

**Whitemarsh**  
Information Systems Corporation

*Enterprise Governance  
Community of Interest  
Handbook*

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ISBN 978-0-9789968-7-1

Printed in the United States of America

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# Preface

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Why was this book necessary? Governance within enterprises almost always involves large collections of sometimes-integrated and/or sometimes-interoperable work products. Governance is almost always multi-functional. Hence, governance, as an enterprise discipline, has always been a cross-functional community effort.

The work products are the specifications of the databases, the missions, organizations, functions within which the databases operate, and addresses also the specifications of the business information systems.

Communities of Interest are not just the right approach for these efforts. They have been the only approach for the past 50+ years. Highly efficient, and broadly successful Communities of Interest are work-product centric, author-anonymous organizations. Individual contributions are subservient to the work products produced.

The cost for a Community of Interest approach over the Stove Pipe approach is 50% less. Additionally, it is almost 10 times less when adding an additional system/member than the Stove Pipe approach. That alone should be sufficient justification for the Governance Community of Interest approach.

This is a handbook for successful Governance Communities of Interest. That is, those that are work-product centric, and author-anonymous. To be successful, Governance Communities of Interest operate under a formal set of rules and produce highly engineered, thoroughly-integrated work products.

*Simply put, this book is a "battle plan" for governance across the enterprise. This book is highly engineered, thoroughly planned, and read to execute, "right out of the box." Everything implied by the book already exists and is 100% operational.*

The Congress of the United States (a Community of Interest for America) operates under an elaborate set of rules. These rules were adapted for members of ordinary societies by GEN Henry M. Robert in 1915. These are now commonly called *Robert's Rules*. Notwithstanding they also require a "Sergeant of Arms." For sure not to shoot members, but to enforce good order. From the United States Senate website<sup>1</sup>, "The Sergeant at Arms and Doorkeeper, elected by the members, serves as the protocol and chief law enforcement officer and is the principal administrative manager for most

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<sup>1</sup> The website address is:  
<[http://www.senate.gov/reference/office/sergeant\\_at\\_arms.htm](http://www.senate.gov/reference/office/sergeant_at_arms.htm)>

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support services in the United States Senate.” Even with such an individual, some sessions in both houses of the U.S. Congress seem not to be in good order.

Over the years, I have participated in a number of Governance Communities of Interest. These range from committees to develop programs for Boy Scout Troops, to informal groups within various employments, and a number of times during Whitemarsh consulting assignments. As the years have passed, the financial impacts of decisions made by Communities of Interest have become greater. Such decisions should be made not only with the utmost technical precision but also with the utmost bureaucratic care. Proper formulation, notice, discussion, voting, and on some occasions, appeals are all absolutely essential.

Some Governance Communities of Interest seem like “professional” hockey games: Three 20 minute periods of continuous fighting interrupted by short intervals of skating around the rink. When serious Governance Community of Interest discussions and decisions need to take place, consuming 50% of the time settling who votes, how votes are taken, what determines success or failure, if or when you can abstain, when papers are produced, and how minutes are is clearly a waste of time and effort. All of that should be predetermined by the rules and procedures of good order.

This book sets down a set of bureaucratic and procedural rules for accomplishing the scope and program of work of Governance Communities of Interest as well as clear procedures for technical work. Finally, this book provides the technical policies, procedures and product specifications needed. They are provided in this book and are very much further detailed in other materials from the Whitemarsh website<sup>2</sup>.

I hope this book brings value to your Governance Community of Interest efforts. Suggestions for revision are always welcome. Send me email.<sup>3</sup>

Michael M. Gorman  
June 2017

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<sup>2</sup> [www.wiscorp.com](http://www.wiscorp.com)

<sup>3</sup> The email address is: [Whitemarsh@wiscorp.com](mailto:Whitemarsh@wiscorp.com)

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# Acknowledgments

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There were four main sources for the material in this book. First is the Multi-Lateral Interoperability Program<sup>4</sup>. This is a military Command and Control (C2) community of interest exclusively focused on governance that was founded within NATO (North Atlantic Treaty Organization). The MIP organization has been operational for more than 20 years across 26 nations. Simply stated, this organization has created a first class Transaction Data Staging Area Data Model for Command and Control. Not surprisingly, it is called C2IEDM. The scope and the purpose of the MIP organization are set down in the opening section of Chapter 1 of this book. Only very minor edits were performed on their text. If the text is compelling as to its mission and goals, it is because the need for and concepts surrounding governance transcend organizations and nations. The most significant contribution of these materials has been the engineering of this style of community of interest. While the MIP material has been edited for use in this book, the intention was to remain true to their Governance Community of Interest engineering.

The second source for material is an even older community of interest: The International Committee of Information Technology Standards (INCITS, [www.incits.org](http://www.incits.org)). This organization is at least 40 years old and operates under the auspices of the American National Standards Institute (ANSI). This uniquely American, volunteer-based, organization is responsible for developing IT standards for SQL, COBOL, FORTRAN, Optical Digital Data Disks, C, C++, Metadata, Radio Frequency Identification (RAID), and the like. The INCITS organization operates almost exclusively through Communities of Interest. The author of this book has been the Secretary of the Database Languages Committee, DM32.2, since its very first meeting in April 1978. The organizational and operational materials from INCITS have been invaluable in the construction of the “bureaucratic” component of this book. Similarly, while the INCITS material has been edited for use in this book, the intention was to remain true to its information technology standard’s Communities of Interest engineering. Thus, similarity to the original text is no accident.

Just having a complete policies and procedures manual to govern meetings, documents, decisions and appeals to decisions does not automatically bring peace, order, and harmony. That is achieved by a chair who understands that

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<sup>4</sup> The MIP website is located at: <https://www.mimworld.org>

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his role is to progress the standard and doing that requires peace, order and harmony. For 36 of the 38 years, the chair of DM32.2 (previously known as H2 and X3H2) has been Dr. Donald Deutsch. The DM32.2 standards are clearly the most accepted IT standards in the world is due to his firm hand and calm demeanor. Don, my “ANSI boss,” and a close friend for more than 50 years is therefore great fully acknowledged. Because the engineering and operations of DM32.2 are excellent, a number of DM32.2 documents have been employed to construct key content in several chapters.

The ANSI and ISO organizations have developed two key standards that greatly assist in the development of data management language standards. These are the SQL standards that are managed by the ANSI INCITS DM32.2 Technical Committee on Database Languages, and the ISO 11179 Standard for Data Element Registries. The U.S. Committee for the ISO 11179 Standard is ANSI INCITS DM32.8 Technical Committee on Metadata. Information about both these standards and organizations can be obtained from INCITS<sup>5</sup>.

The third source of material has been the Office of the CIO of the United States Army. During the time, September 2003 through December 2004, this author, and two other individuals, Bruce Haberkamp and Jim Blalock worked almost continuously on building an enterprise<sup>6</sup>-wide Data Management Program that could achieve governance across the U.S. Army. A workshop based on a prototype of these efforts was conducted in December 2003. It was very successful. Dr. Edward Siomacco (COL, U.S. Army Ret) authorized and encouraged the workshop. These efforts resulted in sections within two Army documents. The data management paragraphs of Army Regulation 25-1, and an entire data management chapter in the Department of Army Pamphlet

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<sup>5</sup>. The INCITS website is: [www.incits.org](http://www.incits.org).

<sup>6</sup>. As defined within this book, an enterprise is merely a term to relate to a collection of organization units that have common collections of data, processes, activities within a business or a company and sometimes beyond corporate affiliations as in the case of governance. Ideally, there is also a common governance of these items. An enterprise is therefore not just a synonym for business or a company. Rather, it is intended to convey a common data, process, and activity view across the organizational units sharing that view. A Governance Program is presumed to work across enterprises. Specific Communities of Interest work within enterprises and with respect to governance work products. Some Communities of Interest work across corporate boundaries as in the case of the ANSI committee of the U.S. State Motor Vehicle Departments. Maryland drivers who speed in Nebraska see notations on their Maryland driving record.

## Acknowledgments

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(DA PAM 25-1-1). These materials provided the three distinct levels to the Data Management Program: Program, Project, and Community of Interest.

The fourth sets of materials have been from the Whitemarsh Corporation's extensive development of data management related methodologies, metadata engineering, and a metadata repository that can accomplish the program and scope of work for a Community of Interest. These materials have been in constant use and refinement since the middle 1970s. Organizations that have employed these materials are listed under Clients on the Whitemarsh website. During 2005 and 2006 Whitemarsh constructed the materials necessary for a Data Interoperability Community of Interest. This book is a "Governance" adaption of these materials.

Collectively then, the organizational engineering from the MIP program, the bureaucratic structures and processes from INCITS, the firm and guiding hand of a "Don Deutsch," the programmatic levels from the U.S. Army, and the technical materials from Whitemarsh have been brought together to create this book. All during the engineering and construction of this book, Hank Lavender, a retired USAF Colonel and graduate of the Air Force Academy, and also a senior database management consultant to the U.S. Department of Logistics's Defense Logistics Standards Management Office, and a long time friend and a professional colleague, has been ever ready to read a chapter, and even whole manuscripts and provide back immediate and very constructive comments.

Within the MIP program thanks goes to Gene Simaitis and Francisco Loaiza both retired from the Institute for Defense Analysis, to COL Stuart Whitehead, and to Mike Morris. These four along with countless others have made the MIP data model, the C2IEDM, the premiere Command and Control data model throughout the world.

A common thread to all of these Army governance initiatives has been the Office of the CIO formerly under the command of LTG Stephen Boutelle. It was his program actions that funded the development of the data management materials within the Army regulations, and that funded the workshop that demonstrated that the guidance in this book works efficiently and effectively.

It is largely because of the hundreds of staff years from all these four acknowledged organizations and all the individuals who reviewed this book represents an integration, editing, and publication effort rather than an original creation effort. In short because of all these efforts, this book is

equivalent to a book you would read after it has been continuously revised over many years.

# 1

## The Demand for Governance

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The application of IT in the early 21st century is demanding. It covers a wide spectrum of scenarios that range from conventional to crises responses, and to asymmetric operations. Unilateral capability is important but most planning is made on the assumption of scenarios that are difficult to predict and which often arise at short notice. Thus, the nature and composition of IT to meet requirements may be quite specific but should be based upon general and flexible capabilities.

To achieve this, an assured capability for governance is essential. The successful executions of fast-moving operations needed an accelerated decision-action cycle, increased tempos of operations, and the ability to conduct operations. Executives require timely and accurate information. Also, supporting business information systems<sup>7</sup> need to pass information within and across many boundaries. Moreover, tactical information must be provided to the operational and strategic levels of command.

The aim of a Governance Community of Interest, hereafter referred to just by Community of Interest, is to achieve governance at all levels in support of operations. Because governance is almost always cross-functional, and cross-organizational, achievement of the highest level of governance requires institutionalized, cross-functional, and cross-organizational semantics.

In other Whitemarsh books and all throughout all the Whitemarsh Metabase System Modules and user guides, the key effort is to create IT work products from across the enterprise in an integrated, interoperable, non-Redundant

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<sup>7</sup>. In the context of this book, a Business Information System is generic term for an information system that most commonly employs a database management system and a database. Simply put, a business information system is an application of IT technology in support of a collection of end users. The term is thus distinguished for example, from a computer's Operating System such as Windows or Unix, or a Database Management System such as Oracle, or "office" systems like Microsoft's Word, Power Point or Excel.

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manner. In contrast, Governance is focused on the integrity and correctness of work products. The Whitemarsh Metabase System's Governance module focuses on recording the personal identity including organization and functional context responsible for governance.

This book's focus is on the architecture and engineering of governance across the enterprise. The process of actually recording Governance architecture and engineering is managed through the Whitemarsh Project Management functional module. Together, the Whitemarsh Metabase Governance and Project Management modules enable the complete accomplishment of enterprise-wide governance.

The catch phrase for this within the U.S. DoD for accomplishing enterprise-wide governance integration and interoperability is *factory to foxhole*. Specialized, parochial semantics however, are direct inhibitors to governance.

The concept for the overall end state is to have multiple and disparate organizations operate as a single, synchronized team in accomplishing its assigned mission. In order to achieve that synergy, a common understanding is required. Governance's contribution to this end-state facilitates the timely flow of commonly-understood, accurate and relevant information.

The perspective of this book is that there is a collection of operational Communities of Interest within an enterprise's Governance Program, and this book is a component of day-to-day operations of all the subgroups<sup>8</sup> within the Governance Program. If it is the case that there is only one community of interest, the entire organizational structure could consist solely of that community of interest and its contained technical committees. Consequentially, there would be no need for a Governance Program Committee and any of its contained subgroups. Other areas of this book could be similarly organizationally collapsed and/or streamlined in such a case.

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<sup>8</sup>. Within the context of this document, *subgroup* is a generic term that refers to any constituted governance program organizational entity including the Governance Program committee, its contained boards, Communities of Interest, its contained technical committees. This term is employed within the context in question, and applies universally to all governance program organizational entities.

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## **1.1 Formal Interpretation of this Book**

The perspective of this book is not “Whitemarsh to reader,” but from an organization that has adopted and promulgated this book within its governance community of interest. Consequently, the presumed reader is someone who is using the book as their day-to-day governance operating handbook. Because of this perspective, formal interpretation of this book may be obtained upon request to the Governance Program Committee<sup>9</sup>. It is their responsibility to determine the meaning of any content and to render decisions about the effect of such interpretation. Any request for interpretation should be addressed by Procedures Board Committee at the first meeting following receipt of the request.

The Governance Program Committee maintains a record of all requests including the substance of the request and the interpretation provided. This record of interpretation should be periodically distributed to all members of the Governance Program Committee as well as all subgroup officers, and will serve as a basis for future revisions of this document.

Appeals to any interpretation made under this procedure may be made directly to the Community of Interest by requesting in writing that the issue be reviewed at its next scheduled meeting of the Governance Program Committee.

## **1.2 Objective of this Book**

The objective of this book is to facilitate the identification, development, and evolution of Governance Assessments. These Governance Assessment are produced within Communities of Interest that, in turn, operate within an enterprise’s Governance Program. Governance Assessment from one Community of Interest are themselves almost always semantically

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<sup>9</sup>. From the publishing perspective of this book, if a reader of this book finds that content is missing, misstated, or could be stated or described differently, suggestions are always welcome. Send them to [Whitemarsh@Wiscorp.com](mailto:Whitemarsh@Wiscorp.com). The ultimate goal of this book is to assist in the engineering of Communities of Interest that operate efficiently and effectively. Feedback will enhance future editions.

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interrelated with other Governance Assessments from other Communities of Interest.

A key function of certain subgroups within the overall Governance Program is semantic harmonization across Governance Assessments. Without harmonization Governance Assessments ultimately become the specifications of the governance of just one “stovepipe” database. The centerpiece product in a Governance Assessment is the Metabase System database. Within this software and database there exist multiple classes of metadata across the entire enterprise that should be integrated, interoperable, non-redundant and of common meaning.

### **1.3 Communities of Interest**

From the Wikipedia, “a Community of interest is a community of people who share a common interest or passion, such as rugby fans on Rugby365.com, or music lovers on MP3.com. These people exchange ideas and thoughts about the given passion, but may know (or care) little about each other outside of this area. Participation in a community of interest can be compelling, entertaining and create a ‘sticky’ community where people return frequently and remain for extended periods.”

Within the context of this book, a Community of Interest is the organizational implementing mechanism through which governance is achieved across collections of data. In almost all organizations, data is cross functional. Consequently, governance communities of interest under whatever names they have been called have existed for 30 or more years.

Within information technology, Communities of Interest is really a new name for an old concept. Charles Betz indicates that these groups have been called Communities of Practice, Consortia, Steering Committees, Advisory Committees/Councils, Coordinating Committees, or Interest Groups.

Communities of Interest exist within the context of an organization’s governance program. Each community of interest is likely focused on a particular functional area or a collection of functional areas. For example, if there is a governance community of interest for Order Processing, then while functionally narrow, it may embrace a collection of organizations and individuals that deal with creating interoperable order processing data. Such a community might exist because each participating organization has a different order processing system.



Other more naturally existing governance communities of interest exist with data operational data store (ODS) a database and data warehouse (both wholesale and retail) projects, or master data projects (including reference data). These classes of projects have always been cross functional, and thus, the groups of individuals from the different participating organizations have always functioned as communities of interest.

This book then is really a new book about an old concept. The objective is to provide a formalization to these cross-functional governance groups so that when these groups come into existence they can operate more smoothly, efficiently, and effectively. Less smoke and mirrors: more real work.

## **1.4 Organization of the Book**

The overall organization of this book is in Parts and Chapters.

- Part I, Introduction and Rationale, Chapter 1 and 2 introduce and provide an overall rationale for governance.
- Part II, Governance Infrastructure, Chapters 3 through eight, are the infrastructures chapters for establishing governance programs and their communities of interest.
- Part III, Governance Bureaucracy, Chapters 9 through 13, set out the policies, procedures, organizations, and rules under which a governance program is executed.

The parts, chapters and descriptions are provided in Table 1. Every chapter concludes with a set of questions that represent exercises for the reader.

<b>Governance Community of Interest Handbook Organization</b>		
<b>Part</b>	<b>Chapter</b>	<b>Description</b>
I. Governance Introduction and Rationale	1.Demand for Governance	This chapter presents the overall rationale for the demand for governance, a description of Communities of Interest, the Knowledge Worker Framework, Governance’ s value proposition, the objective of the book and its organizational framework.
	2. Rationale for Governance	This chapter presents the rationale for a community of interest. Included in the rationale are its key reasons for existence, the role of shared policy, and the need to focus on work products and governance identified process specifications.
II. Governance Infrastructure	3. Required Governance Metadata Infrastructure	This chapter sets forth the requirements for metadata with the objective that the reader concludes that to have any reasonable hope of being successful in governance there must first be success with the metadata appropriate for governance.
	4. Mission of Governance	Chapter 4 presents the overall mission of governance. Missions describe the objective in idealized terms without the “who” (Positions and Organization), or the “how” (functions).
	5. Governance Work Products	Chapter 5 present the “what.” That is, the metadata products that need to be created during the existence of a governance project. In this case these products are the specifications necessary to then implement so as to enable governance throughout an enterprise’s operations.
	6. Governance Process Management	Chapter 6 describes and enumerates the processes, which, in the case of a Governance Program are the audits and evaluation processes used by members of the various Governance Programs to determine the integrity and correctness of the work products set out in Chapter 5. The actual processes are contained in the appendix.
	7. Governance Events	Chapter 7 presents the business events that occur along the road to creating the metadata-based products of Chapter 5 that are assessed in Chapter 6. Also presented are the bureaucratic business events

The Demand for Governance

<b>Governance Community of Interest Handbook Organization</b>		
<b>Part</b>	<b>Chapter</b>	<b>Description</b>
		that occur while carrying out the scope and program of work of a Governance Program.
	8. Governance Functions	This chapter presents the business functions, that is, the processes that are to be undertaken by the positions within the organizations to build the products necessary for a successful governance mission. Of necessity, these processes are not completely detailed. Additional detail is available from various methodology products from the Whitemarsh website.
III. Governance Bureaucracy	9. Governance Organizations	This chapter presents the various organizations that should exist for a robust Governance Program. If your program is merely a single Community of Interest, the organizational structure should be collapsed into just the organization, Community of Interest. The chair and officers of that one Community of Interest would necessarily have to assume the responsibilities, authorities and duties of the total program. If thereafter additional Communities of Interest emerge, then the additional layers within the organization should be created and set into place.
	10. Governance Positions	This chapter presents the various positions that should exist across the subgroup organizations. In this book "position" applies to members as well as functional positions such as officers, editors, and the like. Included as well in this chapter are the processes for applying for membership, withdrawal of membership, and member status review.
	11. Governance Documents and Guidance	This chapter presents a sketch of the kinds of documents or "large" products that are built from the collections of metadata products set out in Chapter 5 over which governance is to be exercised. These were drawn from the Whitemarsh database project methodology and are identified work products within the Metabase System database. Every other enterprise that has an IT methodology would need to examine, retain, or replace the set of documents described in this Chapter.

Governance Community of Interest Handbook Organization		
Part	Chapter	Description
	12. Governance Projects	This chapter presents the various projects involved in Governance Programs and Communities of Interest. A project is creation, evolution, or employment of a collection of metadata products accomplished through a set of functions performed by one or more positions within one or more organizations in support of the governance mission. Projects must be identified, staffed, allocated resources, and monitored for both timeliness and quality.
	13. Governance Rules	This chapter contains a detailed set of rules that govern the operation of any subgroup within a Governance Program. Rules are needed because the consequences of decisions from any Community of Interest decision are likely to have significant monetary and other resource effects.

**Table 1.** Chapters Organization by Part Sequence.

Now, if all of this sounds like a lot of work, it really is and isn't. It is a lot of work if you and your organization are not accomplishing it now. But it isn't a lot of work when you compare it to the collective set of activities that are performed and products that are built to remedy governance chaos.

Accomplished well, these activities have a negative real-dollar cost and a negative time expenditure. At first, there will be more time and money spent ramping up the effort. But once done, the time and money expenditures that were formerly budgeted can be reduced well in excess of this ramp-up cost.

Has this been proven? Of course it has. Chapter 3 contains just a few examples. In one 1980s example, multiple versions of a particular class of business information system were being built, individually, for a cost of about \$400,000. After these practices were put into place, these same systems were being created for about \$100,000. The cost for the ramp up was about \$125,000. So, the first use of these policies and procedure was projected to cost about \$525,000. But the second was to cost 60% (of the \$400,00), and there after, 40% (of the \$400,00). Because of rigorous metadata, excellent systems engineering, and overarching governance over all the work products across the business information system implementation projects, the first system came in at 80% of the \$525,000; the second system came in at 40%; and

thereafter, the systems came in at 20%. That actually meant that there was almost a positive ROI on the first use. Actually, the cost was just \$20,000 over the custom system cost.

Has this strategy and fundamental organization been used outside of IT? Of course it has. Just look at the organization, operating procedures, and results from any well run fire department. Within these departments there are well-defined missions for each class of fire or emergency; clearly identified objects that are employed and interrelated one with another; clearly delineated systems that are employed to report fires, dispatch equipment, manage fire suppression, and report and evaluate on results; well-defined events that are the consequence of functions and that employ systems; all manner of human functions that are performed, and finally, detailed and experience honed organizations to perform all manners of fire activities.

Similar examples abound for almost every highly organized complex activity. In virtually 100% of these organizations chaos occurs only when the missions through to organizations are not well engineered and rigorously followed. Chaotically engineered and organized activities that produce quality, efficient and cost-effective results are almost always only accidental.

## **1.4 Knowledge Worker Framework**

The book begins with this chapter. Chapter 2 explains the need of governance environments. The overall architecture for the book is the Knowledge Worker Framework. Frameworks are merely mechanisms for depicting, understanding, and explaining a complex subject. Some frameworks are durable and persistent while others are temporal. A framework for the Knowledge Worker, initially described in the early 1980s by Matthew Flavin, is thoroughly explained in materials from the Whitemarsh website. This framework is for the knowledge worker rather than for the process worker. The columns for the framework and how they are accomplished within the context of Governance are set out and briefly described in Table 2.

<b>Knowledge Worker Framework</b>		
<b>Column</b>	<b>Chapter</b>	<b>Description</b>
Mission	Chapter 4, Mission of Governance	The set of work products that address the enterprise itself. Every work product across the framework is able to be described in terms of what aspect of the enterprise's mission it accomplishes or supports. Simply put, all work products are essential, not accidental attributes of the enterprise's mission
Database Object	Chapter 5, Governance Work Products	The set of products to be audited and evaluated through integrity and correctness assessments.
Business Information System	Chapter 6, Governance Process Management	The identification, architecture, and specification of work product-based processes necessary to achieve the enterprise's required integrity and correctness.
Business Event	Chapter 7, Governance Events	The set of events that are the triggering mechanisms for the business information system column's work products. The activation of the triggers is set out through the various business functions performed by persons within the enterprise.
Business Function	Chapter 8, Governance Functions	The set of human activities performed by persons within the context of their enterprise organizations.
Business Organization	Chapter 9, Governance Organizations	The enterprise's bureaucratic structures within which enterprise work are identified, planned, and managed.

**Table 2.** Knowledge Worker Framework Columns.

The rows of the Knowledge Worker Framework are the same as those in the Zachman Framework for Information Systems Architecture. These are set out and briefly described in Table 3. Each cell across the six-column rows identifies the work products that need to be created, updated, used, and of course, governed.

*The Demand for Governance*

Knowledge Worker Framework	
Row	Description
Scope	Work products that set out the overall scope and objective of each of the six columns, which collectively describe the entire architecture and engineering of the enterprise.
Business	Work products that describe, at a business level, the work products that describe, how the various Knowledge Worker Framework columns are accomplished.
System	Work products that describe, at a system level, the work products that form the systematic architecture and design of the approach undertaken to achieve the accomplishments required from within the business row.
Technology	Work products that describe, at a technology level, the work products that set out in a technology-specific manner just how the various system-row-based work products are implemented across the enterprise.
Deployment	Work products that describe, at a deployment level, the work products that identify just how and in what manner the required technologies are actually implemented and are then to be used by the enterprise.
Operations	Work products that describe, at an operational level, the work products being actually used by the enterprise through its organizations and persons to accomplish enterprise missions.

**Table 3.** Knowledge Worker Framework Rows.

The Knowledge Work Framework (KWF) was established in response to a detailed analysis of eight multi \$100 million Federal business information system failures. The KWF is presented in Table 4. The allocation of U.S. General Accountability Office failures (in percent values) is presented in Table 5.

The items in each of the 36 cells are the enterprise, database, and business information system work products that the Metabase System captures, stores, integrates, interrelates, updates and reports across the enterprise in a non-

redundant manner. 100% of the work products are based on published and well known IT techniques and disciplines.

The following are findings resulting from the analysis of GAO information technology failures from within Table 4.

- 41% of all database and business information system errors occur in the first two rows.
- 50% of all the errors occur after the effort is completed (columns 5 and 6, rows 3 thru 6).
- 5% of all the errors are the direct cause of Information Technology.

The conclusion is clear and compelling. The scope and domain of the Metabase Systems must be the entire KWF's work products for there to be a greater than 5% chance of database and business information system success across the enterprise.

Whitemarsh Knowledge Worker Framework						
View Points	Mission	Man-Machine Interface				
		Machine		Interface	Man	
		Database Object	Business Information System	Business Event	Business Function	Organization
Scope	List of Business Missions	List of Major Database Domains	List of Business Information Systems	List of Interface Events	List of Major Business Scenarios	List of Organizations
Business	Mission Hierarchies and Resource Definitions	Database Domain Specifications	Information Sequencing and Hierarchies	Event Sequencing and Hierarchies	Business Scenario Sequencing and Hierarchies	Organization Charts, Jobs and Descriptions



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Whitemarsh Knowledge Worker Framework						
View Points	Mission	Man-Machine Interface				
		Machine		Interface	Man	
		Database Object	Business Information System	Business Event	Business Function	Organization
<b>System</b>	Resource Life Cycles and Mappings to Database Objects and Business Information Systems	Data Elements Specified Data Models and Identified Database Objects	Business Information System Designs	Invocation Protocols, Input and Output Data, and Messages	Best Practices, Quality Measures and Accomplishment Assessments	Job Roles, Responsibilities, and Activity Schedules
<b>Technology</b>	Implemented Resource Life Cycle Nodes as Business Information Systems	Implemented Database Models and Detailed Database Objects	Business Information Systems Designs	Presentation Layer Business Information System Instigators	Activity Sequences to Accomplish Business Scenarios	Procedure Manuals, Task Lists, Quality Measures and Assessments
<b>Deployment</b>	Resource Life Cycle Nodes as Business Information Systems	Operational Database Models	Implemented Business Information Systems	Client & Server Windows And/or Batch Execution Mechanisms	Office Policies and Procedures to Accomplish Activities	Daily Schedules, Shift and Personnel Assignments
<b>Operations</b>	Operating Resource Life Cycle Nodes Business Information Systems	View Data Models	Operating Information Systems	Start, Stop, and Messages	Detailed Procedure Based Instructions	Daily Activity Executions, and Assessments

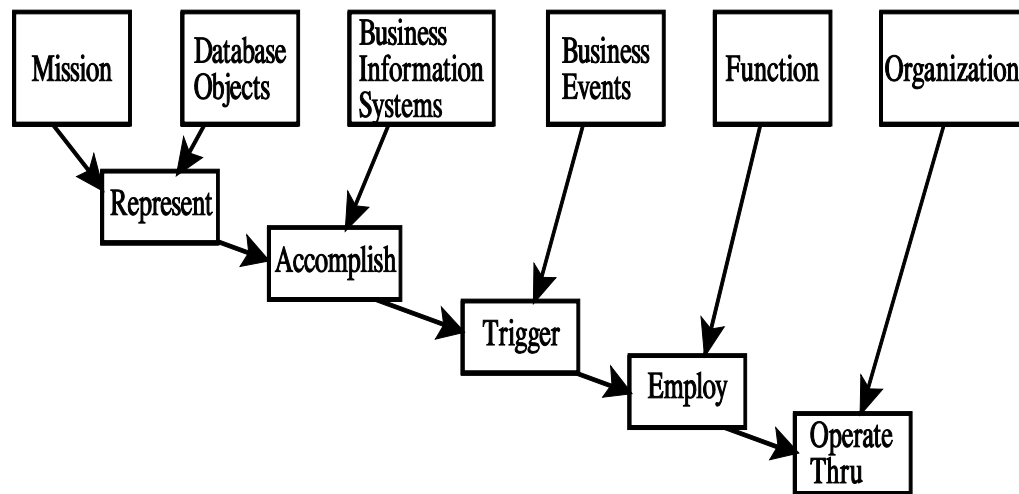
**Table 4. Knowledge Worker Framework**

Knowledge Worker Framework							Row Totals of GAO Allocated Errors in Percent
Deliverables	Mission	Man-Machine Interface					
		Machine		Inter-face	Man		
		Data-base Object	Bus-iness Infor-mation System	Busi-ness Event	Busi-ness Func-tion	Organ-ization	
Scope	5	2	3	1	3	4	18
Business	5	3	2	1	6	6	23
System	3	2	2	1	12	8	28
Tech-nology	1	0	0	0	8	6	15
Deploy-ment	0	0	0	0	5	5	10
Oper-ations	0	0	0	0	3	3	6
Col. Totals	14	7	7	3	37	32	100

**Table 5.** U.S. Government Accountability Office Business Information System Errors in Percent values.

*Note:* All numbers expressed as Percent allocations of all errors to the cells ...12 Gray cells are Information Technology cells

Figure 1 depicts the Knowledge Worker Framework. Explained in a left-to-right fashion, every enterprise has a mission, and without a mission there is no reason for the enterprise. Database object classes and the resulting database objects represent the “data proof” that the mission is accomplished. Business information systems are the “IT mechanisms” through which the mission-based data is collected and stored in databases. Business events are the business information system triggering mechanisms that are set within calendar and business cycles. Functions, often called in this book, Business Functions, are the human-centric processes that are performed and that on



**Figure 1.** Interrelationships among Knowledge Worker Framework components.

occasion trigger the business events. Finally, organization, also called Business Organizations in this book, are the bureaucratic constructs of collections of persons who perform business functions.

The order, left to right, represents the least political to the most political. “Where,” that is, location is not in the framework because in today’s network environments, “where” can be anywhere and often is virtual.

This book’s mission is to build governed data environments. As this mission is accomplished, work products are constructed in the form of metadata-based work products, known here as Database Objects. To instantiate these database objects, business information systems are executed. These too are metadata-based. These metadata-based business information systems are, in turn, activated through the accomplishment of business functions, which too, are in the form of metadata. Finally, the business functions are accomplished by persons operating within positions of the organizations participating in the communities of interest.

Stated from right to left, organizations operate through functions which, when performed, trigger business events that activate business information systems that add, delete, or modify the data of the database objects in the fulfillment of governance missions.

It is because well-governed environments are needed, are specified, exist within organizations, and are employed by persons as they perform their

functions in support of accomplishing some aspect of the enterprise's mission that this framework, the Knowledge Worker Framework, is ideally suited to these purposes.

The metadata repository that is to contain the complete specifications of governance environments is described in Chapter 3. Its high-level data model and is further specified in Chapter 5. The governance data model's corresponding process model is specified in Chapter 6.

The positions that should be established are described in Chapter 10. Chapter 11 provides the specifications for key documents and guidance for document creation. Chapter 12 enumerates the types of governance projects that should be undertaken. The final chapter, Chapter 13, provides a set of rules that govern the establishment of communities of interest, the conduct of meetings, voting, the collection of fees and other necessary activities that reduced the need for a real Sergeant of Arms.

In general, Chapters 4 through 13 represent the policies, products, processes, projects, procedures, positions, organizations, and rules for instituting and operating a Governance Program through its contained Communities of Interest.

This book is intended to be a day-to-day cookbook for any subgroup within a Governance Program. The form of the book's content is sometimes narrative paragraphs, and other times hierarchal lists and/or specifications. The intention was to create the material in best use-form. In short, this book contains: the what, the when, and the how to accomplish governance's specification, implementation, and evolution.

## **1.5 The Metabase System**

The executing and/or accomplishment mechanism of this book can either be through manually constructed forms or through a sophisticated metadata management system that supports the integration, interoperability and non-redundancy of all the work products from within the Knowledge Worker Framework that must be Governed.

To achieve that end, Whitemarsh has constructed a Metabase (metadata database) System which is a sophisticated metadata management system.

The concept surrounding the creation a metadata management system, which is now called the Metabase System, was created for the Council of Great City Schools in support of a project, PMIS (Planning and Management

Information System) for the Dallas Texas Independent School District in 1972. The developed database and system captured, stored, interrelated, and reported the architecture, design, and specifications of PMIS as it was created and employed. The database management system (DBMS) employed for both PMIS and the metadata management system was System 2000 from MRI Systems Corporation in Austin, Texas.

A larger and more sophisticated version of the metadata management system concept was based on a design created at Yourdon, Inc of New York City. It was implemented through Information Builder's Focus at the Hartford Insurance Company in the late 1970s.

The name, Metabase System, was created within the Whitemarsh book, *Managing Database: Four Critical Factors*, which set out an even more comprehensive design in the early 1980s. The book's design of the Metabase System was employed for Metabase System implementations at Hershey, Freddie Mac, and the Social Security Administration.

Common across all the implementations was the Metabase System's concept, that is, to capture, store, integrate, interrelate, update and report the architecture, design, and specifications of the enterprise and its databases and business information systems, and the use of a DBMS as the Metabase System's engine. The Metabase System's design was expanded and was featured throughout the book, *Enterprise Database in a Client-Server Environment*.

A very robust production version of the Metabase System was created for the U.S. Army's Tank Automotive Command (TACOM) in the middle 1980s. One of TACOM's business information systems focused on knowing what repair parts were needed and where repair depots had to be located to ensure 100% readiness of the U.S. Army around the world. Fundamentally, every weapon system was conceptually similar, but each had unique characteristics and different components; for example, the M1A1 Abrams tank and a Humvee.

Under the existing development environment, an IT contractor built, a new-from-scratch, IT system for each weapon system. These, at the time, were costing about \$400K. Two such systems were built over a three-year period. The Army wanted 10 more in one year. The existing architecture, design, and implementation process clearly would not scale.

Whitemarsh was brought in to invent two IT factories using the Metabase System concept as the core: One for design and the second for construction. The design factory was engineered around the Metabase System core and was

built using the Computer Systems Corporation's DBMS Manage. The construction factory was developed through what is now Object Oriented techniques and the Fortran language. The factory, which drew specifications from the Metabase System in order to manufacture the needed TACOM business information systems from libraries of pre written processes.

The effort was proposed to be \$488K (about 22% more than a single custom-developed system) for the first new system including building the factories. The second system was to be 60%, and thereafter the systems were to cost about 40%. ROI was to be achieved by the second system. However, the first system cost 80% of the \$525K, that is, \$488K. The second cost 40% (not 60%) and thereafter they cost only 20% (not 40%). The reasons for delivering under budget and ahead of schedule were two: Standardized methodology, and standardized factories (design and construction).

In the early 1990s, the MITRE Corporation used the Metabase System's architecture and design to modify and expand the Oracle Corporation's CASE (Computer Aided System Engineering) tool-set in order to scope and set out the architecture for MITRE's own suites of infrastructure business information systems.

MITRE then employed a different architecture subset of the Metabase System for the State of California. Arthur Andersen had spent significant State funds to build a fiscal management and patient tracking system for the developmentally disadvantaged. The effort was hallmarked by many overruns and broken schedules. Ultimately, the system was finished and turned over to the State. However, no documentation beyond that of the original Arthur Andersen proposal existed.

The MITRE Corporation had been retained to design a significant extension to the State's system which would be used by an implementation contractor. Three staff from MITRE went to Sacramento. Because no documentation of the existing system existed, a version of the Metabase System was created through Information Builders, Focus, to contain the inductively derived specifications of the existing system.

The California agency's staff were the ones with the knowledge. Once an inventory of system artifacts was developed, work proceeded to build the lower and upper levels of database and business information system understanding. While that occurred, other MITRE staff developed an understanding of all the system components that needed to be changed. Once the Metabase database was built, the changes were mapped, and a

## The Demand for Governance

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development contractor was secured. The Metabase System and its database remained with the State of California.

Subsequent to the California Metabase System effort, different versions of the Metabase System were created for the States of Ohio and Delaware, the U.S. Department of Commerce, the U.S. Marshals Service, the Office of Personnel Management, and the U.S. DoD Inspector General for Audits.

Three characteristics are common across all Metabase System versions:

- Its core engine is a DBMS as metadata management is “data-centric.”
- Its design is tailored for the specific organization within which it is employed.
- Its purpose and intent are the capture, storage, integration, interrelationship, update and reporting of the architecture, design, and specifications of the enterprise and its databases and business information systems.

As the Metabase System implementations progressed over its first 25+ years, fewer and fewer core changes were needed. Central, however, to the Metabase System’s architecture, design, and implementation is that it must satisfy the following requirements:

- The domain of its metadata needs to address the enterprise and to span the life cycle of databases and business information systems in an integrated, interoperable, and a non-redundant manner.
- The Metabase System has to be inherently multi-user.
- The Metabase System must concurrently operate within client-server and over the Internet.
- Metabase System’s architecture and domain have to be able to expand and change in a cost-effective way as the need arises.

The current version of the Metabase System as a product of Whitemarsh Information Systems Corporation, was started in the late 1990s. It has SQL engines at its core, has a metadata table-based database of more than 400

tables, and has a GUI layer that operates over client-server and the Internet in a multi-user fashion. There are currently more than 300 users worldwide of its freely downloadable version. The Metabase System is implemented through the business information system generator, Clarion, a continuously developed product over the past 30 years by the *SoftVelocity Corporation*. Consequently, the Metabase System is able to be expanded and changed through traditional data-centric information technology techniques for about 15% of normal business information system effort and costs.

## **1.6 Executing this Book**

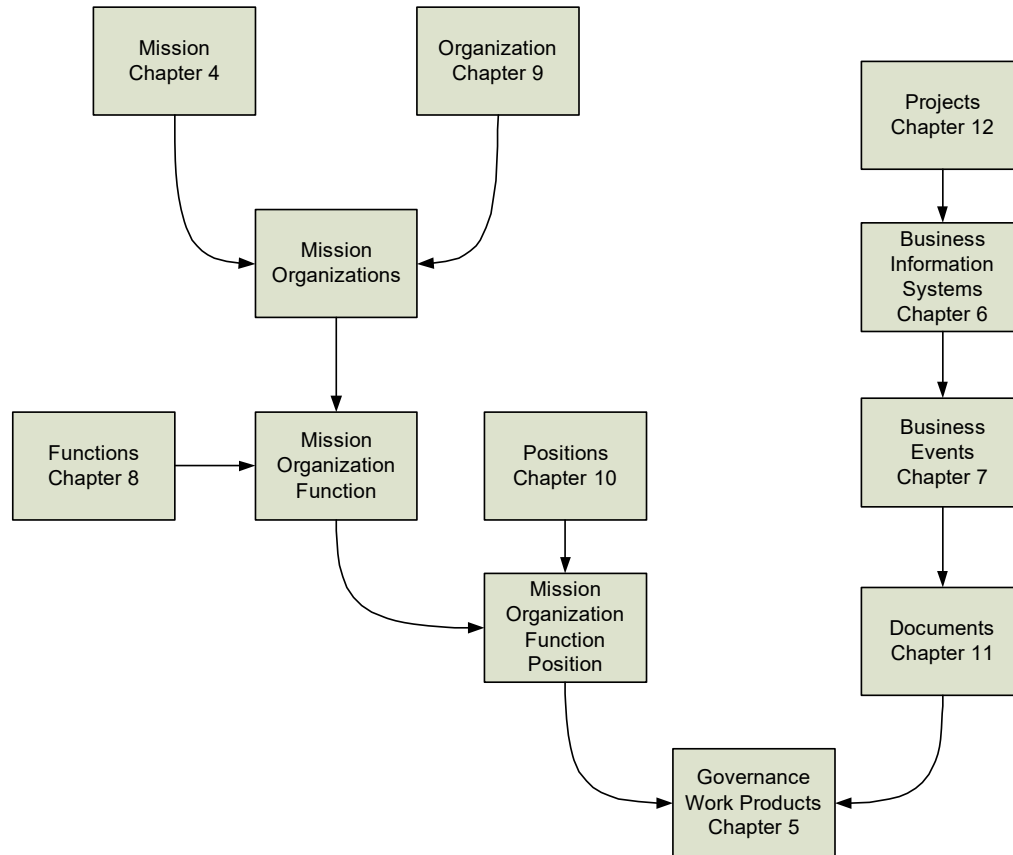
The chapters of this book, as illustrated through the Knowledge Worker Framework depicted in Figure 1, are set out as a way to engineer and constitute a governance program, to establish communities of interest, and to establish governance projects. This stands in stark contrast to the planning and executing the everyday activities to actually build the IT environments. So, if you are not part of the engineering and construction crew but part of the using-crew, this section is for you.

Consider a house. You do not start by building the front door, then the hallway, then the dining room or living room, and then the downstairs half-bath, the kitchen, rec-room, and backdoor. And then, build the stairs, the upstairs hallway, the bedrooms, and the bathrooms. Rather, these are “use-ways” once the house is built.

Consequently, either an entirely different book would have had to be created or an alternative manner of executing the contents of this book had to be set out. The latter were chosen.

Section 1.4 identifies the engineering and construction process through the Knowledge Worker Framework. This section identifies the use-sequence. Sometimes the sequence is the same. Other times it is different. Represented here is the day-to-day execution of governance programs, organizations, and projects once instituted. As Figure 1 depicts the engineering sequence of the Knowledge Worker Framework for the key chapters, Figure 2 depicts the “execution sequence” for the chapters. Rules, Chapter 13 is missing from this figure because rules are “called” from many if not all the other chapters. In actuality, “rules” are invoked when decisions cannot be made except through the application of a precise rule set.





**Figure 2.** Enterprise Governance Specification Build Sequence.

The suggested way to read and use this book is set out in Table 6. Each description cell contains guidance as to the reading of the chapter and also a use-based description of the chapter. The first three rows of Table 6, Demand, Rationale, and Metadata represent all that is needed to be read, accepted, and in the case of the metadata repository, deployed. Row 4, Mission, when accomplished produces the metadata that is stored in row 3's metadata repository.

In the execution sequence, missions are first specified through a bootstrap ad hoc organization. If there is a go-ahead for a governance program, the organizations are created as necessary. It may be a full governance program

and its subcommittees along with several communities of interest, or it may be a single community of interest that performs all the necessary functions. Then, as the functions are performed by the persons in various positions within specific projects, the various milestones are accomplished as a consequence of building the various metadata products.

<b>Governance Community of Interest Handbook Use Sequence</b>	
<b>Chapters</b>	<b>Description</b>
1. Demand for Governance	This chapter provides the overall objective of the book and the use of communities of interest to achieve governance then you should not proceed to Chapter 2.
2. Rationale for Governance	This chapter presents the overall key reasons for governance, a comprehensive definition of metadata, and the identification and engineering of the work products to be governed. If governance is merely viewed as vast seas of ad hoc, unintegrated, redundant and semantically conflicting work product specifications, you will never achieve enterprise success. In contrast, there is a value proposition for enterprise-wide governance. If however, there is not general agreement on this value proposition or an analogous value proposition, stop and do not proceed to Chapter 3.
3. Required Governance Metadata Infrastructure	<p>This chapter presents the value from having the appropriate metadata infrastructure. If that metadata infrastructure is not achieved, having more than just point-to-point interfaces between systems is largely impossible. If an organization does not have an integrated, end-to-end, non-redundant metadata infrastructure, even if all the collections of point-to-point interfaces are centrally managed, they will just be another server-farm of stand-alone databases, but this time of metadata. If there is any improvement, it's marginal. Centralized defined collections of point-to-point interfaces are not the mission of a quality Governance Program.</p> <p>Rather, the goal must be first an end-to-end integrated metadata model. Second, the loading into a Metabase System database the appropriate metadata from all systems and databases participating in a non-redundant and integrated manner so that true semantic harmony including precision and granularity can be achieved.</p> <p>If you cannot agree on the engineering and organization of metadata, or on the creation of formal policies, procedures, and organizations for the creation, maintenance and use of metadata, stop and do not proceed to Chapter 4.</p>

The Demand for Governance

<b>Governance Community of Interest Handbook Use Sequence</b>	
<b>Chapters</b>	<b>Description</b>
4. Mission of Governance	<p>This chapter presents the missions that must be accomplished in any Governance Program. These missions should be reviewed and if necessary be refined before any other real work is attempted. Missions are hierarchically organized descriptions of the idealized target or objective of the effort. If you cannot agree on the destination, then do not start the journey.</p> <p>When a governance project is actually started, the missions related to the areas involved are created. These too are reviewed and revised. Agreement by participants is critical as these become the basis for governance. Shared missions beget shared work product specifications. Once you have identified shared missions, proceed to create the necessary organizations that support the information systems that feed and/or retrieve data from the shared spaces.</p>
9. Governance Organization	<p>This chapter presents the types and kinds of organizations that should be established to be successful. Each organization is defined and the types of positions that should be established are identified. As stated above, if there is only a single Community of Interest, then these organizations do not have to be established. Rather, each organization type should be reviewed and the key functions and duties of the organization should be reflected, if appropriate, in the single Community of Interest. Each of these organizations should be reviewed and modified to make sure they fit into your overall organizational structure.</p> <p>When a governance project starts and after the missions are created, you can know whether this is a single Community of Interest effort or whether there has to be a Governance Program infrastructure created as well. Each organization has to be established, chartered, and staffed. A metadata management support infrastructure has to be procured or activated. Staff has to be obtained, assigned, and trained. Once the Community of Interest is set into place then the first meetings can start.</p>
10. Governance Positions	<p>This chapter presents the positions that must be established in any of the organizations that are created via Chapter 9. Each position and its duties are generally described. Given your organization, are the positions properly named? Should their duties be enhanced or streamlined? These are all-important issues that should be addressed.</p> <p>Along with the organizations the various positions have to be created and staff assigned to the positions. The actual skills required are implied</p>

<b>Governance Community of Interest Handbook Use Sequence</b>	
<b>Chapters</b>	<b>Description</b>
	by the missions, functions, organizations, and positions. All the activities within these positions are common, every day IT activities that should be readily known or learned by professionals. Detailed process specifications, training courses and the like are all contained on the Whitemarsh website.
8. Governance Functions	<p>This chapter presents the functions, but at a high level that needs to be performed by each of the organizations set out in Chapter 9 in support of achieving either the overall Governance Program and/or any of the Communities of Interest.</p> <p>The functions that are to be performed are every day IT tasks and are fully defined and described in any number of university courses on data modeling, software development, configuration management, unit and system testing and documentation.</p>
12. Governance Projects	<p>This chapter identifies and describes the types of projects to be accomplished in the development of any Governance Assessment. Each of these project types should be examined and evaluated to ensure that it is complete. Missing components should be added. Unnecessary components should be deleted. Each project should identify the appropriate milestones and the required metadata products, and ultimately the functions that need to be performed by the positions within organizations to achieve the governance mission.</p> <p>Once missions are done, organizations created, positions filled, and staffs are ready to perform tasks, the governance projects can be instituted and accomplished. Each project has its own process model implied in the various sections. Chapter 4 builds the products identified in Chapter 5 according to the specialized work breakdown structures set out in Chapter 8. The level of governance achieved depends on the level of the enterprise on which it is focused. The higher the level the higher the level of governance, the more useful the work products.</p>
6. Governance Processes	<p>This chapter presents the processes to be used to audit and evaluate the integrity and correctness of the work products. You need to assess that you have the complete set of work products and the right processes. Because many of the work products involve other work products, when the governance processes are completed, there will be an end-to-end set of work products that have been assessed for integrity and correctness.</p>
7. Governance Events	<p>This chapter presents the milestones that are to be accomplished in the achievement of the program and scope of work of the Governance</p>

The Demand for Governance

<b>Governance Community of Interest Handbook Use Sequence</b>	
<b>Chapters</b>	<b>Description</b>
	<p>Program and of any Community of Interest. Are these the right milestones for Governance Assessments in your organization? If not, then change them so that you can ensure that Governance Assessments are properly constructed so as to gain maximum acceptance.</p> <p>Each of these milestones should be accomplished through the application of the functions outlined in Chapter 8. The resource assignment strategies should be set into place to ensure that the right quantity of staff is assigned to the functions, positions, and organizations to achieve the milestones.</p>
11. Governance Documents	<p>This chapter provides a strawman set of documents or products from the Whitemarsh database project methodology that represent collections of metadata products from Chapter 5. Each product should be examined to determine if it is appropriate for your IT organization. If there are different ones, then make modifications accordingly. The goal is to have a complete set of products across all the critical IT dimensions. It is clear that a given metadata product from Chapter 5 is employed multiple times and serves different rolls in the development of complete IT specifications for a complete governance solution.</p> <p>As Community of Interest projects are accomplished, certain "bureaucratic" documents such as progress reports, annual reports, finance reports have to be created. These reports will take time to accomplish. If there is a robust infrastructure of metadata, these reports will mainly be processes of metadata extraction and formulation into the sections of the different administrative reports.</p>
5. Governance Work Products	<p>This chapter identifies and describes the actual metadata products that are to be built in order to achieve the governance milestones. Examine each product and determine if you know how to build it. Do you have the proper metadata tools in place to ensure that not only are the metadata products built but that you know how to build the products? There are copious materials on the Whitemarsh website that assist in this regard.</p> <p>Creating the governance metadata objects is a critical step. Short cuts should not be taken, for example, not creating missions, organizations, etc. and proceeding directly to data models. It is within the context of the enterprise metadata and the information systems metadata that the entirety of the governance metadata models have real life and value.</p>

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	Experience has shown that when metadata is built at the enterprise and information systems levels there is an increased level on the maturity scale.
13. Governance Rules	<p>This chapter provides the individual set of rules that should be observed by the various positions within the different organizations. As stated above, every decision by a community of interest has 10s of thousands of dollars of implications. Some decisions will cost millions of dollars. Each such decision, therefore, should be made with the maximum precision and good-order. Delivery of documents that form the basis for decision making, sufficient review time, proper motions, questions, discussions, and votes are all critical for a well engineered and operating organization with such an important mission.</p> <p>Hopefully, this chapter will never have to be accessed because there is a 100% consensus on every issue. But just in case there isn't, this chapter contains the necessary rules through which decisions can be made.</p>

**Table 6.** Chapters and Description by Execution Sequence.

Supplementing all the material in this book is a large quantity of books, courses, methodologies, and also a metadata repository software system from Whitmarsh. This book, in conjunction with these materials should make the creation and operation of Governance Communities of Interest a practical, rational, and accomplishable set of activities.

This book does not contain "the only way" to accomplish governed environments. Rather, it is "a way." The data and process chapters contain detailed specifications. Again, these detailed specifications represent "a way," not "the way." There is a similar quantity of detail in the mission, organization, function, and position chapters. These too represent "a way," not "the way." The ultimate goal of the book is to convey a sufficiently detailed strategy such that, if followed, would lead to success. Alternatively, if another approach is desired, then the detail in this book provides good benchmarks for testing comprehensiveness and completeness.

## **1.7 Questions and Exercises**

1. What is the “state” of governance in your enterprise? Rate it from “fantastic” to “sad.” Why do you think it is one rating or the other? How do you really know? What are your measures for computing your rating?
2. How much time, effort, and energy of your organization is expended creating the policies, procedures and rules that govern COIs versus accomplishing the real work of COIs? How much COI start-up time does your organization consume? If this time were “close to zero,” how would that help get real work accomplished?
3. How have the bureaucratic organizational activities that have occurred at the start of COIs affected the quantity and quality of the work accomplished? Has the lack of “getting out of the gates fast” dampened enthusiasm, negatively impacted your budgets, and lost credibility in your COI’s mission?
4. If this book was adopted “as-is,” would this book’s strategies regarding organizations, policies, and procedures affect the time, effort and energy that are able to be expended to achieve governance? How could having all the “bureaucracy” engineered and ready to go before you start help?
5. Have you tried COIs in your enterprise regardless of what they are called? Have they worked? Why and why not? Have they brought benefits? What are they and how have they affected the “bottom line” of your organization?
6. Given that you are going to embark on the development of a reasonable quantity of governed databases and business information systems, what would the effect likely be on your current IT environment?
7. How much time and money are you likely to save from a reasonable quantity of governed databases and business information systems? How will you know and measure it?
8. What are the management decisions, strategies and plans that are likely to be affected by having a reasonable quantity of governed databases and business information systems?

9. What would be the benefits of just “adopting” this book’s COI organizational structures, policies, procedures, offices, roles, responsibilities, and products at the very start of a COI and then modifying this adopted way of running the COI after the first six months or a year? Would such a move stifle or enable the real work of a COI?