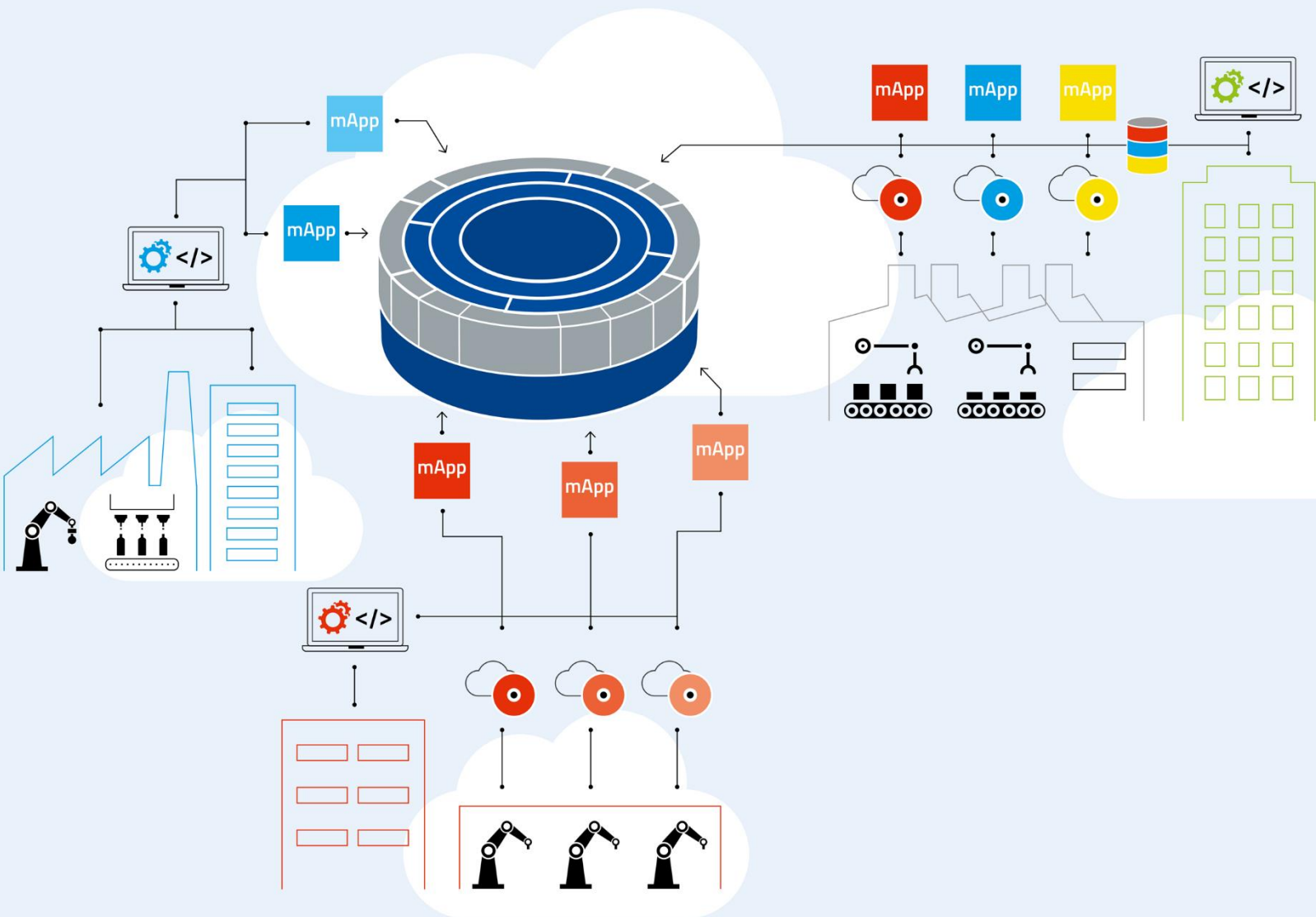


Future-oriented manufacturing IT is based on platforms

# Platforms & Ecosystems



## Preface

### Why A Platform?

According to a Bitkom study, around 63 percent of the companies surveyed see opportunities in digital platforms that offer them notable advantages. Existing offerings prove this point: it is estimated that there are more than 500 different platforms for the manufacturing industry alone — and the number is growing. But what characterizes a platform for manufacturing? How can a heterogeneous IT infrastructure communicate and share a common data basis? And what has that got to do with an ecosystem?

Today, manufacturing companies face the challenge of continuing to operate existing structures and heterogeneous machinery efficiently. Moreover, competitive pressure is increasing as a result of globalization and the innovation capacity of other companies. Platforms and ecosystems make a joint contribution to successfully meeting these challenges. However, it all comes down to choosing the right platform, because not every platform takes manufacturing companies straight to the finish line.

Learn in this white paper about must-have features of a manufacturing IT platform. Why an ecosystem is important and how MPDV's Manufacturing Integration Platform (MIP) meets these requirements.

Enjoy reading and continued success on your way to the Smart Factory!

Simply watch this short video for a first impression of the integration platform MIP:  
<https://youtu.be/vpNQ9tSxdYU>



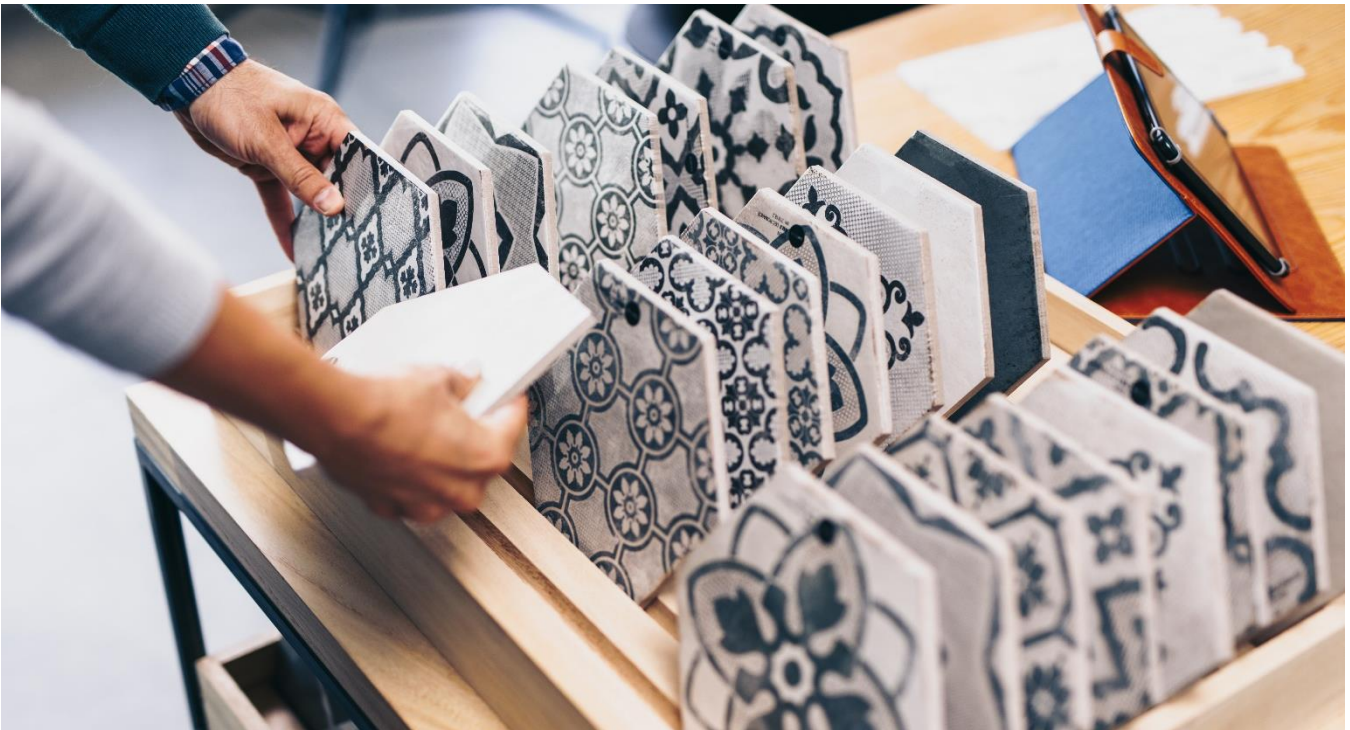
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## Comparison of platforms

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There are many platforms available in the manufacturing IT environment, each designed for a specific purpose. The following is a brief overview of platform types and their intended use:



### IoT or IIoT platforms

Platforms for the (Industrial) Internet of Things are dedicated to collecting and storing data from sensors and probes. We typically speak here of Big Data, since these platforms are often dealing with large amounts of data. The IoT platform sometimes has additional analytical capabilities and can use the collected data to recognize patterns and build models.

### Technology platforms

Technology platforms take a completely different approach. The objective is to provide the technical basis for the joint operation of different applications. It is therefore a kind of operating system, where the focus usually lies on the use of the software in the cloud. Like operating systems, these platforms only contain a limited number of directly usable applications. In most cases, applications that generate benefits have yet to be created.

### Business platforms

There are a number of platforms on the market known as business platforms that support companies in digitalizing their business processes. Unlike pure technology platforms, these platforms frequently offer the necessary applications as well. They focus on the end-to-end integration of all business processes, regardless of whether these can be mapped by a single software product or whether it requires a number of them.

## Integration platforms

An integration platform aims to run applications from different vendors on a common object or data model. In the manufacturing sector in particular, this involves reducing interfaces and creating an environment for the digital twin of production area.

The **Manufacturing Integration Platform (MIP)** by MPDV is such a platform and creates the basis for the Smart Factory in terms of Industry 4.0.



The MIP enables interoperability of many different applications. This interoperability is founded on an open object model disclosing the meaning, properties and relationships of objects. On account of this unique selling point, the MIP is not just another platform among many others in the manufacturing IT environment. It is a platform that breaks up monolithic structures of today's existing MES systems and replaces them by a flexible combination of multiple small applications, even from different vendors.

The Manufacturing Integration Platform is therefore not in competition with the other platforms, but complements them with a shared image of manufacturing — the digital twin!

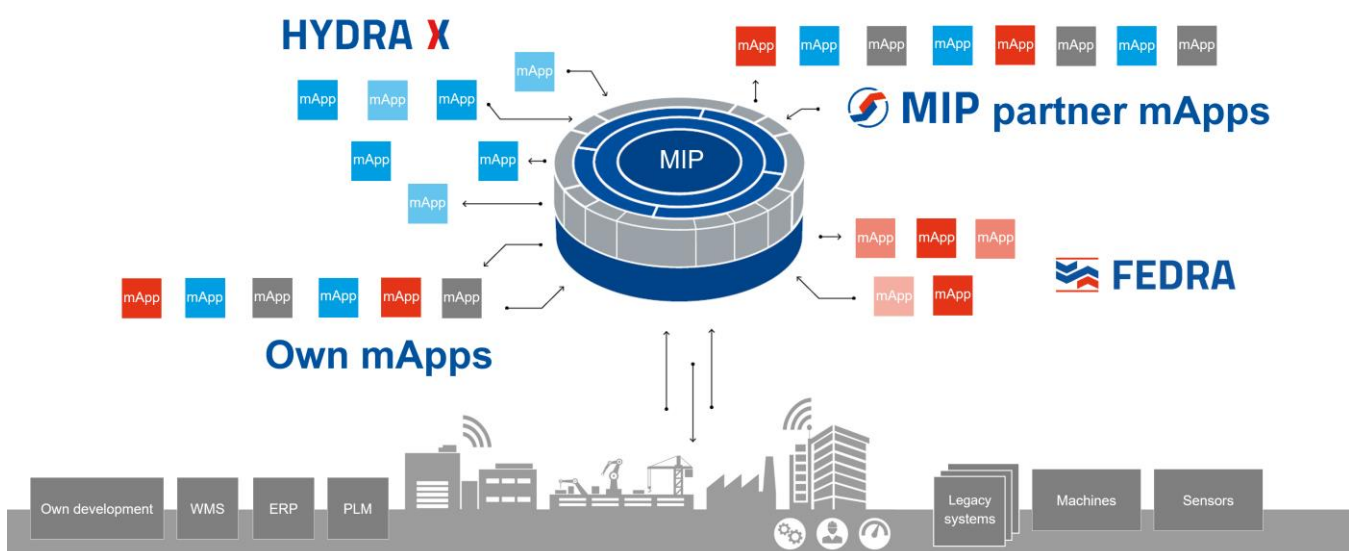
Read more about the MIP integration platform here:

<https://www.mpdv.com/en/products-solutions/manufacturing-integration-platform/>

### Quote from Bernd Berres, Principal Product Manager at MPDV

"The MIP integration platform is a semantic platform. The focus here is not on technology, but on content."

## The MIP Strategy



### Quote from Thorsten Strebel, Chief Technical Officer Products & Services at MPDV

"Thanks to the Manufacturing Integration Platform, production companies can develop their own applications or flexibly combine applications from different providers. This opens up entirely new avenues towards the Smart Factory."



## Connecting heterogeneous IT infrastructures onto a common data basis

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Manufacturing companies often have disparate systems in use at different sites. This is particularly the case in large corporations that have grown significantly as a result of acquisitions. A Manufacturing Execution System (MES) is already in use at one location, while another site is working with an alternative solution to record machine and shop floor data or for quality inspection. The big challenge in such cases is to bring all these systems onto a common data basis so information can be exchanged and transparency created.



In such situations, some companies decide to phase out their existing systems and introduce a uniform solution. However, this approach is very time-consuming and expensive. On top of this, a great deal of new solutions have been introduced to the market with Industry 4.0, which is why today hardly any providers are left who can provide the necessary degree of expertise in all areas.

**Quote from a successful MIP partner:**

"Networking systems can act in a highly targeted fashion and deliver significant added value to the user. The aim should be to unite diverse technologies and applications on one platform. This is exactly what the MIP can deliver."

The best way is to network existing systems in such a way that critical data converge at one point. And that is where the Manufacturing Integration Platform (MIP) steps in. The platform enables the exchange of information between the systems of different vendors.

## mApps – Building blocks for the Smart Factory

State-of-the-art manufacturing IT consists of numerous small elements — the manufacturing apps (mApps). Each of these mApps has a well-defined range of functions and provides support for specific manufacturing requirements. Some mApps are suitable for resource planning. Other applications can be used to optimize the material flow or accurately map the value-added process. mApps interact to make your digital manufacturing fit for the future.

MPDV's solutions are completely appified, which means they're made up of a variety of mApps. As it is, the complexity of today's digital manufacturing often cannot be handled by applications from a single vendor. Instead, we need a variety of solutions developed by experts from different disciplines. This is why MPDV's solutions can be supplemented with mApps from other vendors. New vendors and functions are constantly being added to the ecosystem in order to remain fit for the future.

The MIP integration platform ensures that there are no more media disruptions in digital manufacturing by using a common, integrative interface.

A variety of applications can easily be connected to the MIP via standard interfaces in the form of the aforementioned Manufacturing Apps (mApps). The mApps access a common digital image of production (digital twin). Unlike many IoT platforms, the MIP not only manages data, but creates a digital image of reality accessed by all mApps.



To enable solutions from different vendors to interact smoothly, it is important that each developer doesn't have to implement multiple interfaces. To meet this requirement, the MIP has a common, uniform and integrating information structure, which means that all systems speak the same language. For example, information on the current state of production can be exchanged flexibly. Each recorded value has a defined meaning. Applications and users alike therefore know whether a piece of information is about scrap, downtime, or temperature.

By using the MIP, companies save time and money needed to replace existing systems with new ones and employees no longer need to be trained on the new systems. On the contrary, thanks to the integration platform it is possible to intelligently network existing systems and share information specifically.

## Focus on user requirements

The MIP focuses on the user and their needs. With this platform users can select the most suitable product from a broad portfolio of different vendors. Alongside hardware and software vendors, system integrators, developers and machine manufacturers are among the players in the Manufacturing Integration Platform ecosystem. Together they make a substantial range of products possible. Experts from different fields and industries meet at the MIP marketplace and together generate the best possible solution for the user. Users have the greatest degree of flexibility in selecting and combining solutions. For example, if a metal processing company changes their strategy and buys an injection molding plant, they can use the MIP to easily add new solutions that are specifically designed to meet these new requirements.

## Wide range of functions

The MIP integrates all objects of the production processes and their data in a common database. Users can access these objects and their data via standardized services. The potential range of functions of the MIP integration platform therefore far exceeds the scope of a current MES. Interoperability enables users to integrate any applications and systems via the platform and exchange information.

The MIP's openness and the virtual representation of the manufacturing process break down previous system boundaries and unify application functionalities via a common and consistent database. The outcome is a dynamic ecosystem.

### Quote from Steffen Münch, Key Account Manager MIP at MPDV

"Our integration platform MIP focuses on the user and their needs. The platform provides the opportunity to choose the best solution from a wide portfolio of different vendors."

## Why an ecosystem?

In biology, an ecosystem is said to exist when several entities mutually benefit from each other. Everyone contributes something and everyone gets something back. It's the same with the MIP ecosystem:

- **Developers** focus on the application logic while using the basic services of the MIP. They create new applications for the ecosystem.
- **System integrators** combine apps available on the market to create individual standard solutions. Customized solutions are designed here that are based on standardized building blocks.
- **Machine manufacturer** will find it easier to integrate their machines into the world of manufacturing IT. Enabling their digitalization to come along in leaps and bounds.
- **Manufacturing companies** can deploy apps they specifically need — regardless of the vendor. Being able to employ only apps they require, companies can therefore free capital for other investments.

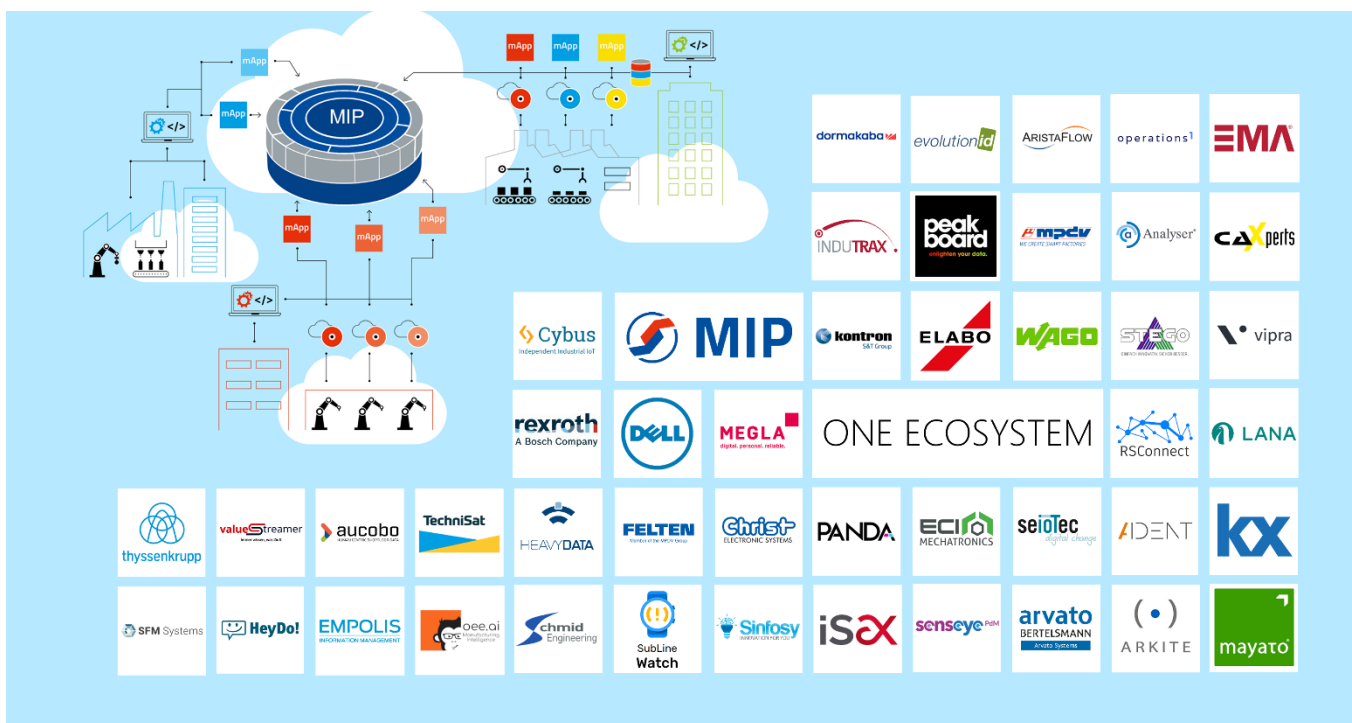
For this to work, the MIP provides a semantic basis for the ecosystem. The MIP is therefore the central platform for all processes of production. All apps communicate via web services with a shared and open information model, allowing for extensive interoperability. Applications of different vendors can be combined with each other in any way. The vendor lock-in effect customary in manufacturing IT to date is completely eliminated by the MIP. The platform as the functional infrastructure of the Smart Factory gives manufacturing companies maximum flexibility while relying on a future-proof IT architecture.



## Insight into the ecosystem of the MIP integration platform

The MIP ecosystem now consists of well over 100 offerings from nearly 50 different partners, and new ones are added virtually every week. The spectrum covers both ready-to-use mApps and development services. Likewise, system integrators offer their services to connect existing IT solutions and/or machines to the MIP. The ecosystem is completed by suppliers of compatible hardware such as smartwatches, edge gateways, industrial PCs and other end devices for data collection or data visualization.

Here are some partners of the ecosystem:



Find the current offer available in the MIP Marketplace:

<https://www.mpdv.com/en/products-solutions/mip-marketplace/>

### Quote from an inspired MIP partner:

"The MIP integration platform combines IT technologies geared to production and thus a variety of individual solutions can be turned into a complete system. Simply ingenious, because it eliminates unnecessary interfaces and enables us to standardize isolated applications."



## Conclusion and outlook

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The MIP integration platform creates an ecosystem of users, vendors, and integrators that benefits everyone involved. While most companies remain committed to a traditional Manufacturing Execution System, the need for a platform-based solution is already evident across a wide spectrum of manufacturing companies.

A combination of standardized basis and custom design will lead to the goal in the future — in other words, a standardized individual software. To this end, the market for manufacturing IT will continue to develop successively. Even if companies still get by with a classic MES in the medium term, the need for the fourth generation of manufacturing IT is clearly visible. Manufacturing companies will thereby have the opportunity in future to choose whether they want to use a ready-made, market-proven MES, in other words Manufacturing IT 3.0, or a platform such as the Manufacturing Integration Platform as a representative of the fourth generation. The decisive factors are the company's own requirements, in-house IT expertise and the associated Industry 4.0 strategy.



## MPDV White Paper

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### Knowledge is power!

Our white papers offer you interesting facts about the Smart Factory and Industry 4.0. In addition to interesting technical articles, trend reports and product information, the white papers also contain exciting expert interviews and useful checklists for day-to-day use.

### Smart Factory Elements

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#### The functionally networked factory

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#### The autonomous factory

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#### The reactive factory

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#### In four stages to the Smart Factory

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#### Manufacturing Integration Platform (MIP)

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#### Horizontal integration

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#### Decentralization



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## About us

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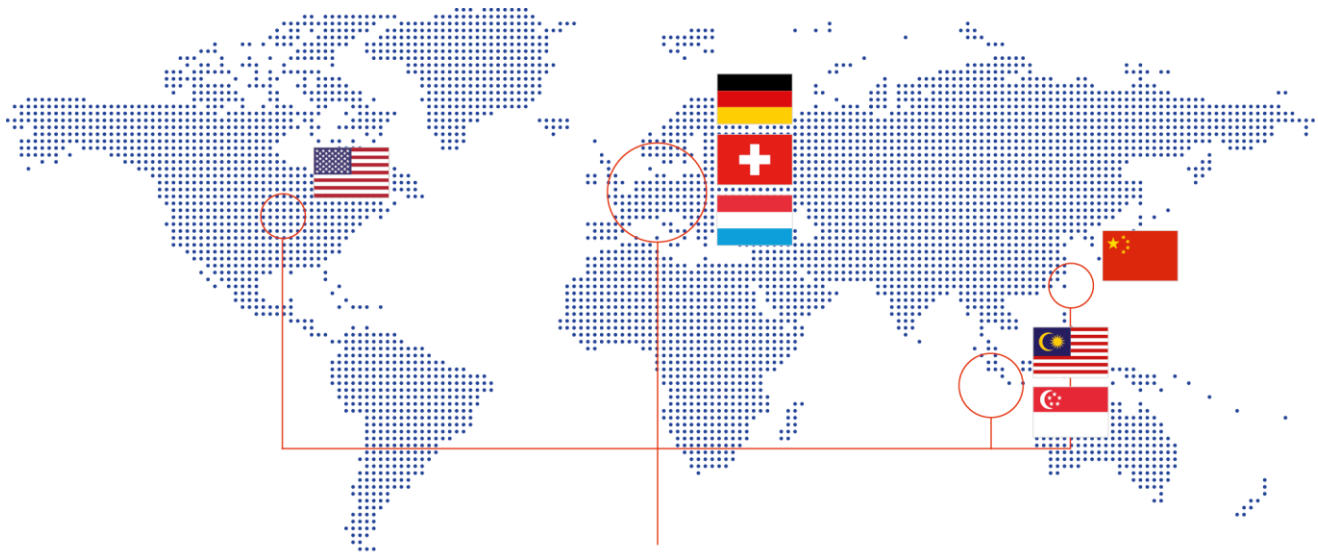


### MPDV Mikrolab GmbH

headquartered in Mosbach/Germany, is the market leader for IT solutions in the manufacturing sector. With more than 45 years of project experience in the manufacturing environment, MPDV has extensive expertise and supports companies of all sizes on their way to the Smart Factory.

MPDV products such as the Manufacturing Execution System (MES) HYDRA, the Advanced Planning and Scheduling System (APS) FEDRA or the Manufacturing Integration Platform (MIP) enable manufacturing companies to streamline their production processes and stay one step ahead of the competition. The systems can be used to collect and evaluate production-related data along the entire value chain in real time. If the production process is delayed, employees detect it immediately and can initiate targeted measures.

More than 1,000,000 people in over 1,500 manufacturing companies worldwide use MPDV's innovative software solutions every day. This includes well-known companies from all sectors. The MPDV group employs around 500 people at 13 locations in China, Germany, Luxembourg, Malaysia, Singapore, Switzerland and the USA.



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