Unlocking the power of data in factories

Part 3: Building long-term business success with industrial data

orange™ Business

Building long-term business success with industrial data

While companies have been collecting data for quite some time, achieving meaningful business outcomes remains a challenge.

To ensure that industrial data projects create lasting value, companies must carefully select their data, contextualize it, and share it widely within the ecosystem.

Sharing data with customers opens up a whole new approach to business. It provides better visibility into product positioning and roles, adding coherence and significance to your overall business strategy. Even employees who may initially be skeptical about data will see its business benefit.

The key to success lies in fostering a mindset shift. This requires executive sponsorship and a clear message that can rally overall support. Additionally, companies should invest in “data-friendly” equipment and prioritize providing necessary feedback.

In this third and final ebook on unlocking the power of data in factories, we explore how to leverage data for long-term business benefits.

Our experts’ opinions

Niels Helkov, VP Smart Industries & Digital Solutions Americas, Orange Business

“Today, there is abundant data in factories, particularly the newer ones. However, this does not mean that it is being fully used. Many automated systems, for example, are not interconnected and do not benefit from the information generated upstream in the chain. Fortunately, new solutions are emerging including those using the Unified Namespace architecture, which can go some way to solving these issues.

However, there is still a long way to go before manufacturers can truly harness the power of data, going beyond simple process monitoring or factory monitoring to accelerate business outcomes such as improved output, yield, waste management and productivity.”

Democratizing internal data use

Effective data collection and analysis for decision-making requires collective ownership at all levels within the data organization. Implementing a shared vision and fostering an internal dynamic are fundamental steps. This ensures that operational staff fully comprehend the benefits, and good practices become second nature. There are five aspects to this:

1 Raising awareness

The in-depth use of data in a factory is a major operational change, and employee buy-in is crucial to its success. They must be convinced that data will simplify their daily tasks and won't be a burden. Presenting real-life use cases inspired by peers offers teams the chance to envision its potential.

2 Training

Every employee must be trained to take ownership of their job-specific data management. Everyone must be aware of the rules to follow for data quality, reliability, and security to maintain the integrity of the overall system.

Regular updates are essential, including for new arrivals. Create a reference document allowing every worker to refer to it when needed.

3 Breaking down silos

For data to be shared and used by as many employees as possible, it must not remain siloed. This cross-disciplinary approach also applies to communication, including questions, best practice exchanges and ideas.

The first barrier to break down is often the one that remains between the IT department and the operational managers.

Democratizing internal data use

4 Making access easier

For data to become an integral part of the day-to-day lives of operational staff, it needs to be easily and independently accessible, without requiring the involvement of an expert.

It should be available in multiple exportable and shareable formats. This frequently involves data exchange standards like UNS* which are well-suited to industrial systems' interoperability requirements.

5 Overcoming challenges

It is vital to involve all operational personnel and convince those who are more resistant to change. Providing those employees with specific indicators to track and optimize is beneficial – such as indicators about their production line or during maintenance operations.

Communication about overall objectives and tangible outcomes is also essential. Lastly, it's crucial to encourage and reward the spirit of initiative to enhance on-field data usage.

* What is Unified Namespace (UNS)?

Unified Name Space (UNS) is a messaging system that connects production equipment, applications and information. Rather than trying to connect systems to each other, each asset or application talks to the UNS, which in turn sends back relevant information.

Read more

Taking advantage of data monetization to meet a plant's overall objectives

There are three key areas where data monetization and AI can contribute to improving business outcomes.

1 Improving the quality of life at work

Data analytics and machine learning offer tangible benefits, including improved quality assurance and reduced monotony associated with tasks.

For example, at Audi's stamping plant in Ingolstadt, Germany cameras monitor all the components directly after manufacturing. An in-house machine learning software then analyzes these images to identify any manufacturing defects.

Given that defects can manifest in various forms, formalizing manual quality assurance tasks can prove challenging. However, thanks to AI, this can now be managed by inspection robots enhanced with machine learning, as they can identify anomalies beyond the typical range. Some manufacturers are even going one step further to make production machines correct themselves when they produce a faulty part.

2 Meeting the expectations of a changing market

"Our strategy involves leveraging our data more effectively to address the current challenges in the cosmetics sector.

Given the strong customer demand for personalization and the unpredictable impact of social networks on product popularity, we tend to produce in smaller batches. This approach allows us to remain agile and responsive to market dynamics.

By collecting and maximizing the use of our production data through analytics, we gain flexibility and empower ourselves to make swift production decisions. This includes adjusting product batch sizes promptly, increasing or decreasing them as needed, and making frequent changes to references with better-controlled equipment settings."

Olivier Chapel, Manufacturing Excellence - Organization group manager & Industry 4.0 at L'Oréal

3 Engaging in the energy transition

Let's consider an example of a metal manufacturer with 17 industrial sites and 5,200 employees. The company enhanced its Energy Performance Indicators (EPI) at one of its plants through a data-driven strategy.

The project began by deploying digital twins, which allowed operational managers to monitor batch efficiency, control processes, and optimize equipment. As data accessibility increased, numerous opportunities emerged for managing and improving energy efficiency within the organization.

Thanks to this collaborative strategy, the plant improved its planning, resulting in higher yields, while also reducing gas consumption by 16%. This example shows how using data can help improve sustainability as part of overall efficiency improvements.

Widening possibilities with AI

AI can offer even more opportunities to improve business outcomes in manufacturing operations. Here are three examples.

Imagine being able to perform specific maintenance operations without relying on technical experts.

AI provides a solution: a German start-up called Aleph Alpha is developing an industrial application that utilizes language processing and image analysis to communicate with factory employees. For example, employees can send a photo of a machine to the AI application, which can then detect errors or verify proper installation.

Imagine optimizing your quality processes by harnessing previously unconsolidated textual data.

AI offers a solution: Yxir, an EDF spin-off, has developed software that aggregates quality data from various sources—whether it's ERP, EMS, CRM data, Excel files, Word documents, or PDFs. The algorithm performs semantic analysis on this data, providing valuable insights for enhanced decision-making.

Imagine optimizing your production using digital twins – an "industrial metaverse".

Cosmo Tech offers a solution: it has developed digital twin software specifically for industrial companies. These solutions dynamically replicate an industrial company's activities, simulating demands and constraints across various levels: global strategy, processes, workflows, HR, and machines. The company can then visualize the results in 3D in the metaverse.

Five things to avoid during an industrial data monetization project

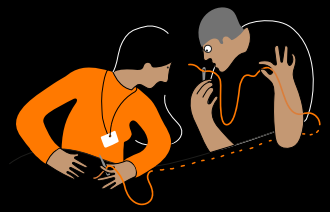
Success in industrial data projects is encompasses more than just making the right technology choice. From our experience in running these types of projects, there are five common issues that businesses should look to overcome for success.

1 Not providing the necessary resources

Most manufacturers readily acknowledge the benefits of data, but not all allocate the budget or the needed human resources to succeed.

2 Neglecting the needs of end users

There are often significant discrepancies between the objectives of plant management and end users' actual needs. Addressing these issues throughout the project is essential.



3 Considering the data project as a purely IT project

Ensure you also focus efforts on human resources rather than just IT implementation. Digitalizing a plant is a wide-ranging global transformation affecting all employees, not just the IT teams.

4 Having unrealistic expectations

Leveraging data within the plant is not a miraculous problem-solving solution. Instead, it represents a powerful additional lever that should be implemented over the long term.

5 Scaling up too quickly

Before venturing into larger-scale applications, it's essential to establish the groundwork, which includes constructing a shared data repository at your industrial site. Don't deploy the latest generation of AI solutions without proper preparation.

Why Orange Business

Orange Business has a unique skill set as a global integrator, communications operator and service provider along with genuine experience of the industrial world.

- More than 26,000 customers in the industry sector
- 33% of our key international customers are manufacturers
- Specific IoT approach for industry, its infrastructure, and its products
- Cybersecurity expertise tailored to the specific environment and challenges of industry, with expertise from 3,000 cybersecurity experts at Orange Cyberdefense
- Networks designed for connectivity that meets your production requirements, including LoRA, PMR, 4G, 5G, industrial LAN and edge computing

Recognized data and AI expertise

- European leader in Data and AI
- More than 700 IoT and data analytics experts
- More than 50 Orange-approved sensors

Nine success factors

At Orange Business we consider the following nine factors are essential for success in industrial data projects.

1. **Knowledge of the industrial sector (references, jargon, understanding of processes, etc.)**
2. **Data / AI specialization**
3. **Ability to manage the valuation data project from A to Z**
4. **Supply of resources needed to roll out a POC and scale it up**
5. **Expertise in the choice and management of fixed and wireless networks**
6. **Cybersecurity solutions tailored to industrial production environments**
7. **Consulting, global support and change management**
8. **Ability to find external funding to subsidize the project**
9. **Independence regarding industrial OT equipment set up in plants**

We have developed an Operational Xperience factory demo to show the Orange Business capabilities in delivering industrial data projects based on an example of a coffee capsule manufacturing line.

Find out more here

Business