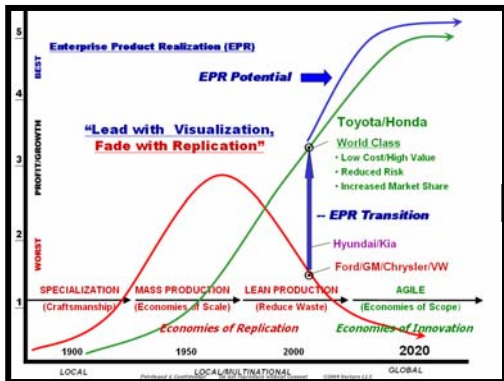


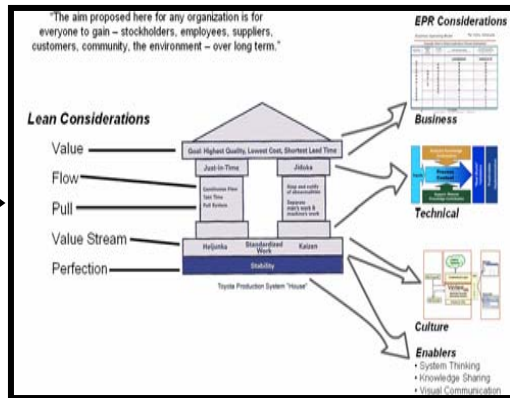
# AGENDA SME April 9, 2008

## Lean Through Visual Transformation

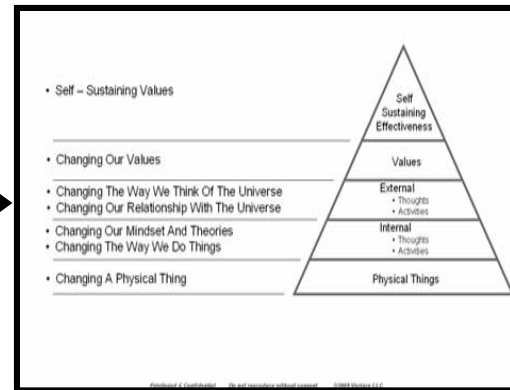
### Realizing The Situation



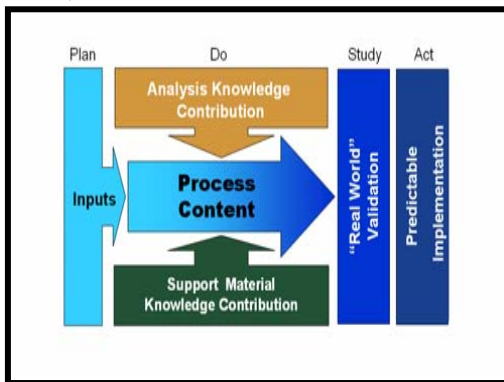
### Thru The Eyes Of Engineering



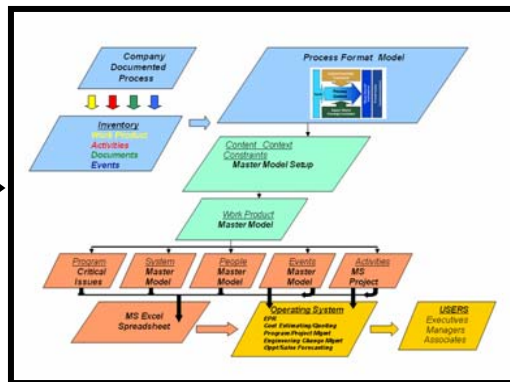
### The Hierarchy Of Change



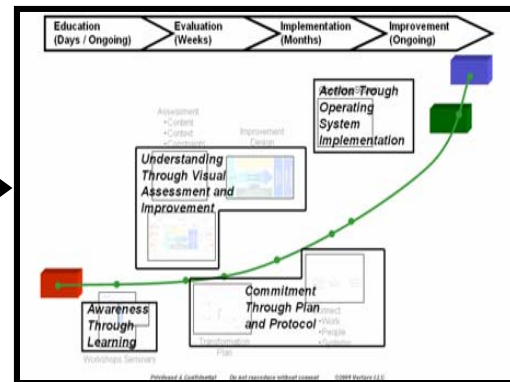
### The Framework

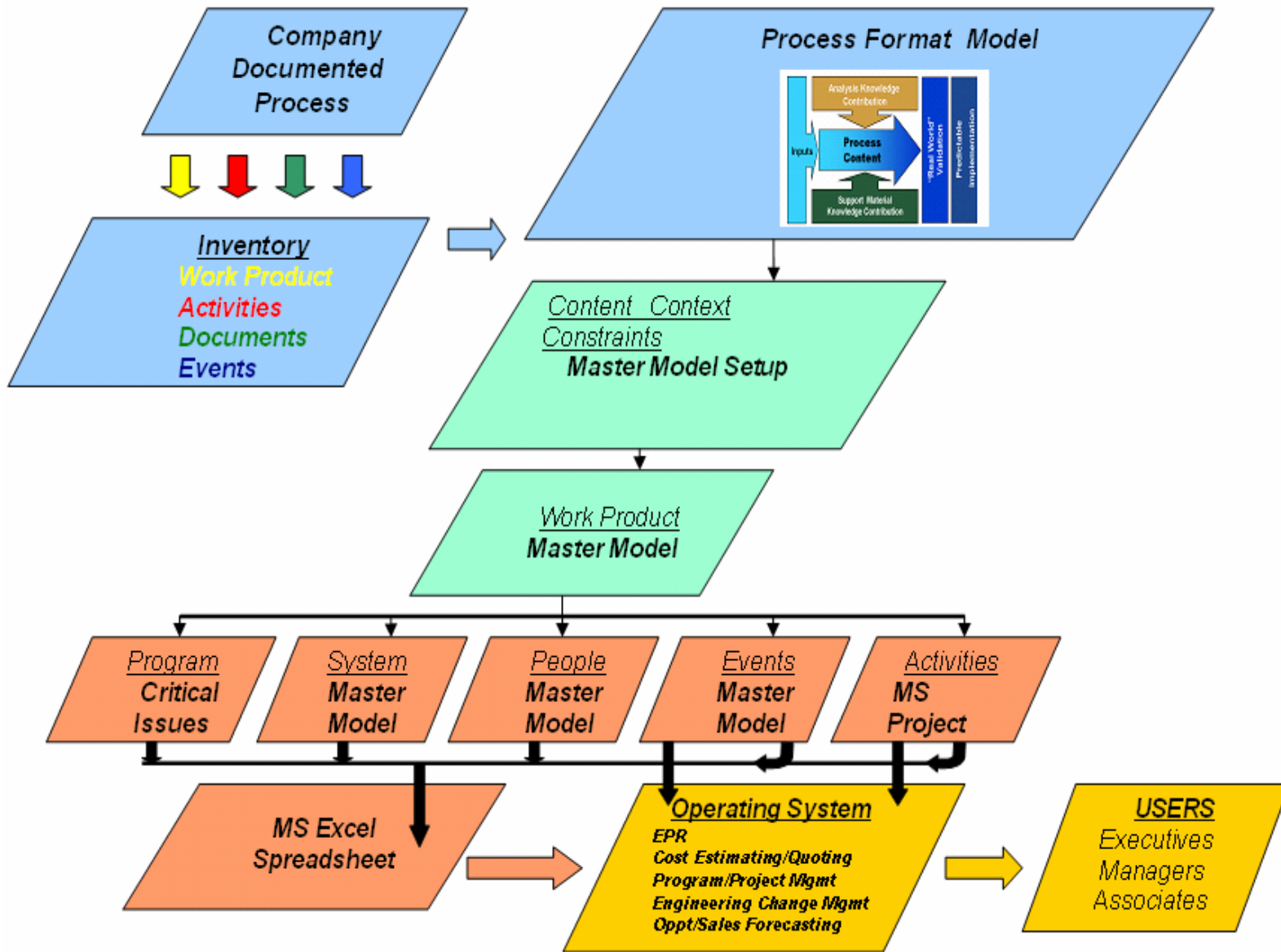


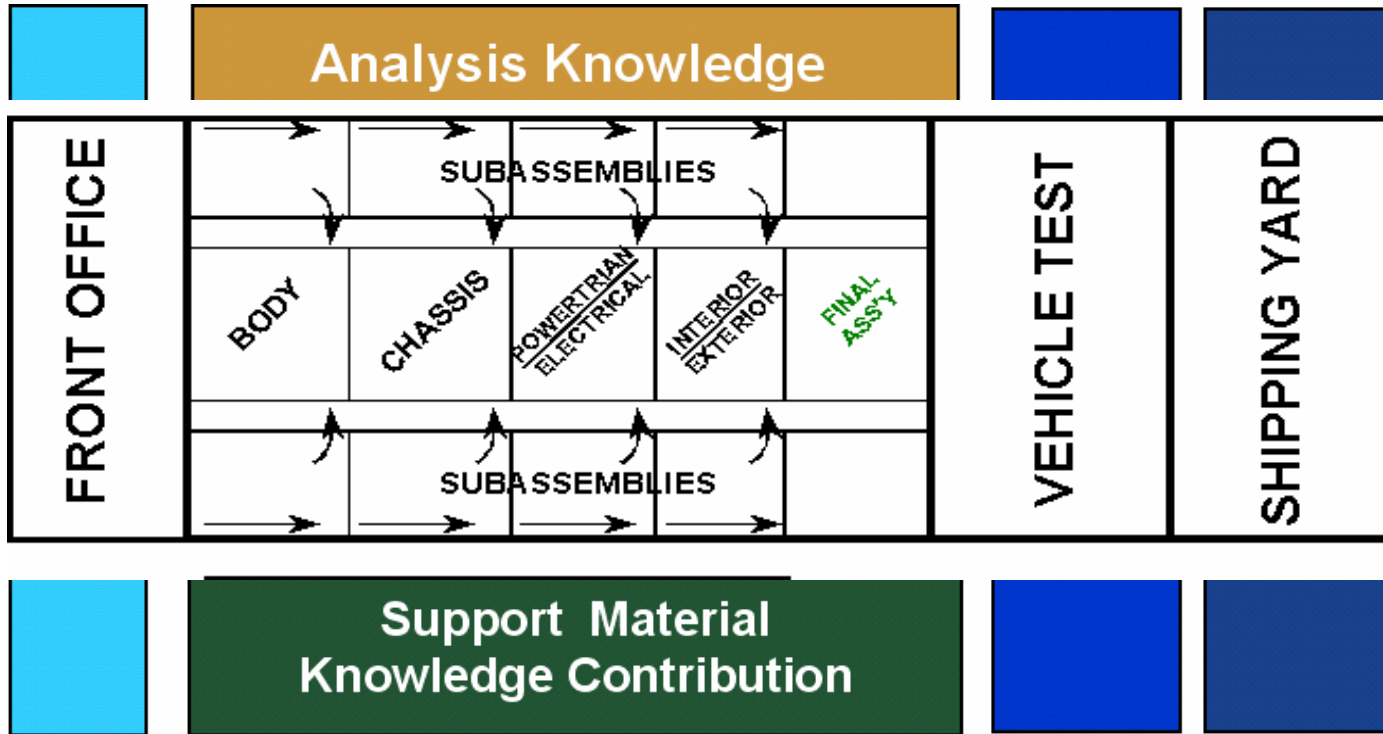
### April 9, 2008 Focus



### The Path

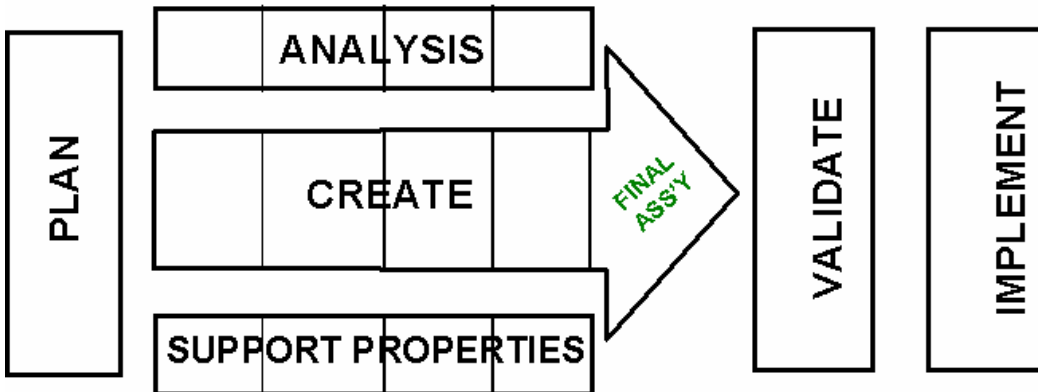
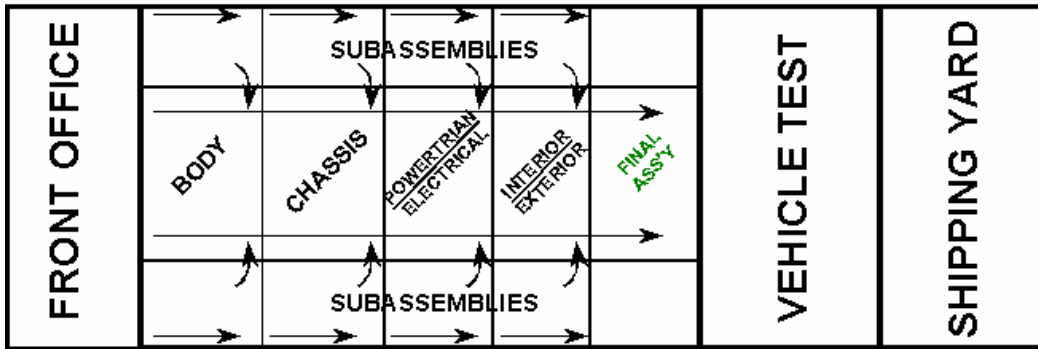








# Applying Analysis



Think Of **Final Assembly** As...

- Business Plan
- Program Plan
- Product Design
- Purchase Order
- Cost Management
- Change Management
- OCM Process
- Launch
- Cost Estimating
- Supplier Management
- Design Implementation
- Manufacturing System Design / Construction



## PROGRAM DELIVERABLES

### P.D.T. TEAM:

**Program Mgr., Product Eng.,  
& Sales**

- ◆ Prototype Lessons Learned
- ◆ Team Feasibility Statement
- ◆ Volumes
- ◆ Program Life
- ◆ Packaging Requirements
- ◆ Customer Contact Directory
- ◆ Program Timing
- ◆ Launch Team Directory
- ◆ Product Bill of Material
- ◆ Print Status Summary/Matrix
- ◆ Controlled Copy of Customer Drawings & Specifications
- ◆ Initial I.R.F.Q.
- ◆ P.C.R.(s) & Status Matrix
- ◆ Sales Order w/Bill of Material

### BASELINE ENGINEERING:

**Program Eng. & Quality Eng.**

- ◆ P.F.D.
- ◆ P.F.M.E.A.
- ◆ C.P.
- ◆ Tolerance Chart
- ◆ Picture Process Sheets
- ◆ Capacity Analysis
- ◆ Budgetary IRFQ
- ◆ Work Orders
- ◆ Plant Layout
- ◆ Detailed Timing
- ◆ Tool & Equipment Designs
- ◆ Gage Plan & Designs
- ◆ "CD" Drawings
- ◆ Design Reviews @ Milestones
- ◆ Tool Path Analysis
- ◆ Estimated Cycle Times
- ◆ Tool Layouts
- ◆ Station Cuts
- ◆ Tool & Process Routings

### IMPLEMENTATION TEAM:

**Program Eng., Plant, & Quality Eng.**

- ◆ Set-up Instructions
- ◆ Operator Instructions
- ◆ Gage Instructions
- ◆ Lessons Learned
- ◆ Tool Matrix
- ◆ Packaging Procedures
- ◆ Run Off Process Capabilities (Ppk)
- ◆ PPAP Plan
- ◆ Process Book(s)
- ◆ PPAP Book(s)
- ◆ Fixture Gages
- ◆ Hand/Attribute Gages
- ◆ Mat'l. Handling Tools & Equip.
- ◆ Tools
- ◆ Equipment
- ◆ Installation & Startup
- ◆ "Clean" Tool & Equipment Prints
- ◆ 3-Sets Tools
- ◆ Spare Parts
- ◆ Spare Parts List

### CONTINUOUS IMPROVEMENT:

**Plant DCP Team**

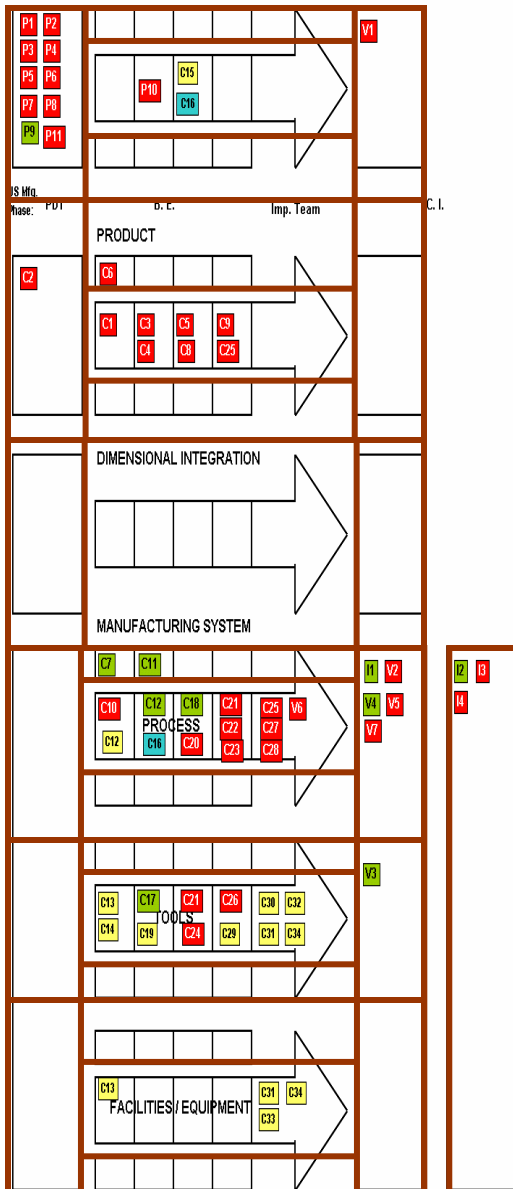
- ◆ Inspection Instructions
- ◆ 1<sup>st</sup> Piece Inspection Sheets
- ◆ Hourly Inspection Data Sheets
- ◆ Audit Inspection Data Sheets



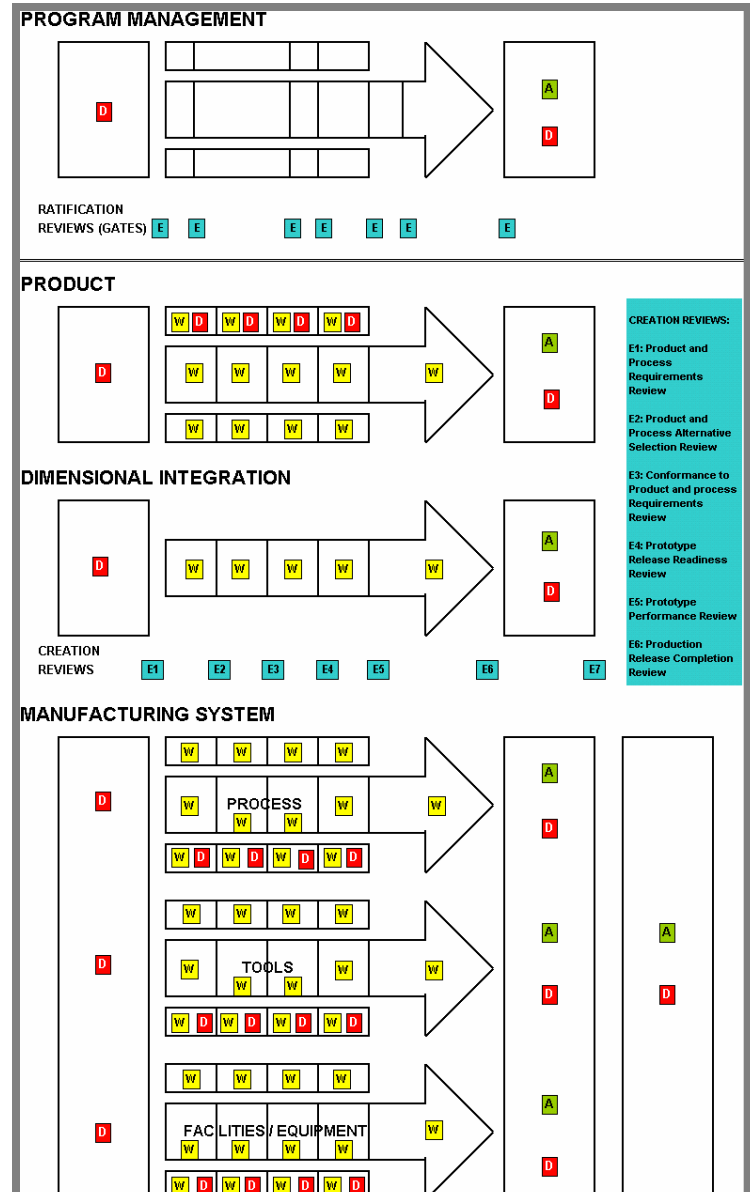
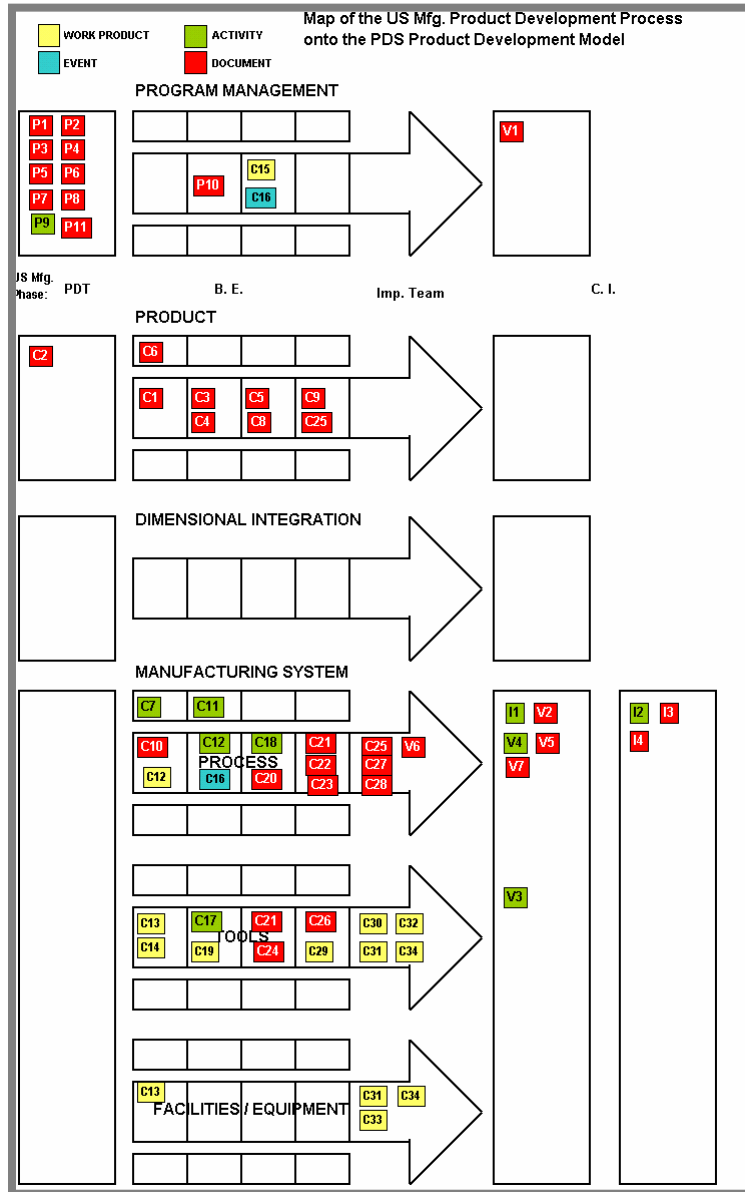
- Initial Profile has four categories of display
  - **Work Products (Objects)**
  - **Documents**
  - **Activities**
  - **Events**
- The Profile is **Object** driven
  - **Objects** are universal source of knowledge
  - **Objects** are culturally independent
  - **Activities** relate to management style
  - **Objects** are the predominant end results
  - **Activities** create delusional measurements
  - Improvement programs for **Activities** driven by staff
- The Profile is a contextual view of the process



Item	US Manuf. PDP Phase	PDS Phase Name	ITEM DESCRIPTION	If CP, list CP, A, or DA	WP	D	A	E
C1	PDT	CP	Prototype Lessons Learned	CP		P		
P1	PDT	Plan	Team Feasibility Statement			PM		
P2	PDT	Plan	Volumes			PM		
P3	PDT	Plan	Program Life			PM		
C2	PDT	CP	Packaging Requirements	CP		P		
P4	PDT	Plan	Customer Contact Directory			PM		
P5	PDT	Plan	Program Timing			PM		
I1	PDT	I	Launch Team Directory			MP		
C3	PDT	CP	Product Bill of Material	CP		P		
C4	PDT	CP	Print Status Summary / Matrix	CP		P		
C5	PDT	CP	Controlled copy of customer Drawings and specs	CP		P		
P6	PDT	Plan	Initial IRFQ			PM		
P7	PDT	Plan	PCR(s) and Status Matrix			PM		
P8	PDT	Plan	Sales Order with Bill of Material			PM		

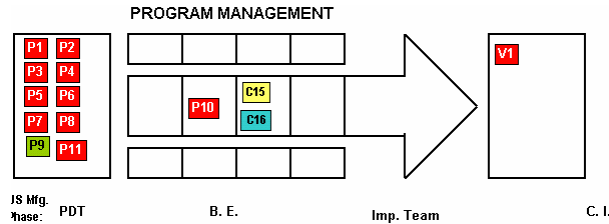


- Lack of Manifest To Cover Total Build
- Un-utilized Floor Space
- Line Balance
- Lack of Error Proofing
- Consistency of Layout  
(Which Activities Selected... Why?)
- Are Documents Products Or Support
- Critical Line Idle

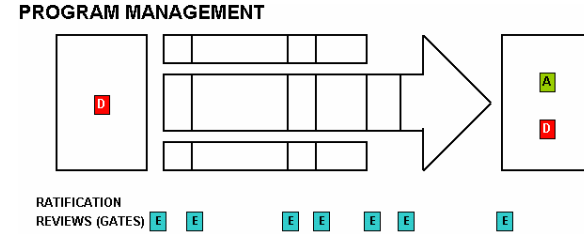




## Current



## Enhanced



- P1 Team Feasibility
- P2 Volumes
- P3 Program Life
- P4 Customer Directory
- P5 Program Timing
- P6 Initial IRFQ
- P7 PCR(s) and Status
- P8 Sales Order with BOM
- P9 Budgetary IRFQ
- P11 Detail Timing

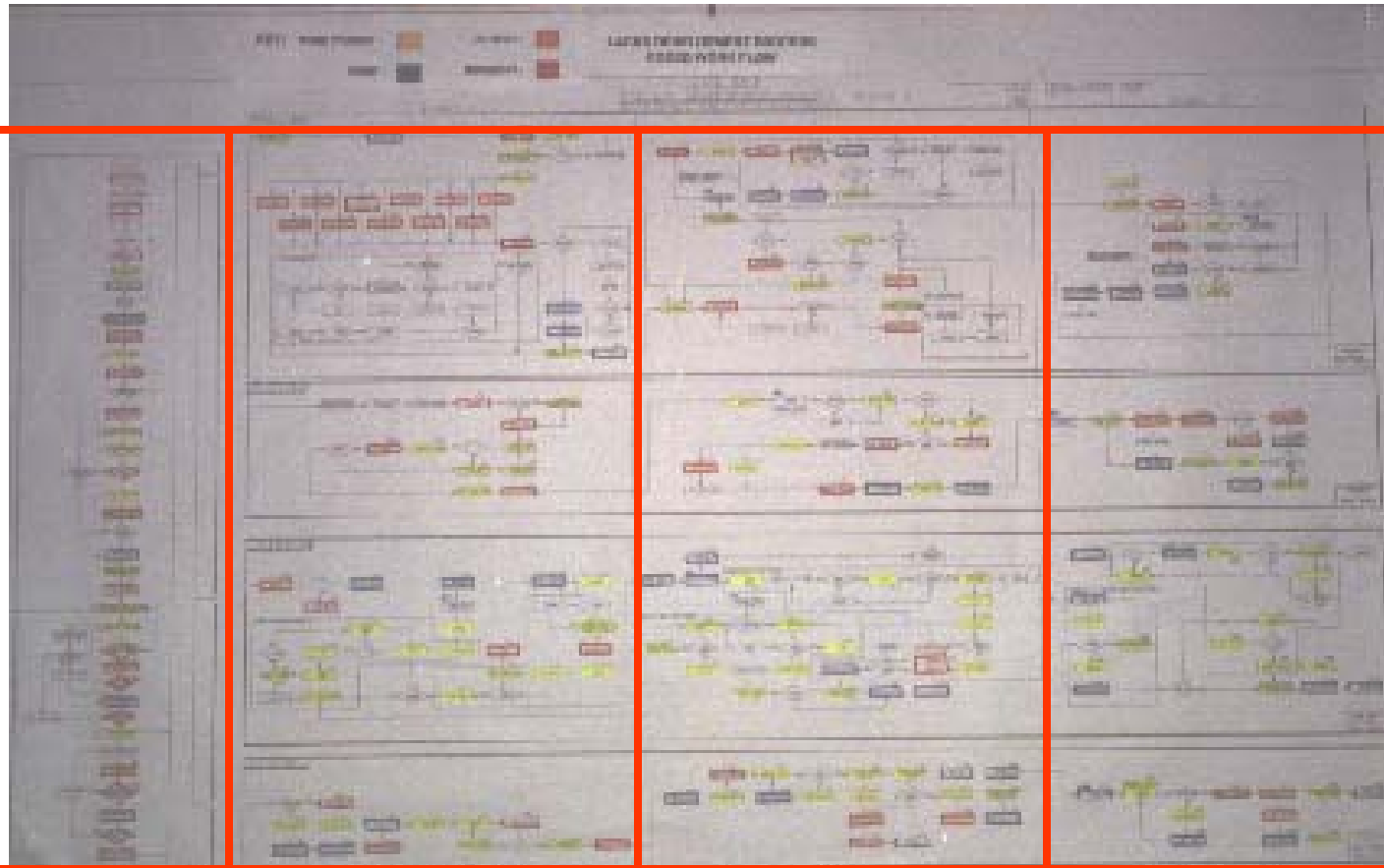
- P10 Work Orders
  - C15 "CD" Drawings
  - C16 Design Reviews @ Milestones
- V1 PPAP Plan

- Requirements
  - Alternate Sections
  - Conformance to Requirements
    - Proto. Release Readiness
    - Prototype Performance
      - Production Release
      - Pilot Readiness
- Pilot Build
- Pilot Performance

- Program Book
  - Mission
  - Goals
  - Risks
  - Financials
  - Product Plan
  - Manufacturing Plan
  - Sourcing Strategies
  - Logistics
  - Communications Plan
  - Marketing Plan



Analyze the process for the type and quantity of work items, filter out the value-add customer deliverables



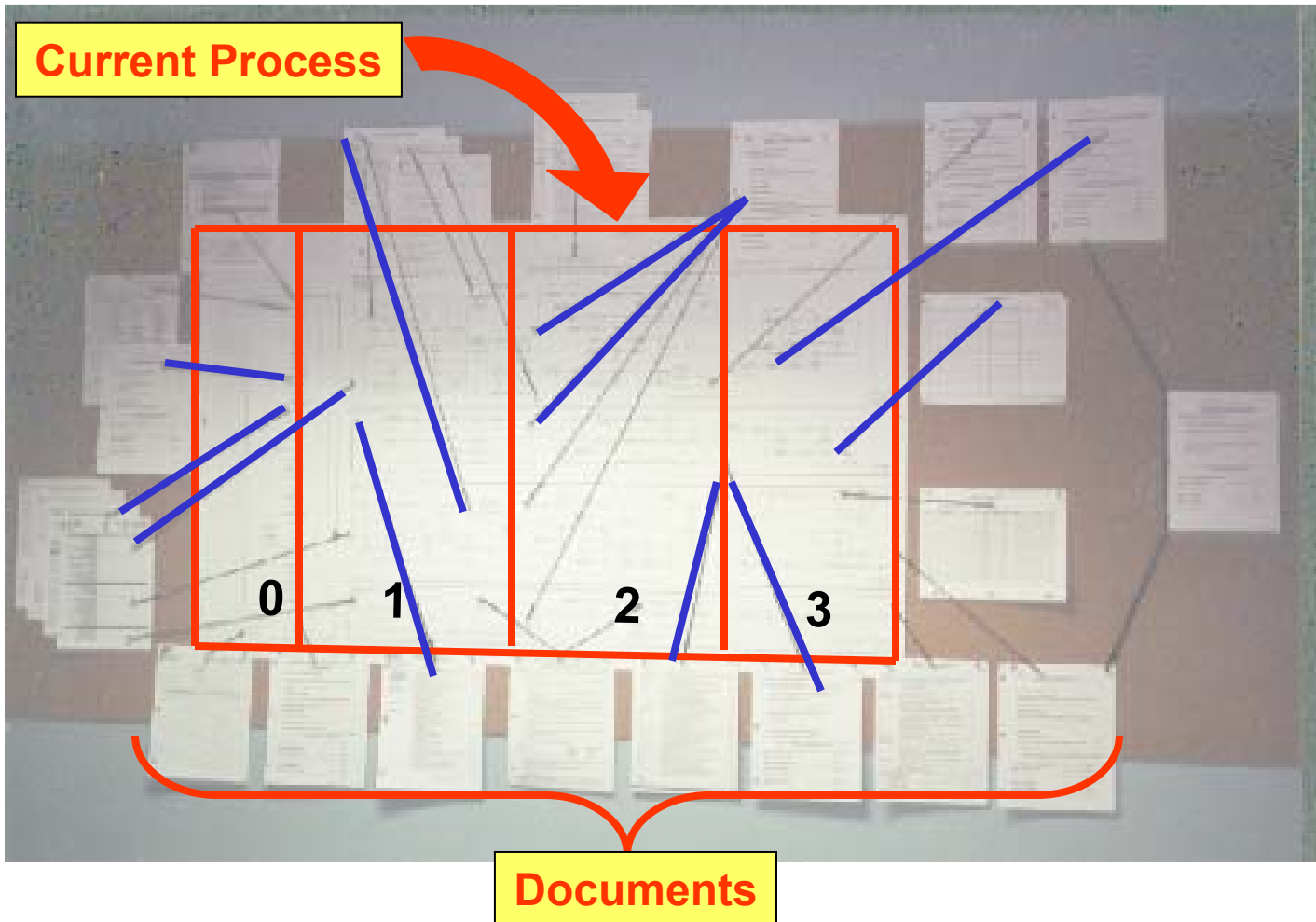
**Phase: 0**

**1**

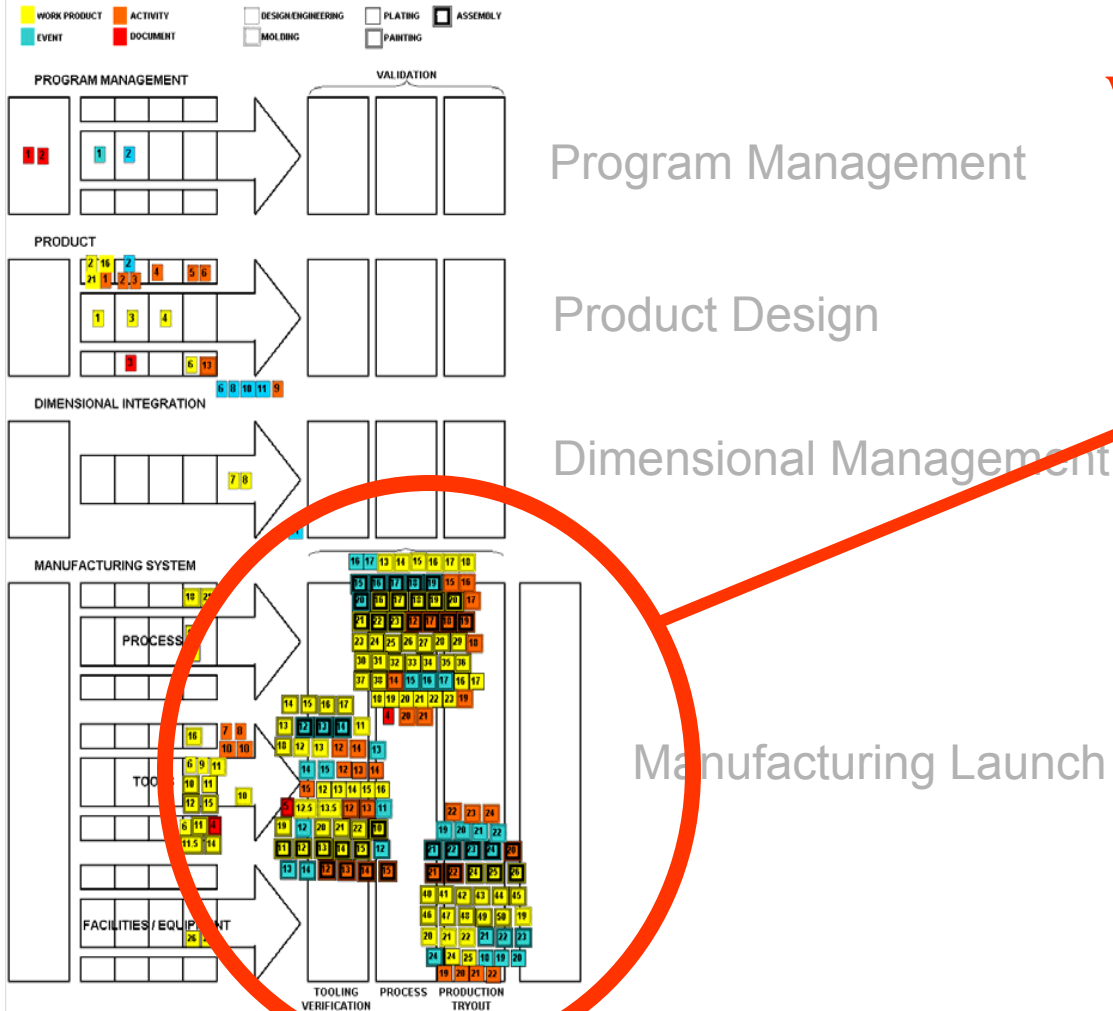
**2**

**3**

Analyze the distribution and purpose of all Documents generated during the product development process

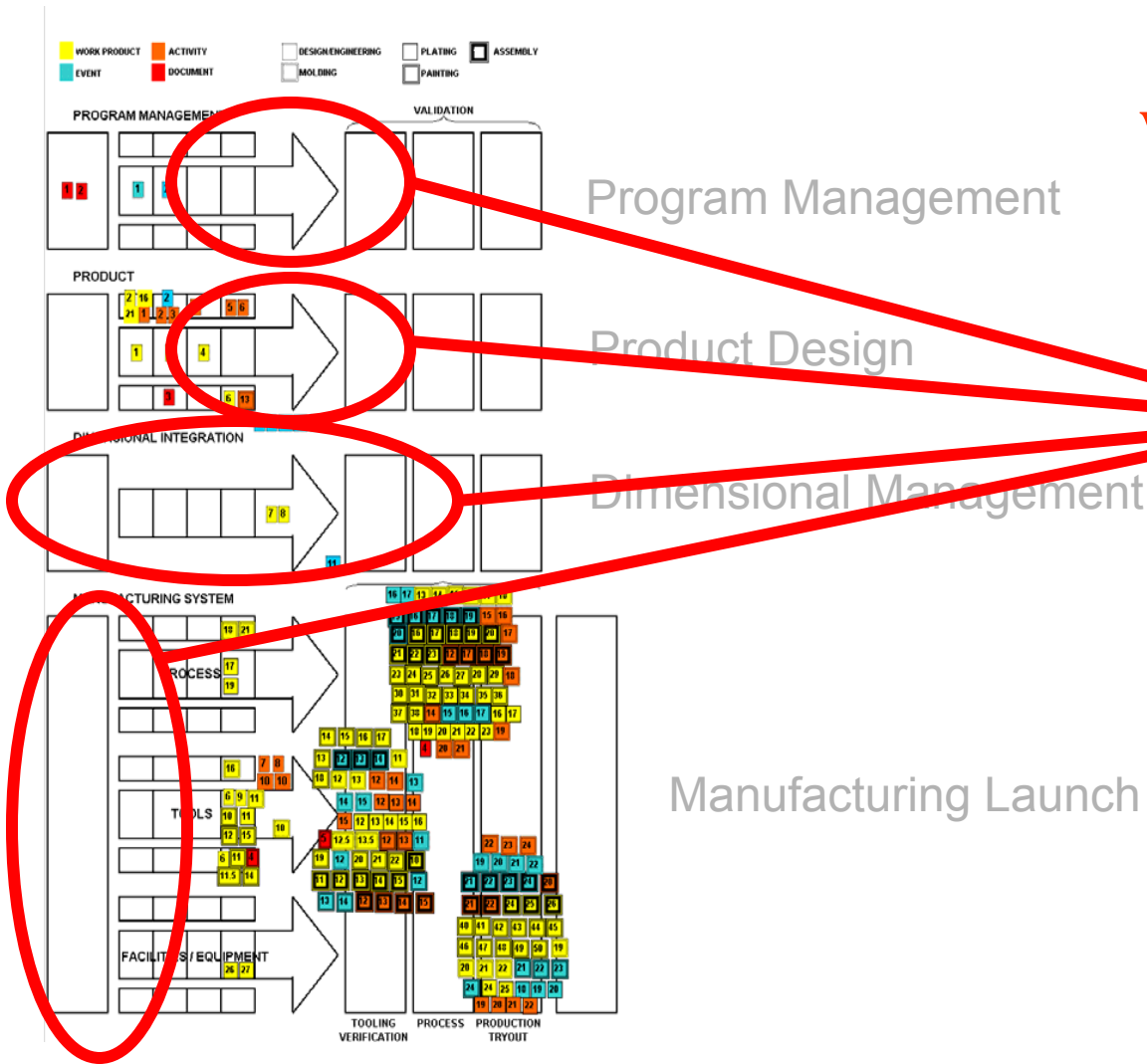


## What is wrong with this picture?



**Too Heavy**

## What is wrong with this picture?



**Too Light**



**Current**

**Enhanced**



- ① • Organize Program Management Review 2.5%
- ② • Validate Product Design 5%
- ③ • Manage Dimensional System 5%
- ④a ④b • Move Manufacturing Learnings Into the Design Phase 10%
  - Reduce Part Build
- ⑤ • Create Documentation Network 2.5%
- ⑥ • Design Review As Learning 5%

\*Savings.....30%

*\* Savings Do Not Include Additional Piece Cost or Tooling Effects*

