

Luvata Special Products

Five Business Units

Formed Products

Leader supplier of

welding electrodes

to the automotive

industry with a

continents

footprint on four

Global leader of high value-add superconducting wire to high-growth MRI market

Superconductors



Electrical Power Americas

World's leading fullyintegrated producer of copper alloy wire, and supplier of choice for demanding applications such as alkaline batteries, ordnance and photovoltaic





Pori Special Products

High-quality
integrated
producer of
products and
solutions for the
metals and
electrical industries





Electrical Power Asia

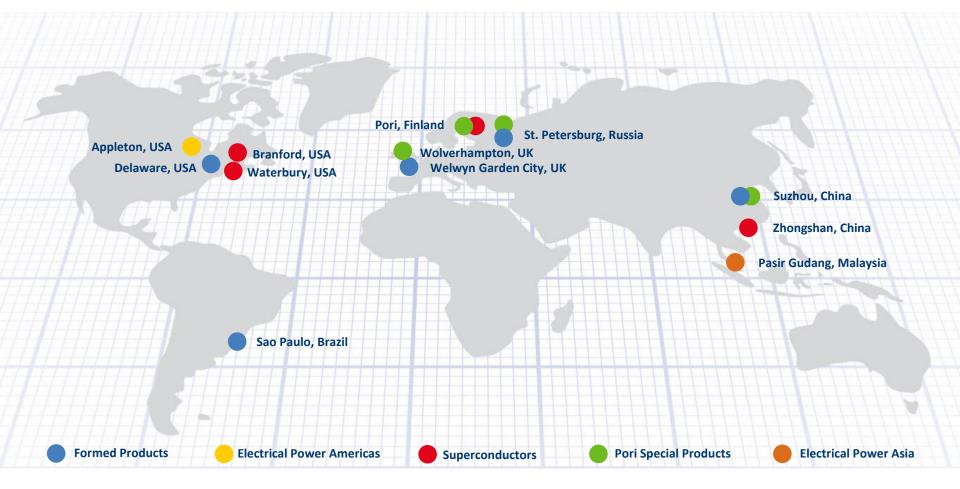
Leading supplier in South East Asia of busbars and anodes as well as photovoltaic ribbons





Our Global Footprint

1300 employees 12 locations 7 countries



3 | Luvata Special Products



Luvata Special Products

Strategic House

Vision

We will use our unique technology know-how to influence the development of a sustainable modern world

KEY GROWTH STRATEGY ELEMENTS

Build on distinct strengths

Focus on technically demanding products

Grow in adjacent markets

Geographical, complementary products and similar technologies

Partnerships beyond metals

Joint development teams, extend non-production offering

CORE COMPETENCIES

Innovation

Structured road map to new product and process development

Procurement

Customer driven, agile sourcing

Production

Lean methodology

Luvata Production System (LPS)

Sales

Structured sales process
Application engineer

Open mindset

Passion for results

Delivering on our promises

People



Global LPS Team





Our LPS Journey

The journey of a thousand miles begins with a single step.

Chinese Traverle

2010 Companywide learning, communication, benchmarking, and shared experiences Conduct Lean **Transformations** at each location on selected value streams

2016

2012

LPS Audit Program

globally

developed and

administered

Focus up and down the supply chain, working with suppliers and customers



2007

Developed a Lean Production System for our

business

2008

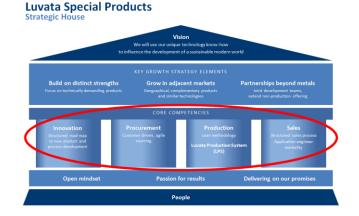
2007: LPS Vision, Principles, and Objectives

Our Vision

Empower capable people to operate high performing businesses by continually reducing waste.

Why we exist

Our Principles



What guides us

Our Objectives



What success looks like





LPS applies 4 critical components

People

Flow

Influence mindsets and behaviors and build skills to develop capable people who believe in the improved way of working

Configure our assets so material and information can **flow** through our operations

Align our organization to support the new operating system so that systems are in place to manage performance and drive the improvements

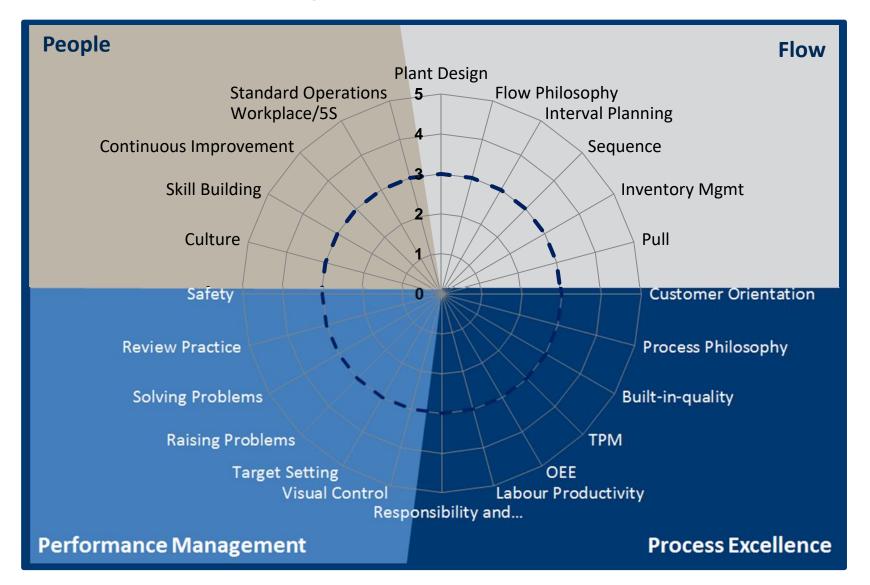
Manage our assets to improve overall equipment effectiveness and built-in quality

Performance Management

Process Excellence

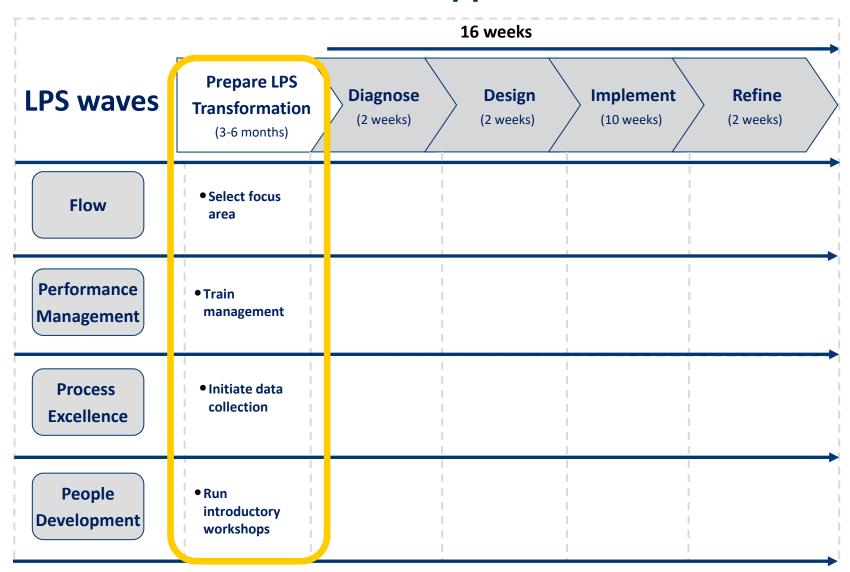


Luvata Production System Plant Guide





2008: LPS Transformation Approach



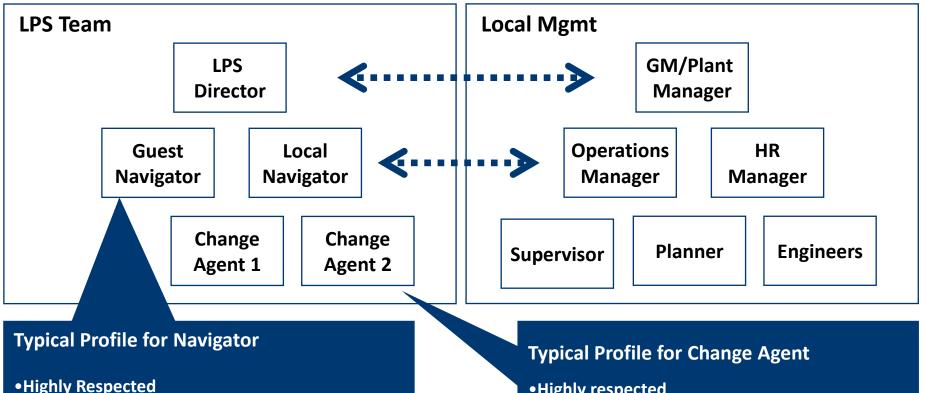
The plant prepares for its pilot transformation through five steps

1. Send 5. Measure 4. Train 2. Select 3. Select navigator performance personnel pilot area LPS team ahead data 6 months 2 months 3 months 2 months 1 month in advance **Sufficient performance** data must be captured before pilot starts Lean team should have initial training before facilitating data collection Lean team members must hand over previous responsibilities (and pilot's chain of command should also free-up time where appropriate) Area must be selected before appropriate change team is recruited and local management informed

Navigator must gain sufficient *experience* of critical success factors for a lean implementation in order to become plant's leading lean representative and spokesperson



LPS and Local Management:



- Highly Respected
- Highly capable (Rising star within plant mgmt)
- Excellent analytical and problem-solving skills
- Able to drive a team through uncharted territory

- Highly respected
- Good knowledge of processes
- Good interpersonal skills
- Self-starter with positive can-do attitude

Important!

The LPS Team has no decision-making authority; this stays with the local chain of command. It may therefore be necessary to free up some time for the chain of command (especially production and planning roles).



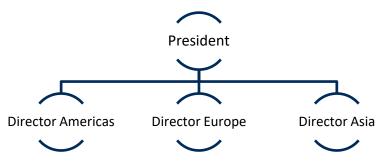
LPS Transformation Approach

		16 weeks			
LPS waves	Prepare LPS Transformation (16 weeks)	Diagnose (2 weeks)	Design (2 weeks)	Implement (10 weeks)	Refine (2 weeks)
Flow	• Select focus area	• Map product flows	Dedicate product flows	Rearrange inventory pathFlush out excess inventory	Develop flow update procedures
Performance Management	●Train management	 Understand current measurements/ performance processes 	• Establish KPI's • Introduce performance boards	• Introduce daily meetings on the shop floor	• Develop system reviews
Process Excellence	• Initiate data collection	 Identify bottlenecks and quality issues 	• Calculate improvement potential with new product flows	• Institute focused problem solving	• Plan further roll- out of OEE or 6- sigma events
People Development	• Run introductory workshops	 Map skill levels and required improvement areas 	Tailor training programs	• On-the-job training	• Evaluate skill levels and define future development programs

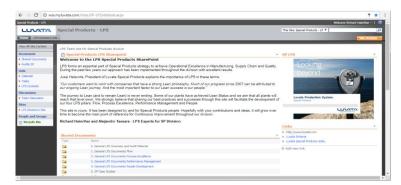


2010: Share the knowledge and experiences

Leadership and coordination



SharePoint site



Annual conference



Benchmarking



2012: LPS Audit Program

Why?

- Encourage and invigorate LPS efforts across all Business Units
- Evaluate facilities against a common 'lean' standard
- Outline steps in order to reach this standard

When?

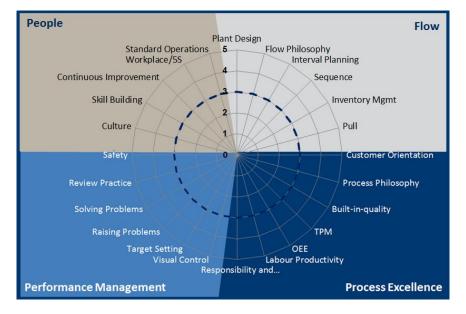
• Every 12-24 months

Where?

 On-site at each Luvata location that has completed their LPS pilot transformation

How?

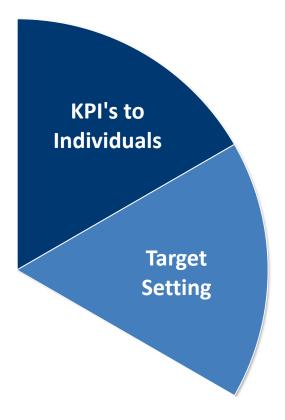
- Conducted by LPS Office
- 1 to 3 days visit per plant
- Interviews, observations and assessment based on LPS Plant Guide



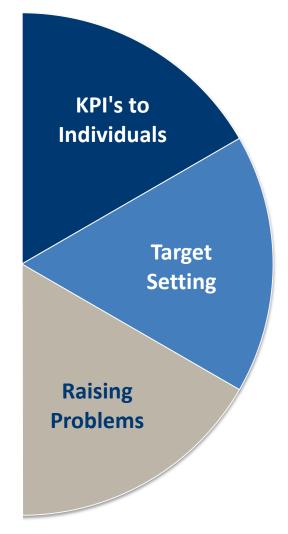




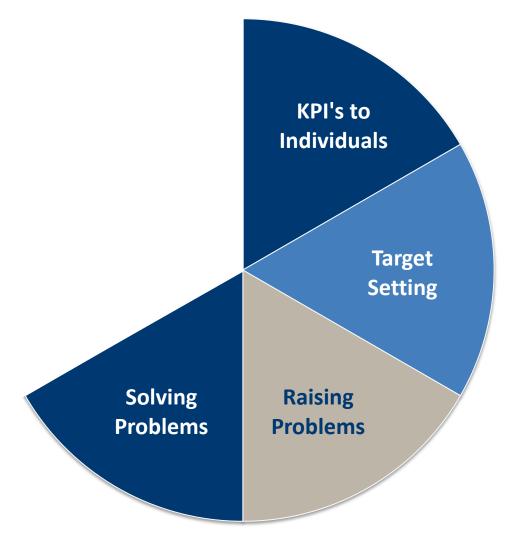




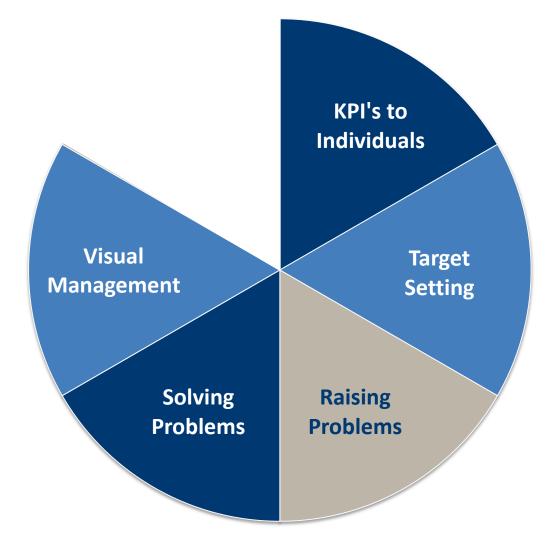






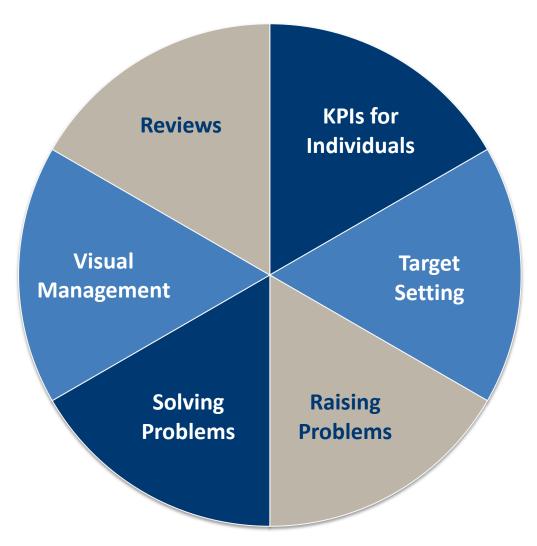








- Structured approach
- All elements engaged simultaneously





Main contributors to success:

Correlation Study: Overall Score vs. each LPS Plant Guide Element

90% -

88% -

86% -

84% -

82% -

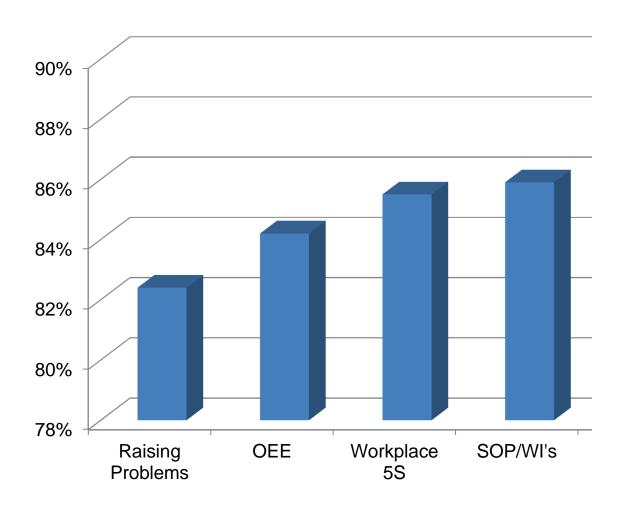
80% -

78% -



Main contributors to success:

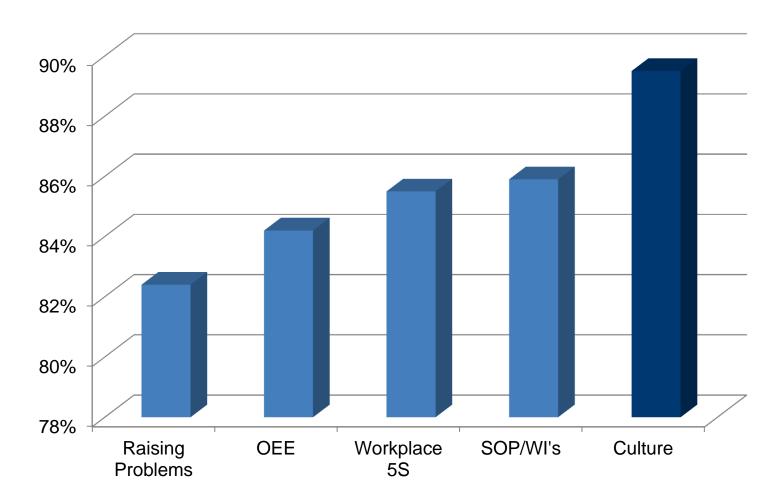
Correlation Study: Overall Score vs. each LPS Plant Guide Element





Main contributors to success:

Correlation Study: Overall Score vs. each LPS Plant Guide Element





Culture is the difference between good and great!





Everyone has a voice

Everyone is welcome

Mgmt support of new ideas







We are 'FAMILY'



Celebrating Together

Achievements to date

Risk

Safer work environments through pro-active 'near-miss' corrections 45% reduction in accidents

Quality

Reduced costs, through reliability and repeatability

67% reduction in defects

Customer Service

Meet the needs of the market through improved operational effectiveness

50% improvement in OTIF and Lead Time

Capacity

Opportunity to liberate capacity to drive sales

52% improvement in OEE

Release tied up capital

Ability to operate reliably with less inventory

55% reduction in inventory

Penetration

Deep implementation of LPS, lasting change

85% of our business



