

## INCREASING COMMON KNOWLEDGE IN AN ORGANIZED WAY

### *Tenneco ride control Europe and PLATO team up.*

Tenneco is a \$6.2 billion global manufacturing company based in Lake Forest, Illinois with some 21,000 employees worldwide. The company is one of the world's leading designers, manufacturers and distributors of automotive emission control and ride control products and systems for the automotive original equipment market and the aftermarket. We sell our ride control products primarily under the well-known Monroe® brand, as well as Clevite® Elastomers and Fric Rot™. On the emissions control side of the business, we market our products globally under highly recognized brands like Walker®, Gillet™ and Fonos™.

We meet the global sourcing, quality and engineering requirements of our customers from more than 80 manufacturing, technical and engineering facilities in 100 countries on six continents.

Within the European ride control group, we have in each plant a group of engineers responsible for the local production processes. There are about 50 process engineers that need to find ways to share experiences.

Like so many companies do, we were faced with the following issues:

- FMEA data was spread over a considerable number of Excel files.
- Repetitive data was copied in different projects.
- If modifications were needed, not all copies were necessarily updated.
- Control plans and process flow charts were made in different software environments

We realized that we had to look for a standard software for FMEA's, process flow charts and control plans. Tenneco ride control Europe established its first set of requirements:

- One central database for all plants
- Accessibility by every user through on our intranet.
- Creation of information in the same software environment.
- Document updates completed through a document control system.

In addition to these requirements, which many software suppliers meet, we had four additional requirements to support our business processes:

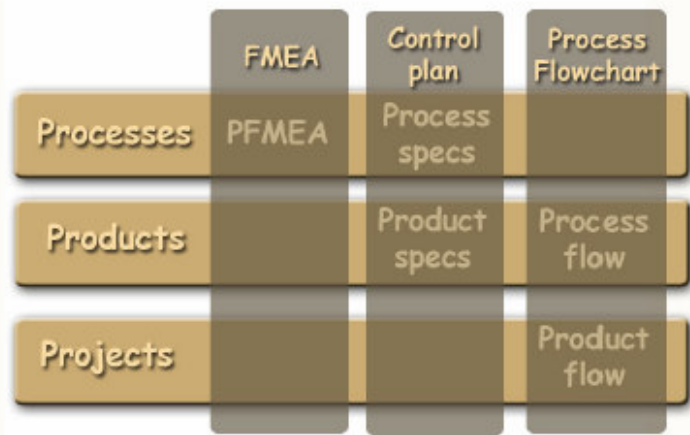
- 1) Modular concept to group process elements into products and projects.
- 2) Process families in which all related documents are grouped.
- 3) Support for multi-languages and multimedia information..
- 4) Management of open actions.

After screening several software suppliers on the above functionalities, Tenneco ride control Europe selected the SCIO system provided by PLATO to fulfill these requirements.

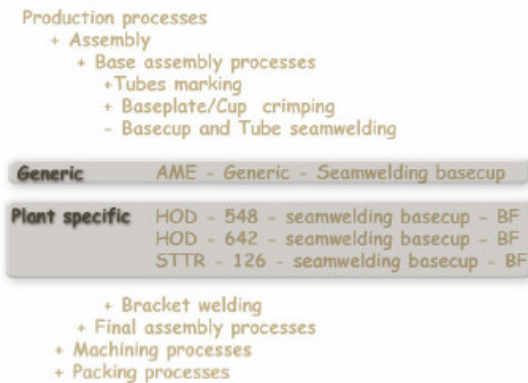
#### **Modular concept to group process elements into products and projects.**

Currently we are running in our production plants X projects, which contains Y different products. To manufacture these products, we use roughly 120 different processes represented by around 2000 different machines or installations. So in total we have to deal with a lot of documents that need to be living documents, meaning they have to be updated on a regular base (for solving problems for example). To enable this, we use a modular concept for our documents.

The concept contains three levels of structure, each with different types of information. At the launch of a new product, we set the sequence of the processes elements which is a one time event. We then add the product and process specification that are known at that time. More importantly, we can keep the FMEA data continuously alive within all projects – data is only stored within one process element (these process elements are linked and not copied into the structures). The engineer only needs to update a single process element and the structure enable a quick overview of a complete project, with updated data.



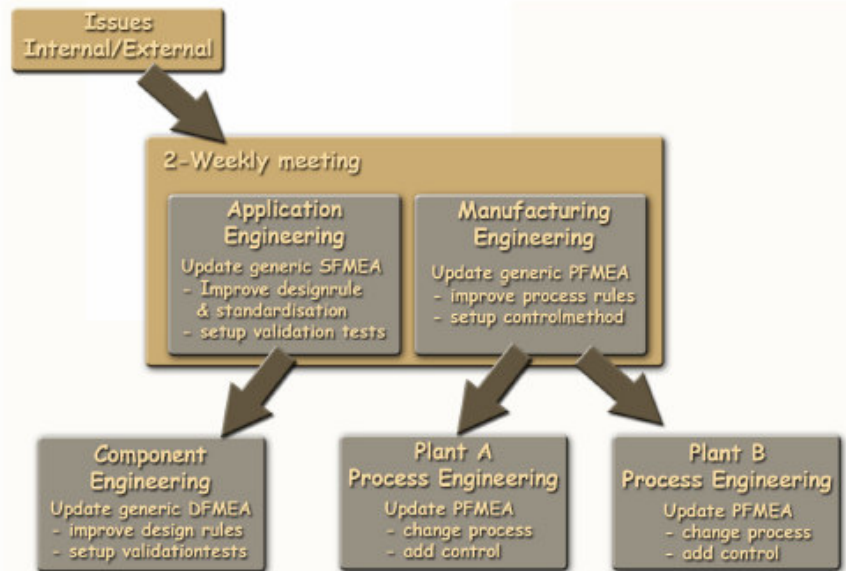
**Process families in which all related documents are grouped.**



An important kind of information flow we need to support is information about occurred problems and their known solutions. For example, if one of our production plants did have a problem with a certain process for which a solution was found, we would need to share that with the experts in other plants. Also, if a plant starts a certain process already used in another plant, one should be able to find a list of known problems and solutions. The FMEA contains this information. We created a business process around this document. We have defined two types of PFMEA. First, we have the documents in each of the plants that are specific for a particular equipment. Second, we have a generic document that contains information

about the process independent of the equipment used.

The business process goes as follows: A group of people review bi-weekly the list of 8D's (Tenneco's problem solving documents) that are completed in every plant. Out of these documents, the issues and solutions are forwarded to the experts who should be aware of it. These experts can work in application engineering or manufacturing engineering. If manufacturing engineering is informed, the generic PFMEA's are updated and relative process engineers are informed. At this point, we need to have an overview of the process families with all their responsible engineers and all available equipment. When an issue occurs in one plant, for example, we can conduct a risk analysis to understand if the same issue could occur in a sister plant.



### **Support for multi-languages and multimedia information should be supported.**

The multilanguage environment in Europe is a challenge that should not be underestimated. In our SBU, we



have seven different local languages (Dutch, Spanish, Polish, Czech, German, French and English). In the past, every plant had to make PFMEA's in English to enable communication between the plants. But we soon learned that because requiring English reduced the creativity during the FMEA session.

Therefore, we allowed FMEA's in local languages and translated the content after the sessions. The translation has to

be a one time event. Every translated cell content of the FMEA's has to always be available. So if changes are applied to a document, then only this part will be additionally translated. Besides entering data in local languages, adding pictures and documents explain the content further.

### **Management of open actions**

The last important section is the management of actions defined within the FMEA system. In the past, it was very difficult for the engineers to stay aware of their open action items, as these were spread over several documents. Now, all reside within one database, and every user receives his actions list automatically when he logs onto the system. He is guided swiftly to the related FMEA where he can update the information. Also, an overview of team actions can be created, and follow up meetings can be organized.

Selecting the SCIO system provided by PLATO was the optimal choice in meeting our needs.