

# Integrated solutions for the engineering data exchange via Managed File Transfer and OFTP2

BU PLM



# Management Summary

## Challenge

Easy handling of the engineering data exchange with different partners, different protocols and standards, which are required for automotive industry - directly from the designer's workstation on a scalable solution.

## Solution

The customers get a single solution for the global engineering data exchange, with unlimited number of OEM and partners to send and get data from each designer workstation.

## Benefits

- An efficient, scalable solution for engineering data exchange.
- Supporting the necessary standards such as ENGDAT/ENGPART and new communication protocols OFTP2.
- Connection of all OEM and partner on the basis of modern business integration server.
- Easy to use client-server solution.
- Creating of sending jobs just in your browser.
- Process safety and transparency through extensive monitoring and logging capabilities.
- Centralized maintenance and administration of partner-specific and operational data.

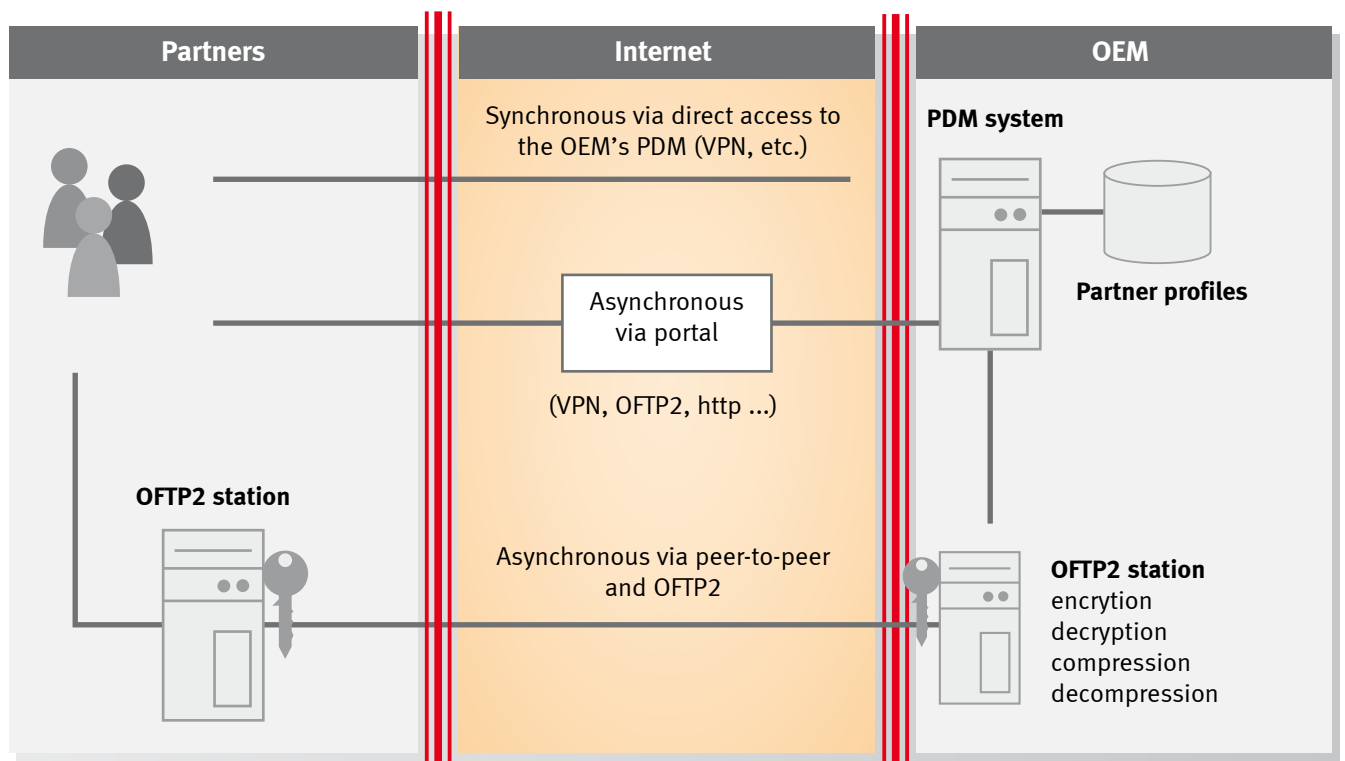


# Integrated solutions for the engineering data exchange via MFT and OFTP2

In our global age, software engineers are increasingly reliant on data exchange. Particularly during the rollout and expansion of PDM systems in major companies (OEM), data exchange between the OEM's own PDM system and external partners and suppliers needs to be adapted. There are numerous options available for doing this.

One is to conduct data exchange with close partners by means of a synchronous online connection to the PDM system via the Internet, e.g. via VPN. PDM systems provide various solutions for this (e.g. web clients).

However, not every firm is willing to reveal the internal company knowledge saved in its PDM system, even if it provides extensive access and authorization management functions. Client server (portal) and peer-to-peer solutions with asynchronous data exchange capability are also required. In contrast to an online connection, during asynchronous data exchange, data is transferred in packets and not in transactions. What's missing in terms of PDM solutions here, though, is the support of ENG DAT/ENG PART and the use of Odette File Transfer Protocol (OFTP2) as the communication protocol, both of which are vital in the automotive sector.



A selection of current engineering data exchange methods

For all other partners who neither have online access to an OEM's PDM system, nor possess an OFTP infrastructure, there is still the option of exchanging data using an MFT solution. MFT stands for Managed File Transfer and is a portal application which enables access to the data to be sent and makes it available. The MFT application can automate the upload/download of data and generation of ENGDAT packets, and provide functions such as logging, searching, and administration of all transfer procedures.

■ **Challenge: ISDN connection for the CAD data exchange will be shut down by the OEMs!**

To get the advantages of OFTP2, many OEMs are currently planning to implement OFTP2 solutions for the exchange of engineering data (CAD). Several OEMs such as BMW, Ford, Volvo and Daimler have already asked their suppliers to switch to OFTP2 for CAD data exchange.

■ **OFTP2 – Proven communication protocol with the latest technology**

OFTP2 is currently enjoying great popularity as a transfer protocol for asynchronous data exchange. With OFTP2, ODETTE is establishing a new international standard for exchanging engineering data and standardizing both national and international communication.

This means that the USA, Europe, and Japan will transfer their data in a standardized communication environment in which the international characters can be displayed using Unicode. The Internet is used as a transfer channel, taking all security measures into account.

This enables huge savings to be made for proprietary and industry-specific networks. The Transport Layer Security (TLS) safeguards the complete session and takes care of authentication. The information transferred is encrypted.

The use of digital signatures proves that the data originates from the sender and has not been altered during transit. The user receives proof of receipt in the form of the end-to-end response. The maximum file size transferred is increased to 9.2 petabytes and the maximum file name length of 999 characters makes it possible to enter complete paths names. In order to tap the full potential offered by the aforementioned benefits of OFTP2, many OEMs are currently integrating OFTP2 solutions for data exchange into their networks.

# SEEBURGER solutions for asynchronous CAD data exchange via OFTP2

SEEBURGER offers the following solution variants for a fast, secure, and low-cost switch to asynchronous engineering data exchange – using OFTP2 among other methods:

## ■ WIN:EPX-compact as entry-level solution

The **entry-level** WIN:EPX-compact solution enables CAD data to be exchanged simply and quickly via OFTP2. User-friendly, intuitive operation is a distinctive feature of the software. The desktop solution supports the ENGDAT/ENGPART packet assembly required for the automotive industry and is perfectly suited for you to install it yourself. It can be expanded with numerous modules, such as ComSecure, mail, and workstation clients.

## ■ BIS:EPX as client server solution

With BIS:EPX, SEEBURGER offers an ultramodern and flexible **client server solution** for the fast and simple exchange of CAD data. The user-friendly intranet application gives users browser-based access to all necessary construction and partner data. The data can be sent from every workstation with just a few clicks of the mouse. The application offers optional integration into CAD, PDM, converters and quality inspection tools.

The new Business Integration Server based solution comes in different variants to meet different requirements of customers:

- EPX as an add-on to extend the BIS:express solution for small customers. The add-on will be installed on the BIS:express server in a separate logical system.
- EPX as an add-on to extend the B2B-StandardSolution. The add-on will be installed on the BIS:express server in a separate logical system.
- EPX as a stand-alone solution. The solution will be installed on its own server, where no B2B-StandardSolution is installed.

## ■ OFTP2 as a clearing service

For partners and suppliers who do not possess an OFTP2-compatible system, a comprehensive data exchange solution should also provide the option of being used as an OFTP2 clearing service. Business data can be exchanged via this service with customers, partners and suppliers who already use OFTP2. This enables all those involved in the process to get off to a **quick start with OFTP2, without having to invest in purchasing and maintaining their own EDI system.**

## ■ Portal extension

Another aspect of asynchronous data transfer is the platform on which data is made available to loosely connected partners. As such, many users wish to operate the ENGDAT-based data exchange via a **portal-based solution.** There are two possible scenarios here: Either the OEM operates a portal to enable data exchange with smaller partners who don't have their own data exchange system; or the solution is operated as a service by a service provider in a data center so that smaller partners can exchange data among themselves. In both cases, the solution must support the functions necessary for exchanging the engineering data, such as ENGDAT/ENGPART expansion. This means that a fully hosted solution, which is used exclusively for the secure and reliable exchange of engineering data, can be used via a service solution for Managed File Transfer (MFT, SEE FX). Partners can transfer data without installing data exchange software. MFT can therefore be used in various operating and business models, such as cloud services or Software-as-a-Service (SaaS) solutions in a secure environment. In such cases, MFT offers **System-to-Human** collaboration for permanent, partially automated data transfer between systems and humans, and **Human-to-Human** collaboration for interactive and ad hoc data transfer between people within and outside of the company.

This expansion option in particular gives companies 100% integration of all their trading partners with no need for their own ENGDAT/OFTP system. ENGDAT/ENGPART messages can simply be forwarded from the BIS:epx into the predefined partner mailboxes. The messages remain in the portal when sent to these mailboxes and are offered to the trading partner for download. What's more, these external partners can create messages and send files to the internal users of the hosting company. The solution can be operated both internally in the company's DMZ and externally as a SEEBURGER Managed Service.

#### ■ **BIS:epx-pdm for PDM integration**

Comprehensive data exchange management calls for the integration of all applications involved in the data exchange process. As PDM systems are increasingly becoming the standard working environment for engineering, solutions which can be integrated directly into the PDM system are vital for ensuring that this system remains the main application for the user, particularly on the OEM side – and this also applies to asynchronous data exchange. This integrated approach means that users are able to prepare product data for exchange from their usual working interface (selection, import, export) as well as to track the status of the documents exchanged.

The solution concept described here essentially consists of two components: The SEEBURGER BIS:epx solution and its integration into PDM systems. The PDM integration both performs user prompting for data exchange and provides the relevant data for dispatch by BIS:epx. CAD/Meta and structure data (bills of materials) can be transferred to and from PDM systems. To ensure data quality, too, check routines for Meta data and customer-specific quality programs for CAD data (e.g. ModelCHECK) can be integrated.

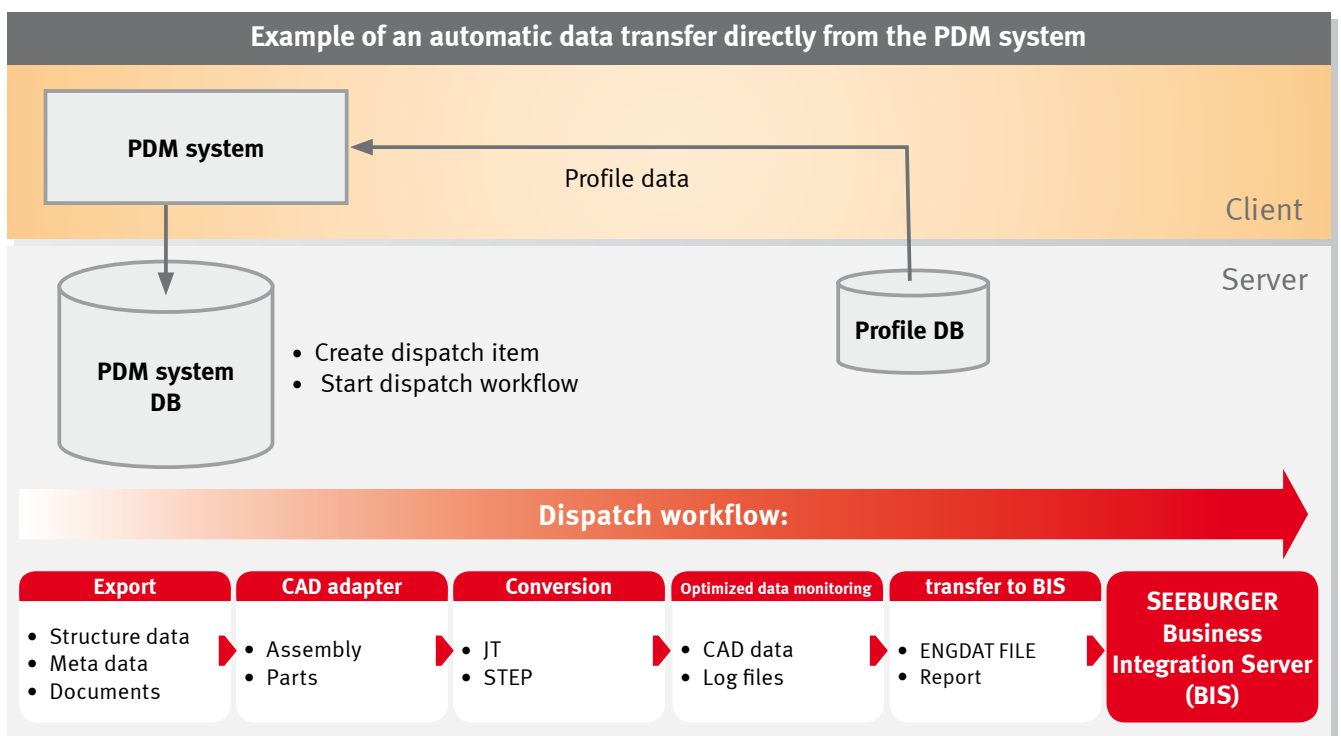
# BIS:epx-pdm for PDM integration

**Manual data transfer:** Prompting is performed by a wizard dialog in the usual PDM environment. The user can select the data to be exported in the PDM system and mark it for the exchange. This data can be individual parts or whole structures. The selection can be filtered using rules if necessary. The application checks whether the selected data may be exported or if usage restrictions exist, e.g. depending on the release status or assignment to groups or roles.

In the next step, the decision is made as to whether the data is to be edited externally. If this is the case, the items to be edited are checked out of the PDM system and affixed with special attributes as necessary. The user then speci-

fies the recipient (e.g. via Company – Site – Department – Employee) and the means of transfer. BIS:epx provides the data for selecting the recipient and presents it to the user for selection. It also includes the information on the target formats requested by the recipient.

The relevant data is exported from the PDM system and converted or transformed into the requested target format as necessary. The files are then forwarded to BIS:epx for transfer. A data record (e.g. item type: Transfer) is created for the process in the PDM system. It contains the transfer log, the time of transfer, and all other information specified by the user in the wizard. The user can monitor, cancel, or restart the transfer at any time (monitoring tool).



**Update data transfer:** An update transfer can be triggered using the data record from the initial transfer above. The user can choose between a delta update and a full transfer. Depending on this choice, only data which has since been changed is sent, or all data is sent.

**Automatic data transfer:** A data transfer such as is described above could be enriched with further information so that this »data packet« consisting of the following parameters, such as selection of delta or full transfer, transfer cycle, and time limit or maximum repeat rate, can be sent automatically at regular intervals. The right to perform automated data transfer can be limited to certain users depending on their assignment to groups/roles. These processes can also be monitored/logged at any time.

**Manual data receipt:** If a data packet (Meta and CAD data) is returned or a new data packet is received, a received data record is saved in the PDM system. The user responsible is notified of the receipt of this data. The user can view the data manually in his/her personal data receipt area and, where necessary, save it in the PDM system under the respective parts/item number and revision.

Quality checks for Meta data and CAD data can be interposed here (e.g. mapping of CAD layer structures or parts numbers). Altered data is revised for purposes of traceability before the re-import. All imported data can also be given a release status or a special attribute field – »external reference«. The user's write authorizations are taken into account during all transactions and acknowledged with a corresponding error message as applicable.

**Automatic data receipt:** The data receipt described above could be carried out automatically in the background. Due to the different and complex data types, certain data types (e.g. structures) could be disconnected from the automatic mechanism and provided to the internal recipient for approval. Only then would the corresponding data be imported into the PDM system. The right to perform automated data receipt can be limited to certain users depending on their assignment to groups/roles. As with manual data receipt, monitoring/logging of these processes can be activated.

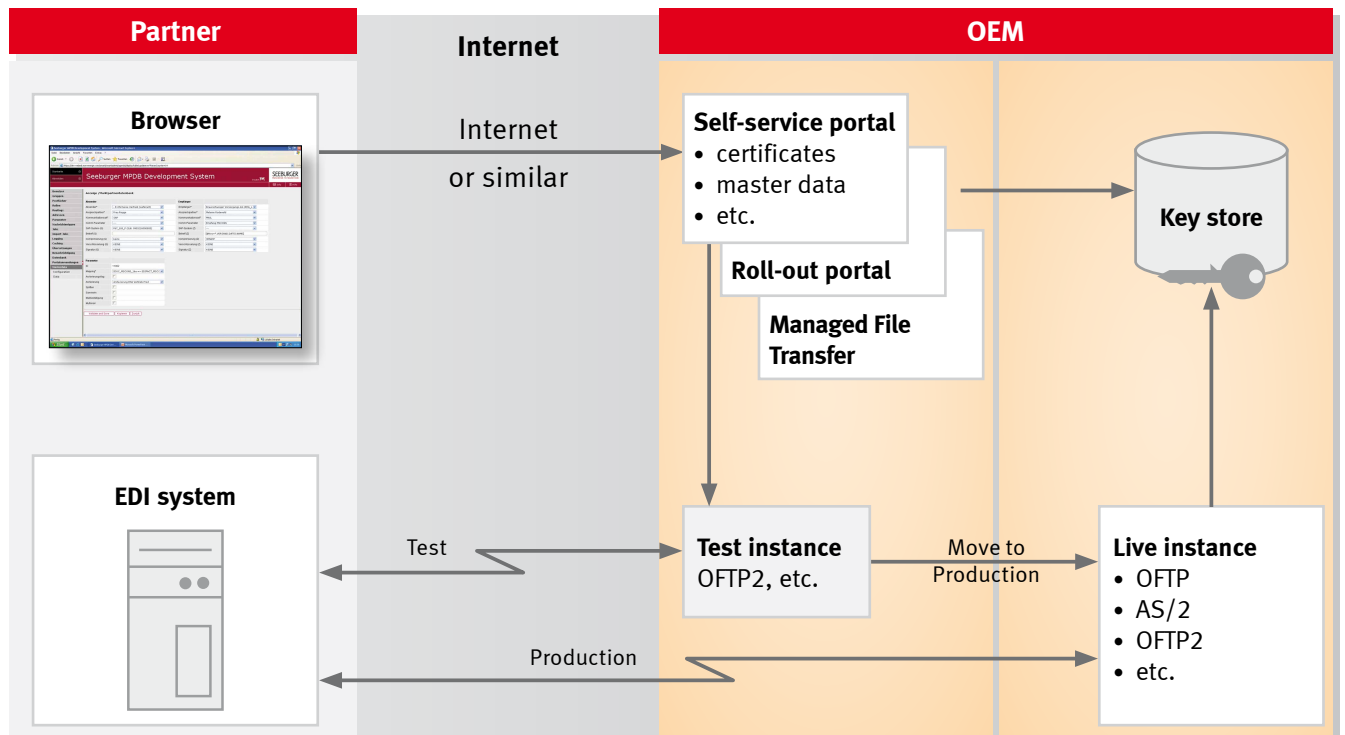
Comprehensive data exchange management is calls for the integration of all applications involved in the data exchange process. As PDM systems are increasingly becoming the standard working environment for engineering, solutions which can be integrated directly into the PDM system are vital for ensuring that this system remains the main application for the user, particularly on the OEM side – and this also applies to asynchronous data exchange. This integrated approach means that users are able to prepare product data for exchange from their usual working interface (selection, import, export) as well as to track the status of the documents exchanged.

# Managing Partner Profiles

In such a comprehensive data exchange concept, it is important for all partner information to be stored in the form of partner profiles in a central database. This ensures that all relevant partners are available for selection by the user. After the dispatch is triggered, the content of the data packet is analyzed and converted into the data exchange format requested by the partner in the background.

Partner profiles can also contain information on which parameters are to be used for the exchange process, whether quality check tools are to be enabled, or whether the data has to be sent to an MFT solution or OFTP2 client. The exchange process is defined here in a workflow and generally runs in the background. It is these workflow technologies

in particular which play a key role in forming an efficient data exchange infrastructure and which enable product data to be distributed intelligently depending on the project progression and status in various phases of product development. The workflows can be adapted to specific data exchange scenarios using a workflow designer, plus they contain all the important functions for forwarding and updating the data records.



Example of a data exchange concept between OEM and partner

■ **Integration into OEM B2B supplier portals:**

Supplier data is managed centrally in numerous OEMs. Access to the master databases must be ensured for checking login information and authorizations. If integration is not desired, import routines should be available via defined interfaces, making it possible to import a data extract from other systems.

■ **Key management via self-service portal:**

In a comprehensive data exchange solution, users must be able to perform various functions themselves. One of these services is known as a self-service portal. It enables users to independently carry out actions that concern them. Such actions can cover anything from capturing ODETTE/OFTP master data to saving keys and certificates.

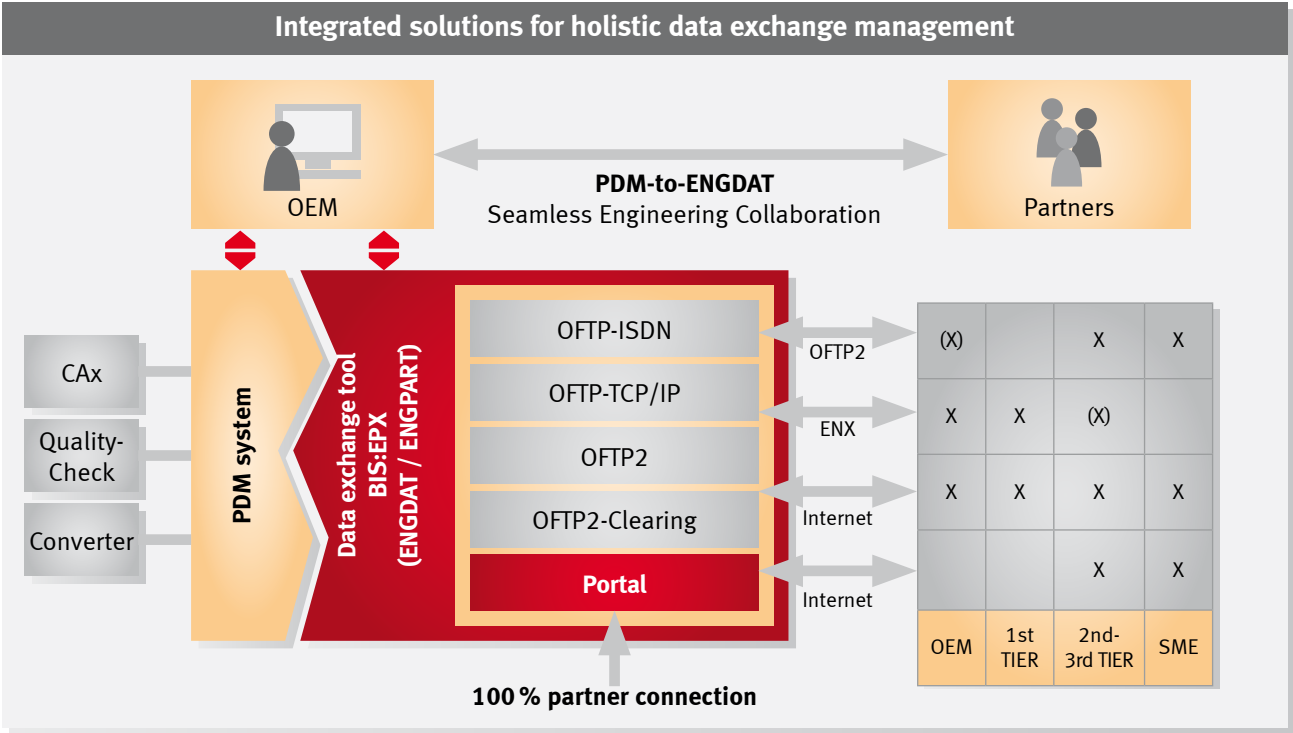
■ **Scaling and distribution concept:**

As a rule, OEMs exchange data at many locations with hundreds of partners and suppliers. A data exchange solution must be designed in such a way that it can distribute requirements accordingly for the communications and conversion components.

# Supporting the data exchange solution with an integration platform

In many companies, different incompatible standalone IT solutions and hardware platforms slow down the flow of communication within the company, and outside it. Both the incorporation of IT environments and the seamless integration of data flows into your own company network can be implemented using an integration platform. To do this, the platform must support all methods of data exchange, including the communication channels/protocols, and guarantee a high level of data security, stability, and openness to new developments. Although the system mapping of all data exchange methods mentioned here is highly complex, numerous so-

lutions for engineering data exchange are available on the market. The most important task in comprehensive data exchange management, however, is to develop an integrated concept specifically for the company, which maps the company-wide synchronous and asynchronous exchange of engineering data to and from PDM systems. This is precisely where SEEBURGER concentrates its efforts, supporting companies through its many years of consulting competence in process and data management by providing end-to-end analysis and optimization of the data exchange processes as the basis for the conception, selection, and rollout of data exchange solutions.



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