being acquired. The Executive Department, Information Systems Division, will maintain a list of recommended microcomputer operating systems. The microcomputer must be able to connect to a state standard network;
- A print, file, or communications server is being acquired to support a local area network. Database servers are not included in this category. The server must be able to be connected to a state standard network;
- The operating system is acquired for a technology platform which will be used for instructional and/or research computing applications where curricular, external research work group, or non-state-funding source requirements mandate a non-conforming product; or
- A bundled, turn-key system is being acquired and there is no cost/effective, general purpose technology platform (hardware and application software) which will meet the agency's needs.

GUIDELINE

GRAPHICAL USER INTERFACE

SUBJECT

Several forces are occurring in the information technology industry which will impact the way that users of information interact with systems. These forces include:

- o Continued significant improvement in the price/performance ratio of programmable desktop computing devices (PCs and workstations).
- o Decentralization of applications which moves the processing closer to the end user.
- o Development of consistent and easy to use graphical user interfaces (GUI).
- o An increasing trend toward the demand for multimedia information including voice input and output, video, imaging, etc.

We can expect continued organizational changes resulting in the movement of people between work groups. Our systems must be capable of allowing these people to become productive as quickly as possible by minimizing training through the use of consistent user interfaces.

POLICY

New applications implemented by Oregon State government agencies should include a graphical user interface.

GUIDELINE

Graphical user interfaces are dependent upon the operating system environment in which they operate. GUIs that should be considered for implementation by state agencies based upon their application needs and technical environment include:

The preferred GUI for the POSIX/XPG3 environment will be compliant with X3H3.6, IEEE 120 FIPS 158). The state government of Oregon's standard for this environment will be the OSF's MOTIF implementation.

Other implementations of GUI can include:

- o **DOS - MS WINDOWS 3.X**
- o **OS/2 - Presentation Manager**
- o **Windows NT - Windows NT**
- o **Macintosh**

IMPLEMENTATION

In a perfect world, it might be possible to establish a common GUI for all agencies or applications. However, reality states that the state of Oregon has a mixed technical environment and will continue to have that environment in the future.

The intent of this guideline is to emphasize the importance that GUIs will play in future application development and begin introducing that technology now. Therefore, each agency should develop a GUI standard and implementation strategy based upon its IRM Plan and current/planned technical environment.

STANDARD

ELECTRONIC DATA INTERCHANGE

SUBJECT

Electronic Data Interchange (EDI) refers to the exchange of business transactions electronically between business partners. In EDI, data that would be traditionally conveyed on paper documents are transmitted or communicated electronically according to established rules and formats. The formatted data may be transmitted from originator to recipient via telecommunications or physically transported on electronic storage media.

The primary objectives for implementing EDI standards are:

- o to promote the achievement of the benefits of EDI: reduced paperwork, fewer transcription errors, faster response time for procurement, reduced inventory requirements, and more timely payment to vendors;
- o to ease the interchange of data sent via EDI by the use of standards for data formats and transmission envelops;
- o to minimize the cost of EDI implementation by preventing duplication of effort.

Business information encompasses the entire range of information associated with commercial, financial, and industrial transactions. Examples of applications (not necessarily the subject of current standards) are:

- o vendor search and selection: price/sales catalogs, bids, proposals, requests for quotations, notices of contract solicitation, trading partner profiles;
- o contract award: notices of award, purchase orders, purchase order acknowledgments, purchase order changes;
- o product data: specifications, manufacturing instructions, reports of test results, safety data;
- o shipping, forwarding, and receiving: shipping manifests, bills of lading, shipping status reports, receiving reports;
- o payment information: invoices, remittance advice, payment status inquiries, payment acknowledgments;
- o inventory control stock level reports, re supply requests, warehouse activity reports; and
- o tax-related data: tax information and filings.

POLICY

EDI can greatly improve the efficiency of conducting routine business with the state's major business partners. Additionally, industry trends will demand that the state establish electronic links with its vendors and other external partners for the electronic transfer of high volume business transactions.

Future purchasing business applications developed by the State of Oregon which include the generation or receipt of business transactions to/from external business partners will include a provision for currently approved EDI transactions.

Additionally, those applications which process inter-agency transactions will conform to the state's EDI standards, if an applicable standard exists.

STANDARD

The implementation of EDI requires the use of a family of interrelated ANSI standards (FIPS 161). This family is known as X12. These standards continue to expand as the demand for new transactions are identified.

NOTE: A set of international standards known as EDIFACT is currently being developed. It is anticipated that within two to three years, X12 and EDIFACT will converge into one set of international standards addressing the electronic transfer of standard business transactions. EDIFACT is mainly of concern to firms engaging in international trade. The State of Oregon will focus on X12 at this time.

IMPLEMENTATION

The ANSI standards described above are currently applicable to only a small subset of transactions which a exchanged electronically. There also exist industry-specific standards which may apply to agencies, e.g., DMV, DIF, Revenue, etc. and their business partners.

State agencies will follow the following hierarchy when implementing electronic exchange of data:

1. Utilize ANSI standards, if they exist for the transaction(s).

2. Utilize industry specific standards, if established. Agencies which participate on industry standards setting boards should lobby to have those standards adopted as ANSI standards.

3. Establish and document data exchange standards with business partners.

POLICY

INFORMATION TECHNOLOGY ARCHITECTURE

STATUTORY AUTHORITY

ORS291.038 . This statute states that "the Executive Department shall adopt by rule policies, procedures, standards, and guidelines to plan for, acquire, implement, and manage the state's information resources."

PURPOSE

To satisfy the intent of ORS291.038, rules shall be formulated to insure that information resources fit together in a statewide system capable of providing ready access to information, computing, and communication resources.

OBJECTIVE

To define a Standards-based Information Technology Architecture which allows for the development of cost effective, highly portable applications, which are capable of residing on all processing levels (desktop workstations to large scale systems), and have a high degree of interconnectability to support cross organization information access, message handling, and inter/intra state government communication and data transfer.

APPLICABILITY

This policy and related information technology standards apply to hardware and software acquired and/or developed by all Executive Branch agencies.

EFFECTIVE DATE

This policy and related standards are effective January 1992 for new acquisitions or development efforts.

POLICY

Agencies will apply adopted information technology standards to new procurement and application development projects to the maximum extent possible. Information technology which complies with the state's approved standards will be the preferred implementation approach.

By 1995, all new applications developed by state agencies or existing applications which have reached the end of their life cycle, will be developed to comply with the State of Oregon's information technology standards.

INFORMATION TECHNOLOGY STANDARDS

TECHNOLOGY AREAS	APPROVED STANDARDS	STRATEGIC DIRECTION	APPLICABLE FIPS OR INTERNATIONAL STANDARDS
1. NETWORK SERVICES			
NETWORK PROTOCOL	TCP/IP	ISO/OSI	ISO/OSI:[GOSIP VER.2.0, VER.3]
LOCAL AREA NETWORK	IEEE 802.3, .4, .5	IEEE 802.3, .4, .5	IEEE 802.3, 802.4, 802.5
CAMPUS LAN	FDDI	FDDI	FDDI:X3.139-87,X3.148.88, X3.166[GOSIP VER.3]
MET AREA NETWORK	IEEE 802.6	IEEE 802.6	IEEE 802.6[GOSIP VER.1, VER.2]
2. NETWORK MANAGEMENT	SNMP	ISO/OSI	ISO/OSI:[GOSIP VER. 2, VER.3]
3. ELECTRONIC MAIL			
MESSAGING	X.400	X.400	[GOSIP VER.1, VER.2]
DIRECTORY	X.500	X.500	[GOSIP VER.2, VER.3]
4. DATABASE MANAGEMENT			
DATA ACCESS	ANSI SQL 89	SQL	X3.135-89[FIPS 127/127.1]
DATA REPOSITORY		IRDS	X3.138-88,X3.195[FIPS 156]
REMOTE DATABASE ACCESS		RDA	[GOSIP VER.4]
DATABASE MGMT SYSTEM	SQL COMPLIANT DBMS	SQL COMPLIANT DBMS	
5. ELECTRONIC DATA INTERCHANGE		X12, UN/EDIFACT	ANSI X12, ISO 9735[EDIFACT] [FIPS 161]
6. USER INTERFACE			
WORKSTATIONS		X/OPEN XPG: X WINDOWS	X3H3.6,IEEE 1201[FIPS 158] e.g. OSF MOTIF, OPEN LOOK
PERSONAL COMPUTERS		WINDOWS 3.X MACINTOSH	MICROSOFT; APPLE
7. DEVELOPMENT LANGUAGES		*TBD*	*TBD*
8. IMAGING		*TBD*	*TBD*
9. OPERATING SYSTEMS (COMMAND LANGUAGE, FUNCTIONS, & API)			
SERVER		POSIX	ANSI/IEEE 1003.1/.2/.7; [FIPS 151-1]
CLIENT		POSIX	*PROPSED* FIPS

How to best provide the "utility" functions of LAN administration and PC technical support. There is no disagreement about what these functions are:

- Administer/Manage Local Area Network (LAN)
- Analyze PC/LAN needs of users
- Short- and long-range planning of PC and network environment
- Optimize network and PC performance
- Fix LAN and PC hardware, software, software applications and communication problems
- Provide preventive maintenance on LAN/PC hardware and peripherals
- Evaluate, acquire, test, and install LAN/PC hardware and software
- Develop and maintain written documentation, procedures, user manuals, and instructions
- Knowledge and support of desktop operating systems, software, and applications (as they apply to LAN/PC)
- Stay up-to-date with changing technology

There is also agreement among the members of SPIT to the following:

- A formula for a minimum acceptable allocation of such personnel could be developed, and that the allocation should be geographically based, rather than department based.

- Everyone should be guaranteed a minimum level of service, although a business unit may choose to have more support than this minimum.

- Business units should have control over the day to day activities and priorities of these people.

- Business units should have recourse and correction capabilities for addressing non-performance.

- Equivalent service should have equivalent cost across the County.

The members of SPIT have been unable to achieve consensus around the best method of delivering these services. The options, as we see them, are:

- Department employees; achieve desired distribution by departments working out agreements to "share" employees in similar geographic locations.

- A central group of employees who report to work sites, but are centrally "administered" and have ties to the central ISD. (A "matrix" approach)

- A central group of employees who respond to needs as they occur.

The first two options are preferred by the members of SPIT.

Outsourcing is another facet of this discussion; it could be achieved by departments each contracting for service or by a centrally managed contract.

PC "Flat Fee" Funding

- The idea originally put forth was:

1. Determine "adequate minimum" service, replacement, upgrade and support levels for:
    - PC standard hardware
    - PC standard software
    - Training on these standards
    - Technical support and LAN administration "utility" functions.

2. Add up what it would cost annually to provide these services to all PC users, via whatever mechanisms were determined to be optimal for the County.

3. Divide this total by the number of PC's in the County. The result would be an annual charge that each department would pay for each PC, to receive the services listed above.

Issues/Concerns:

- As the entire County is not providing these services in an "adequate minimum" way at this time, this plan would result in increased expenditures for PC's.

- SPIT members had difficulty conceptualizing how this process would work, absent decisions about how the services, especially support and LAN administration, would be provided.

- There is disparity in opinion as to whether it is effective and/or efficient for individual departments to devote resources to providing/managing these PC services.

- There were differing opinions as to whether this funding would create an "account" for each department, or an overall funding pool.

- It will be necessary to re-assess training needs periodically and provide the proper classes based on this assessment. For example, lots of "beginner" classes will be necessary when we first implement a standard, but as the standard becomes prevalent, more advanced classes and fewer beginner classes may be necessary.

- Members had difficulty in determining whether a "level playing field" would be of benefit to their organizations.

- The concept of an "internal lease" function was discussed, where a work unit would pay a certain amount annually for certain "menu choices" in equipment and service. For example, a standard PC would carry one charge, one with more RAM would carry a higher charge; 24-hour/7 day per week service would carry one charge, weekday only would carry another.

  The county would own any equipment, thereby reducing confusion over equipment ownership in grant funding situations.

- There is a significant migration issue regarding machines departments currently own.

- Fully converting to externally leased equipment should be investigated as part of the implementation of this idea.

- This funding mechanism would help to implement the "computer store" objective.

- This funding mechanism would simplify budgeting for and acquiring PC equipment and services.

Applications Development and Maintenance

Previous SPIT consensus, and an objective in the current strategic plan, is that the responsibility for applications development and maintenance goes to the business unit -- this means they have the responsibility for making sure applications development and maintenance ***happens***.

It was clear that further refinement of this concept was needed. The following are SPIT's thoughts on this subject.

Elements of Applications Development/Maintenance

1) New systems design
2) Modifications to commercial packages
3) Needs assessment
4) Business process design
5) Documentation
6) Maintenance of documentation
7) Periodic RFP's
8) Identifying scope of development work (single agency vs. shared applications)
9) Programming
10) Testing
11) Data design and integration
12) Adherence to standards (methodology and software)
13) Conversion/migration/installation
14) System integrity/backup
15) Disaster recovery
16) Quality assurance
17) Funding
18) Assessment of organizational capacity for assimilating change
19) Platform decisions
20) Applications development prioritization
21) Determining who will perform the actual work

Scope of Applications Development/Maintenance Considered

The scope of projects under consideration are those that would encompass a design for multiple people, or for repetitive (ongoing) use. For these applications, the use is independent of the original developer (i.e., the need will continue independent of the employment of the developer and should be tied to a specific job function). This definition will include applications where the data isn't shared.

Our Current Situation

Our current situation is that we are accomplishing applications development and maintenance in a multitude of ways throughout the county. The committee did not spend time enumerating or describing all the different methods.

Problems With the Current Situation

It should be noted that these are problems identified by at least one member. There was no determination as to whether these are problems for all, or even a majority or users.

1) Applications development/maintenance knowledge is tied to the developer; we are dependent on the knowledge in a specific person's head.

2) There is inadequate documentation.

3) We have fragile systems (example -- PSW system where variables were hard-coded into program, making changes difficult, risky, and more expensive).

4) We have a large inventory of old, legacy systems (examples are the A&T system, the Health/ODS interface).

5) There is a large backlog of unmet development/maintenance needs.

6) Departments have little control over the type or quantity of maintenance they can get (particularly general-fund programs).

7) Inadequate overall funding.

8) Systems are isolated and duplicative.

9) We have a reactive vs. proactive allocation method for funding (crisis mode).

10) Solutions are tied to current skills of current staff and the technology currently in use at Multnomah County, as well as current funding mechanisms.

11) Customers have little control over who is doing the development work in ISD (lack of choice).

12) There is lack of communication/coordination between agencies, between centralized and decentralized staff, as well as outside agencies, key players.

13) Development staff is involved in making build/buy decisions. As they may be impacted by the decision, this introduces the possibility of bias in the decision making process to keep development work in-house

14) There is the possible problem in evaluation (quality assurance) of programming efforts if we are asking people who have done the work to evaluate it.

15) Technology people are, in effect, making "business" decisions, and may make technology the end rather than the means.

16) We often just automate current processes, instead of looking at the process and operating from a "systems thinking perspective" before making applications decisions.

17) Business units have not had authority over the development process; attempting to exercise such authority has often been at their own peril.

18) There is no effort for business managers to keep up to date and be evaluated on/be accountable for keeping their use of technology appropriate (need for accountability for knowledge of and commitment to IT).

19) There is generally a lack of understanding that the use of IT is a management issue, and not a technical issue.

The committee's consensus is that a basic understanding of how IT can be used in a department's/division's/program's business is a high-level management responsibility; and that evaluation of such knowledge should be a piece of performance appraisal.

20) There is confusion over roles/responsibilities, especially personal responsibility, in integrating IT and business practices, management, etc.

21) The issue of IT in general is a very expensive proposition.

22) Multnomah County's approach to IT is not cost effective.

Example - we always seem to be in the wrong place on the price/performance curve, (perpetuation of false economies).

23) Lack of flexibility created by human resource management systems (including union contracts, civil service, etc. -- methods of accountability and reward).

Goals for Applications Development/Maintenance

1) Business units have authority, accountability, and responsibility for the applications they rely on to conduct business (this is a big issue and needs to be fleshed out). We need to develop expectations--people have a hard time being accountable without knowing what they are accountable for. Business units should also be accountable to the remainder of the County for their actions. We need to define expectations and make this part of management's performance review.

2) The County's applications are adequate and effective to support its business.

3) Get more results from resources available by:

- Eliminating duplication;
- Coordinating effort among agencies;
- Ensuring use of systems approach; looking at/improving the process before it is automated;
- Developing systems and processes to measure our "return on investment";
- Investing adequately to ensure maximum return on investment;
- Leveraging resources (internal and external);
- Better initial planning.

4) Develop personnel/human resource management practices and systems that work to support our business needs:

- Training people in new technologies;
- Referring to the solutions we already have in "organizational issues" ;
- Addressing performance issues;
- Recruiting people effectively;
- Compensating people fairly;

- Producing other cultural changes to allow us to manage our human resources effectively.

5) Provide business unit(s) with control over resources (personnel and financial) to manage applications development and maintenance (this will require a migration strategy). This could be effected in many ways, the key element is "control."

6) Set standards such that our applications developed in-house are developed consistently, even if they are not developed in a central environment. Applications can easily be transferred between business units. Data standards should be addressed for both in-house and commercial or externally developed applications.

7) Evaluation of interdepartmental needs prior to building/buying new application (above a certain dollar threshold). The ITC and Operations Council should be involved. Beyond a certain dollar amount an independent review is warranted. (The DIT should be responsible for this--some work required in defining the dollar amount)

8) Develop a county-wide forum to share IT knowledge (see prior recommendations for ITC, Operations Council)

9) If we evaluate a new application for "make or buy" and decide to make, we must address the issue of "marketability" as part of the applications design decisions.

10) Make applications development decisions recognizing the long-term cost implications. Recognize the maintenance needs over time, and the associated costs.

    Full maintenance and capital replacement should get built into the development work we do. (This should tie back to the funding discussion--we've already talked about capital replacement and need to add the ongoing maintenance as well).

Organizational Models for Applications Development/Maintenance

The goals need to be taken in context with each other. Certain solutions will optimize some goals and not others, and different optimizations are possible with different solutions. Every model will be a compromise.

The SPIT committee's consensus is that Multnomah County (the DIT?) should convene an appropriate representative forum to decide the best model for providing applications development/maintenance support. This may result in multiple models being used, different types for different types of applications.

There is also consensus from SPIT that management should have authority, accountability, and responsibility for IT in their areas of focus, and their performance in this regard should be evaluated in their performance reviews.

ALAMEDA COUNTY

TELECOMMUTING PROGRAM

HANDBOOK

SECTION 1

TITLE PAGE

- Introduction
- Goals, Objectives, and Policy Guidelines 1
- Telecommuting Participation Regulations 2

Personnel & Labor Relations DEPARTMENT

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ALAMEDA COUNTY

TELECOMMUTING PROGRAM

INTRODUCTION

Telecommuting is an arrangement where employees work at a location other than the conventional office, such as an employee's home or a satellite office. Telecommuting is usually used for part of the work week (1 to 4 days), or periodically. It does not always require computers or other technical equipment.

Private and public sector employers are implementing telecommuting programs to improve staff productivity and morale, decrease sick leave use and absenteeism, realize cost savings, and reduce commute time. During the first six months of Alameda County's telecommuting pilot, 70% of the participants reported an increase in quality and effectiveness of work. Supervisors of the telecommuters confirmed that telecommuters improved work productivity and worked more efficiently.

Three elements are needed for successful telecommuting: 1) work that is independent in nature (writing, reading, organizing data, telephoning, field inspection, public health nursing, data entry, and word processing); 2) employees who are productive, responsible, highly motivated, and skilled in their jobs; and, 3) supervisors who are willing and able to supervise without being in constant contact with employees.

Alameda County's Telecommuting Program is designed for selected employees who meet specific work standards. It is a program to achieve increased productivity and lower operational costs.

ALAMEDA COUNTY TELECOMMUTING PROGRAM

TELECOMMUTING PARTICIPATION REGULATIONS

All participants must understand and agree to program guidelines and the following regulations.

1. Telecommuting is not a substitute for child or elder care; telecommuter must provide child or dependent care arrangements and will manage dependent care and personal responsibilities in a way that allows job responsibilities to be successfully met.

2. The duties, obligations, responsibilities, and conditions of a County employee are not changed by telecommuting. Employee's salary, retirement, benefits, and insurance coverage shall remain unchanged.

3. Telecommuting employee remains obligated to comply with all County rules, policies, practices, and instructions. Violation of such may result in preclusion from telecommuting and/or disciplinary action, up to and including termination of employment.

4. Work hours, overtime compensation, and vacation schedule will conform to the Administrative Code, MOU provisions, Fair Labor Standards Act (FLSA), and to any other terms agreed upon by employee and supervisor, except that, those terms may not violate the laws/provisions stated above. *Hours of work can be arranged flexibly with supervisor.*

5. Telecommuting usually occurs on a part time basis which is arranged with telecommuter's supervisor. Requests to work overtime, use sick leave, vacation, or other leave must be approved by the employee's supervisor in the same manner as when working in the regular office.

6. Employee will work at a designated location during hours agreed upon and will not work anywhere else unless agreed upon with supervisor.

7. Employee agrees not to conduct unauthorized employment when telecommuting.

8. Expectations must be pre-established between telecommuters and supervisors regarding work assignment(s), productivity level, and productivity measurements to be used when employee is telecommuting.

9. County provided equipment at home is not an entitlement of telecommuting. Depending on department and job arrangements, equipment can be provided under certain circumstances. County discounts for purchase of hardware, software, or equipment will be made available to telecommuting employees.

   Office supplies needed by telecommuter will be provided by the Department. All requests must be approved by the responsible supervisor.

10. Use of County equipment and supplies is limited to authorized persons and for purposes relating to County business. The employee is responsible for seeing that equipment is properly used. The County will provide for repairs to County equipment.

11. When employee uses his/her own equipment, employee is responsible for maintenance and repair of equipment. Employee will cover all utility costs incurred while working at home.

12. In the event of delay in repair or replacement of equipment or any other circumstance under which it would be impossible for the employee to telecommute, the employee will be assigned to do other work and/or return to County work place.

13. Employee must designate a work space at home which will be maintained in a safe condition, free from hazards. Telecommuter will be responsible for completing a home/work space safety checklist. Any accident must be brought to the immediate attention of the supervisor.

14. With 24 hour advance notice, an appropriate representative of the County may make on-site visits to the employee's home to determine that the work site is safe and free from hazards, and to maintain, repair, inspect, or retrieve County owned equipment.

15. Telecommuters must have a method of receiving and responding to communications (messages, mail, etc.) from other staff, supervisors, and when applicable, clients and/or the public. Communication method(s) will be incorporated into the written agreement between supervisor and employee.

16. Telephone charges related to County business will be paid by the Department/Agency. Selection and installation of telephone equipment and/or modem will be the decision of the department. Alameda County will not pay for utilities (heat, electricity, etc.) nor home maintenance costs.

17. The County worker's compensation liability for job related accidents will continue to exist during the employee's telecommuting work hours.

18. Telecommuter remains liable for injuries to third persons and/or members of employee's family on employee's premises. Alameda County is not liable for damage to employee real property.

19. Telecommuter will take all precautions necessary to secure County information in his/her home and prevent unauthorized access to any County system or information, and will sign an equipment security agreement.

20. Telecommuter will comply with all Telecommuting Equipment and Security Guidelines, including access processes.

21. All telecommuters and supervisors will agree to participate in program evaluation studies conducted by the County. Responses will remain anonymous unless participants authorize release of identification. While the employee's individual responses will not be published, the data may be compiled and made available to the public with out identification of the participant.

22. Telecommuting employees home addresses and telephone numbers remain confidential and are not released.

23. Any non-compliance with these regulations can result in disciplinary action, up to and including termination.

A copy of these regulations must be attached to each telecommuters Employee-Supervisor Agreement.

I have read and agree to comply with these regulations *(to be signed when an employee is accepted into the program).*

Supervisor's Signature _____ Date _____

City of Redmond (Washington)

September 1993

Telecommuting Work Option

A. Telecommuting Policy:

Eastside traffic congestion and regional air quality are at a critical state. The measures employers take today directly impact the quality of life in our community and neighborhoods.

That is why the City of Redmond endorses telecommuting as a work option for selected employees. One of our goals continues to be to set an example of how one employer can take positive steps to reduce our organization's demand on the region's transportation network. In striving to be a responsible corporate citizen, we recognize telecommuting is but one of a number of initiatives employers must take if we wish to be part of the solution to traffic congestion and air pollution.

Furthermore, telecommuting is consistent with sound business practices and will make the City of Redmond more competitive. Telecommuting increases the productivity and morale of employees who participate in the program, more effectively uses work space, and promotes a spirit of innovation.

B. Program Description:

Telecommuting is a mutually agreed upon work alternative between the telecommuter and supervisor subject to approval of the City's telecommuting committee. The telecommuter, supervisor, or the committee may end the telecommuting arrangement at any time.

Telecommuters work at home up to two days a week on a regular basis. Writing, reading, telephoning, data analysis, computer programming, word processing and data entry are all tasks amenable to telecommuting.

C. Goal:

The City is committed to reaching a goal of 10% of the work force telecommuting two or more days a month. Both "high-tech" (with computers and modems) and "low-tech" telecommuting is encouraged.

D. Eligibility:

All City employees are eligible to apply to become telecommuters.

- Their work must be of a nature wherein face-to-face interaction is minimal or may be scheduled to permit telecommuting;
- The need for specialized material or equipment must either be minimal or flexible.

E. Personal characteristics of the employee will include:

- A demonstrated conscientiousness about work time and productivity evidenced by satisfactory or better performance reviews.
- Self-motivated.
- Ability to work well alone for long stretches of time.
- Limited need for feedback but able to ask for it if necessary.

F. Requirements necessary to qualify for the Telecommuting Program:

- Regular employees who are past their probation period.
- Employee interest as evidenced in completing an application to be a telecommuter.
- Employee's willingness to sign and abide by a telecommuter agreement.
- Supervisor's approval.
- Supervisor's willingness to invest the necessary time to help the telecommuting arrangement succeed.
- Attending telecommuting training sessions and participating in program evaluation activities.
- Planning with co-workers how workflow issues will be addressed while telecommuting, such as callers, mail, and meetings.

G. Childcare:

Telecommuting is not a substitute for child care. Telecommuters must make or maintain child care arrangements to permit concentration on work assignments at home.

H. Hours of Work:

The telecommuter will have regularly scheduled work hours agreed upon with his or her supervisor, including specific core hours of phone accessibility.

I. Employee/Supervisor Communication:

Telecommuters keep their supervisor informed of progress on assignments worked on at home, including any problems which they may experience while telecommuting. Methods of planning and monitoring the work of the telecommuter include:

- E-Mail to supervisor outlining telecommuting day's work plan the day before telecommuting followed by a list of accomplishments the day after the telecommute day.
- Discussing plans for work for the telecommuting day(s) with supervisor, then debriefing the following day.
- Scheduled telephone "meetings" with the supervisor on the telecommuting day.
- Some other arrangement specifically for the telecommuting day designed at the beginning of the program.

J. Equipment:

Hardware

The City will attempt to provide PC equipment on an as-needed basis within the limits of available funds. This equipment may consist of a PC, modem, and supplies

The employee may, with their supervisor's approval, elect to use PC equipment of their own. If this option is chosen, Information Services requires the employee to bring their PC into the City for evaluation, configuration, and software loading. A minimum configuration standard will be established by Information Services as a condition of I.S. support of employee PC equipment.

No office furniture will be provided.

Software

While working at home performing City functions, employees must conform to the City software standards as established by Information Services. Under most circumstances employees will be allowed to run a copy of City-standard software on the PC they have at home based on the Microsoft Licensing Agreement. Please contact Information Services to ensure the software you plan to use conforms to this agreement.

If the telecommuter wishes to dial-in to the City's network, the necessary software will provided at no charge. The telecommunications software provided may be updated periodically. When this occurs, the telecommuter will be contacted to arrange for the software upgrade.

J. Equipment: (continued)

Software (continued)

Information Services will provide telephone support to the telecommuter during normal City business hours.

Telecommuters are encouraged to obtain a copy of PC Anywhere to facilitate remote trouble-shooting. Information Services will provide training on the use of this software to the telecommuter.

K. Equipment Liability:

The City will be responsible for the repair and maintenance of equipment provided by the City. Surge protectors must be used with any City-owned computer made available to the telecommuter. The employee will be responsible for:

- Any intentional damage to the equipment,
- Damage resulting from gross negligence by the employee or any member of the employee's family,
- Damage resulting from a power surge if no surge protector is used.

Damage or theft of City-owned equipment that occurs outside the employee's control will be covered by the City's insurance policy. The City is not responsible for damage or loss to employee-owned equipment. Telecommuters should check their homeowner's/renter's insurance policy for incidental office coverage.

L. Workspace:

The employee must establish and maintain a clean, safe, dedicated work space.

M. Injuries:

The employee will be covered by worker's compensation for all job related injuries that occur in the designated workspace at the telecommuter's home during the telecommuter's defined work period. Since the workplace and home will be one and the same, worker's compensation will NOT apply to non-job related injuries that might occur in the home.

N. Telephone Expenses:

Except for local calls, the City will reimburse the employee on a case by case basis for job related telephone expenses incurred by the employee at home. The employee must present an itemized copy of the telephone bill to their department for reimbursement.

September 1993
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TELECOMMUTING GUIDELINE

Provided by the Information Policy Office

WHAT IS TELECOMMUTING

Telecommuting (also known as teleworking) is a work location alternative allowing employees to perform job responsibilities away from a central office location, either in homes or at work centers (telework centers). The homes or telework centers are equipped with information technology which is appropriate for the tasks being performed. A guideline for initiating a telecommuting program is attached. This guideline is now in final status.

ACTION ITEMS

- **Use this guideline during the agency-wide strategic planning process.**
- **Advise agency human resources, facilities and capital project planning organizations that this guideline exists.**
- **Remove the existing draft version of this guideline from Volume II, Tab 14 of "Creating and Managing Information Resources for Minnesota State Government Organizations" handbook and insert the attached copy of the final guideline into Tab 14.**

Minnesota Statutes 1994, Section 15.95, subdivision 10 requires the preparation of telecommuting plans. State agencies intending to request office space such as a new building (new construction or acquisition or an existing building), renovation/remodeling or relocation must submit telecommuting plans to the Information Policy Office (IPO) for review and approval.

FOR MORE INFORMATION

This document originated in and is sponsored by the Department of Administration, Information Policy Office (IPO). For more information about the Telecommuting Guideline, please contact Nancy I. Anderson in IPO at 282-3704.

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IRM GUIDELINE 4, VERSION 2:

PURPOSE

Minnesota statute section 15.95, subdivision 10 requires state agencies to prepare telecommuting plans or a statement of non-practicality before capital budget requests for office space can be submitted to the legislature. The primary purpose of this guideline is to assist state agencies in preparing the required documents. State agencies requesting office space such as a new building (new construction or acquisition of an existing building), renovation/remodeling or relocation must submit telecommuting plans to the Government Information Access Council (GIAC) for review and to the Information Policy Office (IPO) for review and approval. State agencies can use this guideline to determine the practicality or feasibility of telecommuting and to define and establish a telecommuting program.

SCOPE

The scope of this guideline includes how to determine the practicality and feasibility of a telecommuting program and how to define a program and establish telecommuting in a state agency.. A statewide telecommuting policy is currently being developed to define and document policy issues related to telecommuting.

REFERENCES

The following Minnesota statute establishes the requirements for a telecommuting plan or statement of non-practicality which is needed for capital budget requests for office space:

Minnesota Statutes 1994, Section 15.95, subdivision 10

DEFINITION OF TELECOMMUTING

Telecommuting involves using alternative work locations including homes, work centers near homes, mobile work sites or customer sites to allow employees to conduct business away from a central work location.

BENEFITS OF TELECOMMUTING

Telecommuting may result in benefits to the state as a whole, to individual state agencies and to the customers of state government. These benefits include such items as increased productivity, reduced need for office space and improved levels of customer service. Increased productivity is most often achieved through reduced interruptions and improved employee satisfaction. Reduced need for office space may translate to reduced capital bonding and operating costs including rent, utilities, insurance, furnishings, security, cleaning and maintenance. Traffic congestion and the need for parking facilities may also be reduced.

DETERMINING THE PRACTICALITY AND FEASIBILITY OF IMPLEMENTING A TELECOMMUTING PROGRAM

A telecommuting program may not be practical or feasible for specific state agencies or organizations in certain circumstances. The practicality and feasibility of a telecommuting program depends on the type of jobs in an organization. Some types of jobs are not well suited to telecommuting. Jobs which require substantial person-to-person interaction, such as counseling and training, or personal supervision such as custodial care may not be appropriate for telecommuting. Certain jobs which depend on frequent input from colleagues or the constant need for non-computerized central site reference material may not be appropriate for telecommuting.

GUIDELINE: WHAT ARE THE STEPS NECESSARY FOR IMPLEMENTING A TELECOMMUTING PROGRAM?

Agencies may use the following list of steps as an aid in defining and establishing a telecommuting program.

1. Obtain executive support
2. Initiate and select a telecommuting steering committee
3. Survey the potential for telecommuting
4. Define the business needs, goals and approach
5. Select the jobs and work locations
6. Establish a telecommuting policy
7. Establish a telecommuter understanding
8. Select enabling information technologies
9. Create an implementation plan for the telecommuting program
10. Prepare a statement of impact on utilization of office space and building requirements
11. Select telecommuters and identify telecommuting schedules
12. Conduct education and training
13. Execute the telecommuting program and evaluate the results
14. Expand the telecommuting program and reconfigure vacated office space

1. OBTAIN EXECUTIVE SUPPORT

Agencies should identify an executive with the authority and responsibility to initiate and support a telecommuting program and to approve the agency-wide telecommuting policy and telecommuter understanding.

2. INITIATE AND SELECT A TELECOMMUTING STEERING COMMITTEE

Agencies should establish a telecommuting steering committee which can advise the executive and managers on telecommuting issues, define the telecommuting program, prepare the telecommuting policy and telecommuter understanding and provide on-going direction for the program.

3. SURVEY THE POTENTIAL FOR TELECOMMUTING

Agencies should survey and analyze all jobs within the agency to determine the potential number of applicable jobs and employees. This initial survey should be directed to and completed by agency management. The survey information is an aggregate estimate which would be used for future planning purposes. Employee surveys to determine level of interest can be done at a later time.

4. DEFINE THE BUSINESS NEEDS, GOALS AND APPROACH

Agencies should identify the business needs, goals and approach related to a telecommuting program. Telecommuting programs should support the agency mission and satisfy the needs of customers, managers and employees.

- What types of business needs could be solved by telecommuting?

  An investigation of telecommuting should begin with an analysis of existing business needs to determine which needs could be addressed by telecommuting.

  Some types of business needs that could be solved by telecommuting may include:

  - increased productivity levels
  - reduced building occupancy costs
  - improved staff retention, recruiting levels and morale

- improved customer service

- What goals and objectives may be related to telecommuting?

  Agencies should identify goals, such as office space reduction and then establish measurable objectives to reach those goals.

  Some measurable objectives could include:

  - increased employee productivity and satisfaction
  - increased employee retention rates
  - increased utilization of total office space
  - reduced total square footage at the central location
  - improved utilization of square footage at central location, for example housing more employees in existing space
  - reduced square footage for support and records storage
  - reduced building occupancy costs
  - increased levels of customer service

- What approaches may be applicable to telecommuting?

  Agencies should select a specific approach when implementing a telecommuting program. Two common approaches are the **tactical** approach and the **strategic** approach.

  - The **tactical** approach involves a minor relocation of a limited number of individuals within a department who telecommute one or two days per week. A tactical approach is shorter term, such as a pilot and may involve lower risk and less benefits. It is generally advisable and more common to begin with the tactical approach.

- The strategic approach involves a major relocation of an entire department with a large number of individuals who telecommute several days per week. A strategic approach may be longer term and may involve higher risk and greater benefits.

5. SELECT THE JOBS AND WORK LOCATIONS

Agencies should select the jobs and work locations for the telecommuting program.

- What types of jobs are suited for telecommuting?

  Certain types of jobs are suited for telecommuting. Some of these types of jobs may include:

  - field work: financial, engineering, medical, inspection, law enforcement
  - planning
  - project work
  - research
  - word processing
  - telephone duty stations
  - data entry
  - computer design, programming, testing, documentation

- What job characteristics are suited for telecommuting?

  Job characteristics that are suited for telecommuting are those that contain a substantial amount of individual production with a minimal amount of face-to-face interaction. Some of these job characteristics may include:

- high degree of computer, project or knowledge work
- well defined job objectives and output, including the production of deliverables which can be assessed to ensure that useful work is being done
- minimal amount of support and non-computerized reference material needed from central location
- limited face-to-face interaction needed from colleagues
- substantial traveling away from the central work location

- What work location options may be used for telecommuting?

  Work location options refer to the variety of work locations and their degree of remoteness from a central work location. Some work location options may include:
  - satellite work location (regional state offices, libraries, commercial offices)
  - mobile work locations for field employees (vehicle, customer site, hotel)
  - home work location

6. ESTABLISH A TELECOMMUTING POLICY

Agencies should establish an agency-wide telecommuting policy which documents the agency position on telecommuting issues. A statewide telecommuting policy document is currently being developed and will be available as a separate document. An interim policy could be created specifically for a pilot or tactical program which could be evaluated and modified following the completion of the pilot. The final agency policy should reference the statewide policy when it becomes available.

The telecommuting policy may include such issues as:

- purpose and goal of telecommuting

- a series of specific policy statements which address the following:
  - statement that all state laws and policies are to be complied with
  - statement that duties, obligations, responsibilities and conditions of employment remain unchanged
  - statement that provisions of collective bargaining agreements and plans must be followed when planning or implementing telecommuting programs
  - statement of criteria for determining who may participate in telecommuting
  - definition of telecommuter work schedules
  - definition and use of the satellite, home or other work environment
  - definition of dependent care parameters (child, parent, disabled person)
  - identification of ownership, liability, use and repair of telecommuter equipment and other property including office furniture
  - definition and responsibility for security and confidentiality of information
  - definition and responsibility for safety and ergonomic working conditions for telecommuters
  - definition and statement on insurance and liabilities
  - definition and position statement on tax effects for home offices
  - definition and liability for job-related injuries in the home (telecommuter and third party)
  - definition and responsibility for equipment and technology costs
  - requirement for telecommuter understanding

7. ESTABLISH A TELECOMMUTER UNDERSTANDING

Agencies should establish an agency-wide telecommuter understanding which documents the specific understandings between the individual telecommuter, that person's supervisor and the unit's manager, and is signed by all three.

The telecommuter understanding may include some of the following items:

- job title, definition, objectives
- telecommuter work schedule and location
- ownership and responsibility for equipment and other property used by the telecommuter
- home safety and ergonomic requirements
- methods of formal and informal communication with the supervisor, other telecommuters and satellite and central site co-workers
- statement defining a periodic review, evaluation and renewal of the telecommuter understanding

8. SELECT ENABLING INFORMATION TECHNOLOGIES

After determining the types of jobs involved in the telecommuting program, agencies should identify the specific hardware, software, telephone and telecommunications options needed to support the specific types of telecommuting jobs. Generally, telecommuters will need access to the same types of information technology in the home or other environment as in the central location environment.

Note that agencies may want to maximize the use of **future** technology advancements and opportunities as a means of supporting telecommuters and reducing overall office space. As an example, face-to-face video capabilities are expected within 2-3 years. For more

examples and information on supporting technology, refer to IRM Guideline 6 - Information Technology - Office Space Request.

The information technologies listed below are optional and may include:

- Hardware and Software:
  - personal computing equipment and other supporting equipment such as printers, facsimile machines and photocopiers
  - personal computing software such as remote access software, electronic mail, groupware, word processing, spreadsheet, database, calendar, scheduling and other software as needed

- Telephone:
  - standard features: voice mail, long distance, call forwarding, call waiting
  - enhanced features: voice messaging, teleconferencing - audio or video

- Telecommunications Options: **Adequate security protection** is a vital element of a successful telecommuting program and should be implemented and tested before telecommuters are allowed to access systems and databases. Specific security techniques may include dial-back modems and router firewall protection; passwords will **always** be required. Telecommunications options may include:
  - Separate telephone line for access to applicable systems and databases.
  - ISDN (Integrated Services Digital Network) - voice, data and video.
  - Wireless communications including mobile technologies such as pagers, portable computers, modems and cellular phones.

9. CREATE AN IMPLEMENTATION PLAN FOR THE TELECOMMUTING PROGRAM

Agencies should create an implementation plan for the telecommuting program which contains tasks, deliverables, names of responsible individuals and completion dates. The implementation plan could use a phased approach identifying planning, implementation and evaluation phases. In addition, follow-on phases could be used to expand telecommuting throughout the agency and to reorganize and reconfigure central office space that is partially or completely vacated by telecommuters.

10. PREPARE A STATEMENT OF IMPACT ON UTILIZATION OF OFFICE SPACE AND BUILDING REQUIREMENTS

Agencies should analyze how the telecommuting program would impact utilization of office space and building requirements in the short and long term. Managing and improving the use of office space is an essential element of telecommuting programs. As personal work space is no longer needed, it should be reconfigured and converted to shared and multi-purpose use. Excess work space should be permanently vacated, if possible.

In the short term, agencies may convert the space to conference or training rooms, or hold the space if new programs or other expansion is anticipated. In the long term, agencies may contact the Real Estate Management Division in the Department of Administration to determine if the excess space can be used by another agency or division. Agencies should create telecommuting plans to manage this on-going reconfiguration and conversion process with the goal of reducing total office space over future fiscal years.

Requesting capital funds for office space:

For agencies requesting capital funds for office space, the statement should include the specific actions taken in the telecommuting program and the estimated effects of those actions on utilization of office space and building requirements. The primary impact should focus on the projected requirements for total office space (square footage). Note that these projections can be estimates or goals.

The statement should also include the following estimated projections for several fiscal years:

- current and projected staff levels for on-site (central site workers) and off-site (telecommuters) personnel
- current and projected office space (square footage) required with and without a telecommuting program
- projected net savings in office space (square footage) resulting from the telecommuting program

The statement describing the impact of telecommuting on utilization of office space and on building requirements should reflect the goal of reducing total office space over future fiscal years. The statement should be incorporated into the appropriate section of the final predesign document.

Refer to Appendix B for a BRIEF EXAMPLE of a telecommuting impact statement.

11. SELECT TELECOMMUTERS AND IDENTIFY TELECOMMUTING SCHEDULES

Agencies should select individual telecommuters and identify the work schedules for those individuals.

- What types of individuals may be better suited for telecommuting?

  Individuals and their work habits play an extremely important role in a successful telecommuting program. Individuals who would adapt best to telecommuting have exemplary work performance history and attendance records and have consistently demonstrated such specific work habits as:

  - excellent organizational and planning skills
  - high degree of autonomy and self-reliance
  - ability to set priorities and meet deadlines
  - utilizes direction, not supervision
  - requires minimum face-to-face interaction

- What scheduling factors are related to telecommuting?

  Scheduling factors refer to the selection of the number and the specific days of the week that an individual telecommutes. Telecommuting work schedules should be flexible and may vary with the type of job as well as with the needs of the supervisor, telecommuter, other telecommuters and central site co-workers. The number of telecommuting days per time period depends on the job functions and degree of personal interaction required with central site co-workers, the supervisor and customers. Telecommuting work schedules should be documented in the telecommuter understanding.

  Some of the factors which should be considered when establishing telecommuting schedules may include:

  - employment condition such as full-time or part-time
  - type of job involved

- optional identification of core work hours for telecommuters
- development of interim schedules to be evaluated and modified as needed

12. CONDUCT EDUCATION AND TRAINING

Agencies should conduct formal education and training sessions for agency executives, telecommuters, supervisors and central site co-workers before a telecommuting program is implemented.

13. EXECUTE THE TELECOMMUTING PROGRAM AND EVALUATE THE RESULTS

Agencies should plan to monitor the telecommuting program and periodically evaluate the results by surveying participants and documenting agency costs and benefits. Evaluations should be done whether the program is a pilot or permanent program. Costs and benefits should correspond to the business needs and goals that were initially identified for the program.

Although not applicable in all programs, some cost components may include:

- pre-program costs: feasibility study, pilot project(s), consulting, education and training
- indirect costs: information technology, managerial and supervisory support time
- computing and supporting equipment (hardware and software)
- telecommunications equipment and network connections
- maintenance and repair contracts for computing and supporting equipment
- setup and on-going home office costs:
  - physical requirements, i.e. residential electrical upgrades or office alterations
  - furniture: personal computer work center, file cabinet, chair
  - supplies: paper, printer cartridges, diskettes, folders, notebooks, pens

The expected benefits may differ for each telecommuting program. Certain benefits may not be applicable to a specific program and some programs may not have positive results for all benefits. Some benefits for employees and state agencies may include:

- improved productivity of telecommuters and co-workers
- improved employee satisfaction of telecommuters and co-workers
- improved employee retention and reduced training costs
- reduced office and parking space requirements

Some benefits for society may include:

- improved environmental quality (reduced vehicular traffic, reduced pollution)
- extended roadway life
- stabilization of rural communities

14. EXPAND THE TELECOMMUTING PROGRAM AND RECONFIGURE VACATED OFFICE SPACE

Agencies should evaluate the initial telecommuting program to determine if that program should be expanded or instituted agency-wide. If so, agencies should evaluate the existing telecommuting program plan and if necessary, modify the plan to include an agency-wide definition of business needs, goals and approach. In addition, agencies should establish a plan to manage the reconfiguration of office space which is partially or completely vacated by part-time and full-time telecommuters. Vacated office space could be designated as shared or multi-purpose and should be made available for multiple uses such as conference or training areas or work areas for telecommuters working on-site.

APPENDIX A

MINNESOTA STATUTES 1994, SECTION 15.95, SUBDIVISION 10

Subd. 10. **CAPITAL INVESTMENT.** No state agency may propose or implement a capital investment plan for a state office building unless:

(1) the agency has developed a plan for increasing telecommuting by employees who would normally work in the building, or the agency has prepared a statement describing why such a plan is not practicable; and

(2) the plan or statement has been reviewed by the council and approved by the information policy office.

APPENDIX B

EXAMPLE TELECOMMUTING IMPACT STATEMENT

The telecommuting impact statement should contain the following four sections.

I. EXAMPLE TELECOMMUTING PROGRAM OBJECTIVES AND ACTIONS

1. Reduce the number of on-site (central site workers) staff by continually expanding the telecommuting program.
2. Reduce the amount of personal office space and increase the amount of shared office space by continually reconfiguring and converting personal office space to shared or multi-purpose space as personal space is vacated by telecommuters.
   - Convert personal cubicles to shared cubicles.
   - Convert personal offices to multi-purpose space such as training or conference rooms.
   - Maximize use of conference rooms and equip them for personal, shared or multi-purpose use, including personal computer workstations and audio and video teleconferencing.
   - Use modular office furniture when practical to facilitate the changing mix of space from personal to shared or multi-purpose use.
3. Reduce the amount of staff and support needed as the number of telecommuters increases.
4. Reduce the amount of total office space (square footage) by permanently vacating excess space.

II. EXAMPLE TELECOMMUTING IMPACTS ON UTILIZATION OF OFFICE SPACE

1. Reduced personal office space including cubicles and offices.
2. Increased shared and multi-purpose office space such as training or conference rooms.
3. Reduced office space used for staff and support such as storage, reception and lobby areas, mail distribution stations, copy and fax machines.
4. Reduced total office space (excess office space is permanently vacated).

III. EXAMPLE TELECOMMUTING IMPACTS ON BUILDING REQUIREMENTS

1. The total office space (square footage) reflects the current and future projected number of on-site individuals and allows for future flexibility, including reduction to allow for decreasing numbers of on-site individuals.
2. The total office space (square footage) reflects the need for computer rooms for installation of computer hardware for current and future needs for applications systems, communications equipment and additional servers such as for Internet and E-Mail needed to support increasing numbers of telecommuters.
3. Layouts and floor plans reflect the current **mix** of personal and shared space and allow for future reductions of personal work space and increases in shared work space.
4. Layouts and floor plans reflect future increases in the number of conference rooms and all conference rooms are equipped for multi-purpose use, for example, voice (audio teleconferencing), data jacks and partitions for large conference rooms (each partitioned section should be equipped with voice and data jacks.)
5. Video teleconferencing room(s) and facilities are included and located strategically throughout the office work area.
6. Load-bearing walls are minimized and full-height partitions are of a movable variety to allow for continuous reconfiguration and reduction of office work space.

IV. EXAMPLE OFFICE SPACE PROJECTION INFORMATION *

The following projections may be estimates or targeted goals.

	CURRENT YR	FY96/97	FY98/99	FY00/01
STAFF PROJECTION:				
Total Staff	100	110	120	130
On-Site	100	80	60	40
Off-Site	0	30	60	90
ON-SITE OFFICE SPACE PROJECTION WITHOUT TELECOMMUTING:				
Square Feet	6,400	7,040	7,680	8,320
ON-SITE OFFICE SPACE PROJECTION WITH TELECOMMUTING:				
Square Feet	6,400	5,120	3,840	2,560
ON-SITE OFFICE SPACE NET SAVINGS WITH TELECOMMUTING:				
Square Feet	0	1,920	3,840	5,760

* These projections are simplistic for purposes of this example information. Total square footage was calculated at 200 square feet per person which includes requirements for conference and training rooms, file areas, printers, photocopy and fax machines, aisles, hallways, restrooms, stairwells and elevators.

County Information Security Suggestions
Submitted by Commissioner Sharron Kelley

1) Create a County IT Security Policy (approved at the top levels of the organization):

- Define a document classification scheme (confidential, sensitive, open...)
- Define an information (data) classification scheme (as for documents)
- Define levels of access (user authorization to see/use/modify)
- Define the retention periods for documents and information
- Establish employee responsibilities; train the employees and follow up
- Define the public's access rights (levels, timeliness, access mechanisms)

2) Perform a County IT Security Assessment (technology and policy):

- Measure conformance of the actual practices to the proposed security policy and existing statutes
- Establish an ongoing periodic review procedure (EDP security audit)

3) Create and implement a county-wide security plan (ISD and IT Coordinators)

- System and server access security (applications, file services, etc.)
- Define security for LAN's and WAN's (minimum common denominator)
- Workstation (PCS UNIX workstations, etc.) Security and user practices
- Terminal security for "dumb" terminals (tied to a host or mainframe)
- Physical (building) security
- Removable media practices (diskettes, tapes, etc.)
- Internet use (both to and from county network) and configuration
- Backup services (mainframe, servers, PCS), procedures and security

4) Additional Issues:

- Mobile user access (from within the county facilities: use of different workstations, or access from different locations via a mobile workstation
- Telecommuting access (user access to county networks/systems from outside the county facilities, including location flexibility)
- Workstation implications when accessing systems/servers (copying of information or documents onto a user's workstation disk)
- E-mail use implications (easy communication of information across the network without regard to document content, Internet E-mail implications)
- Workgroup software implications (easy sharing of information among groups of people)

5) Some security concerns:

- Virus problems from inside and outside the county network
- Information/document access by unauthorized parties (inside or outside)
- Malicious damage, disruption of service or degradation of performance
- Tampering with information, documents, or programs