CASE STUDY
Product Life cycle Management deployment

Designing an Experimental Collaborative Tool

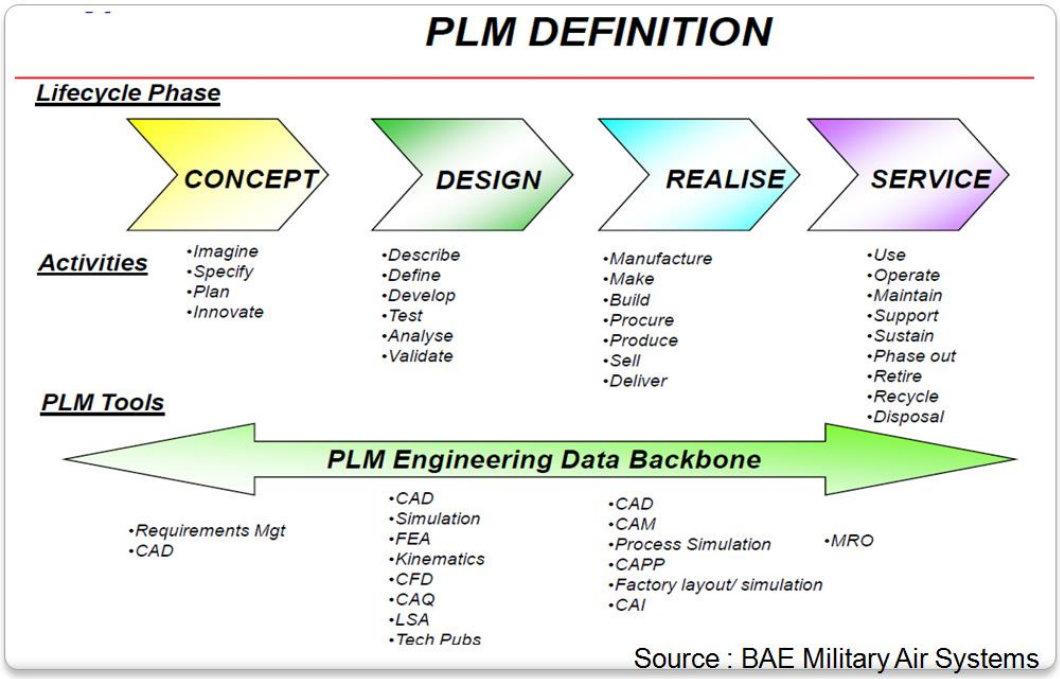
I. Introduction

MGO S.A company, manufacturer of cylinder head and head gasket for STELLANTIS, RENAULT SA, TOYOTA and VOLKSWAGEN, has 4 main suppliers of raw materials and 10 outlets including 6 in France and 4 in Belgium. The Company has just bought two production sites in Asia for the Asian market and two production sites in Africa for the African market.

We imagine the creation of a PIP (Product Innovation Platform), to begin their digital transformation of a PLM with a view to internationalizing its production and sales activities. The company frustrated by traditional PLM systems and looking for a way to develop smart and connected products, to take advantage of a new approach: the Product Innovation Platform.

To make PLM systems efficient, it is necessary to ensure perfect communication between the different applications to result in the creation of a unique digital model.
If we compare the PLM to a huge relational database, the great difficulty is to ensure the operation of all links. It is on this condition, however, that a modification made by a project actor in the morning can be impacted on the entire product and, above all, validated to the final product's criteria immediately.

For a PLM system to work at the project level, compatibility between CAD and business software must be ensured.



II. Development

1. Design process

To use the PLM platform in a suitable field of application, the design approach here is a routine design or re-design approach.
The various stages of the project are:

- Iteration 0: analysis of the existing by tests and simulations. Measuring the discrepancy between the service functions expected in the specifications provided and the service functions performed by the product studied,

- Iterations 1 to n: pre-design of the system to reduce the gap between the expected and the realized.

Each iteration here corresponds to a new version of the complete model of the product (including the skeleton of the part, the CAD of the complete product, the results of the simulations carried out in order to validate the performance and responses of the

2. Managing right access

In addition, for managing the life phases of digital data, an essential contribution of the PLM is the management of different users' access to this data.
There are many issues in projects involving a parent company and suppliers of different ranks in the course of carrying out a project.

3. Product configuration management :

In managing an infrastructure, the need is not simply to manage all documents, but to manage document files and documentation applicable at a given time.

You have to be able to answer the questions with one click: "In which equipment is this calculation note used?", "What are the external references of this plan?", "How to identify all impacts before any changes to this report?", "How to compare a deliverable folder with the initial requirements?".

To address these challenges, the document configuration management software links documents to their context of use in order to offer a scalable knowledge, connected directly with the "state" of the project.

4. Product reference management :

Reference management should be simple for each client and should include a reference such as for PSA Groupe:
i.e:
For Cylinder Head: RE_00CU01 For Head Gasket: RE_00JO01

Example of references management :

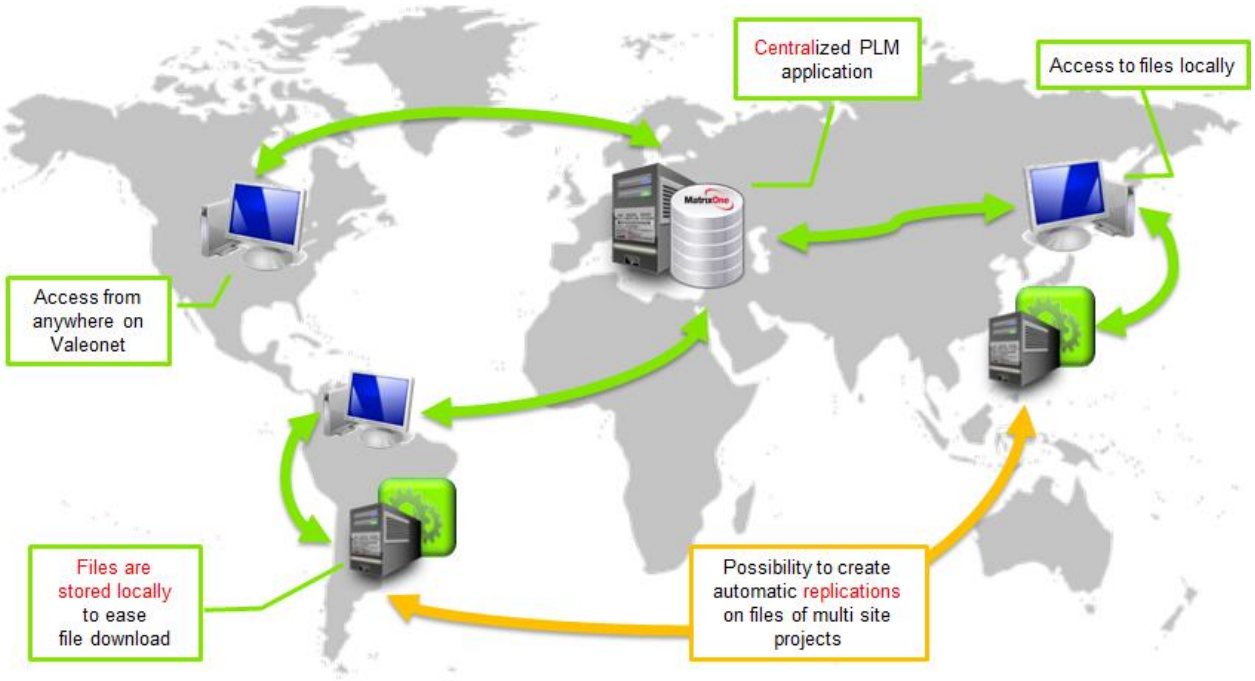
Products	Products reference	
	Standard	Modified
Cylinder Head	RE_00CH000	RE_00CH010
Head gasket	RE_00HGO000	RE_00HGO010
…..		

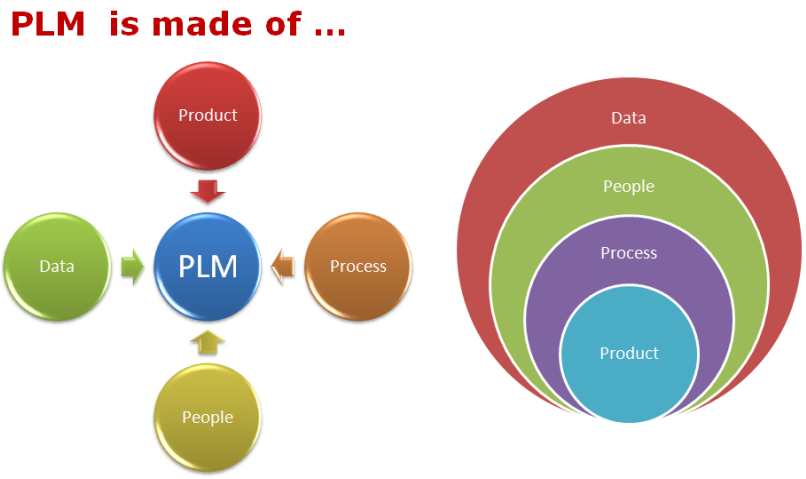
5. Compatibility between apps

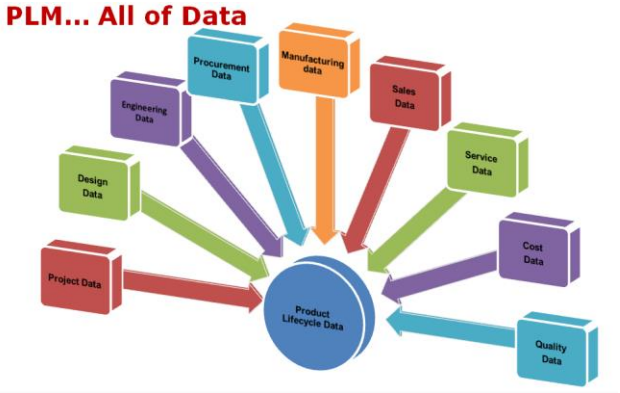
For a PLM system to work at the project level, compatibility between CAD and business software must be ensured.

Simulation tools develop at the product and process level. The tools developed take into account an increasing number of physical phenomena (to integrate all phases of life from conception to use) and the same numerical models must be able to be used for geometric studies (virtual 3D model) and simulations (product/process).

6. Connection between different sites







Work to be done:

A. First action (one session):

- Make the choice of program (Access or python...). learn Access programming
- Prepare the work for Design of your tool

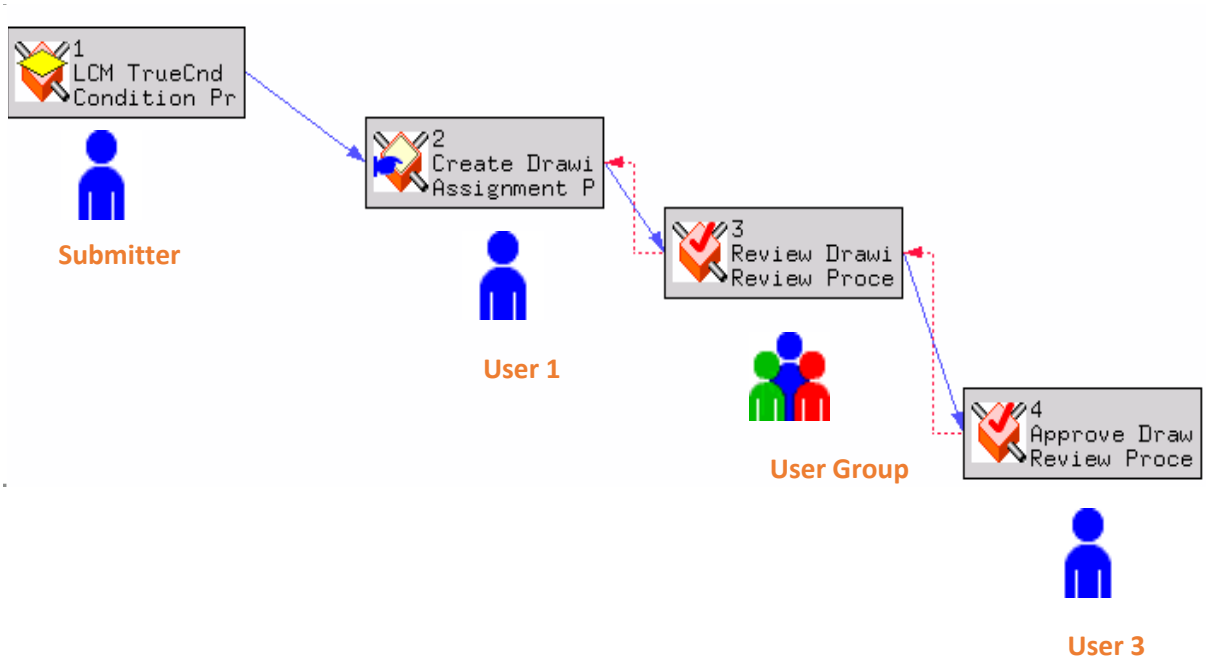
B. Second action (two sessions):

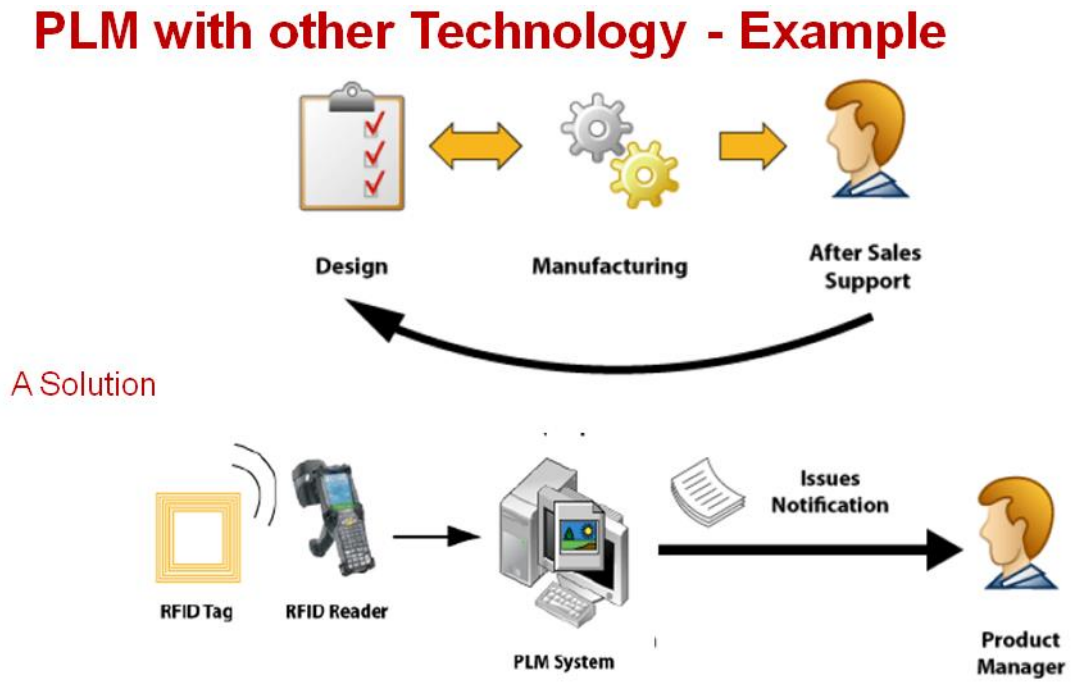
Step One (STD Breech - STD Breech Seal):

You have only one breech reference and 4 or 5 breech seal references per builder. It is assumed to manage one project by builder.

1- Create a database (depending on the tool of your choice),
2- Identify the project steps and functions of the team people (users),
3- Identify the company's suppliers and customers,
4- Building links between each actor,
5- Create the structure of the database taking into account the product or project development plan,
6- Prepare product repositories (product reference coding),
7- Create the functionality of the database for consultation (digital models (2D, 3D), AMDEC, documents and business objects, Excel documents, Word, ppt, PDF, etc.
8- Access checks,
9- Function test

Stages of PLM





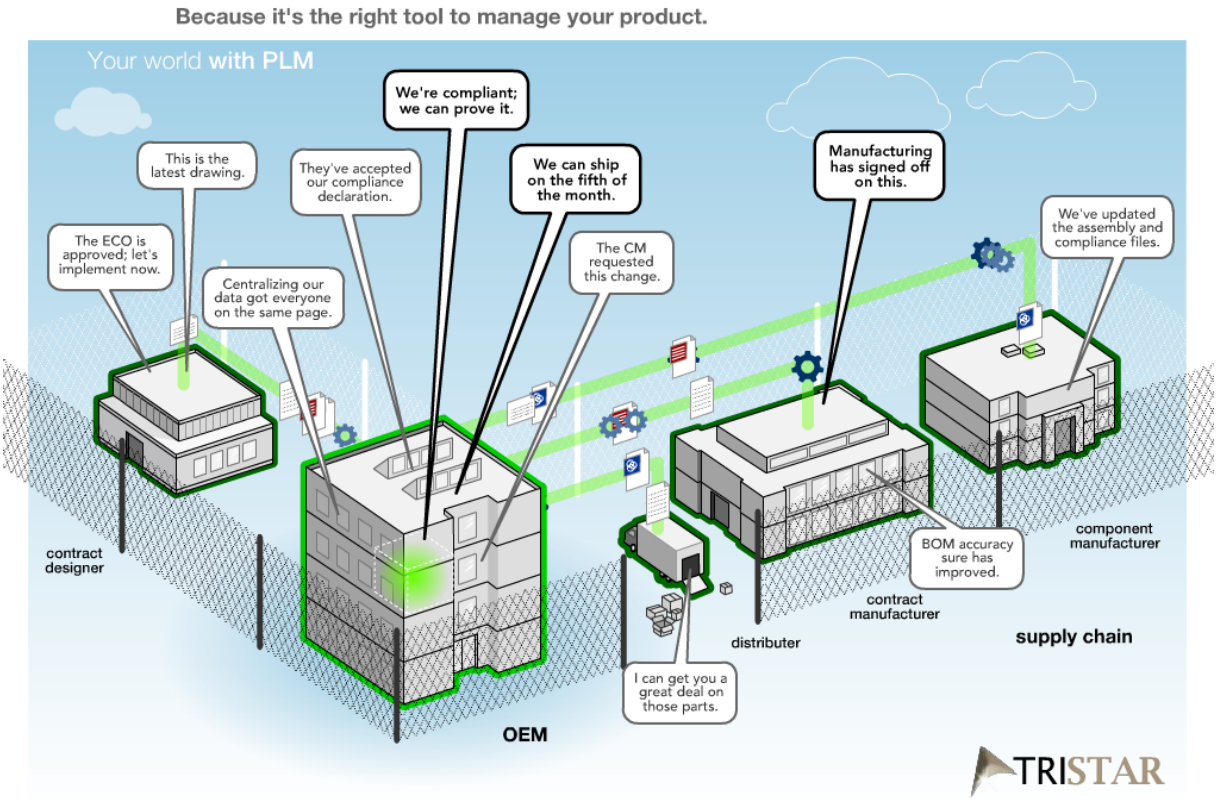
Step two (Modified Breech - Modified Seal):

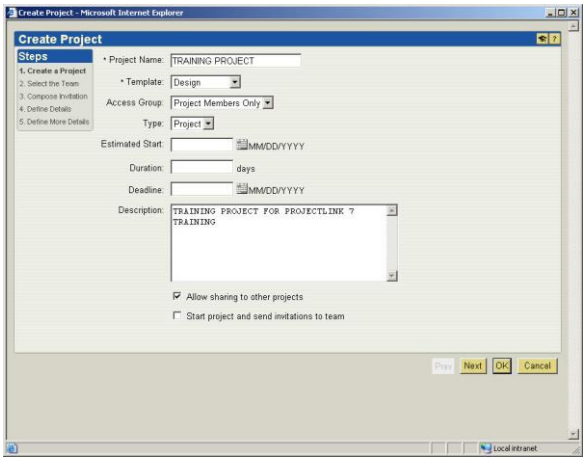
You have 4 or 5 breech references related to the various breech joint modifications (4 or 5 breech joint references) per Car Manufacturer.

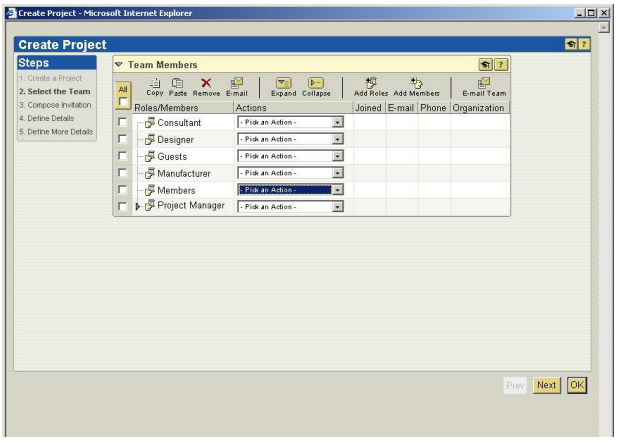
1- Create new links between modified breech and already modified joints in the first step,
2- Identify the company's suppliers and customers,
3- Building links between each actor,
4- Create the structure of the database taking into account the product or project development plan,
5- Prepare product repositories (coding product references),
6- Create the functionality of the database for consultation (digital models (2D, 3D), AMDEC, documents and business objects, Excel documents, Word, ppt, PDF, etc.
7- Access checks,
8- Function test.

Step Three:

Now we shall compare the current database with industrial tools (INNOVATOR, ENOVIA, SIMIENS, PTC, TeamCenter, WindChill, ORACLE, etc.)


Because it's the right tool to manage your product.
Your world with PLM
This is the latest drawing.
The ECO is approved; let's implement now.
Centralizing our data got everyone on the same page.
They've accepted our compliance declaration.
We're compliant; we can prove it.
We can ship on the fifth of the month.
The CM requested this change.
Manufacturing has signed off on this.
We've updated the assembly and compliance files.
BOM accuracy sure has improved.
I can get you a great deal on those parts.
contract designer
OEM
distributer
contract manufacturer
component manufacturer
supply chain
TRISTAR


Create Project - Microsoft Internet Explorer
Create Project
Steps
1. Create a Project
2. Select the Team
3. Compose Invitation
4. Define Details
5. Define More Details
* Project Name: TRAINING PROJECT
* Template: Design
Access Group: Project Members Only
Type: Project
Estimated Start: MM/DD/YYYY
Duration: days
Deadline: MM/DD/YYYY
Description: TRAINING PROJECT FOR PROJECTLINK 7 TRAINING
Allow sharing to other projects
Start project and send invitations to team
Prev Next OK Cancel
Local intranet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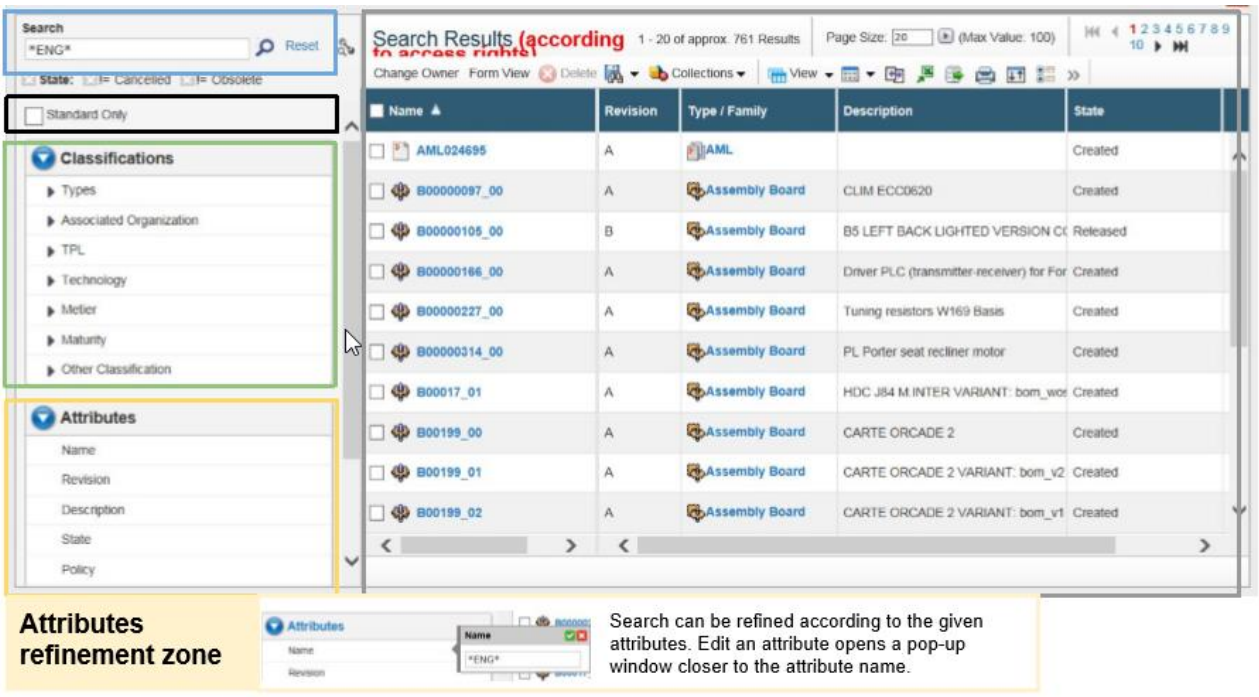
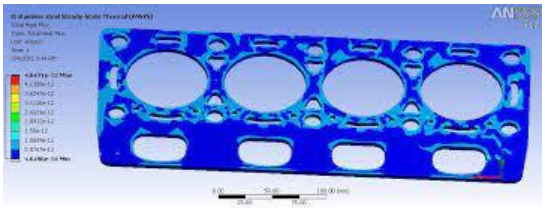
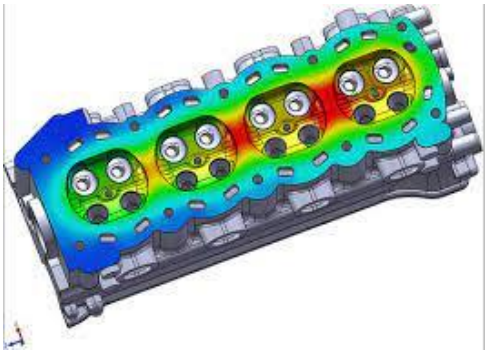
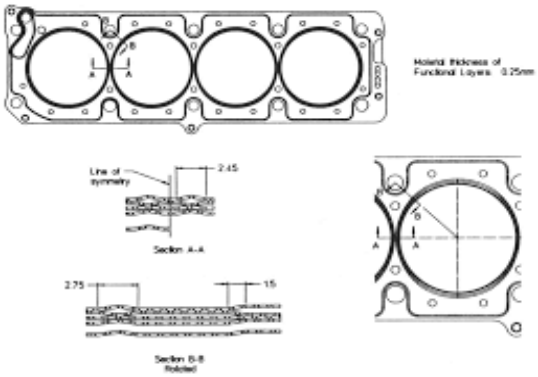
5. Define More Details
Team Members
Copy Paste Remove E-mail Expand Collapse Add Roles Add Members E-mail Team
Roles/Members Actions Joined E-mail Phone Organization
Consultant
Designer
Guests
Manufacturer
Members
Project Manager
- Pick an Action -
Prev Next OK



Files to be shared:







Good luck !!!!!!!!!!!!!!!!!!!!!