

# Implementing SAP R/3 in a Multi-Cultural Organization

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**Abstract:** Enterprise Resource Planning systems allow multi-cultural organizations to harmonize and coordinate their business processes across functional departments and geographical boundaries. However, in spite of multi-language support and configuration flexibility, the technology itself cannot ensure that the implemented system satisfies all parts of the organization. In this paper, we present some of the experiences from implementing SAP R/3 in Hydro Agri Europe (HAE). Represented with plants and front offices in nine European countries, HAE needed a deliberate strategy for dealing with multiple cultures, legal systems, and languages when they decided to reengineer the organization and implement SAP. The strategy as a whole was successful, though there were culture-dependent issues coming up during the project that led to more expensive solutions and a less harmonized organization. We discuss the approach taken by HAE and sum up the positive and negative experiences from the project.

## 1. Introduction

*Enterprise Resource Planning (ERP)* systems like SAP R/3 support the business processes of a company and let the company share common data and practices across the entire enterprise. Providing a real-time environment for generating and retrieving information, the ERP system speeds up the processes and allows a closer monitoring of the activities of the company. Most ERP systems today integrate different organizational units, business processes, and geographical sites into a single international architecture, though parts of that architecture may be configured to specific organizational units or geographical sites (Lehmann 1998).

SAP R/3 contains more than 5,000 transactions and is one of the most complex ERP systems in terms of configuration flexibility and functional scope (Curran and Keller 1998). It comes with a number of customizable modules that are either used as stand-alone components for restricted parts of the business or are integrated to support several business functions. A single module like *Materials Management*, for example, contains a complete set of transactions for material requirements planning, purchasing, inventory management, and invoice processing.

SAP has for quite some time emphasized the system's multi-language support and the possibility to tailor the system to the different needs of local organizational

structures. Local variation in business processes, document designs, and work organization is supported, which can make it easier to handle conflicting interests due to cultural differences.

However, implementing SAP in multi-cultural organizations is still quite a challenge. The functionality of SAP may provide some means for dealing with multi-cultural organizations, though this only partly solves the problem. The SAP implementation is usually part of a reengineering project (Buxmann and König 1996, Stein 1999), and multi-cultural issues arise at many stages and in many parts of a large-scale reengineering project. The whole project has to be planned with these cultural differences in mind, and special mechanisms for capturing and resolving culture-dependent tension have to be devised.

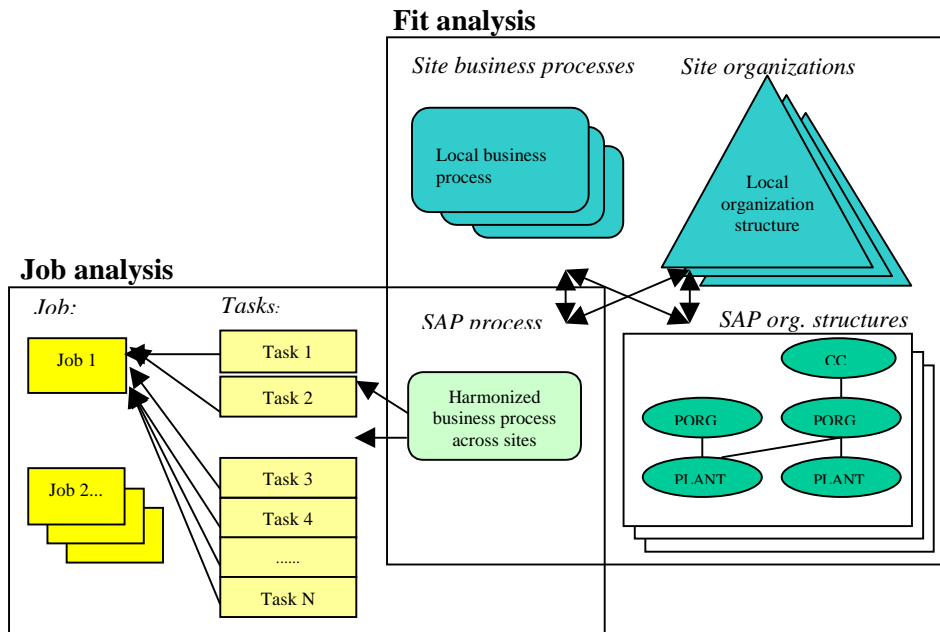
This paper discusses the experiences from Hydro Agri Europe's implementation of SAP R/3 from 1995 to 1999. In Section 2 we briefly present the challenges of reengineering a multi-cultural organization and introducing an integrated ERP system to support it. Whereas Section 3 presents HAE's way of dealing with multi-cultural issues in their project, Section 4 sums up the positive and negative consequences of the approach taken in the project.

## **2. Business Reengineering in Multi-Cultural Organizations**

Multi-cultural organizations are geographically dispersed across cultural or/and national borders. Several nationalities are represented at the various levels of the organization, and the sites reflect the local culture just as much as the company culture. In many cases, the local sites are quite independent and strong, which may give rise to some tension between local sites and central management or between competing sites.

Reengineering these organizations can be extremely difficult. Harmonizing business processes and organizational structures requires that a common understanding of the future business can be developed. This may be hampered by communication problems and different priorities and habits, and the harmonization can be completely blocked by political conflicts and prestige. A strong management can force changes to be introduced, though it is not obvious that strong and authoritarian managers are the most efficient ones in multi-cultural organizations.

Implementing SAP in multi-cultural organizations assumes the same activities as other SAP reengineering projects. As shown in Figure 1, the two most important analysis activities are *Fit analysis* and *Job analysis*. During fit analysis, the local business processes are integrated into harmonized SAP-supported processes and the local organizational structures are mapped onto SAP's organizational structures. Figure 2 is an EPC model (see Curran and Keller 1998 or Scheer 1999) that illustrates how these unified business processes are documented in a DFD-like notation. A large degree of harmonization here tends to mean simpler and cheaper configuration and easier maintenance of the implemented system. It must be added, though, that a strong harmonization might also lead to more resistance at the local sites and more change management work (Gulla 2000).



**Figure 1 Activities in SAP projects**

In an integrated SAP system, a harmonization of jobs and user profiles might be just as important as the harmonization of processes. Technically, site-independent tasks representing separate units of responsibilities are defined in terms of SAP transaction codes. Jobs, which are defined as groups of tasks, are linked to the end-users and decide their user profiles in the system. The SAP job assigned to an employee, thus, not only specifies what she is supposed to be doing, but also prevents her from doing other things. Harmonized site-independent jobs make the complete organization more transparent, simplify the administration of user profiles and training programs, and open for a more efficient exchange of personnel across sites.

Experience shows that harmonization of business processes and organizational structures in multi-cultural organizations is challenging due to

- language differences,
- differences in legal systems,
- differences in business practices from one culture to the other,
- cultural conflicts and prestige, and
- differences in business culture with regard to management authority, openness, formality, control mechanisms, etc.

However, the benefits of harmonization is well documented in a number of recent ERP projects and should be stressed throughout the whole project (Deloitte Consulting 1998, Foster and Herndon 1997, Hammer 1990, Hiquet 1998, Norsk Hydro 1999, Stein 1999).

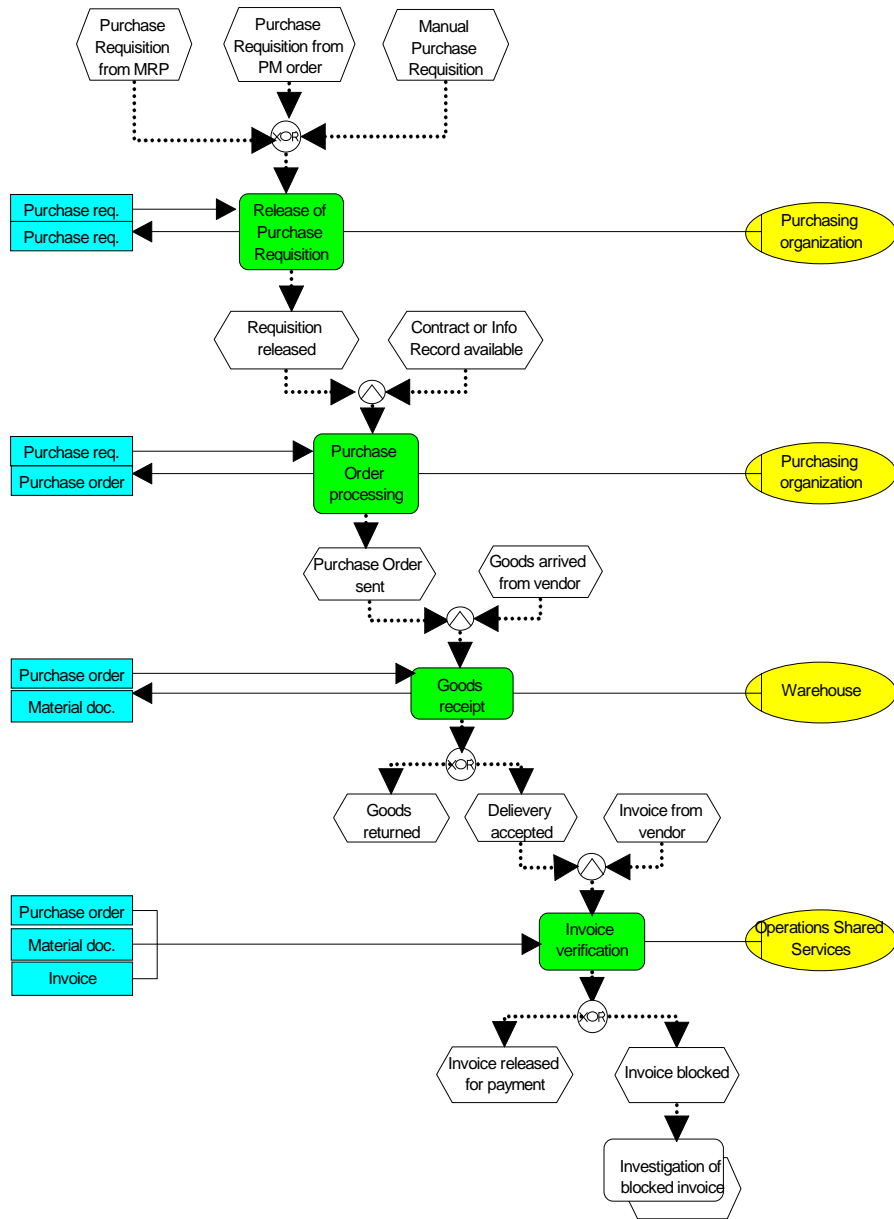


Figure 2 High-level EPC model for HAE's MM flow

### **3. The Hydro Agri Europe's Reengineering Project**

Hydro Agri Europe (HAE) is one of the world's leading producers of fertilizers and part of a Norwegian energy-based company called Norsk Hydro. With 17 production sites in nine European countries and about 6,400 employees, HAE faces a number of cultural, legal and linguistic differences that challenge the coordination among sites and the efficiency of the business as a whole.

The Agri division of Norsk Hydro has a strong international orientation and has more employees than any other division of the company. Although HAE forms the original part of Norsk Hydro's business, its history as a pan-european organization is only about a decade old. This was still apparant when the reengineering project started, as there was substantial variation in the ways business functions were carried out at the various sites. For the project, this posed a challenge that had to be given special attention from the very beginning. Table 1 sums up the scope and size of the HAE reengineering project.

In the following, we discuss the approach adopted by HAE for dealing with multicultural aspects in the project.

#### **3.1 Project Preparation**

The project organization included a central team in HAE's head office in Brussels and smaller local teams at each of the sites in western Europe. To support the part of the reengineering project focusing on streamlining business processes, project owners were appointed for all main business areas. Any issues related to business processes were led and controlled by the process owners. This helped us to achieve a distinct split between the business related part of a process and the technical solution to it within SAP R/3. Process owners were not only professionally skilled within their respective business areas, but also had the knowledge to see the impacts on the SAP technical side of the problems. As part of the reengineering carried out prior to the system implementation, a harmonization of all main business processes was performed by a multi-national group that visited several sites and worked out a set of best practice processes.

All of this ensured that business process differences were dicusses and resolved in a structured manner, though it was a bit unfortunate that reporting needs were not handled by the same mechanisms.

#### **3.2 Project Organization**

The project was managed by a multi-cultural group of project managers and team leaders. The only two countries not represented among the project team leaders and managers were Spain and Italy. Statistics from the project show that these two countries had a greater share of change requests and errors reported than their size and business activities should indicate. This information is in accordance with a general impression in the project that people from the local units would rather contact people from their own country in the central team than the correct person from an organisational point of view. Informal communication across nationalities was restricted, and people tended to use the formal documentation channels when dealing with people of other nationalities.

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<i>Project duration</i>	July 1995 – March 1999
<i>Project costs</i>	US\$ 126 million
<i>ERP system implemented</i>	SAP R/3 v3.0F
<i>SAP modules fully implemented</i>	7 (SD, MM, PM, HR, FI, CO, AM)
<i>SAP modules partly implemented</i>	3 (PP, QA, PS)
<i>Implementation locations</i>	26
<i>Countries implemented</i>	9
<i>End-users</i>	3,264 (700 concurrent users)
<i>Jobs defined in system</i>	205 (site-specific)
<i>Tasks defined in system</i>	120 (site-independent)
<i>Legal companies implemented</i>	46
<i>Languages supported in implementation</i>	English as log-on language Documents to vendors/customers in 9 languages
<i>Nationalities among team leaders and project managers</i>	7

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**Table 1 HAE project data**

### **3.3 Change Management**

Studies led by an organizational impact group had the objective of dividing all tasks into units of responsibility and group tasks together in job descriptions. The goal of this study was to unify the job descriptions across sites, aiming at defining approximately 50 different job descriptions that would be valid for all units. Due to organizational differences among the different countries, local resistance, and time constraints put on the group, the studies led to a total of 205 different job descriptions. As many of these jobs ended up as site-specific, it is clear that the harmonization of jobs was not as extensive as desired. The huge number of site-specific jobs complicated the construction of job profiles in the system and made it difficult to run common training sessions for several sites, as the training courses allocated to the employees depended on the jobs assigned to them.

### **3.4 System Configuration**

English was chosen as the single company language, serving as the only official language for system log-on and preparation of the original system and user documentation. A positive effect of having only one log-on language was that error reporting from the sites to the central project team was simplified.

Documents used for correspondence with vendors and customers of Hydro represent an exception to this decision. Sales orders, shipping documents and billing documents in the sales area, and requests for quotation, contracts and purchase orders in the procurement area were maintained in all languages for the nine countries with HAE representation. The consequences of opening up for correspondence in all local languages proved to require much more resources than initially anticipated. A seemingly simple factor like the diversity in the local letter formats also significantly increased the workload for ensuring that common and legal standards for each of the countries were met. As a limiting measure, the different legal entities were only

allowed to maintain their documents in maximum two languages: English and the local language.

Differences in legal requirements, like the need for continuous number ranges for invoices belonging to the same company in Italy and Spain, also led to exceptions in how the system could be implemented for the different countries.

An interesting point is that all site specific configuration was handled by the central project team. In effect, this meant that project members of the central team had to handle text adaptations in Italian without understanding the meaning of the sentences they entered. This potential problem was solved by involving the local sites in quality assurance work where needed. Apart from end-user training, master data conversion was the only part of the implementation work that was done locally at the sites. Still, this work was also controlled, planned and monitored by the central team. Master data conversion was decentralized mainly due to the fact that SAP was replacing a wide range of legacy systems that required local expertise to allow accurate data extraction. The same conversion programs were however used at all sites when uploading data to SAP. This helped to ensure master data consistency throughout the division.

### **3.5 System Documentation**

All user documentation and training material delivered by the project was prepared in English only. Local instructors were educated to train employees from their own countries, thus facilitating teaching in the local language and discussions beyond the curriculum of the standard training courses. By using local training resources, the project also made sure that the instructors had the country-specific knowledge necessary to tailor the training courses to the local needs using local master data and site-specific SAP structures. Two training systems, one for uploading local training data and one for running the courses, were established, and a centrally controlled routine for copying data from the first system to the other was set up. The timing of this copying depended on the scheduling of local courses, though finding an appropriate time could be rather challenging when three of four sites were running courses that partly overlapped in time.

## **4. Conclusions**

In this article we have described the HAE Reengineering project with emphasis on the special considerations necessary for a multi-cultural system implementation. The effects of working in a multi-cultural environment were reflected in many different and often unexpected ways. Among the positive experiences of the project we would like to accentuate the benefits of working in international teams and using local instructors for training. Furthermore, the decision to use only one official log-on language proved to make the implementation more efficient than it otherwise would have been. The linguistic side of the project also gave rise to one of the negative experiences. The effort associated with maintaining all external documents in local languages turned out to be greater than initially expected. Also, in later projects more resources should probably be dedicated to working out common job descriptions and making them valid across all sites.

An interesting issue in ERP projects is the way harmonized business processes and jobs are documented. The EPC model from Figure 2, which follows the notation favored by SAP, is not expressive enough to include all aspects subject to harmonization. Jobs, tasks, reports, cooperation, operative principles, and system resources are just as important when harmonizing disparate organizational sites, but cannot be visually documented and discussed the same way. Adopting a stronger modeling basis (see Carlsen 1997, Gulla and Lindland 1994, Harel 1992 for proposals), the projects might have found it easier to communicate and work out harmonized business structures.

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