Vermont Information Strategy Plan

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VERMONT INFORMATION STRATEGY PLAN (VISP)
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Vermont Information Strategy Plan
Phase I

FIGURES

PAVILION OFFICE BUILDING
MONTPELIER, VERMONT 05609-0201

OFFICE OF THE SECRETARY
(802) 828-3322

STATE OF VERMONT

AGENCY OF ADMINISTRATION

March 18, 1992

Dear Secretaries, Commissioners and Interested Parties:

I am pleased to forward to you the completed report of Phase I of the Vermont Information Strategy Project. This effort, initiated in the Fall of 1991, was in response to the perceived need for a coordinated approach to information management to better manage state government.

Information Strategy Planning is a relatively new, but growing, management tool. Our consultant, James Martin & Company, has developed and pioneered the use of this technique in both private and public sector organizations. To our knowledge, our project is the first time that an Information Strategy Plan has been developed for an entire state government.

The true strength of this report is that it is a living document. It is a look at where we are today, where we want to be five to ten years from now, and an initial listing of critical success factors which must be met to achieve our desired outcome. This project has provided us with a solid foundation to use in achieving our goals. I urge you to review the material and provide us with your feedback. Please channel these suggestions to Gene Hallman, Project Director of Vermont Information Strategy Plan (VISP).

In a time of retrenchment, this forward looking document offers a unique approach to some of the problems facing the State of Vermont today. We have proven that Vermont's size and ability to work together has put us on a track to provide overall improvement in the way we deliver services to the citizens of Vermont.

I would like to thank all the individuals who contributed their time and effort to make this project possible along with the Cabinet Secretaries who provided key managerial overview. It is appropriate that this project affecting all of state government has had such wide ranging participation.

Very truly yours,

David M. Wilson
Secretary of Administration

DMW/dlc

SECTION II

EXECUTIVE SUMMARY

BACKGROUND

The Vermont Information Strategy Plan (VISP) was initiated under Governor Snelling's Administration, and Phase I completed under Governor Dean's. This report represents the results of Phase I of VISP. The purpose of Phase I was to initiate the process of statewide Information Strategic Planning for the Executive Branch of State Government. Phases II and III will test, prove out, and implement statewide the policies and directions whose development was begun in Phase I. Therefore, this report should be viewed as a vehicle for on-going discussion rather than a final completed product.

What is Information Strategy Planning?

Information Strategy Planning (ISP) is the first step in building an integrated information infrastructure based upon the needs of Vermont and the Executive Branch of State Government.

Vermont's Information Strategy Planning involved three key areas:

1) Vermont Strategy Definition, which provides the vision for the future as defined by senior management to serve as the foundation for the entire undertaking;

2) Five Year Target Architecture based on strategy analysis, information needs, and technical requirements, which will provide the framework for implementing Vermont's future information infrastructure;

3) Initial Information Systems Management policies, which serve as guiding principles for steering this implementation.

VISION

The Vermont Strategy Definition is the foundation for VISP. Its vision of Vermont's future and the responsiveness of State Government to the people of Vermont will shape future information policy and system decisions. The future vision that energizes VISP was based on Pathways to Prosperity and Government 2000, as well as interviews with 25 top State Government executives. This vision can be summarized as follows:

> **Vermont's future rests on retaining the character of its natural resources while nurturing a viable economic foundation. Vermont must provide opportunities for its citizens to pursue their individual goals. State Government must be the focal point for coordinated programs and policies for Vermont to realize its potential and preserve its special way of life.**

The Information Strategy Planning approach used by VISP links this vision to key objectives related to State Government, and then to information-related critical success factors (CSFs) for those objectives to be met. The Five Year Target Architecture has been structured to enable the State to achieve these CSFs.

FIVE YEAR TARGET ARCHITECTURE

The Five Year Target Architecture, as shown in Figure 2.1, is a blending of three architectures with guiding policies to serve as the foundation and first step towards building an integrated information infrastructure. The three initial architectures are a critical part of linking strategy and information systems. The *Information Architecture* is a model of the Executive Branch in terms of its strategy functions and the data that supports them. The *Systems Architecture* is the identification of business areas and an analysis of how well current application systems support them to determine areas for future information system design and construction. The *Technical Architecture* describes the computer, telecommunications, and software platforms the State will use to support user needs. These architectures will serve as a *blueprint* from which the State can build coordinated systems supporting the State's requirements. The architectures are also a focus for communications about important issues like scope of projects, overlap of systems and databases, and the cross functional needs of specific departments and applications. Together these architectures will permit the realization of integrated systems driven by the needs of the Executive Branch positioned to take advantage of the technology advances of today and those emerging for the future.

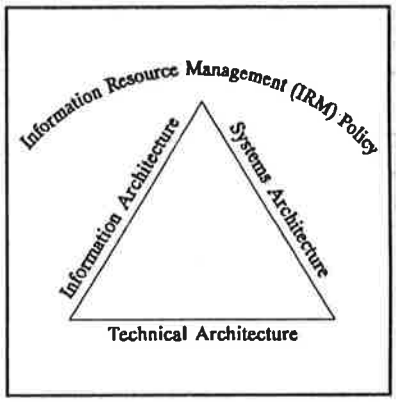

Figure 2.1 - Target Architecture

A key thrust of the CSFs in the Vermont Strategy Definition is ease of information sharing, both within State Government as well as with outside organizations and the general public. The Five Year Target Architecture will enable ease of information sharing in the following ways:

- A common *Information Architecture* across State Government that allows visibility into the information resources of the State, and provides a framework for elimination of needless duplication. A significant barrier in sharing information today is the large number of collections of information spread throughout the State that overlap and share no common definitions for data.

- A common *Systems Architecture* across State Government provides an integrated view of the functions and data utilized across agencies and departments for use as a base to develop coordinated requirements for the development of integrated information systems. Application systems are currently developed based on individual organizational requirements proliferating copies of similar if not identical pockets of information across the state.

- A common *Technical Architecture* across State Government provides a basis for agencies and departments with different systems to interface. The current Information Systems (IS) environment is heterogeneous with a multiplicity of agency and department networks, computers, and software. In order to share information easily across the State, this heterogeneous environment must be managed in such a way that, without starting over again, State Government can inter-network among different agency and department systems. The common Technical Architecture will also provide standard interface definitions for organizations outside State Government, as well as the general public, making broader inter-networking achievable.

Another key thrust of the CSFs is the need to increase the effectiveness and efficiency of State Government by improving its information infrastructure. Information infrastructure consists of information technology, the information itself, and human skills in using that technology to meet the operational needs of state government. Improving the information infrastructure of State Government is supported by the Five Year Target Architecture in the following ways:

- Government employee skills and information literacy are enhanced by defining a common, limited set of information, system, and software directions within the Target Architecture that employees need to learn. By limiting the number of choices in each of these areas and adhering to standards, the cost of adequately training and supporting employees becomes more manageable.

- Actionable, timely, and accurate management information is enhanced by defining a common Information and System Architecture. Managers will be able to access a wider range of data across the State and make more well-informed decisions when a pre-planned information structure that anticipates their needs is in place.

- The efficiency of State Government is enhanced by defining common Information and System Architectures. Unnecessary, duplicative collection of information and development of systems can be eliminated.

Finally, another theme of the CSFs is the need to promote both near-term and longer-term improvements in the effectiveness of State Government by adopting appropriate information planning and implementation processes. The Five Year Target Architecture supports both these objectives by supplying a shared language describing the State's information capabilities and directions that can be used by both business and systems professionals. This shared language will enable users to re-engineer their processes and take advantage of statewide information resources. It will also enable agencies, departments and the State as a whole to discuss the most effective long-term uses of information technology in order to prioritize scarce budget resources.

POLICY

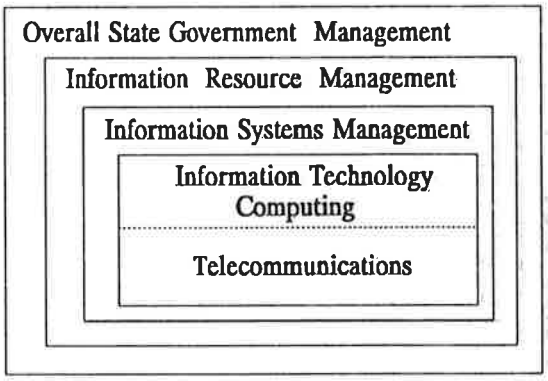

Figure 2.2 - Policy Scope

"Information Resource Management (IRM)", as shown in Figure 2.2, is that part of the overall State Government management system that manages the creation, processing and distribution of information whether computerized or not. The focus of the Vermont Information Strategy Planning project (VISP) thus far has been on "Information Systems Management (ISM)", a subset of Information Resource Management that manages computerized information and data bases, computing systems, software and telecommunications. The policy structure in this report establishes a framework for more detailed policy discussions in Phase II.

The purpose of IRM Policy is to implement and manage the effective use of information in achieving the mission of Vermont State Government. As described previously, the VISP project has produced a "Five Year Target Architecture" describing a future information environment that meets that objective. IRM Policy controls the development, operational and management processes that make the "Five Year Target Architecture" a reality.

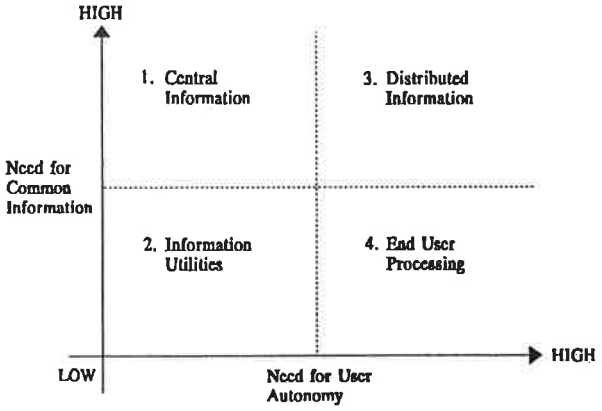

Figure 2.3 - Information Related User Demands

The actual demands of government users on the information environment is another vital factor in formulating realistic policy. The VISP project has based IRM Policy on a model of two fundamental information-related user demands, as shown in Figure 2.3. In each of the quadrants in this model there should be different policy emphases to balance the needs for user autonomy in processing information and the need for common information and processing control. For example, in the quadrant called "Information Utilities" where users share common applications to process their own locally controlled information, policy must focus on standards for common software packages, common user interfaces and inter-networking. Using this model, an analysis of Vermont State Government and the Five Year Target Architecture has yielded the following general policy requirements:

- In general, users require a low degree of application development control over the "Information Utilities" of the Vermont State Government. Policy in this area must deal with central control over common software packages to facilitate inter-networking among the heterogeneous Agency and Department end user processing systems.

- Certain user needs, such as improved integration of the financial management or client services functions, will require critical information to be available to a wide range of users, either within an Agency, Department or statewide across many agencies. This user need, lying within the "Central Information" quadrant, demands central information and systems policy control. In addition, users that largely maintain control over their own information in the "End User Processing" quadrant still require access to abstracted information from other areas in State Government. This also requires central information standards in the information area.

- Vermont State Government currently has a high degree of Agency and Department autonomy in critical mission-dependent information processing. The Five Year Target Architecture envisions maintaining this level of mission-dependent processing autonomy, but increasing the sharing of statewide common information. Therefore, IRM Policy must begin to deal with the user needs in the "Distributed Information" quadrant of the model. This implies IRM Policy focused on strong central information architectural standards with decentralized information control, inter-networking standards for heterogeneous systems, and both central and decentralized application development and operations management.

PHASE II

One of the results of Phase I has been the establishment of an Information Systems Advisory Council (ISAC) within the Executive Branch. The ISAC is responsible for recommending policy and statewide initiatives to implement the Five Year Target Architecture, and reviewing Agency/Department plans for compatibility with policy and architectural directions. The ISAC, as shown in Figure 2.4, reports to the Secretary of Administration and is composed of Information Systems representatives from major State Agencies and Departments. The Director of the Government Consulting Group serves as the Administrative Chairperson of ISAC. The ISAC support staff will be drawn from agencies and departments according to project requirements.

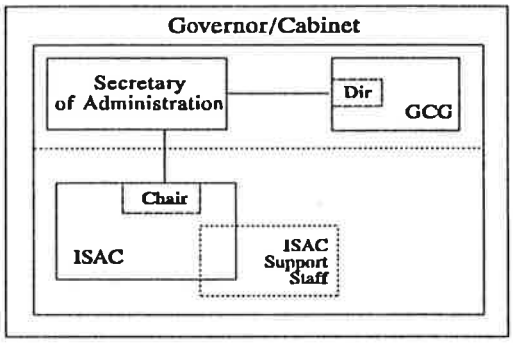

Figure 2.4 - ISAC Reporting Structure

Phase I of the VISP project has positioned the Executive Branch of Vermont State Government to initiate a statewide information planning and implementation process, based on ISM Policy. This process will improve both the short-term as well as longer-term effectiveness and efficiency of the use of information and systems within State Government.

Phase II of the VISP project should build on the results of Phase I to accomplish the following overall objectives:

1) Position the Information Systems Advisory Council (ISAC) to promulgate IRM Policy statewide, by the end of Phase II;

2) Lay the foundation for the ISAC to begin strategic projects in Phase III that migrate the State toward the Five Year Target Architecture;

3) Initiate several projects that pilot new information planning approaches before more widespread statewide implementation in Phase III.

SECTION III

VERMONT STRATEGY DEFINITION

INTRODUCTION

The Vermont Strategy Definition is the foundation for the Vermont Information Strategy Plan. Its vision of Vermont's future and the responsiveness of State Government to the people of Vermont will shape future information policy and system decisions. The Vermont Strategy Definition is divided into three sections:

A. A future vision for Vermont based on the needs of the citizens of Vermont, and state management's vision on how government can be responsive to these needs;

B. The views of top management of the Executive Branch of State Government about the key information-oriented objectives to meet these visions;

C. The critical success factors for Vermont State Government's future information infrastructure, linked to these visions and objectives.

> An Information Infrastructure - is an organized collection of information, processes, people skills, technology, and policies that provide the foundation for efficient and effective knowledge-related work and leisure.

It is our view that Vermont must base much of its future well-being on an effective information infrastructure that serves the needs of all its citizens. In the coming years, economic well-being for any state or region will depend more and more on the skill and energy of the knowledge workers that choose to live in that area. A well-planned and robust information infrastructure, in which both government and the private sector play critical roles, is essential to a strong knowledge work base within the State.

The Vermont Strategy Definition will be the foundation for a robust information infrastructure for the Executive Branch of the Vermont State Government. This Strategy Definition will also provide a starting point for broader discussions about approaches to Vermont's overall information infrastructure, including other government and private elements that contribute to the needs of the citizens of Vermont.

A. A FUTURE VISION FOR VERMONT

Over the past several years the State of Vermont has completed substantial groundwork towards reaching a vision of what Vermont will be like in the future. The Vermont Strategy Definition is based on the efforts of several task forces working with many different strata of Vermont citizens. Pathways to Prosperity, a Strategic Outlook by the Governor's Commission on the Economic Future of Vermont, November 1989, was a study performed by many prominent citizens combined with public hearings which took place throughout Vermont. Government 2000 Conference Report, January 1989, was compiled by State Government managers and supervisors. The most recent effort during the Vermont Information Strategy Planning (VISP) Project has been interviews with 25 executive leaders within the current administration. From these interviews we were able to substantiate the views in both Pathways to Prosperity and Government 2000. The common sentiment in all these sources is stated well in the following quotation:

> "The economic success of a nation [or a state] ... must be judged ultimately by how well its citizens are able to live and whether these standards of living can be sustained and improved upon in the future. Living standards include more than the level of material comfort available for purchase, of course. Clean air, personal safety, and pleasant vistas are aspects of life on which most individuals place considerable value." (The Work of Nations, Robert Reich, Knopf, 1991, page 224.)

As the quote from The Work of Nations states, economic well-being and quality of life are inextricably linked. The following quotes in Pathways to Prosperity validate this view:

"The underlying message we heard was that Vermonters love their State and want to make sure our special way of life can be preserved for their children."

"We believe that now is the time to create a future in which there are no second-class Vermonters...[by] Charting a 21st century economy that draws strength from its diversity, provides challenging and rewarding employment, and maintains human values and social justice."

"The hope voiced by dozens of Vermonters was that in changing, Vermont will manage not to lose these qualities;

- Its clean environment.
- Its farmland.
- Its reliance on small business.
- Its economic and cultural diversity.
- Its heritage of local control.
- The Vermont work ethic."

"In short, the public hearings demonstrated that Vermonters look to government-inspired planning to provide a formula for sustained economic prosperity that does not destroy the best qualities of life in Vermont."

The views of the managers and supervisors in Government 2000 respond to these citizen needs:

"Dedication to service is a basic, cultural value which must apply to all the activities of all State employees in all their interactions with all people. In order to promote a culture dedicated to service in State Government...

- create and continually reinforce the service [attitude] among State employees,
- make State services more accessible to those who use them,
- design more user friendly processes for the delivery of services,
- improve the quality of the products and services of the State Government."

"State Government can best operate by viewing itself as one organization. Although individual divisions and departments have differing roles, reflected in their mission statements, they are all working towards the achievement of one State of Vermont mission."

These views were echoed in the executive interviews of the VISP Project. The constant themes of these interviews were the importance of responsiveness to the needs of Vermont's citizens, the requirement to find preventive rather than reactive means to meet these needs, and the crucial importance of information in the effort to satisfy Vermont's citizens. The next two sections present the specific objectives and critical success factors that resulted from these interviews for improving State Government's use of information in achieving Vermont's future vision.

> Vermont's future rests on retaining the character of its natural resources while nurturing a viable economic foundation. Vermont must provide opportunities for its citizens to pursue their individual goals. State government must be the focal point for coordinated programs and policies for Vermont to realize its potential and preserve its special way of life.

B. OBJECTIVES

In discussions with the 25 Executive Branch senior managers and policy makers, a set of long range (5-10 year) objectives was developed related to the State's information infrastructure. The intent of these objectives is to focus attention on significant information-oriented directions that will enable Vermont to reach its overall vision. The day-to-day services to citizens must be maintained while these objectives are being attained. This is not just a collection of goals for individual agencies and departments but an expression of objectives that relate to Vermont as a whole.

- The State must provide for its own well-being by supporting environmental, educational, and economic development programs that capitalize on Vermont's highly skilled work force and sophisticated telecommunications network.

- Vermont must deliver effective services to its citizens by providing convenient, responsive access to these services. It is important to involve the public in deciding what level of service should be supported.

- To deliver services efficiently, the State must streamline the process for sharing information among agencies and departments.

- While maintaining the privacy and confidentiality of data, the State must provide access to its repository of information to both the public and private sectors. This access is important to achieving an informed citizenry and to stimulating economic progress.

- In order to deliver the best services to the citizens of Vermont, the State must maximize the value that each employee can provide. To achieve this objective, organization, management processes, and information systems must be redesigned. Through this redesign effort, agencies will realize operating efficiencies by eliminating duplicate functions.

The above objectives must be achieved in a difficult environment, one in which confidence in government must be rebuilt. This confidence can be sustained only through efficient delivery of services, competent fiscal management, and appropriate planning and policy development. Consensus must be reached on what is a sustainable level of government.

The Executive Branch organizational structure best suited to meet these objectives involves both centralized direction and policy, and decentralized agency initiative and implementation. The management of information resources will also embody this same centralized / decentralized theme. The critical success factors to be discussed in the next section involve both central policy issues and decentralized implementation and operational issues.

The following table shows the correlation of the Executive Branch interviewees to the summarized objectives. To keep each interviewee anonymous, a randomly selected number has been given for each interview. The ✓ indicates that this interviewee's statements supported the development of the objective.

Objectives \ Interview \	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Balanced economic development consistent with protection of resources capitalizing on telecommunications and skilled workforce		✓	✓		✓			✓		✓	✓	✓	✓			✓	✓		✓		✓		✓	✓	
Effective delivery of services involving the public in deciding level of service to be supported	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	
Share data among Agencies and Departments	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Access to repository of information maintaining privacy and confidentiality to achieve informed citizenry and stimulate economic progress	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓
Maximize value that each employee provides through redesign of organization, management processes and information systems and realization of operating efficiencies	✓			✓		✓		✓	✓	✓			✓				✓		✓			✓		✓	✓

Figure 3.1 Objectives/Interview Matrix

C. CRITICAL SUCCESS FACTORS

A second result of the executive interviews was a set of critical success factors (CSF) which identify what events have to happen or what conditions have to exist to achieve these objectives. These CSFs require executive management's attention and control.

A great number of conditions and events have to happen for Vermont to be the kind of State envisioned by its citizens and government leaders. A pervasive theme through all the statements is to make the government more responsive to the needs of its citizens and better able to meet those needs with cost-effective, well-managed services; in short, to provide the best government at the least cost. Central to that purpose is the development of an information infrastructure which can support those services efficiently.

- There must be effective information networking and sharing throughout State Government to support the commitment, cooperation, coordination, and improved communications needed among all levels of government.

- The scope of State information networking and its quality and ease of use, must be expanded to improve communication with the public, other government agencies and private entities.

- There must be resolution of privacy and confidentiality issues to promote the effective sharing of information.

- Accurate, timely and actionable management information must be available. This information must include measurements of quality, productivity, consistency and the timeliness of State services that enable quick action on operational modifications necessary to meet Vermont's goals.

- State Government processes must be re-engineered to maximize the efficiency and effectiveness made possible by the new information infrastructure. These will enable self-service delivery systems, consolidated service availability and an integrated view of clients.

- State Government employees must be empowered by giving them significantly increased operational responsibility and providing easy access to the information necessary to make informed and timely decisions.

- Employees' information literacy and skills must be raised to exploit the advances made in the State's information infrastructure.

- Vermont must have a sustainable information planning process that takes a statewide perspective for dealing with overall issues and priorities, transcending political or short term considerations.

- State Government must form partnerships with other governmental agencies and the private sector to share marketing and economic information in a coordinated approach to retaining and expanding Vermont's economic future.

The following table shows the correlation of the Executive Branch interviewees to the summarized critical success factors. To keep each interviewee anonymous, a randomly selected number has been given for each interview. An "M" indicates that this interviewee's statements provided major support to the development of the critical success factor. A ✓ indicates that this interviewee's statements supported the development of the critical success factor.

\ Interview Info Related CSFs \	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Effective information networking and sharing throughout State Government to support commitment, cooperation, coordination and communications.		M	M		✓	M	✓	✓	✓	M	M	✓	✓	M	✓	✓		✓	✓	✓	✓	M	✓	✓	✓
Expand scope of State information networking and its quality and ease of use to improve communication with public, other govt and private entities.	✓	M	✓	✓	✓		✓	M	✓	M	M	✓			✓	✓	✓		M	✓	M	✓	M	M	
Resolution of the privacy and confidentiality issues for effective sharing of information.			✓					M	M	✓	M							M		M					
Accurate, timely and actionable management information measuring quality, productivity, consistency and timeliness.	✓			✓	M		M	✓			M		M	M	M		✓					✓	✓		M
Re-engineer processes to achieve better service delivery, consolidated service availability and an integrated view of clients.	✓	✓		M	M	✓		M	M	M	✓	✓		M	M	✓	M		M	✓	✓		✓	✓	✓
Empower employees with increased operational responsibility and **access to information** to make informed and timely decisions.			✓	M	✓	✓		✓				✓	✓		✓		✓	✓	✓			M			✓
Raise employees' information literacy and skills.					✓	✓			✓		✓				✓	✓	✓	✓		M		M	M	✓	✓
Sustainable information planning process that takes a statewide perspective for dealing with overall issues.		M	✓	✓	✓	M	M	✓	✓	✓		✓	M	✓				✓	✓	✓	✓	✓	✓		M
Form partnerships with other govt agencies and private sector **to share information** in a coordinated approach to enhance Vermont's economic future.	✓	✓	✓		M				✓	✓	M				✓	✓	M			✓	M		M	✓	

Figure 3.2 - Information Related CSFs/Interview Matrix

SECTION IV

FIVE YEAR TARGET ARCHITECTURE FOR EXECUTIVE BRANCH INFORMATION SYSTEMS

The Five Year Target Architecture describes the ideal information infrastructure capabilities that will equip the Executive Branch of Vermont State Government to achieve the Objectives of the "Vermont Strategy Definition" effectively and efficiently. The Five Year Target Architecture is a blending of three architectures with guiding policies to serve as the foundation and first step towards building an integrated information infrastructure. As shown in Figure 4.1, these three separate architectures are unique and work together under the umbrella of Information Resource Management (IRM) Policies to build the information infrastructure capabilities needed to fulfill the vision of the Executive Branch. Together these architectures will permit the realization of integrated systems driven by the needs of the Executive Branch positioned to take advantage of the technology advances of today and tomorrow.

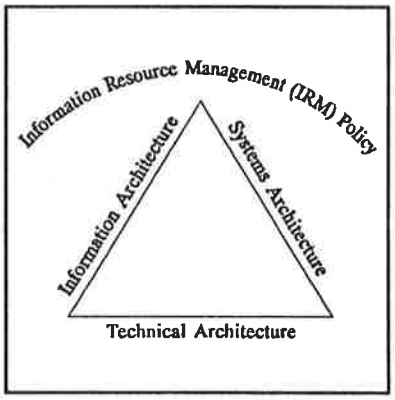

Figure 4.1 - Target Architecture

The first piece of the Target Architecture is the *Information Architecture*, which models the Executive Branch in terms of its business activities and the data needed to support these functions. The Information Architecture establishes a common view of the enterprise's functional and informational needs to ensure information strategy plans are built on the business needs and priorities of the enterprise.

The second piece of the Target Architecture is the *Systems Architecture*, which defines the groupings of similar business functions and data, identifies potential areas for development of integrated systems, and assesses the current application systems to develop plans for future systems. The Systems Architecture recognizes data as a statewide resource and establishes a common view for future development of integrated systems that reflect the integrated nature of the Executive Branch.

The final piece of the Target Architecture is the *Technical Architecture*, which describes the technical components, eg. hardware and software platforms, that will be used by the state to implement systems. The Technical Architecture provides the technical strategy for the best use of information technologies in support of the business and application systems strategies.

The implementation of the Target Architecture will be controlled by *Information Resource Management (IRM) Policies*. IRM Policy will provide management with planning, evaluation processes, and standards to balance operational needs, benefits with implementation cost, and risk in achieving the Target Architecture. The Five Year Target Architecture will be updated during Phase II of the Vermont Information Strategy Project (VISP) and as part of the strategic planning process described in the IRM Policy Overview Section.

TARGET ARCHITECTURE
LINKAGES TO THE VERMONT STRATEGY DEFINITION

The Critical Success Factors (CSFs) of the Vermont Strategy Definition state what the Executive Branch of Vermont State Government must do, in the area of information infrastructure, to achieve the Objectives of this shared vision. The specific attributes of the Five Year Target Architecture are linked with these CSFs in the discussion below. These linkages provide the underlying rationale for pursuing this strategic information direction.

A key thrust of the CSFs is ease of information sharing, both within State Government as well as with outside organizations and the general public. The Target Architecture will enable ease of information sharing in the following ways:

- A common *Information Architecture* across State Government allows visibility into the information resources of the State and provides a framework for elimination of needless duplication. A significant barrier in sharing information today is the large number of collections of information spread throughout the State that overlap and share no common definitions for data.

- A common *Systems Architecture* across State Government provides an integrated view of the functions and data utilized across agencies and departments for use as a base to develop coordinated requirements for the development of integrated information systems. Application systems are currently developed based on individual organizational requirements proliferating copies of similar if not identical pockets of information across the state.

- A common *Technical Architecture* across State Government provides a basis for agencies and departments with different systems to interface. The current Information Systems (IS) environment is heterogeneous with a multiplicity of agency and department networks, computers, and software. In order to share information easily across the State, this heterogeneous environment must be managed in such a way that, without starting over again, State Government can inter-network among the different agency and department systems. The common Technical Architecture will also provide standard interface definitions for organizations outside State Government, as well as the general public, making broader inter-networking achievable.

Another key thrust of the CSFs is the need to increase the effectiveness and efficiency of State Government by improving its information infrastructure. Information infrastructure consists of information technology, the information itself, and human skills in using that technology to meet the operational needs of State Government. Improving the information infrastructure of State Government is supported by the Five Year Target Architecture in the following ways:

- Government employee skills and information literacy are enhanced by defining a common, limited set of information, system, and software directions within the Target Architecture that employees need to learn. By limiting the number of choices in each of these areas and adhering to standards, the cost of adequately training and supporting employees becomes more manageable.

- Actionable, timely, and accurate management information is enhanced by defining a common Information and System Architecture. Managers will be able to access a wider range of data across the state and make more well-informed decisions when a pre-planned information structure that anticipates their needs is in place.

- The efficiency of State Government is enhanced by defining common Information and System Architectures. Unnecessary or duplicative collection of information and development of systems can be eliminated.

Finally, another theme of the CSFs is the need to promote both near-term and longer-term improvements in the effectiveness of State Government by adopting appropriate information planning and implementation processes. The Five Year Target Architecture supports both these objectives by supplying a shared language describing the State's information capabilities and directions that can be used by both business and system professionals. This shared language will enable users to re-engineer their processes and take advantage of statewide information resources. It will also enable agencies, departments and the State as a whole to communicate about the most effective long-term uses of information technology in order to prioritize scarce budget resources.

SECTION V

INITIAL INFORMATION ARCHITECTURE

The Vermont Initial Information Architecture is a high level model of information needs expressed in a series of diagrams and matrices. The information needs span the entire enterprise of the Executive Branch. The Information Architecture is based on the things that are relatively stable within State Government. Therefore, projects that result from the architecture will have a solid business foundation. The architecture can also be used as a blueprint that will enable the definition of integrated systems with a focus on shared data.

The Vermont Information Architecture was developed by representatives from the Executive Branch business areas and its primary function is that of a planning tool. The ultimate objective of this architecture is the identification of Business Areas, which will define the boundaries of the projects to be initiated during future phases of the VISP effort.

The diagrams and matrices that represent the Vermont Information Architecture are described in this section. These models fall into the three general categories of FUNCTION, DATA and INTERACTION, which together are often referred to as an Enterprise Model. An enterprise model can be viewed as a three sided pyramid, as seen in Figure 5.1, which represents the information needs of the Executive Branch of Vermont State Government.

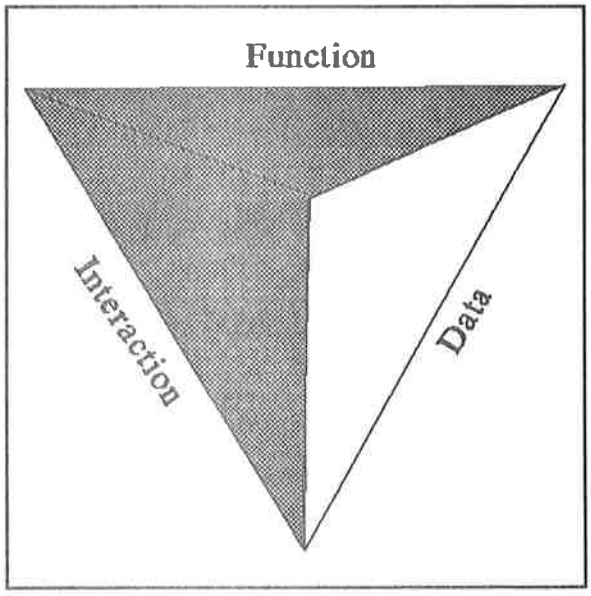

Figure 5.1 - Enterprise Model

FUNCTION MODEL

A Function is a group of related business activities which support furthering the vision expressed in the Vermont Strategy Definition. Functions are expressions of *what* activities are done rather than *how* they are done. The reason for that is the *what*, in terms of an enterprise's activities, is always going to be more stable than the *how*. Functions are also independent of the organizational units that perform them. In other words, the activities contained in a function like "Planning" are the same whether the individual performing them works at the Agency of Natural Resources or the Agency of Transportation.

The Function Model consists of two components, the Functional Decomposition Diagram and the Function Definitions. The decomposition diagram shows the breakdown of functions into progressively increasing detail. For clarity of what each function includes, this diagram should be reviewed only along with the associated Function Definitions. (See Appendix C)

The Functional Decomposition Diagram for VISP is included as Figure 5.2. The context for this decomposition is Vermont State Government Executive Branch, which is the subject of VISP Phase I. The diagram also includes the next three levels of decomposition. For example "Policy and Planning" is a level 1 function, "Planning" is a level 2 function, and "Develop Plan" is a level 3 function. The most common error when viewing a decomposition diagram is to view it as an organizational chart. It is essential to keep in mind that it was produced based on function not organization.

The Functional Decomposition Diagram definitions of each individual function are contained in Appendix C. The definitions are ordered in the same manner as the diagram. For example, the first definition is the context level "Vermont State Government Executive Branch" followed by the first of its sub-functions which is "Policy and Planning". The next definition is the first sub-function of "Policy and Planning" which is "Policy", followed by the definitions of the sub-functions underneath "Policy" which are "Public Policy Forecasting" and "Policy Development". The rest of the definitions correspond the same way with the rest of the decomposition diagram.

VERMONT INFORMATION STRATEGY PLAN (VISP)
Functional Decomposition Levels 1,2,3

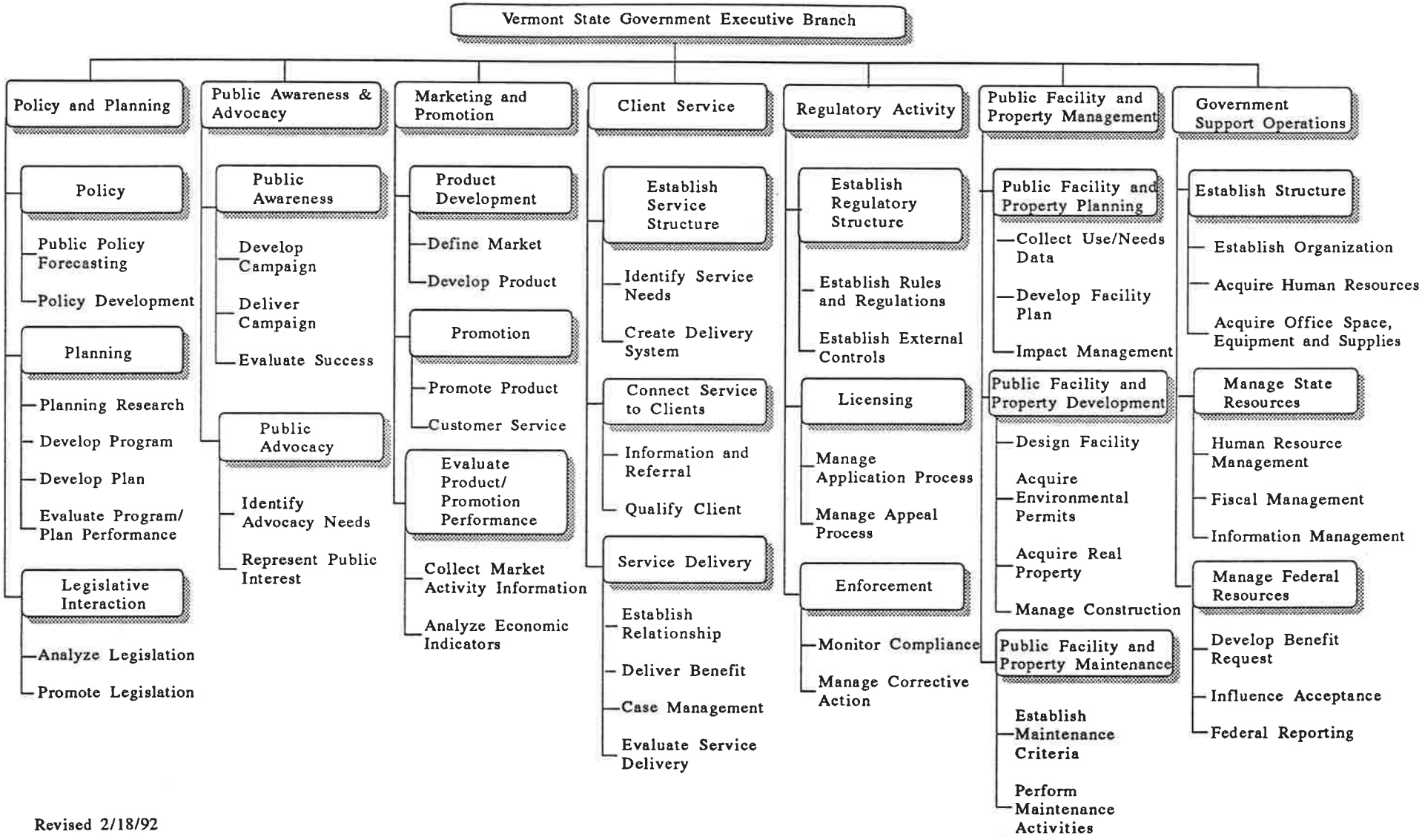

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Figure 5.2 - Functional Decomposition Diagram

DATA MODEL

The Data Model is a graphical representation of the fundamental "things" of interest to Vermont State Government about which data can be kept. These things, called entity types, do not exist in isolation and therefore relationships may be identified between them. This model provides a global view of the data resources needed to achieve the Vermont vision and perform the functions previously identified. As is the case with the Function Model, definitions of each entity type are provided in Appendix D.

The Data Model will be the basis upon which the State will determine what information is available for statewide access. The model represents the entire population of statewide information and is the foundation upon which both real time and abstracted statewide information will be determined.

The technique used to develop this model is called Entity Relationship Modeling and produces an Entity Relationship Diagram (ERD). The ERD for the VISP is included as Figure 5.3. This diagram shows the entity types as rectangles and the relationships between them as lines that connect one entity type with another. Also, each relationship is named using a verb that describes, in business user terms, the nature of the relationship.

The relationship names are read in a clockwise manner. Stepping through an example from Figure 5.3 will best explain how to read the ERD. Near the middle of the diagram on the far left side the entity type "ORGANIZATION" may be found. Directly underneath it are "POSITION" followed by "EMPLOYEE". On the right hand side of the vertical (relationship) line between "ORGANIZATION" and "POSITION" the verb "contains" may be found. This instance should be read "ORGANIZATION" "contains" "POSITION". The verb "fills" on the relationship between "POSITION" and "EMPLOYEE" is on the left hand side and should be read "EMPLOYEE" "fills" "POSITION". Relationships with the verb on top of the line are read from left to right, and when the verb is on the bottom, the relationships are read from right to left.

In summary, the Data Model consists of two components, the Entity Relationship Diagram (ERD) and the Entity Type Definitions. The ERD should be reviewed only along with the associated Entity Type Definitions. A list of the entity types in alphabetic order with definitions are contained in Appendix D.

VERMONT INFORMATION STRATEGY PLAN (VISP)
Entity Relationship Diagram (ERD)

Revised 2/18/92

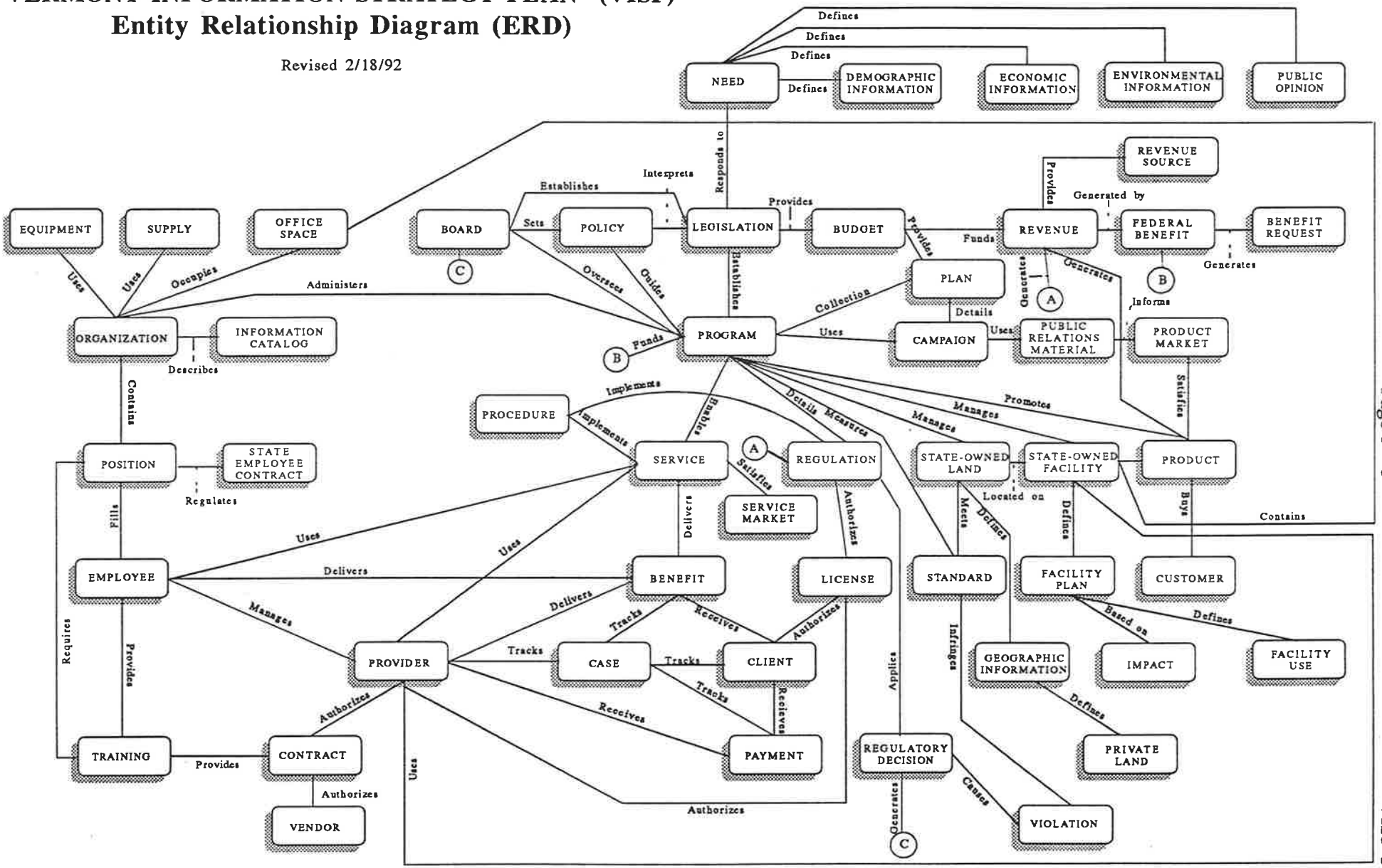

Figure 5.3 -Entity Relationship Diagram

INTERACTION MODEL

The final piece of the Enterprise Model deals with the interactions of Functions and Entity Types and the interactions between Functions and Organizational units. This portion of the model is in the form of two matrices that will be used to identify and scope Business Areas. Business Areas will be described in the Initial System Architecture section of this document. The matrices contained in Appendix E and are titled Function/Entity Type as shown in Figure E.1 and Function/Organization as shown in Figure E.2.

FUNCTION/ENTITY TYPE MATRIX

Figure E.1 - Function/Entity Type Matrix shows the interactions between Functions and Entity Types and the degree of that interaction. This matrix is a valuable tool that will assist in determining opportunities for statewide data sharing. It shows at a high level what data is required by each function and where in the functional model that data was created. It can also be the genesis for establishing data ownership.

FUNCTION/ORGANIZATION MATRIX

The second matrix is titled Function/Organization Matrix and is shown in Appendix E as Figure E.2. This matrix arrays the third level functions with the major organizational units of the Executive Branch. It shows the degree of involvement that a given organization has with each of the functions. The premise for this matrix is that functional decomposition differs from an organizational structure. However, people do perform the functions in an organizational context. This matrix communicates how the existing organizational structure maps to the functional model. This matrix will also help to identify the appropriate participants for future phases of VISP.

SECTION VI

INITIAL SYSTEM ARCHITECTURE

The Initial System Architecture uses the results of the Initial Information Architecture to identify Business Areas. A Business Area is a collection of associated Business Functions and Entity Types which will be used to scope future projects of VISP. Due to the inherent high level nature of Phase I of the VISP, concessions have been made as to the attainable level of detail. Therefore, a Business Area will be used to detail the Information Architecture and narrow the scope for further analysis. The Initial System Architecture also includes an analysis of the distribution of current systems pertaining to the Business Areas. This analysis is helpful in determining the prioritization of projects during future phases of VISP.

BUSINESS AREAS

A Business Area is identified by "clustering" similar interactions between Business Functions and Entity Types. A *Business Area* is the result of these clustering as shown in the Business Area Matrix - Figure 6.1. Further, from each Business Area an analysis about the relationship between the Business Functions and the Entity Types can be drawn, as represented below. This is not a precise technique, rather, its objective is to identify areas for further analysis not to come up with exacting results. For the detailed analysis undertaken to identify the Business Areas, see the descriptions for the Function/Entity Matrix in Appendix E, and the Function/Entity Cluster Matrix in Appendix F.

The seven Business Areas identified are:

- Policy and Planning
- Public Awareness and Advocacy
- Marketing and Promotion
- Client Service
- Regulatory Activity
- Public Facility and Property Management
- Government Support Operations

Policy and Planning

Policy and Planning deals with the gathering of information from many sources to support the formulation of policies and program. This includes the analysis of current social, economic, and environmental needs; the analysis and support of legislation to meet those needs; and the interpretation of statute and executive orders for developing programs for their implementation.

Public Awareness and Advocacy

Public Awareness and Advocacy develops and promotes programs to support and advance public well-being. Public Advocacy is carried out through the representation of public interests before bodies which control and regulate programs which impact the public.

Public Awareness identifies areas where information and campaigns may be needed to inform and educate the public and about policies and programs which are of benefit to health, welfare, safety, the environment, and general well-being.

Marketing and Promotion

Marketing and Promotion is responsible for identifying the markets for the products and assets of the State and the coordination of their promotion in both domestic and international markets. Assessment of market needs, design of specific activities and materials needed for promotion campaigns, and the maintenance of contacts with customers and customer groups are essential pieces of this function. The collection and evaluation of sales, usage, and customer response information support the assessment of program effectiveness, the development of new programs or appropriate modification of existing efforts.

Client Services

Client Services includes a broad range of programs designed to deliver benefits and services to individual citizens, groups, or communities entitled to receive them under State statute. The Client Services functions qualify recipients, manage the delivery of the benefit, and monitor that delivery for tracking service effectiveness and compliance with established regulations. Benefits may be in the form of financial aid, training, technical assistance, family support, employment assistance, or other types of aid.

Regulatory Activity

Regulatory Activity is responsible for all the licensing and monitoring of activities covered by State statutes and regulations. The granting and revocation of licenses and permits as well as management of appeal processes falls within this responsibility. The monitoring of compliance and enforcement of corrective actions and regulatory decisions serves to enforce the policies and statutes implemented to maintain the public good and promote responsible use of public resources.

Public Facility and Property Management

Public Facility and Property Management is concerned with the planning, construction, and ongoing maintenance of State buildings, roads, forest lands and parks. This includes the evaluation of needs, impact studies, facility planning and design, property acquisition procedures, construction management, and maintenance administration.

Government Support Operations

Government Support Operations performs the administrative and financial aspects of staffing and supporting the delivery of government services. The management of personnel, the intake of revenue, and control of expenditures are within this area. The range of interactions with the federal government for acquisition of funding and accounting for its disbursement are another operational function.

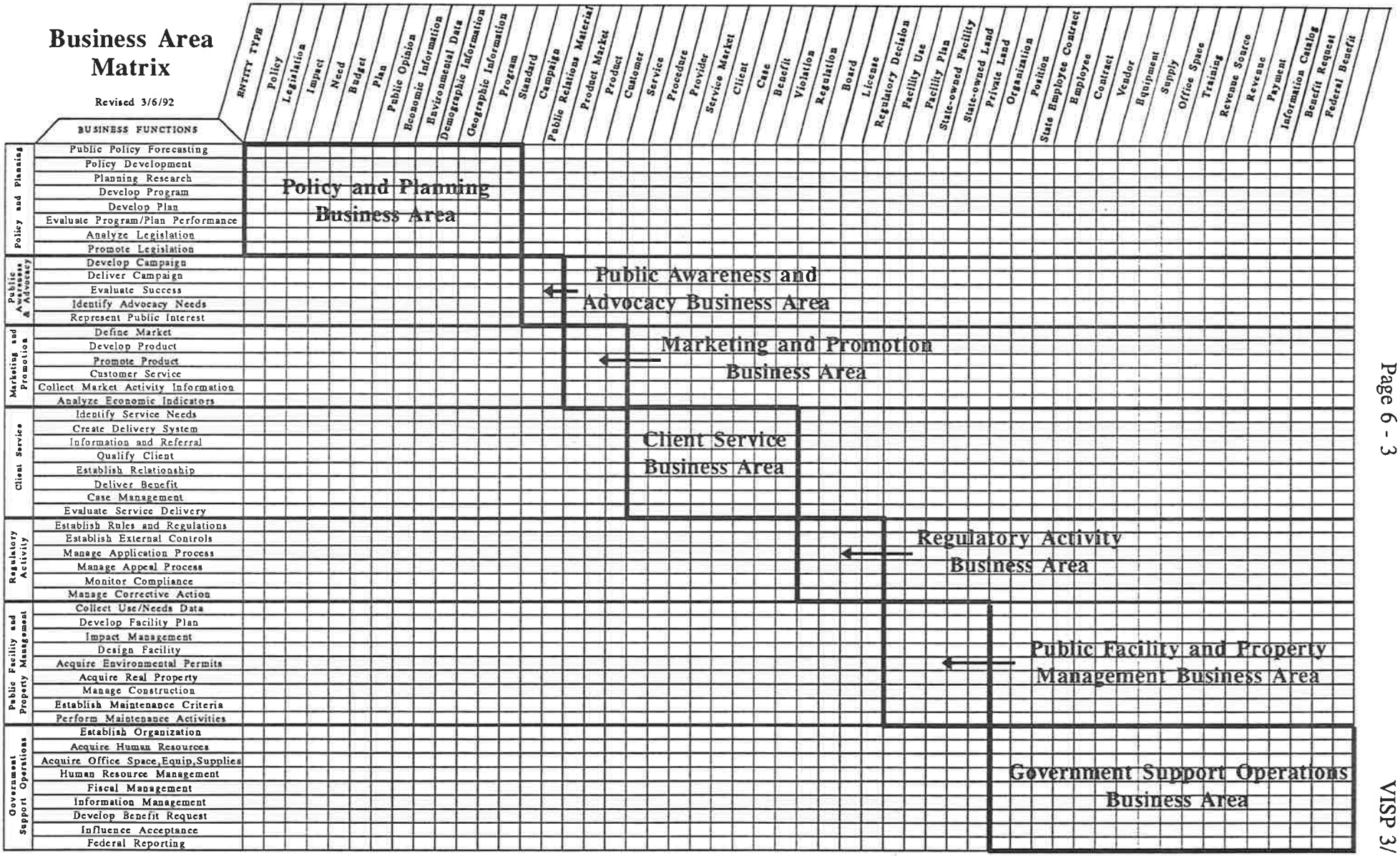

Figure 6.1 - Business Area Matrix

CURRENT SYSTEMS ASSESSMENT

An important part of understanding each Business Area is an appreciation of the automated systems which support its functions and data. The current situation was evaluated in conjunction with the Initial Information to provide a view of the relative positions of the Business Areas in terms of systems support.

The analysis focused on major systems, i.e. those systems which support the prime business functions of a given area. Based on descriptions of the major systems and a limited number of user evaluations, the assessment outlined what functions were supported by automated systems and how well the systems satisfied the users' business needs. The Function/Current Systems Matrix (located in Appendix F) shows the Business Functions arrayed with a list of major systems. From this matrix it can be observed that Client Service and Government Support Operations are supported by a number of systems while the areas of Policy and Planning, Public Awareness and Advocacy, and Marketing and Promotion have relatively limited statewide systems support.

Another aspect to consider in the analysis is whether or not the systems that support a Business Area are integrated or if the various technical platforms make data sharing cumbersome or impossible. Figure 6.2 illustrates the diverse systems hardware installed in the major agencies and departments in the Executive Branch of State Government.

LEGEND

or / = Denotes Ownership, by Quantity or Presence of Hardware

* = Denotes Hardware Usage, by another Agency/Dept

ORGANIZATIONS	Mainframes				Mini Computer Systems													WANs			LANs					
	EQUIPMENT	IBM 3090/3081	IBM 4381	DEC 8550	Altos	Motorola	IBM System 36	Wang	DEC	Data General	HP	Burroughs	Intergraph	Nixdorf	Bull	ATT	Sun	NCR	Microwave	DecNet	Tiapiex	Arcb Net	Ethernet	Token Ring	Micro Computers	Laptops Computers	Terminals
Agency of Administration	2			/	/	/												*		*		/	/	180	30	270
Agency of Human Services	*		1	/		/	/	/							/			*	/	/		/		250	55	1600
Agency of Natural Resources	*		*	/					/	/										*	/			220	5	60
Development & Community Affairs	*			/					/															20	5	65
Agency of Transportation	*			/				/			/	/	/					*	/			/		235	5	210
Dept of Education	*																				/			85	45	5
Dept of Employment and Training	*	1		/												/								60	30	400
Dept of Public Safety	*			/										/				/						20	5	125
Dept of Libraries	*							/										*	/	*		/		20	10	30
Dept of Agriculture	*							*							/	/						/		15	10	40
Elected Offices	*				/			*	/								/		*			/	/	140	10	50
Miscellaneous Departments	*			/		/		/	/										*	*	/	/	/	215	30	120
																								1460	240	2975

Totals

Figure 6.2 - Current Systems Hardware Environment

Each Business Area has its own unique situation in terms of systems opportunities. Each Business Area is analyzed in the following paragraphs based on the matrices described in preceding section and the following tables. Figure 6.3 - Distribution of Major Applications summarizes the relative application system distribution by Business Area and Figure 6.4 - Percentage of Organizational Involvement shows the total percentage of organizations that have major functional involvement in each Business Area.

Fig. 6.3 - Distribution of Major Application Systems

Business Areas	Percentage of Organizations with Major Involvement
Policy & Planning	50%
Public Awareness & Advocacy	22%
Marketing & Promotion	7%
Client Services	27%
Regulatory Activity	28%
Physical Facility Management	8%
Government Support Operations	30%

Fig. 6.4 - Percentage of Organizational Involvement

Policy and Planning Opportunities

The functions contained in Policy and Planning are widespread among the organizations of Vermont State Government. Half the organizations within the project scope have major involvement with at least one of the functions in this Business Area. Although major application systems support is slight, office automation tools like word processing and spreadsheet programs are being used by many agencies and departments creating a large number of isolated systems.

The integration of budgeting and analysis activities into a coordinated statewide system appears to be a strong candidate for future development effort in this Business area. Establishing a statewide data directory to assist departments in locating data sources currently available is another area to consider for future projects.

Public Awareness and Advocacy Opportunities

There are two distinct groups of functions contained in the Public Awareness and Advocacy Business Area. The Public Awareness functions are prevalent among the organizations in State government, while the Public Advocacy functions are contained in only a few. Major application systems support for both these areas is slight. However, office automation tools, such as wordprocessing and some desktop publishing, have assisted in this area.

A subject for possible pursuit as a future project in the Public Awareness Business Area would be developing coordinated ways to make information more readily available to the public. For example, putting kiosks in libraries, malls, and other public places and use emerging technologies such as multimedia, touch screen and/or advanced telecommunications to give the public easy access to information on such subjects as AIDs, recycling, and other State services.

Marketing and Promotion Opportunities

The organizations performing Marketing and Promotion functions are supported by a variety of manual and automated systems. Although the support has many common elements, there is no integration among these groups.

Travel and Tourism, a subset of this Business Area, supports one of Vermont's largest industries and would benefit from integrated systems support. The ability to explore integrating and coordinating these functions with the small number of organizations involved in this area makes this an excellent pilot project candidate.

Client Services Opportunities

The functions contained in the Client Services Business Area are spread across the major agencies in Vermont State Government. The client base represents a significant number of citizens, businesses and towns across the State. There is considerable systems support for this Business Area but it is on a individual program-by-program basis. There is much duplication of client information and minimal shared information between programs serving the same client base. An additional area for concern is the lack of a direct linkage between provider information and the client base.

A subject for a possible future development effort would be pursuing an enhanced infrastructure to enable self-service delivery systems, consolidated service availability, and an integrated view of clients.

Regulatory Activity Opportunities

The functions contained in the Regulatory Activity Business Area are spread across the major agencies similar to the Client Services functions. The regulatory client base also represents a large number of citizens, businesses, and towns across the State. Systems support is strong within some subfunctions but weak in most. There is minimal shared information or integration between regulatory entities leading to a non-unified approach with clients.

An area for a future enhancement effort would be streamlining, coordinating and integrating Vermont's regulatory processes.

Public Facility and Property Management Opportunities

The functions contained in the Public Facility and Property Management Business Area are found in relatively few organizations in Vermont State Government. There appears to be adequate systems support for the majority of organizations involved with this Business Area. A number of system projects are currently underway or planned in this area.

Future efforts should include integration of other State Government organizations' facility management needs into the currently planned projects.

Government Support Operations Opportunities

The functions contained in Government Support Operations are widespread across State Government organizations. There is considerable systems support for this Business Area with a number of centralized systems as well as departmental and individual systems. However, many systems are dated, non-integrated, and use diverse hardware platforms.

A candidate for a future project in this Business Area is developing an efficient and effective method for collection of State revenues. Another possibility for a future project would be establishing a Generally Accepted Accounting Principles (GAAP) financial system that includes performance data and can be used as a hub for an executive information system for monitoring, measuring and tracking the effectiveness and efficiency of State programs.

SECTION VII

INITIAL TECHNICAL ARCHITECTURE

The Initial Technical Architecture is a statement of direction for the computer hardware, software and communications facilities that will be needed on which to build future Information Systems. The Initial Technical Architecture is presented in terms of three views of future information systems:

- **The Information View** - The logical view of information within State Government, independent of system or geographic location.
- **The System View** - The physical components of information systems within State Government.
- **The User View** - The services provided by information systems to users.

The Information View

As shown in Figure 7.1, all Executive Branch information will be "owned" by a designated agency or department. Critical terms such as "owned", "access", and "agency and statewide information" are defined in the IRM Policy Overview section. Some information will be available for use only within that specific agency or department called "agency information or data". Other agency or department information called "statewide information or data" will be available for use by any appropriately qualified person within State Government. Statewide information also may be made available either on a real time or abstracted basis. Agency information also may be abstracted and made available as statewide information.

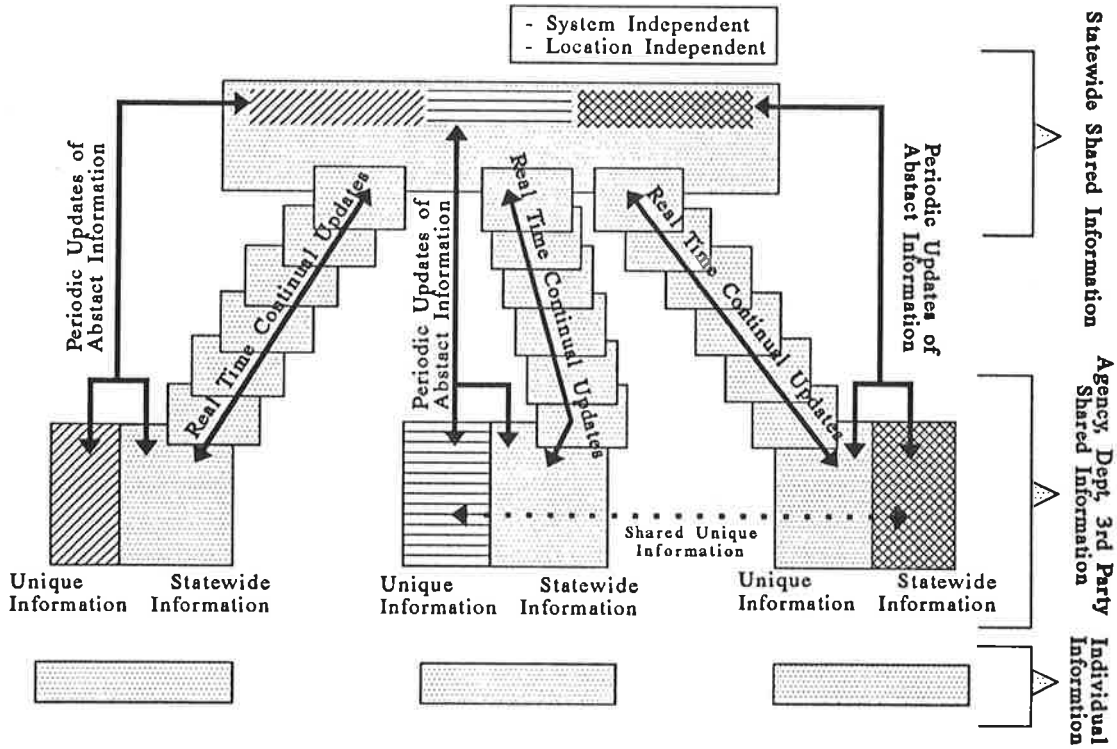

Figure 7.1 - Information View

The System View

As illustrated in Figure 7.2, two levels of computer and communications facilities are defined. Facilities managed by individual agencies or departments for their own use are called "Agency Networks" or "Agency Processing". Facilities managed by agencies or departments for statewide use are called "Statewide Networks" or statewide processing. These two levels of facilities will interconnect and interwork at defined interfaces.

The statewide network will have the following attributes:

- The network will support the state's multi-vendor computer environment, allowing interconnection using standard ISO or other "open" interfaces.
- All state buildings (owned or leased) should be able to access the network.
- The network will provide certain intelligent functions to facilitate statewide information sharing, e.g. network directory.
- Agency networks will be responsible for interfacing to the available network services and interfaces.
- The network will be capable of expanding to meet future demand and technological trends.
- Quality and pricing for network services will be competitive with other available alternatives.
- The state will retain control of critical network management and control functions.
- The boundaries between statewide, agency, and user responsibilities are shown on Figure 7.3 - State Network Boundaries of Responsibilities.
- Critical networks and processing facilities, especially those involving statewide functions, must have alternate routes and/or be fault tolerant to avoid single-points-of-failure.
- Electronic Data Interchange including Electronic Funds Transfer and Electronic Benefits Transfer will be a primary external networking mode of operation. This will require standardization of forms and information formats.
- All equipment will be ergonomically sound and adaptable to handicapped people and to those with special needs.

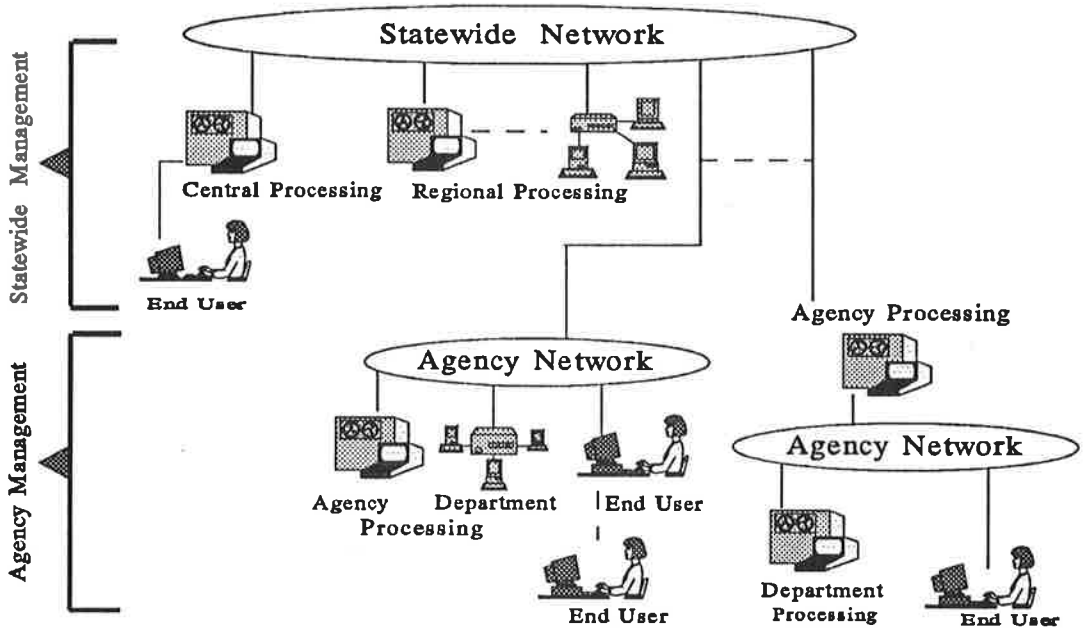

Figure 7.2 - System View

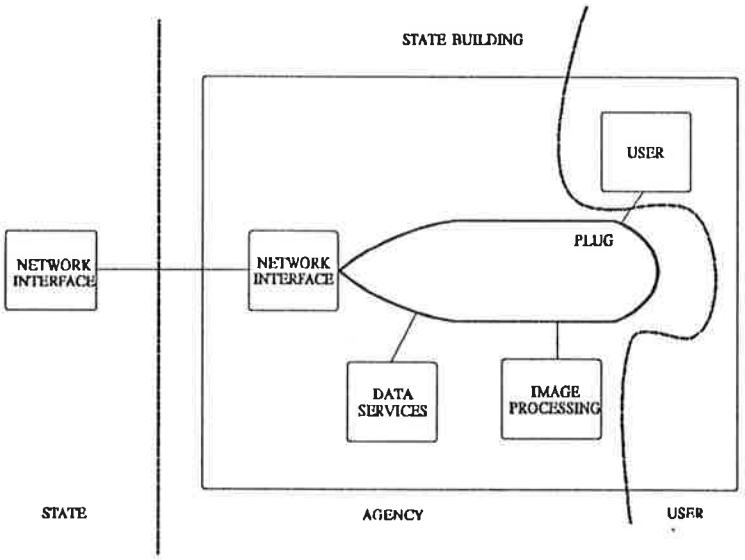

Figure 7.3 - State Network Boundaries of Responsibilities

The User View

As shown in Figure 7.4, information services available to end users are defined in terms of three general types of services -- "Information Access", "Networking", and "Knowledge Navigation". Each of these categories has an associated set of standard applications that users access through a "Common User Interface" that appears the same to all state users. These interfaces will be provided on individual Pcs as well as multi-user systems. The common interface will be provided as an option along with other user options.

Ideally, the user will not know (or care) where data resides or where a program executes.

A set of standard operating systems, data base management systems (DBMSs), and other applications will be supported statewide. The additional costs of non-standard solutions will be borne by the user.

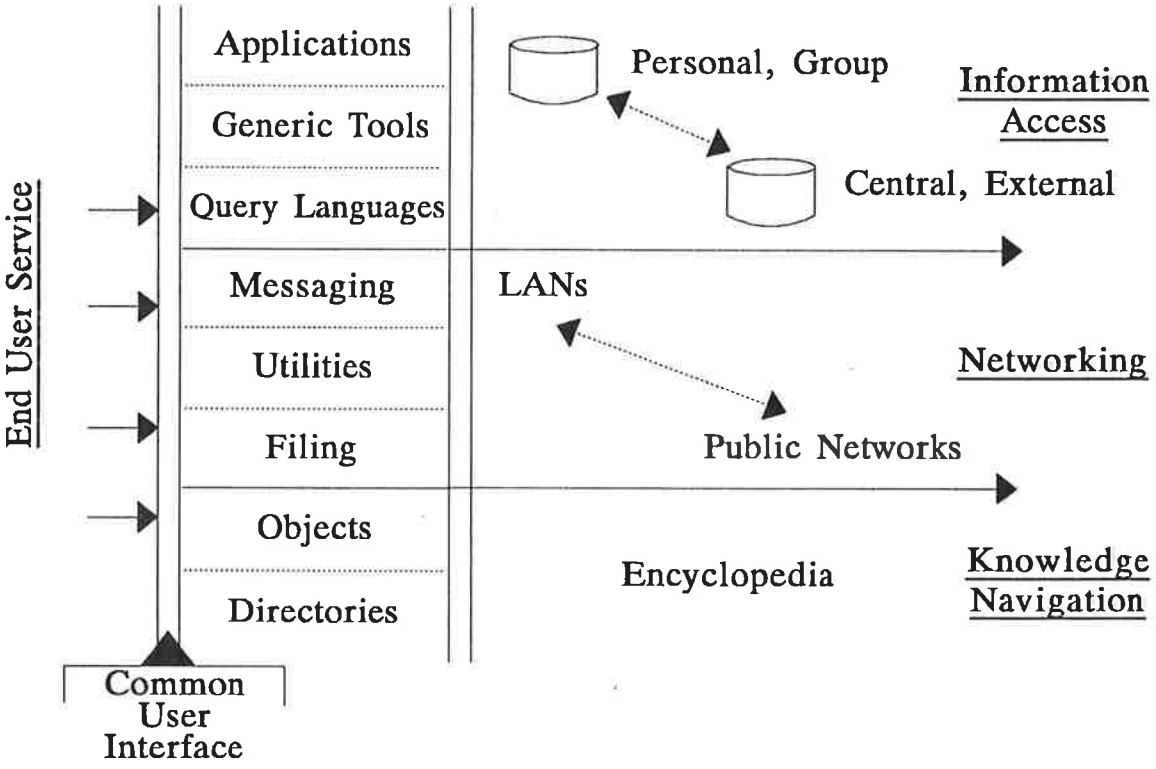

Figure 7.4 - User View of Information Infrastructure

SECTION VIII

INFORMATION RESOURCE MANAGEMENT POLICY OVERVIEW

This section presents the foundation for the Information Resource Management Policy for Vermont State Government. As Figure 8.1 shows, "Information Resource Management (IRM)" is that part of the overall state government management system that manages the creation, processing and distribution of information whether computerized or not. The focus of the Vermont Information Strategy Planning project (VISP) is on "Information Systems Management (ISM)", a subset of Information Resource Management that manages computerized information and data bases, computing systems, software and telecommunications. In Phase II, the Information Systems Advisory Council (ISAC) will begin to define and develop IRM policy more fully.

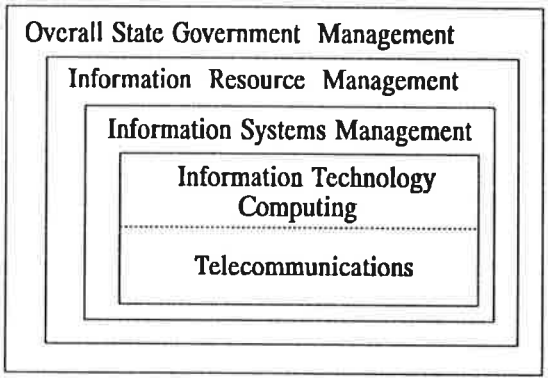

Figure 8.1 - Policy Scope

POLICY FOUNDATION

The purpose of IRM Policy is to implement and manage, within the direction of state statutes, the effective use of information in achieving the mission of Vermont State Government. As described in the previous section, the VISP project has produced a "Five Year Target Architecture" describing a future information environment that meets that objective. IRM Policy controls the development, operational and management processes that make the "Five Year Target Architecture" a reality.

The needs of government users in the information environment is another vital factor in formulating realistic policy. The VISP project has based IRM Policy on a model of two fundamental information-related user needs as shown in Figure 8.2. In each of the quadrants in this model there should be different policy emphases to balance the different need for user autonomy in processing information and the need for common information and processing control in each quadrant. For example, in the quadrant called "Information Utilities" where

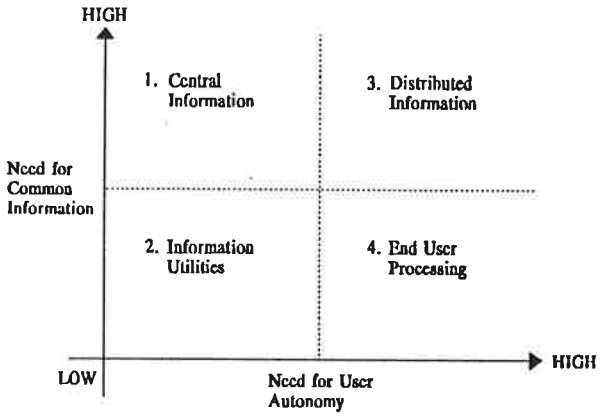

Figure 8.2 - Information Related User Demands

users share common applications to process their own locally controlled information, policy must focus on standards for common software packages, common user interfaces and inter-networking. Using this model, an analysis of Vermont State Government and the Five Year Target Architecture has yielded the following general policy requirements:

- In general, users require a low degree of application development control over the "Information Utilities" of the Vermont State Government. Policy in this area must deal with central control over common software packages to facilitate inter-networking among the heterogeneous Agency and Department end user processing systems.

- Certain user needs, such as improved integration of the financial management or client services functions, will require critical information to be available to a wide range of users, either within an Agency, Department or statewide across many agencies. This user need, lying within the "Central Information" quadrant, requires central information and systems policy control. In addition, users that largely maintain control over their own information in the "End User Processing" quadrant still require access to abstracted information from other areas in state government. This also requires central information standards in the information area.

- Vermont State Government currently has a high degree of Agency and Department autonomy in managing critical mission-dependent information processing. The Five Year Target Architecture envisions maintaining this level of mission-dependent processing autonomy, but increasing the sharing of statewide common information. Therefore, IRM Policy must deal with coordinating user needs in the "Distributed Information" quadrant of the model. This implies IRM Policy focused on strong central information architectural standards with decentralized information control, inter-networking standards for heterogeneous systems, and both central and decentralized application development and operations management.

One of the results of Phase I has been the establishment of an Information Systems Advisory Council (ISAC) within the Executive Branch. The ISAC is responsible for recommending policy and statewide initiatives to implement the Five Year Target Architecture, and reviewing Agency/Department plans for compatibility with policy and architectural directions. The ISAC, as shown in Figure 8.3, reports to the Secretary of Administration and is composed of Information Systems representatives from major State Agencies and Departments. The Director of the Government Consulting Group serves as the Administrative Chairperson of ISAC. The ISAC support staff will be drawn from agencies and departments according to project requirements.

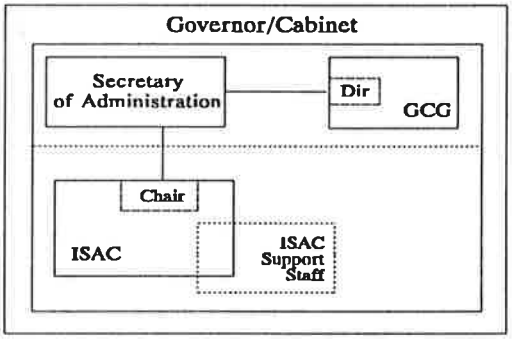

Figure 8.3 - ISAC Reporting Structure

IRM POLICY SUMMARY

Management Responsibilities

Information Resource Management (IRM) is an operating management responsibility. The principle goal of IRM is to promote improvements in the service quality and productivity of state government. Operating management must be directly responsible for achieving these goals and, as a consequence, must be directly responsible for IRM.

The responsibility for statewide IRM Policy must be at a level consistent with other top policy-making roles in the state. The Information Systems Advisory Council (ISAC) has been given the IRM Policy formulation and compliance role, reporting to the Secretary of Administration. The responsibility for execution of IRM Policy established by the ISAC rests with operating management.

Policy Objectives

The ISAC will formulate IRM Policies that achieve the following objectives:

- Facilitate cross-Agency/Department initiatives that encourage statewide data sharing and effective use of information resources.
- Stay abreast of legislation involving information implications.
- Encourage compliance with established policies.

Each Agency/Department will appoint an Agency/Department ISAC (or the equivalent) reporting directly to senior management. The Agency/Department ISAC will be responsible for drafting the annual strategy plan as well as status reports on in-progress projects. The ISAC will monitor "significant" projects, and will develop mechanisms for feedback among the various parties. The Agency/Department ISAC will report major deviations from standards to the ISAC in a timely manner. The ISAC will use the Agency/Department plans and status to assess and prioritize initiatives for use by the Executive Branch.

Information Strategy Planning

Information and information handling technologies are valuable assets of the state and must be managed effectively to achieve higher levels of efficiency, productivity, and service to the public. Technology is as important to program success as personnel and money. Information Resource Management has become an integral part of the overall business of each department and a fundamental concept of service delivery.

Agencies and departments are the primary definers of information resource requirements. However, centralized coordination and planning is also necessary. On-going information

resource planning, at both the State and Agency/Department level, is required to ensure that expenditures are linked to the Vermont Strategy Definition, Five Year Target Architectures, and program and policy objectives.

A well coordinated planning process will help agencies and departments articulate their information resource needs in a way that builds consensus, and communicate their needs as part of the long term Agency/Department strategy. This process will ensure a better fit between the information resource assets of the Agency/Department and the policy and mission objectives identified by Agency/Department management.

Planning becomes even more important as the State attempts to improve the sharing of information and technology between programs and Agencies/Departments. On a statewide level, this process will encourage interagency cooperation, increase accountability, and ensure realistic information resource initiatives. The resulting statewide Information Strategy Plan (ISP) will assist agencies and departments in setting their strategic directions, provide the Five Year Target Architecture to coordinate future initiatives and capitalize on new opportunities.

The following points should be considered as guidelines in developing Agency/Department Information Strategy Plans (ISP):

- The plan for any Agency is a consolidation of the plans of all the Departments within that Agency. The plan for a "stand alone" Department is considered the same as an Agency plan.

- The plan must have the commitment of Agency/Department senior management.

- The plan must support the Agency/Department mission and strategic business plan and contribute positively to the Critical Success Factors as set forth in the Vermont Strategy Definition and enhanced at the Agency/Department level.

- The plan should be based on an Agency/Department architecture that is consistent with the statewide Five Year Target Architecture.

- The plan should be consistent with statewide IRM principles and policies as promulgated by the Information Systems Advisory Council (ISAC).

- The plan must be technically feasible, beneficial, and capable of being effectively implemented.

- The plan will be submitted to the ISAC concurrently with the first draft of the annual budget.

- Both business and systems professionals should be involved in the planning process.

Every IRM project shall be reviewed by the sponsoring Agency/Department for its statewide implications, and the ISAC notified of potential statewide projects. Every project determined by the ISAC to be a statewide project will be assigned a sponsoring Agency/Department which alone, or together with other interested Agencies/Departments, will select a project director. The project director will have the authority and responsibility for the management and control of the project, and will report to the ISAC as well as to the sponsoring Agency/Department during the project.

The ISAC's role in statewide projects will be to:

- Define responsibility and authority for such projects.
- Ensure appropriate project planning methodology has been applied.
- Ensure open communications among the interested Agencies/Departments.
- Ensure timely completion and quality of results.
- Ensure that the appropriate people are involved in the project and that pertinent issues are addressed.

Contents of an Agency/Department Information Strategy Plan (ISP)

The Agency/Department ISP will be developed using a "tool-kit" furnished by the ISAC. Each ISP must be linked to the Vermont Strategy Definition critical success factors as well as Agency/Department objectives. In general, each ISP must cover areas such as:

- Overviews of existing and planned systems.
- Significant project expenditures to include hardware, software, communications.
- Personnel/resource requirements.
- Use of emerging technologies.
- Agency/Department training needs and initiatives.
- Effect on statewide or shared resources (e.g. communications, data file structures)
- General architecture of systems initiatives to include statements on: hardware platforms, DBMS/languages, networks, disaster recovery. A statement on compliance with established architectural standards, or request for deviation.
- Project justification (cost/benefit statement or statement of mandate).

Information Sharing Standards

The responsibilities for ownership of and access to information will be defined in common terms across state government to improve access to information while still controlling costs. The ideal situation will be to capture common information once at its source with zero defects and make it available to everyone with a need and right to know.

There are two general types of data defined:

- Agency data is all data collected by an Agency or Department.
- Statewide data is a subset of Agency data that is shared outside the Agency or Department.

"Ownership" of data is defined as the authority and responsibility to collect and maintain information with the resources to accomplish this. Ownership may be assigned (delegated) to individuals, but ultimate ownership remains with the organization.

"Access" to data is defined as a way or means to get to data. Access includes the following parameters:

- Knowledge about the existence and whereabouts of information.
- Knowledge of the attributes of specified information.
- Knowledge of the mechanisms and procedures of access to specified information.
- Possession of the appropriate level of authorization commensurate with the security and confidentiality of specified information.

The following points are policy guidance for sharing of statewide and Agency/Department information:

- The ISAC will assign responsibility for ownership and access to statewide data. Agency/Department management will assign responsibility for ownership and access to Agency data.
- Agency data will be defined in a single, publicly available "data dictionary" to facilitate data sharing and identify areas of duplication. The individual Agency data dictionaries will be linked together to form a single logical data dictionary for data in state government.
- All software application designs will consider inter- and intra-organizational needs to share data as part of planning, and define the attributes and mechanisms for

accessing the data for every appropriate level of access identified. The owner Agency/Department will determine data availability and accessibility on the basis of privacy, confidentiality and security (i.e. level of access). The owner Agency/Department, in conjunction with requesting Agencies/Departments, will define methods of access (e.g. on-line, summary, report). Methods of access will be determined by technological appropriateness and cost effectiveness, and will reflect priority ranking of access based on need, cost and resource. These priority ranking criteria are defined as:

Need:

- Number of requests for the data
- Frequency of requests for the data
- Importance: Value of the information to the requestor

Cost:

- To the owner Agency/Department and the requesting Agency/Department to provide

Resources available to develop and maintain access including:

- Funding
- Staff
- Hardware/software capabilities

- The burden for providing resources for statewide data access may not rest with the owner Agency/Department alone. ISAC will serve as the body to facilitate the sharing and access process, and resolve issues concerning resources.

Inter-networking and Other Standards

Inter-networking standards for information resources are established by the ISAC to move State Government towards seamless user interfaces to the information resources of the state. Over the next five years the objective will be to improve inter-connectivity of existing systems/resources while migrating toward the ideal of a higher level of inter-operability among future systems.

The ISAC will develop standards to allow interconnection of existing systems using proven commercial products. ISAC will also work with agencies and departments to develop plans to build in greater levels of cross-functional integration. Minimum standards will be established in selected areas of information systems to promote these goals while leaving maximum freedom of action to the individual agencies and departments. Standards set by ISAC will be followed by individual agencies/departments except where a specific exception has been granted to an Agency/Department by the ISAC prior to project initiation.

The ISAC will work with the Personnel Department and Agencies/Departments to ensure equitable classification of IRM positions across state government at all levels -- entry, supervisory, and management. The Personnel Department will review and restructure IRM positions as necessary, and will establish basic computer literacy prerequisites for state employees. Agencies/Departments will provide on-going training for IRM personnel to correspond with the technical standards developed by the ISAC. ISAC will also establish organizational models for IRM within Agencies/Departments.

The ISAC will establish criteria for software utility selection to enable their inter-operability across state government (e.g. word processing, spreadsheets, database management, E-Mail). The ISAC will review exceptions against these criteria.

The ISAC will work toward the delineation of Application Development Standards.

The ISAC will establish criteria for Agency/Department networks and systems to improve inter-operability (e.g. micro, mini, mainframe computers, LANs and WANs). Agencies/Departments will evaluate existing systems and networks against these criteria and develop migration plans to bring existing systems into compliance over the next five years. The ISAC will review exceptions against these criteria.

The Purchasing Division will negotiate contracts for hardware/software that meet ISAC standards.

SECTION IX

PHASE II PLANS

Phase I of the VISP project has positioned the Executive Branch of Vermont State Government to initiate a statewide information planning and implementation process, based on IRM Policy directions. This process will improve both the short-term as well as longer-term effectiveness and efficiency of the use of information and systems within State Government.

Phase II of the VISP project should build on the results of Phase I to accomplish the following overall objectives:

1) Position the Information Systems Advisory Council (ISAC) to promulgate IRM Policy statewide, by the end of Phase II.

2) Lay the foundation for the ISAC to begin strategic projects in Phase III that migrate the State toward the Five Year Target Architecture;

3) Initiate several projects that pilot new information planning approaches before more widespread statewide implementation in Phase III.

The following is a list of recommended projects for Phase II grouped by each of the above objectives.

1) Position the ISAC to promulgate statewide IRM Policy

- Standards Definition Project

  This ISAC project will define an initial set of standards to be used statewide, focusing particularly on "Information Utility" application packages and their inter-networking in Phase II. This will accomplish two ISAC objectives:

  a) Test the ISAC standards definition and promulgation process to be more fully implemented in Phase III, and

  b) Position the State to implement a more effective set of statewide utility applications in Phase III that will promote efficient information sharing among agencies and departments.

- Agency Planning Project

  This project will define an Information Strategy Planning process and format for agencies and departments (on the model of VISP). The ISAC then will assist several major state agencies to develop initial Information Strategy Plans using this process. It is recommended that Human Services be one of the agencies selected in Phase II. The remainder of state agencies and departments will implement this process in Phase III. The ISAC will need these Agency/Department plans in order to coordinate Agency/Department information systems programs and priorities to achieve the Five Year Target Architecture.

2) **Lay the foundation for strategic target architecture projects**

- Information Sharing Project

  This project will define an initial collection of abstracted information to be shared statewide. The project will define ownership and access responsibilities, procedures and standards for this collection of information. Inter-networking approaches will also be developed for a set of major Agency/Department platforms to facilitate broad access to the abstracted information. The information view will be upgraded for this collection of information. The actual implementation will be done in Phase III.

- Statewide Network Project

  This project will define the general requirements for a statewide network to position the State to proceed with more detailed planning efforts and vendor discussions in Phase III. The networks functional capabilities and Agency/Department interfaces to the network will be outlined in a draft network description document. The existing networks within the State will be surveyed and possible migration approaches from this baseline to the statewide network will be outlined.

3) **Pilot strategic approaches**

- Travel and Tourism Project

  This project will use a re-engineering approach to define new ways of doing the Marketing and Promotion functions within Vermont State Government.

- Tax Revenue Collection Project

  This project will use a re-engineering approach to define new ways of doing a portion of Vermont's Tax revenue collection function.

APPENDIX A

METHODOLOGY FOR PHASE I

Task 1 Project Planning

Task 1 was responsible for defining the scope and objectives of the project and establishing the project organization structure and schedule. This planning was guided by the James Martin representatives, and the resulting strategy was reviewed and approved by the Governor and the Cabinet. Training the members of the Government Consulting Group to implement this strategy was the second major focus of this task. The James Martin representatives reviewed the overall concepts of information strategy planning and demonstrated how the various analysis products of the process are produced.

Task 2 Strategy Analysis

The major part of Task 2 was the development and execution of an interview process to address the question of the State's strategic direction to twenty-five executives including the Agency Secretaries and a number of Commissioners. The objective was to arrive at a strategic vision of the State in the five to ten year time frame.

Two teams of two people each divided the interviews and spent at least an hour with each subject. The secretaries and commissioners were asked to describe what they saw as the strategic objectives for the State (both as it related to their own area of responsibility and to the other areas of the State). The next section of the interview asked what events have to occur or what conditions have to be in place to accomplish these objectives over the next few years (or what were the critical success factors). A third section focused on problems which could stand in the way of achieving a particular strategic vision.

Each interviewer wrote notes of what was discussed in the interview. The notes were combined into a single summary response and returned to the interview subject for correction and comments. The returned comments were analyzed to extract a list of critical success factors (CSFs). These in turn were combined into one common list. A grid depicting the frequency of CSFs was composed to establish which were the key factors mentioned in most of the interviews. A second matrix showed the frequency of strategic objectives discussed in the interviews. An initial version of the strategic vision for the State was developed based upon the material gathered in these interviews and distributed to all who participated. The VISP Oversight Committee, which includes the Governor, the Cabinet and select Commissioners, reviewed and accepted the Vermont Strategic Definition document.

Task 3 Technical Directions Analysis

Tasks 3 and a portion of Task 5 were carried out with the help of a selected group of high-level technical people from a number of agencies and departments who are the major users of automated systems throughout the State. Their background and expertise were essential to the development of an accurate description of the existing and future technical direction of systems support and development.

Objects about which information is collected and used are called entity types. These entity types are related to each other and interact. This is shown by another product of Task 4, the entity relationship diagram. As the groups defined how the functions work, they also identified which of those functions creates, uses, or changes information. This analysis was the basis for an entity-function matrix which shows what data is normally used together and which functions are responsible for creating and/or maintaining it. The groupings (or clusters) shown by this matrix give a good picture of how systems might be most effectively structured to meet the needs of organizations in the Executive Branch.

A final product of this task was the identification of the organizations within the Executive Branch and the analysis of which ones performed specific functions defined in the beginning of the task. The degree to which each organization was involved with a given function was evaluated to determine whether the function was a major or minor one. In some cases particular functions were not performed at all by a given organization. All of these charts were reviewed and refined as the work on the next steps progressed.

Task 5 Current and New Systems Architecture Analysis

Using various pieces of data collected in Task 3 in conjunction with the products of Task 4, a matrix was developed showing the level of automated support for the functions performed by the Executive Branch. The resulting assessment is only to give a general overview of current systems automation and is not an all-inclusive analysis.

The Task 5 group evaluated the way in which systems are developed and how information is used and designed a view of the way information could be shared most effectively with multiple agencies and departments.

Task 6 Development of Initial IRM Guiding Principles

The analysis of the information gathered in the Task 3 effort was used in this final step to develop the policies that should be used to guide information systems planning. The members of the Task 6 group were divided into three groups and given responsibility for covering three areas where policies should be established. One group covered the Planning and Programming area, a second group was assigned to look at the Information View, and the third group considered the System User View (Standards) area. The policies developed by these groups will be combined to produce the initial set of IRM guiding principles.

APPENDIX B

GLOSSARY OF TERMS

Ergonomic A product or device that has been designed to blend smoothly with the person's body or actions. Ergonomic concerns focus on problems associated with seating, the mechanics of keyboard use for possible "repetitive strain injury" (RSI), and reading from a Video Display Terminal (VDT) which may cause vision problems.

Expert Systems Computer programs offering advice of such high quality that an equivalent human performance would be deemed "expert".

Function A group of business activities which together completely support one aspect of furthering the mission of the enterprise. A function describes what is done within the enterprise independently from the organization structure.

Goals Targets to be reached at a specific point in time. They define the results desired from the planned actions.

Image Processing Computer systems that capture, store, retrieve, display and distribute business information which arrives as a paper document.

Information Architecture An overview of the inherent data structure and activities of the enterprise independent of the organization.

Information Engineering A set of inter-related disciplines that are needed to build a computerized enterprise based on business needs.

Information Infrastructure
An organized collection of information, processes, people skills, technology, and policies that provide the foundation for efficient and effective knowledge-related work and leisure.

Information Resource Policy
Management of the information infrastructure with appropriate balance of such factors as central versus local control, end-user flexibility, priorities for investment, and so on.

Information Strategy Plan A plan to enable state government to significantly enhance its service responsiveness to the people of Vermont by improving the effectiveness and efficiency of its information infrastructure.

APPENDIX C

INITIAL INFORMATION ARCHITECTURE

FUNCTION MODEL

FUNCTION MODEL DEFINITIONS

The Executive Branch of Vermont State Government must perform the following functions, in order to provide:

- necessary services to its citizens
- maintain and protect a positive quality of life and healthy environment
- shape the future of Vermont

Policy and Planning: Develop and disseminate the State's strategic directions based on needs analysis, forecasting, and legislative requirements.

Policy: Define approach to meet goals and directions related to the common good.

Public Policy Forecasting: Evaluate and identify current conditions, anticipating and accurately predicting economic, social, and environmental trends and determining in future needs for policies, laws, and capital investment based on these trends.

Policy Development: Create structure for meeting specific goals and objectives.

Planning: Determine the strategies necessary to achieve legislative intent, executive orders, judicial decisions or meet established needs and development of methods to measure the success of these undertakings.

Planning Research: Investigate and analyze public needs, study impact of possible changes, and predict available financial resources. Gather and analyze available information and public opinion to identify potential harm to the public good and improve stewardship of public resources.

Develop Program: Create structure for implementation of public policy including desired outcomes, standards, resource quality measurements, organization, and funding structure.

Public Awareness and Advocacy: Manage services to enhance the public good by informing and/or influencing targeted audiences.

Public Awareness: Inform the public and influence their actions by distributing information on policies, plans, services, regulations and behavior changes needed to serve the public good and improve stewardship of public resources.

Develop Campaign: Determine targeted audience, strategies, materials, staff resources and evaluation methods best suited to communicating the desired message, promoting usage of a specific service or explaining the regulatory process.

Deliver Campaign: Distribute educational messages and materials through conducting classes, mailing literature, newspaper articles, media campaigns, and other methods.

Evaluate Success: Monitor public satisfaction, level of awareness and behavior changes to determine success.

Public Advocacy: Represent the interests of the public before all bodies whose activities affect the citizens of the State.

Identify Advocacy Needs: Evaluate current conditions and forecast future trends to determine the need for advocacy on behalf of protecting and enhancing the public good.

Represent Public Interest: Determine and execute the strategies necessary to represent and promote the public interest before boards, commissions and other organizations. Evaluate the success of these strategies to identify corrections and future efforts.

Client Service: Improve the welfare, safety, health, economic, or environmental status of individual citizens, organizations, businesses or communities.

Establish Service Structure: Develop coordinated activities to deliver client specific services.

- Identify Service Needs: Analyze available information to determine need and select appropriate delivery methods.
- Create Delivery System: Analyze available resources, establish methods for providing benefits, and determine details of how service will be provided.

Connect Service to Clients: Provide access to consumer information, service availability or requirement for participation.

- Information and Referral: Provide a system that facilitates access to information and service for potential clients.
- Qualify Client: Evaluate client information against established eligibility standards or requirements for participation.

Service Delivery: Connect the client with services in a manner that satisfies established goals.

- Establish Relationship: Formalize the contact between client and direct provider.
- Deliver Benefit: Provide money, goods and/or services to client in accordance with established program guidelines.
- Case Management: Contact client as necessary to assure receipt of benefits and monitor compliance with established requirements.
- Evaluate Service Delivery: Review service provision results against established standards to determine effectiveness and recommend client service enhancements.

Public Facility and Property Management: Plan, create and maintain state buildings, roads, bridges, state parks, forests, hiking trails, etc.

Public Facility and Property Planning: Develop concepts for the construction and management of public facilities and property based on a needs assessment.

Collect Use/Needs Data: Identify and evaluate current conditions and future needs for public facilities and property.

Develop Facility Plan: Create the conceptual outline for the project scope, location and estimated costs.

Impact Management: Analyze public opinion, consequences, future effects and other relevant data.

Public Facility and Property Development: Determine and administer activities required for the creation of public facilities and property from design to completion.

Design Facility: Prepare detailed plans and specifications for the construction of the facility.

Acquire Environmental Permits: Apply for and acquire necessary authorizations.

Acquire Real Property: Lease or purchase all necessary land, easements, rights, etc. required.

Manage Construction: Administer activities associated with selecting a contractor and monitoring of construction activities.

Public Facility and Property Maintenance: Determine and administer activities required for the upkeep of facilities and property, such as plowing the roads, mowing the grass at state parks, harvesting state forests, and painting state buildings.

Establish Maintenance Criteria: Identify and set standards for maintenance activities.

Perform Maintenance Activities: Administer activities for upkeep and repair of public facilities and property.

Manage Federal Resources:	Manage the relationship with the Federal Government to ensure the best use of federal resources for Vermont.
Develop Benefit Request:	Identify federal programs which impact the State of Vermont, provide the detailed information by preparing the necessary forms to support a request for federal benefits or permission to administer federal programs.
Influence Acceptance:	Perform negotiations and deliver support information to positively influence the federal application review process. Includes the negotiation of appropriate remedial actions to resolve citations for previous non-eligible activities.
Federal Reporting:	Deliver reports summarizing activities required for compliance with regulations which control eligibility for the receipt of federal benefits.

APPENDIX D

INITIAL INFORMATION ARCHITECTURE

DATA MODEL

DATA MODEL DEFINITIONS

ENTITY TYPES

Benefit	Help, money or goods provided to an entitled client.
Benefit Request	Formal request for resources (usually funding or services, e.g. federal benefits).
Board	Structure, membership, responsibilities of external organizations concerned with managing regulated activities.
Budget	Funds authorized to be expended by legislation, executive order, or external grants.
Campaign	Goals, timing, scope, and responsibilities for implementing marketing, public awareness and advocacy strategies.
Case	The collection of services and their results provided to a client.
Client	An individual, group, community, or business that receives a service or benefit, is authorized or affected by a regulatory procedure, or uses State-owned facilities or land.
Contract	Authorization, terms and conditions for a provider; Collection of information relating to specific agreements to supply services or products.
Customer	An individual or organization that purchases commercially available products from the State or other sources in Vermont.
Demographic Information	The collection of educational, health, and other human factor indicators and trends.
Economic Information	The collection of individual and business economic indicators and forecasts, including local, regional, national and international data.
Employee	An individual employed by State Government, full or part time.

Organization	Description of the structure and responsibilities of State Government
Payment	Funds provided to clients or providers.
Plan	The collection of State, Agency and/or Department missions, objectives, resources, and schedules covering both the strategic and operational perspective.
Policy	A specific goal or desired direction related to the common good.
Position	Job characteristics.
Private Land	The collection of local town information about land and property characteristics and ownership.
Procedure	Detailed rules for delivering service, implementing programs, and supporting government operations.
Product	Goods or assets that meet competitive demands; directly or indirectly producing revenue; e.g. Tourist industry, Vermont Life, license plates, Vermont Correctional Institution furniture.
Product Market	Collection of information about requirements and demand for products and use of State assets.
Program	Defines a specific implementation of policy in terms of desired outcome, performance measures, responsibilities, and funding sources, includes federal as well as State programs.
Provider	External source of client service.
Public Opinion	The collection of surveys, external media analyses and other public opinion sources.
Public Relations Material	Documents and other media used to communicate the plans, programs and performance of State Government to the public, influence public actions and represent the public before boards and commissions.
Regulation	Rules, guidelines, penalties determined by legislation.

APPENDIX E

INITIAL INFORMATION ARCHITECTURE

INTERACTION MODEL

Function/Entity Type Matrix

Revised 2/27/92

LEGEND

C = Create
R = Read
U = Update

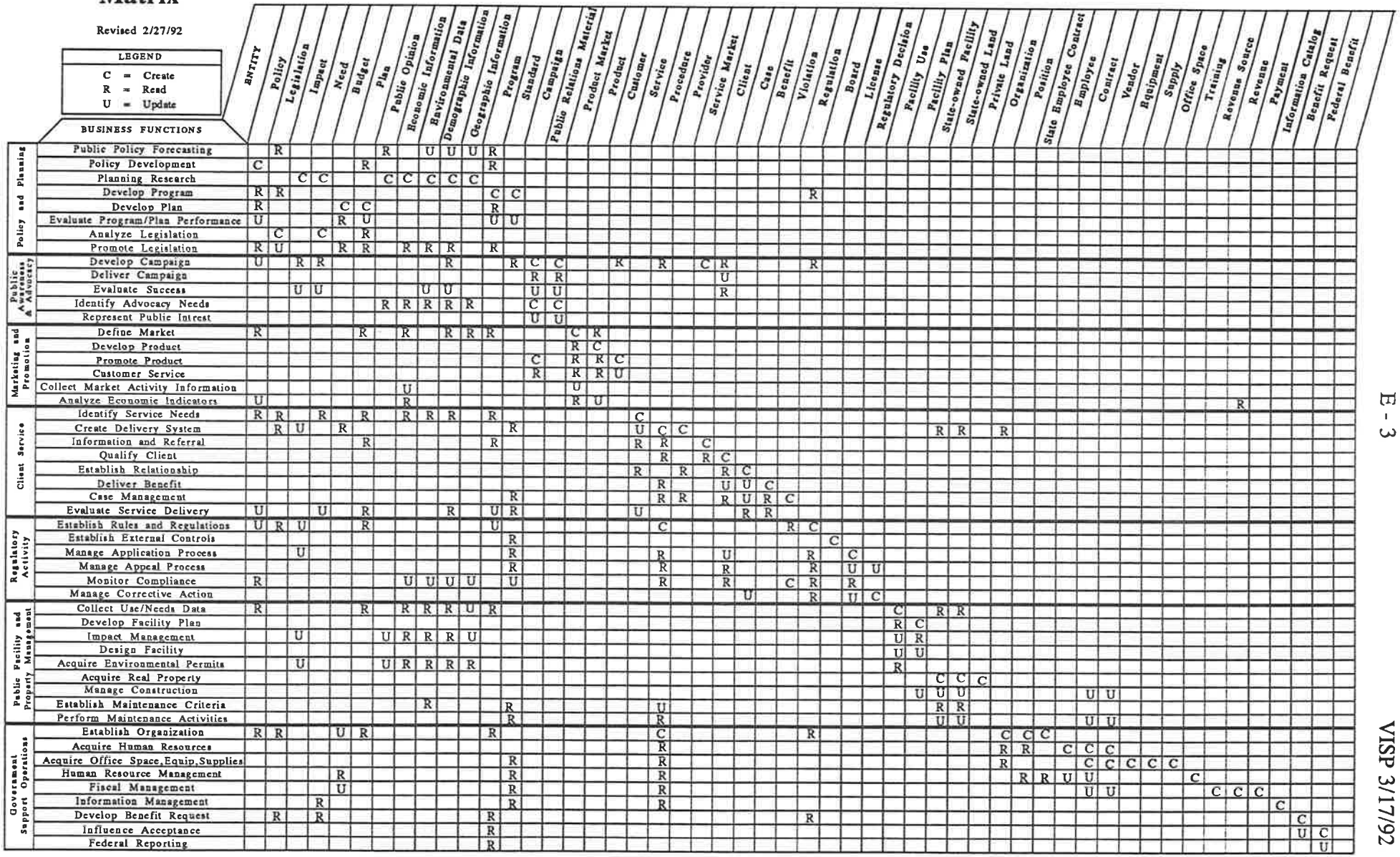

Figure E.1 - Function/Entity Type Matrix

Function/Organization Matrix

Revised 2/27/92

VERMONT INFORMATION STRATEGY PLAN (VISP)

LEGEND

+ = Major Involvement

– = Minor Involvement

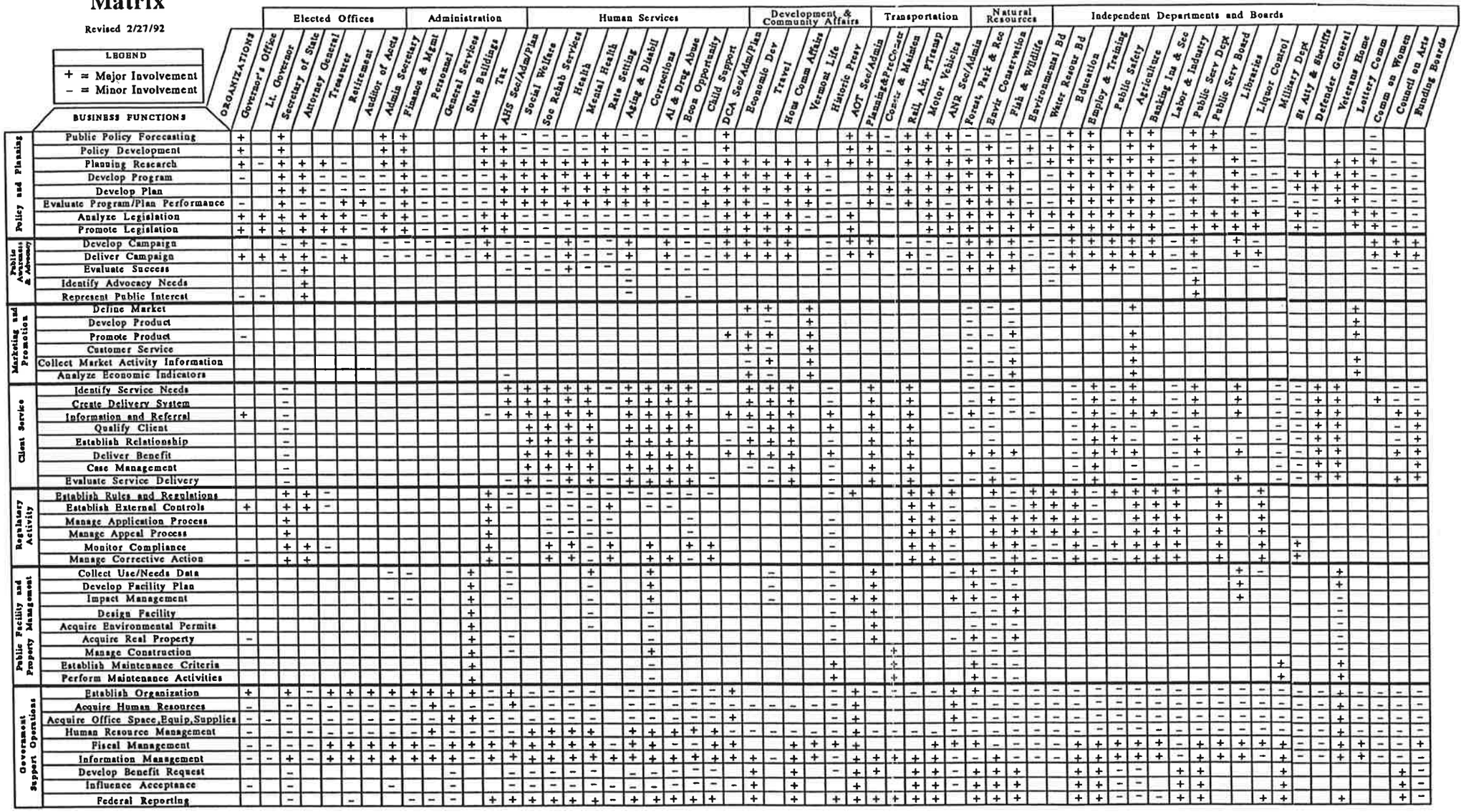

Figure E.2 - Function/Organization Matrix

APPENDIX F

INITIAL SYSTEMS ARCHITECTURE

MATRICES

Function/Entity Type Cluster Matrix

VERMONT INFORMATION STRATEGY PLAN (VISP)

Revised 2/27/92

LEGEND
C = Create
R = Read
U = Update

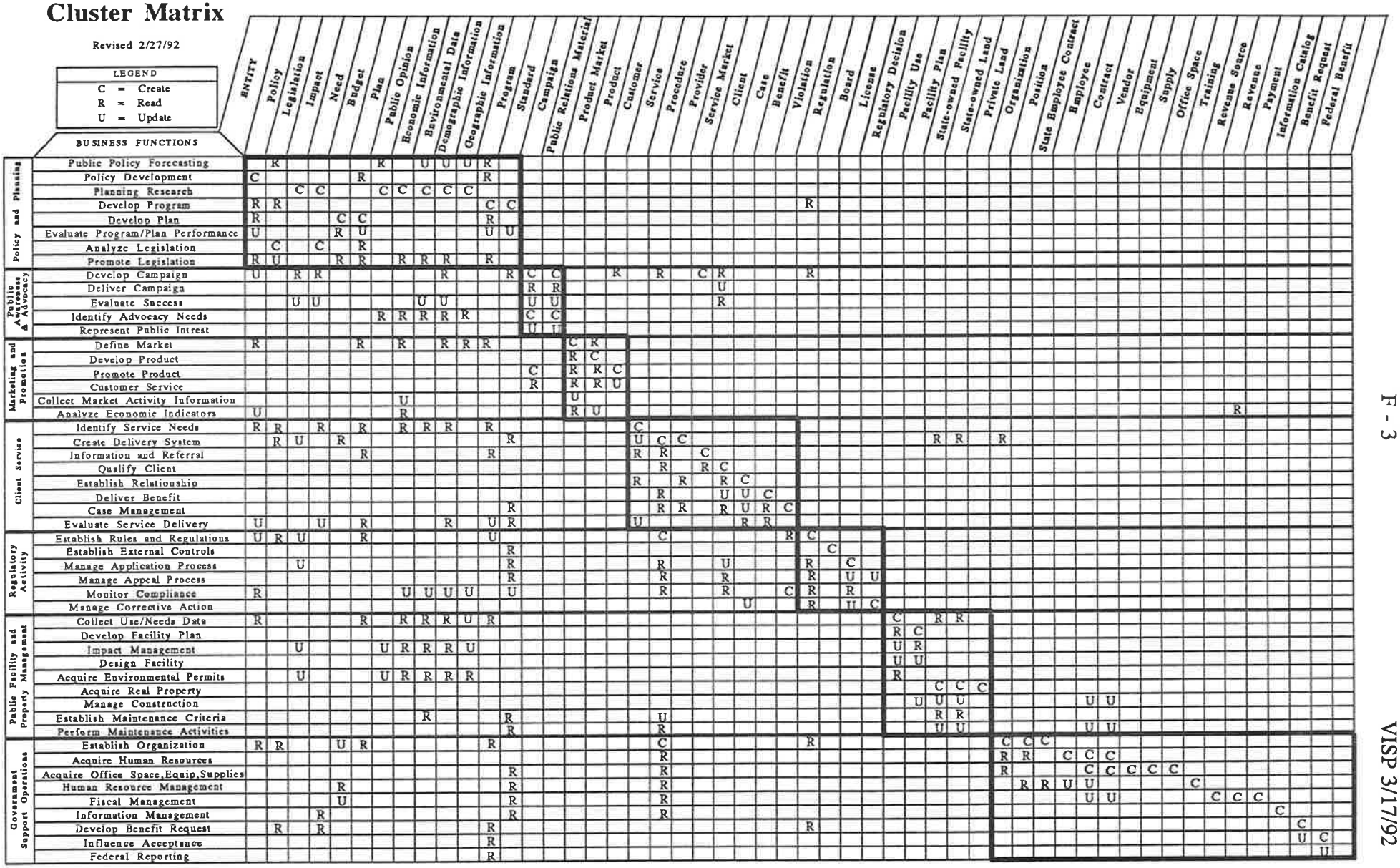

Figure F.1 - Function/Entity Type Cluster Matrix

Function/Current Systems Matrix

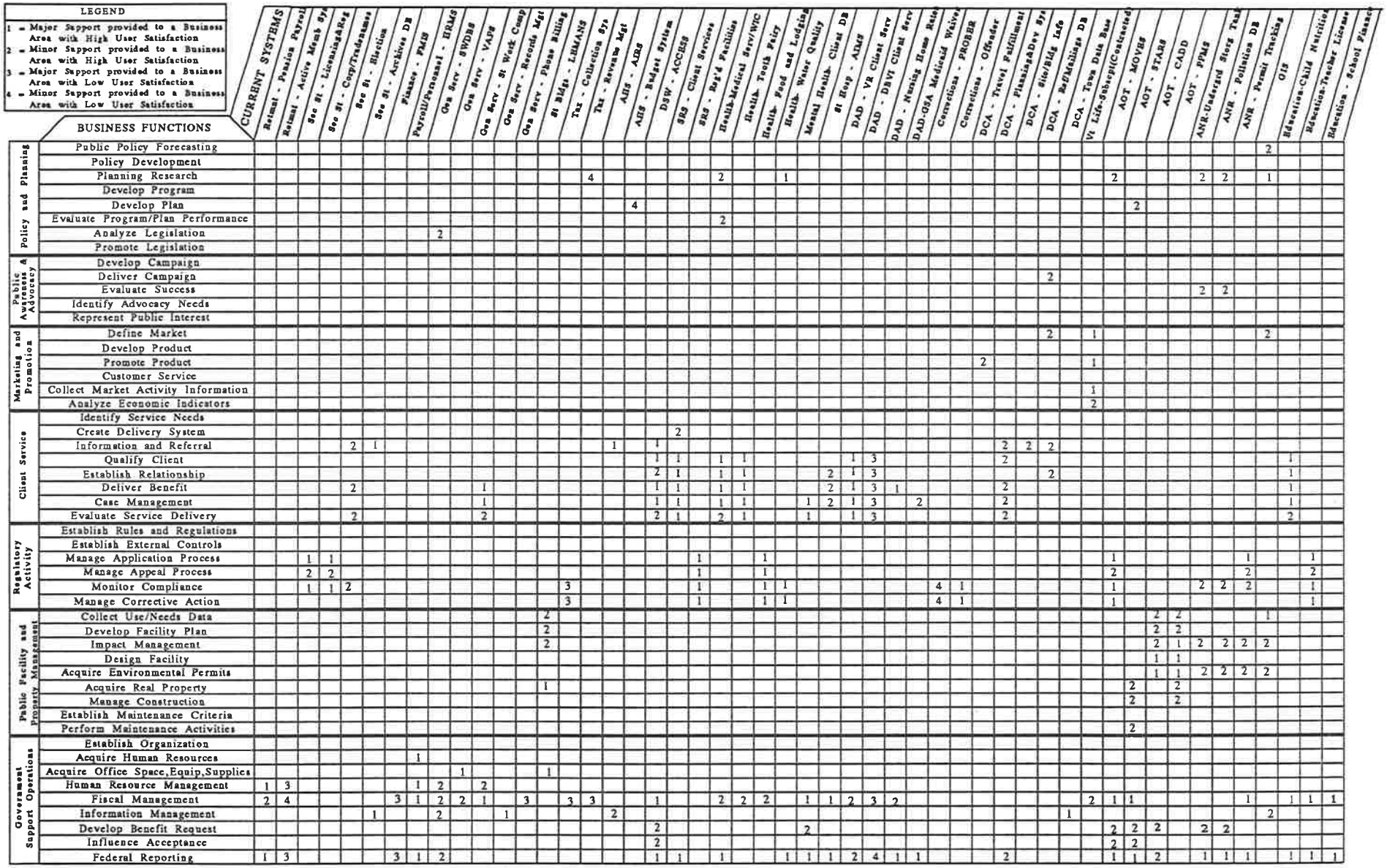

Figure F.2 - Function/Current Systems Matrix

Function/Current Systems Matrix

LEGEND

1 = Major Support provided to a Business Area with High User Satisfaction
2 = Minor Support provided to a Business Area with High User Satisfaction
3 = Major Support provided to a Business Area with Low User Satisfaction
4 = Minor Support provided to a Business Area with Low User Satisfaction

	BUSINESS FUNCTIONS	DET - Jobs & Training	DET - Labor Market Info	DET - Unemploy Benefits	DET - Unemployment Tax	DET - FARS	DET - Wage Records	Public Safety - VLETS	Public Safety - VLEIS	AG - Licensing & Inspect	AG - Lab Testing	AG - Development	B&I - Licensing	L&I - Fire Prevention	L&I - Workmens Comp	PSD - Utility Info DB	Libraries - ATLAS/PAC	Libraries - LBPH	Libraries-Newspaper Index	Libraries-Controlled Bills	DLC - Business System	Lottery - Inventory/Sales	Hospital Data Council	States Atty - DA Assistant
Policy and Planning	Public Policy Forecasting							4											2					
	Policy Development																							
	Planning Research	2	2						2	2					1					2		1		
	Develop Program																							
	Develop Plan																							
	Evaluate Program/Plan Performance																							
	Analyze Legislation																		2					
	Promote Legislation																							
Public Awareness & Advocacy	Develop Campaign																							
	Deliver Campaign																							
	Evaluate Success	1													2									
	Identify Advocacy Needs														1									
	Represent Public Interest																							
Marketing and Promotion	Define Market										2													
	Develop Product																							
	Promote Product										2													
	Customer Service																							
	Collect Market Activity Information																							
	Analyze Economic Indicators																							
Client Service	Identify Service Needs	1																						
	Create Delivery System	1																						
	Information and Referral	1														1	3	2	2					
	Qualify Client	1		1										3										
	Establish Relationship	1		1										3			4							
	Deliver Benefit	1		1										3		1	3	2	2					
	Case Management	1		1			2							3										
	Evaluate Service Delivery	1												4										
Regulatory Activity	Establish Rules and Regulations																							
	Establish External Controls																							
	Manage Application Process								1			1	1											
	Manage Appeal Process								2			2	2											
	Monitor Compliance				3			1	4	1	1	1	1											
	Manage Corrective Action				3				1			1	1										2	
Public Facility and Property Management	Collect Use/Needs Data												2											
	Develop Facility Plan																							
	Impact Management																							
	Design Facility																							
	Acquire Environmental Permits																							
	Acquire Real Property																							
	Manage Construction																							
	Establish Maintenance Criteria																							
	Perform Maintenance Activities																							
Government Support Operations	Establish Organization																							
	Acquire Human Resources																							
	Acquire Office Space, Equip, Supplies																		1	1				
	Human Resource Management																							
	Fiscal Management			1	3	1						1	2		1	1	2		1	1	2			
	Information Management																2	4	1	1				
	Develop Benefit Request	1				1			4															
	Influence Acceptance	2										2												
	Federal Reporting	1	1			1			3	2	2		2		2				2					

Agency/Department Acronyms

AHS.... Agency of Human Services
AG..... Agriculture Department
ANR.... Agency of Natural Resources
AOT.... Agency of Transportation
B&I..... Banking, Insurance and Securities Department
DAD.... Department of Aging and Disability
DBVI... Division of the Blind and Visually Impaired
DCA.... Development and Community Affairs
DLC.... Department of Liquor Control
DET.... Department of Employment and Training
L&I..... Labor and Industry Department
PSD..... Public Service Department
SRS.....Social and Rehabilitative Services
VR..... Vocational Rehabilitation
WIC.... Women Infants and Children

System/Application Acronyms

ACCESS..... Social Welfare's System that includes Welfare, Food Stamps, Medicaid, Child Support, Eligibility Determination, Caseload Management.
AIMS..... Software Vendor's name for the State Hospital's Information Management System.
AIRS..... Automated Information Referral System
ATLAS/PAC.. Library Circulation, Inventory, Cataloging, Public Access Catalog.
CADD..... Computer Aided Drafting and Design
FARS..... Federal Accounts Receivable System
FMIS..... Financial Management Accounting System
GIS..... Geographic Information Systems
OSA..... Medicaid Waiver Program
HRMS..... Human Resource Management System
LBPH..... Library for the Blind and Physically Handicapped
LEMANS..... LEase MANagement System
MOVES..... MOtor VEhicle System
PPMS..... Preconstruction Project Management System
Prober..... Probation and Parole Vendor System
STARS..... State Transportation Access and Reporting System
SWDBS..... StateWide DataBase System
VAPS..... Vermont Automated Purchasing System
VLEIS..... Vermont Law Enforcement Information System
VLETS..... Vermont Law Enforcement Telecommunications System

Figure F.2 - Function/Current Systems Matrix (cont.)

PHASE I PARTICIPANTS

VISP Oversight Committee

Howard Dean, M.D.	Governor
Kathleen Hoyt	Secretary, Civilian and Military Affairs
David Wilson	Secretary, Agency of Administration
Frederic Meier	Deputy Secretary, Agency of Administration
Frank McDougall	Secretary, Agency of Development and Community Affairs
Cornelius Hogan	Secretary, Agency of Human Services
Jan Eastman	Secretary, Agency of Natural Resources
Patrick Garahan	Secretary, Agency of Transportation
Richard Mills	Commissioner, Department of Education
Paul Ohlson	Commissioner, Department of General Services

Task 2 Interviewees

Kathleen Hoyt	Secretary, Civilian and Military Affairs
David Wilson	Secretary, Agency of Administration
Frederic Meier	Deputy Secretary, Agency of Administration
Douglas Wacek	Commissioner, Department of Finance and Management
Paul Ohlson	Commissioner, Department of General Services
Pat DeGraw	Commissioner, Department of Personnel
Joyce Errecart	Commissioner, Department of Taxes
Frank McDougall	Secretary, Agency of Development and Community Affairs
Cornelius Hogan	Secretary, Agency of Human Services
William Dalton	Commissioner, Department of Mental Health
William Young	Commissioner, Department of Social and Rehabilitative Services
Veronica Celani	Commissioner, Department of Social Welfare
Jan Eastman	Secretary, Agency of Natural Resources
Tex LaRosa	Deputy Secretary, Agency of Natural Resources
Patrick Garahan	Secretary, Agency of Transportation
Michael Griffes	Commissioner, Department of Motor Vehicles
George Dunsmore	Commissioner, Department of Agriculture
Richard Mills	Commissioner, Department of Education
Susan Auld	Commissioner, Department of Employment and Training
James Walton	Commissioner, Department of Public Safety
Richard Sedano	Commissioner, Department of Public Service
Patricia Klinck	State Librarian
Pat Walton	Joint Fiscal Officer, Legislature
James Douglas	Secretary of State
Paul Ruse	State Treasurer

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Gene Hallman	Chairperson, Director of Government Consulting Group
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Bob Saliba	Data Processing Chief, Department of Employment and Training
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Hale Irwin	Director of Telecommunications, Department of General Services
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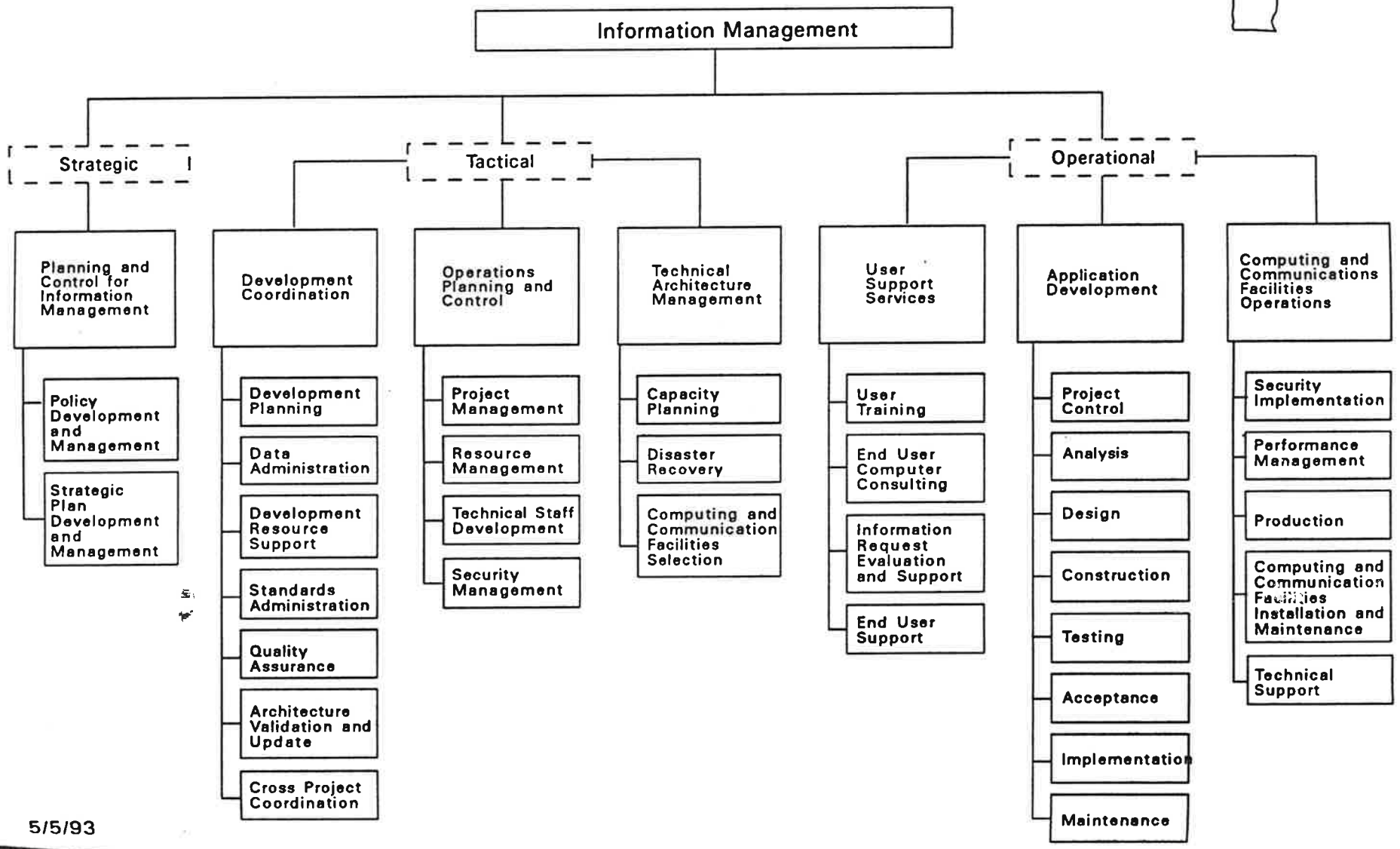
Sandy Desilets	Consultant
Judy Mills	Consultant

James Martin & Co.

James H. Brown	Vice President
Mark McGowan	Managing Consultant

IMO Functional Decomposition

CS-IMO



DEFINITION OF MODEL IMO FUNCTIONS

Strategic Functions

PLANNING AND CONTROL FOR INFORMATION MANAGEMENT

Set policy and direction for the Information Management infrastructure to ensure the right systems are built in a timely and cost effective way. Develop commitment to systems development across organizational lines and willingness to change current procedures and effectively use new tools and techniques. Information needs are determined in partnership with program planning.

Develop and monitor policy and strategic plans for the guidance of the Information Management resources that correspond to the Client Service Information Strategy Plan (ISP). This activity plans resources utilization across all development efforts. Strategy analysis of needs and demands are an assessment of the IMO capacity to serve.

Information Management includes developing and maintaining automated software solutions in accordance with the overall information strategic plan as well as the research, evaluation, selection, procurement and configuration of computing and communication equipment and software.

POLICY DEVELOPMENT AND MANAGEMENT

Define guiding principles designed to influence the decisions and actions taken to meet the objectives of the Client Service Information Plan.

STRATEGIC PLAN DEVELOPMENT AND MANAGEMENT

Determine the approach necessary to ensure the right information is in the right place at the right time. This implies recognition of the importance of required resources (funding; well trained staff; appropriate tools and methods) for successfully meeting the mission of the IMO. Receive, review and act upon recommendations and alternatives for addressing identified gaps between required and available resources.

Tactical Functions

DEVELOPMENT COORDINATION

Establish the project infrastructure to support application development projects. Maintain the development plans. Coordinate communication, non-redundancy, adherence to the architectures among various development projects. Establish a means of quality control and system maintainability.

DEVELOPMENT PLANNING

Create and monitor an approved plan done in sufficient detail to insure successful and smooth project completion and risk reduction. This activity plans resource utilization for a particular project and monitors progress.

DATA ADMINISTRATION

Promote data object sharing and adherence to standards. Coordinate transition of logical data requirements to physical data base designs and monitor, control and maintain structures and data. Maintain security of data.

DEVELOPMENT RESOURCE SUPPORT

Establish and maintain controls for the effective deployment of resources devoted to application development. This function includes recommendations and justification to management to reallocate or acquire additional resources, such as staffing adjustment, hardware and software acquisition, etc.

STANDARDS ADMINISTRATION

Develop and maintain standards for quality products that will lead to successful systems in production.

QUALITY ASSURANCE

Foster a quality conscious attitude within the total systems and project development environments. Review progress and evaluate products against standards.

ARCHITECTURE VALIDATION AND UPDATE

Match project specifications against Information, Systems and Technology Architectures specified in the Agency ISP. Identify and resolve conflicts.

CROSS PROJECT COORDINATION

Coordinate the sharing of common processes, procedures, utilities or modules across the many application development projects.

OPERATIONS PLANNING AND CONTROL

Manage the Agency's information resources which include the 5 M's: "manpower, money, materials, methods and machines" to support the day to day operation of client services delivery. Identify gaps between requirements and available resources; develop and submit recommendations (staffing requirements, budgets, equipment, etc.) to the organization's strategic planners for action.

PROJECT MANAGEMENT

Ensure the proper assignment of responsibilities across project teams and supporting staff. Monitor progress of project teams against the overall plan.

RESOURCE MANAGEMENT

Apply and evaluate the effectiveness of resources. This function includes recommendations and justifications to management to reallocate or acquire additional resources. Training.

SECURITY MANAGEMENT.

Build and evaluate system security by implementing privacy and confidentiality policy through software, hardware and procedural mechanisms and ensuring that the proper levels of security are maintained.

TECHNICAL ARCHITECTURE MANAGEMENT

Research, evaluate, select, procure and configure computing and communication facilities within the parameters of the strategic plan.

CAPACITY PLANNING

Collect hardware and system software size and performance requirements in support of existing and development applications. Establish a metrics database to be used in project estimating and evaluation.

DISASTER RECOVERY

Plan and, if necessary, execute recovery actions in the event of a major first line facility equipment and/or software irrevocable loss. Backup procedures and the operation of computing facilities from an alternate site are part of the contingency plan.

COMPUTING AND COMMUNICATION FACILITIES SELECTION

Formulate detailed facility requirements in response to application criteria within the parameters of the strategic plan. Evaluate, select and procure computing and communication facilities for use in the development and production environments.

Operational Functions

USER SUPPORT SERVICES

Support users in defining, training, developing and maintaining computer systems that are required to meet their information needs.

USER TRAINING

Develop and execute training curriculum objectives for users in how an application works and how to use it effectively. Identify system related training requirements for all user and technical staff. Conduct and evaluate effectiveness of training sessions.

END USER COMPUTER CONSULTING

Provide technical expertise on the selection and use of software and tools by the user within the organization. This includes installation of software and hardware; orientation to the automated tools; assistance with accessing other data systems; problem resolution; and liaison to vendor and other technical support groups.

INFORMATION REQUEST, EVALUATION & SUPPORT

Respond to user requests for data or enhancements to application systems. Determine if requests can be handled with existing systems, or if this request should be forwarded to information planning and control for inclusion in future application development efforts.

END USER SUPPORT

Provide support in the form of a help line or help desk to trouble shoot user hardware and software problems, graphic design, desktop publishing, multi media and office automation software such as word processing and spreadsheets.

APPLICATION DEVELOPMENT

Address a business problem with an automated solution through a structured development process.

PROJECT CONTROL

Determine training, staffing and skill requirements to fulfill planned project activities. Ensure the proper assignment of responsibilities among project team members and supporting staff. Monitor progress of team against plan.

ANALYSIS

Use structured techniques and tools to breakdown tasks and documents within the business area to define user and system requirements.

DESIGN

Arrange requirements into processes and detailed descriptions of tasks, techniques and documents to define a system that satisfies the user needs. This function includes performance requirements, system structure, and system look and feel.

CONSTRUCTION

Write programs and procedures according to specifications. Prepare documentation.

TESTING

Design operational acceptance testing strategy. Confirm that programs and procedures work according to specifications.

ACCEPTANCE

Present software application with related documentation to the users. Confirm that system is fully tested and meets all user needs.

IMPLEMENTATION

Convert from the development environment to the production environment.

MAINTENANCE

Maintain an operational system for the users. Included in these efforts are the system logic fixes and minor enhancements. Major enhancement and large scale replacement efforts return to the beginning of the systems development life cycle.

COMPUTING AND COMMUNICATION FACILITIES OPERATIONS

Install, monitor, tune and maintain computing and communication facilities within the parameters of the operations plan.

SECURITY IMPLEMENTATION

Execute security provisions in accordance with established procedures. Monitor security systems and provide information to security management.

PERFORMANCE MANAGEMENT

Monitor system performance and assess new computing and communication facility performance against original requirements and vendor specifications. Provide information to technical architecture management. Tune system performance by optimizing system hardware and software resources.

PRODUCTION

Maintain the system, DBMS, on-line monitor, operating system and network software in the production environment. This activity includes error tracking, vendor minor and major version release control and migration support, backup and recovery of application logic and data, and archiving of data. Coordinate the implementation of new versions of application software.