The Siemens AG Case Studies:

A Global R & D Network PMO Framework

Jeff Schadt

April 22, 2013

1. **Review Submission History**

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Abstract

The origins of the PMO and the formally recognized functions attributed to the PMO are recent developments in the timeframe of modern business endeavors. Consequently, expectations of PMOs vary greatly across organizations, and there is little to no consensus as relates to the structure and perceived value of PMOs. The Program Management course is intended to assist students to form actionable command of program, project and portfolio management by applying concepts described in extant literature to case studies illustrating a wide variety of project management weaknesses. This paper seeks to expand on the learning objective by delivering a PMO product lifecycle framework suitable to the global enterprise, multi-project PMO environment of the Siemens Information and Communications Networks (ICN) business unit, described in the Siemens AG: Global Development Strategy (A) and (B) case studies from Harvard Business School Publishing, Boston, MA. The paper follows the course emphasis on the PMO value proposition, executive support, and governance, but adds requirements management, organizational behavior, communication, and quality measurement components that entail substantial control and execution processes necessary to support high achieving programs with geographically dispersed teams. PMO processes through the program commitment and quality-monitoring activities are described in detail. Product-ship and end-of-life processes, while being important to a fully functioning product life cycle PMO, receive only cursory mention in light of space limitations.
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Introduction

This Siemens AG Information and Communication Networks (ICN) division uses a geographically dispersed research and development organization to produce strategically critical network infrastructure products. The management model for the Remote Development Centers (RDC) was inconsistent, based on organization maturity and the location’s contribution of market-specific product support. As a regional center contributed bottom-line results from customization, the center gained more autonomy.

The distribution of project deliverables across subprojects assigned to the RDCs presented inefficiencies in sharing and leveraging intellectual property. “The biggest challenges in coordinating international efforts occurred because of interdependency of subprojects, delays in assembling crucial employees from differing countries, and international coordination overhead—which could cost as much as 15% of project budgets. (Thomke and Nimgade 2001a). Siemens changed to strong-matrix project teams at the US RDC to improve the product release cycles, but managers claimed this resulted in a decline in quality, increased duplication of efforts, and difficulty in motivating individuals to troubleshoot problems with older product releases. (Thomke and Nimgade 2001a).

Motivation for a PMO

The history of the past few product releases has shown that the Siemens ICN division must realize increased business value through comprehensive strategic planning (PMI 2013b) and organizational behavior management by enabling projects to be evaluated, prioritized and managed within a program. Eberl and Hunke, the senior business executives responsible for the Carrier Switching Networks (CSN) business unit, took the first steps toward defining the value proposition of a strategically aligned program management office following the initiation of the
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SURPASS project in 2001. A program is a collection of projects that have something in common, usually a product line or business unit emphasis (Kendall and Rollins 2003\textsuperscript{a}). The overarching goal of the initial 3-year PMO plan, is to achieve Stage VI PMO maturity: Project teams delivering on schedule (Kendall and Rollins 2003\textsuperscript{b}), aligned with the Siemens ICN business, while adopting PMO concepts that enable the solution to scale with the size of the projects. (Padilla 2005).

**Assessment, Buy-in to the Problems and Solution; Charter**

Eberl and Hunke organized a team of representatives from the market and supply sides of ICN to perform an environmental assessment with key stakeholders (PMI 2013\textsuperscript{a}). The charge to the team was to identify opportunities that further ICN strategic objectives. Upon completion of the survey, findings highlighted that the weaknesses common to the management of subprojects, everywhere, but most critically at Bangalore, ICN’s third-largest regional development center outside Germany, revolved around absence of stakeholder engagement (PMI\textsuperscript{®} 2013\textsuperscript{b}), represented by a failure to fully engage the remote R&D teams as stakeholders in the success of their deliverables. The recommendations for improving project delivery discussed among the assessment team and sponsors Eberl and Hunke revolved around virtual teams, (Lipnack and Stamps 1997 and Katzenbach and Smith 2009), information sharing (Gupta and Govindarajan 2000) and implementing high-performance work systems (HPWS) concepts (Arthur, 1992, 1994 and Pfeffer 1998).

Based upon the environmental assessment findings and recommendations, the Global R&D Network PMO charter was developed; Eberl and Hunke presented the charter to ICN executives with a business case, requesting a business case review, program approval and funding (Kendall and Rollins 2003\textsuperscript{c}) for three years. Refer to Appendix 1 to view the Siemens
ICN Global R&D Network PMO Charter and roadmap. The R&D Network PMO value proposition to the ICN CEO and executives includes but is not limited to improvement of the ROI on ICN project investments. The value proposition hinges on upon the R&D Network PMO becoming the project leadership, being completely responsible for producing business-aligned results (Perry 2009) from projects and subprojects. The PMO processes will emphasize transparency and accountability in the organizational relationships (Greiman, 2013\textsuperscript{a}), accelerate project delivery, support achievement of organizational goals, improve competitiveness, and provide reporting benefits to management (Greiman 2013\textsuperscript{b}), by maintaining a comprehensive project status dashboard. The value of the PMO lies in their relentless focus on achieving the business objective at hand. (Perry 2009).

**R & D Network PMO Governance**

RDC project managers oversaw the subprojects; however, they were not empowered to perform comprehensive project management, monitoring, and control. This weak matrix organization (Larson and Gray (2011\textsuperscript{a}) was illustrated by a multiplicity of CSN projects the project managers carried, and the assignment of local customization projects at the discretion of their RDC management (Thomke and Nimgade 2001\textsuperscript{a}). Regionally-based managers, engineers and technicians facilitated rapid response to local market customization requirements. Siemens furthered its strategic goal of strengthening its global presence by shifting more autonomy to its regional centers as they contributed more to the bottom line. (Thomke and Nimgade 2001\textsuperscript{b}). Eberl and Hunke saw the autonomy allowed the RDCs to be a contributing factor in the weak management of projects, as the project managers reported to RDC management, rather than a program office strategically aligned with a governance board.
Although autonomy provided benefits by enabling the regional centers to respond to customization opportunities with revenue implications, the lack of accountability to Munich was partially at the source of delivery delays of strategically important projects. Midway through the SURPASS project, Eberl and Hunke added new country and functional manager positions (Bartlett and Ghoshal 2003), for all RDCs. The country managers are executive positions with responsibilities for maximizing RDC return on investment and are equivalent to Siemens ICN business unit heads. The global R & D Network PMO Business Management Team is comprised of CSN division and country executive managers representing market and supply organizations with responsibilities to review and direct the prioritization of the project portfolio (Kendall and Rollins 2003). Refer to Appendix 2 to review the Global R&D Network PMO Product Life Cycle Overview document, Section 3, Governance and the associated Governance procedure document for specific information concerning governance.

The RDC project managers, motivated by management objectives, developed skills of functional managers, as described by Gupta and Govindarahan. Project managers are recruited based on their capacity for increased responsibilities. When empowered by the program charter, the combination of country manager and project manager roles support consistent project management and accountability across RDCs. Early in the establishment of the PMO organization, primary responsibility for the development of common solutions for the information sharing inefficiencies among the remotely distributed teams lies with the country and functional-project managers. Information sharing in particular is a fundamental behavior that increases project success. To maximize knowledge creation and acquisition, companies need to set stretch goals, provide incentives, empower people, encourage experimentation, and cultivate within the company a market for ideas. (Gupta and Govindarajan 2000).
The new country manager positions are filled by candidates who have deep association with the culture, accents, project management styles and internal workings of development organizations in the RDC host country, (Rottman and Lacity 2006), and have a track record of business leadership established in the Munich headquarters. Refer to the Siemens Information Communication Networks (ICN) organization chart at Appendix 3 to see the country managers and the senior executives of the other Siemens ICN business units membership reflected in the Global R & D Network PMO Business Management Team and the PMO organization reporting lines.

**R & D Network PMO Mission, Scope, Goal and Process Framework**

The mission of the R&D Network PMO is to improve quality, reduce cost, and optimize time-to-market across Siemens ICN product operations and related programs. The scope includes business readiness governance, product lifecycle alignment and process improvement projects and associated functional training. The primary goal of the PMO is to drive consistent alignment, execution and measurement of R&D Network product development processes between Munich headquarters and across the global R & D Centers of Excellence (RDCs).

The R & D Network PMO is the shared corporate mechanism defining common lifecycle phases, decision points and deliverables. A condition of project funding approval is all Siemens ICN business units utilize the lifecycle phases, decision points and deliverables. Figure 1, R & D Network Product Lifecycle summary illustrates the key elements of the lifecycle consistent with project management process groups across the project lifecycle (PMBOK® 2008).
Figure 1. R & D Network Product Lifecycle Summary

**Market Requirements Document and Business Case**

The Market Requirements Document (MRD) summarizes market opportunity and dynamics, enabling business planning focused on the most relevant opportunities. The Business Unit management team review and approve the MRD and then complete a Business Case summarizing cross-functional commercial (including cross-functional costs) and technical justifications for any new program proposals. Based on Business Unit management approval, the Business Case is reviewed by affected Business Management Team(s) (BMTs). BMT acceptance
of a Business Case indicates BMT desire to charter a Program Management Team (PMT). The Market Requirements Document and Business Case comprise program management Benefits Register and Delivery, Program Approach, Goals, Mandate and Plan, and Risk Assessment artifacts (PMI® 2013c).

**Product Requirements Definition and Program Commitment**

Refer to Appendix 4 to review the R&D Network PMO product requirements and program commitment documents and procedures. The product requirements document (PRD) guides the specification of key user requirements. Once defined, reviewed and approved, the user requirements provide 2 of the 5 core principles of Mendelson’s information-age (IA) organizational architecture; a decision architecture based on the co-location of decision-making authority with the specific knowledge needed for decision making (together with a commensurate incentive structure); and effective dissemination of information and knowledge within the organization. The collection, review, approval and dissemination of product requirements at a user-case level empowers the project managers responsible for subprojects to make decisions needed to maintain project productivity and momentum in fast clock-speed, information-rich environments (Mendelson 2000).

Legal/Political global environment risks, identified by Jeswald Salacuse, (Salacuse, 2003) negatively impacted the ADMOSS project because visa restrictions and bureaucracy on the part of the German government made it extremely difficult to fly Indians developers to Munich. (Thomke and Nimgade 2001b). The electronic management of requirements between product architects in Munich and the global R & D Centers of Excellence alleviates the inefficiency introduced by travel of architects to meet with developers or visa-versa. The requirements definition and program commitment documents comprise Program Scope

COMM

COMM enables the continuous communication among program/project stakeholders and the project members, providing worldwide consistency of project requirements, change requests/approvals, status reporting and for the aggregation of pre and post release quality metrics. COMM alleviates inefficiencies of scheduling synchronous communication activities by round-the-clock availability of project management monitoring, quality metrics and status data for program/project stakeholders and project member consumption. Refer to Appendix 2 the Global R&D Network PMO Product Life Cycle Overview document. Section 10.3, COMM for additional usage information.

Monitoring and Control: Quality, Measurement, and Status

With unclear measurements, behavior is unpredictable. (Kendall and Rollins 2003c). Much of the inefficiency experienced by the RDCs stemmed from an apparent lack of clear quality metrics with which to measure results. This was evident from the negative impact of employee turnover; Boca Raton: about thirteen percent per year, Bangalore as much as one-third. (Thomke and Nimgade 2001c). The absence of metrics - simple logistical information necessary to maintain continuity of mission, such as the reporting structure and contact information leading back to Siemens management in Munich was lacking. Logistical, planning and development process problems were evident from misunderstandings regarding product usage and reliability requirements that caused significant schedule disruptions. Further, integration testing was ineffective due to a failure to recognize that the scope and design of NetManager required compatible equipment, not available with the existing lab. (Thomke and Nimgade 2001d).
Refer to Appendix 4 to review the quality plan and serviceability, availability, and reliability requirements procedures. The quality plan (QPN) guides the specification of quality target and metrics, including the required functional activities for detecting, measuring, and monitoring quality throughout the development lifecycle. The quality plan is a key deliverable of the ‘Program Commitment’ decision point in the R & D Network Product Lifecycle.

The Serviceability, Availability and Reliability requirement documents identifies SAR criteria and related constraints. Common definitions of metrics and methods for aggregating metrics ensure consistent measures of quality across the portfolio. Relevant sections of the MRD, PRD, QPN, and PCD documents contain imbedded SAR requirements and represent the minimum pre-release quality and performance objectives. The quality plan and serviceability, availability and reliability requirement documents comprise Program quality policy and standards, Quality management plan, Program success criteria and Program report artifacts (PMI® 2013).

Measures of progress are reported at various levels, depending upon the audience. The PMTs are responsible for status reported using the R &D Interlock Scorecard. The Global R & D Network Business Management Scorecard is a rollup of the R &D Interlock Scorecard and a monthly summary of the issues and risks identified through the R & D Interlock Scorecard. Customer experience (post-release quality measures) are aggregated from customer service data. Refer to Appendix 6, Reports, to view Closed Service Request Drilldown; Time to Restore, and the CX4-120 program dashboard reports. At-risk compensation tied to achievement of quarterly customer experience metrics positively influences quality-oriented and continuous improvement behaviors.
Conclusion

Eberl and Hunke, having successfully gained executive buy-in for the Global R & D Network PMO five years earlier are now being considered for greater corporate management responsibilities. The collection of Remote Development Centers, are now recognized for improving bottom-line results with a new collective name: “Global R & D Centers of Excellence”. The PMO organization that Eberl and Hunke began to implement in 2001, following the NetManager debacle improves ROI on project investments and accelerates project delivery, supports the achievement of organizational goals and provides benefits to management (Greiman 2013b). The introduction of senior management at the RDCs, with executive responsibilities for executing on ICN strategic initiatives, and reporting responsibilities at the Business Management Team and Project Management Teams within the newly created ICN R&D Network PMO enables a centralized high performing project organization, which deliver the benefits outlined in their PMO value proposition in 2001.

Bangalore country manager’s project investment, resource and asset portfolio management (Kendall and Rollins 2003f) responsibilities within the Global R & D Network PMO Business Management Team, enabled Bangalore to secure major investments and significant expansion of system-testing and hardware design capabilities (Thomke and Nimgade 2001e) that were cited as holding back progress. Bangalore has been successful with their three most recent projects, beating quality objectives and completed ahead of schedule and under budget.
References


R & D Network PMO Framework documents are illustrative of PMO artifacts that scale to support a program and project portfolio representative of the SIEMIENS ICN business model as described in the Siemens AG: Global Development Strategy (A) and (B) case studies, Harvard Business School Publishing, Boston, MA. The modified framework documents are used with permission.
Appendix 1 Global R&D Network PMO Program Charter and Roadmaps

1.1 Global R & D Network PMO Pro Forma Charter
Click on the Microsoft® Word icon below to view a pro forma Global R&D Network PMO Program Charter.

1.2 R & D Network PMO Program Roadmaps
Click on the Microsoft® PowerPoint® icon below to view the Global R&D Networks PMO Roadmaps. Note that the roadmaps illustrate PMO operations completed through September, 5, 2002.
Appendix 2 PMO Process Lifecycle Overview and Governance

Click on the Microsoft® Word icon below to view the Global R&D Network PMO Product Life Cycle Overview document.

Click on the Microsoft® Word icon below to view the SIEMENS ICN Cross Product PMO Governance procedure document.
Appendix 4 Program Management Artifacts

4.1 Business Case

Click on the Microsoft® Word icon below to view the Global R&D Network PMO Business Case template document.

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4.2 Program Charter

Click on the Microsoft® Word icon below to view the Global R&D Network PMO Charter template document.

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4.3 Program Roadmaps

Click on the Microsoft® PowerPoint® icon below to view the Global R&D Network PMO Roadmaps.

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4.4 Market Requirements Document

Click on the Microsoft® Word icons below to view the Global R&D Network PMO Market Requirements procedures and template documents.

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4.5 Product Requirements Document

Click on the Microsoft® Word icon below to view the Global R&D Network PMO Product Requirements Document procedure.

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Appendix 4 Program Management Artifacts, continued

4.6 Program Commitment Document
Click on the Microsoft® Word icon below to view the Global R&D Network PMO Program Commitment Document procedure.

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4.7 Quality Plan
Click on the Microsoft® Word icon below to view the Global R&D Network PMO Quality Plan procedure and Quality Plan Questionnaire.

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4.8 Serviceability, Availability, and Reliability Requirements
Click on the Microsoft® Word icon below to view the Global R&D Network PMO Serviceability, Availability, and Reliability Requirements.

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- Online Proj Mgmt Ac
Appendix 5 Reports

Click on the icon below to display Quality Metric report of Closed Service Request Drilldown – Time to Restore metric.

Click on the icon below to display the CX4-120 program dashboard, Various Service Request metrics – Incoming Volume by Month.
### Appendix 6 Glossary of Acronyms and Terms

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<td>BRI</td>
<td>R &amp; D Network Interlock</td>
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<td>Business Unit Management</td>
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<tr>
<td>CET</td>
<td>Customer Environment Test</td>
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<td>CPQO</td>
<td>Configuration, Pricing, Quoting, Ordering System</td>
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