Asset Performance Networks

Leveraging Corporate Knowledge to Improve Project Performance

By

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The petro-chemical industry invests billions annually in new technology, IT solutions, and work processes to reduce capital costs, improve cycle time and operability. These investments can pay dividends but can take years and the expected payoffs often never materialize. An area that is often overlooked, but that can potentially yield large benefits at a comparatively low cost, is a company's own internal experience. Most companies have not established effective corporate-wide processes for tapping into the potential of their project experience to identify their own pockets-of-excellence and transfer this hard-won knowledge into new projects.
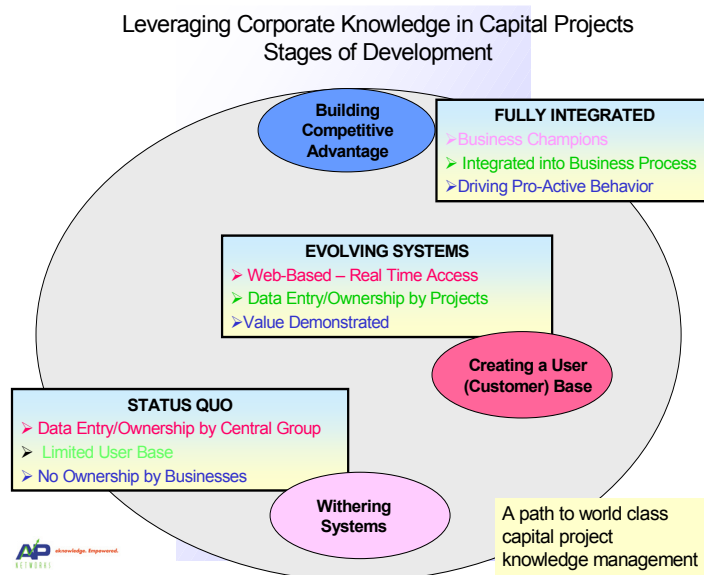
To be sure, most large companies have established internal networks to share information and best practices. Many have also invested in lessons learned databases. However, in practice, these networks lack effective support systems and few project teams take full advantage of lessons learned from past projects. As a result, the potential knowledge sharing within a company is unfulfilled.

Asset Performance Networks has worked with a large petroleum company to help implement and maintain a company wide capital projects database that can be accessed in real time via the corporate intranet by business managers and project teams across the company. Increasingly, the system is becoming central to the company's efforts to share learning across the company and improve capital productivity.

Deploying A Successful Solution

Previous efforts at implementing a projects database had failed within this company. Efforts had fallen victim to cost-cutting, lagging interest, and the absence of clear champions outside the projects community and among the business managers. In our experience, this is not uncommon. At one time or another most company engineering and project management groups have attempted to build and maintain a project database. Invariably, these efforts had failed for a variety of reasons. These include:

- Difficulty in maintaining and continually updating data. This is a labor–intensive exercise that requires skilled analysts.

- Limited user-base: Typically project databases have resided in a central group with minimal use and exposure to project teams scattered across the company.

- Lack of user

Leveraging Corporate Knowledge in Capital Projects
Stages of Development

Building Competitive Advantage

FULLY INTEGRATED
➤ Business Champions
➤ Integrated into Business Process
➤ Driving Pro-Active Behavior

EVOLVING SYSTEMS
➤ Web-Based – Real Time Access
➤ Data Entry/Ownership by Projects
➤ Value Demonstrated

Creating a User (Customer) Base

STATUS QUO
➤ Data Entry/Ownership by Central Group
➤ Limited User Base
➤ No Ownership by Businesses

Withering Systems

A path to world class capital project knowledge management

friendliness and easy access: The time invested in learning how to use systems has reduced uptake and training ands support has been minimal. Also, in the pre-internet era, it was constant challenge gathering data and disseminating the latest database to various users.

The company overcame these obstacles by adhering to some guiding principles. First, the project teams themselves input data on new projects rather than a central group of analysts. They are accountable for the quality of the data and the project manager takes ownership of what resides in the system. The database is structured around a standardized WBS (Work Breakdown Structure) and on-line definitions are available to help guide the teams through the data entry process. Moreover, knowledgeable contacts are available to answer questions. Data preparation and entry for a project takes approximately 4- 8 hours.

Hierarchical Work Breakdown Structure (WBS) Serves As Framework for System
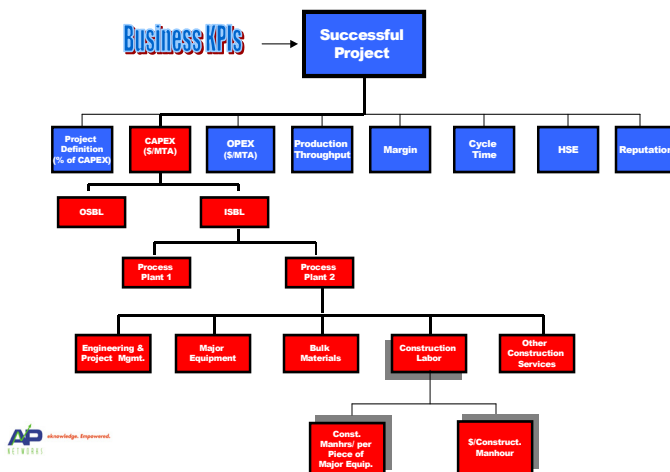
The lack of a dedicated database group makes the endeavor economically attractive to the business mangers. The system can be managed by 3 FTEs (full time equivalents) including programming support. In effect, much of the costs are spread across the business units using the service since data input and assurance tend to be the most time-consuming tasks. This process is not entirely hands-off, however, as QA/QC checks are performed on a routine basis to ensure that the data make sense.

Second, the system does not try to be all things to all people. For this company, the primary purpose of the system is to help team set targets, establish benchmarks, identify company best-in class performers, and facilitate networking and sharing across teams in various regions. With experience, it became clear that project teams had little knowledge of what had been accomplished in other regions and at other sites. Tapping into this global network to identify performance at other sites has been a great way of facilitating networking between teams. The system does not try and duplicate detailed estimating databases but has managed to also develop an equipment database that is gaining in popularity and use.

Third, the establishment of corporate intranets has helped make this possible. Teams with access to the web can now use and update the system from any location. The system has also been designed to be graphically friendly and requires minimal upfront training. The use of a consistent WBS makes it easy for teams to start at a high level and "drill-down" in order to compare performance on an "apples-to-apples" basis.

Finally, the company has avoided the use of the word "database." This is more than just semantics. The collective experience and expertise stored in the system needs to be viewed as a company asset. Terms such as intellectual asset, knowledge management system, etc. send the company an important message on the potential value of this data.

These principles have resulted in growing support and constituency for the system among the company business unit managers.

Link the System to Broader Corporate Processes and Objectives

Another success factor has been in the company's linking use of the system to its internal work processes. It is critical that the system not be viewed as a stand-alone entity but rather be enlisted as a key enabler of the company's effort to continually improve project performance. For this company, this meant integrating use of the system into its work process at key decision points. Early in the project life-cycle, during the business planning stages, teams use the system to challenge project targets, assess the realism of the current estimate, and the degree of stretch. As the project progresses, top company performers are identified and pockets of excellence uncovered for networking opportunities. The key issue is ensuring that the new projects take maximum use company's experience.

The Benefits

Demonstrating the benefits of the system can be the biggest challenge. Databases typically fail to muster much excitement among management. To generate a long-term comittment and support, there must be tangible business benefits. For this company, a few early successes helped to make this case. In one example, a project team benchmarked their cost estimate against similar units at other sites and discovered that they were paying 50% more than projects in other parts of the world. The transparency of the data allowed the team to pinpoint the sources of the cost difference and led to changes in design practices and contracting strategy. The project team was able to reduce their authorization estimate by 30% compared with earlier estimates. These types of successes can show that the return on investment by investing in these systems is huge. Even one success can pay for the maintenance system for many years.

Starting the Process

The development of such a system is a long-term commitment and requires upfront planning and building grass-roots support within the company. Ideally, a cross-functional steering team composed of representatives from projects, business, and operations are engaged to help guide the development. The initial plan should address the following questions:

- Who will be the primary users?
- How will historical data be gathered and new data entered into the system?
- Does the company have a standardized WBS that can be used ,or, must one be developed?

- Will the system cover all business streams (e.g, chemicals, refining, upstream, etc) or just focus one or two streams?
- How will the system capabilities be communicated across the company and will training be provided?
- How will long-term maintenance and support be handled and funded?

These are just a starting point, but are critical for setting the boundaries of the project. It is a careful balancing act. Too small a scope will not generate the needed enthusiasm to move the project off the drawing boards. Too large a scope will be unattainable and the project can easily lose its focus.

About Asset Performance Networks, LLC

APN designs, deploys, and manages knowledge management systems to improve the performance of capital projects and turnarounds in the petroleum, power, and chemical industries. Our web-based networks link content, tools, and services into a single outsourced solution and empower management to rapidly access relevant information that can be shared and transferred in real-time. In addition to developing customized applications and databases for clients, APN has also developed www.Turnaround-Network.com. This subscription-based service is an interactive web-based community of turnaround professionals sharing knowledge and experience via world-class processes, decision tools, training, and other resources.   Launched in Fall 2001, the network now has five companies routinely using the network to drive better performance on ongoing refinery and chemical plant turnarounds.