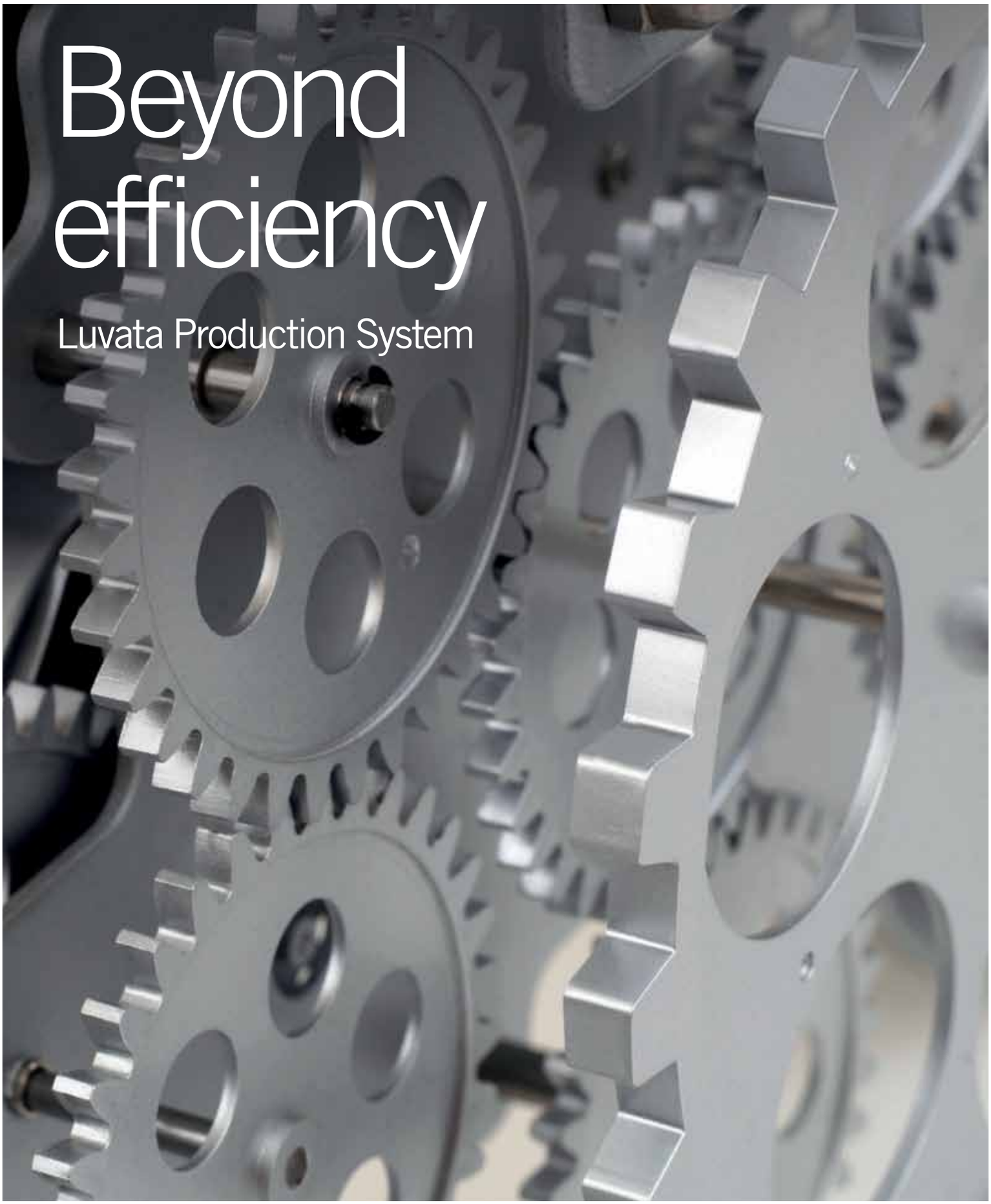
LUVATA
Partnerships beyond metals

Beyond efficiency

Luvata Production System



Beyond efficiency

Imagine a world where no resource, effort or time is wasted; where there is enough food and warmth for everyone and you will never be let down or stuck in traffic.

Imagine a supplier who never breaks a promise – one who is perfectly responsive to customers' needs. Imagine they have no costs from complexity or inefficiency to pass on to their customers. Imagine a company that harnesses the potential of all its employees; one in which people thrive, support each other and continually innovate.

Luvata is aiming to become this company – not by chance or coercion, but by working harder and more intelligently to design-out more and more waste from its activities, day-by-day.

Efficiency and effectiveness

The Luvata Production System is one of the longest-standing initiatives of Luvata's strategy. We entered into it with determination and it has spread, bringing improvements wherever it has been.

What has made it so contagious? I think it's the practicality of our approach and the commitment of our people to efficiency and effectiveness - doing new things and doing them with the best possible use of resources. Today, we have made LEAN our own. We've seen a lot of success from our long-term obsession with operational excellence and LPS is a key component of that.

We're getting really good at deploying LPS, and if you're reading this it's because you're probably about to be a part of that, too. Take courage! Read the success stories, adopt and spread the LPS mindset, be hungry for improvement, and your success is almost assured.

John Peter Leesi
CEO and President

Luvata Production System

The Luvata Production System (LPS) is Luvata's blueprint for inspiring and achieving greatness through our operations.

It is at the core of the Group's strategy and modelled on how Toyota's Production System has earned Toyota its unsurpassed reputation for operational strength and continuous improvement.

The essence of LPS is to continually design better ways of working to reduce waste – by that, we mean anything we do that our customers do not want to pay for. Waste frustrates us, repressing our culture while also tying up cash and capacity, increasing costs and limiting customer service. Consequently, groups of people across Luvata are working together to bring new life out of their existing processes and communities and seeing new benefits in all these areas.

To prescribe solutions for designing-out waste from our processes, LPS uses four categories: OEE, Flow, Performance Management and People.

1 Overall Equipment Effectiveness

We need a lot of expensive, complicated equipment to make our products. To get the best out of them, we need to monitor the Overall Equipment Effectiveness (OEE) and continually make improvements.

2 Flow

We need to redesign our plants and production-control systems to help products 'flow' reliably from order receipt to delivery. By doing this we can reliably serve our customers with minimal complexity. This is particularly challenging and important because Luvata's various custom-built products do not lend themselves to simpler, high-volume flow lines.

3 Performance Management

We need to find the best methods of performance management, so everyone can be equipped and supported to fulfil their roles and work together to meet customer and business objectives.

4 People

We recognise that we can't do any of this without gifted and energised people. We need to continually invest in the right ways of working with each other so that we can thrive and excel together.

How it works

Unfortunately, deploying LPS isn't as simple as organising central training. This is for two reasons:

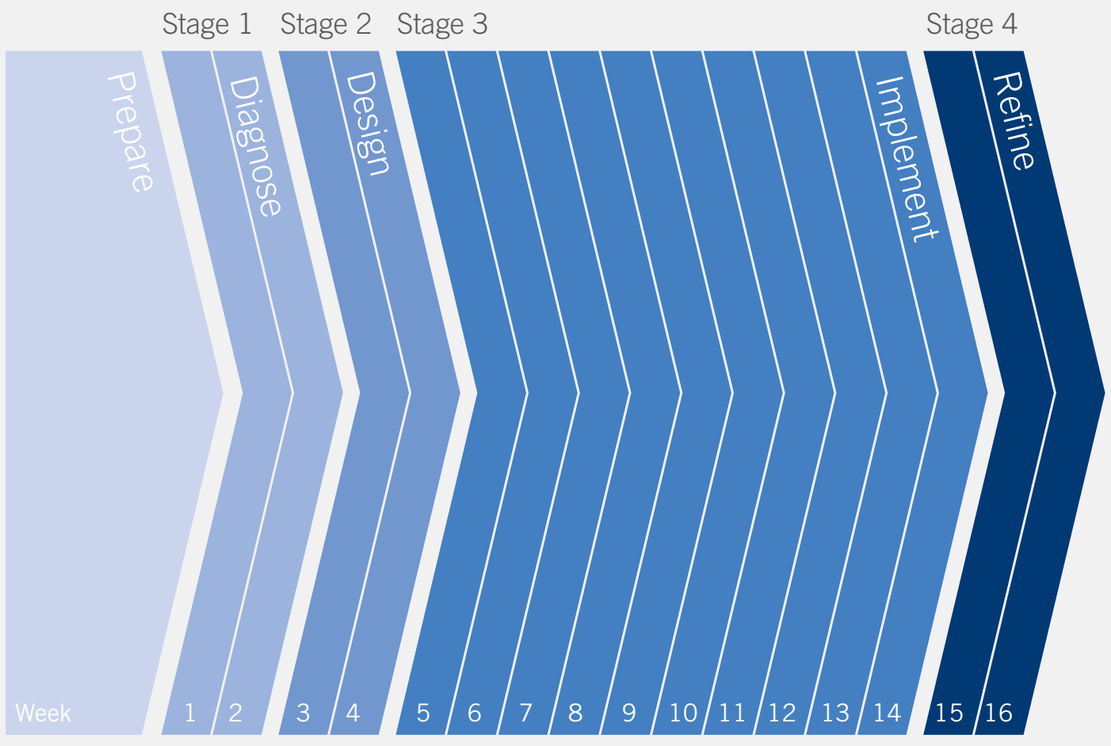
Reason 1

It involves designing systems, especially for flow, that are specific to each set of processes (misapplication of tools and practices can actually increase waste.)

Reason 2

Even when properly designed, systems can rarely transform plants on their own unless people have been properly involved in the change process.

The 16-week LPS process



Implementation

Therefore LPS is implemented through a series of waves in every plant. Each of these addresses a slice of the organisation along the overall flow, following a standard, 16-week program (see chart above). It is facilitated by a plant-based LPS champion called a Navigator, although leadership always remains with the management of the area concerned. The role of a Navigator is tough and stimulating: they undergo intense preparation by participating as a guest Navigator in another plant's transformation, where a regional LPS Expert models the desired skills before helping the Navigator to facilitate the first wave in their own plant.

What to expect

So, what can you expect when your area is about to be involved in its first LPS wave?

Embrace change

You should be ready for significant change. This might mean relocating equipment, reassigning products, new procedures and a greater sense of team work. Your workplace should begin to look and feel clearer and better, and you should expect problems to be exposed and solved more effectively.

Participate eagerly

You shouldn't fear the changes. You will participate in training and you will be kept fully informed of what is being proposed. You will, of course, be asked to contribute your ideas and participate in the improvements. If anyone proposes something that doesn't appear to makes sense, you will be encouraged to challenge them with a view to developing something better. Often, people find that an LPS wave enables them to finally address many of the problems they have felt powerless to fix before.

See benefits

You should expect to see significant overall benefits through your LPS wave. You should see a marked improvement in your workplace environment and in the performance of your area.

Take ownership

You should not expect anything to stop at the end of your wave. You should expect to be part of a closer team which continually seeks to identify problems so that together you can solve them and keep improving. You should expect to be more proud of your workplace and what you are achieving together.

Typical benefits from 16-week wave

+15%
Overall Equipment Effectiveness*

95–100%
On time in full

–20%
Customer returns

–30%
Inventory

*e.g. OEE from 30 – 45% (which could mean 50% extra capacity liberated for a bottleneck process)

Case studies

Tubes
Franklin, USA
Scope: Eight machines, supplying welded tube to one customer.

Situation
Before the LPS wave, all the product was being inspected before it was shipped to ensure that no product reaching the customer was defective. There had already been a lot of work to reduce and control inventory in the plant, but despite efforts to organise Work-In-Process (WIP) between the two upstream and six downstream machines, there was now some concern about whether there was sufficient WIP to keep the lines running efficiently and predictably.

Activities
OEE: Teams began to systematically address the main quality, speed and availability losses on critical equipment.
Flow: An overall solution was designed that included reducing and moving the WIP area so that it would fit between upstream and downstream machines.
Performance Management: Performance boards on the shop floor were used to raise and solve problems, and four more regular 1-on-1 reviews were introduced.
People: Everyone with a role in this part of the business was involved, including the customer. It started by shadowing and listening to the operators and progressed to everyone working together to design and implement better ways of working.

Results
The average OEE for all machines increased by 16%. More importantly, by the end of the 16 weeks, these improvements had succeeded in ensuring that all product was being produced right first time. In consultation with the customer, the final inspection process was removed. The flow improvements meant that WIP was reduced by 27% and 5000 ft² of floor-space has been liberated for further development. The workplace now looks and feels different – there is a great sense of teamwork and the improvements are being spread to the rest of the plant.

Heat Transfer Solutions
Gailtal, Austria
Scope: Twenty-six machines, making products with 07-22 geometry.

Situation
By the time the Gailtal plant was acquired by Luvata, it had already been running its own continuous improvement initiatives for some time. The plant was run in a professional manner and had a logical layout with a clear overall flow from incoming goods to despatch. The challenge was that there were over 100,000 possible production routes – too many for anyone to optimise and the progress of product through the plant was both unpredictable and slow. This kept Work-In-Process high and limited On-Time-In-Full (OTIF) delivery performance.

Activities
OEE: The plant began to shorten and standardise change-over times on critical equipment to facilitate flow.
Flow: Machines were dedicated to products (sacrificing perceived flexibility) and then strategically relocated to reduce waste, guarantee customer response and transform performance.
Performance Management: 1-on-1 reviews were introduced to focus and support supervisors, while regular meetings around the shop-floor performance boards harnessed the contributions of operators.
People: People throughout the plant were involved in developing and testing the overall plan and new philosophy using training-room simulations. This also began to model the increased team work that helped the new systems to thrive.

Results
The new layout in the first wave successfully demonstrated the new flow philosophy. Average lead time and WIP were reduced, but far more important was the increased predictability of the lead times, which saw OTIF leap by 46% within just 16 weeks. The plant has since completed internal LPS waves for all of its products and is now investigating new improvements that can be achieved by removing a large layout constraint. The difference in the plant's culture is already tangible: people are proud of their achievements and don't want to stop improving.

Special Products
Pasir Gudang, Malaysia
Scope: Five processes, producing small bus-bars and soft tape.

Situation
Our Pasir Gudang plant serves growing Asian markets, so its main need was to facilitate growth by reclaiming as much untapped capacity as possible from its existing equipment. At the same time, the plant wanted to be able to respond more quickly to its customers' needs, by reducing the time from receiving an order to shipping a custom-made product.

Activities
OEE: Demand was converted from tonnes to length so that actual capacity could be calculated. OEE was then increased by a series of intense, cross-functional improvement events for drawing and extrusion machines.
Flow: An entirely new system for scheduling, sequencing and controlling the flow of small busbars was designed and implemented.
Performance Management: Standard 1-on-1 reviews and shop-floor meetings were introduced to raise and solve problems.
People: The plant seized the opportunity to reorganise: supervisors took responsibility for customer-oriented flows, instead of plant-oriented equipment types. Over fifty people across three shifts were regularly engaged in the transformation journey.

Results
OEE increased by 20% in drawing, and by 26% in extrusion. These improvements have created a solid platform to efficiently grow the business without significant capital expenditure. Furthermore, the changes in flow and the plant's new focus means that the production lead time is now just one third of its initial value.

The four components of LPS

1
Overall Equipment Effectiveness
We need to get the most from our valuable, critical equipment.

2
Flow
We need to redesign our plants and production control so products 'flow' reliably from order receipt to delivery.

3
Performance Management
We need to help everyone to play their part in continually improving our overall performance.

4
People
We need to develop and work with people across the business so that we can realise our potential together.

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