



Case Study

1.1 Electronic environment and safety management at TenarisDalmine, Italy

Abstract



Tenaris is a leading supplier of tubes and related services for the world's energy industry and certain other industrial applications. In order to improve its business processes, especially those related to health, safety and environment (HSE) management, the company developed the Tenaris Safety and Environment (TSE) system. The first version of this application was deployed during 2003 in the Italian plant, TenarisDalmine. Starting from here, it has been distributed worldwide to other pipe manufacturing centres. The application enables the management of health, safety and environmental aspects. It also supports the accurate observation of international environmental standards. Furthermore, Tenaris considers the TSE a driver to achieve stronger corporate cohesion, fulfilling its Social Responsibility objectives.

Case study fact sheet

<i>Full name of the company:</i>	Tenaris S.A.
<i>Location (headquarters / main branches):</i>	Argentina, Brazil, Canada, Colombia, Italy, Japan, Mexico, Romania, USA, Venezuela.
<i>No. of employees:</i>	23,500 (May 2007)
<i>Year of foundation:</i>	1906: Dalmine plant created. 2001: Tenaris brand launched.
<i>Main business activity:</i>	Distribution of full line steel pipe products with an emphasis on value added services
<i>Primary customers:</i>	Energy, manufacturing and construction companies.
<i>Turnover in last financial year (€):</i>	10 billion US dollars (2007).
<i>Most significant market area:</i>	Worldwide
<i>Main e-business applications studied:</i>	Internal e-business systems

1.1.1 Background and objectives

Tenaris (<http://www.tenaris.com>) is a major producer and supplier of seamless and welded tubular products and related services with 23,500 employees. The company has its pipe manufacturing centres in Argentina, Brazil, Canada, Colombia, Japan, Italy, Mexico, Romania, USA and Venezuela.

The main sector served by Tenaris is the energy sector. Tenaris supplies products for the oil and gas industry and for the power generation sector. The Company also serves manufacturing sectors and the structural sector. Tenaris is one of the leaders of the steel tubes sub-sector worldwide, with about 6 million tons of output produced annually. Tenaris tries to differentiate in delivering value to its customers through product development, manufacturing excellence and supply chain management. The Company operates in a very complex and competitive context. The extended use of IT is one of the instruments on which the company focused in order to fulfil its objectives and to cope with the competition.

1.1.2 e-Business activities

Developing a software for environment, health and safety management

Steel making implies significant health, safety and environment (HSE) issues. A wrong approach to HSE management could lead to risks of many kinds such as worker accidents, possible gas emissions or toxic waste contamination. Tenaris pursues very strict HSE objectives and considers these as an integral part of its business, doing its best to foster Corporate Social Responsibility measures. HSE issues are highly relevant for Tenaris' customers as well. Most of them require detailed information about their orders' impact, with the aim to keep their whole value chain accident free and environmentally friendly. Thus, the definition of clear safety indicators and the diligent observation of environmental standards have contributed decisively to Tenaris' business success.

In order to increase its efficiency in the HSE management, Tenaris developed the Tenaris Safety and Environment (TSE) system. The history of the TSE implementation and rollout may show how Tenaris transformed a problem in a growth opportunity. In 2003, a quite simple infirmary and safety management system was successfully deployed at the TenarisDalmine plants in Italy. Later on, in the other side of the world, the Brazilian Tenaris production unit, Confab, requested support for the HSE management. After a screening process, Tenaris considered that the system deployed at TenarisDalmine was the candidate solution for solving the Brazilian issue. At the same time, the opportunity to extend the system to the whole company was pointed out.

Two main advantages of the distribution of a common IT solution for the HSE management were noticed. Firstly, a corporate HSE management system would standardise internal processes, leading to greater effectiveness and cost reduction, while also improving the internal benchmarking. Secondly, a better control of the HSE process would lead to better performance and better compliance with the market requirements.

It was decided to develop the project in the Italian plant in order to take advantage of the already developed knowledge. A long-time software partner of TenarisDalmine was chosen to develop the new system, designed internally. This software partner is still providing software maintenance and upgrading, while Tenaris is currently in charge of projecting and developing system updates.

Implementation phases

The first porting of the system emphasized the objective of a rapid deployment in Brazil, Argentina and Mexico. The system was translated into Portuguese and Spanish and new instances of it were installed in the Dalmine data centre and made available through the intranet. A few modifications were added in order to meet some critical local needs. First rollouts in this form took place during 2004: the TSE team visited the plants in which the system had to be deployed, training sessions were held, and the users were supported in the configuration phase.

After this first phase, the road to a global HSE system continued. In 2005, the creation of Version 2 started. The second version of the TSE was designed evolving the first one to a multi-language application, with reengineered processes on the functional side and a component approach for improving its customization options. The local legal constraints and needs were analysed and taken into consideration in the design. Version 2 became available in 2006, when a new rollout phase started with activities of local training and configuration. As of January 2008, Version 2 has been rolled out in almost all the countries where Tenaris operates except the US as well as Japan and China, which need a specific fields structure to support the ideograms in the Unicode standard.

TSE structure

The TSE covers almost all the HSE management needs, in a single application. This fact is positively recognised in Tenaris and has been one of the reasons of the popularity of the system. On the health and safety side, the core of the application is the injury management process, which is performed through a workflow that guides the users. Another major feature is the support of all the events which take place in an infirmary, from a medical visit to health protocol management. With regard to the environment, the application tracks all environmental aspects, for example noise, water, pollution. The data inserted is used to signal problems as well as to keep a historical log of the various aspects. The environmental section has its own workflow, which aids the users in performing their activities. The data is made available to the managers, who need to analyze the HSE situation. The TSE provides specific reports for different managerial needs which facilitate the decision making process as well as the internal benchmarking.

From a technological point of view, TSE Version 2 is a web application hosted in Italy and accessed worldwide. Each user enters the site dedicated to his or her plant and has access to the features of the application on the base of his or her role and permissions. The creation of the roles is a fundamental aspect in assuring the legal aspects with regard to privacy.

Since TSE is not critical to the core business, IT support is not operative 24 hours and seven days a week. However, the Data Elaboration Centre is operative full-time.

The key-user project manager role

During the rollout phase the switch from an existing system to a new one can lead to a partial commitment, if the advantages of the change are not fully understood. In order to overcome such problems, Tenaris usually appoints a user-leader project manager. His or her role is to act as an interface between local users and Tenaris corporate IT, with the aim to improve the cohesion of the global workgroup. The scope of this role ranges from filtering redundant or inconsistent requests to standardising local business habits.

1.1.3 Impacts

The TSE improved cohesion, environment and safety performance as well as customer relationships at Tenaris:

Improved cohesion: The biggest impact of the TSE application in Tenaris was on cohesion. TSE created a shared vision about environment and safety among different users and countries. Now that the TSE system is deployed worldwide with only a few exceptions, there is a strong feeling of commitment by all the users. The system is constantly updated to include new requirements from all over the world.

Improved environment and safety performance: Since the TSE has been deployed at Tenaris, environment and safety indicators, e.g. number of accidents, have significantly improved. According to the company this is due to more systematic capture and analysis of related data as well as to enhanced overall commitment of Tenaris managers towards Corporate Social Responsibility.

1.1.4 Lessons learned

Success factors

Tenaris managers consider the TSE project as an excellent case of success. It is one of the applications that have the widest coverage across the Tenaris plants. A critical success factor for the TSE project was the strong commitment and cooperation of the people who worked on it, both as IT technicians and as key users. Another important factor was the quality of the project itself. This system was conceived in order to fulfil the requirements of the International Standardisation Organisation (ISO) and the Occupational Health and Safety Advisory Service (OHSAS) for standards, beside the needs of the end users. Thus, when the system was scaled up to worldwide deployment, it was easier to demonstrate to the users its actual superiority over the previous local applications.

How to adapt to country-specific needs

The TSE was originally conceived as a one-size-fits-all application. This feature has guaranteed a fast and effective implementation in the early stages. When the rollout process moved on, it appeared clearly that this was an approach unfit to handle the evolution of the system. The local needs, coming from both specific organizational habits and local law constraints in a variety of nations, had to be harmonised. It was then decided to implement the new functionalities in a modular way, so that they could only be used in the countries where they are needed.

In order to improve user communication and to promote the harmonisation of the organizational processes, Tenaris organised a workshop in Italy in November 2007. The result of this workshop was a prioritized to-do list, agreed upon by all the local HSE directors. Tenaris decided to conduct further workshops and local training sessions aimed at making the users aware of the implications of a global system. This will promote best practice exchange, the collection of the requests and their prioritization, and will facilitate and expand the use of a constantly evolving system.

1.1.5 References

Research for this case study was conducted by Pier Manenti, Manufacturing Insights (an IDC company) on behalf of the Sectoral e-Business Watch. Sources and references:

- Telephone interview with Alessandro Caffi, Industrial IT Project Manager, and Silvia Salvi, Industrial IT Analyst, both Tenaris Dalmine, Italy, January 2008.
- Websites:
 - Tenaris homepage, <http://www.tenaris.com/en/default.asp>, March 2008.
 - Tenaris Health and safety policies: <http://www.tenaris.com/en/AboutUs/HSEnviro.asp>.
 - OHSAS health and safety guide: <http://www.ohsas-18001-occupational-health-and-safety.com/>.

About this document

This case study was initially published as part of a comprehensive Sectoral e-Business Watch study report the steel industry (2008). The European Commission, Enterprise & Industry Directorate General, launched the Sectoral e-Business Watch (SeBW) in late 2001 to monitor, study and assess the implications of ICT for enterprises and sectors. The results support policy formulation, notably in the fields of industrial and innovation policy. All study reports and further resources such as data on ICT adoption in enterprises are available online at the SeBW website (www.ebusiness-watch.org).

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