

FLEXIBILITY ON A GLOBAL SCALE

HUTCHISON PORT HOLDINGS USES PROJECT MANAGEMENT INSTITUTE METHODOLOGIES TO CREATE A GLOBAL PORT MANAGEMENT SYSTEM

Hutchison Port Holdings (HPH) is the world's leading port developer, operator and industry leader in using technology to improve all aspects of port administration. HPH actively invests in the development of modern port infrastructure and is committed to playing a significant role in the development of the economies and the expansion of international trade opportunities for the countries in which it operates. In order to coordinate its many ports around the world, HPH created nGen, a scalable system that would facilitate port operations in many languages on several continents and across many different time zones.

Project Background

Today, HPH operates 236 berths in 40 ports around the world along with a number of transportation-related service companies. In 2004, the HPH Group handled 47.8 million 20-foot equivalent units (TEU), a standard measurement used to describe cargo capacity. Increasing use of information technology (IT) at these ports has streamlined the transportation supply chain and made local manufacturers and import-export businesses more internationally competitive. In order to remain competitive, HPH needed to develop a new terminal management system to efficiently and effectively control all port operations around the globe.

The nGen system would control operations including ship and yard planning, gate operations, vessel operations and interactions, yard configuration and performance, overall operations monitoring, equipment utilization, productivity and cost optimization. nGen was the first major system co-development project between two of HPH's subsidiary ports—the Hong Kong International Terminals (HIT), the flagship operation of HPH in Hong Kong, and Yantian International Container Terminals (YICT) located in Shenzhen, China.

The project team began work in February 2001. Their deadline was August 2005. The original budget was set at \$10 million (US).

Challenges

Each of HPH's ports vary in size and are required to comply with differing sets of regulations contingent upon local trade and customs policies. They are also located on different continents, in different time zones, and with personnel who speak different languages. The project team would need to create a solution that could be used by each of HPH's ports while accommodating all these variances.

While the project team faced the challenge of coordinating logistics between geographically diverse locations, it also had to consider the interests of a diverse group of stakeholders that included terminal operations, operations development and information services. The project would need to effectively manage input from these groups.

The scope of the project posed a challenge as well. The team would have to ensure that it allocated adequate time to complete each part of the project. Coordinating details and maintaining schedules and budgets over the expansive range of this project required a highly sophisticated level of project management skill to be

successful.

Project Management Solutions

The project team used methodologies from *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)* to help the nGen project meet HPH's high standards of quality, cost and scheduling goals.

The *PMBOK® Guide* describes the project lifecycle, which includes the initiating, planning, executing and closing processes. As part of the initiating process, the project team established the nGen project management office (PMO). Led by the nGen project manager, the PMO had overall responsibility for cost, time and quality management. It was also responsible for providing project management training to key project staff from various departments. During the initiating process, the PMO officially established the project charter and scope. This is a necessary step in the completion of a successful project as it provides all stakeholders with the boundaries of a project and the benchmarks by which it will be measured, thereby ensuring that all parties are working toward the same goals.

Within the planning process, project teams begin to assess a project's various objectives. For HPH, the nGen project team began by addressing the massive scope of the project. As details have to be meticulously coordinated throughout a project's lifecycle, the project team applied a phased approach to break the project down into manageable segments. Phase One of the project focused on the development and deployment of nGen to meet the different operation needs of HIT and YICT, keeping in mind the flexibility and scalability necessary for use of the system at other ports. During Phase Two, the project team deployed the system at HPH's other ports around the globe.

The team applied time management methodologies to the nGen project to help ensure that it would meet the scheduling requirements necessary for HPH and its clients. The *PMBOK® Guide* has outlined the necessary steps for determining the appropriate amount of time needed for any given activity, helping project teams to more accurately estimate important milestones and completion dates. These steps include activity definition, sequencing, resource estimating, duration estimating, schedule development and schedule control. By following these steps and the techniques designed to facilitate each, project managers can create project schedules that are more likely to efficiently use resources and accurately estimate project outcomes. The team used these steps and techniques in the administration of the nGen project, facilitating the planning of disparate resources and activities world-wide.

The team was able to keep costs of the nGen project under control through the use of cost management methodologies composed of three activities: cost estimating, cost budgeting, and cost control. By applying these activities to maintaining and allocating budgets throughout the project, the team was able to complete the nGen project within its budget, helping HPH to better adhere to its cost and business strategies.

Throughout the project, the team used communication management methodologies outlined in the *PMBOK® Guide* to communicate information about the project and manage stakeholder expectations. In order to facilitate communication about the project, the HPH PMO established the nGen Steering Committee, which consisted of

senior HIT and YICT management to oversee the project direction and strategy. The purpose of this steering committee was to communicate the planning process with stakeholders and give them an opportunity to communicate their needs and concerns.

The project team also used project management methodologies in planning for and avoiding risks to the project. The PMO dedicated a risk management team specifically to defining and monitoring the various risks that could affect the project and its components. The team identified several risks, including the possibility of programming defects and equipment malfunctions that could cause potential delays, and was able to determine strategies for avoiding these risks. For example, the PMO established an experienced team at each of the ports where HPH was to deploy the nGen system to be able to quickly manage any defects or malfunctions.

The Results

Using industry standard open platform technologies, nGen is truly scalable across all non-proprietary computer system hardware. The nGen architecture consists of modular systems with operational options that can be turned on or off depending on user needs. From a small feeder terminal operation requiring a small-scale server setup to large hub ports relying on full server room support, nGen has been designed to support all platforms.

With nGen, HIT and YICT are well positioned to meet increasing throughput and productivity requirements well into the next decade and beyond. The nGen project has made the system more accessible to all HIT and YICT business partners and operation staff. The interactive and community based systems also allow customers to have greater control of the supply chain on a 24/7 basis through the latest Internet technology.

nGen will function in all other HPH ports. The nGen project has also helped HPH to realize its mission as the leading container terminal operator through excellence in service.

- The nGen team completed the project 10 percent **under budget**.
- Phase One of the project went live at YICT in October 2003 and HIT in February 2005 **according to schedule**.
- The nGen Terminal Management System was **deemed a success** by HPH, allowing for **streamlined operational flow** and an interactive system which allows customers to have greater control over the supply chain.