

# **Project Management Knowledge Management: Moving from Standards to Leadership**

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## **Introduction**

Do you have the feeling your PM initiatives are not focused on the right issues? Have you created what you think is a great methodology, but are afraid it is not being used? Furthermore, do you have the suspicion that your so-called best practices are a bit out of date?

This paper outlines how the SAP Global Project Management Office addresses these challenges. Many project management initiatives build a foundation of standard practices, but then ignore the wealth of data these practices generate. Using a Project Management Knowledge Management (PM KM) framework unearths this treasure by going beyond capturing lessons learned, which are typically archived and forgotten. Using the PM KM framework drives business transformation by creating, moderating, and sharing value-added information.

## **PM KM Background Overview**

### **Project Management Recognized As Strategic Competency**

SAP customers traditionally valued SAP consultants and project managers for their technical expertise; however, as customers relied on SAP for more and more of their business solutions, they expected SAP to be a trusted advisor during the implementation of those solutions. SAP recognized the heightened criticality of project management and set out to convert it into a sustainable competitive advantage.

In 2003, the organization chartered the PM@SAP program to address four project management areas: Methodology, Human Resources, Project Management Office, and Change Management. Deliverables from the PM@SAP program went operational early 2004 with global and regional offices established to champion the change initiative. (SAP PM KM background adapted from Pennypacker & Ritchie 7-11)

### **Institutionalizing Project Management**

#### **Industry Standards**

We first established a common project management vocabulary for internal and external project stakeholders. Many SAP project managers used a SAP-specific vocabulary for project implementations. SAP project managers would discuss project management terminology with customers and partners without a shared understanding of accepted definitions. To tackle this issue, the Global PMO relies on standards such as the PMBOK® Guide, OPM3®, and CMMI® to ensure project management practitioners communicate concepts without using company-specific jargon.

#### **Methods, Tools and People**

The policy decision on industry standards cascaded throughout our various initiatives, with its first impact felt in the methodology and training rollouts. The methodology initiative explicitly incorporated project management professional standards. The People Capability Development function reinforces the methods and tools framework and is a critical function of the PMO. Creating a methodology or policy framework without reinforcing its adoption through recognition, compensation or development is pointless. The PMO serves as the “home” for the professional development of project management practitioners.

## Project Management Maturity Assessments

The concept of maturity modelling – as extended to project management -- clarifies process improvement opportunities. Project Management Maturity is a measure of the extent to which a specific project management process is defined, repeatable, managed, measurable, and effective. The Project Management Maturity Assessment uses as a starting point and underlying structure the nine Knowledge Areas of the PMBOK® Guide mapped against the SEI Capability Maturity Model. This approach further reinforces compliance with industry norms.

## PMO Governance and Metrics

The four areas of focus of the PM@SAP project – Methodology, Human Resources, Project Management Office, and Change Management – established the framework for the operational PMO. The PMO Guide was this framework's blueprint and described the various PMO functions, which level was responsible for each function (e.g., global, regional, local), and whether it was mandatory or optional.

Once the PMO initiative went “live,” the global and regional PMOs established a regular series of operations workshops. The key policy brought before the first operations workshop focused on PMO Performance metrics. A set of metrics were defined for four perspectives: financial, customer, employee and project/process. In addition, the Global and regional PMOs agreed on the definition of a “measured project.” Measured projects are of sufficient size, complexity, visibility, or risk that they would require PMO monitoring and control.

## Leveraging Implemented Standards

### More Standards = More work for PMs

In large measure, the project management community welcomed the new prominence the PMO initiative brought to its role. The new training and tools were well accepted, though with one caveat. Many felt that previous initiatives had reneged on an implied “bargain.” Each member phrased it a little differently, but the main complaint was “[i]f you are going to ask us for more (e.g., documents, reports, etc.), then you have to give us more back.”

In other words, project managers expected the PMO – whether global, regional, or local – to do something useful with all of the information they were generating. We needed an initiative to add value the data, templates, and experiences they gather during projects. The Global PMO decided to call this effort Project Management Knowledge Management (PM KM), and initiated the program in late 2004.

### Minimum Standard Project Information Policy

The Global PMO had already re-set expectations about project information storage and maintenance. The vehicle to communicate these expectations is the Minimum Standard Information Policy. This policy defines the minimum information that will be kept about a project and applies to all measured projects (see “Metrics and Policies” above). The policy's purpose is to ensure minimum project information is captured and stored to:

- Provide project information to help project management practitioners manage the project.
- Provide project information to Consulting Management decision makers and other project stakeholders.
- Provide project information to satisfy legal requirements.
- Provide project information to satisfy dashboard reporting requirements.
- Provide project information to support knowledge management.

### Knowledge Management Adds Value to Data

The Minimum Project Information policy elaborates its requirements in some detail. This clarity indeed re-set expectations about the information project managers must produce, store, and archive on their projects. In addition, regional and local PMOs extended the global minimum policy to cover local legal or commercial needs.

To support knowledge management, the policy also distinguished among three data or information types. These types are project attributes stored in databases (Structured Information), project documents that can be accessed for reference (Semi-Structured Information), and information based on experience or practice (Tacit Information). Exhibit 1 outlines the three information types.

Structured Information	Semi-Structured Information	Tacit Information
<p>Structured information is primarily statistical and can be consolidated to draw conclusions about categories of projects or businesses.</p>	<p>Semi-Structured information is primarily project documents that provide information about the project and may be used as sample information for similar projects.</p>	<p>Tacit information is a skill or practice that can be identified, but is difficult to describe or articulate in detail (e.g., riding a bicycle). This information type is typically transmitted by demonstration or general description, with the recipient learning by role play or trial and error application of the skill or practice.</p>

Exhibit 1 – PM KM Framework information type definitions.

## What is Knowledge Management?

An early objective of the PM KM program was to define knowledge management. Our community had difficulty establishing a common or satisfactory definition of knowledge management. Knowledge management does not have a **global** and mature standards-setting body comparable to the Project Management Institute, so we found many schools of thought and definitions surrounding knowledge management.

For example, the technologically-minded may define it as “[a]n umbrella term for making more efficient use of the human knowledge that exists within an organization.” (Computer Desktop Encyclopedia). The focus on “efficient use” reflects a tendency to rely on tools to automate or facilitate knowledge management. In other words, the tool-centred will say, “build it and they will come.”

Another common approach is to focus on defining a community of practice, a group of people who share goals, interests, etc. The focus in this approach is to help communities bring out their “own internal direction, character, and energy.” (Seven Principles, 1) The beauty of this approach is that it draws upon pre-existing networks and relationships – community design focuses on evoking aliveness, growth, and spontaneity. (Seven Principles, 2)

If not carefully implemented, however, this approach can lead to knowledge management initiatives that are all about promotion, rather than attraction. In fact, proponents of this approach recognize the danger that community-based KM can appear too theoretical or insubstantial. If the community does not see value in an activity or feels pressured to participate, the sought for “aliveness” withers away. “Tracing the value [of knowledge management] takes time and attention. [E]ncourage community members to be explicit about the value of the community throughout its lifetime.” (Seven Principles, 5-6)

Other schools focus on knowledge theory, processes, organization, or the ecosystem in which knowledge management takes place. None of these approaches, on its own, has proven successful for SAP Project Management. SAP project, program, and portfolio managements have too diverse of a background for a narrow knowledge management definition to suffice.

## Project Management Knowledge Management (PM KM)

### Process-Oriented Approach Increases Buy-In

A more holistic definition was needed and it turned out to be simple: “The process of connecting people to people and people to information to create a competitive advantage.” (Dictionary of Accounting Terms) This definition

captured the combination of elements required for Project Management Knowledge Management. When we break down the definition further, we can see how it incorporates various knowledge perspectives:

- Process = Knowledge Management as Process
- Connecting People-to-People = Knowledge Management as Community.
- Connecting...People to Information = Knowledge Management as Tools.
- Create a Competitive Advantage = Knowledge Management as Strategy (see below)

As we socialized the idea of focusing on process and business impact, we heard that a definition that put process first overcame the scepticism of many project managers about knowledge management. The knowledge management topic had acquired a bad reputation, largely because prior initiatives had taken a narrowly-defined approach.

The first major knowledge management effort emphasized building the community by encouraging participation. The initiative's main thrust was to demonstrate how to upload documents to a central repository or participate in message board discussions. Unfortunately, this approach made little distinction between contributors of quality material, members who only asked questions, and active thought leaders. Any quality control depended on ad hoc efforts by individual communities. Without reliable content, the repository's use dwindled rapidly, even as the size of the library soared.

A second initiative followed several years later. It proposed to leverage the powerful search technologies in the SAP Knowledge Management solution to improve the value of the information already in our repositories. Unfortunately, the implementation approach assumed that the problem was a search issue, rather than a content or process issue.

## The PM KM Framework

Using a more comprehensive approach to address the "crisis in confidence" in the knowledge management topic was a major objective of the PM KM initiative. Early on, a group representing the major global regions brainstormed on an approach to first fill the gaps in the current approach and then transcend them. In addition, the team wanted to tie together execution of project management processes with "doing" knowledge management.

The team quickly focused on one quality of information or data. Data manifests a form of inertia, a tendency to stay in its current state. Data will remain data unless energy is applied – e.g., creating a budget report – to convert it into information. Information will not become knowledge unless an effort is made to analyse and interpret that report. Of course, this knowledge will not become wisdom until it has been honed, and challenged, and reinterpreted, etc.

The physics metaphor may have been too obscure for many, but the team found that a process or manufacturing metaphor worked just as well. In the PM KM case, we start with "raw" knowledge material of various types that passes through a structured, transparent set of processes to create value-added information. An outline of the PM KM Framework is shown below in Exhibit 2:

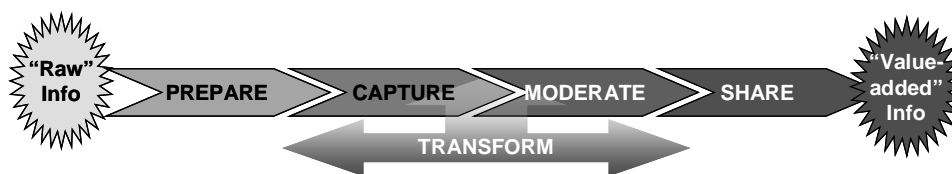


Exhibit 2 – Basic PM KM Framework. The Transform process represents feedback from using shared knowledge in projects, bids, etc. and the effect of its use on the business.

### Prepare Process

The first step in handling information is to establish "storage locations." The Prepare process sets up the project information infrastructure. For example, the Prepare process for tacit information includes scheduling project debriefs and Key Topic reviews (a.k.a., "Cross-Project" reviews, for topics that cross project boundaries), or

requesting already-captured Lessons Learned. Similar process steps were created for structured data, such as establishing project records for accounting, classification, and progress reporting.

To address quality challenges with randomly-contributed documents, the PM KM team focused on detailing the process for handling semi-structured information. The team decided to leverage the collaboration capabilities of the SAP NetWeaver Portal. Collaboration rooms (cRooms) allow an SAP project team to access and share information and applications. cRooms allow users to work together efficiently, regardless of where they are located. This approach also ensures strict segregation between customer project information – which is maintained in customer’s SAP Solution Manager repository – and SAP project information maintained in the SAP “Project Room.” An example of a Project Room is seen below in Exhibit 3.

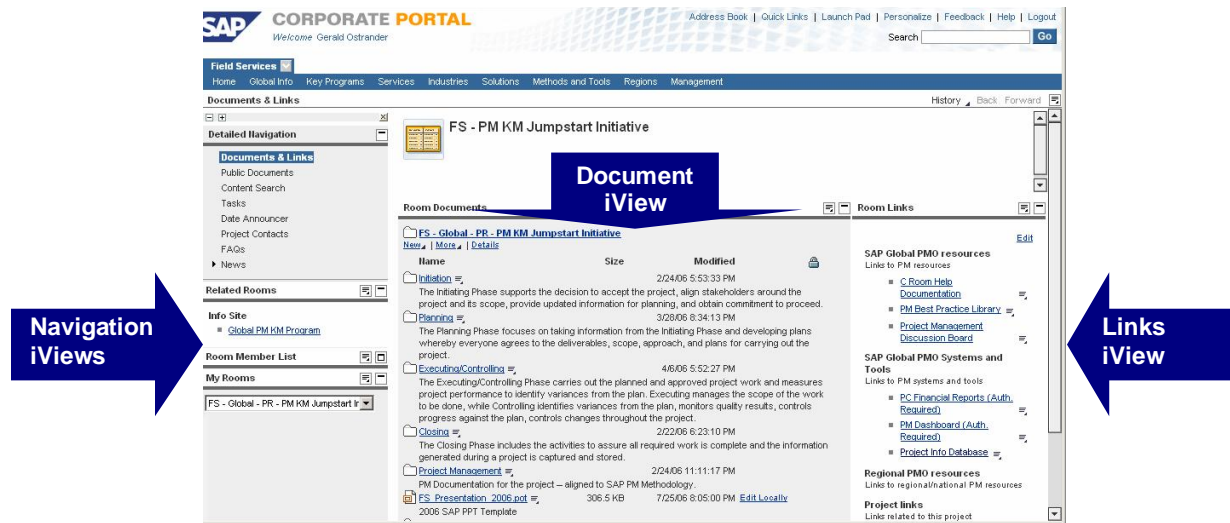


Exhibit 3 – Project Room examples. The SAP NetWeaver Portal is the collaboration platform used by SAP Consulting and SAP Education.

### Capture Process

Capturing project knowledge involves the very day work of a project: creating, updating, editing, and copying project-generated information in the infrastructure established in the Prepare process. This would include conducting project debriefs, conducting cross-project workshops, and collating message board traffic. The information captured is defined by the relevant Minimum Standard Project Info policy.

Project documents captured in Project Rooms are supplemented by documents captured during Project Debriefs or in Message board contributions. These documents are the source of candidate examples, templates and recommended practices that could add value for future projects.

Because of its nature, collecting tacit information will involve a high degree of personal interaction. Tacit information will be collected from a number of sources:

- Phase-end and project-end interviews – These leverage a detailed debriefing process, which uses a question-and-answer interview format.
- Cross Project workshops on key topics – These workshops use a common Six Sigma problem-solving approach – affinity diagramming – to brainstorm solutions. (Pyzdek, 264-266).
- Reviewing messages submitted to the Project Management message board – Frequency or Pareto analysis of message topics can identify symptoms of issues that need attention and further attention. (Pyzdek, 198-199 and 259-261).

## Moderate Process

While preparing and capturing information properly is important, these processes add little value to the underlying data. Any proper PM KM framework must ensure quality knowledge products. Therefore, the PM KM team created a detailed Moderate process, which process elaborates the steps for monitoring, analyzing, and validating project-generated information and performance reporting. The Moderate process promotes compliance with information policies and identifies prospective recommended practices and best examples.

As noted above, this quality issue was particularly painful for semi-structured information. Two SAP internal analyses have found that unregulated document contributions have a poor yield; only 15-25 percent of the repository documents can be easily re-used in another project. Therefore, the Moderate process for semi-structured information uses subject matter experts to assess the candidate document's potential value and review it for compliance with SAP processes and procedures. Accepted candidates are then reformatted to reflect SAP branding and cleansed to remove customer specific data and references.

The moderation process is the most labour-intensive part of the PM KM value chain, so the PM KM team put together a number of checklists to assist in the process. An example is the screening criteria used for semi-structured candidate PM KM information. The primary criterion is: "Does the candidate contain uniquely valuable knowledge or address an identified gap in SAP's knowledge?" The checklists also ask whether the material provides content that jump-starts project specific documents or processes, saves time and increases quality, and helps the project team manage the project deliverables.

## Share Process

After the Moderate process, most of the value has already been added to the information. The information needs to be communicated back to the community for it to be useful. The Share process is simply the group of activities required for communication of identified recommended practices, best examples, and lessons learned. In addition, the Share process creates or augments "Knowledge Products" (e.g., newsletters, new Roadmaps, new services, etc.). Exhibit 4 below shows the primary communications channels for each information type.

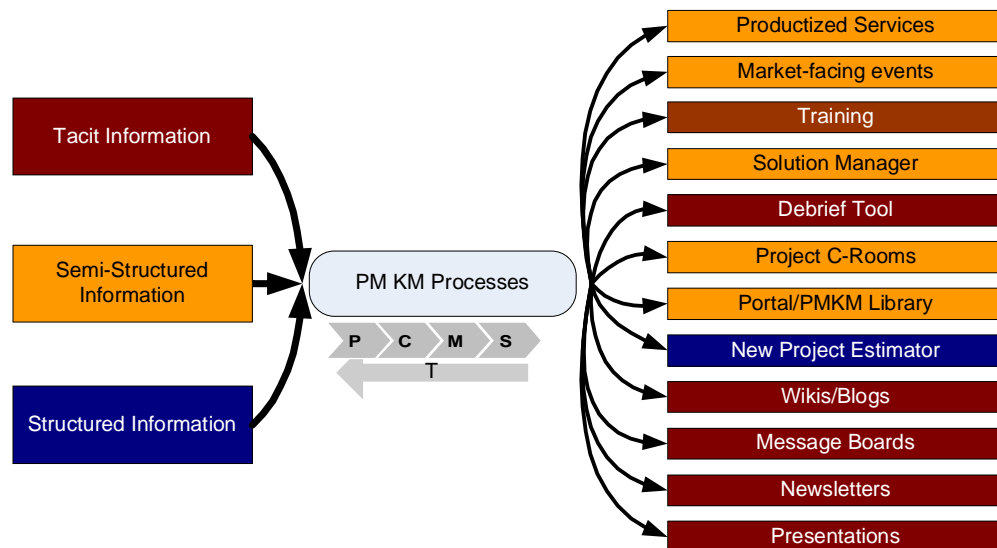


Exhibit 4 – Communication channels for value-added information. While the colour of the communication channel represents the primary knowledge type it communicates – e.g., Message Boards = Red = Tacit – these are not exclusive relationships. Message Boards allow contributors to attach documents, which are semi-structured information.

## Transform Process

This process is simple: the use of shared information to transform work processes. It is only when value-added information is used that SAP sees the business impact of PM KM. Furthermore, this process closes the feedback loop by identifying gaps in shared materials, developing field-tested versions of existing knowledge artefacts, or suggesting new approaches to issues. The transform process ties together execution of project management processes with “doing” knowledge management.

## Measuring PM KM Success

### Knowledge as Strategy

Re-use of project information to become more efficient – by having better project charter samples to speed charter creation – has its place. However, it does not create lasting competitive advantage. The most powerful impacts come from identifying unique insights about one’s business. In fact, using value-added information to transform the business is at the essence of effective strategy. As Michael Porter notes, “[c]ompetitive strategy is about being different. It means deliberately choosing a different set of activities to deliver a unique mix of value.” (Porter, What is Strategy, 64).

Going one step further, knowledge management can be the fount of management innovation. Researchers are paying increasing attention to the role of management innovation, defined as “a marked departure from traditional management principles, processes, and practices....” (Hamel, 74) Operational innovations such as increased efficiency, switching suppliers, or buying updated equipment are often competed away; however, “new ways to organize, lead, coordinate, and pioneer” are much harder for rivals to replicate (Hamel, 72-74).

### The Sense:Nonsense Ratio

Knowledge management also transforms the balance between “sense” and “nonsense” within and between organizations. Most competing firms share common ideas about the market, its future, their products, etc. The common ideas that are true are “common sense,” while the shared ideas that are wrong are “common nonsense.” An example of “common sense” is analysts’ market growth estimates; an example of “common nonsense” would be that this market had barriers to entry that were too high for new entrants (e.g., UNIX versus Linux). (Goddard)

These shared wisdoms and delusions are curious, but they tend to cancel each other out or are known by all players quickly. What knowledge management should focus on is increasing a firm’s “uncommon sense,” or those true things that only the company knows (or knows well). In turn, there should be a parallel effort to debunk myths that persist only within the company – “uncommon nonsense” – that hold it back. Exhibit 5 graphically depicts this knowledge model and the effect of transformation via knowledge management.

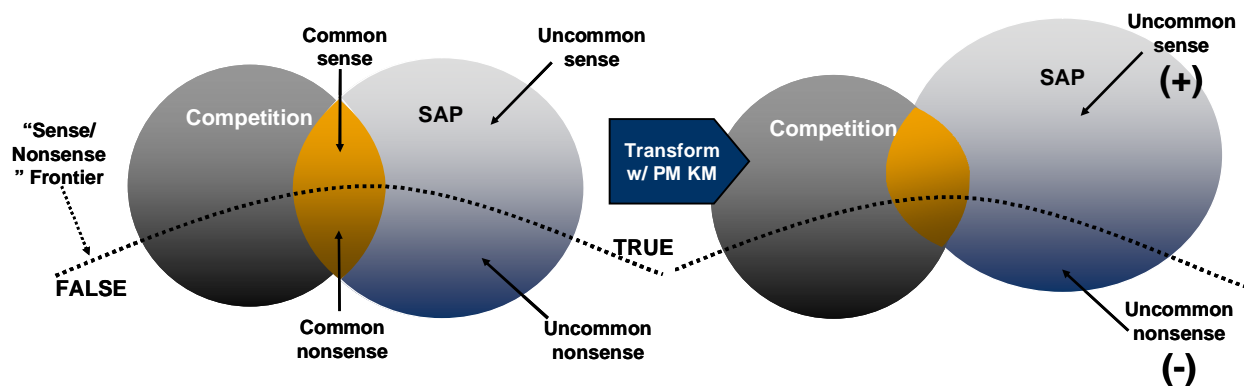


Exhibit 5 – Knowledge Strategy Equation that drives the “sense:nonsense” ratio is elaborated on the left-hand side with two relatively equal competitors. Business transformation via PM KM increases the SAP sense:nonsense ratio. (Goddard, 5)

## PM KM Impact: Business Measures

Our focus on strategy alignment and business impact has influenced how we measure the impact of PM KM. Many knowledge management initiatives focus on productivity or efficiency measures: number of documents contributed/downloaded, number of portal hits, number of messages/users on message boards. Most of these measures can be reported quite easily; however, this emphasis can come at the expense of business impact metrics, which are harder to tie back to knowledge management framework. Below are some approaches to this challenge.

### Customer Satisfaction – Internal and External

Customer satisfaction scores have shown strong improvement over the last three years, but project management satisfaction is rising faster than overall SAP Consulting customer satisfaction. A more tangible measure of this satisfaction is the increasing number of project management focused customer success stories. Success stories highlight the role of SAP Project Management in ensuring customer success during implementation projects. Exhibit 6 shows the growth in success stories since the category was established in 2004.

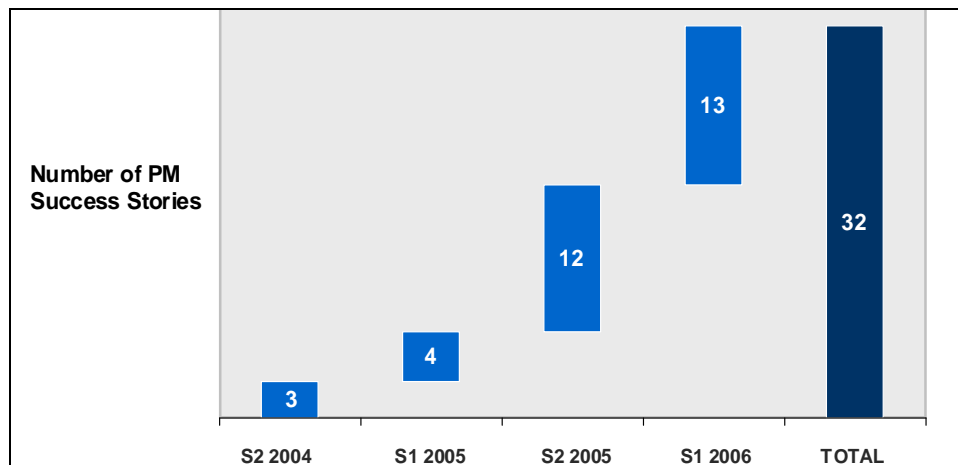


Exhibit 6 – Number of project management specific customer success stories. The success story category did not exist before 2004. SAP Project Management success stories are available at <http://www.sap.com/services/consulting/customersuccess/index.epx>.

We leveraged the success story concept to highlight PM KM successes or “wins.” Our stories emphasized the power of our global message board to provide a sense of community and connection to our virtual community. These colleagues found value from such small things as a glance at a recommended document to big topics like documentation of SAP’s Global Delivery and Custom Development capabilities, which were used successfully by the customer.

### Project Profitability

SAP Consulting’s profitability has consistently improved in conjunction with the PMO initiative. Combining two critical metrics suggests how this happened; it appears there is a correlation between maturity improvement and reduced project escalation costs as shown in Exhibit 7. The total reduction in escalation costs since 2003 produces a higher than 100% return on all costs related to the PMO since its launch.

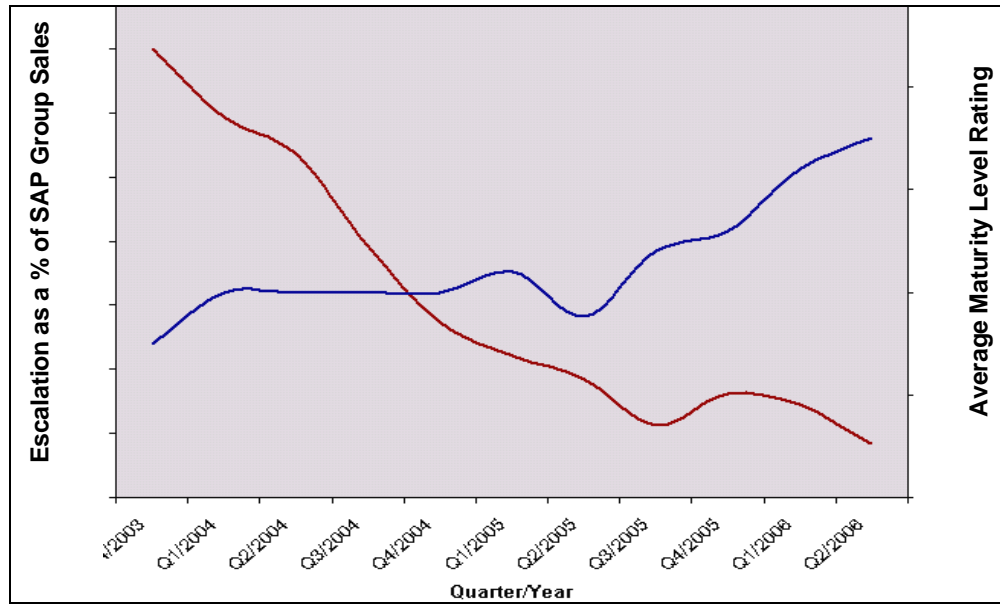


Exhibit 7 – Maturity scores and Escalation Costs (2003 is baseline). These figures are averages for the years shown and the details are masked.

### Initial PM KM Results: Customer Satisfaction and Profitability “Drivers”

Correlation is not causation, so it was important to understand which project management behaviours drove successful and profitable projects. PM KM has already delivered some interesting findings on this topic. During our pilot of project lessons learned debriefs – covering 58 projects -- the PM KM team identified two groups of behaviours that drive positive customer, escalation, and profitability outcomes.

Proactive Scope and Customer Expectations Management is a consistent project success factor:

- Projects with strict change control practices deliver substantially better profitability.
- Successful projects also organized their deliverables by business process, not functional modules.
- Successful projects carefully reviewed the contract with the customer and account team to gain a common understanding of all assumptions.

Stakeholder and Communications Management techniques improve customer satisfaction **and** shorten risk event duration and impact:

- Projects that consistently linked stakeholder analysis, communications planning, and plan execution stayed out of trouble.
- Project managers who did not fit into, or could not adapt to, customer cultures, mission-critical projects, etc. were reluctant to escalate projects quickly enough.
- The most frequent communications mistake was failure to execute planned executive-level messaging, which eroded the project manager’s position in the eyes of sponsors and other leaders.

These stakeholder management findings correspond with recent external studies noting that communication breakdowns – especially “keeping quiet” about known risks or issues – are a primary driver of project failures. The key issues neglected were absent sponsors, unrealistic deadlines and resource limits, power plays, team dysfunction, and denial troubles (e.g., not admitting known problems). Addressing such concerns head-on can increase the likelihood of project success by up to 50 percent. (PMI, Speak Up, 7-8)

## References

- Goddard, J. (2006, October). *Strategy Innovation*. INSEAD Knowledge Management Programme, Fontainebleau, France.
- Hamel, G. (2006). The Why, What and How of Management Innovation. *Harvard Business Review*, 84(February): 72-84.
- Knowledge management. (no date). Computer Desktop Encyclopedia. Retrieved November 03, 2006, from Answers.com Web site: <http://www.answers.com/topic/knowledge-management>
- Knowledge management. (no date). Dictionary of Accounting Terms. Retrieved November 03, 2006, from Answers.com Web site: <http://www.answers.com/topic/knowledge-management>
- Pennypacker, J. & Ritchie, P. (2005, September) *The Four Ps of Strategy Execution: Integrating Portfolio, Program, Project, and Performance Management*. PMI Global Congress 2005, North America, Toronto, Canada.
- Porter, M. (1986) *Competitive Strategy*. New York, NY: The Free Press
- Porter, M. (1996) What is Strategy? *Harvard Business Review*, 74(November-December) 61-78.
- Project Management Institute (October 2006) Speak Up. *PM Network*, 20 (10), 7-8.
- Project Management Institute. (2004) *A guide to the project management body of knowledge (PMBOK®)* (2004 ed.). Newtown Square, PA: Project Management Institute.
- Pyzdek, T. (2003) *The Six Sigma Handbook*. New York, NY: McGraw-Hill.
- Wenger, E., McDermott, R., & Snyder, W. M. (2003) Seven Principles for Cultivating Communities of Practice, *HBS Working Knowledge*, (March 2003) 1-9.
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