SEAPORT INTEGRATION AND NETWORKING
- A EUROPEAN CASE STUDY –

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Abstract: There are still wide gaps between theoretical approaches to capture, describe and manage business processes and accepted practical applications. The problem cannot be solved by consultants alone but must be internalized by the enterprise users in order to competently establish and maintain process automation. Originally being developed for IT-systems and production process automation, business process architecture and business process modelling has increasingly become an issue for the provision of services, a protagonist field being supply chain management. Seaports are important nodes in international supply chains and extremely heterogeneous, hosting enterprises of all sizes and a wide variety of administrations. To establish an architecture allowing for distinct views and to capture relevant processes is not only required to initiate automation, it is essential to allow the involved parties to understand each other and to identify common objectives. Within the research project "Effective Operations in Ports" (EFFORTS), co-funded by the European Commission, actors from specific ports all over Europe need to establish a common process platform. The CIMOSA concept was chosen to develop such a platform.

Keywords: Architectures, Business Processes, CIMOSA, Enterprise Integration, Functional chains, Process Control, Process Models.

1. INTERNATIONAL PROJECT WORK

It cannot be proven by hard figures but there is some suspicion that the highest loss in efficiency and effectiveness, hence costs, in international projects is caused by misunderstandings and misinterpretations within the multi-national project team. The ability of the team to speak and understand the same language is not sufficient; a common understanding must be generated. The team must base considerations and actions on the same mental model of the system to be developed or investigated.

Within international projects, even in those that are already well in progress, it frequently turns out that the original assumptions of conditions or the perceptions of objectives do not correspond. One of the most popular and probably the most costly example is that of the Airbus 380 production when in came into turbulences (Spiegel, 2006)

1.1 Common View

Complex systems require the involvement of special experts. Thus expertise in certain domains is not sufficient to manage communication across border-specific disciplines. A way must be found to integrate all the experts involved.

The successful Toyota quality system applied in car production (Toyota, 2006) is based on the fact that costs to compensate for production failure will increase by about 10 times at each stage from the production line to the customer. In other words, thorough planning always pays off even if it does not immediately lead to tangible results. Project leaders commonly have a tendency to urge the teams to achieve as this can be better demonstrated than a sound project plan. However, it is the commencement phase in a project that sets the conditions for success or failure.

The project team must share the same view of

- the starting point, i.e. project assumptions
- the terms of reference, i.e. what must be achieved in detail

- the state of the art related to relevant technologies and methods
- the methodology to be applied.

Experience shows that a common view and understanding cannot be achieved by mere discussion. A kind of meta project methodology is required to ensure optimum team efficiency and effectiveness.

1.2 Requirements

A fashionable management method is that of "Complexity Management" (Marczyk, 2001). Experienced managers jokingly state that a good manager should avoid complexity instead of just managing it. A key to reduce complexity in production is standardization but this often cannot become applied in complex international projects. Every actor needs to understand the overall goals of the project besides his or her area of expertise. Therefore an approach must be found to decompose the project into elements which can be well understood and treated.

This is not too difficult if only transparency shall be achieved, however, it is really challenging if re-composition after modification of the individual elements is not to impair the overall system functionality.

2. EFFECTIVE OPERATIONS IN PORTS

From 1st May this year till 31st October 2009 the European Commission is co-financing a so-called "Integrated Project" to enhance operations in sea ports.

The project team consists of over 50 experts from 13 European member countries. Due to the comprehensive nature of the project, the experts represent a wide scope of port-related disciplines, from navigation and terminal management to administration. Small and medium-sized enterprises are participating as well as large international groups and administrations, from customs to health service. This means some understand everything there is to know about ports and ships, whereas others may have barely even seen one before.

Fig. 1. European member states participating in EFFORTS

The general objective of the project is so general that the first step was to specify the scope of work. Process enhancement is aimed at in the areas of navigation in ports and port approaches, environmental protection of ports and related areas and port and terminal operation. An additional cross-area activity covers all educational and training aspects related to port and terminal operations.

Fig. 2. EFFORTS scope of work

2.1 Effective Project Management

The heterogeneousness and complexity of the EFFORTS project are not the only difficulties management must overcome. Since travelling takes up time and eats into the budget, project work must be performed by distant co-operation. Thus unambiguous communication and congruent understanding is essential.

Each work package needs to form part of the jig-saw to enhance ports as a whole. In order to maximise synergies between applications, each project partner must be aware of neighbouring activities but may not allocate too many resources outside the work package's core activities.

The initial management task then is an educational one in order to generate an overall understanding of