

Improving Organizational Project Management Maturity A Siemens Case Study

Glenn Strausser
Senior Consultant
Siemens Corporate Research
Princeton, NJ
glenn.strausser@ieee.org

Joseph Sopko
Senior Consultant
Siemens Corporate Research
Princeton, NJ
joseph.sopko@siemens.com

Stephen Barney
Director
Core I.S.
Andover, United Kingdom
stephen.barney@coreis.co.uk

Summary

This paper will discuss key success factors in improving Organizational Project Management Maturity in multiple organizations within Siemens. Four key success factors: Executive Support, Organizational Project Management Offices (PMOs), a Process Management Infrastructure, and Program Management Best Practices, will be discussed in detail. The ties and interfaces to Quality and Six-Sigma Programs will be discussed. While a case study for one type of business change, the method is applicable for any change program.

Introduction

Project management is a core competency of all Siemens companies. In 2000, the executive board of Siemens AG launched a corporate initiative to systematically and continuously improve its organizational project management maturity. This has been known as the PM@Siemens Initiative. The mission of the initiative is defined as follows:

- ▶ PM@Siemens identifies best practices and, together with all the relevant participants, moderates the derivation of company standards with world wide validity from these excellent examples.
- ▶ PM@Siemens ensures that all Siemens companies handling project business introduce standardized recommended best practices and utilize this knowledge and experience.

Siemens projects include a wide range of products, solutions, and service deliveries. More than 50% of the overall Siemens turnover is based on project business. Each company's approach to project management must be applicable to the entire project life-cycle from project acquisition, engineering, and development through customer delivery, installation, and commissioning projects. The same requirements are true for any maturity model evaluating and analyzing the capabilities of project management organizations.

To ensure consistent measurement of organizational PM process maturity across all businesses, a comprehensive maturity model was needed that addressed the complexities of project management, engineering, and process management. This model also had to withstand the scrutiny of a world-wide customer base. Customers of Siemens expect a structured and transparent project management approach from the delivering business unit for complex solutions, i.e. power plants, complex railway transportation systems or medical solutions. Furthermore, Siemens itself, as well as Siemens customers, expect a continuous performance evaluation and improvement of processes and procedures to reduce potential risks in project delivery and to increase benefits.

Siemens Corporate Technology (CT) is the organization within Siemens that is responsible for measurement and improvement of project management maturity within Siemens operating companies world-wide. To provide world-wide coverage, and to establish regional expertise, Siemens CT established three regional offices located in Munich, Germany, Princeton, New Jersey (part of Siemens Corporate Research), and Beijing, China.

MPM Assessment Protocol

Siemens Corporate Technology has been performing process assessments since 1992. As a crucial part of the Siemens wide project management initiative, a dedicated Project Management Maturity Assessment addressing the

wide range of Siemens customer projects was introduced in 2002. To date, roughly 150 organizational assessments have been performed world-wide using this protocol.

The Capability Maturity Model Integrated (CMMI[®]) was chosen as the baseline process maturity model for engineering and process development best practices. CMMI[®] methodology, procedures and results (e.g. 5 different maturity levels) were accepted throughout almost all industries world wide. Even though CMMI[®] has project management as one of its core process groups, best practices from PMI Guide to the Project Management Body of Knowledge (PMBOK[®] Guide) were included in the Siemens maturity model to ensure more thorough coverage of project management processes and alignment with international standards for the project management discipline. In addition, organizational support infrastructure best practices were derived from lessons learned within Siemens and were included within the PM@Siemens model.

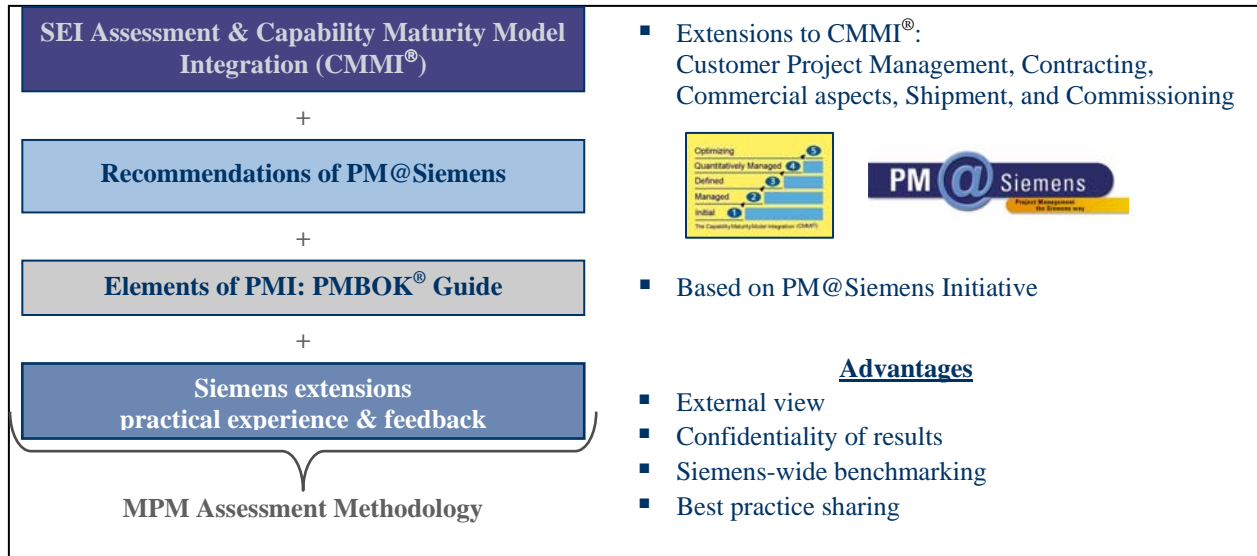


Exhibit 1: Benefits from various sources

The resulting framework was called the Maturity in Project Management (MPM) assessment protocol and is currently on its third revision. It consists of a detailed questionnaire and a Microsoft Excel-based spreadsheet application which is used for rating purposes and which provides graphical presentations of the maturity level of each analyzed process area. As a pilot, best practices from PMI's Organizational Project Management Maturity Model (OPM3[®]) were also incorporated into MPM assessments conducted by Siemens Corporate Research.

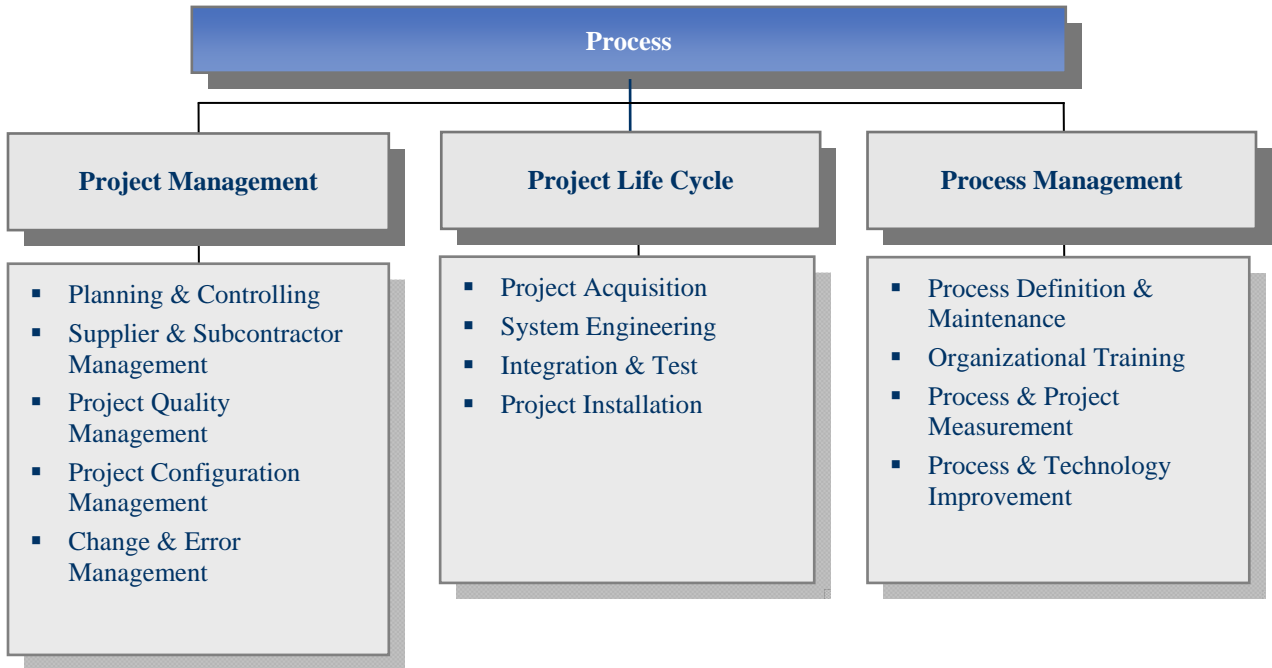


Exhibit 2: Process and Sub-process Areas of MPM Assessment Protocol

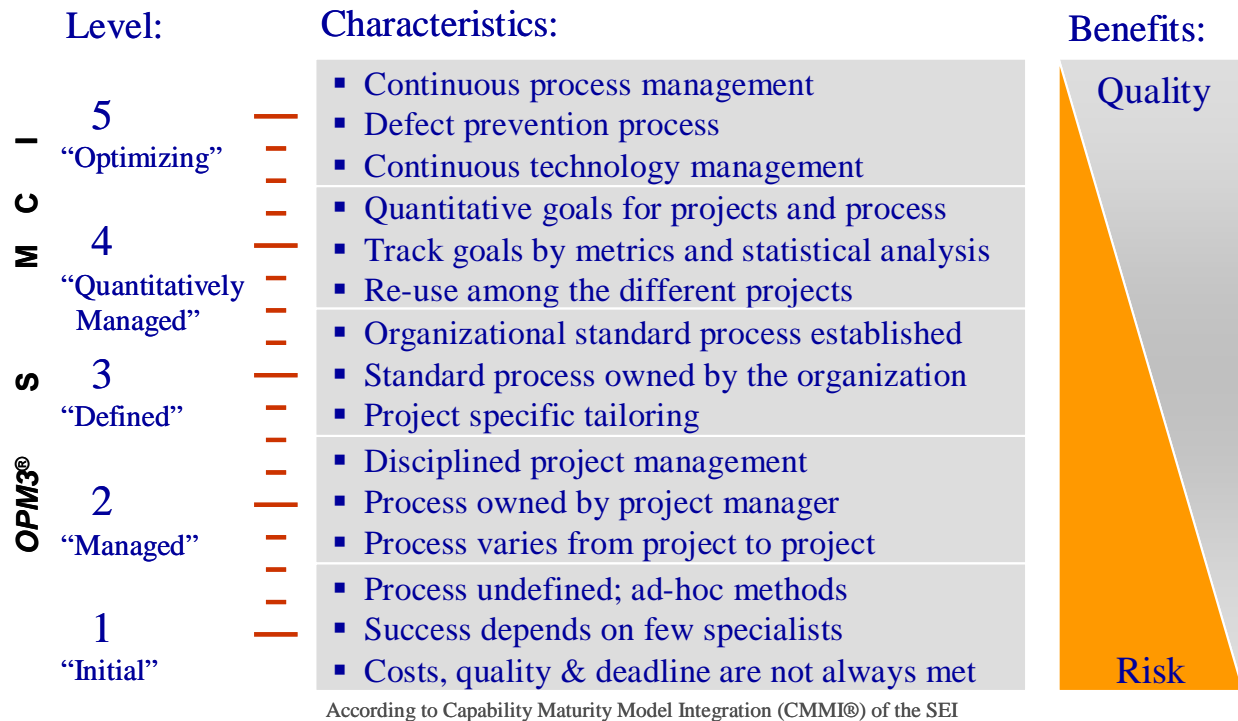


Exhibit 3: MPM Maturity Levels with supporting OPM3® Maturity Stages – Standardized (S), Measured (M), Controlled (C), and Continuously Improved (I).

Improving Organizational Project Management Maturity

One of the ongoing missions of PM@Siemens is to improve organizational project management maturity to support the project business. The Siemens MPM Maturity Model establishes levels similar to those defined by CMMI®:

Overall, Siemens is progressing to higher levels of sustained maturity. Due to the importance of project management maturity to Siemens, the United States region of Siemens decided to accelerate the improvement effort. Based on a review of assessment results and evaluation of global consulting experiences, the following key success factors were determined to be fundamental characteristics for implementing and sustaining organizational project management maturity:

- ▶ Executive Support
- ▶ Organizational Project Management Office (PMO)
- ▶ Process Management Infrastructure
- ▶ Program Management Best Practices

As a result of this analysis, these core enabling capabilities became the focus of an internal change program led by Siemens Corporation US and supported by Siemens Corporate Research. Named the Successfully Defined Program after the common name for Level 3 Maturity, “defined”, SCR and Siemens Corporation US began an ongoing awareness and support program to accelerate and embed Siemens MPM maturity improvements.

The Successfully Defined Program provided expert guidance, coaching, training, and assistance to participating organizations in all aspects of organizational project management maturity improvement – primarily addressing the four key success factors.

Executive Support

Historically, organizational programs will not succeed without executive support. Executive commitment and support is imperative since it involves organizational change, leadership vision, and a linkage to business strategy. Effective executive sponsorship for the program is critical in alignment of the program with corporate strategy, definition of expected program benefits, empowering the program leadership, and commitment of resources. As a condition for participation in Successfully Defined Program, executive sponsors must be named and the program mandate and vision must be defined. The executive sponsor is responsible for: owning the program vision, the business case, interfacing with key senior stakeholders, program governance, and maintaining the alignment of the program to the organization’s strategic direction.

Process Management Infrastructure

Since most maturity models contain a strong component of process maturity, the infrastructure to support the definition, maintenance and the follow-on measurement and improvement of processes must be in place. The establishment of a process management infrastructure was identified as a key enabler for organizational maturity improvement and maintenance. Paraphrasing *OPM3*®, characteristics of a Standardized process at Siemens are:

- ▶ A process-oriented governing body is established that meets on a regular basis to discuss process management issues and suggestions for improvements.
- ▶ The process is documented, approved, and updated regularly.
- ▶ The process is communicated to all necessary stakeholders and training is in place.
- ▶ The process has been implemented consistently across the organization.

Process definition and maintenance is a key requirement for Siemens MPM maturity – there are several requirements that define process infrastructure components that address, in detail, the first two items above, and part of the third. Consistent implementation is measured by practice verification throughout the organization.

Program Management

Organizational project management improvement initiatives are business change programs. They are characterized by the creation and standardization of processes, delivering new capabilities, transformation of the business, and embedding change with the goal of achieving program benefits. Linkage to business benefits engages executive interest since the program and the business share common objectives. Benefits measurement and achievements are important in embedding and supporting business change, validating process effectiveness, and determining the value of existing processes and capabilities as well as the creation of new ones. The ongoing nature of the delivery of new or emerging capabilities and continuous improvement further support the need for program management.

As a standard methodology, the United Kingdom Office of Government Commerce (OGC) *Managing Successful Programmes (MSP) Standard* was selected as a basis for training, certification, and implementation. MSP was selected because:

- ▶ MSP provides a best practice methodology that addresses the relationship between business change, benefits management, and program governance.
- ▶ Business Change Managers are formally defined and are responsible for defining capability requirements, transition planning, embedding change, and achieving the program benefits.
- ▶ Maturity – MSP was launched by the UK OGC in 1999 and the standard is in its third revision (2007).
- ▶ A training and certification network is in place in the way of Accredited Training Organizations that enables practitioners.

PMI's *The Standard for Program Management* was also considered and supports most processes within MSP. MSP is in fact a specific implementation of PMI's standard.

Project Management Offices

The functions of a Project Management Office (PMO) are essential to enable and sustain a high level of organizational project management maturity. Organizations below Level 3 (Defined) maturity in the MPM model often are deficient in the definition and management of project management processes. In our findings both within and external to Siemens, the improvement and analysis of project process effectiveness often depended heavily on the experience and competency of the project managers. Further, the time available for a project manager to manage the processes, tools, as well as manage the project is typically non-existent. As a result, the capability of the organization to conduct analysis at the business level and to improve is restricted. Without the senior expertise and organizational view of a PMO function, conditions supporting process improvements outside of the individual projects and across the business are not optimal. As Hobbs (2007) noted, the names of the organization performing the PMO functions is varied. Some organizations use terms like "Center of Excellence" or "Business Optimization Team". The minimum functions do not have to reside in a single organization and can be distributed among various groups, e.g. Quality, Training, PMO, etc. The minimum functions that Siemens requires for Level 3 maturity are Project Management Methodology, Project Tools, Standards & Metrics, Process Governance & Maintenance, Resource Management, Training and Education, Project Planning, Project Auditing, and Project Reporting.

Program Management and the Project Management Office

The creation of PMOs is critical to the success of the Siemens initiative to improve organizational project management maturity, but there was a significant concern about their longevity and acceptance by the various business units. The very fact that an organization establishes a PMO initiates change in the business and since it's usually not the only improvement program underway, it is often done in a turbulent environment with many factors tinkering with its existence. As revealed by Hobbs (2007), PMOs undergo reorganization as often as it takes to fully implement them. Further, their relevance to the business is perceived as equally good as it is bad. Why is there such a high mortality rate for PMOs? Several key principles of program management help avoid these potential shortfalls: leading/managing organizational change, focus on benefits, and an evolving delivery of capabilities through a dossier of improvement projects.

Programs, by definition, exist to deliver benefits to the organization. The ability to continuously deliver business benefits is directly related to the perception of PMO relevance to the organization. Since programs exist in a

changing environment, best practices such as an agreed blueprint of the current and future states, a program vision that's linked to business strategy, as well as defined benefit profiles are extremely valuable tools in managing through a market shift or a re-organization by keeping the business focused on the planned objectives.

Preventing the “Ivory Tower” Syndrome

To address the systematic issues identified by Hobbs (2007), and internal concerns regarding value and overhead, Siemens has recommended formally chartering its PMOs with a specific sunset clause in which the PMO will disband unless specifically re-chartered by the sponsor. The concept of a sunset provision has been well received by upper management who are chartering the PMO. It gives them a better sense of control and ensures that they are not creating a new "empire" that will not add value. This increases the likelihood that the PMO will be created and chartered, and provides a sense of urgency and focus to the PMO to deliver benefits that are measurable and important to the sponsor. This provision, while innovative, is no more important than the other minimum recommended chartering items, which are all essential for success. Components of a recommended charter for a new PMO are detailed below:

- ▶ Benefits to be realized from a PMO Group – identify measurable benefits
- ▶ Business need for a PMO
- ▶ Target areas to be initially addressed (within the next 18 months)
- ▶ Timeline to achieve benefits
- ▶ PMO review and sunset agreements
 - Recommend a review every six months – with a sunset review and revision of the charter at 12-24 months tied to benefits realization, business case (i.e. benefits versus cost and dis-benefits) and the needs of the business. Concept is to revise charter every 12 months for next 18 months plan.
- ▶ Funding and resource allocation
- ▶ Authority of the PMO
- ▶ Executive sponsor of the PMO
- ▶ Organizational structure and alignment of the PMO – including roles and responsibilities
- ▶ Reporting requirement of the PMO to the sponsor or sponsoring group

The PMO must evolve to provide continuous benefits to the sponsoring organization and, as long as its existence adds value, it will continue to operate. This helps avoid PMOs being perceived as “process police” or expensive overhead. Once a Level 3 (Defined) or *OPM3*® Standardized maturity stage is achieved, other disciplines that specialize on process measurement and improvement, such as Six Sigma, could be brought into the PMO function to establish improvement projects with a defined business case and return on investment. This ongoing evolution of PMO capabilities, benefits delivery and business case review is intended to validate the PMOs existence and refresh its value to the organization. Additionally, another goal of the PMO should be achieve standardized processes yet reduce the process burden on the project management organization as well as optimization of process effectiveness across the enterprise. This is a direct benefit of the capabilities defined in later maturity stages (e.g. *OPM3*® Measured, Controlled, and Continuously Improved).

Six Sigma/Quality Management

Six-sigma organizational programs, tools, and techniques are very relevant to organizational improvement efforts, and specifically support, and are supported by, organizational program management. There are three primary types of interfaces between six-sigma and program management.

First, implementing the use of six-sigma in an organization is a program, not a project, which should be run using the principles described in this paper. Using a formal program management methodology increases the ability of the organization to successfully implement quality management programs or other organizational changes. In the last twelve months there has been an increase in six-sigma program terminations in various organizations, and there is a significant implementation failure rate within two years of attempting to implement a new six-sigma program. If organizations utilize the four key supporting factors described in this paper it becomes easier to start and maintain a six-sigma program.

Second, a six-sigma project can identify required or recommended organizational changes during the define, measure, and analyze phases that would be better implemented using a program management approach, rather than using traditional six-sigma project management techniques. This also allows solutions that don't meet the required payback criteria of a six-sigma project to be implemented because of either a tie to organizational strategy, or the return on investment and/or benefits of the overall associated program. Where individual elements of work cannot be justified by a six-sigma project, a program approach can tie various projects together to achieve an organizational benefit.

Third, an organizational change program can use the six-sigma methodology and its various tools to perform current state analyses, gap analyses, help define the planned future state, perform root cause analyses, etc.

Organizations can also consider combining several business improvement functions in an umbrella support organization such as a business excellence group that combines six-sigma, project/program/portfolio management offices, etc. If done correctly this can maximize the benefits to the organization and provide mutually supportive and more cost effective solutions. The use of an integrated approach to tooling and methodology selection has been very successful and valuable for Siemens.

Expert Support

One final recommendation is to use experienced organizational experts to help guide the business changes including organizational maturity improvements, PMO development, six-sigma program implementations, and program management implementation. Personnel who are expert practitioners in these individual fields, such as experienced black belts or professional project managers, may not be the optimum person to implement organizational level systems, as this type of task requires different skills and backgrounds.

Conclusion

Business improvement initiatives have been handled by many organizations strictly as improvement projects. For projects to be successful, they need a clear and defined scope. Yet, the organizational and market landscapes are ever changing and the path forward is not always clear at the onset. Organizations today are cautious when institutionalizing organizations like a PMO that may be perceived as becoming an overhead burden shortly after the process definition phases of a business excellence program are completed, yet their work is clearly necessary if any organization intends to achieve greater project management maturity. Program management espouses the deliberate and disciplined focus, not only on capability delivery through projects, but also on benefits realization through embedding those capabilities, managing the transition, and managing organizational change. Integrating program management and maturity models such as the Siemens MPM model, CMMI[®] or *OPM3*[®] with other process management and improvement methodologies such as Lean Six Sigma, potentially provides a continuous value stream that must be established to ensure successful achievement through the upper stages of process maturity and effect organizational change.

Siemens has seen very good outcomes in a number of our business units as a result of this methodology. Participating organizations range from 10 Million to \$4 Billion in annual revenues and include a very diverse group of business sectors including Health Care, Energy, and Industry. Those organizations that are following the guidance and coaching of SCR are experiencing excellent results – usually in direct proportion to their level of effort.

About the Authors

Glenn Strausser has over 20 years of progressive experience in program and project management practice and infrastructure development, quality management, and operations. His background includes the nuclear, automotive, construction, healthcare/medical, government, transportation, chemical, and communications industries.

Glenn has an MBA and a B.S. in Electrical Engineering. He is certified by PMI as a Project Management Professional and as an *OPM3* Assessor and Consultant. He is certified as an Advanced Practitioner and instructor in

Managing Successful Programmes, and has certifications by ASQ in Quality Management, Quality Engineering, and Six Sigma. He is also a Lean Six-Sigma Master Black Belt.

Joe Sopko has over 20 years experience in project and program management practice and infrastructure development with direct industry experience in commercial construction, aerospace, shipbuilding, and telecommunications/high technology new product development in defense/government, research and commercial environments.

Joe has Bachelors and Masters Degrees in Electrical Engineering. Joe is certified by PMI as a PMP and as an *OPM3* Assessor and Consultant. He is certified as an advanced practitioner in MSP.

Glenn and Joe currently work as Senior Consultants for Siemens as experts in Portfolio, Program, and Project Management, Innovation, and Quality Management. They support businesses worldwide, but concentrate on North America and the United Kingdom.

Stephen Barney is the operations Director and lead trainer of Core IS, a UK based consulting and training firm. Stephen has run many programmes in the public and private sector over the last 25 years. He is certified as an Advanced Practitioner and Trainer for Managing Successful Programmes, Management of Risk, and Prince2. Stephen was the first UKAS Accredited consultant in the UK for PRINCE2 and currently serves on the APMB exam board. Stephen is an accomplished magician in his spare time and is a Member of The Magic Circle.

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