TETRA PAK® SERVICES THOUGHT LEADERSHIP TECHNICAL PAPER

FRONTIERS OF PRODUCTIVITY SOLUTIONS

A plant-wide, outcome-based improvement approach that increases business results.

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INTRODUCTION

Manufacturing plays a vital role in delivering business goals.

By making high quality products, delivering them on-time, minimising operating costs and meeting other financial commitments, manufacturing makes a significant contribution to the achievement of the business's success.

This paper discusses an approach that food and beverage manufacturing teams can use to make sure that their operations are as good as they can be and explains how this will improve their contribution to the increase of shareholder value.

MANUFACTURING CHALLENGES

To improve business results, the manufacturing function should adopt an integrated approach to decision making and prioritising actions.

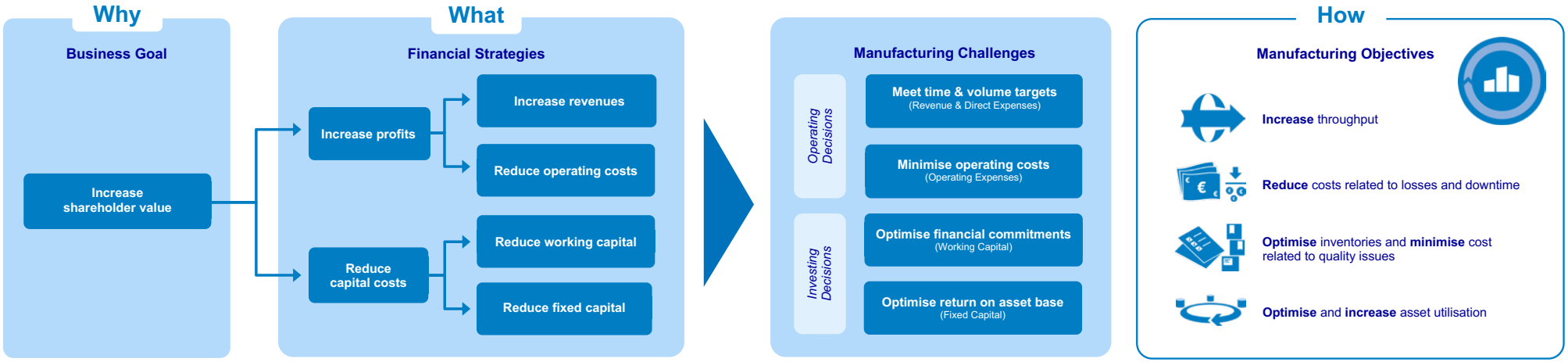

Fig 1: How manufacturing can contribute and achieve the business goal of increasing shareholder value.

Their strategy must span the entire value chain from the supply of raw materials through to the delivery of a product to final consumer. So, as well as looking for improvements in their direct manufacturing flow, the challenge extends to auxiliary equipment, procurement, supplier performance, inventory management, sales and distribution.

However, a business can only influence what it can control. Raw material cost and the final price a consumer is charged are, to a large extent, set by the market. This means that if they focus their attention on their core activities, they are more likely to find ways to optimise their production environment.

Ultimately, the goal is to convert raw material at the lowest possible transformation cost at the desired quality level meeting delivery commitments made to customers while managing short and long-term risks. To achieve this, organisations need to carefully manage the return on their asset base, make investment decisions that will optimise working capital and secure that the asset base meets the long-term targets for the business. To ensure they are making a positive contribution to the business's financial results, manufacturing teams need to coordinate their activity with the rest of the business, agree common priorities, link these to each function's operational targets and monitor progress by sharing key performance indicators (KPIs).

A PATH TO SUCCESS...

To identify where improvements could be made and develop a plan to realise them, a manufacturer should undertake a systematic, structured, business-wide approach.

Figure 2 outlines a three-step approach that a business can use to optimise production and maximise the potential of their assets.

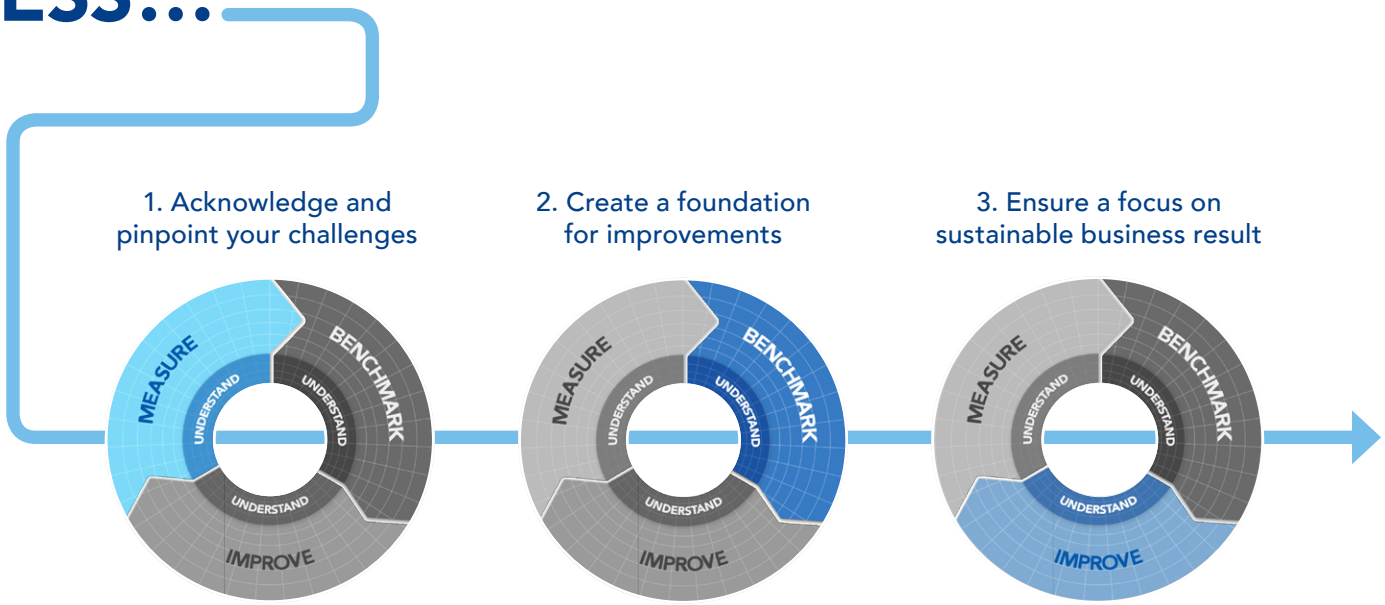

Fig 2: The three steps needed to improve plant performance.

MEASURE

To understand which areas of their operations offer opportunities for improvement, and to then scale the size of different contributions, an in-depth opportunity analysis should be undertaken to generate the data needed to develop an improvement plan.

Opportunities for improvement of production capacity, organisational improvement and ways to eliminate waste are identified by assessing the health and condition of their equipment, production and delivery performance, organisational maturity and current business processes. These are then compared with the future business needs to identify gaps and priorities.

BENCHMARK

To understand where they can improve, it is necessary to benchmark current performance against a known, standard. As most manufacturers will not have access to a suitable external benchmark this is often undertaken using internal data. By comparing performance of different product categories, production lines or, if they have them, between factories, they can work out their best practices and identify where they can make improvements.

Benchmarking will reveal opportunities to reduce cost and complexity and, by using existing internal measures including those for cost, quality, technical performance, delivery and reliability, this can be done without excessive expense.

IMPROVE

Using the data from the operational assessment, a prioritised implementation plan can be developed that measures the return of each improvement against the impact it will have on business outcomes and balances short-to-medium term activities, such as staff training or process changes, with longer term actions, such as the investment in new plant or production equipment. A suitable starting point for anyone wishing to develop an operational improvement plan should consider the following six dimensions:

1 Strategy & Risk

The detailed implementation plan should ensure delivery of the financial strategy while managing risk. This requires an assessment of the contribution each improvement activity will make towards the achievement of the business's strategic goals. Each action should also be set alongside the possible cost or any negative impacts, so mitigations can be planned.

2 Value

To make sure that decisions are based on the data developed during the measure & benchmarking exercises, each activity should be assessed by asking two fundamental questions: *1) What is the value? 2) How will this value be liberated?*
The answers can then be used to design an improvement monitoring system.

3 Operations

Operational improvements that manage loss and reduce waste will extend operational capability. Typically, a daily management system can be introduced or adapted to track progress towards the desired goal, so everyone involved can see progress and identify any roadblocks or issues.

4 Maintenance

This is often a key target for improvement that will enhance asset reliability and support rigorous cost management. To deliver value the maintenance strategy should cover all aspects of the maintenance cycle and therefore should cover work management, reliability improvement and the alignment of maintenance tactics throughout an asset's life.

5 Provision

Managing the asset base lifecycle will require the optimisation of utilities and consumables use, an improvement in the sourcing and supply of spare parts and the effective management of contractors.

6 Quality

To improve quality it will be necessary to consider the entire operation and monitor the final product quality, food safety and the environmental impact of the business's operations. To ensure a rigorous and comprehensive approach, activity should be based on strict definitions and include provision for the monitoring of key parameters and the mapping & management of critical control points. Numerous international standards and local regulations[1] exist to guide this aspect of the improvement plan development.

Driving manufacturing improvement is a continuous activity. While it might only take a few weeks to measure and benchmark performance, it will take much longer to fully implement an improvement plan and establish a culture of continuous improvement to ensure that manufacturing continues to maximise its contribution to the achievement of the business's strategic goals. Every improvement plan will be different and the results they deliver will vary from business to business as they should be tailored to address a specific set of circumstances. There are no off-the-peg solutions.

[1] See www.brcglobalstandards.com for the BRC Global Standards for Food Safety, Packaging and Packaging Materials, Storage and Distribution, Consumer Products, Agents and Brokers and Retail. These set the benchmark for good manufacturing practice and when complied with alongside ISO22000, which covers food safety, and ISP 14000, which covers environmental management, will demonstrate that a business's products are safe, legal and of high quality.

THE TETRA PAK APPROACH

TETRA PAK® PLANT SECURE

- The only integrated, "gate-to-gate" solution designed specifically for the food and beverage industry.
- Based on the ISO 55000 series Asset Management.
- Full plant solution covering all production related equipment, regardless of manufacturer or function.
- Based on experience gained by successfully completing over 200 projects for customers all around the world.
- Employs the same methodology as that used to optimise operational performance at our own factories.
- Delivers plans incorporating the full Tetra Pak Services portfolio.
- Leverages the insights derived from the data gathered by monitoring our global installed base of over 5,000 production lines.
- A business-oriented solution with a guaranteed outcome. You only pay when we deliver business results.

Many consulting firms can undertake a structured analysis of existing productivity challenges and improvement area, for example by applying a Total Productive Maintenance (TPM) methodology, but only Tetra Pak can offer a solution designed to meet the specific needs and challenges of the food and beverage industry. Tetra Pak will not only measure and benchmark the opportunity but also commit to implement the recommendations we give.

Tetra Pak® Plant Secure follows a structured approach that offers an integrated solution that is outcome based, spans all controllable aspects of a business's operations and can be applied on a single site or multiple / group-wide basis. We are so confident that we can add value, that we guarantee the agreed business outcomes and only get paid when they are delivered.

Tetra Pak® Plant Secure adds value by focusing on the entire plant and drives productivity and quality improvement that meet a customer's goals. It is a full plant solution, covering all production related equipment, regardless of manufacturer or function, has been refined during the successful implementation of over 200 operational improvement projects globally and employs the same approach as used in our own manufacturing plants which are recognised by leading manufacturing and performance improvement bodies as being global benchmarks for TPM implementation.

OPPORTUNITY ANALYSIS

The Tetra Pak opportunity analysis combines the "Measure" and "Benchmark" steps described above. We use validated analysis tools and processes to identify and prioritise improvement opportunities and to suggest priorities but tailor them to meet the specific needs of food and beverage operations. We have a suite of tools that are applied depending on the goals a customer sets; the following are three of those most often used:

Operational Performance & Maturity Assessment
Organisational structure, resource capability, business processes, asset health and performance overview to determine how well the organization and the processes it uses are adapted to the specific operation. This gives an insight into many of the softer aspects of operational activity and will be a key input to the benchmarking exercise.

Value Stream Mapping & Simulation
By following the flow of material and products through a factory, it is possible to identify bottlenecks and find ways to minimise losses and non-value adding time in the production process. Our methodology will also enable benchmarking of your total cost of quality.

Activity Based Cost (ABC) model
This involves the outlining of all cost items and seeks to identify their value and non-value adding drivers. Based on its use in over 200 operational improvement projects, the Tetra Pak Services team knows exactly what to look for and then identify and scale the improvement opportunities.

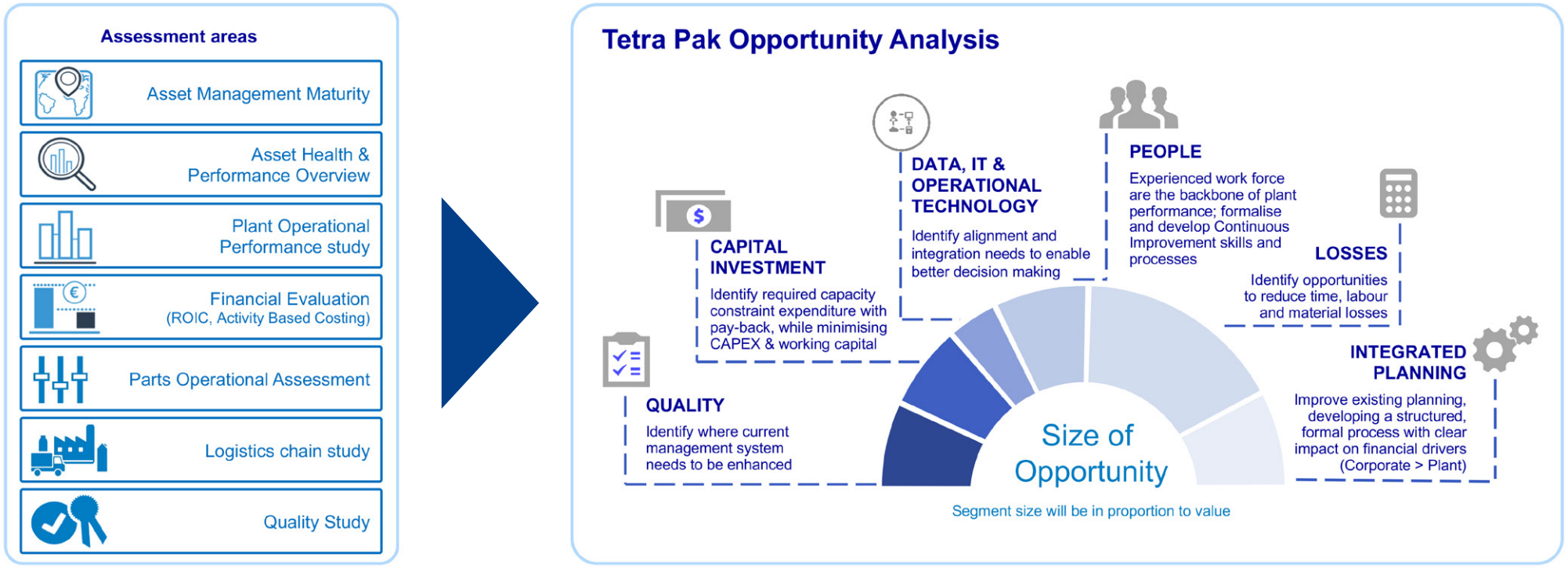

Fig 3: The components of a Plant Secure Opportunity Analysis.

All customers are unique. They have different operational arrangements, are driving towards different goals and prioritise improvements against different standards. Therefore, every Tetra Pak® Plant Secure solution is different. By using our proven operational analysis methodology, drawing on our global experience and expertise in food and beverage production and carefully selecting the appropriate Tetra Pak services to apply, every solution will exactly meet a customer's needs.

We invest to ensure that all our services are at the forefront of technology and incorporate the latest tools and emerging innovations, including those enabling the Industry 4.0 revolution[2] so that we can always meet our customers current needs and future ambitions.

[2] For a comprehensive review of Industry 4.0 and to read how Tetra Pak is helping pioneering its adoption in the food & beverage industry, visit www.tetrapak.com/about/events/industry-4 to download a White Paper and view a webinar presented by Johan Nilsson, Vice President Tetra Pak Services.

IMPLEMENTATION AND FUTURE OPERATION

When the prioritised improvement plan has been agreed, a detailed action plan will be developed and an implementation team formed. But this is just the start of a longer, mutually beneficial partnership. By maintaining an on-site presence, we are able to help to drive sustainable improvements by managing full technical operations and continuing to guarantee business results.

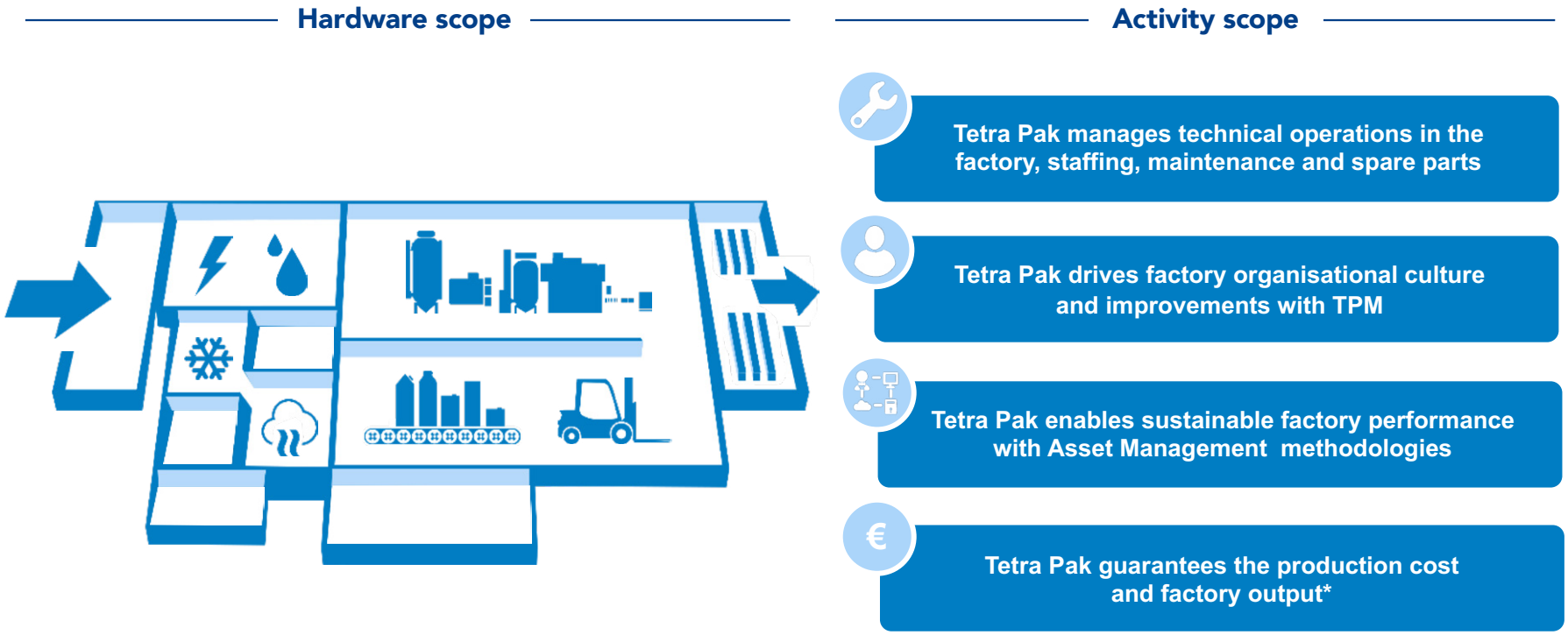

Fig 4: Tetra Pak® Plant Secure – an outcome-based service with performance & cost guaranteed.

*Guarantee based on mandatory service agreements, and sharing of risk and benefit from improvements.

PEOPLE, PORTFOLIO AND PRESENCE

This paper has reviewed how a manufacturing team can improve their contribution to the achievement of their business's goals.

It shows how they can significantly improve the value they add by following a well-proven methodology to measure, benchmark and then improve the way they meet their delivery, quality and cost commitments,

It also explains how Tetra Pak® Plant Secure, the only operational improvement approach designed to meet the specific needs and challenges of the food and beverage industry, offers a complete solution with guaranteed results by drawing on the combination of our people, portfolio and presence.

By drawing on our global pool of expertise, employing services from across the entire Tetra Pak Services portfolio and leveraging our global footprint, Tetra Pak® Plant Secure is helping leading food and beverage manufacturing teams make their operations are as good as they can be and ensuring that they maximise their contribution to the increase of shareholder value.

To learn more about Tetra Pak® Plant Secure and see how your business could win similar benefits to those delivered by the more than two hundred projects in every segment of the industry on six continents, contact the authors or visit:

www.tetrapak.com/services/plantsecure

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AUTHOR BIOGRAPHIES

Johan Paulsson – Manager, Asset Management, Tetra Pak Services

I have worked with Tetra Pak for over seventeen years and have had the opportunity to help food and beverage manufacturers across all segments of the industry. This has allowed me to develop an in-depth understanding of their challenges and how to implement operational improvements. I currently lead the work to develop Asset Management services for Tetra Pak and work with peers across the industry on two ISO 55000 technical committees, as a member of the global TC251 and chair of the Swedish TK252 committee.

Henric Hansson – Deployment Manager, Tetra Pak Services

During my ten years with Tetra Pak, I have had the opportunity to work in and lead projects team to deliver significant value for leading food industry companies on three continents. This experience, coupled with my studies in Finance & Production Economics, has allowed me to design and implement programmes that help customers improve their operations.