4PEP

MACHINERY & PLANT ENGINEERING

THE BETTER WAY TO PLM

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[4]PEP Machinery & Plant Engineering — the new dimension for an integrated Product Lifecycle Management

Machinery & Plant Engineering
Products – Projects – Processes

The machinery & plant engineering industry is among the industries with the highest sales volumes and the largest number of innovations. According to the German Engineering Federation VDMA, the so-called “Industry 4.0“ concept has now reached all sectors: Central aspects of this digitization strategy are **the transition from the digital model to the real product as well as cross-departmental and cross-company processes without discontinuity of media**.

The particular challenge for product lifecycle management in this regard is to interlink two core processes: **order processing** (usually engineer-to-order and/or configure-to-order in machinery and plant engineering) and **product development (PEP)**. In both processes, a wide range of product information, which must be exchanged between the functions of the two core processes, is generated.

It is precisely this conflicting area, where [4]PEP comes in. Unlike conventional PLM systems, [4]PEP does not only take the needs of the classic product development process into account but also offers a comprehensive view of both the product development and order processing processes.

With [4]PEP Machinery & Plant Engineering, you choose ‚the better way to PLM‘: more efficient, more transparent and more flexible - through an integrated and interdisciplinary digitalization of your product development and order processing processes.

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Control your product complexity – Secure a competitive edge

Complex products and highly networked development processes require new approaches in Product Lifecycle Management. ILC knows the challenges of the machinery and plant engineering industry and makes you fit for the future with our excellent consulting services and with best-practice solutions that are completely integrated into SAP. Supported by modern methods such as systems engineering, we will take your product development processes into a new dimension.

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Control your product complexity with systems engineering and [4]PEP:

Systems engineering is a comprehensive, **interdisciplinary approach for the development of multifunctional systems**. It does not only address the system to be developed but also the associated project. Systems engineering makes it possible to **control the growing number of demands** on the system as well as the **increase in product complexity** caused by **more and more system functionalities** and interfaces. [4]PEP supports this approach perfectly!

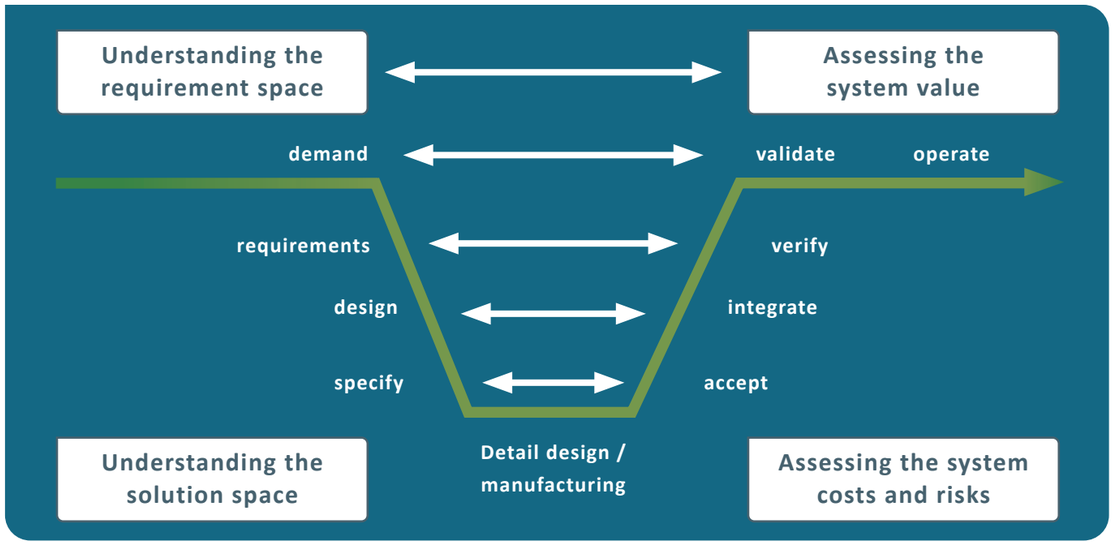
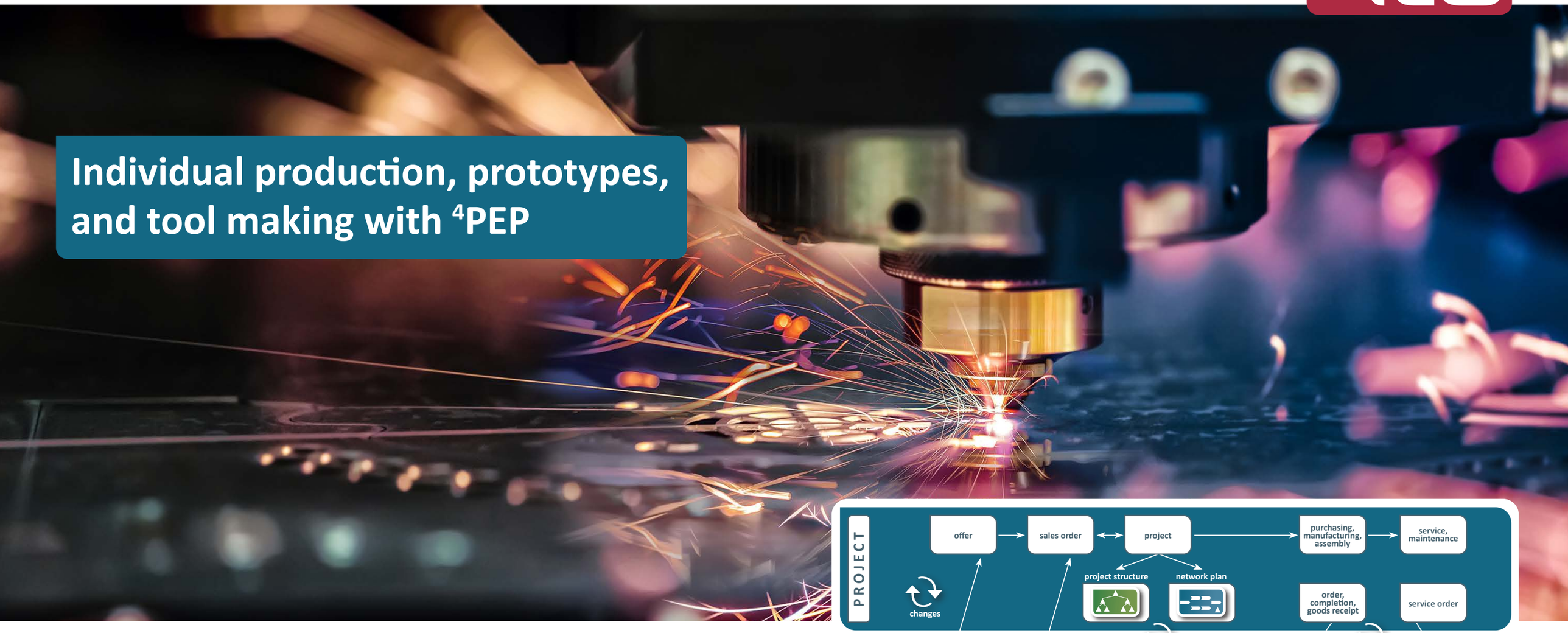


Image: Philosophy of systems engineering, source: ILC GmbH



Individual production, prototypes, and tool making with [4]PEP

In machinery and plant engineering, both custom and also individual productions are characterized by the **constant development of product components**. High capital lockup and the threat of contractual penalties create a tight schedule. This leads to a strong interest in **adhering to deadlines** and **keeping the throughput, processing and replenishment times during the order processing to a minimum**. In order to use existing resources efficiently and to realize projects optimally, new approaches to integrated order processing, material provision and production control are required. [4]PEP Machinery & Plant Engineering makes it easy to move forward on this path: more efficiently, transparently, and faster – thanks to a **comprehensive and integrated mapping of the product life cycle, from the definition of requirements to the shutdown of production, from the quotation to the service**.

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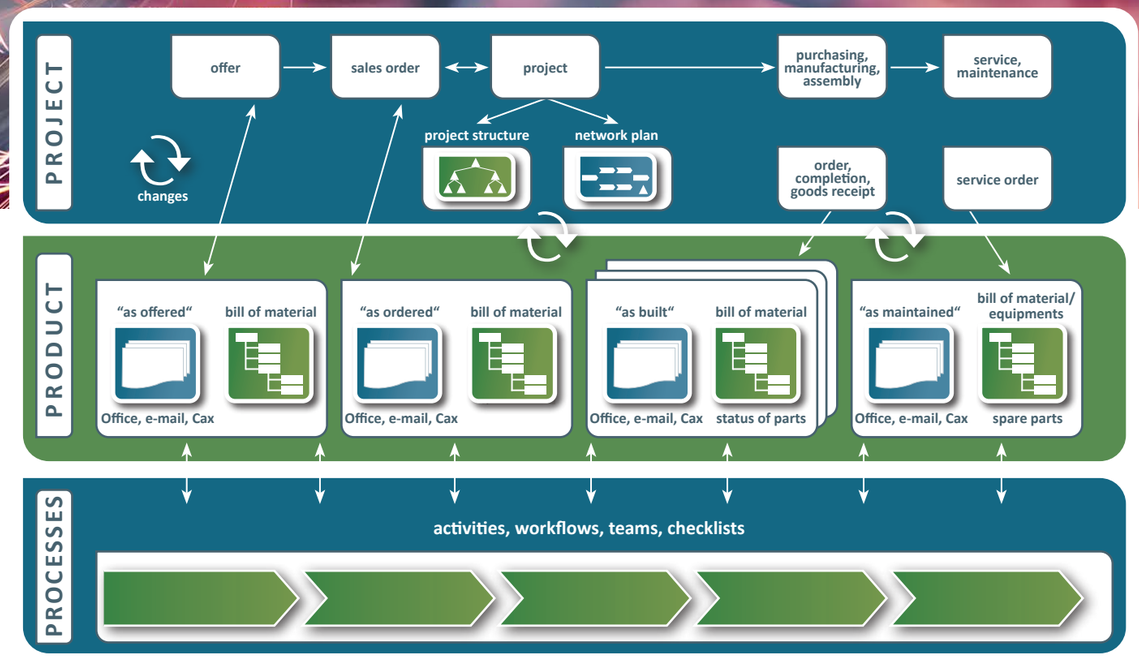
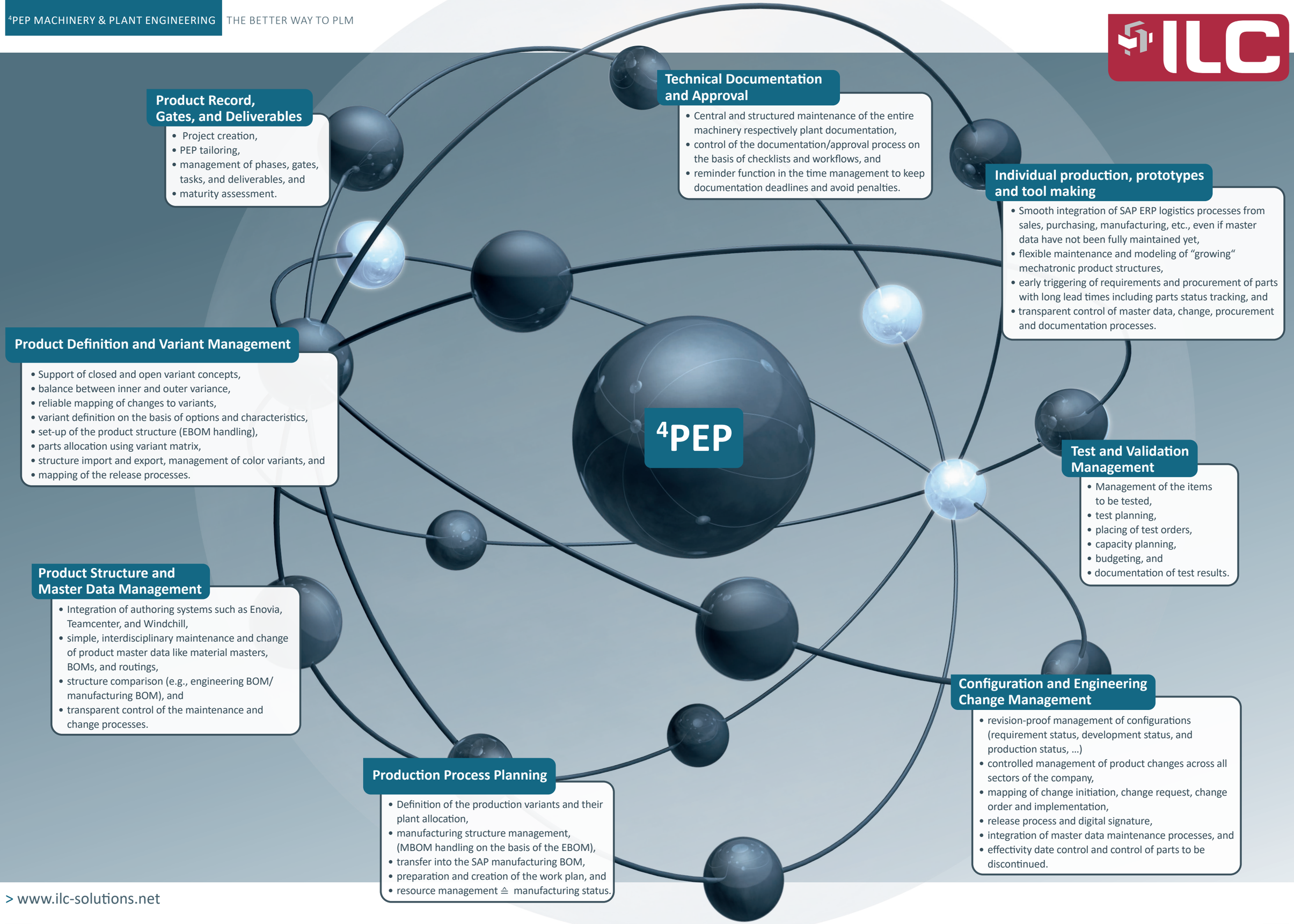


Img. "[4]PEP – integrated platform for project data, product data and processes"



Product Record, Gates, and Deliverables

- Project creation,
- PEP tailoring,
- management of phases, gates, tasks, and deliverables, and
- maturity assessment.

Technical Documentation and Approval

- Central and structured maintenance of the entire machinery respectively plant documentation,
- control of the documentation/approval process on the basis of checklists and workflows, and
- reminder function in the time management to keep documentation deadlines and avoid penalties.

Individual production, prototypes and tool making

- Smooth integration of SAP ERP logistics processes from sales, purchasing, manufacturing, etc., even if master data have not been fully maintained yet,
- flexible maintenance and modeling of “growing“ mechatronic product structures,
- early triggering of requirements and procurement of parts with long lead times including parts status tracking, and
- transparent control of master data, change, procurement and documentation processes.

Product Definition and Variant Management

- Support of closed and open variant concepts,
- balance between inner and outer variance,
- reliable mapping of changes to variants,
- variant definition on the basis of options and characteristics,
- set-up of the product structure (EBOM handling),
- parts allocation using variant matrix,
- structure import and export, management of color variants, and
- mapping of the release processes.

Test and Validation Management

- Management of the items to be tested,
- test planning,
- placing of test orders,
- capacity planning,
- budgeting, and
- documentation of test results.

Product Structure and Master Data Management

- Integration of authoring systems such as Enovia, Teamcenter, and Windchill,
- simple, interdisciplinary maintenance and change of product master data like material masters, BOMs, and routings,
- structure comparison (e.g., engineering BOM/ manufacturing BOM), and
- transparent control of the maintenance and change processes.

Configuration and Engineering Change Management

- revision-proof management of configurations (requirement status, development status, and production status, ...)
- controlled management of product changes across all sectors of the company,
- mapping of change initiation, change request, change order and implementation,
- release process and digital signature,
- integration of master data maintenance processes, and
- effectivity date control and control of parts to be discontinued.

Production Process Planning

- Definition of the production variants and their plant allocation,
- manufacturing structure management, (MBOM handling on the basis of the EBOM),
- transfer into the SAP manufacturing BOM,
- preparation and creation of the work plan, and
- resource management ≙ manufacturing status.

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Machinery & Plant Engineering reference solution – a faster way to success!

Years of project experience that we gained through working with customers in the machinery and plant engineering industry are pooled in our **reference solution Machinery & Plant Engineering**. We do not come to you empty-handed but with a **specific best practice approach**, where **reference requirements, processes and data models are outlined in a clear and concise form** so that we can discuss them with you. This does not only save you time with regard to the project, but you can also be certain that the basis of our joint work is a **tried-and-tested approach**, which can be customized to include your specific requirements. This method is supported further by our **industry-specific [4]PEP Reference System**: The scope of our best practice approach is already mapped out in the system and is specified accordingly. Customizing as well as features, functions, and processes are available to you immediately. In addition to that, our reference test cases guarantee **optimal quality assurance** of the system.

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Satisfied customers speak for themselves:

With their good understanding of processes and with their consistent coordination and time management, ILC made it possible to smoothly carry out a project that met all our requirements.

Anja Herterich, SAP R/3 Inhouse Consultant / Project Manager PLM ebm-papst IT (Mulfingen)

Since the implementation of [4]PEP Engineering Change Management, we have reduced the processing time of changes in the area of development by approximately 50 percent.

Markus Braun, Manager Engineering Change Management, Festo AG & Co. KG

[4]PEP Master Data Management allowed us to standardize our processes, to increase data quality and to eliminate redundancy of material master data. Furthermore, we were able to considerably reduce the time and effort needed for data maintenance in the different areas of responsibility.

Stefan Hackert, Dipl.-Ing., Engineering Data & Tools Management, GEA Tuchenhagen GmbH

We chose ILC as our consulting and implementing partner in order to be able to achieve our project goals faster and more effectively. The PLM7 extension based on the reliable [4]PEP platform was the only way for us to realize the necessary functionality.

Gerard Engelkamp, Dipl. Ing., Director of IT and Organization, Hottinger Baldwin Messtechnik GmbH

Thanks to [4]PEP Master Data Management, we can efficiently manage our international material master maintenance processes and ensure high-quality master data.

Thomas Tetzlaff, Head of Master Data, KSB SE & Co. KGaA

With the solution from ILC, we bundle all data relevant to changes in SAP and can therefore use it as a basis to integrate all departments.

Dr. Friedrich von Wachter, Director Quality, Woodward L'Orange GmbH

We have grown fond of ILC and their staff for being a professional and strategic partner in our projects. They have always suggested possible ways to the left or to the right, presented the pros and cons to us and have thereby allowed us to move our projects forward in an efficient and, most notably, an error-free way.

Oliver Bethke, Director of IT-Applications ITM Procurement Solutions & Warehousing, Rittal GmbH & Co. KG

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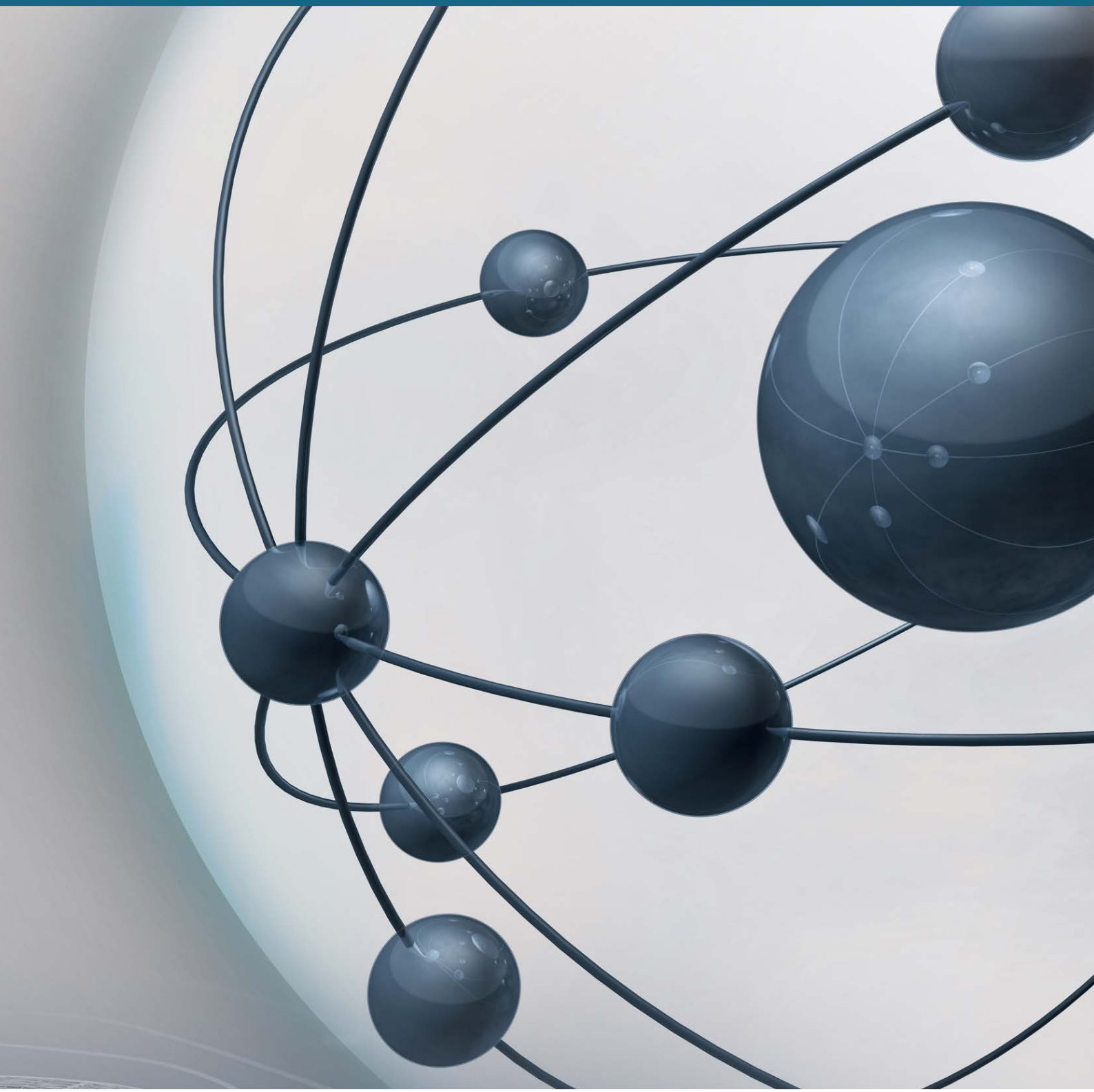

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