

## Intelligent Competitive Edge

Industry 4.0 is of interest to all dairies, irrespective of their size

Industry 4.0, also referred to as the next industrial revolution, is the topic on everyone's lips at the moment. But what does it mean exactly and which pitfalls need to be avoided? Prior to the BrauBeviale exhibition, "DMW – Die Milchwirtschaft" had the chance to speak to Dr. Thomas Wunderlich, Head of Milk & Beverages, and Andreas Brülls, Head of Product Management at ProLeiT AG, about this wide-ranging subject and its application in small and large dairies.

### DMW – Die Milchwirtschaft:

"Industry 4.0 is on everyone's lips. What is it exactly?"

**Andreas Brülls:** "Ever more demanding requirements will be placed on production in the future: and it will need to become intelligent, versatile, efficient and sustainable. "Industry 4.0" stands for the intelligent integration of product development, production, logistics and customers. The technical basis for this are intelligent, digitally networked systems that, by and large, enable self-organised production: humans, machines, plants, logistics and products communicate and cooperate directly with each other in Industry 4.0. Industry 4.0 is usually associated with conventional machine and plant engineering applications; in other words, production-related activities. But Industry 4.0 and intelligent factories (also known as 'smart factories') enable new strategies in the process industry, e.g. a shift towards more flexible production and extensive data analysis. According to ProLeiT's understanding of the smart factory, technical processes will be coupled vertically to commercial business processes and systems, and processes along the value-added chain will be horizontally interlinked – from the initial order to outbound logistics and additionally to various systems, including production, laboratory and bottling, facility management and energy management."

### DMW – Die Milchwirtschaft:

"Is there a specific Industry 4.0 standard?"

**Andreas Brülls:** "Despite Industry 4.0 being one of the most politically innovative topics, a new standard has yet to come into effect. Many associations and organisations are working tirelessly on drafting a common standard and regularly publish the results of their cooperation in various white papers, information brochures and status reports."

### DMW – Die Milchwirtschaft:

"Why does Industry 4.0 make good sense for a food company such as a dairy? "

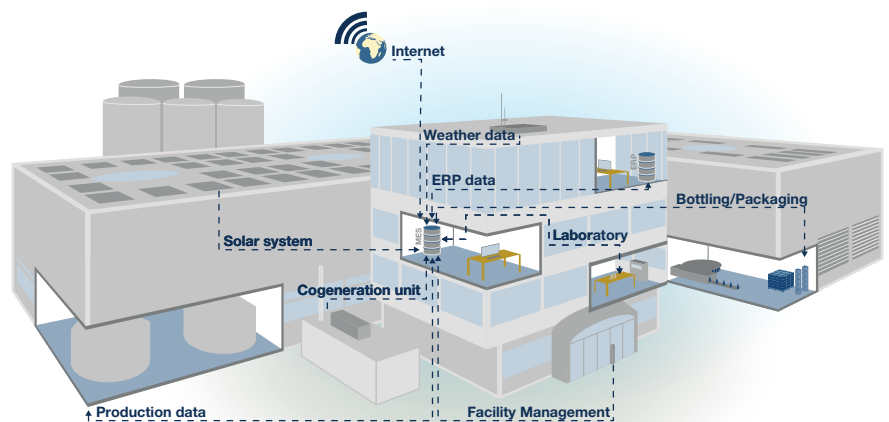
**Dr. Thomas Wunderlich:** "Basically speaking, all areas of the food industry need to implement intelligent production systems in which machines, components and products are controlled in a self-organised manner. The more systems that automatically exchange information, the greater the added value for the plant operator. The many benefits include dynamic order management and the opportunity to develop and improve plant-wide recipes, as well as being able to trace production data. The latter allows laboratory and shift managers to monitor specifications in real time and to intervene promptly whenever necessary. Monitoring and recording data helps to constantly optimise recipes and processes. If deviations occur, the quality manager can immediately identify the respective item, stop delivery and, if necessary, start recalling the products."

### INFO



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The precise recording of material data for every single order enables batch tracking throughout the entire production process. Long-term archiving ensures production process data remains available for analysis many years into the future and protects the company against potential claims for compensation."



New options: in conjunction with Industry 4.0, smart factories enable new strategies, e.g. a shift towards more flexible production or extensive data analysis.

# application profile

Industry 4.0

## DMW – Die Milchwirtschaft:

“Is Industry 4.0 also of interest to small specialty companies or is it only suitable for dairies of a certain size?”

**Dr. Thomas Wunderlich:** “The economic potential of Industry 4.0 can be achieved by large, small and medium-sized businesses. The said advantages of a smart factory provide a unique competitive edge, irrespective of the size of the company. ProLeiT AG has noted very positive development in this regard: many medium-sized companies already play an active role in Industry 4.0 in order to keep pace with international competitors.”

## DMW – Die Milchwirtschaft:

“Which requirements should a dairy or cheese dairy fulfil if they want to use Industry 4.0 successfully?”

**Dr. Thomas Wunderlich:** “The following requirements must be fulfilled to ensure companies can be actively involved in the change process linked to the smart factory: besides a high performance and scalable infrastructure, which effectively represents the basis for Industry 4.0, the increasing level of digitisation within companies also demands added expertise in the areas of IT security, process know-how and process design, as well as experience of working with specific IT systems. A reliable partner who helps choose the appropriate solution can contribute significantly to developing a data concept tailored to the requirements of the company.”

## DMW – Die Milchwirtschaft:

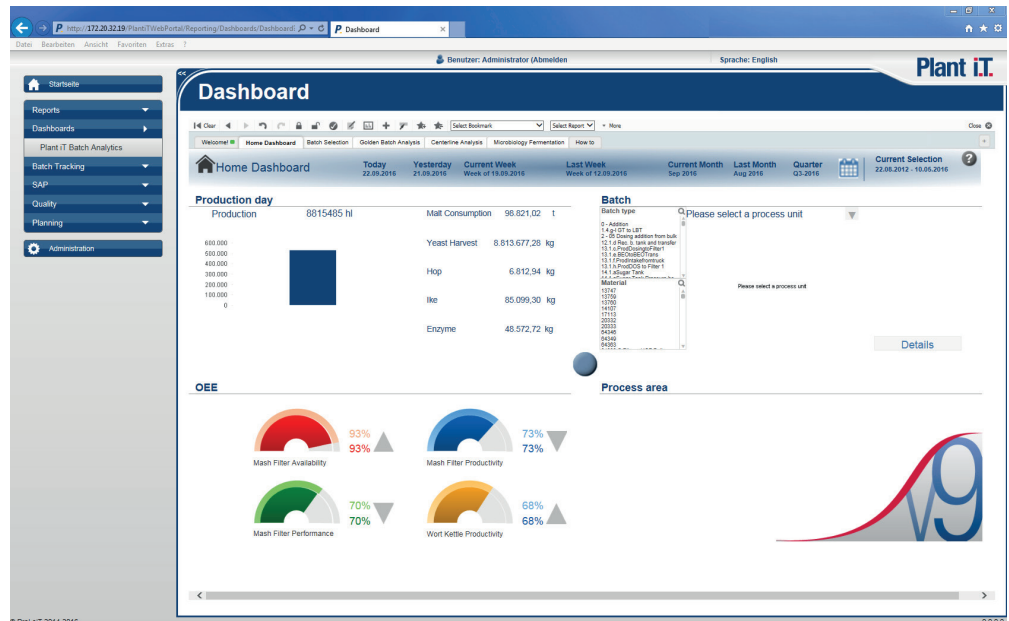
“Where is the best starting point for a business that wants to exploit Industry 4.0?”

**Dr. Thomas Wunderlich:** “When starting off in the world of Industry 4.0, we recommend small and compact automation solutions that interlink all individual automation cells of a production plant, thus making all the processes ‘visible’. The process control system must offer integrated MES functions that allow direct connection of the automation level to an ERP system. Within this context, clearly structured and freely configurable analysis dashboards enable fast and simple evaluation of all production relevant information.”

## DMW – Die Milchwirtschaft:

“How much is the initial outlay?”

**Andreas Brülls:** “The initial outlay obviously depends on the implemented solution, and it is, therefore, impossible to specify a one-fits-all price. The price may range from several thousand euros for small, compact solutions to a



Faster overview despite a flood of information: clearly structured and freely configurable analysis dashboards enable fast and simple evaluation of all production relevant information.

six-figure sum.”

## DMW – Die Milchwirtschaft:

“How long does implementation take on average?”

**Andreas Brülls:** “The initial key requirement for smooth progress is precise clarification of the respective task and applicable documentation in the requirements specifications. For example, at ProLeiT, we believe gradual implementation in companies is the best way forward. This approach ensures added value is generated faster, and further development is much more dynamic. In addition, the companies are offered a strong return on the initial outlay. An average period of three to six months makes sense for one of these sub-processes.”

## DMW – Die Milchwirtschaft:

“How long is the average payback period?”

**Andreas Brülls:** “The average payback period is roughly two years, but the time factor obviously depends on the actual implementation.”

## DMW – Die Milchwirtschaft:

“Do staff need training/upskilling before operating with Industry 4.0?”

**Andreas Brülls:** “Training is always of value before using new systems in order to gain the maximum added value. Particularly small and medium-sized businesses that do not boast a large number of specialists face the challenge

of achieving the right level of know-how during on-going production processes. Experience gained at our in-house ProLeiT Academy has shown that key user training is the best solution in this case: after completing the workshop, the staff we have trained can apply and pass on the expert knowledge they have acquired in class at their own company. To guarantee a certain degree of usability, the solution needs to have a flexible and configurable design that allows users to carry out independent analysis and to adapt and extend it according to their own ideas.”

## DMW – Die Milchwirtschaft:

“What are the advantages after implementation?”

**Andreas Brülls:** “Our solution Plant Integrate iT, the plant-wide MES reporting and workflow management system, provides a central database along the entire value-added chain and makes all production process data available via a front-end. Thanks to faster evaluation via visual analytics, users can additionally display deviations and key figures graphically. Access to the central information platform via Internet Browser occurs using Microsoft standard software and therefore provides maximum flexibility and protection when realising company-wide MES reporting systems. Due to the large number of predefined standard interfaces, Plant Integrate iT can be connected to various systems, including production, laboratory and bottling, facility management, energy management and weather data.”

# application profile

**DMW – Die Milchwirtschaft:**

“On the one hand, critics complain that, in contrast to other countries, Germany has yet to put forward a standard procedure or coordination for Industry 4.0 and that this is delaying implementation. Do you agree with this statement?”

**Andreas Brülls:** “ProLeiT employees are involved in various working groups and associations, and from what we have seen there is definitely no lack of willingness to develop a joint concept.”

**DMW – Die Milchwirtschaft:**

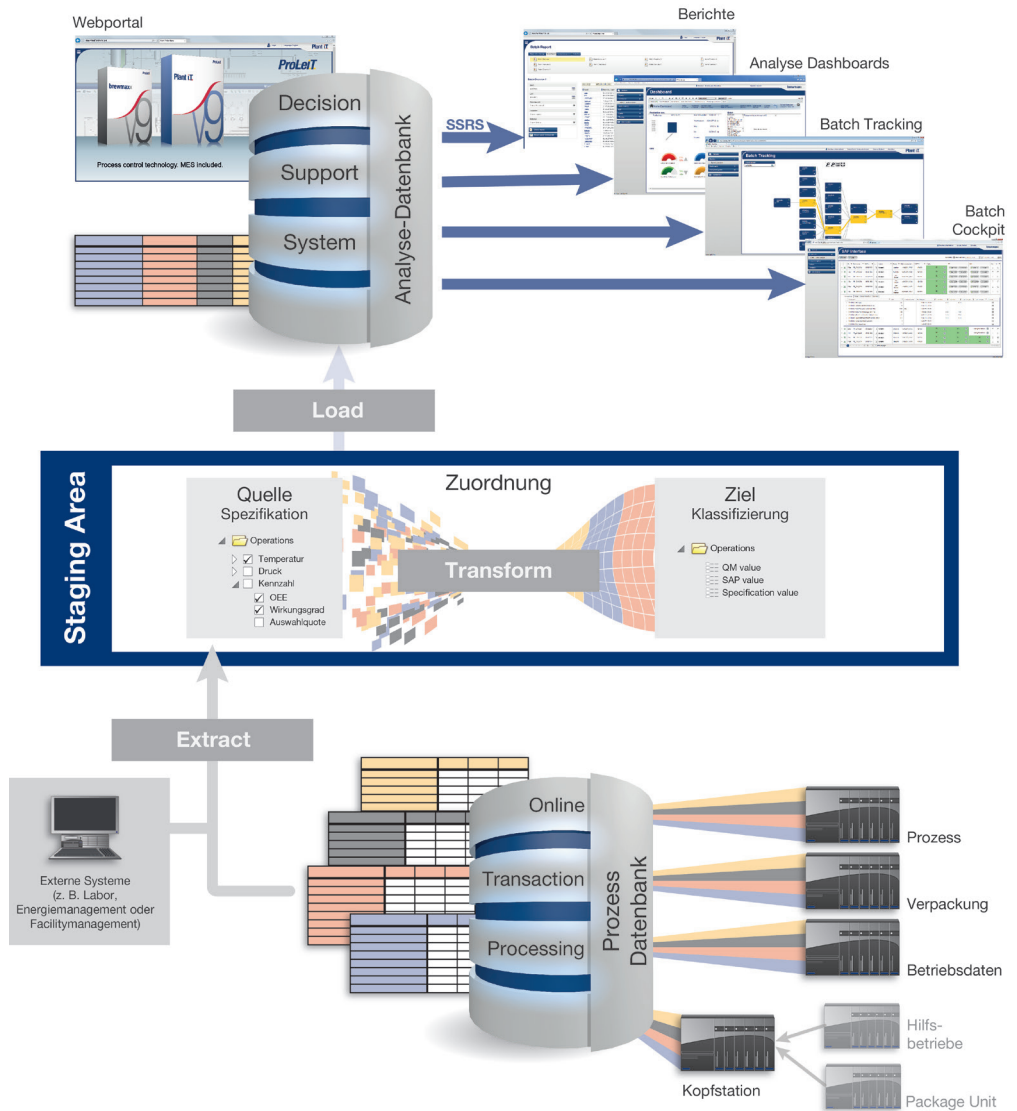
“On the other hand, they complain that changes in the value added structures are generally being concealed and focus is only placed on the ‘smart factory’. Do you see it the same way?”

**Andreas Brülls:** “In our view, the focus of interest is currently on the manufacturing industry. However, it is important to investigate the concepts being introduced there, as they may – if suitable – also be transferred to the process industry.”

**DMW – Die Milchwirtschaft:**

“Summary: What does a dairy need to do in order to use Industry 4.0 to its full potential?”

**Dr. Thomas Wunderlich:** “At first, it is essential to specify precise goals and a data concept for the initial approach. Dairies, for example, should ask themselves whether and which improvements need to be made in terms of product quality, tracking and tracing, production resources (and distribution) and energy consumption. At the end of the day no dairy will be able to afford to operate various automation cells at their plant without connection to the higher-order data level (MES). If dairies want to respond quickly and flexibly to market requirements regarding quality, process, performance and customer data, they will increasingly also have to consolidate data from various sources, combine it with process knowledge to create a higher degree of significance and evaluate it using analysis tools.”



Flexible application: due to a large number of predefined standard interfaces, Plant Integrate IT can be connected to various systems, including production, laboratory and bottling, etc. (Photos: ProLeiT AG).