

Implementing Lean on a Global Scale

Succeeding through Diversity of Products, Processes and People

Berlin, Germany - November 28, 2017

LUVATA
SPECIAL PRODUCTS
A Group Company of  MITSUBISHI MATERIALS

Luvata Special Products

Five Business Units

Formed Products

Leader supplier of **welding electrodes** to the **automotive industry** with a footprint on four continents



Superconductors

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



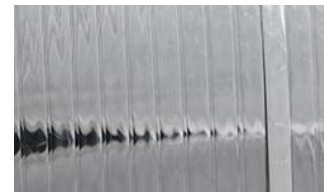
Electrical Power Americas

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



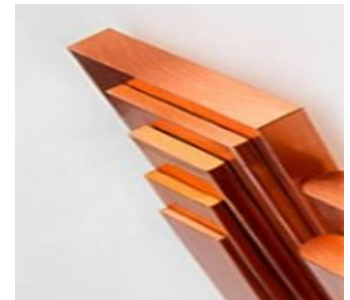
Pori Special Products

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

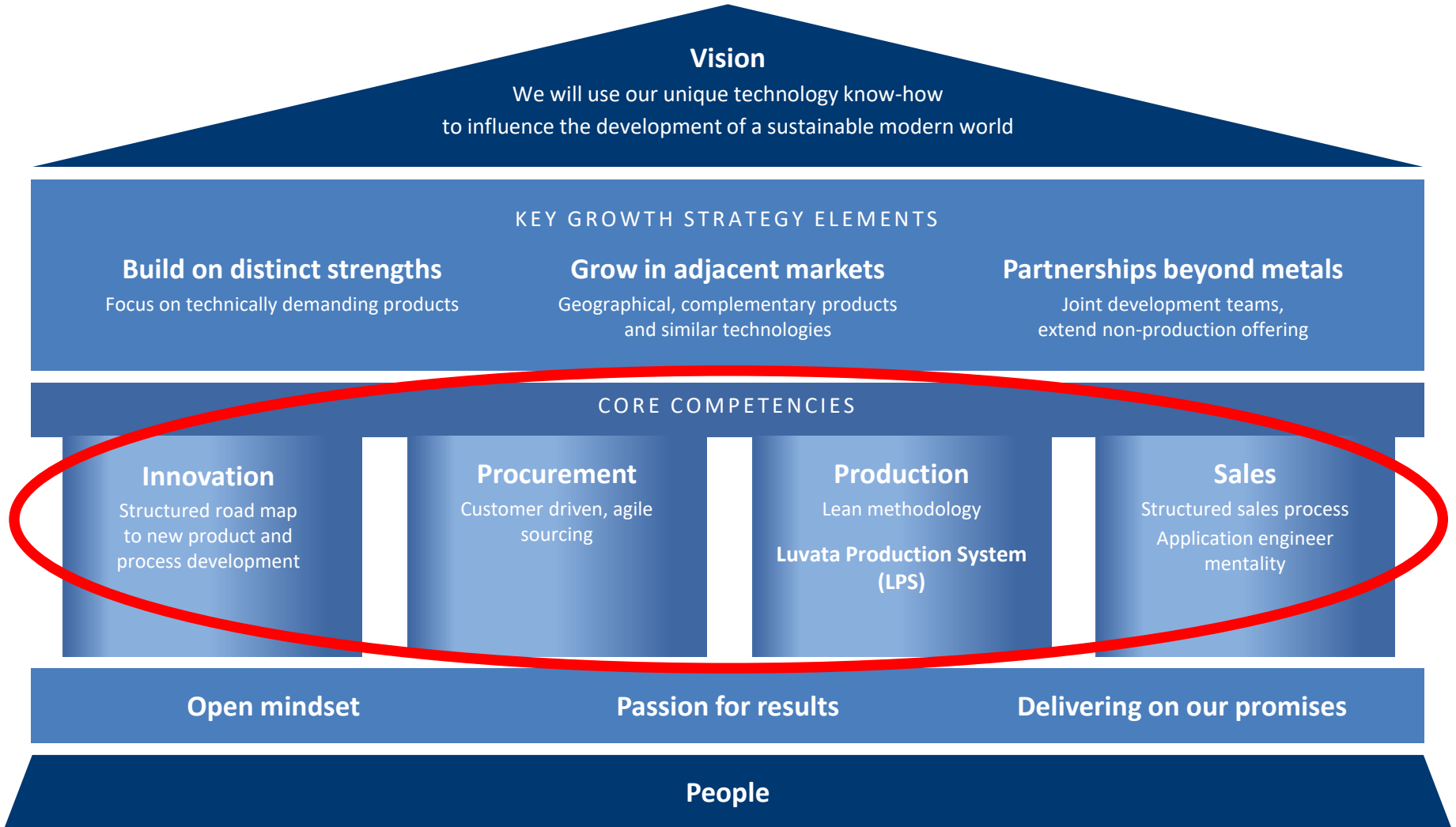


3 | Luvata Special Products

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Luvata Special Products

Strategic House



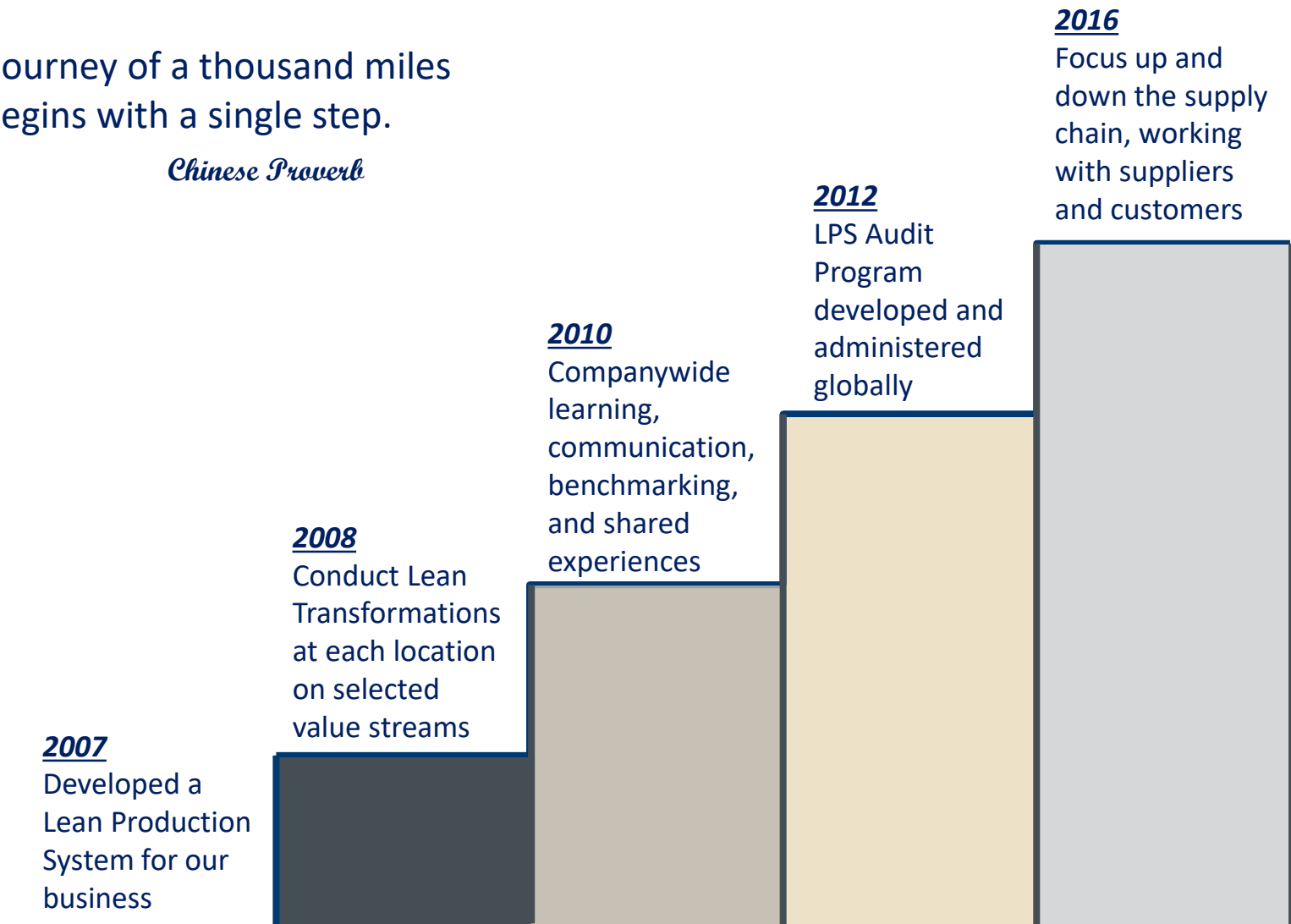
Global LPS Team



Our LPS Journey

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

Chinese Proverb



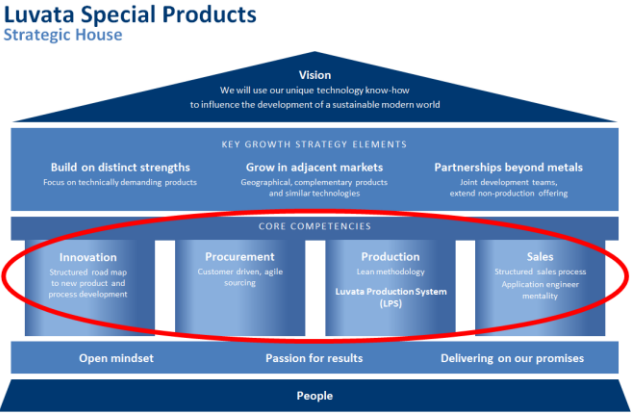
2007: LPS Vision, Principles, and Objectives

Our Vision

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

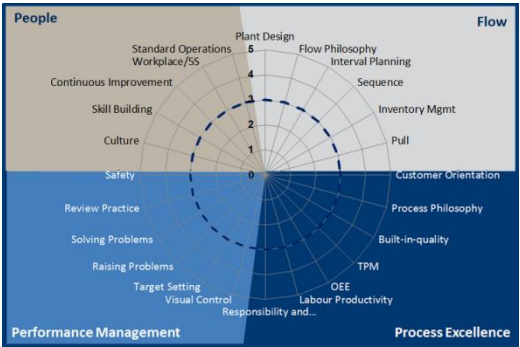
Why we exist

Our Principles



What guides us

Our Objectives

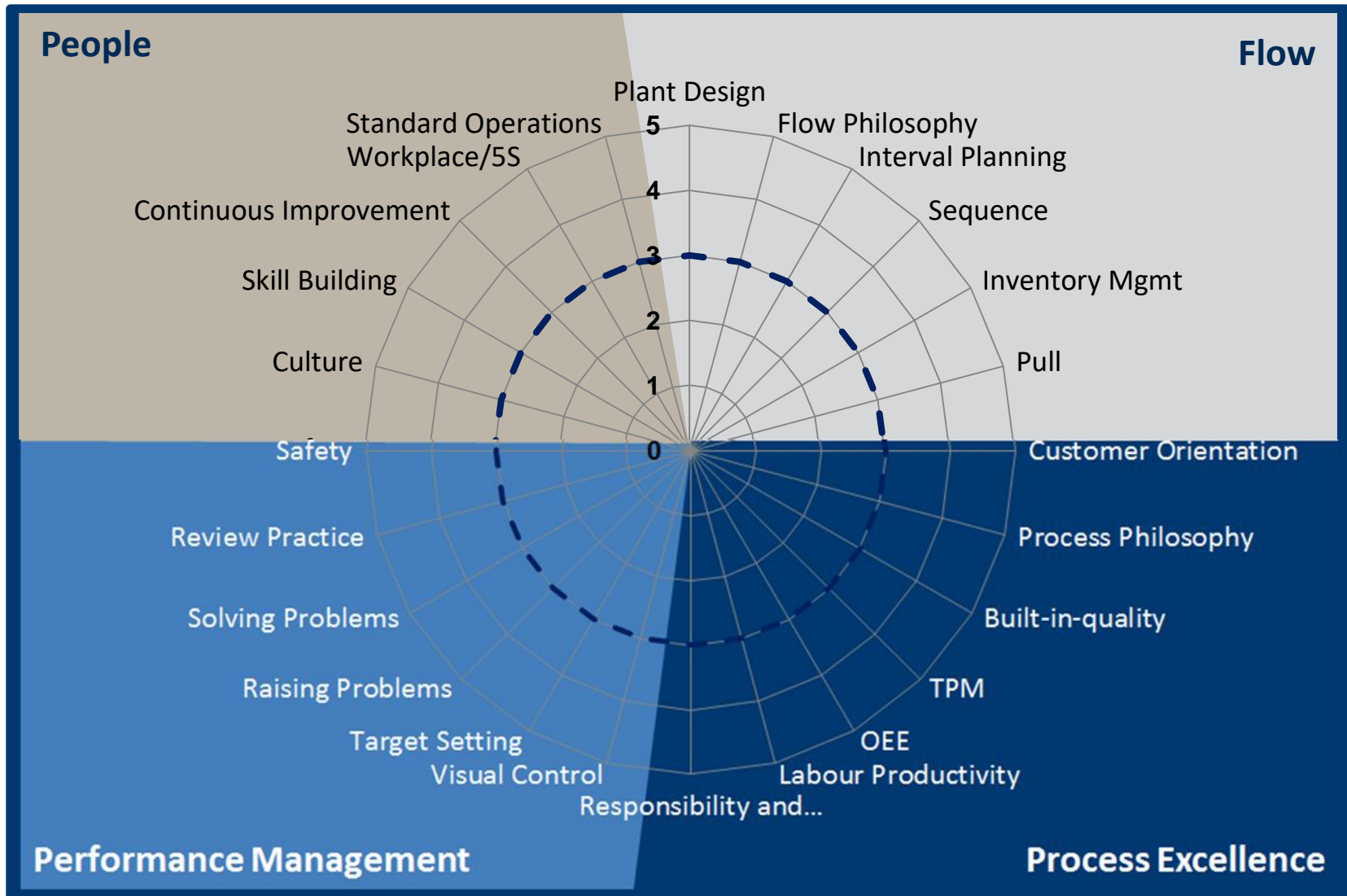


What success looks like

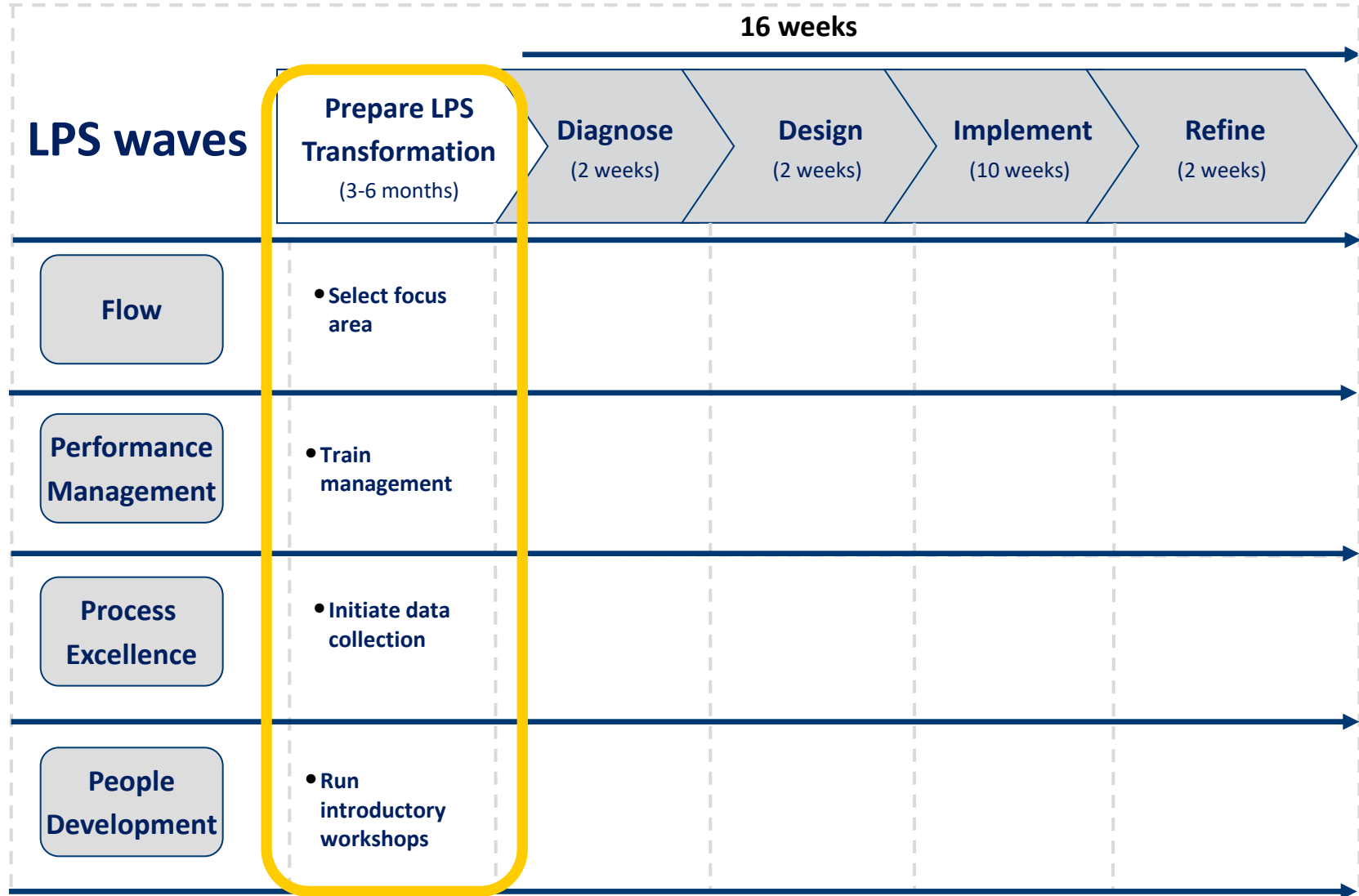
LPS applies 4 critical components



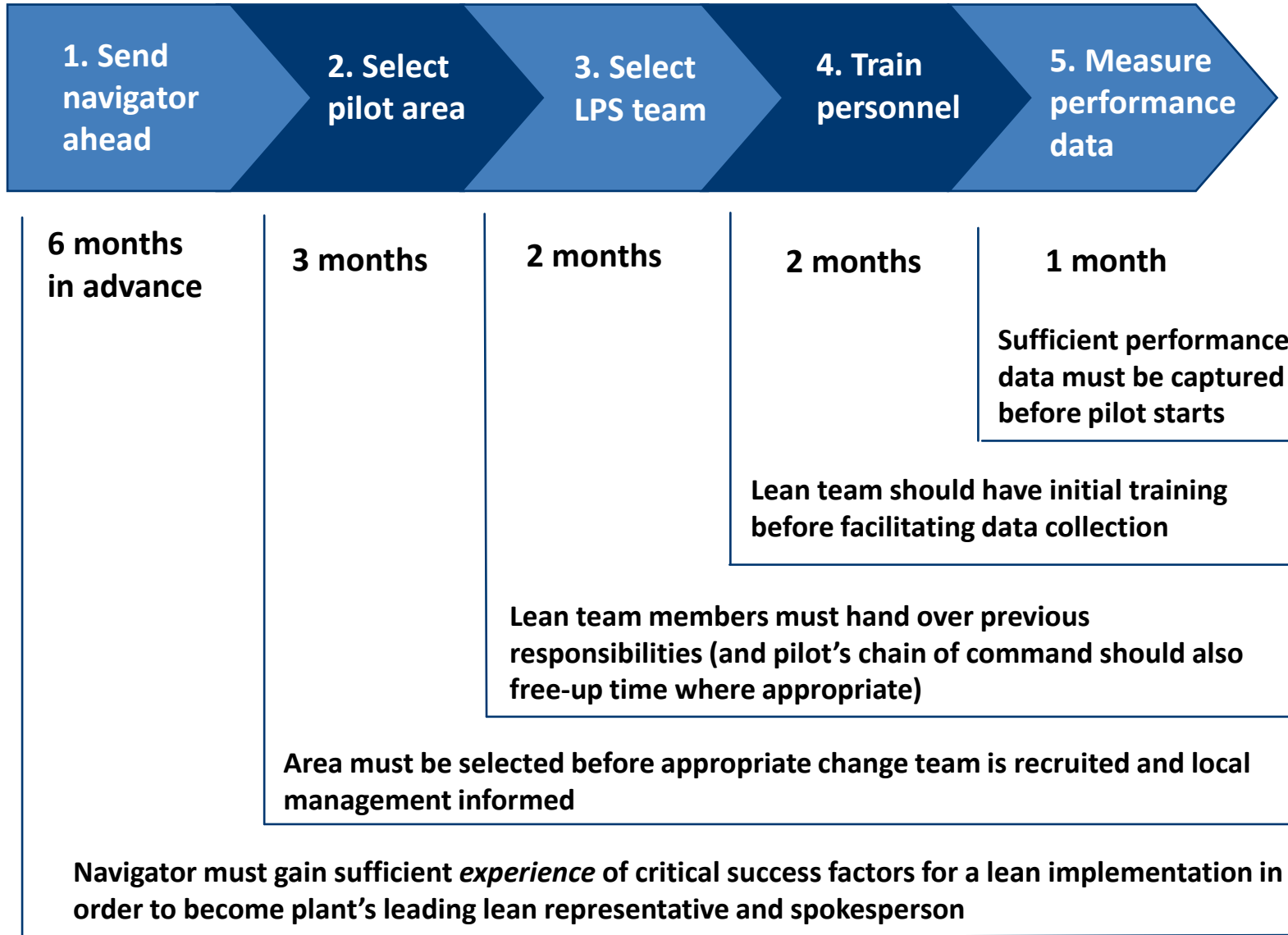
Luvata Production System Plant Guide



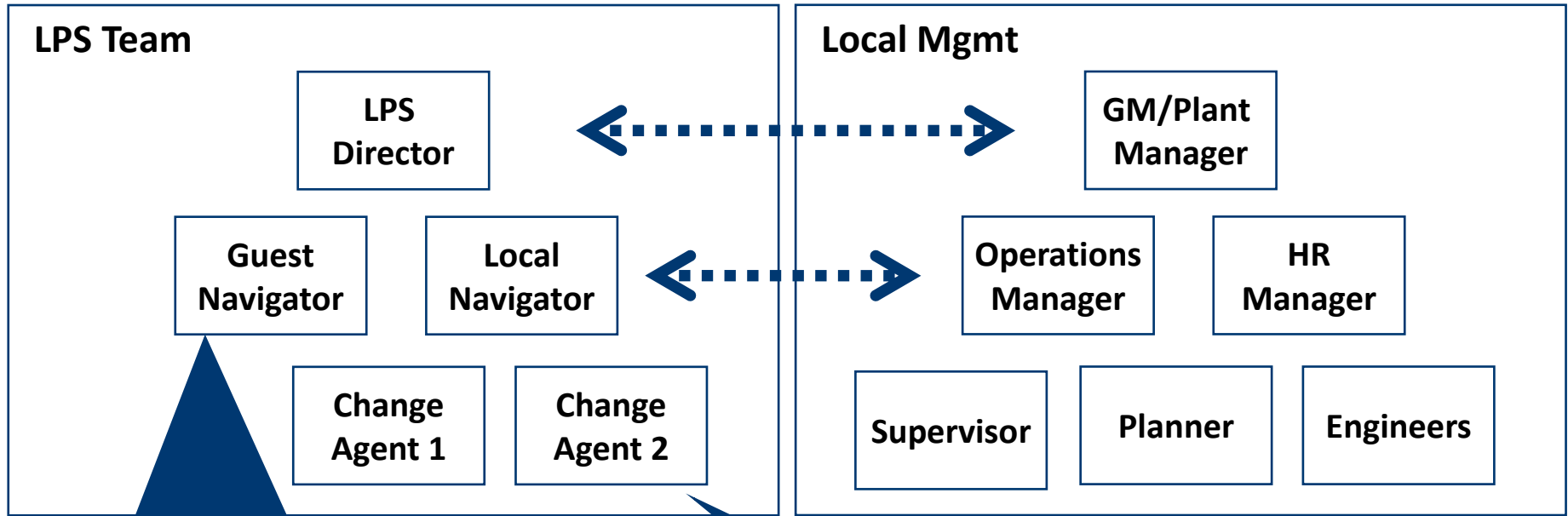
2008: LPS Transformation Approach



The plant prepares for its pilot transformation through five steps



LPS and Local Management:



Typical Profile for Navigator

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

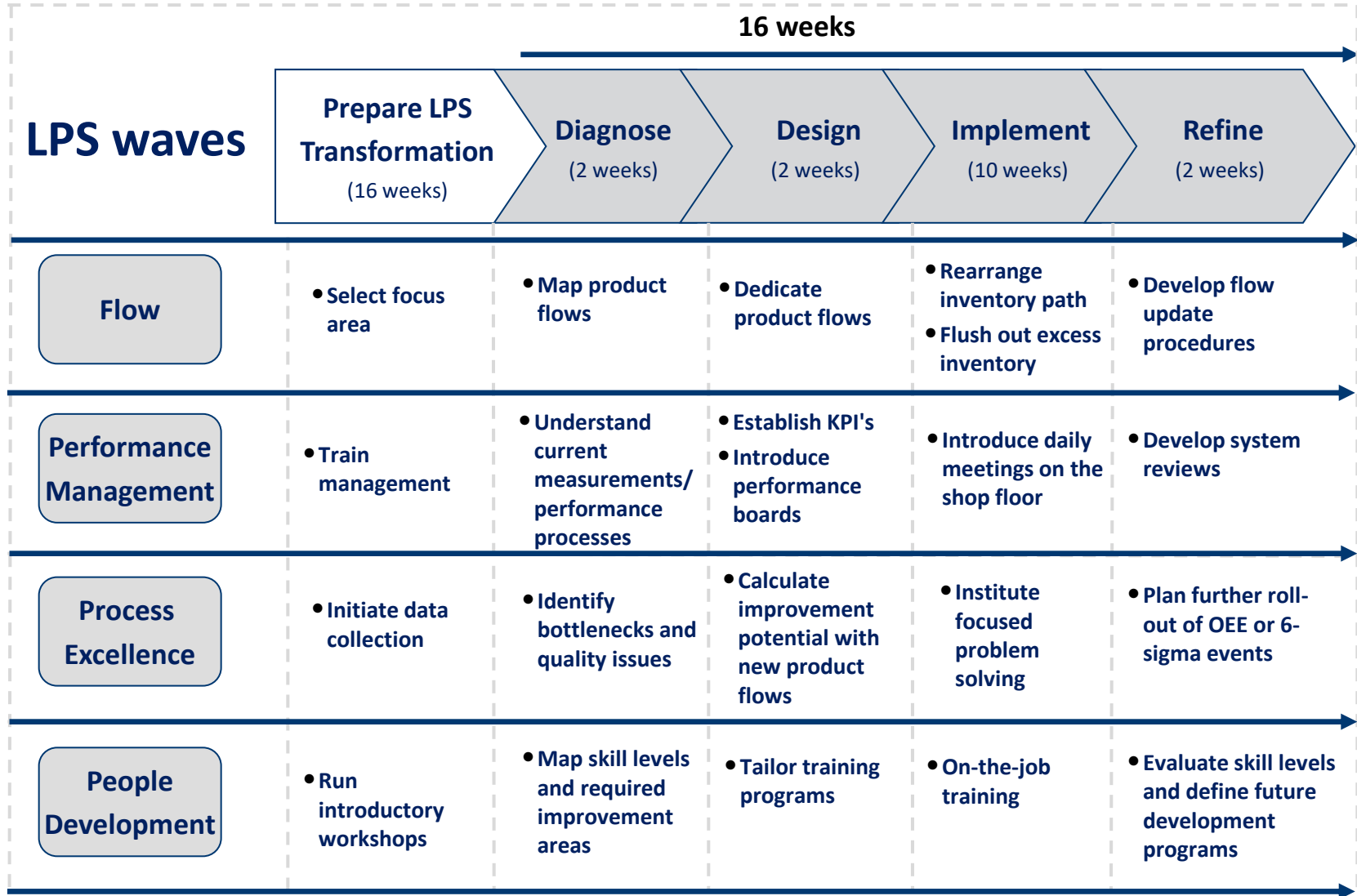
Typical Profile for Change Agent

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

Important!

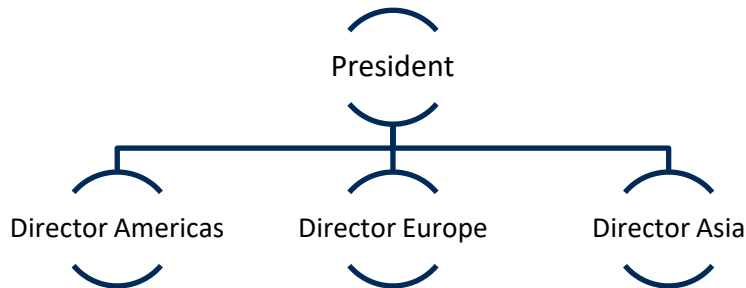
The LPS Team has no decision-making authority; this stays with the local chain of command. It may therefore be necessary to free up some time for the chain of command (especially production and planning roles).

LPS Transformation Approach

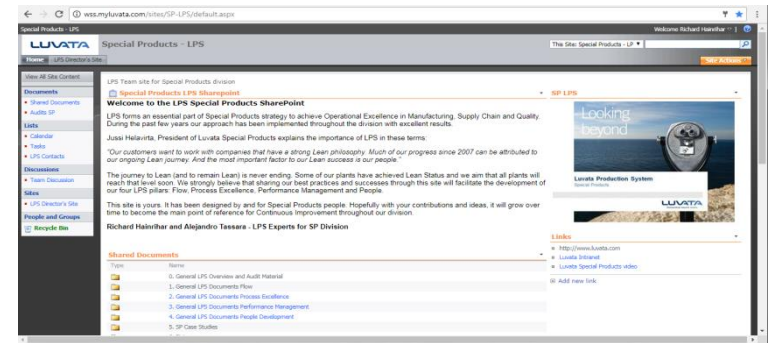


2010: Share the knowledge and experiences

- 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?

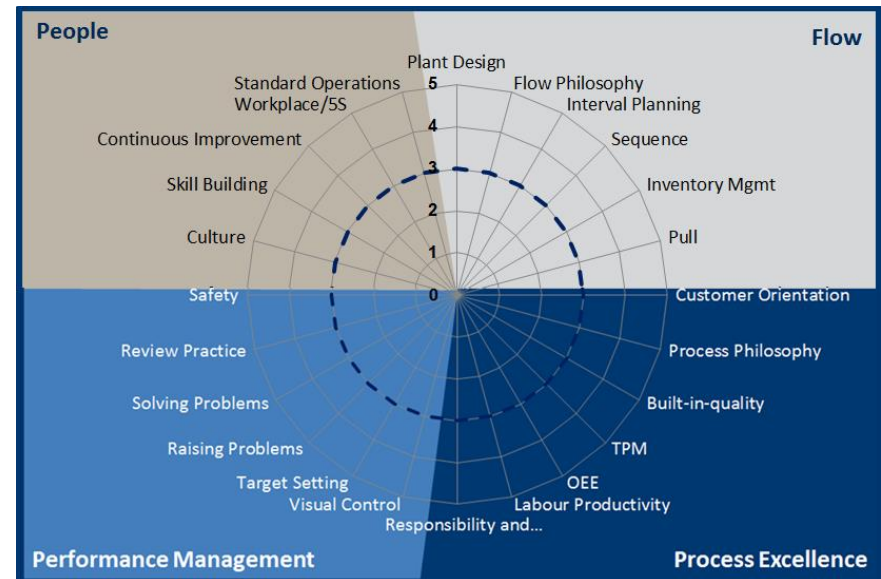
- Every 12-24 months

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



Key Contributor to Success

A Robust Performance Management Program

Key Contributor to Success

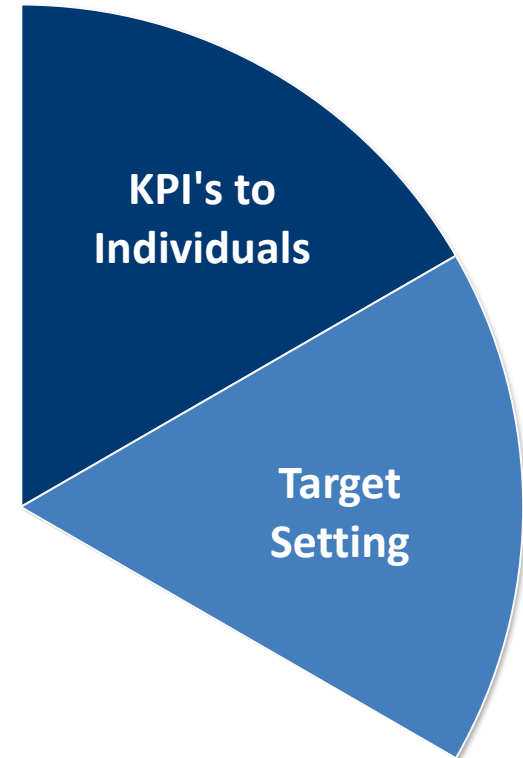
A Robust Performance Management Program



KPI's to
Individuals

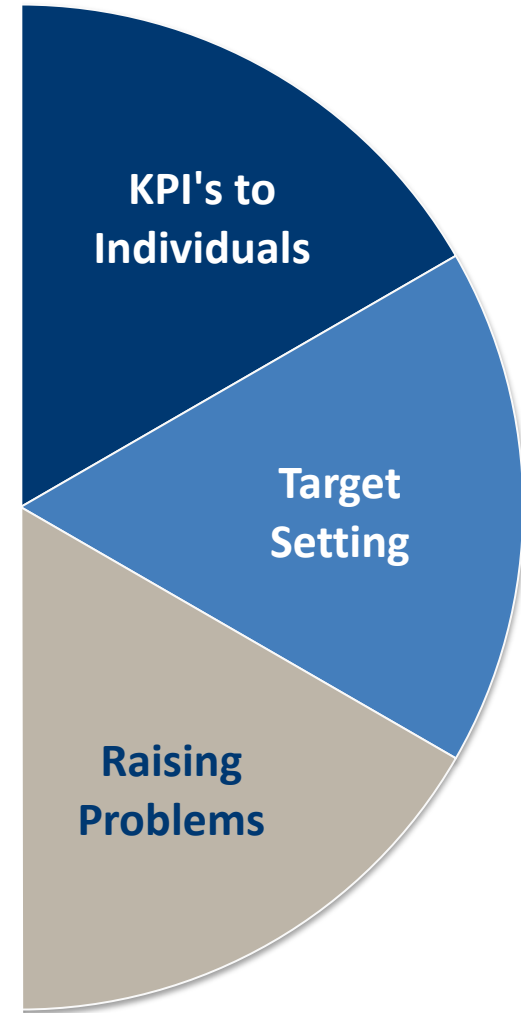
Key Contributor to Success

A Robust Performance Management Program



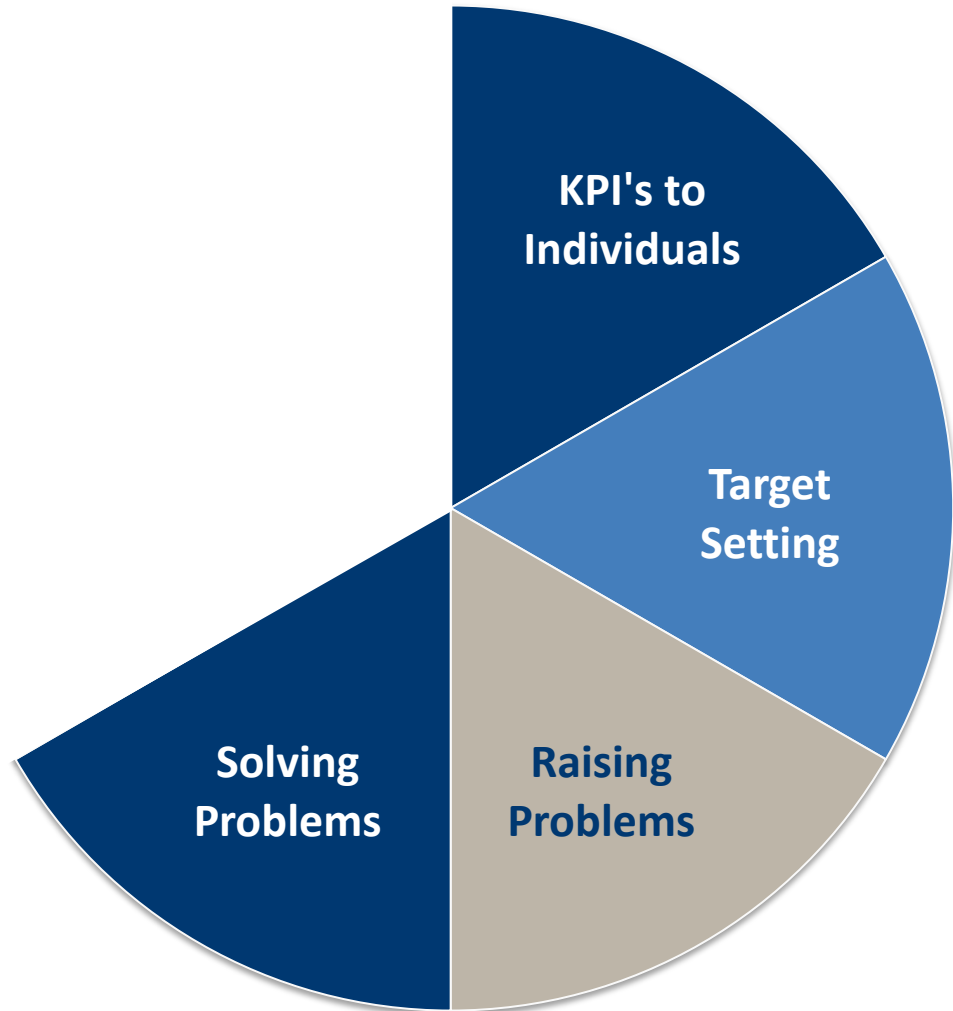
Key Contributor to Success

A Robust Performance Management Program



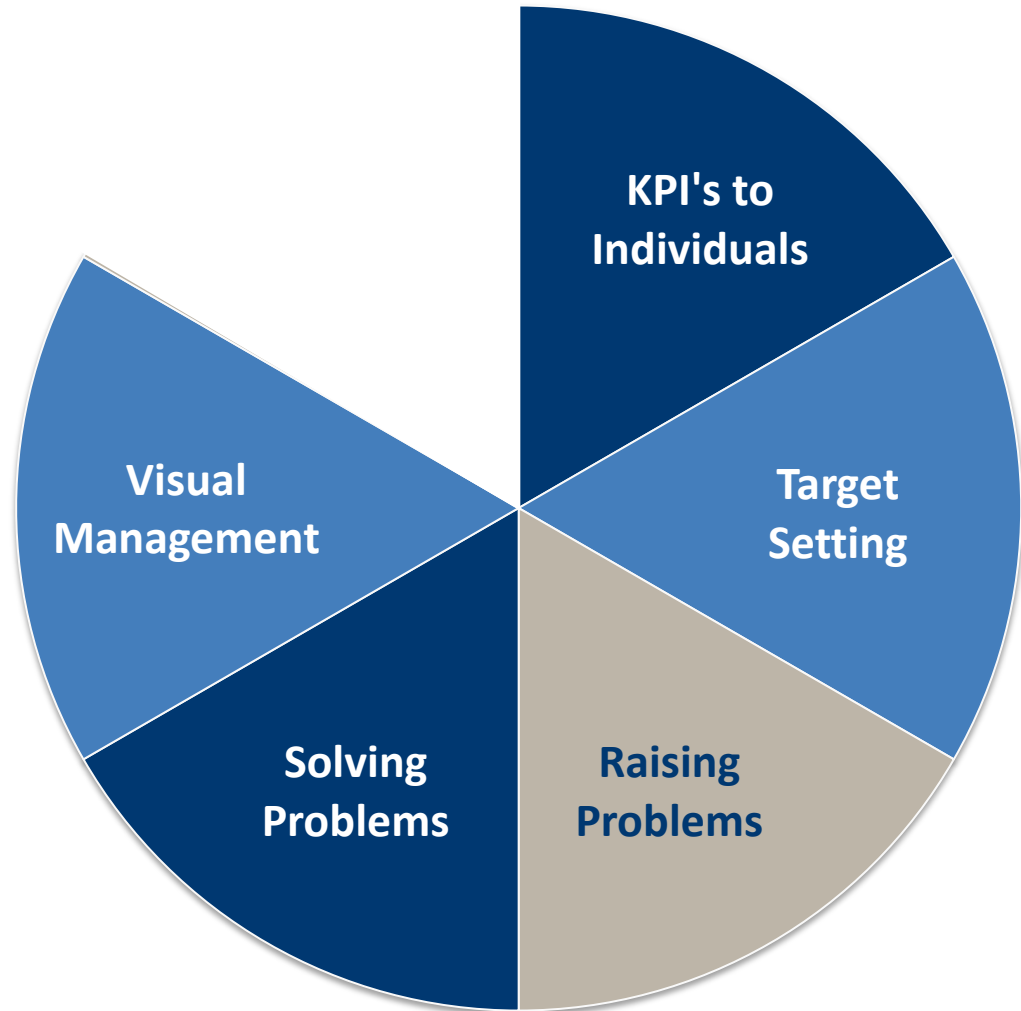
Key Contributor to Success

A Robust Performance Management Program



Key Contributor to Success

A Robust Performance Management Program



Key Contributor to Success

A Robust Performance Management Program

- **Structured approach**
- **All elements engaged simultaneously**



Main contributors to success:

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

90% -

88% -

86% -

84% -

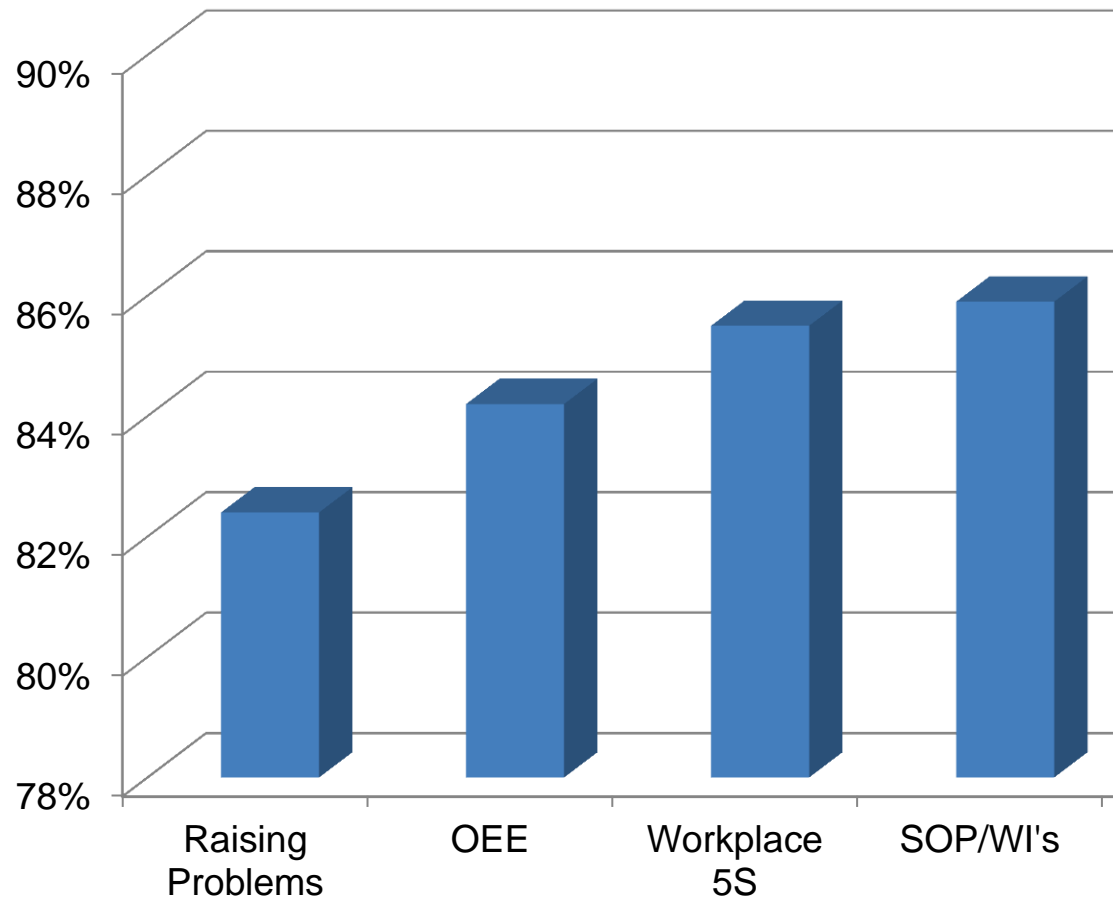
82% -

80% -

78% -

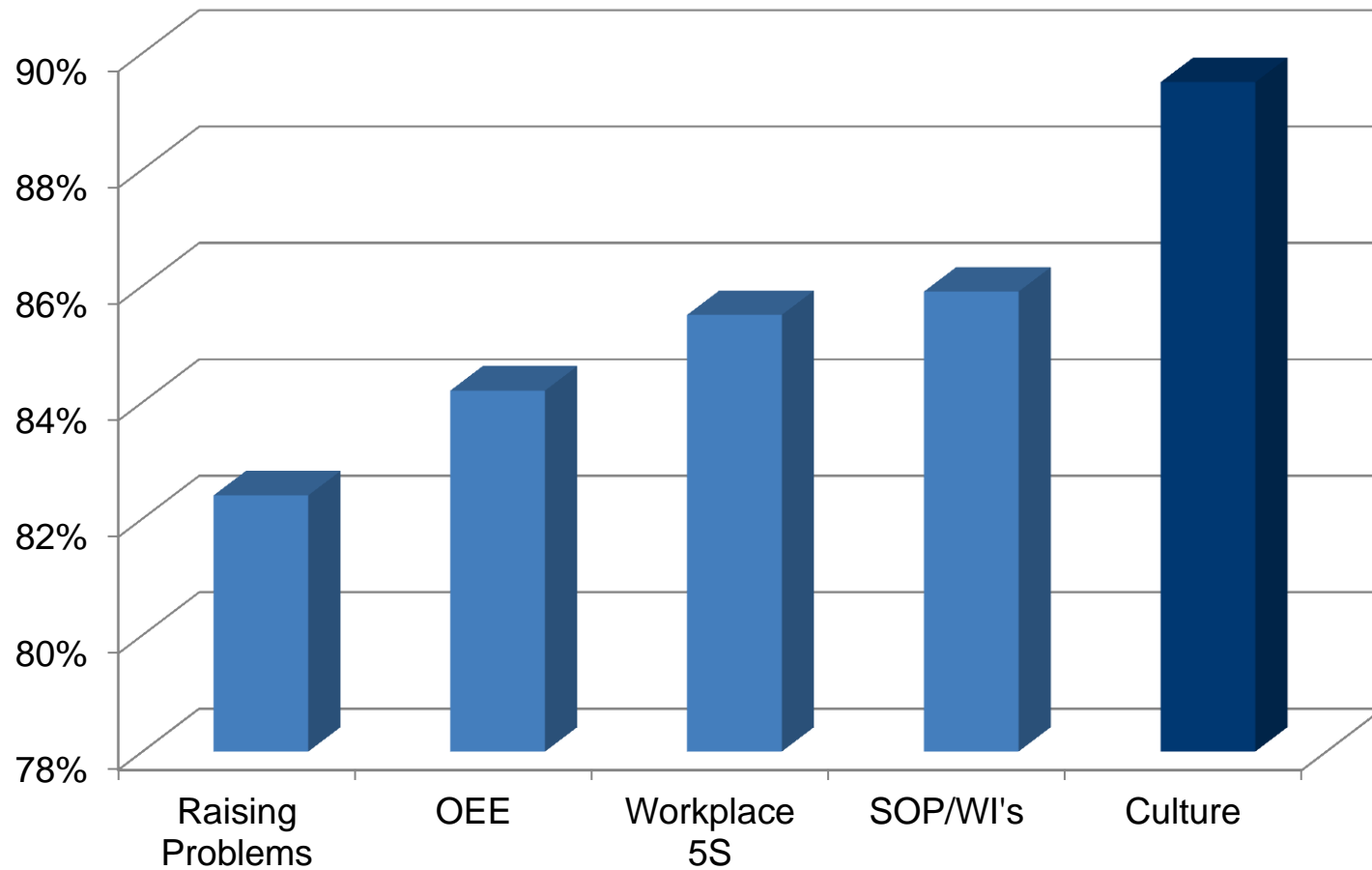
Main contributors to success:

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



Accountability



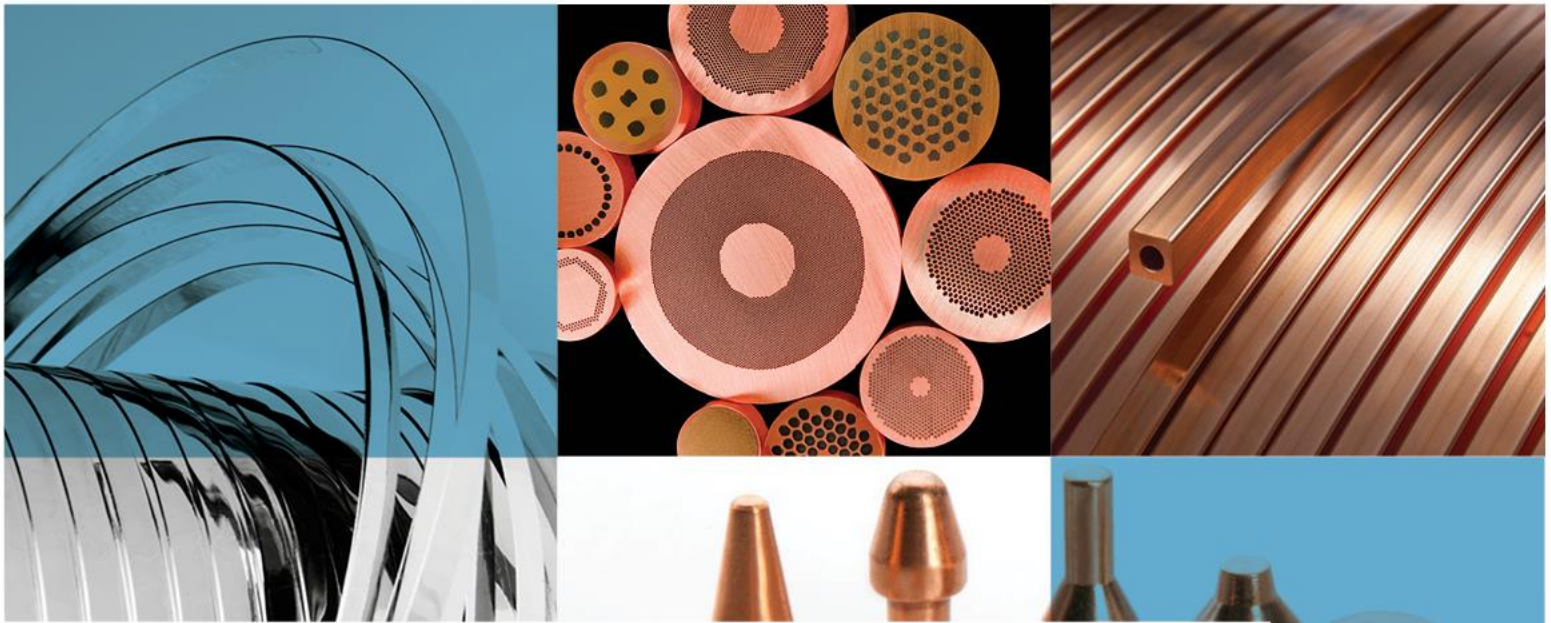
We are 'FAMILY'



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 |



Thank you

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