Unlock data and elevate business value, and save your business

If 80 percent of the data relevant for successful project management is stored somewhere in various directories and databases the goal should be to transfer these treasures into reuse and knowledge for successful project delivery and openness to innovation. KPC-E offers a unique approach to integrate all the project partner environments.

Increasingly, owner/operators, or more precisely 'investors', are looking to their EPC partners to warrant the performance of the industrial plant they are handing over. The idea behind this is to regard the plant as an asset with certain anticipated returns. Basically, they think in terms of business services and not the acquisition of complicated-to-handle technologies. Investors are keen to ensure that the as-built and as-operated models and data conform to the specified requirements of the plant. In particular, since energy and environmental footprints are taking up a larger and larger part of operating costs, the performance characteristics of the asset should go a long way to determining the total cost of ownership ('TOTEX') and, therefore, the return on assets.

The consequence is that to be awarded a contract, the EPC should also take into account the reliability and maintainability of its offering during the design phase — in addition to meeting the known requirements for on-time and in-budget delivery. As a result of increased global competition, EPCs are faced with enormous cost pressure. There is talk of a lead time reduction from the currently typical 40 percent to only 4 percent in recent studies (1).

In other words, the EPC (and its ecosystem) needs to bridge the gap between CAPEX and OPEX. Rather than viewing the phases of the asset lifecycle as distinct and separate, the EPC needs to share a holistic view following the equation TOTEX = CAPEX + OPEX. Achieving a significant TOTEX perspective is only feasible with a strategic approach that includes complete transparency in the project execution. In addition to lower investment costs, according to VDMA, customers are demanding more transparency, flexibility, and trust-based relationships.

25 years of experience

How do you face these challenges? We asked an expert with an outstanding reputation in that field: Dirk Hanewacker, CEO, President, and one of the founders of KPC-E AG, headquartered in Switzerland.

The firm was founded in 2004 by a group of experienced and creative plant engineering and project management specialists. Their best practice business excellence has been proven in more than 250 successful industrial, process, energy, chemical, and oil & gas projects from development and acquisition to final handover of the asset.

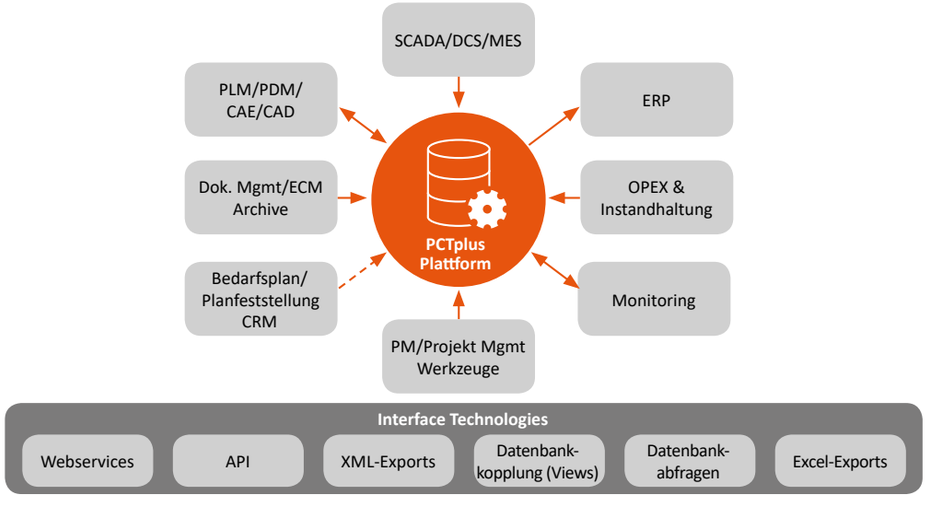
Worth particular mention is that KPC has developed a holistic digital plant data model reflecting the project and plant lifecycle from every stakeholder's perspective to streamline data access as well as progress, document, quality, and cost control in every phase of the project. For the owner, the digital twin is especially useful for asset management after the warranty has been taken over and has expired. For the EPC it is a powerful element in the value of the offer.

Mr Hanewacker emphasizes: "It's about enrichment in the sense of value creation. It is about the digital / business transformation from unstructured data into structured information and thus creates useful knowledge. The challenge is to consolidate let's say 100 000 documents, 30 000 tag IDs, and 120 Excel lists, etc., mastering the complexity of diverse and disparate tools and practices from all contributors, i.e. the EPC, OEMs, various subcontractors and suppliers, is key."

KPC solutions import the data, validate, structure and link it for a single source of truth without compromising the original sources. This is done via gateways and mappers, which are part of a tool suite developed in-house. Indeed, every format commonly used in plant engineering is brought into play, assessed and interpreted to find and display the gaps and conflicts.

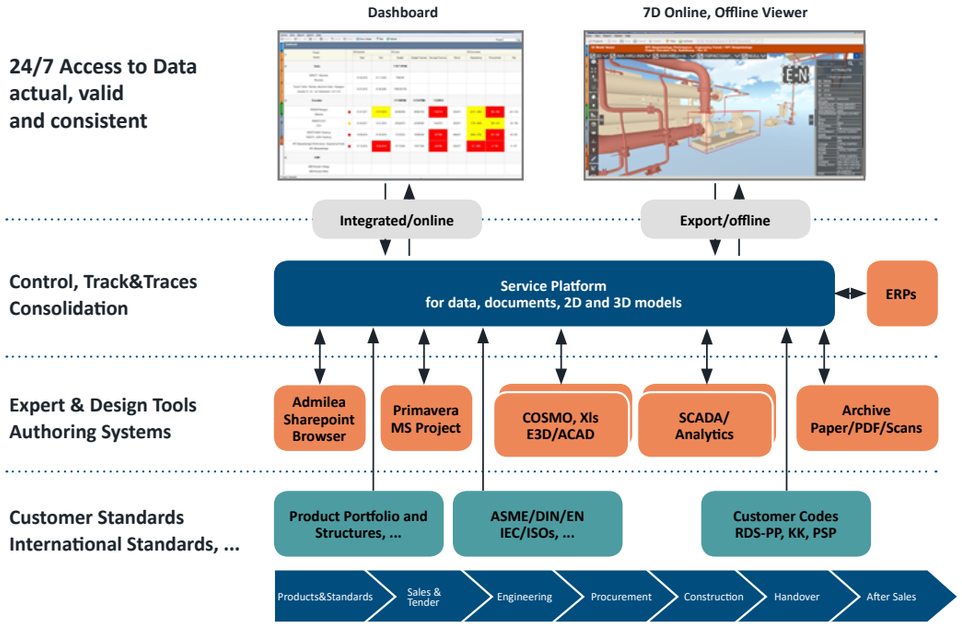
The underlying filter mechanisms and processes have been developed so that the unstructured data distributed across many sources can be selected, structured and integrated. "We provide very robust implementations of best practices. The user does not have to be a process champion to use our tools because our easy-to-use, customizable dashboard and portal viewers can be accessed on desktops, laptops and other mobile devices in a familiar open platform."

There are two things to consider: The planning documents must be submitted very early and with as much in-depth detail as possible. The maximum reuse



KPC system architecture scheme: Connecting teams from any device, anywhere, any time

Source: KPC-E 2019



The entire project management environment is configured, including the underlying lifecycle factory model. KPC offers options for services either fully on-site or as service

Source: KPC-E 2019

of engineering upfront has a major impact on risk profile and speed during execution.

Object-oriented data model

KPC has modelled complicated industry-specific characteristics for:

- Power plants
- Chemical plants
- Process plants
- Shipbuilding.

Just to name a few. And with this experience you can model most projects in just days.

At the lowest level is the so-called Plant Asset Information Management Hub. It is deployed during the entire project and plant lifecycle. The plant structure takes in international and company standards as well as guidelines (DIN, ASME, HSE, SiL, KKS and so on), material classes, customer-specific codes and naming conventions. If these standards are not available from the client, KPC's 25 years of project experience quickly creates them for project processing. The result is that there is no need for you to change your standards unless it is absolutely necessary. And KPC makes that easy by integrating new standards into the project database.

Client's backbone systems are integrated via the Plant Service Platform. This includes CAD, PLM, ERP and document management systems, SCADA and maintenance systems or archives.

"During project processing, the EPC must contend with different tools used by partners, OEM, subcontractors and key suppliers. The owner/operator in turn may also use several different legacy management systems. No matter, the KPC system architecture integrates all these systems to become a single source of truth," explains Mr Hanewacker.

The vendor's approach presumes a data model that is project-independent. It sees itself as the standard for the client's project portfolio strategy. "In most cases, within days or at most in a few weeks we can network all project participants with each other without interference with systems already in use. The added value is created by linking existing data with deadline, cost, and functional objectives," Mr Hanewacker adds. Note: All stakeholders work on the same platform via a project cockpit (dashboard) and apps representing the various BIM dimensions or views on project aspects. You can track the progress of the project around the clock, seven days a week. The information provided is synchronized and always up to date. And, of course, milestones such as design freeze, approved for design/procurement/and the as-built information are available at your fingertips.

Tailored implementation

An on-site assessment analyses the client's current situation and, based on that, recommendations are made in terms of process realignments also with regard to cost structures to identify saving potential. Together with the client, further steps are derived and comprise one or combinations of the following.

Client data centres are implemented on a server with 1st and 2nd level support (Ticket / Hotline and Administration) by either KPC or by the client. KPC's data centre (including all security guarantees) can host client projects and provide 1st and 2nd level support as a full package with 24x7 services. Alternatively, clients can choose 1/2 level support.

Cloud installation of KPC applications is also available (Azure, AWS or others) in Europe, Asia, and North America. The client only needs a remote desktop software. The vendor provides training and follow-up with all service options.

However, Mr Hanewacker points out: "Tools and processes are not the whole story. The KPC methodology helps to structure and consolidate data and information for an overarching understanding besides the human factor — there is an 'Art' supporting the 'Science' of project execution." But what does our interview partner mean by this? Art can also be called 'soft skills' e.g. in respect of communication, leadership, negotiating, team building, creating trust, or taking ownership. Research has shown that the tools and practices associated with traditional project management when supplemented with the Art lead to more on-time and in-budget projects than those that don't attach particular importance to these skills. "The Art is a differentiator that brings during project processing the successful turn-around and makes good projects great projects!", the managing director says.

Our interview partner Dirk Hanewacker

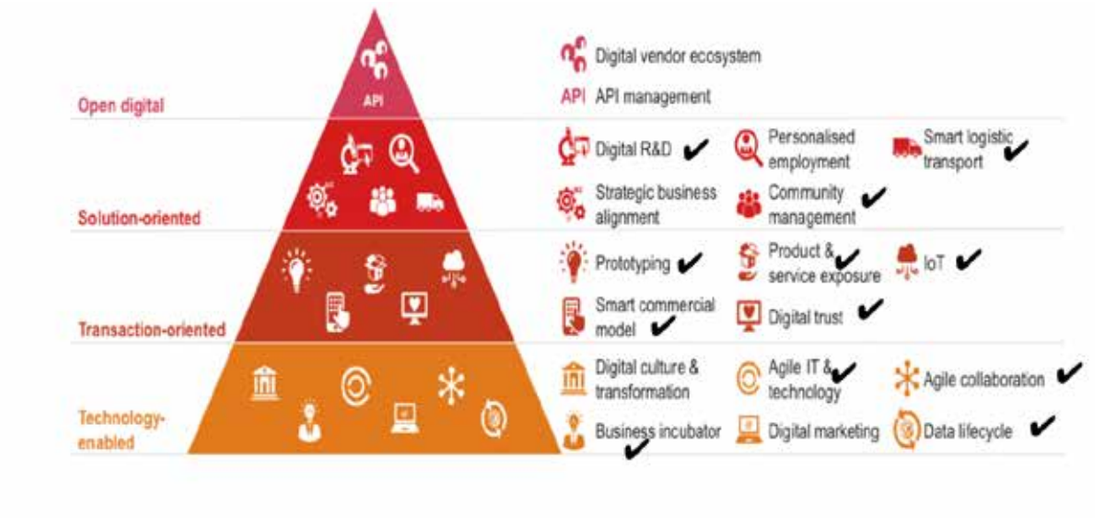
It all starts with a project maturity assessment of the organization. The objective is to provide a baseline of organizational maturity, identification of existing best practices, survey of customer impressions in the value chain, identification of project tools currently in use, frequency of use of tools and practices, and the initial attitude towards project processing.

Criteria are ranked from basic to world class for each factor. These show the strengths and weakness and gaps in the organization. "With this baseline, a plan for gathering low-hanging fruit, overcoming critical issues, establishing longer term coaching and training programmes, and a process improvement roadmap are created."

Art in action

In Asia, a young team in an established company was constantly missing project deadlines and losing margins sometimes in the double-digit range. Operating in a highly competitive market, customers were quickly moving to another supplier. KPC did an assessment and suggested a slight restructuring of the team, established a project ownership mandate, which instilled a vital collaboration between sales and projects processing management. Moreover, a regular and simplified review process was initiated, as well as some training and coaching. The result 12 months later was a net 5 percent increase on the bottom line and customer retention.

On the other hand, the 'Science' of project execution is the aspect of moving towards a digital transformation with the handling of big data and the application of data analytics scenarios. Art is a necessary component to convert what is collected into useful knowledge. People are working at many locations and are performing critical parts of a project located somewhere else, often in multiple languages across diverse cultures. And, they are trying to do it faster and better than ever. Art is the glue that turns teams into winners.



Digital 4.0 fitness check to figure out digital business competences

Source: KPC-E 2019

A recent VDMA study also supports this view of soft skills needed to transform an organization. The published roadmap there indicates that change management capabilities are little today but critical for the transformation of a business. Moreover: Special know-how is needed for agile collaboration and community management.

To wrap-up, KPC-E's portfolio addresses a higher digital level, support of innovating and cost improving, delivery of real time information anywhere at anytime, end-to-end transparency – across the whole project lifecycle.

(1) "Unleashing the hidden potential", innovation project EPC 4.0, final report, Duesseldorf, Munich, Erlangen 2019, www.epc40.com
(2) "Digital business models in plant engineering and construction in an international comparison", study of PwC and VDMA, Frankfurt/Main 2019

KPC-E's open digital services and solutions with its integration platform and agile working environment boost client's digital business competence. You can concentrate on the most critical success factor 'change management and people skills'
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