

Process-Driven

Project Management Office Implementation

Mark Johnson, PMOLink, Inc., 106 Asphodel Place, Mandeville, LA 70471

Terry Joyner, Entergy Systems, Inc., 639 Loyola, New Orleans, LA 70113

Robert Martin, PMP, Entergy Systems, Inc., 639 Loyola, New Orleans, LA 70113

- **Abstract**

The key to success for any Project Management Office (PMO) implementation effort is effective management of PMO processes. To be effective, a process must be well understood by project stakeholders and consistently enforced by management.

This paper describes how Business Process Reengineering (BPR) tools and techniques can be used to develop and disseminate actionable project management processes. The processes are modeled using a standardized methodology. Each function to be performed is triggered by an event. Information about who executes the function, what tools are used, inputs, and outputs are all captured in the process models. All processes are “interfaced” with one another to reflect work and decision flow. When optimized and approved, the business process models are used to develop training materials tailored for the specific responsibilities of project stakeholders. The business process models serve as the benchmark by which project management office quality improvement efforts are measured.

Keywords: project management, project management office, PMO, business process reengineering, BPR, process model

Process-Driven Project Management Office Implementation

1. Introduction

A project can be defined as a temporary endeavor undertaken to create a unique product or service¹. Despite the temporary or “single-pass” nature of projects themselves, project management processes recur repetitively throughout the life cycle of each project. A process is a repeatable series of actions, changes, or functions with a goal of bringing about a result. The key to success for any Project Management Office (PMO) implementation effort is effective management of the numerous processes that weave through the life cycles of various projects. To be effective, a process must be well understood by project stakeholders and consistently enforced by management. This paper describes tools and techniques that have been used successfully to define and disseminate actionable project management processes.

Organizations that have committed to establishing a project management competency face numerous dilemmas from the onset. One basic determination is where to start? The decisions made in response to this question (and scores more like it) will define the boundaries of the PMO and set the stage for its ultimate success or failure.

The mission of a PMO is to establish consistently followed practices for the initiation, planning, execution, control, and closure of projects. These practices do not occur spontaneously in nature. They must be carefully crafted, effectively communicated, and delicately enforced. The successful PMO must navigate the treacherous waters of managing organizational resistance to change and the natural entropy of project teams. In this paper, we will assert that the discipline of process management provides a foundation upon which a successful PMO implementation can rest. The project management processes themselves provide the fundamental building blocks for establishing procedures and training. The methods used during the development of the processes can help reduce the organization’s resistance to change. The tools and techniques can increase efficiency of the PMO implementation and ultimately reduce the cost for building and maintaining its processes.

2. Methodology

From the title of this paper, one can surmise that our recommended starting point for a PMO implementation is: process first. Before a discussion of techniques for establishing a process-oriented PMO ensues, a discussion of process management basics is in order. Because this paper recommends the use of automated tools for diagramming and analyzing business processes, the methods described herein are not absent of the methodologies that are organic to the process modeling tool we describe. Although the tool is built upon specific methodological constructs, the concepts described can be applied using other automated tools or through manual diagramming methods.

a. Process Management

The business process modeling techniques described in this paper are based on the Architecture of Integrated Information Systems (ARIS[®]) business engineering methodology developed by Dr. August-Wilhelm Scheer, Professor at the University of the Saarland, Germany and the founder of IDS Scheer AG. Dr. Scheer’s methodology provides an approach for capturing business process flows, functions, organizational structure, data and resources for the purposes of documentation, analysis, optimization and redesign. The business process management tool used for developing process models is IDS Scheer’s ARIS[®] Toolset. ARIS supports over 100 business process and Information Technology architecture modeling techniques. The tool also provides attributes for capturing underlying metrics such as costs, cycle times and responsibilities to provide a foundation for analyzing value chains, activity-based costs, bottlenecks, critical paths, and inefficiencies. The primary modeling techniques

used in this paper are the Value-Added Chain, the Event-Driven Process Chain (EPC), and the Function Allocation Diagram (FAD).

I. Value-Added Chain

The Value-Added Chain diagram is a method for identifying the high-level processes for an organization or process area. The processes in the Value-Added Chain can indicate the sequence of processes and can be arranged hierarchically, indicating process-oriented super and subordinations. Figure 1. is a Value-Added Chain diagram depicting the project management process groups with some of the core processes and facilitating processes found in the Project Management Body of Knowledge².

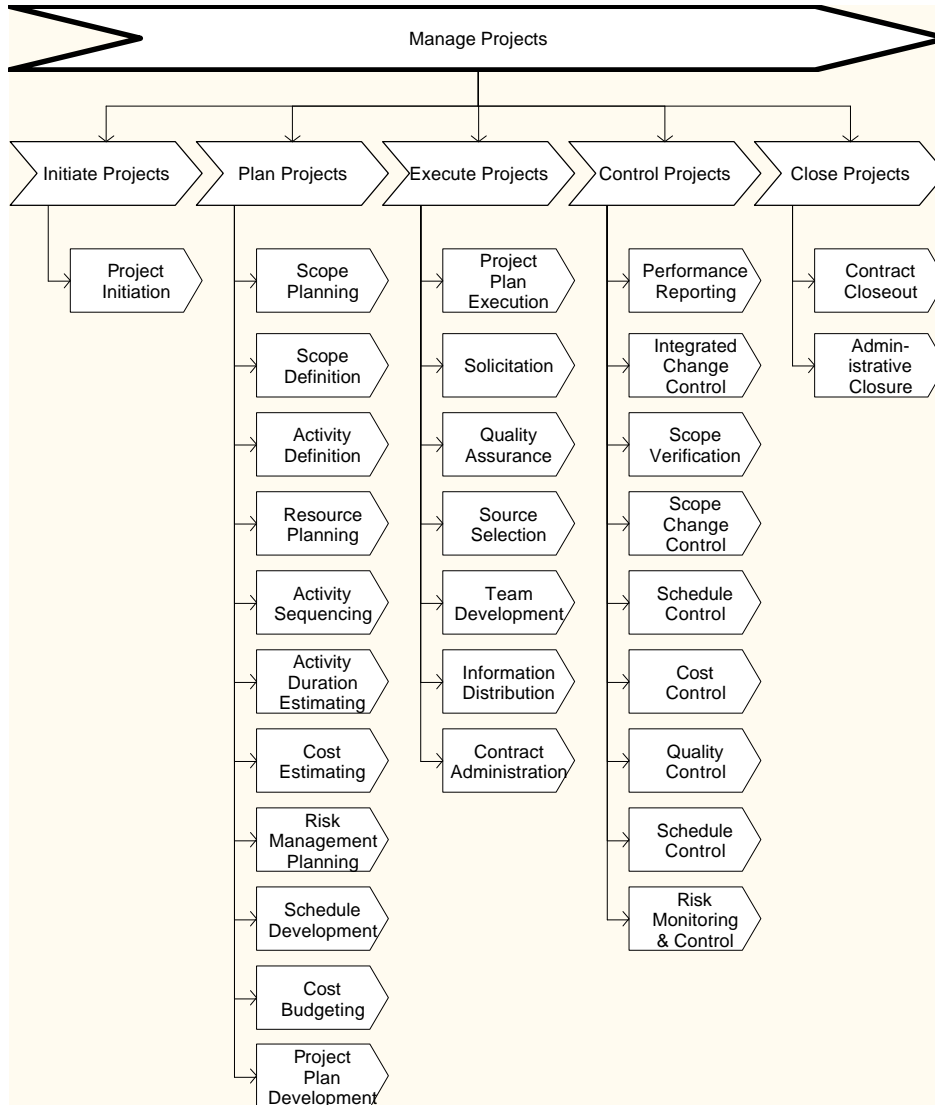


Figure 1. Value-Added Chain Diagram

II. Event-Driven Process Chain

The Event-Driven Process Chain is used to depict the events which trigger functions, the functions themselves, the events which are the outcome of functions, and the logical

sequence of events and functions. The table in Figure 2. describes the ARIS® EPC symbology.






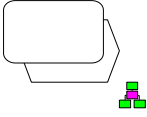
	Events	Represent a change of status of a function. Events have zero duration and serve to trigger Functions and describe the outcomes of Functions.
	Functions	Represents processes, activities, or steps that are performed by a person or automated device. Functions have a definable duration and can be viewed as analogous to a unit of work.
	"And" operator	Indicates that both preceding or subsequent Functions or Events occur.
	"Or" operator	One or more of the preceding or subsequent Functions or Events occur.
	Exclusive "Or" Operator	Only one of the preceding or subsequent Functions or Events occur.
	Process Interface	Represents a link to another process model.

Figure 2. Event-Driven Process Chain Symbology

Figure 3. is a simple EPC depicting the process flow for measuring cost accruals. It shows a triggering event (Cost Baseline Established), which is the final outcome event from another process (Establish Cost Baseline). The following three functions (Record Expenses, Record

Activity Progress, and Record Effort Expended) must all be performed. The Record Activity Progress Function can have one of two outcomes: either hours remaining are recorded or activity percent complete is recorded. The function Apply Actuals to Schedule triggers the event Cost Accruals Calculated. This event is a triggering incident for two additional processes (Reconcile Accruals With Invoices and Report Costs).

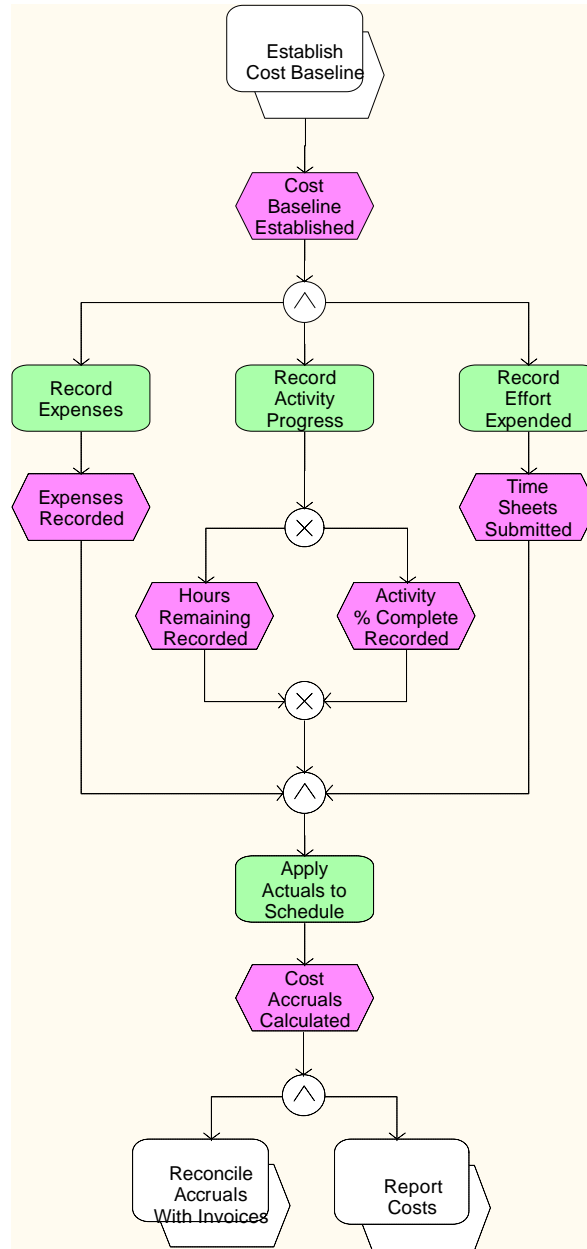


Figure 3. Calculate Cost Accruals Event-Driven Process Chain

III. Function Allocation Diagram

The Function Allocation Diagram FAD is used for identifying information about who performs functions and how they are performed. The FAD can show information such as data, documentation, application systems, organizational units, types of responsibility, inputs, outputs, etc. Figure 4 is a FAD, which describes the function “Plan Scope.” It shows who is

responsible for executing the function (Project Manager) as well as supporting roles (Project Team and Project Management Office) as well as the approval authority (Business Sponsor). Also shown are documents, lists and other explicit knowledge that are inputs to the function (Project Charter, Project Constraints, Project Assumptions, Product Descriptions, and Activity Descriptions), and the two documents that are the output of the function (Scope Statement and Scope Management Plan). The application system that is used in the performance of the function is shown (MS Word) and links to document templates for the two deliverables are provided (Scope Statement Template and Scope Plan Template).

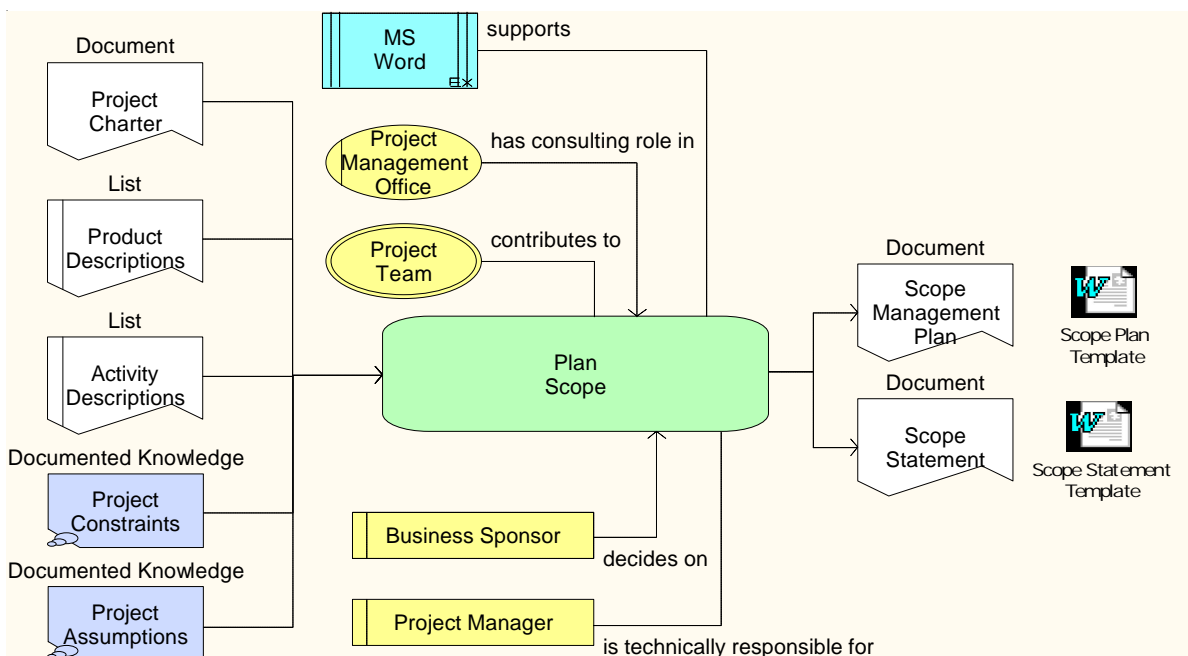


Figure 4. Plan Scope Function Allocation Diagram

3. Documenting Processes

Process documentation and analysis can be broken down into six phases. These are: a. Process Scope and Architecture. b. Process Chain Modeling. c. Process Integration. d. Process Analysis and Optimization. e. Process Stakeholder Training. f. Continuous Process Improvement.

a. Process Scope and Architecture

One of the major difficulties encountered during business process modeling is determining the degree of detail in the models. Another common sticking point is deciding upon what is in the modeling domain and what is out. Therefore, a logical starting point for a project management processes modeling effort is to establish the scope and architecture for the process knowledge repository.

Simply put, scope is the definition of what is included as a deliverable of the endeavor and what is considered outside the boundaries of the enterprise. For most business process engineering efforts, the scope of the enterprise equates to the organizational boundary. For the modeling the PMO domain of project management processes, it must be determined which project management knowledge areas are to be included in the modeling effort. Within process areas, there may be processes that are outside the domain of the PMO. For example, some areas of cost, communications, human resources, and procurement management frequently lie outside

the scope of control of the PMO. It is acceptable to include processes for areas outside the control of the PMO in the scope of the modeling effort as long as the true process owners are available to help build and integrate these processes into the PMO process domain.

The process architecture helps to define the levels of decomposition of the various process models, from a macro description of the enterprise, to a detailed description of the procedures for carrying out an individual function. A process architecture can be viewed as a pyramid of process models, as depicted in Figure 5.

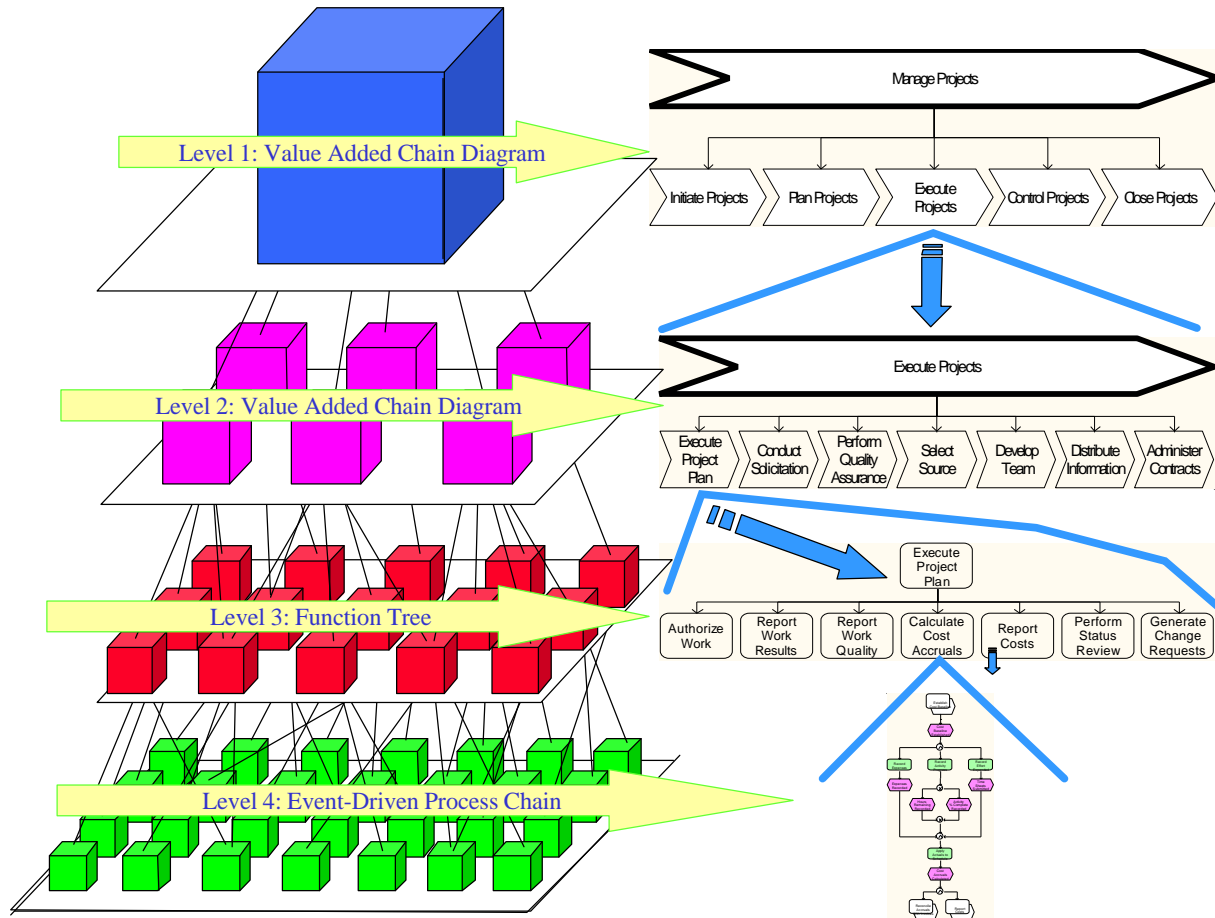


Figure 4. Plan Scope Function Allocation Diagram

The enterprise model, at the top of the pyramid, can be logically broken down into several process domains. Each process domain, in turn, can be decomposed into several logical process areas. The process areas can contain numerous detailed process models. Each process model contains functions, which can be described in detail using **Function Allocation Diagrams (FAD)**. There is no theoretical limit to the number of levels of decomposition that can be used in the process architecture; however, the four levels plus FAD architecture depicted in Figure 5. can be used for most applications. Different model types can be used to describe processes at each level. Typically, Value-Added Chain diagrams and Function Trees (not described in this paper) are used to define higher level models. Event-Driven Process Chains, Rummler-Brache flowcharts (“swim lane” diagrams – also not described in this paper), and FADs describe detailed processes.

b. Process Chain Modeling

Once the Scope and Architecture are developed, detailed process chain modeling can begin. The most efficient and effective method for capturing business processes is to use process workshop teams. A process workshop team consists of a Process Owner, 2-5 Subject Matter Experts (SMEs), a facilitator, and a modeling tool operator. The tool operator can also serve as facilitator, but the workshop facilitation task serves as a good opportunity to bring in members from other teams for process cross-pollination. Having someone in the workshop that is not “close” to the processes also helps to develop process models that are more understandable to individuals previously uninitiated to the process. Multiple Process Workshop teams can work simultaneously, modeling business processes at their own pace. Processes that are mature and well understood can be modeled quickly with as few as one knowledgeable SME and a modeler. “To-Be” processes tend to require more participants and are developed at a slower pace because of team dynamics, the “buy-in” process, and the inevitable discovery that takes place during the modeling sessions. After the initial process models are drafted, team members are sent off with “homework” assignments to research issues, locate/develop documents etc. This additional information is built into the models’ Function Allocation Diagrams either during additional formal modeling sessions or “off-line.” Finally, supporting documentation, files, diagrams, graphics, etc. can be embedded into the models or referenced via hyperlink to enrich the information contained in the process knowledge repository. For final review and approval, the team can either meet as a group or review and approve the models and FADs by viewing them over the web or by using paper copies or email.

c. Process Integration

When processes cut across workshop team boundaries, integration workshops are held to work out issues and link process interfaces within the tool. Integration workshops should contain one member from each affected process workshop team. Preferably, the membership should be made up of the Process Owners, but at a minimum, members must be given authority to make decisions about the processes. During the process integration workshops, the processes are logically linked together in the tool using process interfaces. After the processes are interfaced, the models should be evaluated end-to-end, checking for gaps, unlinked interfaces, and proper model semantics. Now that the formerly tacit knowledge from the Process Owners and Subject Matter Experts has been captured as explicit knowledge, documented in the process models, the knowledge can be disseminated to all team members and synthesized into the PMO’s knowledge management system.

d. Process Stakeholder Training

For methods of presenting detailed information to various audiences, it is useful to observe the techniques used by the construction industry. Building architects will create different views of their work, all accurately depicting the essence of the structure they designed. The “bird’s eye view” drawing shows the building and its surroundings from a high level and is used as a visualization tool. The floor plan gives detailed information about the overall layout of the building without showing the details of the plumbing, wiring and structure behind the walls and between the floors. The blueprint drawings contain detailed information about every aspect of the building. The “bird’s eye view” of the building will usually remain largely static, while the blueprints are living documents that are constantly updated during the construction of the building. Although many individuals can read and understand process models in their raw form, the three-dimensional nature of the process architecture poses a barrier to comprehension for some individuals. Also, executives and high-level managers, while taking comfort in the knowledge that the fine points are worked out, often do not have time or are not interested in navigating through the detailed business process models. For these reasons, it is a sound practice to convert the detailed knowledge found in the process models into a series of training presentations. It is also a good idea to develop training at several levels, for example an executive overview presentation and an end-user training presentation. Figure 5. is an

example of how a presentation can be used to communicate information found in business process models.

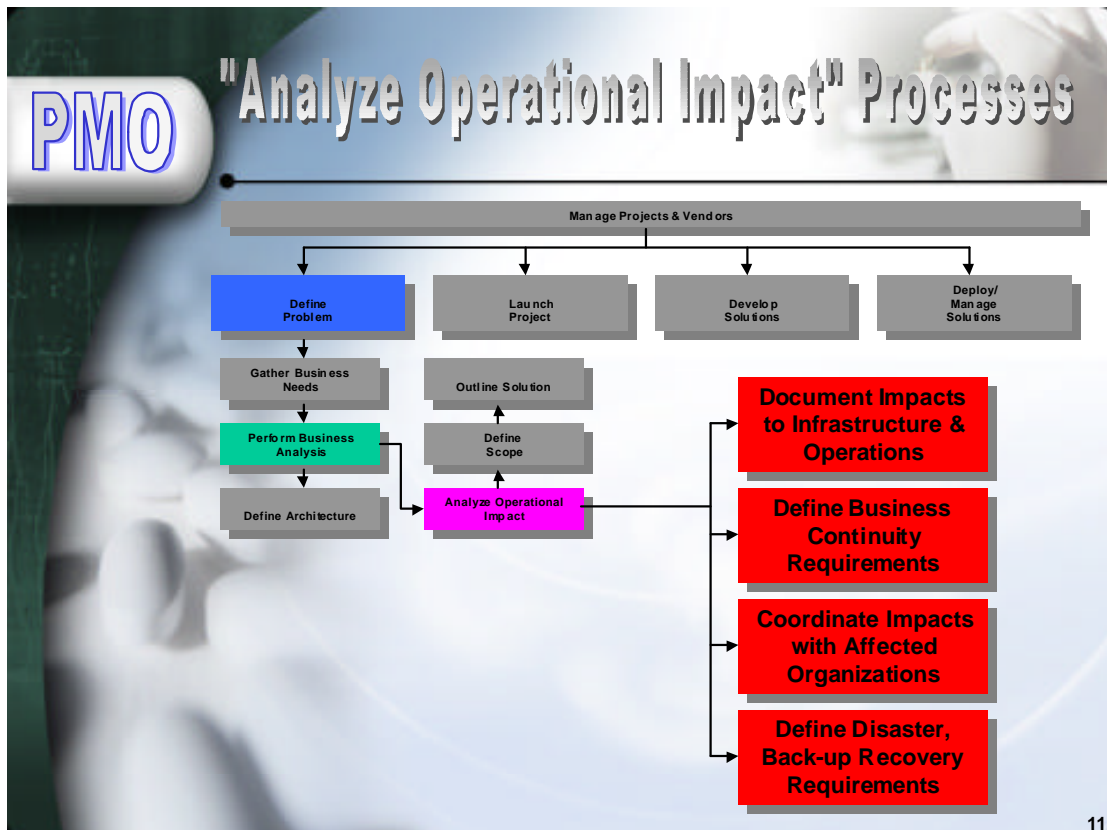


Figure 5. Process Training Presentation Excerpt

e. Continuous Process Improvement

An effective Project Management Office should develop processes for proactively evaluating the validity and efficiency of all of its processes. The PMO should also have procedures for enacting changes to its processes and communicating these changes to stakeholders.

One of the advantages of documenting PMO processes using an automated process modeling tool is that the knowledge is retained in a single data repository. The process models can be readily published to web sites for review and analysis by stakeholders. Through security features built into the tool, access to information can be tailored and version control can be maintained.

The ultimate goal of processes is to serve stakeholders. In effective organizations, processes are constantly evaluated and improved. The most critical role in continuous process improvement is the Process Owner. The Process Owners must ensure that the processes over which they are responsible are kept current and effectively support the stakeholders they serve. The PMO plays a critical role in supporting Process Owners. The PMO should serve as the process center of excellence, providing training and support to the Process Owners. The PMO's process center of excellence should also fulfill Quality Assurance and Quality Control roles for the process repository as well as performing routine System Administration functions.

4. Summary

Documenting project management processes is not an end unto itself. The act of establishing a process framework and the effort involved in modeling processes help a Project Management Office define its boundaries, educate the organization about its purpose, and achieve buy-in from key stakeholders. The processes themselves serve as a knowledge foundation upon which team organizations can be built, policies and procedures can be established, and training developed. The process architecture forms a baseline to facilitate objective measurement and continuous process improvement. Establishing a Process-Oriented Project Management Office is one way to help smooth out the bumps inherent in any PMO implementation and to help ensure the successful realization of the benefits that a PMO can bring.

- **About the authors**

Mark A. Johnson is the Chief Financial Officer of PMOLink, Inc., a firm specializing in Project Management, Process Management and Knowledge Management solutions for business and government. Mr. Johnson has over 15 years of experience in Project, Process and Knowledge Management roles on Information Technology projects supporting the government and industry. He earned his BA in Psychology from UCLA and an MS in Management from Troy State University. He has completed graduate level studies in International Relations and National Security Decision-Making at the U.S. Naval War College and Old Dominion University.

Terry G. Joyner is the Manager of Program Management for the Distribution & Customer Service organization at Entergy. Terry has managed the Program Management organization at Entergy for the last 10 years and recently completed 30 years of service, primarily in the Distribution & Customer Service Organization. Terry served as a Program Manager for most of the major distribution Information Technology systems established at Entergy over the last 15 years. His most recent assignment was Programme98 Manager at Entergy's London Electricity during Great Britain's deregulation transition.

Robert J. Martin, Jr., PMP is the Manager of Project Management for Entergy Corporation's Transmission Business. Rob has served in various Project Management roles within Entergy, and has experience in both Engineering Capital Projects as well as formation Technology projects. Prior to joining Entergy as a Project Manager in January of 2000, Rob managed a wide variety of projects that focused on new product development, manufacturing, and EPC contracts. Rob holds a Bachelor of Science in Electrical Engineering and an MBA from the University of New Orleans. Rob is also a Project Management Professional (PMP) certified by the Project Management Institute.

References

¹ *A guide to the Project Management Body of Knowledge (PMBOK® Guide) 2000 Edition*, pp. 4

² *A guide to the Project Management Body of Knowledge (PMBOK® Guide) 2000 Edition*, Chapter 3

Bibliography

Business Process Oriented Implementation of Standard Software by Dr. Mathias Kirchmer

Business Process Modeling with ARIS: A Practical Guide by Rob Davis

ARIS by Dr. A.W. Scheer

Earned Value Project Management, Second Edition by Quentin W. Fleming and Joel M. Koppelman

Guide to the Project Management Body of Knowledge, A (PMBOK® Guide), 2000 Edition by the Project Management Institute

Human Resource Skills for the Project Manager by Vijay K. Verma

Principles of Project Management by John Adams, et al.

Project and Program Risk Management edited by R. Max Wideman

Effective Project Management by Robert K. Wysocki, et al. (John Wiley & Sons)

Focus Groups: A Step-by-Step Guide by Gloria E. Bader and Catherine Rossi (Bader Group)

How to Lead Work Teams: Facilitation Skills, Second Edition by Fran Rees (John Wiley & Sons)

The New Project Management by J. Davidson Frame (Jossey-Bass)

Organizational Architecture: Designs for Changing Organizations by David A. Nader, Marc S. Gerstein, Robert Shaw, and Associates (Jossey-Bass)

Project Management: A Managerial Approach, Fourth Edition by Jack R. Meredith and Samuel J. Mantel, Jr. (John Wiley & Sons)

Project Management: A Systems Approach to Planning, Scheduling, and Controlling, Seventh Edition by Harold Kerzner (John Wiley & Sons)