

# ***Lean Aerospace Initiative***



## ***Enterprise Value: The New Lean Horizon***

*Lean Effects on Aerospace Programs*

**Boeing 737 Fuselage  
Comments and Insights**

March 27, 2002

*Presented By:*

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Boeing - Wichita Division

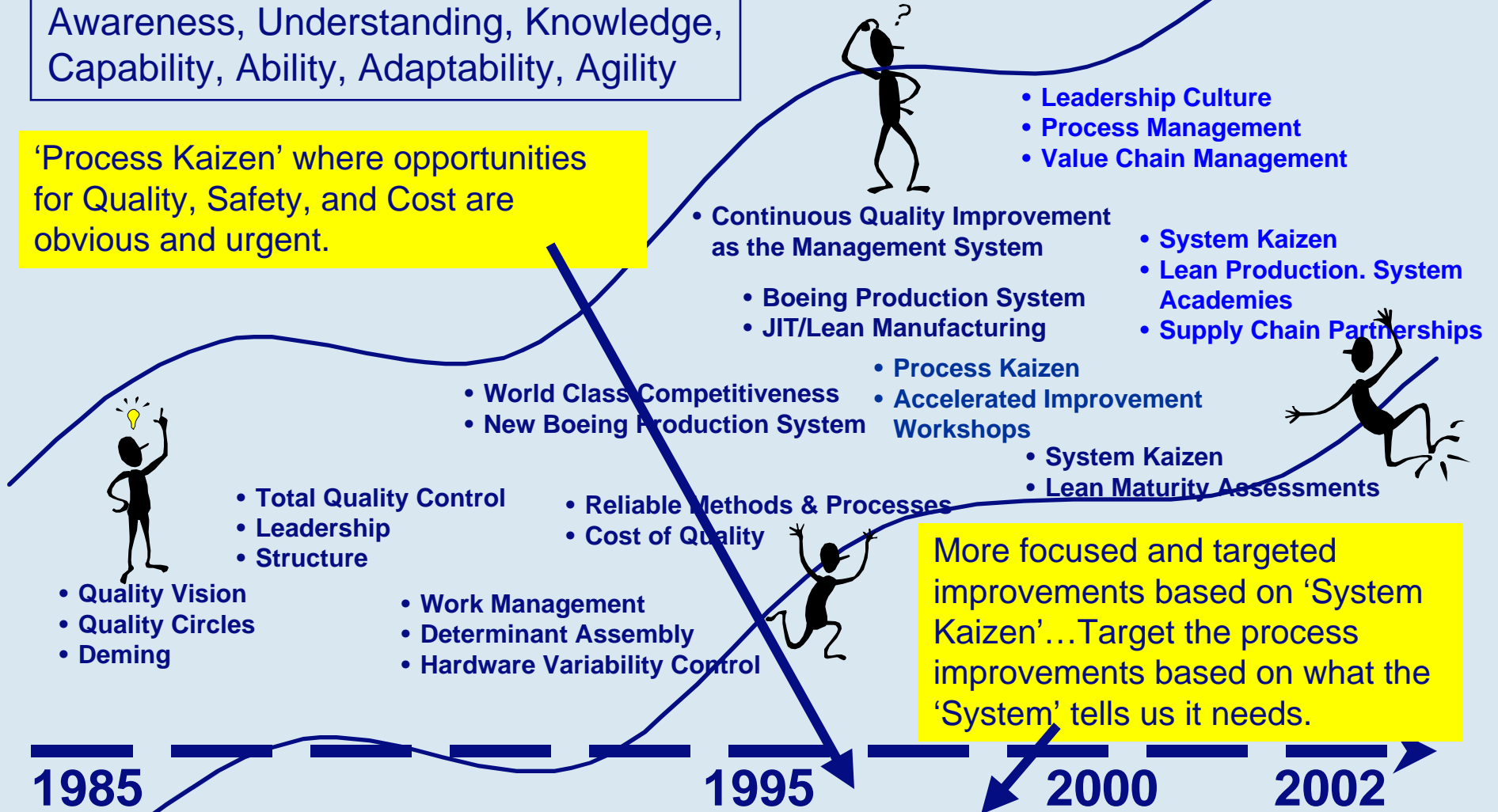
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# Boeing - Wichita Division Our Lean Enterprise Journey

Awareness, Understanding, Knowledge,  
Capability, Ability, Adaptability, Agility

'Process Kaizen' where opportunities for Quality, Safety, and Cost are obvious and urgent.



# Boeing 737 Fuselage Commitment, Vision & Strategy

Date: 1/05/01

To: 737 Structures & Support Team Members

As you all know BPS implementation into 737 Structures Production Line will be in full swing beginning January 2001. One very important aspect of the implementation is the adoption of a “Standard Problem Resolution Process”.

Our future success for QCDSM is tied directly to the success of BPS. Your involvement and commitment is the essential ingredients to making this happen. I realize that change is very difficult, but I also realize that change is very necessary.

Together, with your excellent teaming ability, we can succeed in this endeavor.

I fully support and endorse the Boeing Production System implementation as described in this booklet and I request your full support.

Thanks,

Original signed by Forrest Urban

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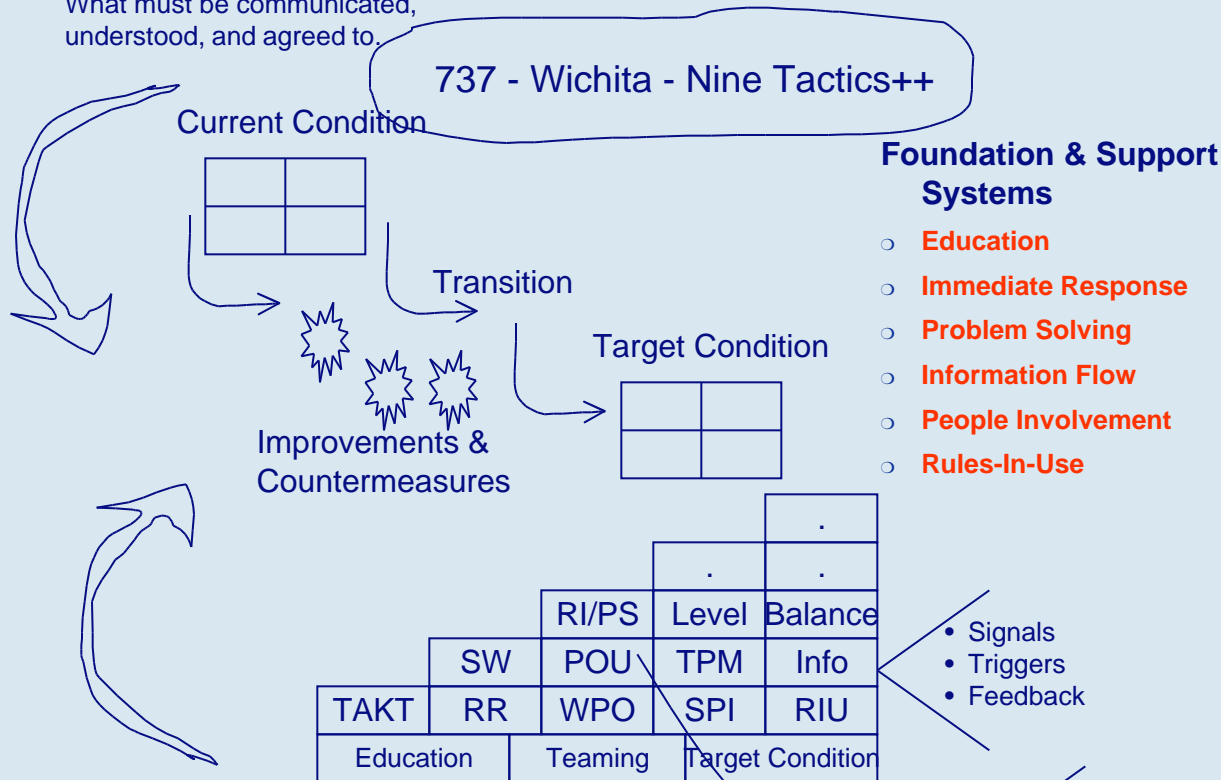
Forrest E. Urban, Senior Manufacturing Manager  
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## LEAN STRATEGY

- Utilize both ‘System Kaizen’ and ‘Process Kaizen’ to achieve 737 Structures 2001 Lean objectives
- Assignment of a full time Lean Improvement Specialist to 737 Structures Lean team as of November 2000.
- Prioritize improvement events that:
  - Remove barriers to making 28 per month airplane deliveries.
  - Stabilizes Production Health
  - Lean opportunities and Operation Strategic Visions
- Schedule events aggressively through March 2001, relax events during 737 rate change (May through July) and accelerate events August 2001 through December 2001.

## Communication Plan

What must be communicated, understood, and agreed to.



## BCAG Lean Nine Tactics

- Value Stream Mapping & Analysis
- Balance the Line
- Standardize Work
- Put visuals in Place
- Point of Use Staging
- Establish Feeder/Supply Chain Lines
- Breakthrough Process Redesign Along Main Line
- Convert to Pulse Line
- Convert to Moving Line

## Renton Approach

- Andon
- Balanced Work
- Standardize Work Instructions
- POU Staging
- Kanban Card
- Pacemaker
- Feeder Line

## Implementation Progress & Performance

What must be tracked, measured, reported

- MFO
- Kitting

RR=Rapid Response WPO=Work Place Organization SPI=Strategically Placed Inventory RIU=Rules In Use SW=Standard Work  
POU=Point Of Use TPM=Total Productive Maintenance RI=Rapid Improvement PS=Problem Solving

## System Kaizen and Process Kaizen Parallel Tactics

### 'System'

- Discover the system together
- Create the target flow path(s)
- Define the countermeasures
- Put the countermeasures and improvements in place
- Measure the progression toward the target flow path(s)

### 'Process'

- Understand and produce to takt time
- Create uninterrupted flow of information and resources
- Define and establish Standard Work
- Balance and level based on Takt and Standard Work

## Measuring Progress

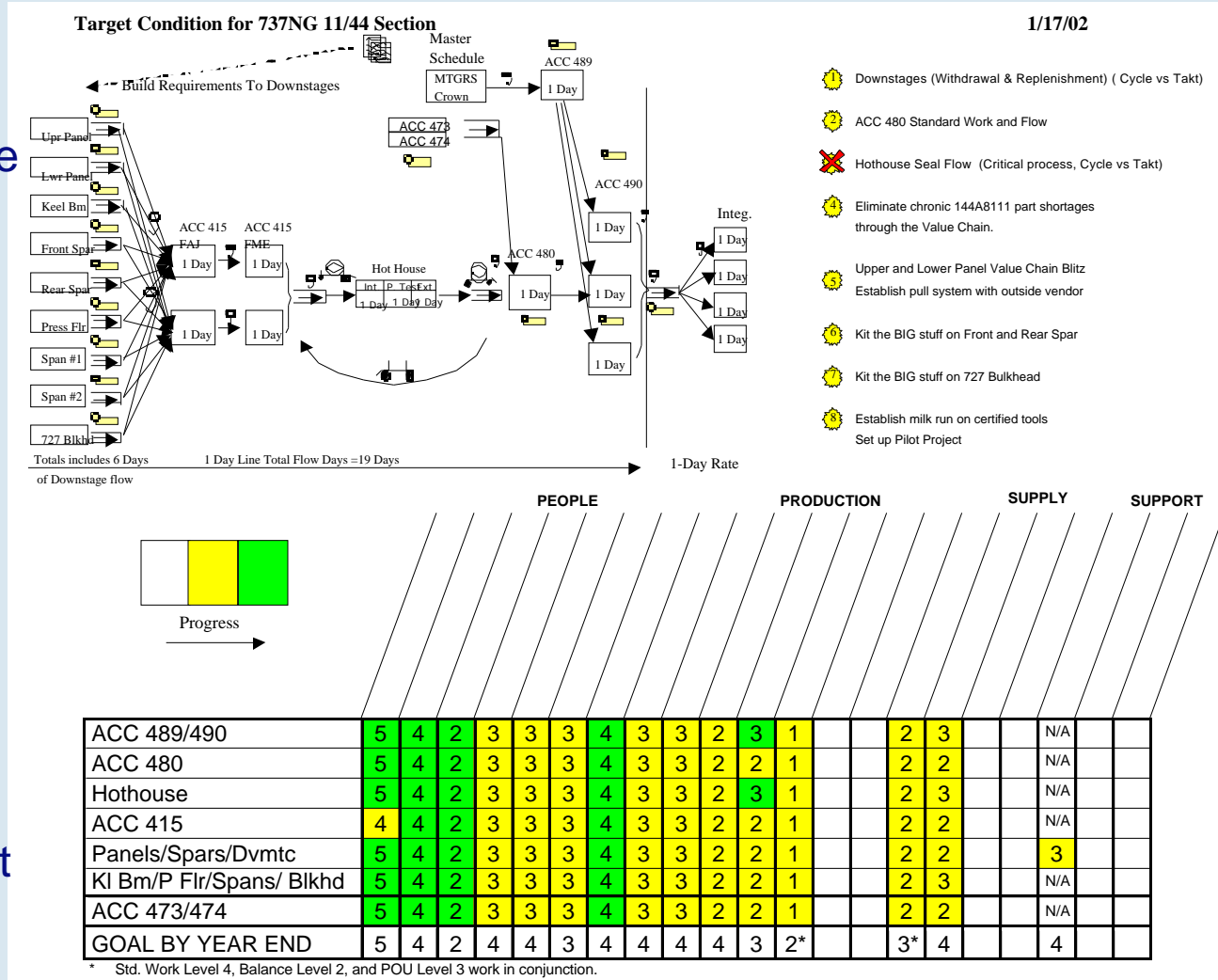
- **Step One**
  - **Assess current condition and current Level of Excellence**
- **Step Two**
  - **Establish target condition and target Level of Excellence (Goals)**
- **Step Three**
  - **Status weekly the percentage of completion toward the target. When target is 100% go back to step one.**

# Boeing 737 Fuselage Communicating Progress

Visual representations of the future state value stream (or target condition) for each end item.

Progress measured on a maturity scale.

Targets established not on obtaining the highest score but on what is necessary.



## Weekly BPS Review Format

- Senior Leadership Review Strategy, Goals & Objectives
- Section Review Deliverables:
  - Updated A-3 target condition including LOE review
  - Activities / Plan associated with solving starburst
  - Review most recent lean improvements or activities
  - Milestone charts depicting Starburst work sequence
  - Review by Team Leader of all AIW projects with 3 weeks using 3 week checklist
- Review Friday AIW report out agenda

### Note:

1. VC teams encouraged to participate with sectional teams.
2. Shop Mechanics are encouraged to attend and participate.



# Boeing 737 Fuselage Continuing The Journey

## Value Chain Lean Plan For 2002

Boeing Production System "BPS"



### Definition of Value Stream/Chain

- The entire set of activities running from raw material to finished product for a specific product or product family seeking to optimize the whole from the standpoint of the final customer.

### BPS One Plan

- Expand the "One plan" to include the entire 737 value stream starting with raw material and finishing with shipment to our Customer in Renton