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Since 1906

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IPRO 306 Final Presentation

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Agenda

- Sponsor and Problem Statement
- IPRO 306: Goals and Structure
- Machine Scheduling in SAP
- Six Sigma Training
- Results and Conclusion
- Questions

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Introduction

- Started in 1906 by William E. Sloan the inventor of the **flush valve**
- **80%** of domestic market **share** for flush valves
- Opportunity: Need for **new** manufacturing **practices**

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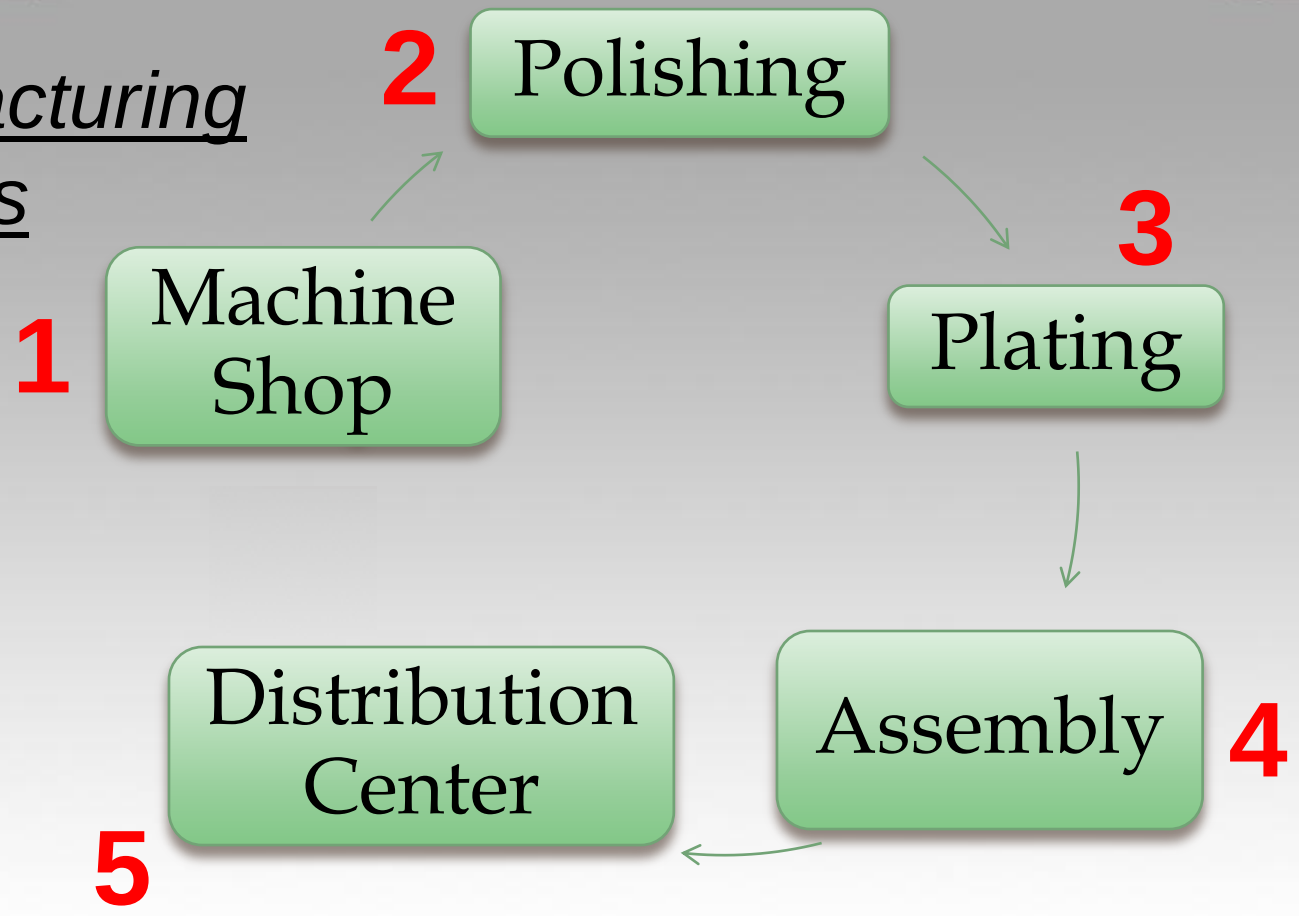
Problem Statement

Manufacturing Process



Problem Statement

- No formal **production schedule**
- Inventory **shortages or overstock**
- **Poor inventory integrity**
- Promise **inaccurate shipping dates** to customers

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Objectives of this IPRO

- **Create a scheduling protocol using SAP**
  - Eliminate overstocks and inventory shortages
  - Minimize obsolescence through better planning
  - Increase accuracy of shipping dates
- **College level Six Sigma training package**
  - Six Sigma approach to inventory integrity
  - Green belt certificate
  - Help with the delivery of the training

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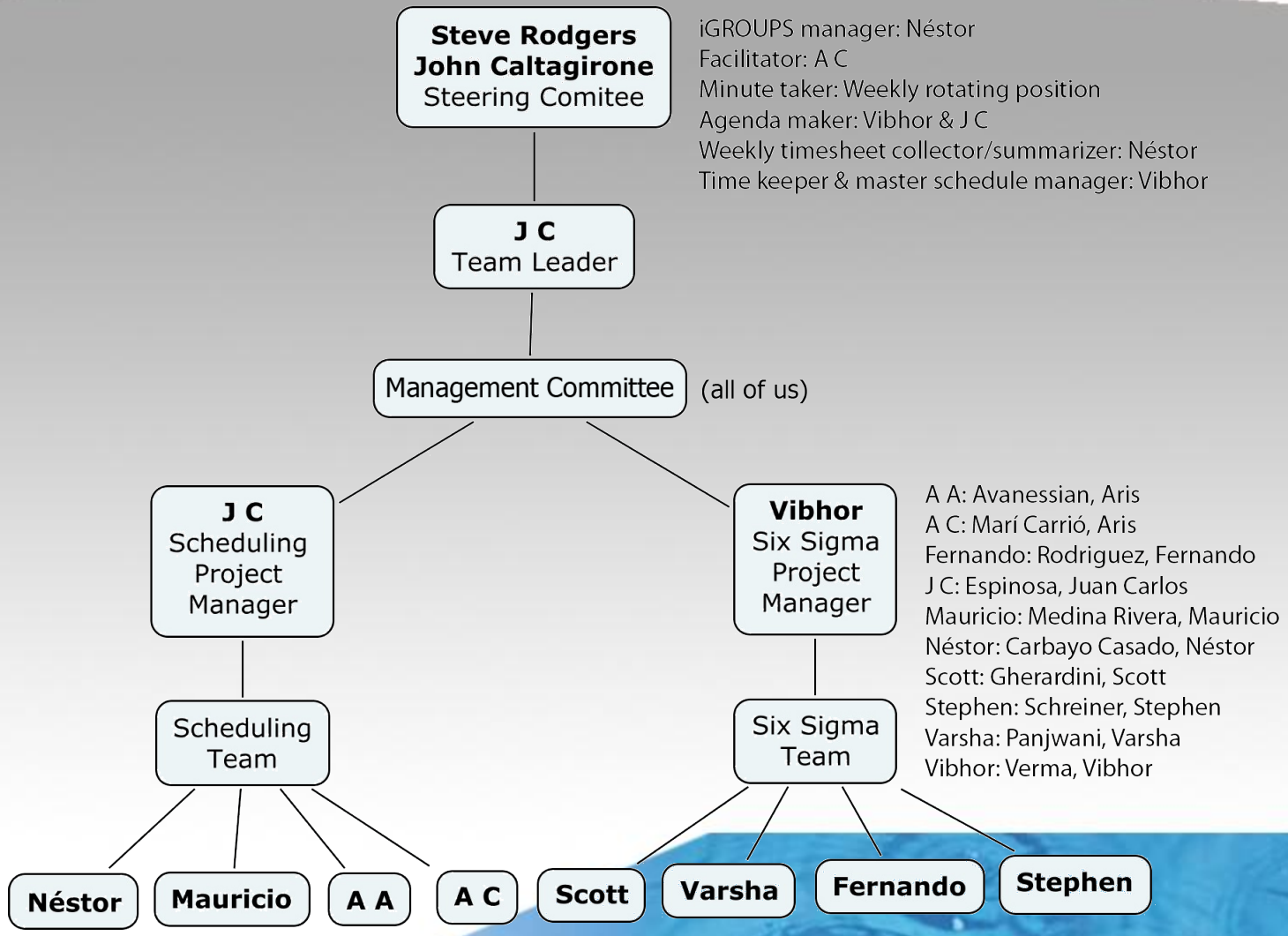
Team Mission and Values

- Mission:

  Improve Sloan Valve's global supply chain

- Values:
  - Quality, on-time, high tech project
  - Use every team member skills
  - Team work

Team Organization



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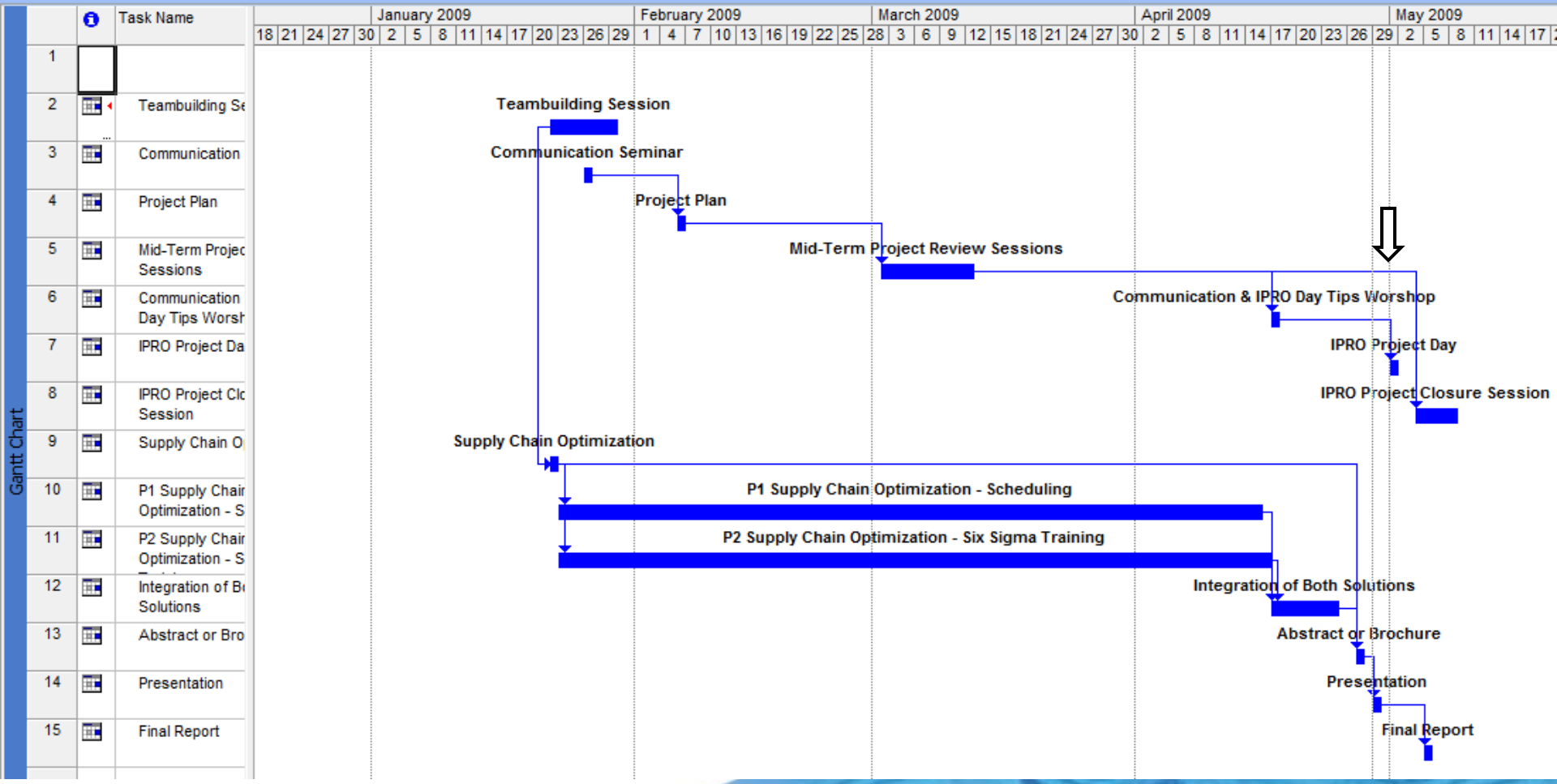
Gantt Chart



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Team Work Management

- Tuesdays: General meeting at IIT
- Wednesdays : Scheduling team
- Fridays: Six Sigma team

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How did we manage to develop an accurate scheduling process?

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Methodology

1. Interviewed employees + visited the plant + understood the process

2. Determined needed data and formulas to develop a production schedule in SAP

3. Implemented and tested the new scheduling procedure + determined performance metrics

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Step 1: Understand the Problem

1. Interviewed employees+ visited the plant + understand the process

    - Understand the process
    - Understand the current scheduling process and its problems
    - Decided to use SAP for scheduling purposes

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What is SAP?

- SAP is an ERP software capable of integrating multiple business applications

- An ERP system integrates and automates all sides of business operations.
    - Planning
    - Manufacturing
    - Sales
    - Others

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What is SAP?

- SAP is categorized into 3 core functional areas:
  - Financial
  - Human resources
  - Logistics
    - Sales and Distribution (SD)
    - **Material Management (MM)**
    - **Production Planning (PP)**
    - Others

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Step 2: Data and Formulas

- Used **innovative** ideas and **brainstorming** to **overcome obstacles** calculating:
  - Safety stock
  - Reorder point
  - In-house production time
  - Lot size
  - Raw material lead time
  - Total lead time

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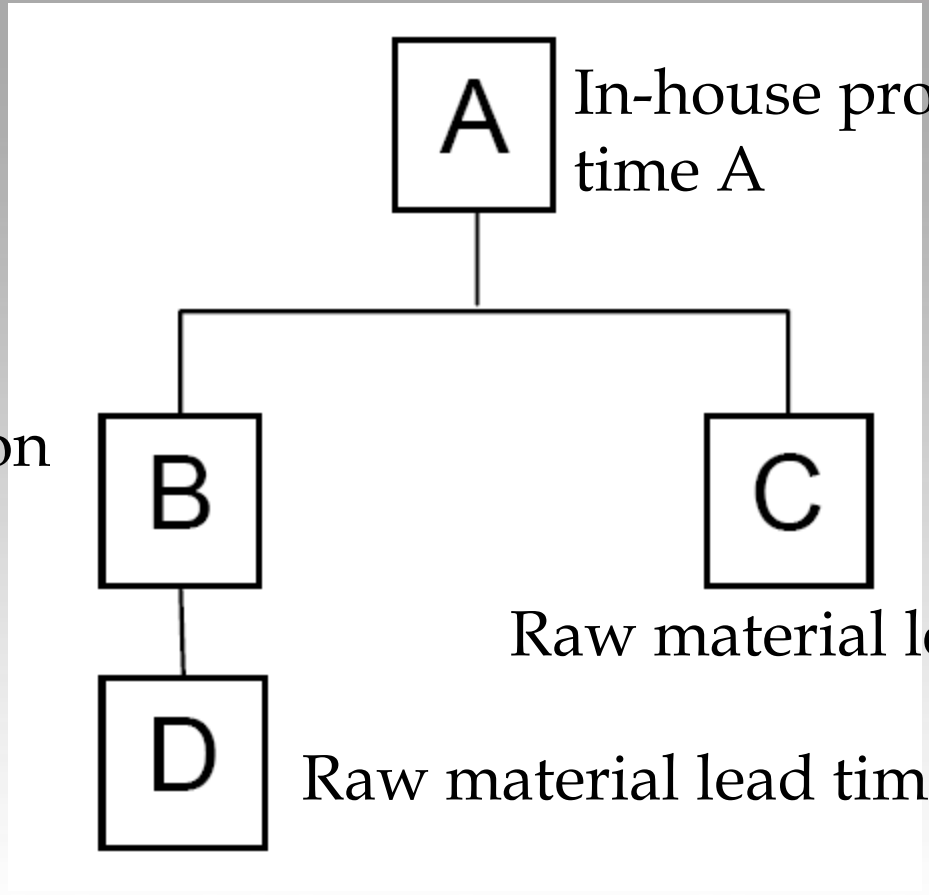
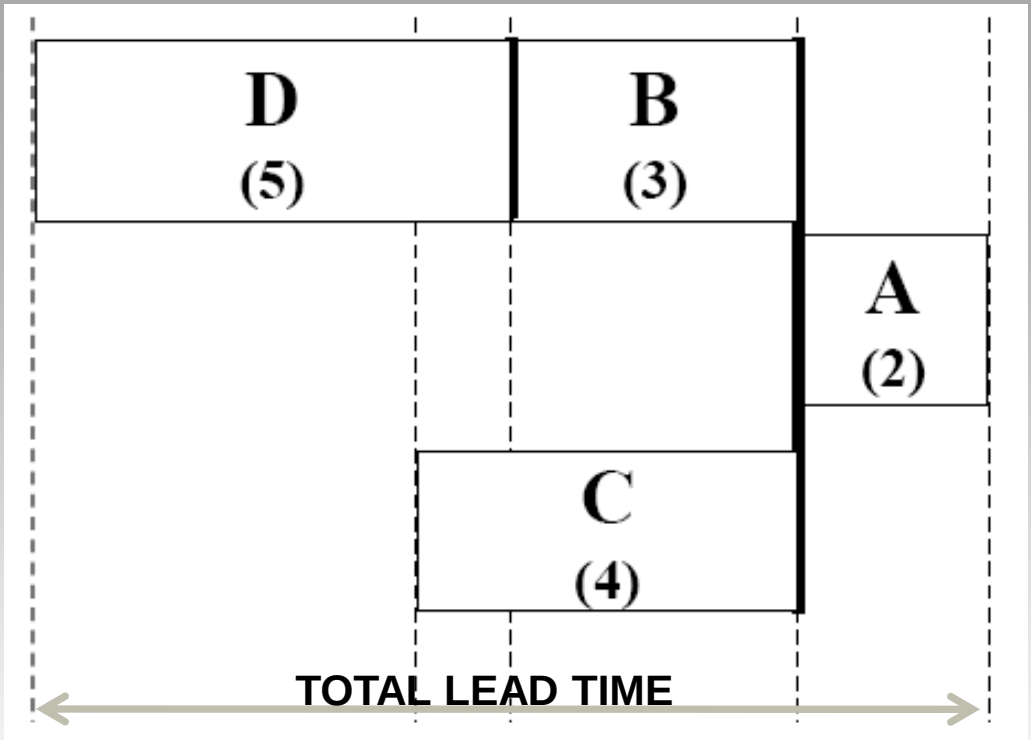
Step 2: Data and Formulas



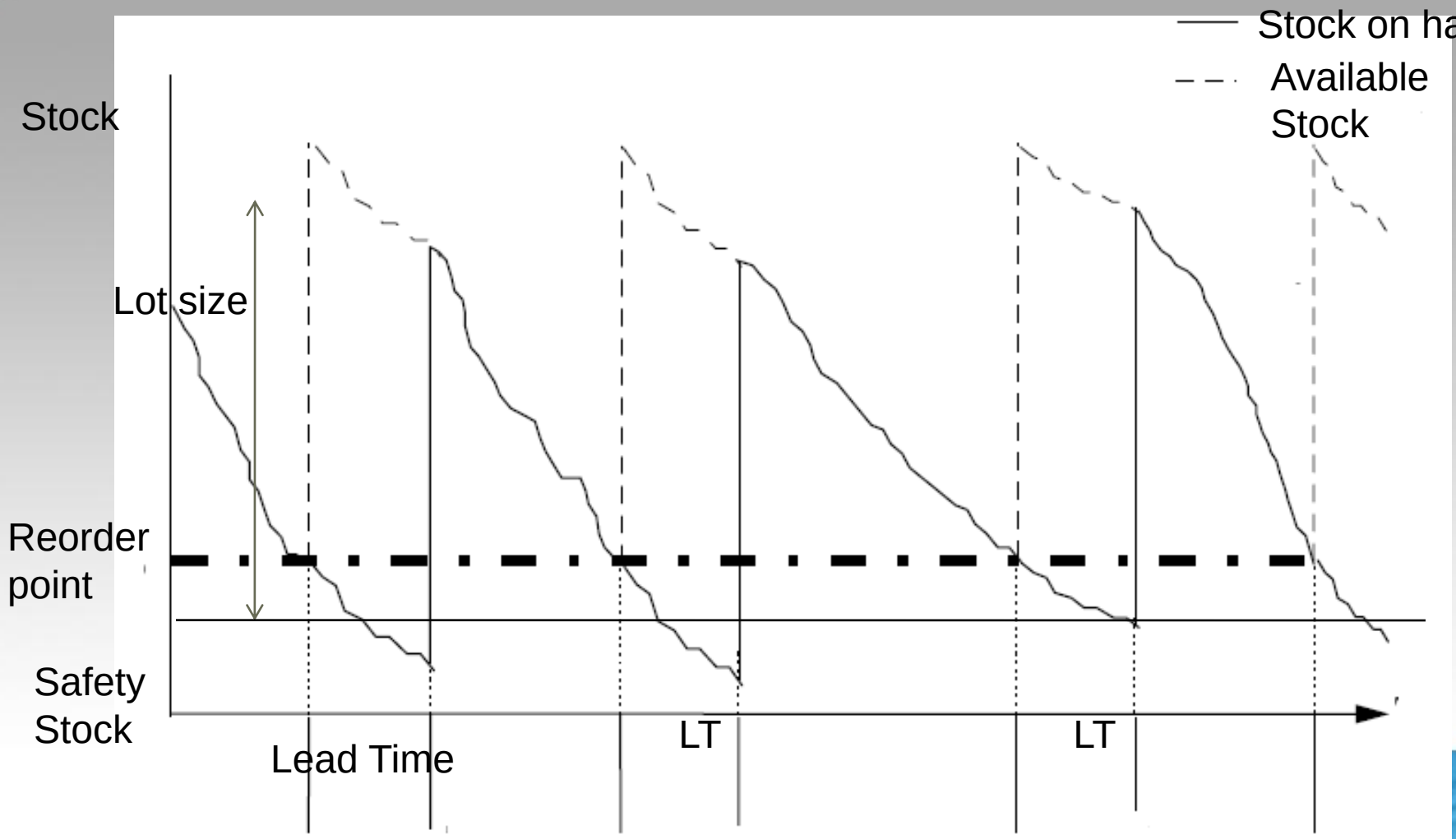
Total lead time: max(RMLTD+IHPTB, RMLTC)+IHPTA

Step 2: Data and Formulas



Total lead time: MAX (5+3, 4) + 2 = 10

Step 2: Data and Formulas



Step 3:Implement and Measure

3. Implement and test the new scheduling procedure
    - Development of the policy and procedures
    - Tested in a simulation program
    - Implementation line by line while fixing bugs

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Step 3:Implement and Measure

3. Determine performance metrics

- **Build to Schedule Compliance**
  - Old compliance
  - New compliance
- No deviation will mean:
  - No overstock
  - No shortages

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How did we manage to give SLOAN a Six Sigma approach?

Methodology

1. Understand the Six Sigma Methodology

2. Analyze the Materials Movements Problem

3. Create a Complete Training Package

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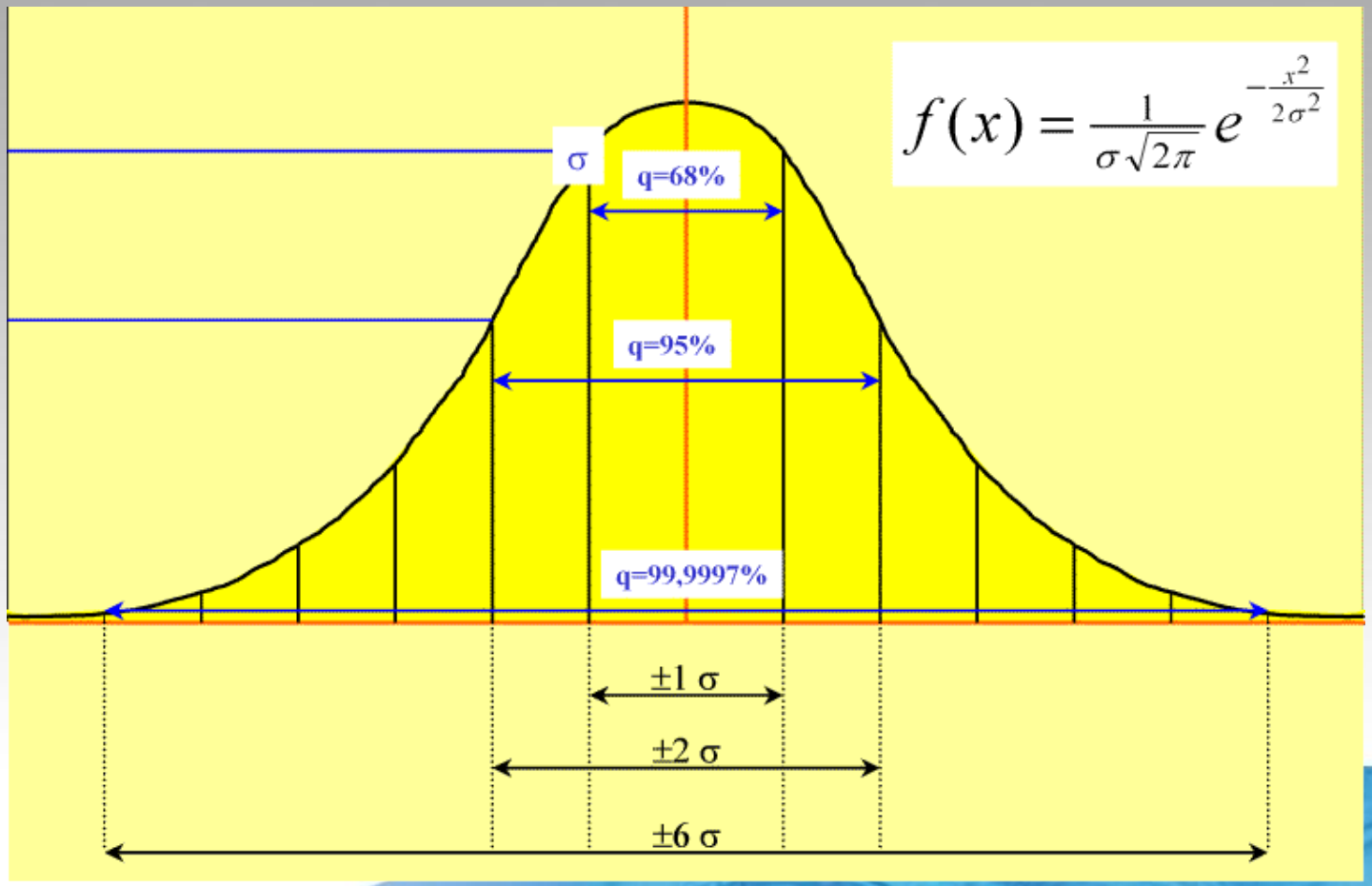
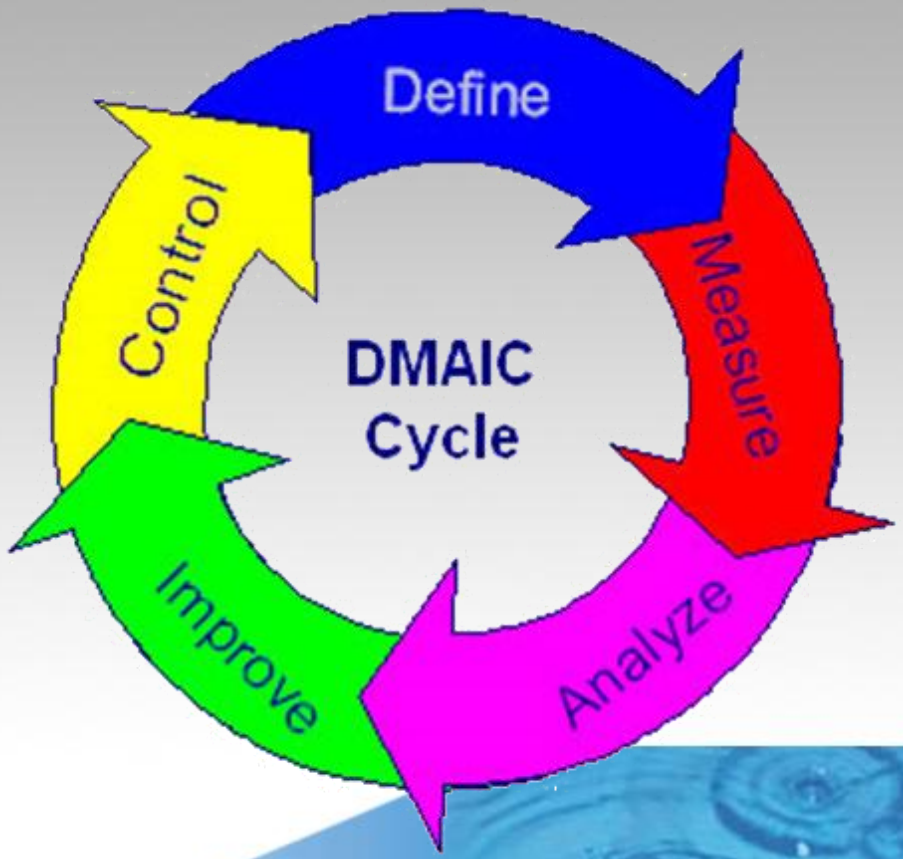
Step1: Understanding Six Sigma

- The Sigma Value



Step1: Understanding Six Sigma

- The DMAIC Cycle



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Step 2: Material Movement Problem

- Visit the plant and understand the processes
- Discussed Quality Goals and brainstormed Six Sigma initiatives
- Spoke with floor supervisors

Step 2: Material Movement Problem

- Discrepancies between department counts
- Errors are passed forward
- Entry mistakes

Step 2: Material Movement Problem

- Discussed possible sources of error
- Looked at historical SAP records of the problem
- Composed a draft project charter

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Step 3: Create the Training

- Devise the syllabus
- Divide the material into component modules
- Research the material and compile it
- College style lecture structure
- Review material

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Step 3: Package Structure

- Primary resource are powerpoint slides
- Summary handouts
- References
- Comprehensive review

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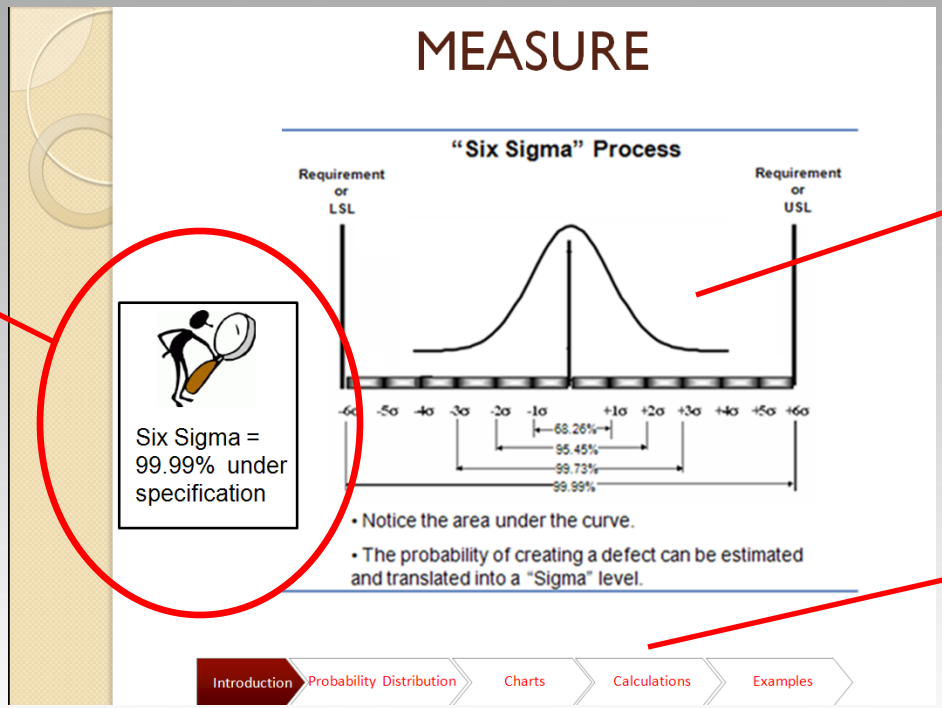
Training Example

Focus on main aspects



Simple Charts and Graphics

Easy to follow

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CONCLUSIONS

Challenges

- Finding proper resources
- Coordination – Six Sigma team
- Not enough time to observe the impacts

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Expected Achievements

- Reduce shortages of manufactured parts by 50%
- Reduce WIP inventory by 50%
- Increase inventory turns of WIP by 100%
- Increase perfect order performance by 10%
- Increase BTS compliance from to 60% to 95%

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Expected Achievements

- Complete Training Package
  - 200 slides of training material
  - Numerous handouts and glossaries
  - Syllabus based off the ASQ Six Sigma Green Belt Body of Knowledge
- Acted as a trigger to the Six Sigma approach to resolve quality problems
- Savings of $2000-$5000 per employee trained

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Impact on the Sponsor

- Cultural change for employees
- New person responsible for scheduling
- New approach to quality problems
- More knowledgeable work-force

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Looking Ahead

- Some of the IPRO members will **stay in contact** with the company if any implementation problems comes out :
  - **Nestor Carbayo** (Scheduling team member)
  - **Vibhor Verma** (Six Sigma team member)
  - **John Caltagirone** (Faculty advisor)

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Next Steps & Recommendations

- Fine-tune parameters
- Demand forecast and lean manufacturing
- Train employees in Six Sigma
- Resolve quality issues with a Six Sigma approach

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Team Ethics

- Access to SAP and to confidential company information
- Aware of the harm we can cause to the company
- The entire team has signed a Confidentiality Agreement with SLOAN

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Results for the IPRO Team

- Gained real world business experience
- Learned how to deal with an actual client
- Allowed us to apply our skills to a real world problem

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Results for the Company

- Fulfilled **expectations**
- Impressed with team commitment
- Very **Satisfied** with the IPRO Team

Happy Customer = Successful IPRO

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Thank You For Your Attention

Any questions?