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Configuration Lifecycle Management: a catalyst for your digital transformation

How to establish a collaborative single source of truth across your organisation to improve efficiency, time to market and product quality

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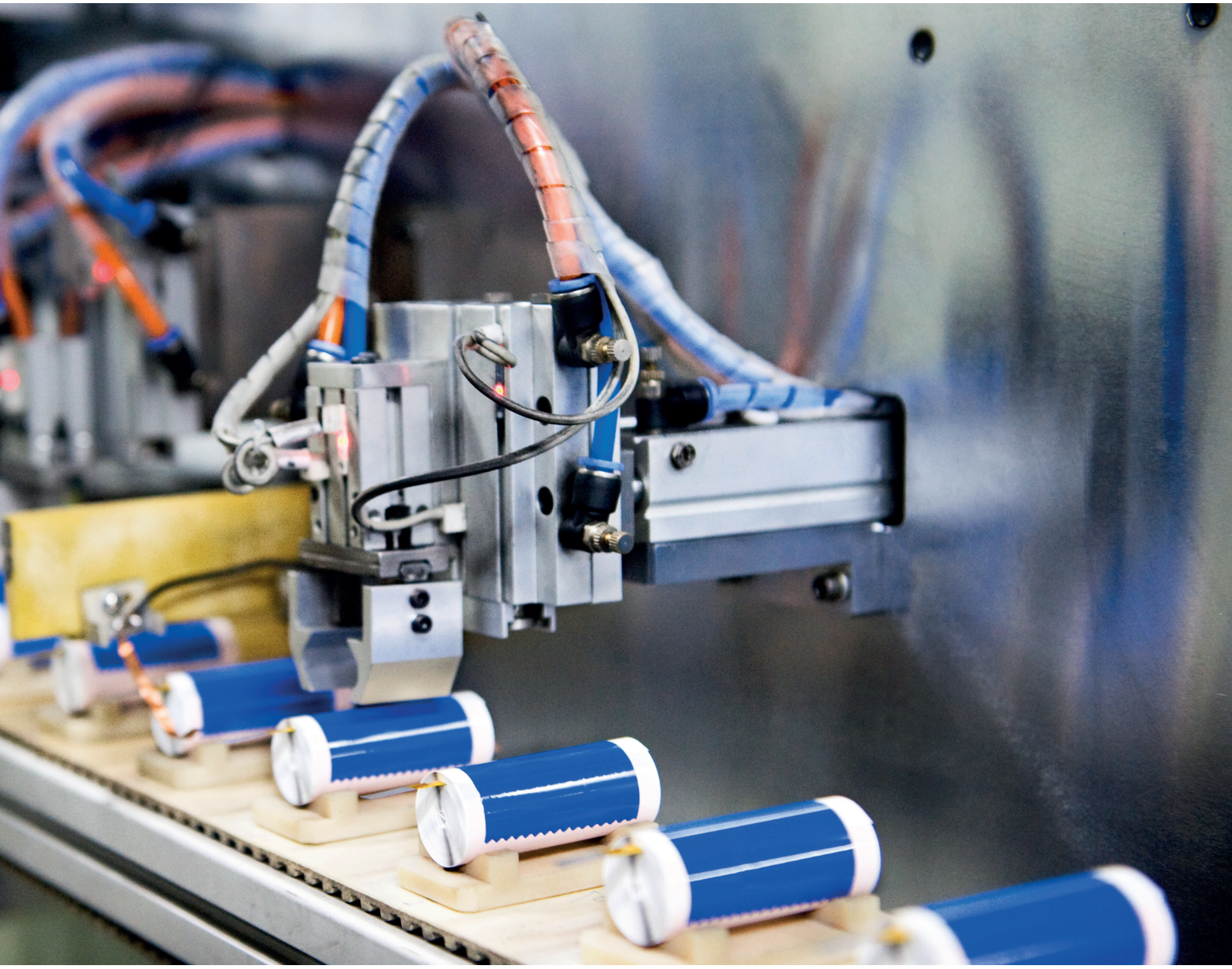
1 Executive summary

Manufacturers are under pressure. New business models, changing customer demands and increasing regulations are forcing manufacturing companies to rethink how they do business. Companies that have already begun digitising and automating their processes are closer to their customers and have an edge over their competitors. But what about those organisations that have yet to start their digital transformation journeys?

This white paper presents insights, scenarios and options for manufacturing companies to successfully address trends in hyper-personalisation, smart factories and servitisation of products. Effective Configuration Lifecycle Management (CLM) ensures consistent product configuration data across all functions – from sales and engineering to manufacturing and customer service.

This end-to-end approach enables companies to establish a single source of truth on the thousands of possible product configurations that can be manufactured, sold and delivered to customers, resulting in benefits such as increased efficiency, accelerated time to market, and reduced risk and costs – as well as better product quality.

Read on to find out how PwC and Configit can design and implement a CLM solution to help your company adapt faster to new market trends, customer demands and changes in your industry.



2 Why industrial manufacturers need digital transformation

Companies need to manage multiple complex development projects at the same time, and product variants are becoming more numerous.

The challenges which manufacturers are facing today can be split into two categories: market challenges and efficiency challenges.

There are currently four major market challenges: growing customer demand for personalisation; increased expectations for software and sensors; complex product development cycles, with mechanics, electronics, mechatronics and software slowing down innovation; and increasing environmental, social and governance (ESG) requirements.

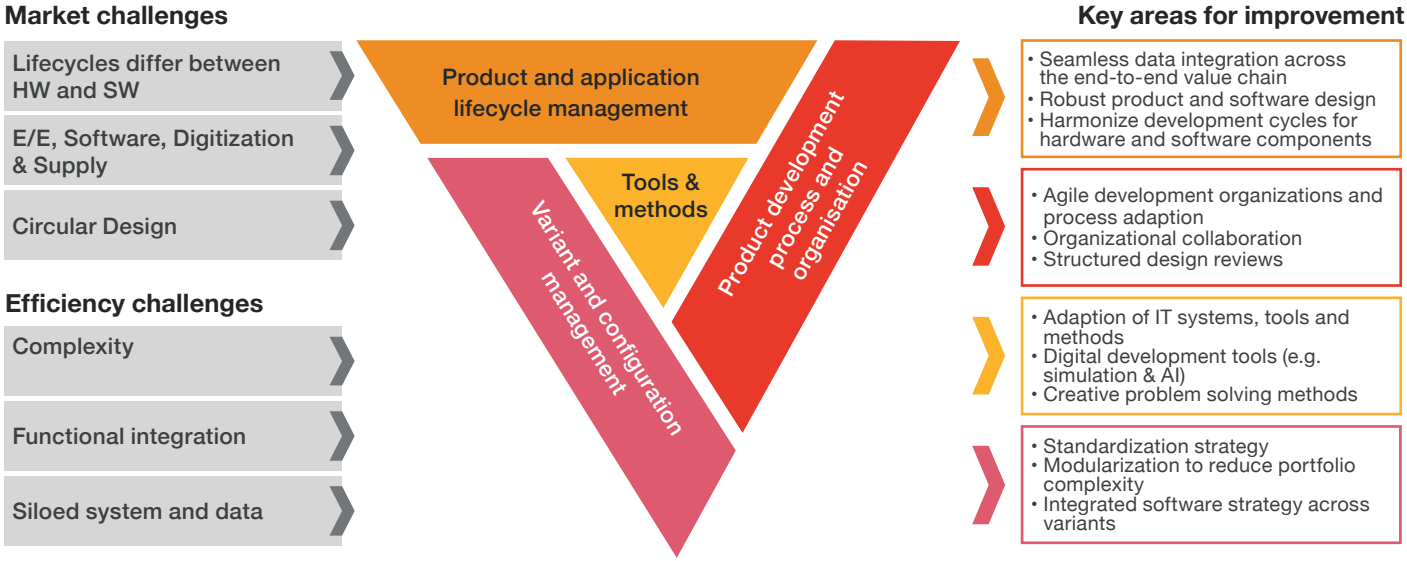
Managing projects and products becomes more complex

These market challenges are putting huge pressure on profits and efficiency among manufacturing companies, creating a number of efficiency challenges.

Companies need to manage multiple complex development projects at the same time, product variants are becoming more numerous, and manufacturers are having to increase their focus on aligning their functions and integrating their systems with those of their partners.

To strengthen collaboration in this way, a common view of configuration data is essential. Seamlessly integrating data throughout the value chain allows companies to harmonise their product development cycles on both the hardware and software side, while also creating robust hardware and software that meet both current and future market demands.

Configuration data: a common view is essential to meet current and future challenges



3 From fragmented to interconnected

As organisations get to grips with digital transformation, one of the biggest hurdles to overcome is the presence of information silos within functional areas and systems. Engineering departments tend to be hyper-focused on engineering the product, unaware of what the marketing, sales or manufacturing departments need for promoting, selling, and (most importantly of all) making the product.

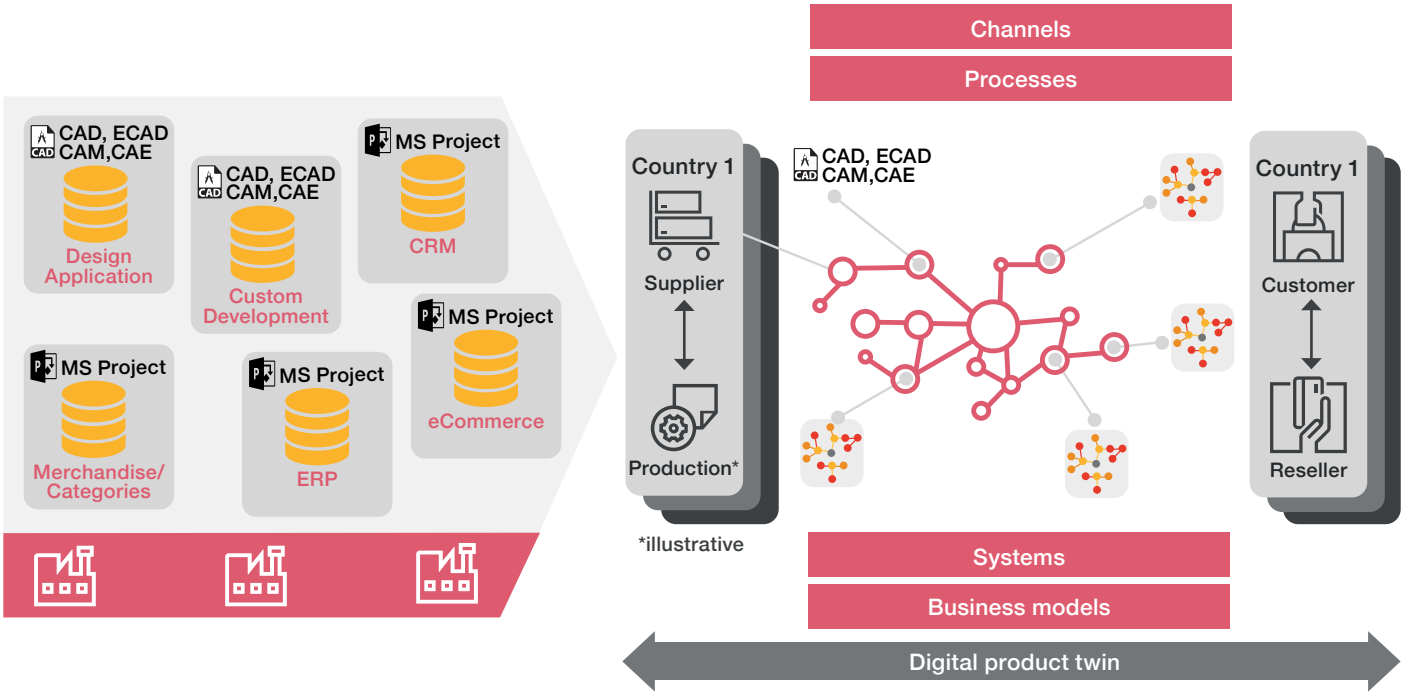
Breaking down silos

Information that could help each department to find out what the others are doing is typically buried in manual processes or disparate systems, such as Product Lifecycle Management (PLM), Computer-Aided Design/Manufacturing (CAD/CAM), Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM) systems. This is no longer sustainable: today's digital economy and globalised markets cannot rely solely on accurate documents being sent or spreadsheets being updated.

Creating a single source of truth

The solution is a system that goes beyond just aligning functions: instead, manufacturers need to create and use a single source of truth. Removing the barriers to collaboration inherent in silos not only allows departments to communicate with each other, but also ensures that their communications are based on relevant and accurate data.

Single source of truth: companies need to interconnect their siloed data storage



4 Consistent, end-to-end product configuration data

A key strategy to facilitate greater collaboration is to align flows of materials and information with one another. The traditional product development and production sequence is too linear to reflect the complex and parallel processes of today.
Once a product has been developed in today's world, it is configured and sold through CRM and Configure, Price, Quote (CPQ) solutions. Next, the product is sent to the engineering department, where the drawings are finalised, and products are released through the PLM system. Lastly, the purchase order is issued and sent to the factory, where an operational requirements plan is put into action to actually make the product.

Different systems increase the error rate

At this point, the focus shifts from information flow to material flow, as new systems come into play to procure, produce, inspect and transport the final product: Manufacturing Execution Systems (MESs), Transportation Management Systems (TMSs), Application Lifecycle Management (ALM), Building Information Modeling (BIM) and ERP systems. Each of these steps utilises different systems to manage the flow of information, creating many opportunities for misalignment between processes and many potential sources of error.

By integrating these systems using a CLM-PLM-ERP backbone, manufacturers can eliminate errors associated with information hand-offs, data interpretation and silo mentality by establishing a single source of truth on product configurations.

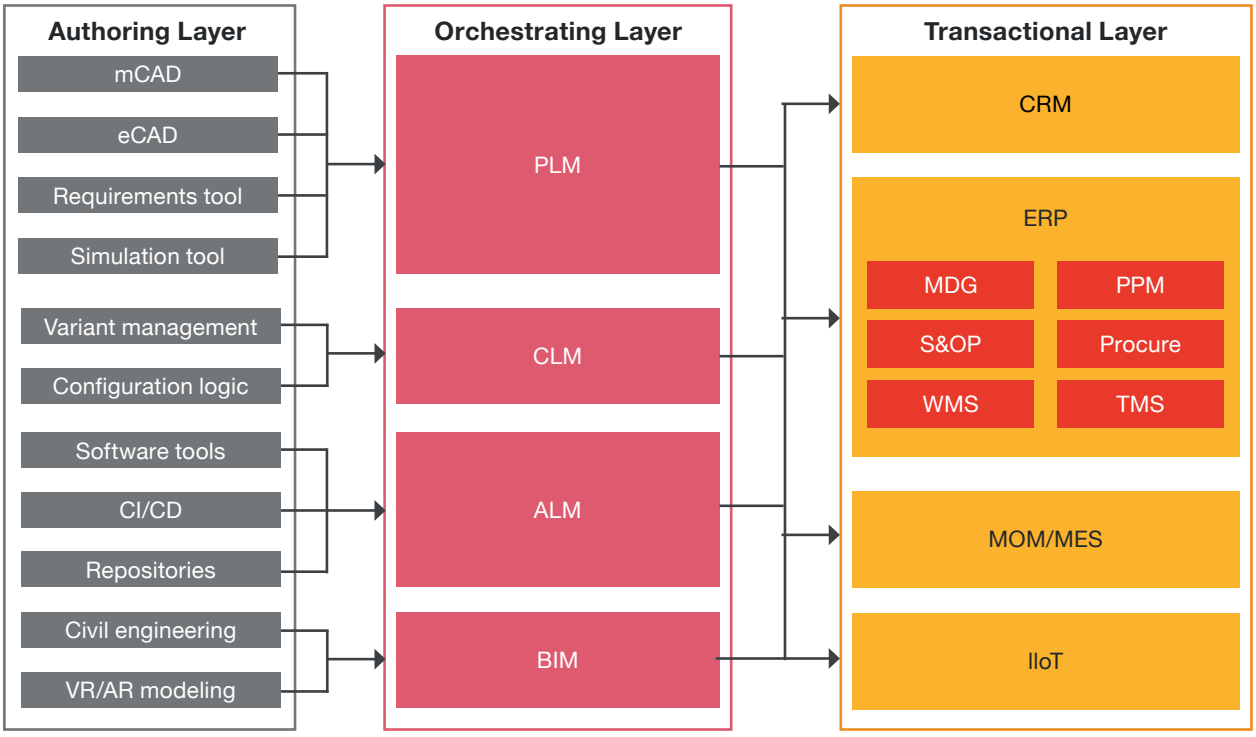
This shared data source can be used throughout the value chain, from design to manufacturing, sales and customer service.

Full consistency from end to end

The product configuration rules are the same throughout the chain, but each user is only presented with information that they need for their role. This avoids overloading users with irrelevant information, while giving peace of mind that there is full consistency from end to end.

Manufacturers can eliminate errors associated with silo mentality by establishing a single source of truth on product configurations.

Consistent data:
a CLM-PLM-ERP backbone enables companies to establish a single source of truth



5 Why digital transformation needs CLM

PwC's 2021 COO Pulse Survey revealed that executives still tend to focus more on the traditional cornerstones of quality and cost – even though smart factories and agile supply chains are becoming pivotal for future strategies. In light of the aforementioned challenges, companies are coming under huge competitive pressure to reduce operating costs. This means that senior leaders and executives in the industrial sector have the difficult task of helping to drive digital transformation in their organisations while reducing costs and simultaneously improving customer experience.

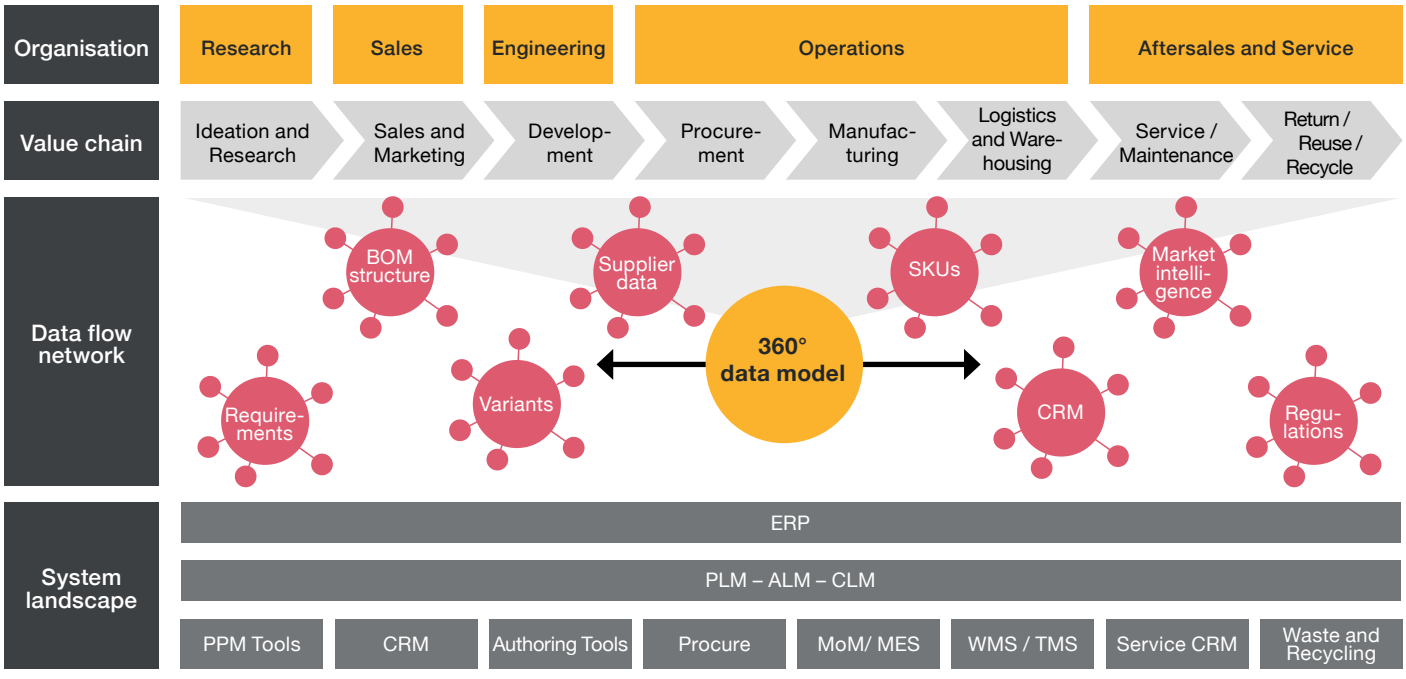
Ensuring consistent product configuration data

All this means that manufacturers need an effective Configuration Lifecycle Management (CLM) system, which ensures consistent product configuration data across all functions involved, including sales and marketing, engineering, manufacturing and customer service. CLM enables companies to establish a single source of truth on the huge numbers of product configurations that they can manufacture, sell and deliver to their customers.
By deploying a CLM solution, manufacturers of complex products can improve time to market, reduce risk, increase product quality and ensure a seamless product lifecycle.

Adapt more quickly to market changes and new business models

The single source of truth enabled by CLM can be updated in real time to reflect changes in the configurations that are available. This enables companies to adapt to new market trends, customer demands and business models faster than their competitors, creating a significant competitive advantage.

Configuration Lifecycle Management: a CLM system ensures consistent product data across all functions



6 Benefits of CLM

CLM is an efficient and scalable approach for providing reliable, up-to-date product configuration information that can enhance sales, engineering, manufacturing and customer service solutions. But the real value of CLM is in providing a platform for cross-functional collaboration that can break down IT silos and transform the organisation, making it more efficient but also increasing agility, responsiveness and competitiveness.

CLM significantly shortens time-to-market

Modern CLM systems unlock real-time business benefits by enabling a single source of truth for consistent product information. Standardising products to reduce complexity, optimising product portfolios to eliminate scrap and rework, and integrating CRM, PLM and ERP systems using CLM generates many quantifiable improvements.

These include being able to release products 30–70% earlier, generating 10–15% more revenue from new business models, reducing time to market by 10–30%, reducing cost of goods sold (COGS) by 10–25%, and improving on-time working by 50–80%.

Benefits: a CLM can have a significant impact on costs

Design objectives	Critical CLM capabilities[1]	Typical benefits[2]			
Faster responses to customer requests and higher response rate	2D/3D visualization and add-on functional simulation capabilities	Sales	Increase in quote accuracy	10%	10%
			Additional revenue from new business models	10%	15%
Maximize the level of modularization and standardization	Configuration Management		Reduced time-to-market	–10%	–30%
		Cost	COGS reduction	–10%	–25%
Reuse of existing configurations	Rule-based configuration capabilities		Reduced modelling time	–50%	–95%
			Reduced time for order handling	–20%	–40%
			Labour efficiency	5%	10%
Eliminate quality and contingency issues	Engineering Change Management		Improved on-time execution	50%	80%
			Increased intelligent reuse	40%	80%
			Increased transparency	50%	80%
Eliminate data quality and revision problems	Multisystem integration capabilities (ERP / PLM / MES / CRM)		Eliminate configuration quality defects	–80%	–99%

[1] Non-exhaustive; [2] Sources: ARAS, PwC benchmarking database with >500 maturity assessments

7 Configit and PwC

Working with manufacturers of complex, configurable products, Configit provides a powerful configuration platform and a new, disruptive technology that unifies functions and data into a cohesive and streamlined end-to-end process.

PwC focuses on developing end-to-end processes, underlying business capabilities, and state-of-the-art IT architecture based on what you want to implement.

Technology meets advisory expertise

Working with both Configit and PwC gives you the combined benefits of proven solutions, technologies and applications together with strong advisory experience in digital operations that will turn your configuration process into a competitive advantage.

Acceleration of the product configuration process

Powered by Configit's system-agnostic Virtual Tabulation® technology, this platform ensures that all functions and systems that deal with configured products – from engineering and sales to manufacturing and customer service – are aligned and connected to a single source of truth, speeding up the product configuration process. This helps organisations to respond faster to market changes, do more with existing resources and deliver significant growth.

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8 Case study

Our client is a leading manufacturer of agricultural machinery and trailers. One of its subsidiaries, boasting a turnover of more than $1.5 billion, produces various types of trailers – these include trailers both for general use and for more specialist applications such as refrigerated cargo, dry goods or fresh produce.

From a customised engineer-to-order production to a modular strategy

The client aims to achieve further international, sustainable and profitable growth in an increasingly competitive environment and in a market which has traditionally involved highly customised products. To ensure profitable growth, the company decided to change its business model from purely customised engineer-to-order production to a modular strategy. This allows the company to manufacture customised products using a cost-effective and scalable configure-to-order production process.The challenge was to implement a well-balanced modular strategy and an underlying, best-in-class configuration management system. The solution needed to be able to produce over 60,000 trailers per year based on a broad variety of customer requirements and, at the same time, increase cost effectiveness and reduce time to market. Based on customer requirements including length, height, weight of load, goods to be transported and other individual criteria, the client's configuration solution combines the correct parameterised modules and automatically creates the bills of materials, work plans and even production sequences. The system enables customers to create any one of more than 100 million variants.

Enabling high customisation while keeping production efficient

To achieve the ambitious goal of eliminating the need for trade-offs between high customisation and efficient production, our client turned to outside expertise on its CLM journey including PwC for business consulting services, and Configit for configuration technology. The client has a thorough understanding of its actual data models, while Configit assisted with in-depth expertise in configuration logic and technology. PwC provided solid operations expertise and understanding of business processes to complement the solution. The client's CLM transformation is a true success story, laying the foundations for similar Configit/PwC projects in the future.

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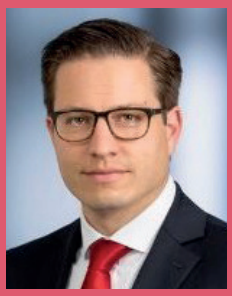

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About Us
Our clients face diverse challenges, strive to put new ideas into practice and seek expert advice. They turn to us for comprehensive support and practical solutions that deliver maximum value. Whether for a global player, a family business or a public institution, we leverage all of our assets: experience, industry knowledge, high standards of quality, commitment to innovation and the resources of our expert network in 156 countries. Building a trusting and cooperative relationship with our clients is particularly important to us – the better we know and understand our clients' needs, the more effectively we can support them.

PwC Germany. More than 12,000 dedicated people at 21 locations. €2.4 billion in turnover. The leading auditing and consulting firm in Germany.

This whitepaper has been co-authored by Configit.

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