Case story

Business Process Management Helps Build Best Practices for Port Logistics

Standardized process methodologies and intuitive modeling/collaboration tools enables EFFORTS to gain a comprehensive view of port operations

Introduction

A port is like a miniature city. Built around commerce and industry, a port is constantly in motion, always growing and changing. This presents organizational challenges of a major scale. With many different entities competing for access to the same waterway, the variety of industry and commerce operating in the port, and the constant volume of incoming and outgoing ships, capturing the processes that underlay port operations is like trying to understand the dependencies and subtle connections that underlay a city. Every port has its own specific way of doing things because it developed in its own unique way. The result leaves very little certainty over how to improve practices, how to plan future expansion, and how to protect the environment that surrounds the port.

EFFORTS (Effective Operation in Ports)

is an initiative funded by the European Commission that seeks to take on this huge task. Made up of 37 partner organizations from 13 different European countries, EFFORTS seeks to streamline the movement of ships, transportation trucks, and other clients to European ports for the overall reduction in wait times due to unnecessary traffic. Their method of choice is Business Process Management (BPM), a methodology of analyzing port activities that helps them be broken down and understood. The task of port process modeling is made manageable with the help of the Enterprise Process Center® (EPC). The EPC enabled EFFORTS to commence the task of documenting and analyzing the processes that moved the port, allowing them to build a repository of processes that can be examined and improved. The result will be a standardized process library on a generic level that will represent the best practices for port operations as such to allow the individualization of the operation in a specific port independent on the organizational type and ownership model.

The Objectives

Increase the efficiency of European Ports while reducing intra-port traffic

The overall objectives of EFFORTS are

- Safe and efficient maneuvering and berthing of vessels in consideration of decreasing maneuvering space in fairways and ports by increase of ship sizes.
- Environmental-friendly ports and ships to allow co-existence of business processes and citizens and further growth of the port industry without conflicts.
- Uniform risk assessment and risk reduction and management methodologies and tools.
- Increase of efficiency of port and service business processes (operations) and infrastructure of ports.
- Improvement of European port networks as interchange platforms and for mutual support.
- Assessment and inter-linkage of port-related training opportunities in Europe, new training opportunities to meet practice and social requirements and improve availability and quality of long distance and e-learning to address potential port and terminal employees including seafarers.

The Challenge

Visualize and Understand a Complex system of Interdependencies and shared Operations

The harmonization of port operations involves a highly complex system of interrelationships that must be untangled in order to increase the efficiency of port activities while also reducing traffic overhead. This harmonization is only possible by applying an abstract activity modeling schema to the port in order to categorize, define, and understand the complex functions that take place in the port.

The Challenges of this are Twofold:

Process Dependencies:

A port is a highly integrated system, with different entities competing for customers and traffic, while at the same time sharing services and space. This creates a sophisticated ecosystem of dependencies that must be maintained, improved, or eliminated.

Interdependency:

- Real interdependencies are between port activities and a port entity. Must be organized to smooth out port operations and aiming at the least disturbance to the residents in the port vicinity
- Artificial interdependencies are not directly linked to port operations, but required for execution, and could be removed or mitigated from the port area.

Interoperability

- Different systems should be able to communicate and exchange information without data loss.

Project Buy-In

Getting individual workers to expose their work processes in a process management effort is a challenge for most BPM initiatives even within a single company. The EFFORTS project was complicated by the fact that many competing entities were asked to expose their internal activities openly. This was obviously met with resistance, and so in order to ensure transparency, interoperability, and the cooperation of port workers, it was necessary that EFFORTS partners have a common platform for understanding how to improve effectiveness and efficiency in ports for everyone involved.

These are their requirements:

- Common understanding to demolish the language barrier
- Cooperative and concurrent development
- Providing taxonomy to relate processes to other organizational requirements (e.g. activity costing, resource utilization, risks and training).
- Matching individual enterprise resource planning tools with overall port clusters
- Application of balanced scorecard tools
- Sustainable approach to base further enhancement and development

Processes were captured in the EPC according to the following methodology:

- Each entity in the port complex must be described in how their tasks relate to a higher level goal.
- Processes are to be modeled from the starting point of defining objectives and how they can be accomplished through tasks and services that act as functions between service providers and service users.
- Risks are to be mapped to processes. Port-based risks are a huge liability, but can only be managed when the process is captured to identify where the risks are evident.
- EFFORTS implement a modified version of the CIMOSA modeling framework in order to relate functional business goals to their underlying processes in a systematic manner.

These requirements are enforced by a team of process experts called ISSUS who used the EPC to manage the task of creating process maps that clarified the interdependencies within the port while streamlining service and resource use.

The EPC also helped EFFORTS realize the benefits of BPM by making their process maps relevant to the everyday operations in the port. EPC provides a complete template to capture process with a simple notation that is easy to read and understand for non-IT users like port workers. These processes were exported as process books that made it easy to share among resources, entities, and companies, leading to an increasing support in the project as more port workers recognized the value of the EFFORTS initiative. With all entities in agreement on the value of process mapping within the port, it was no longer a problem to encourage competitors to cooperate and expose their internal processes.

The Benefits

Greater Understanding allows for better use of existing resources and undeterred expansion

The project was initially met with resistance. Some of the people working in the ports didn't see the need for abstract process charts because they felt their understanding of the operations was sufficient because it was based on a lot of experience. However, by focusing on a methodology and keeping the process modeling team focused on providing unambiguous process maps of all activities, the EFFORTS team achieved success in this project.

Once complete, the processes that have been mapped and optimized in the EPC will represent a best practice framework for the supply chain management of an entire port. This library can be implemented at any time in the future, either to improve existing ports, or plan for more efficient, managed expansion of a port system. The value of these process libraries is inestimable and can bring value to ports throughout Europe and the world.

The Solution

Untangle the web of activities using a process approach

There are several other EU-projects working to remove redundancies and capture port processes in order to standardize operations. Some have tried a role-oriented approach but the results are not helpful. For example, the role of harbor master in Hamburg and Bremen is not the same. If the activities that the harbor master conducts form the definition for his processes, different processes will be arrived when modeling the process for harbor masters at different ports.

An alternative is to focus on the role's function, however this also creates redundancies. For example, the function of the port authority in a public port is different from the function of the port authority in a privately owned port. Because of this, it was decided that EFFORTS would focus its initiative on processes as activities that contribute to higher level goals. The challenges of dealing with such highly diverse entity relationships were overcome by employing a standardized process-oriented methodology. This made possible by the Enterprise Process Center (EPC) process mapping tool. Process mapping is required to understand the close functional relationships that drive the port, and the EPC made them easy to document and analyze.

Key Benefits:

- Providing an easy-to-use interface
- Generating clear and useful process outputs
- Providing a framework to model standardized processes according to a set methodology
- Centralized repository for standardization
- Building a knowledge center for distribution, building best practices
- Self-explanatory process charts and models

About EFFORTS

The European FP-6 DG Research Integrated Project "Effective Operations in Ports (EFFORTS)" aims to improve the competitiveness of European port operations and the quality of the ports labor conditions and market. Commencing 1st May 2006 and lasting for 42 months EFFORTS, research and development will focus on three scopes of application:

- "Navigation in Ports" dealing with safe and efficient approach and berthing of vessels usually increasing size faster than port infrastructure can follow.
- "Ports and Environment", covering the most relevant environmental areas related to port operation.
- "Port Organization", providing an architecture and process description all operations can be allocated to, software tools for operational support and risk assessment and management.

Consisting of 37 partners from 13 European countries from different sectors such as port authorities, universities, research institutes and industrial partners makes EFFORTS a very interesting and challenging project.

For more information,
please visit www.efforts-project.org.

About Interfacing

Headquartered in Montreal, Canada, Interfacing Technologies Corporation is a pioneer in process management solutions. Interfacing has provided valuable process-knowledge solutions to hundreds of Global Fortune 1000 enterprises over the last decade. Interfacing's BPM solutions are designed to bring the value of Business Process Management to all levels of company operations, from strategy to execution. Among the most notable benefits are the standardization and alignment of operations (ISO, ITIL), clarification of ownership, and adherence to compliance (SOX, Basel II, C-198). Interfacing provides its customers with the tools necessary to leverage company knowledge through the integration of sustainable process solutions.