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Digital Factory Model:
Enhanced Loss Analysis & Smart Deployment

CASE STUDY

Digital Factory Model

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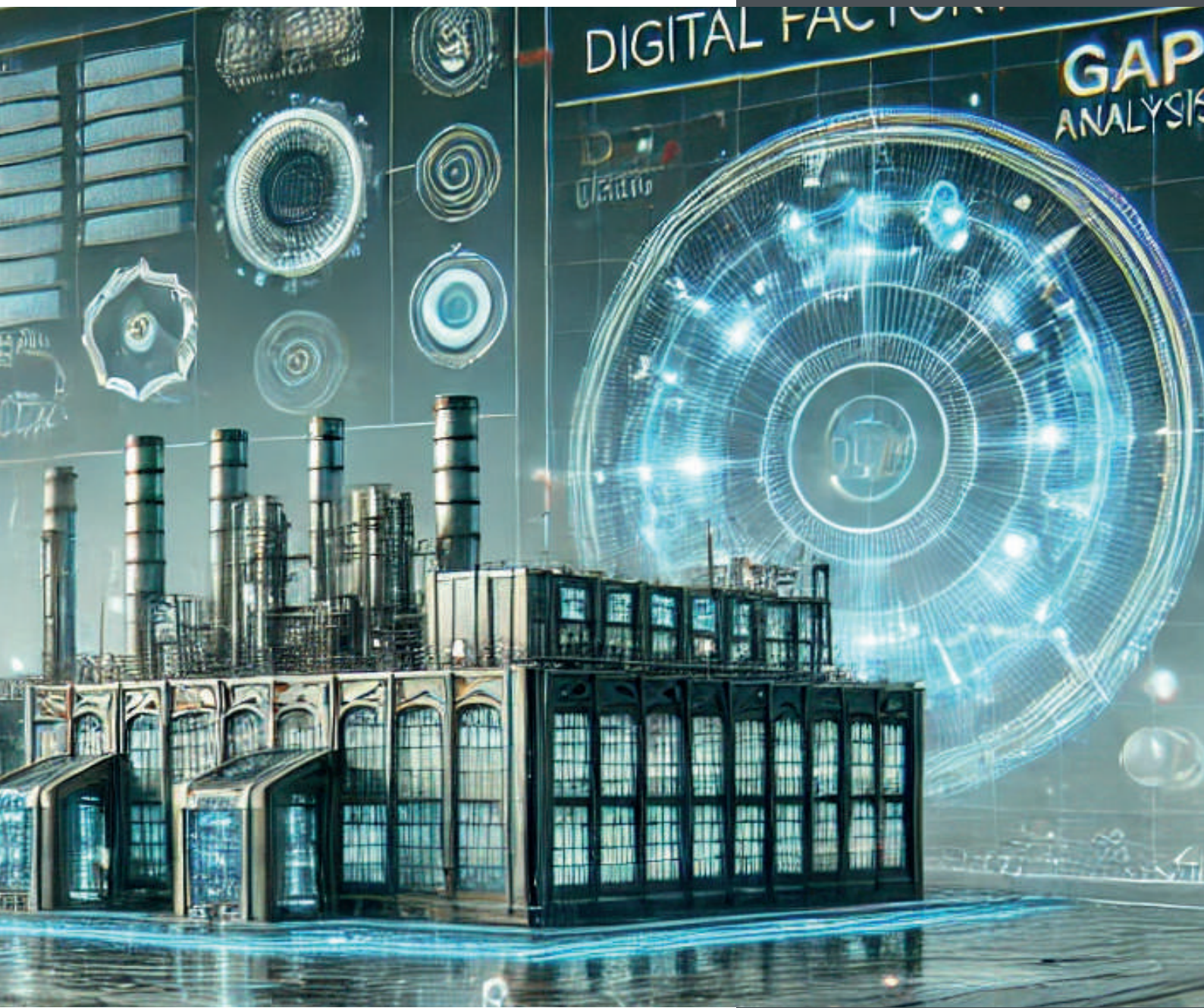
Identikit

The Digital Factory Model (DFM) is a sophisticated reporting tool developed with data quality as its core focus. Unlike traditional Business Intelligence (BI) tools, it stands out by enabling users to evaluate the maturity of data and identify potential gaps. Through its systemic approach, it ensures efficient data management and promotes replicability, making it a powerful asset for modern businesses.

Elevating Data Quality for Smarter Decisions



Revolutionizing Business Operations with the Digital Factory Model

In today's fast-paced world, efficient and accurate data management is more crucial than ever. That's why we placed data quality at the core of our work, driving the creation of the Digital Factory Model (DFM)—a solution designed for modern business needs.
This advanced tool transforms traditional systems with a digitalized, user-friendly interface, enabling continuous monitoring, real-case scenario simulations, and seamless integration. With features like multi-facility supervision and complex calculations, DFM enhances productivity, supports decision-making, and drives loss reduction.
By reshaping data management, DFM ensures efficiency, replicability, and adaptability, keeping businesses ahead of the curve.

The goal is to overcome obstacles together, giving to our clients the chance to achieve greater operational efficiency, agility and competitiveness in today's dynamic manufacturing landscape.

When to use it

1. When industries are focused on achieving operational excellence and are looking to digitalize processes to enhance efficiency and quality standards.
2. When companies need assistance in integrating advanced digital technologies to drive continual process improvement.
3. When organizations aim to stay competitive by combining a culture of excellence with cutting-edge digital tools.

Challenges

Reducing Inefficiencies

In today's evolving industrial environment, even the most minor inefficiencies can cause major losses. Our solution places **loss analysis** at the forefront, identifies and eliminates costly inefficiencies, and streamlines improvements across your operation. DFM promotes standardization through unified metrics, crucial for effective performance measurement.

Optimizing Energy Costs

Rising energy prices threaten profitability. Our model offers a solution through simulations of operational improvements and accurate impact assessments. This approach enables quick identification of inefficiencies and actions to reduce energy consumption.

Strategic Planning & Forecasting

Planning for financial and operational improvements, predicting trends, and aligning resources effectively are crucial. Forecasting and strategic alignment help implement **waste management** practices that reduce current and prevent future waste generation.

Advanced Data Management

Companies nowadays struggle to maintain, manage, and view data, leading to missing insights and costly decisions. Our model helps **build and maintain a complete historical database** for analysis, predictive modeling, and continuous improvement initiatives. Transform historical data into actionable intelligence to navigate challenges, anticipate trends, and discover growth opportunities.

Approach: Digital Factory Model (DFM)

The Digital Factory Model (DFM) uses a structured, step-by-step approach to transform industrial operations through digital tools, data insights, and process optimization. Designed to drive efficiency, sustainability, and continuous improvement, this approach breaks down the process into four key steps. These steps help organizations tackle operational challenges, boost performance, and optimize processes, enabling informed decision-making, better data quality, and effective resource alignment to achieve long-term goals.

1

Data Quality Assessment

This step evaluates existing data, identifying gaps and inefficiencies to focus efforts on the areas that will bring the most significant improvements.

2

Continuous Monitoring

Real-time monitoring of operations ensures businesses receive up-to-date insights, allowing them to quickly address inefficiencies and adapt dynamically.

3

Simulation of Operational Scenarios

By simulating various strategies, DFM helps businesses test potential outcomes, driving better decision-making and contributing to loss reduction.

4

Standardization and Performance Alignment

Standardizing key metrics across the organization ensures consistency and alignment with overall business objectives, improving performance tracking and resource management.

The Digital Factory Model (DFM) transforms operations through digital tools, data insights, and process optimization for efficiency and sustainability.

Results

Across industries the DFM has brought significant financial and environmental benefits, helping businesses improve processes, increase sustainability, and enhance performance. By standardizing operations, DFM makes it easier to scale across different locations, bringing teams together around shared metrics and driving continuous improvement.

With its ability to predict issues and simulate different scenarios, it helps companies stay ahead of challenges, adapt to changing costs, and align their growth with environmental goals.

The Power of the Digital Factory Model

We firmly believe in the power to transform business operations, placing innovation at the heart of our approach. The Digital Factory Model (DFM) turns data into smarter decisions, reduces waste, and drives sustainable growth. With its scalability and predictive capabilities, DFM keeps companies ahead of the curve, aligned with long-term goals.

Up to

15%

Material loss reduced

Up to

4.5 milion

CO2 equivalent reduced

Savings Exceeding

5 M€

Annualy

Up to

88 milion

Training sessions conducted

Benefits

Increased Operational Efficiency and Smarter Data Utilization

DFM enhances operational efficiency by reducing waste and optimizing resources. It enables data-driven decisions that result in significant cost savings and operational improvements.

Scalability Across Operations

By standardizing processes, DFM ensures that successful practices can be easily replicated across multiple facilities, driving consistency and long-term cost savings at a larger scale.

Environmental and Financial Sustainability

DFM helps businesses achieve financial growth while supporting environmental sustainability. By reducing resource usage and minimizing waste, it fosters long-term benefits for both the planet and the business's bottom line.

Predictive Capabilities and Trend Simulation

DFM's ability to predict challenges and simulate future trends empowers companies to make proactive decisions, manage rising costs, and optimize operations, ultimately boosting sustainability and profitability.

Case Study I

A global packaging specialist with operations in 37 countries and 116 plants, known for its expertise in providing innovative and sustainable packaging solutions in the food sector. The company has demonstrated a strong commitment to meeting the evolving needs of its clients by offering a diverse range of packaging options that cater to various industries

Empowering Global Packaging Excellence

Reducing Material Waste

Market downturn required accelerated material waste reduction efforts

Improving Productivity

Struggled with productivity losses and high conversion costs.

Training for Excellence

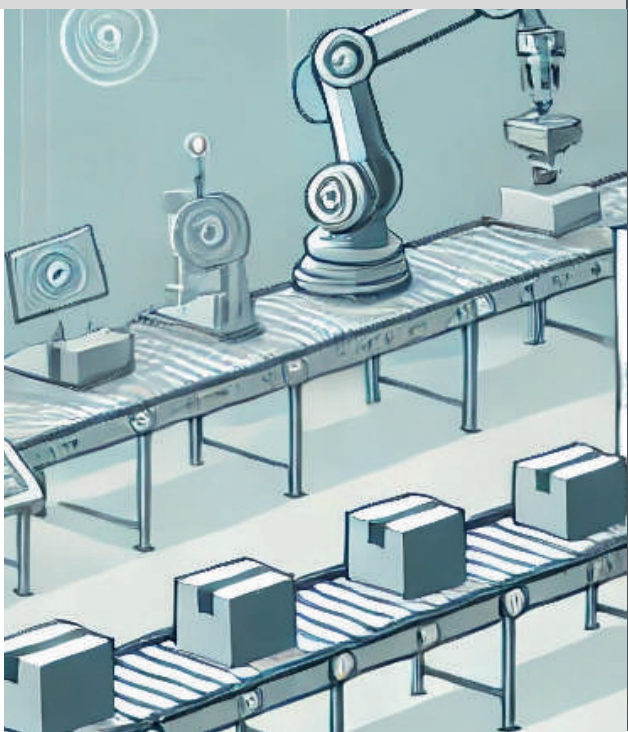
Continuous need to train employees in Operational Excellence

Leading in Sustainability

Aspirations to be the leading choice in sustainable food packaging

Key Success Factors

- **Utilization of a standard playbook for best practice sharing**
- **Remote coaching combined with on-site guidance to boost engagement**
- **Hands-on local supporto to maintain momentum and drive quick results**



APPROACH STEPS

- Operational Excellence Program
- Waste Reduction Program
- Loss Analysis & Standard Playbook
- Hybrid Coaching & Training
- Governance & Follow-Up

Main results

5.3 k€ annual material cost savings

5.3 € annual material cost savings through waste reduction. This improves the company's bottom line and contributes to environmental sustainability by minimizing resources use and waste generation.

88 improvement projects

88 improvement projects executed across various plants. Said project have significantly enhanced operational efficiency, optimized production processes and ensured cost-effectiveness.

4.5 million CO2 equivalents reduced

4.5 million CO2 equivalents reduced, advancing the company's sustainability goals. This achievement highlights the company's leadership in environmental responsibility and its commitment to creating a more sustainable future.

350 employees trained

350 employees trained and 88 trained team coaches for practical knowledge in reducing waste, and to improve performance, fostering a culture of excellence and ongoing development.

Case Study II

A leading global manufacturing and supplier of plastic tubes aimed to enhance operational efficiency by reducing material waste and optimizing production processes. The project focused on operational deployment and loss analysis across various production lines, with a specific goal of achieving a 15% reduction in material losses.

Driving Operational Efficiency for Sustainable Production

Pilot Line Efficiency

Excessive 20% process scrap and 50% over-usage on pilot production lines.

Scrap Rate Reduction

High scrap material rate, accounting for 12% of total material costs.

Material Balance Model

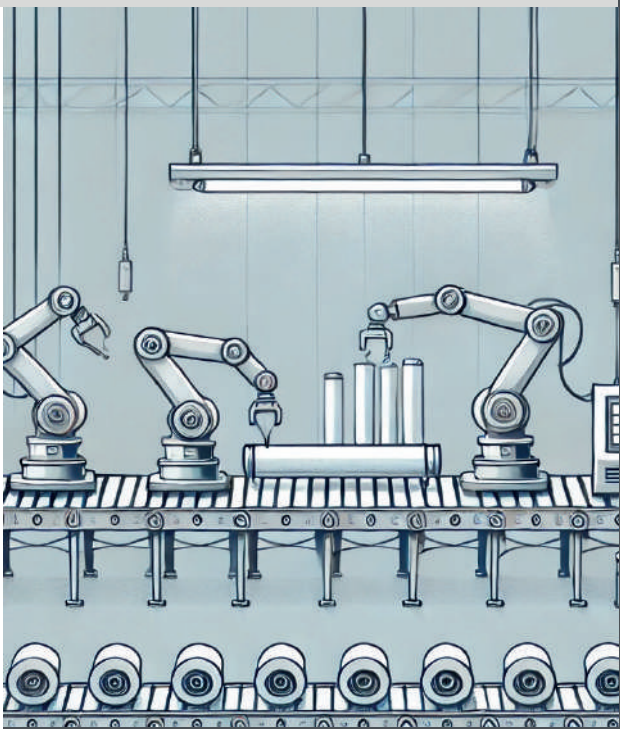
Need to design a new material balance control model and routine.

Scrap Control Standards

Develop a new standard for all activities contributing to material scrap, including set-up, start-up, and quality control processes.

Key Success Factors

- **A comprehensive gap evaluation and targeted prioritization of waste reduction opportunities**
- **Implementation of pilot projects to validate the new standards and control routines**
- **Ongoing support for pilot teams to ensure successful rollout**



APPROACH STEPS

- Model Structure and Validation
- Gap Evaluation and Prioritization
- Pilot Implementation
- Development of New Standards
- Maintenance and Machine Optimization

Main results

50 % reduction in material over-usage

50 % reduction in material over-usage on pilot lines. This is a key step toward promoting sustainability and efficiency, saving costs while contributing to environmental conservation.

20% reduction in process scrap

20% reduction in process scrap, which improves efficiency and reduces costs by cutting material waste. This contributes to a more sustainable manufacturing approach and enhances quality control.

15% overall material loss reduction

15% overall material loss reduction across production. This achievement highlights the company's leadership in environmental responsibility and its commitment to creating a more sustainable future.

Introduction of New Standards

By introducing new standards for material balance control, preventive maintenance, and set-up, start-up, and quality control, we've optimized efficiency, reduced waste, and improved resource management to support smoother, more sustainable operations

FAQ

Can I use the DFM on multiple plants?

Yes, you will be set up with your own environment where you can have as many plants as you would like.

Can I use the DFM without your support?

Absolutely, our typical approach is to undertake a pilot together where we can help set up the DFM and help with the knowledge transfer to the client team with the medium term goal being complete autonomy.

What type of losses does the DFM help me identify?

Currently we have 4 modules in the DFM focusing on line efficiency,. Labor efficiency, Material Waste and Energy consumption. In the future we will also look to expand into maintenance and indirect labor.

How long does it take to get an output I can use?

The DFM implementation and analysis is a process which can be done in as few as 3-4 weeks but typically takes closer to 8. The main point influencing this is scope, and data availability and quality.

How does the DFM ingest data?

The usual way to import data is via excel uploads however there is also the option to input data directly into the tool. There can also be the option of setting up automatic data ingestion from your existing ERP, MES etc.

Does it have customized reporting

The DFM has a standard reporting inside the tool but in order to offer maximum customization it is easily linked to PowerBI so a wide range of dashboards can quickly be created.

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Powered by deep industry knowledge and a commitment to lasting impact, EFESO works closely with global brands, mid-sized companies, and private equity to build resilience and future-ready operations.

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