Jaguar Land Rover selects Configit Ace®
for Configuration Lifecycle Management

With an ever-growing range of models and derivatives, increasing levels of legislation and the boom in the variety of options and packages available to the customer, the challenge of configuration management has never been more acute for automotive manufacturers.

Configit®

Jaguar Land Rover PLC is an automotive manufacturer headquartered in the United Kingdom. It manufactures two premium British brands: Jaguar and Land Rover. The company was acquired by Tata Motors of India in 2008. Jaguar Land Rover employs approximately 30,000 people globally.

Jaguar Land Rover's varied ownership heritage has resulted in a highly challenging IT landscape. Following ownership by a number of companies, they have inherited a large portfolio of applications as a consequence of various IT integration activities.

From a product definition and configuration perspective, information is authored and duplicated across many systems, leading to an increased risk of inaccurate information being published to drive configuration activities.

Both of Jaguar Land Rover's existing product definition authoring tools were developed in the early to mid-1990s and are built upon an object-oriented approach.

In-depth knowledge of configuration technology and experience using this capability in an integrated IT environment prompted Jaguar Land Rover to ask the question: Could it be possible to introduce a single rule authoring and configuration management application to serve the needs of the enterprise?

The ongoing evaluation of PLM applications in 2009, combined with the evaluation of a multi-phased deployment of an ERP application, presented an opportunity to undertake a significant technical evaluation of the market for configuration applications.

This technical evaluation resulted in the selection of Configit as the configuration development partner and Configit Ace® as the Configuration Lifecycle Management (CLM) system.

The Challenge
Jaguar Land Rover wanted to provide a "single source of truth" for all configuration information, incorporating both engineering and marketing intent, and integrating with Jaguar Land Rover's Enovia, SAP and other line-of-business applications.

Jaguar Land Rover's vehicles consist of up to 5.8×10^{21} buildable combinations and are sold in more than 170 markets.

The Solution
Jaguar Land Rover partnered with Configit to develop the Configit Ace® Configuration Lifecycle Management solution.

Benefits
— Accurate and trusted configuration information throughout the organization

— Efficient, flexible, user-friendly and scalable modeling environment

— Support for concurrent modeling, comprehensive testing capability, and controlled release processes

— Replacement of legacy systems while continuing to support numerous downstream systems

— Platform for future business initiatives such as global Websites, bill-of-material validation, wire-harness optimization, etc.

The Configuration Challenge

A **product model** is developed consisting of:
— Parameters called **feature families**
— Possible values for the parameters called **features**
— **Rules** describing the dependencies among the features

Engineering defines the **technical constraints** of the product
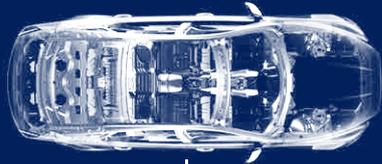
Marketing defines the **commercial presentation** of the product

Technical Configuration of the product
- Define the "bill-of-material"
- Cost products
- Control complexity

Configuration gap due to multiple sources of data

Market Configuration of the product
- Drive orders and schedules
- Price products
- Predict sales and capacity

"In the automotive industry, product offerings are always changing. Major changes are grouped into model years of a car line, which typically involve all major sub-systems of the vehicles. Minor changes can occur at any time and can be due to upgrading of some of the sub-systems for various commercial reasons. All changes need to be reflected in each key process involved in the automotive business; developing, pricing, selling, marketing, building and the servicing of vehicles".

Bridging the Product Configuration Gap between PLM and ERP – An Automotive Case Study
19th International Product Development Management Conference, 2012

In their own rights, the PLM and ERP applications selected by Jaguar Land Rover contained a degree of inbuilt product modeling and configuration capability and two conclusions were drawn:

Firstly, it was found that the breadth of the **product modeling capabilities** of these types of applications were restrictive and less capable than the existing technologies employed within Jaguar Land Rover and their specialist applications. The rule authoring capabilities of both applications were only at the level of truth-maintenance systems, meaning that complex modeling constructs would be difficult to support. It was also found that both applications adopted a strict hierarchical tree structure for the development of product models on a vehicle line by vehicle line basis, with no ability to concurrently maintain multiple model years. Product model maintenance in both approaches would, therefore, be highly complex and restricted to a model-year based approach to product model maintenance, contrary to a configuration approach based upon the use of effectivity.

Secondly, the scope of the **configuration capabilities** of both applications was found to be restrictive. The configuration functionality embedded within the ERP system is designed to support the front-end sales and order processes, but is not suited to the back office requirements of Engineering. Equally, the configuration capabilities of the PLM application, due to its PDM origins, are focused towards CAD, prototyping, visualization, etc. as opposed to supporting the demands of front-end sales and order management. The configuration capabilities of these applications are unsuited to support the lifecycle configuration needs of complex products from concept to run-out via a single version of configuration truth.

The conclusion was that no existing PLM or ERP system could supply the needed functionality for a lifecycle approach to product configuration.

Configuration Lifecycle Management

Configuration knowledge is consumed by many systems and users in the extended enterprise throughout the entire life of the manufactured product. A complication is that all systems and users do not have the same needs for their view on a configuration. For instance, for billing it is important to know the choice of features influencing the price, while technical features driving parts for manufacturing are irrelevant. For a customer visiting a Website to explore options, a textual description of features in the local language is important, whereas an engineer seeking knowledge about a product will most likely prefer a concise, easy to recognize description.

Therefore, a successful CLM system must always take into account the channel that is consuming the configuration knowledge.

From a list of more than 30 vendors, and an extensive evaluation process including a proof of concept using real model data, Jaguar Land Rover selected Configit as their strategic partner to jointly develop a new toolset for the handling of configuration of vehicles from early product development through to ordering, manufacturing and service.

Integrated with Jaguar Land Rover's PLM system (Enovia), ERP (SAP) and other line-of-business applications, Configit Ace® provides a single source of truth for configuration information across the entire enterprise.
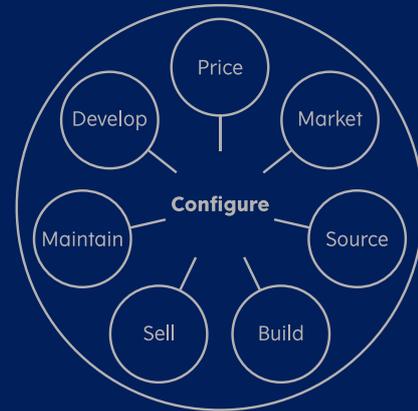
For more information
To learn more about Configit and the Configit Ace® Configuration Lifecycle Management solution, please visit www.configit.com/ace.