

Supporting sales engineering with product-centric CRM

These are challenging times for manufacturers of investment goods, leading many in the field to fundamentally reassess their offerings. **Philipp Ackermann**, Managing Director of Perspectix, explains how his company helps manufacturers improve sales efficiency while at the same time differentiating their solution portfolio from those of their competitors

Manufacturers of investment goods face a number of demanding challenges in the modern marketplace, not least how best to customise their individual offers to meet the specific needs of their clients. The development of customer-specific layouts of solutions in a multi-stage sales process between internal engineers, field sales, partners and customers requires CRM solutions that are developed with managing product complexity and project collaboration specifically in mind.

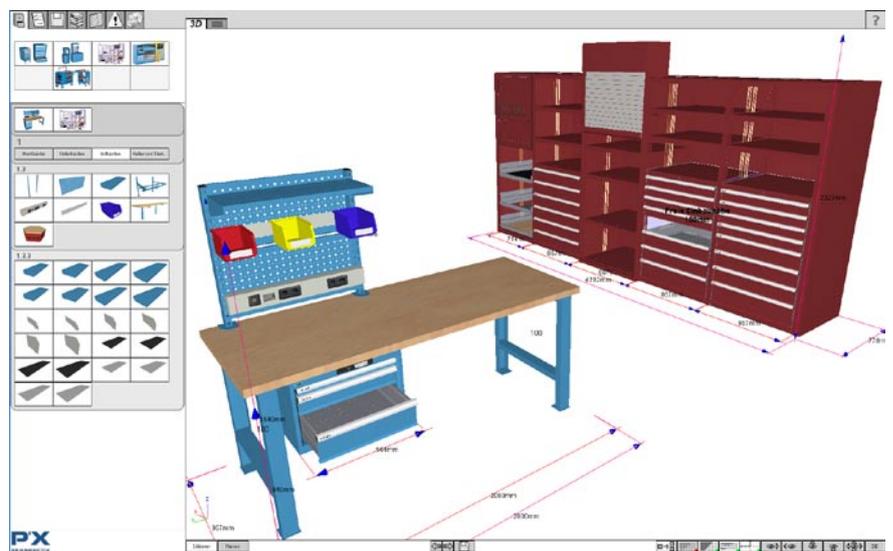
In today's highly competitive global marketplace, producers of equipment, machines, plants, and installations are forced to provide basic engineering tasks for free during the sales and acquisition phase. Due to the increasing levels of pressure in the market there is a fundamental need to reduce the associated technical and financial risks, which means great engineering efforts are required during the offer process. Manufacturers are therefore shifting from unprofitable design-to-order models to individually configurable product systems based on reusable modules and assemble-to-order fulfilment.

Cross-functional standardisation and modularisation

In order to increase the reuse of existing product elements without reinventing the wheel, manufacturers are establishing modular product systems. They typically start with standardising norm parts and then modularise their core product, e.g., the mechanical parts of a machine. It is often the case that an offer includes more than one machine, so that transport and handling systems are standardised and brought into a platform strategy as well. After achieving benefits from standardising

and modularising the mechanical parts, the electric, electronics, hydraulic and pneumatic elements will be incorporated in the modular solution portfolio by the classification

This process helps manufacturers to provide a fully-fledged product-service mix for their customers, while activities such as transportation, installation, commissioning, testing, maintenance,



Visual product configuration with catalogue of reusable modules

of established corporate standards. As both cabling and piping need conduits for optimum performance, architectural building elements become part of the modular system. The

or financing move into the focus of standardisation and modularisation. Ultimately the whole portfolio, including mechanics, electronics, software and services, will be

Standardized and modularized solution portfolio

Modular Machine	Modular Handling	Modular Piping	Modular Cabling	Modular Building	Modular Software	Modular Service	Modular Costing
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Cross-functionally integrated planning and configuration environment

automation software needed to control machines and plants has to adapt to the standardised components, and is encoded as modular building blocks in order to reflect the flexibility gained with the physical modules.

More and more manufacturers in the discrete industries are enhancing their product offerings with added services in order to become solution providers.

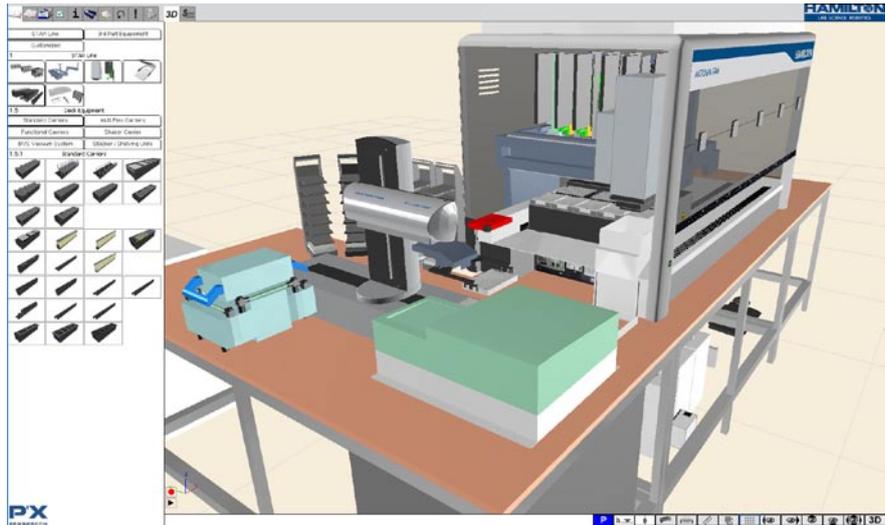
transformed into modular systematics so as to improve competitive flexibility and business efficiency.

In the sales process, the product information that has been separated from all the diverse engineering disciplines needs to be aggregated into a unified view for the customer. Providing a cross-functional, integrated planning and configuration environment is

therefore a crucial element in effectively supporting sales engineering.

PLM-integrated sales engineering

Detailed technical and cost-accounting clarifications need to be carried out in order to create competitive offers. In many industries the traditionally separate departments of sales and engineering will therefore increasingly converge. To support an integrated work process, technical, logistical and commercial aspects need to be combined into an explicit knowledge base. While the product development process is well-supported by 3D CAD tools and the production process profits from well-established ERP and PPS systems, machine and plant manufacturers often suffer from the missing digital link in-between, where product management, sales and custom-specific engineering

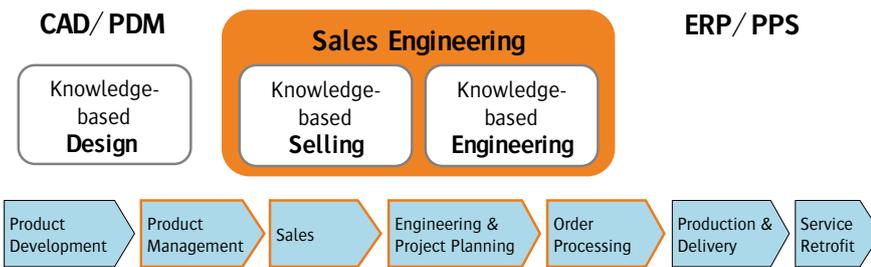


Machine configuration and layout planning in 3D

been generated by all the diverse expert tools needs to be aggregated into a unified view focussed on the customer.

IT-based configuration tools are using modelling techniques such as declarative product descriptions, compatibility matrices, constraint solving, and rule-based logic to take into account a set of well-defined restrictions on how either the user or a sales engineer can combine standardised product and service elements. The configurator transforms options and variants into a correct bill of materials and also automatically calculates price offers.

By integrating graphical CAD data and formal ERP data with configuration logic, advanced CRM tools may provide user-friendly access to complex product models by providing intuitive visual access via a 3D graphical user interface. The catalogue in the configurator provides the user with standardised sales and planning elements,



take place. Effective marketing and sales support for investment goods needs to combine technical and logistical aspects, while also integrating the CAD data created in the development process with ERP data used for order fulfilment. Companies are therefore likely to move from development-oriented Product Data Management (PDM) towards enterprise-wide and collaborative Product Lifecycle Management (PLM).

The most demanding integration challenge is the use of unified product knowledge at the touch points of customer interaction in sales processes. Within complex products each assembly section is developed in specialised expert tools, such as mechanical CAD for geometric forms, electro CAD for cabling and wiring, P&ID for hydraulics and pneumatics, software tools, and other applications for service and project planning. Modern sales processes are extremely demanding, which means that the information that has

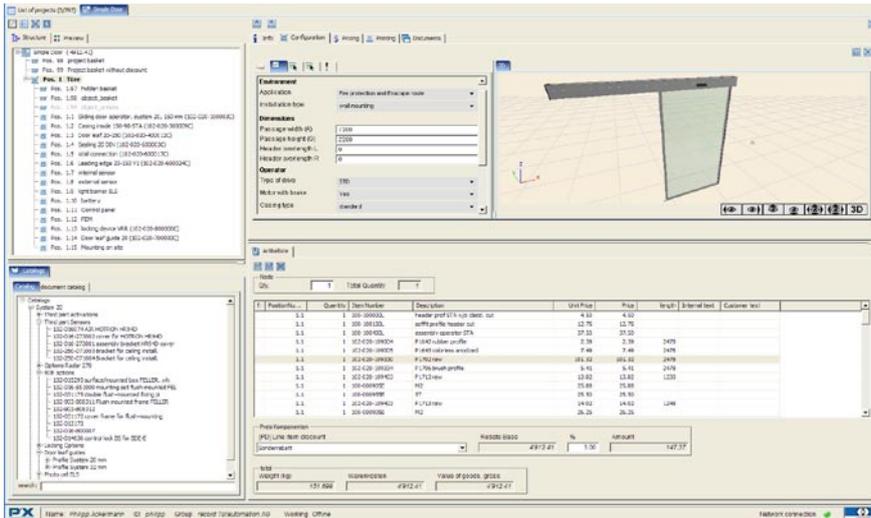
Product, service, and project configuration

It is difficult for customers to specify configurable products and services, particularly when preferences and priorities are unclear and change continually during the process of

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explorative solution finding. Manufacturers therefore have to communicate their modular product portfolio in an intuitive way and should provide consultative help to their customers.

which may be composed interactively in 3D as 'intelligent objects'. The 3D objects reflect their modular design intent by utilising classified interface connection points so that arrangements of modules



Integrated management of projects, configurations, BOMs and documents

can be validated on their compositional structure, on distance constraints, and on collision detection. The use of lightweight 3D visualisation data facilitates the handover of comprehensive projects between manufacturers, field sales, general contractors and customers.

Such an approach extends the document-based PLM backbone with a knowledge-based PLM front-end. This enables the integration of the associative dependencies of the modular portfolio used in the sales engineering process, covering planning and configuration of custom-specific solutions.

Knowledge-driven automation based on configurator technology comprises a number of functionalities, including:

- automatic solution finding with formal and geometrical constraint solving
- automatic positioning and connecting of product modules
- automatic generation of product structures and assembly aggregations
- automatic dimensioning and labelling of configured components
- automatic path searching for cabling and piping
- automatic generation and transformation of multiple BOM structures
- automatic conflict checks and solution evaluations
- automatic cost, price and margin calculations
- automatic generation of documents for offers, orders, assembling, layouts, etc

- automatic synchronisation of product master data and transactional project data
- automatic workflow controlled by consistency checks of product and project data

Increased efficiency by knowledge-driven automation

Modern CRM systems capable of effectively supporting technical sales are based on configurators that are applied on cross-functionally integrated solution portfolios. Meanwhile, sales engineering itself profits from automatic solution generation that eliminates routine work and reduces costly errors. By including geometric data, spatial as well as formal correctness can be validated. Additionally, a communication based on comprehensible 3D visualisation improves the collaboration between suppliers, planning partners and customers.

The main benefits from product-centric and PLM-integrated CRM tools with knowledge-driven automation are:

- increased collaboration efficiency between development, sales and production
- improved management of complex and variant-rich product portfolios
- positive effects due to modularisation throughout the whole value chain
- user-friendly access to complex products via comprehensible presentation
- higher consultancy quality due to product knowledge at customer touch-points. 



Dr Philipp Ackermann is the Managing Director and co-founder of Perspectix AG, a software company which specialises in product configuration and sales tools for technical industries. He studied Information Technology, Business Administration and Social Ethics at the University of Zurich, from where he also received his doctoral degree.

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Visual Product Selling

Product-centric CRM

Sales Engineering

Product Configuration

3D Layout Planning

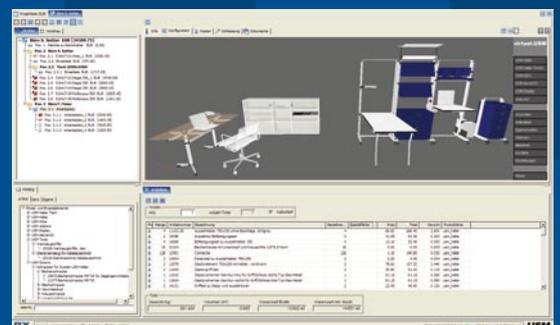
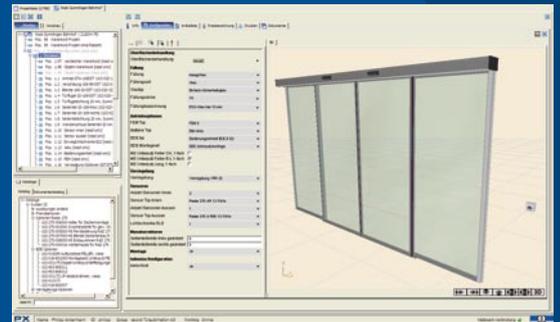
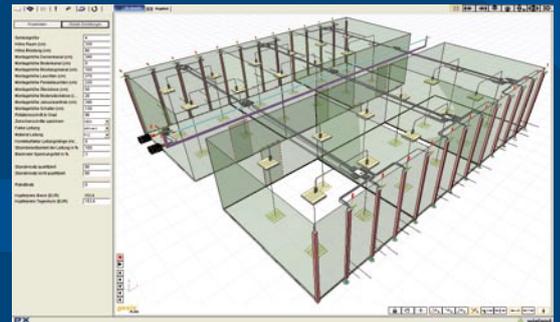
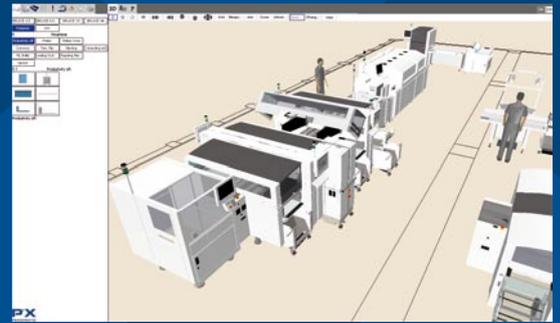
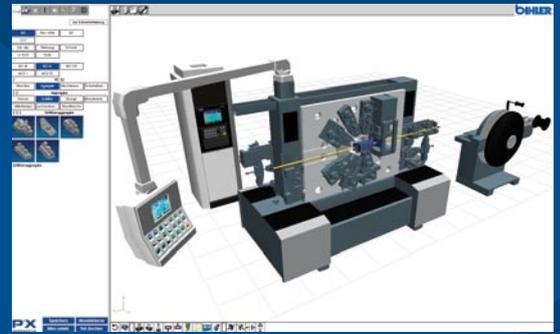
Multi BOM Management

Offer Calculation

Document Generation

Project Collaboration

CAD/PDM/ERP Integration



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