Process Improvement in Action

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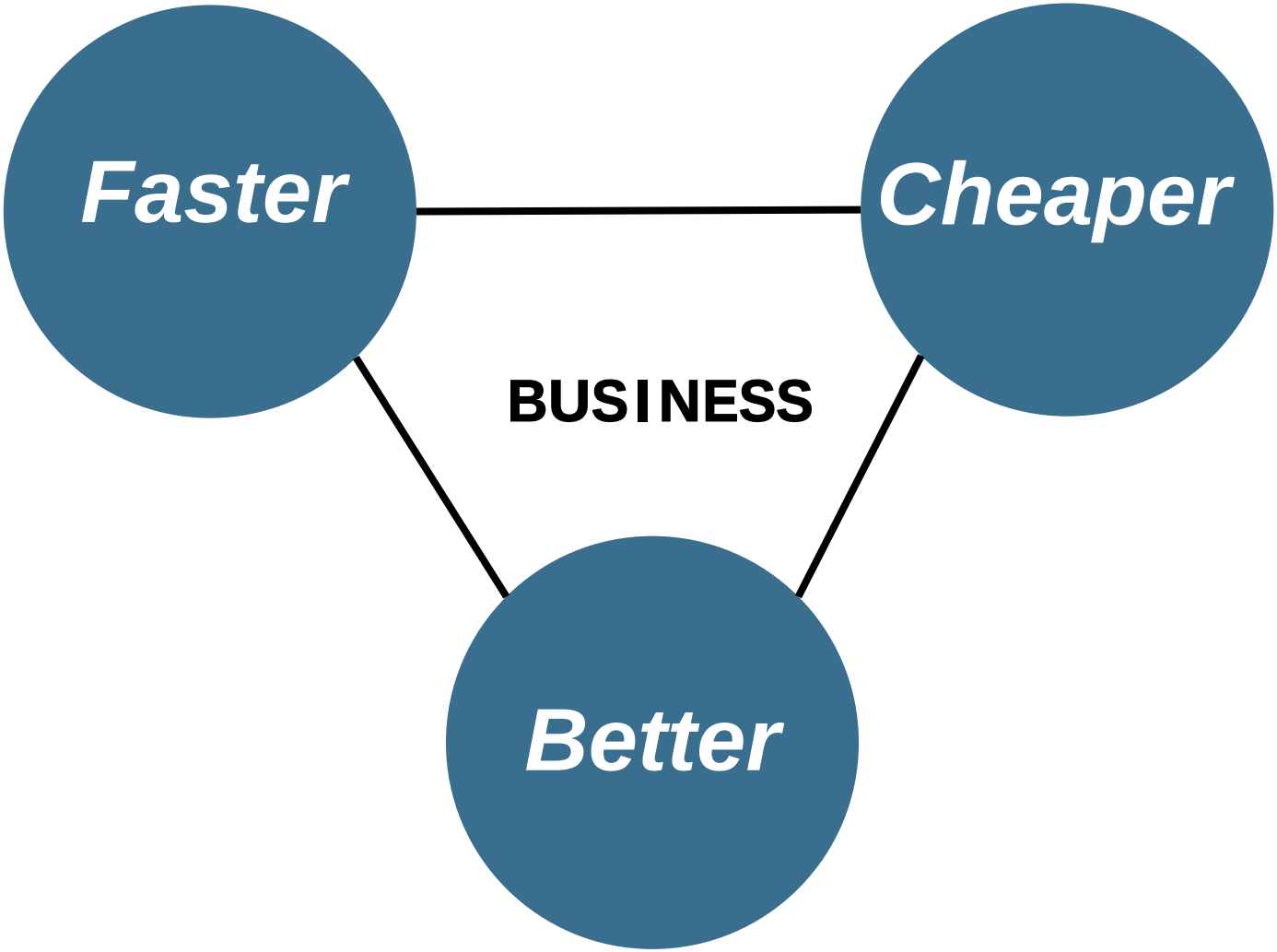
What We Want From SPI?



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What Makes SPI Different on Level 5?

- **Driven by business goals**
- **Quantitatively (statistically) managed**
- **Organization-wide**
- **Continuous (“Never ends”)**

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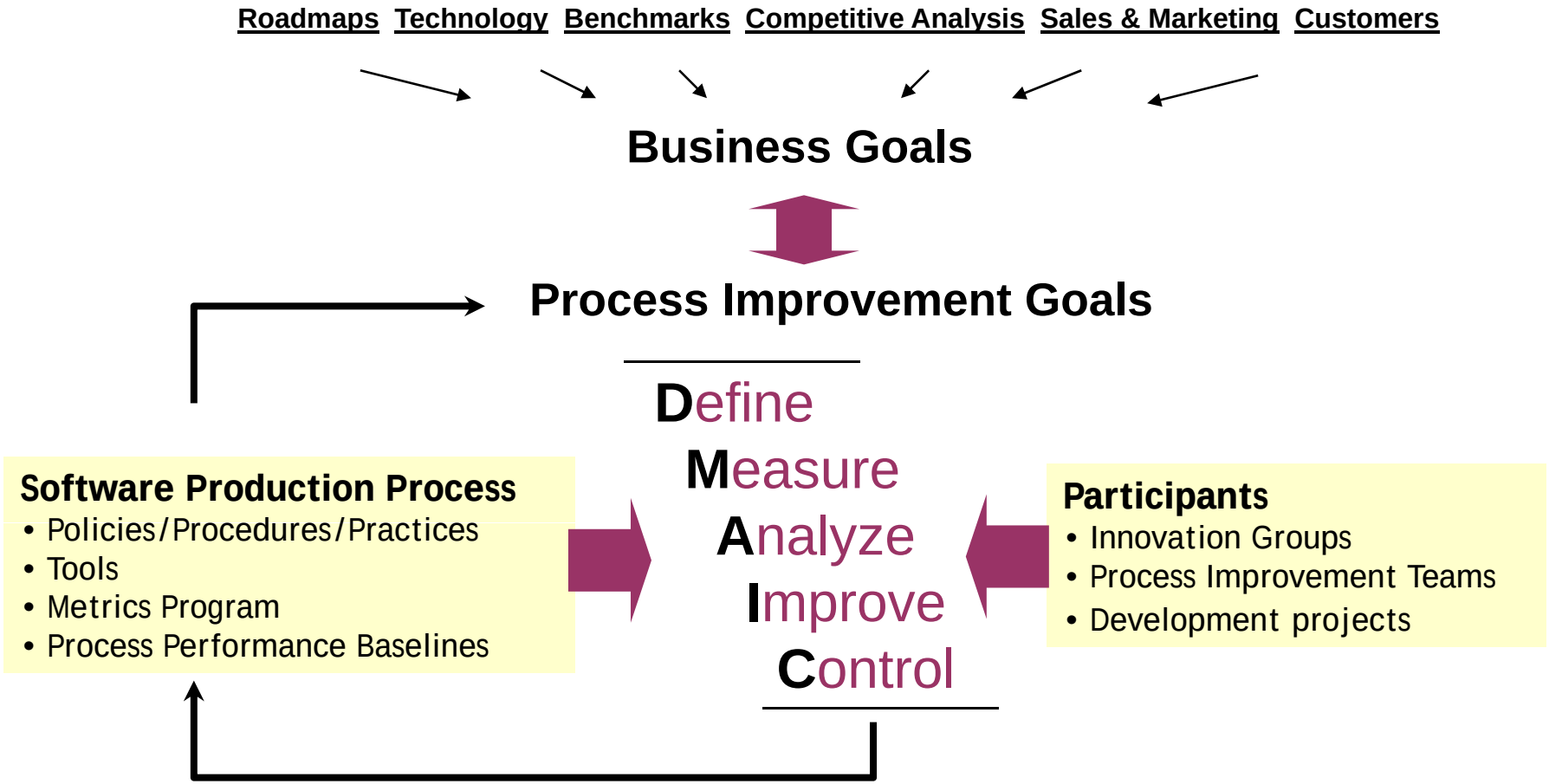
Process Improvement Workflow



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Digital Six Sigma Tools

DMAIC Variation & Defect Reduction	Use to improve existing processes
DMADDD Process Efficiency & Speed	Use to drive quantum efficiency in existing operations
DMADV New Product & Process	Use for developing new processes; or radical change in process
Six Sigma for Product Development	Use to control end to end Product Management

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DMAIC

Define:
What is important?

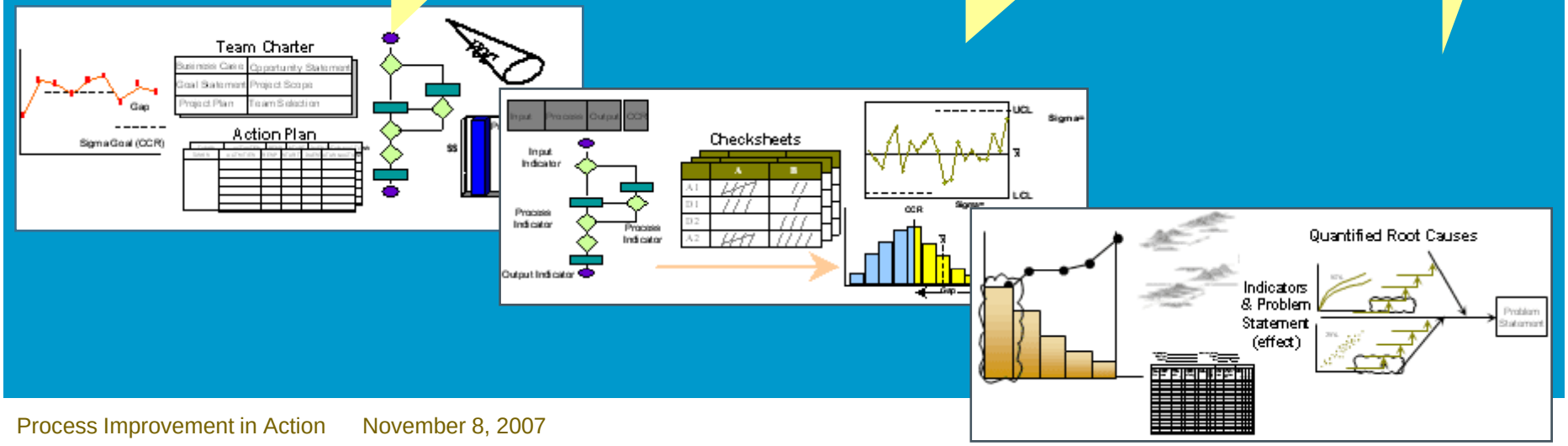
Key Deliverables
- **Team Charter**
- **Project Plan**
- **Process maps**
- **Quick Wins**
- **Critical Customer Requirements**

Measure:
How are we doing?

Key Deliverables
- **Input, process and output indicators**
- **Operational definitions**
- **Measurement Plan**
- **Baseline performance metrics**

Analyze:
What is wrong?

...



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DMAIC

Key Deliverables

- **Data Analysis**
- **Validated Root Causes**
- **Problem Statements**
- **Potential Solutions**

Improve:
What needs to be done?

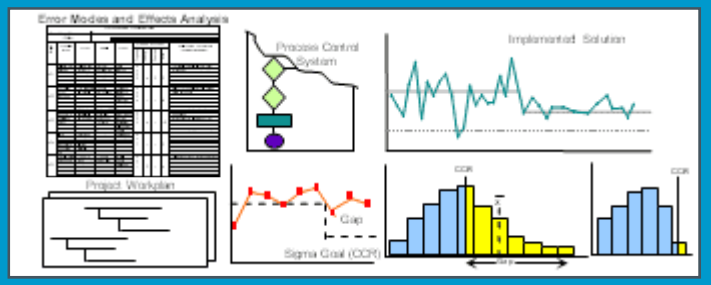
Key Deliverables

- **Solutions**
- **Process Maps and Documentation**
- **Improvement Impacts and Benefits**
- **Pilot Results**
- **Change Maps**

Control:
How do we guarantee performance?

Key Deliverables

- **Process control plan**
- **Solution(s) results**
- **Opportunities for replication**
- **Opportunities for standardization**



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DSS Project Results

- **Cost of Quality (COQ) Improvement (2006)**
  - **COQ decreased by 25%**
  - **Savings > $250K**

$$COQ = \frac{\text{Appraisal Efforts+Prevention Efforts + Failure Efforts}}{\text{Total project efforts}}$$

- **Fault Containment Improvement (2007)**
  - **Total Quality Gate Effectiveness (TQGE) increased by 15%**
  - **Major Fault Effectiveness (MFC) increased by 40%**

$$TQGE/MFC = \frac{\text{Errors}}{\text{Errors + Defects}}$$

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What to do with small changes?

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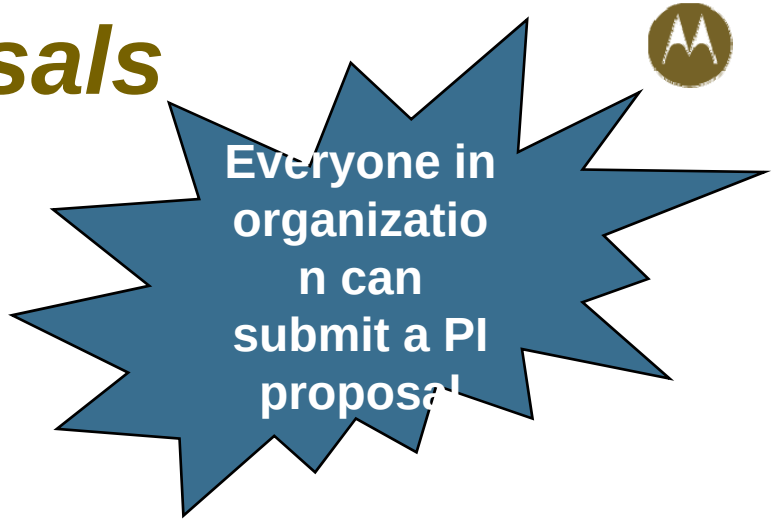
Sources for SPI Proposals



- Assessment Findings
- Customer feedback analysis
- Project performance analysis
- Internal Audit findings and recommendations
- Analysis of process activities effectiveness
- Best practices and benchmarking
- Problem Prevention proposals
- Analysis of project process tailoring results

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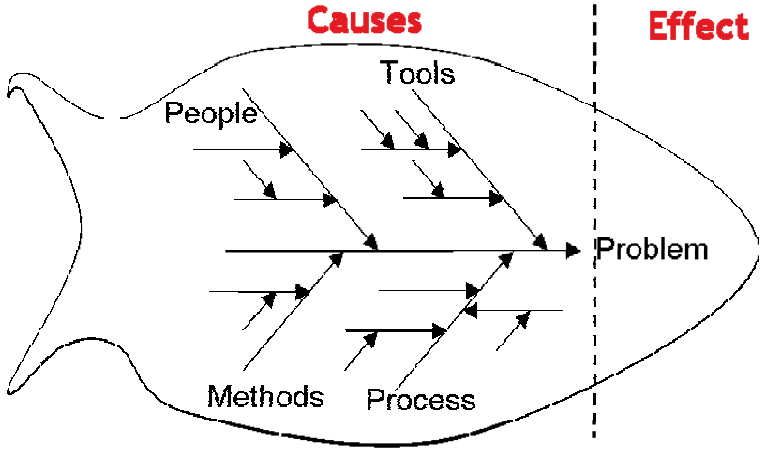
Focusing on problem prevention

- **Proactive use of learning from past experience**
  - **The earlier the cheaper**
- **Problems**
  - **defects**
  - **slippages**
  - **low customer satisfactions**
  - **process non-compliance**
  - **KPI downtrends**
- **Use of Analytical Tools**
  - **Fishbone, 5 Whys, Pareto charts**



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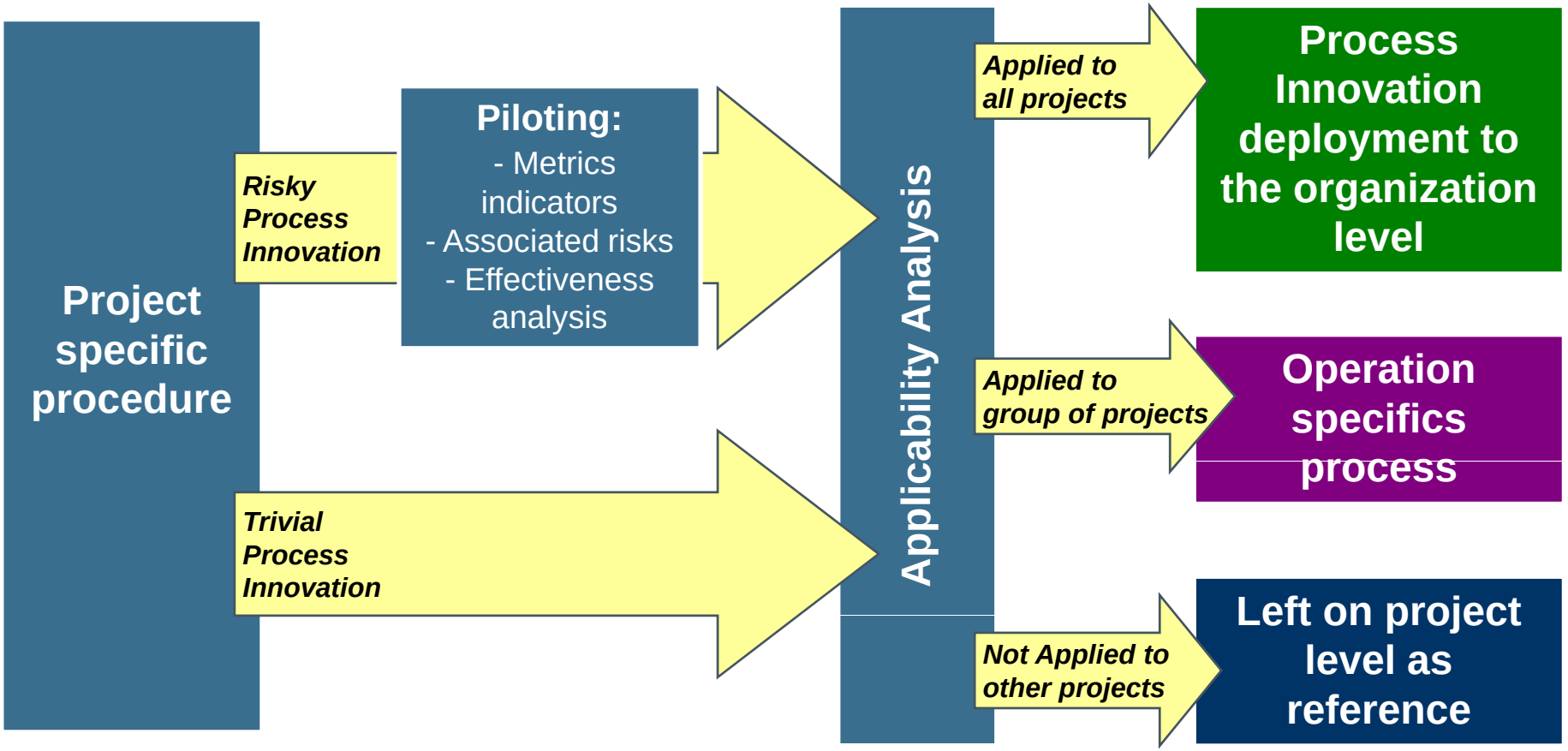
From Tailoring to Improvement



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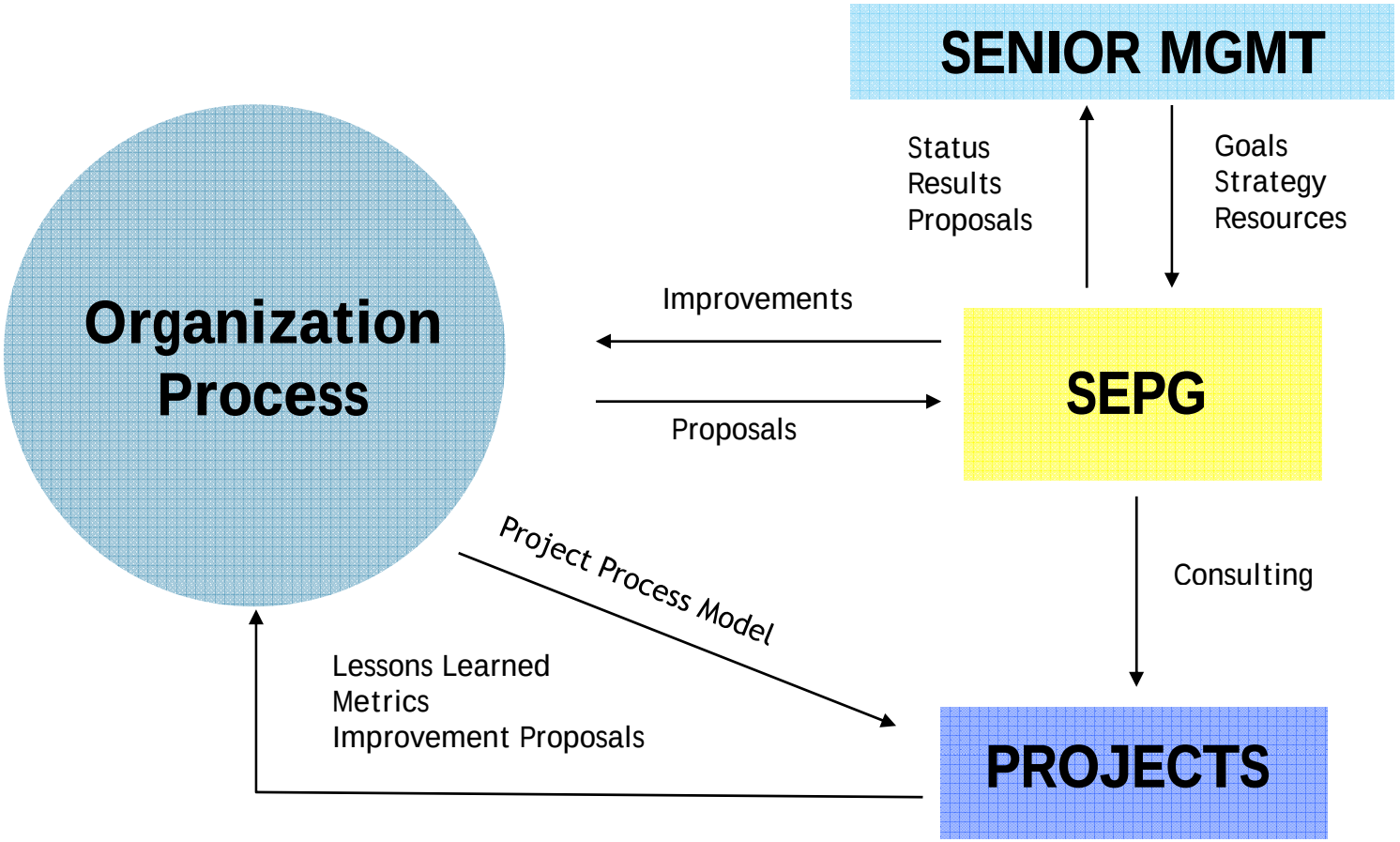
Organization Process Improvement



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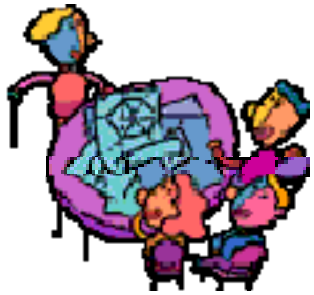
Software Engineering Process Group



- is focal point of the organization's SPI program
- facilitates the definition, maintenance and improvement of the process
- gives input to SPI strategic planning and focuses on the tactical planning
- provides process consultation to projects
- tracks and reports SPI progress
- develops and maintains process database

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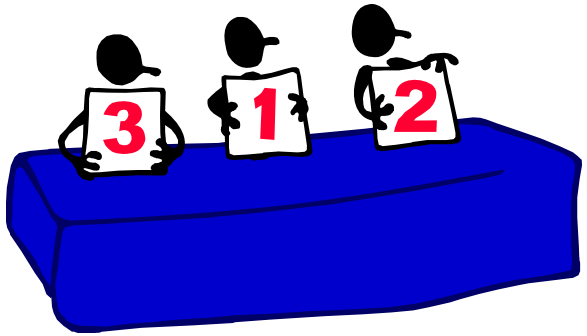
Systematic Change Management

- **Service Level Agreement (SLA) of SEPG function:**
  - **7+7 rule for analysis and assignment**
  - **Severity validation:**
    - **Large**
    - **Small**
    - **Cosmetic**
  - **Disposition:**
    - **Accept**
    - **Postpone**
    - **Reject**



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Increasing Involvement into SPI

- **Membership in SEPG**
- **Participation in Process Improvement Teams**
  - **addressing specific Process issue**
- **Requests for Process Change**
- **Regular Process Feedback Surveys**
- **Participation in appraisal activities**
- **Tailoring of the processes**

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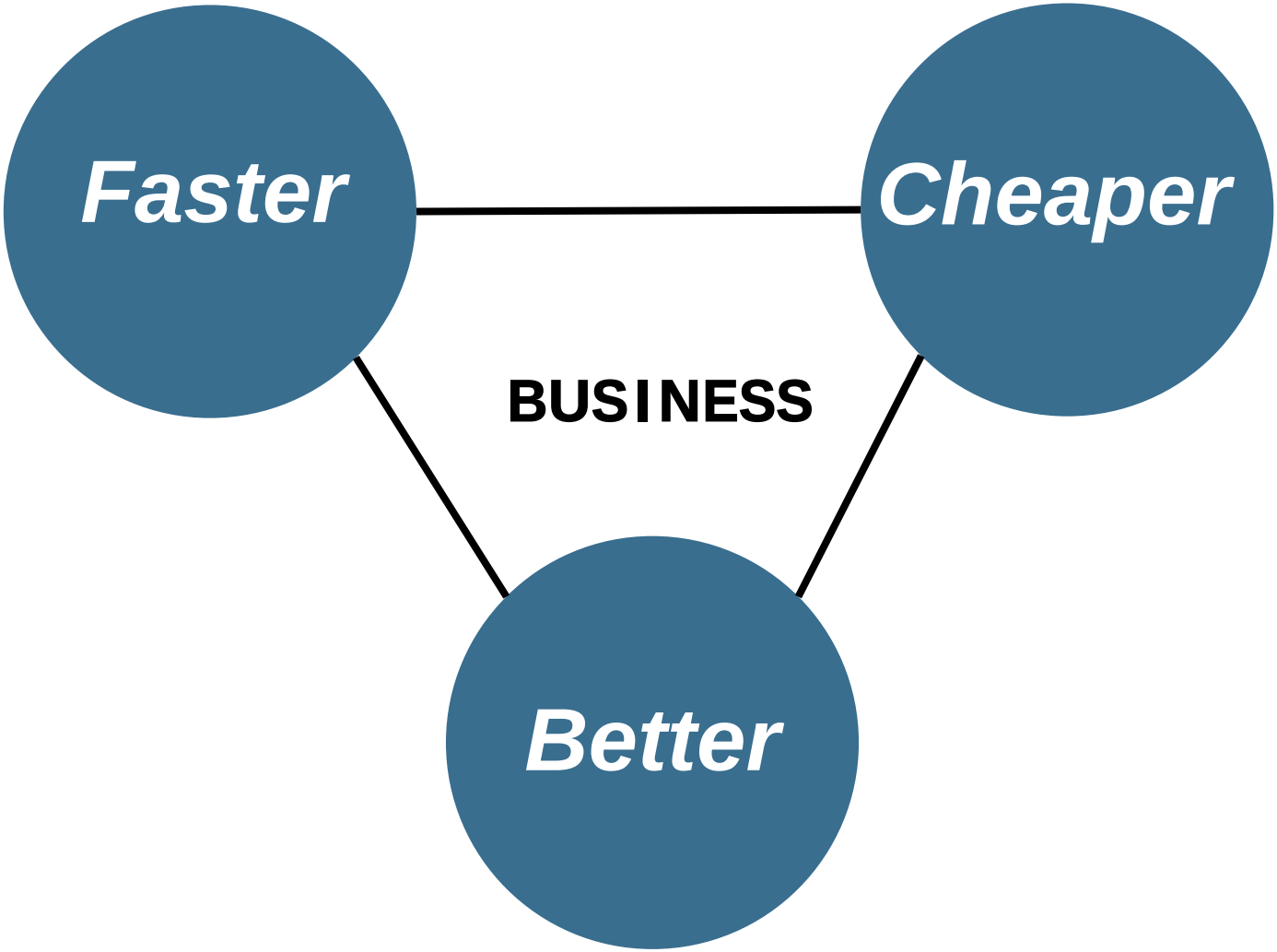

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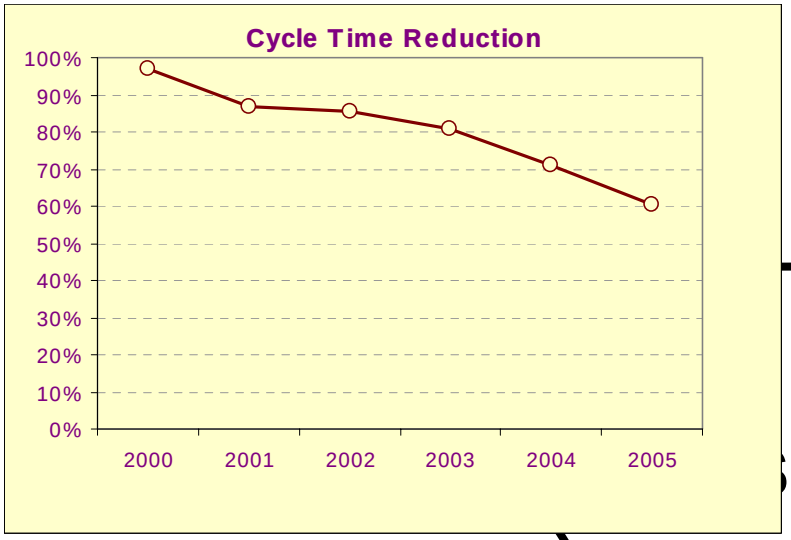

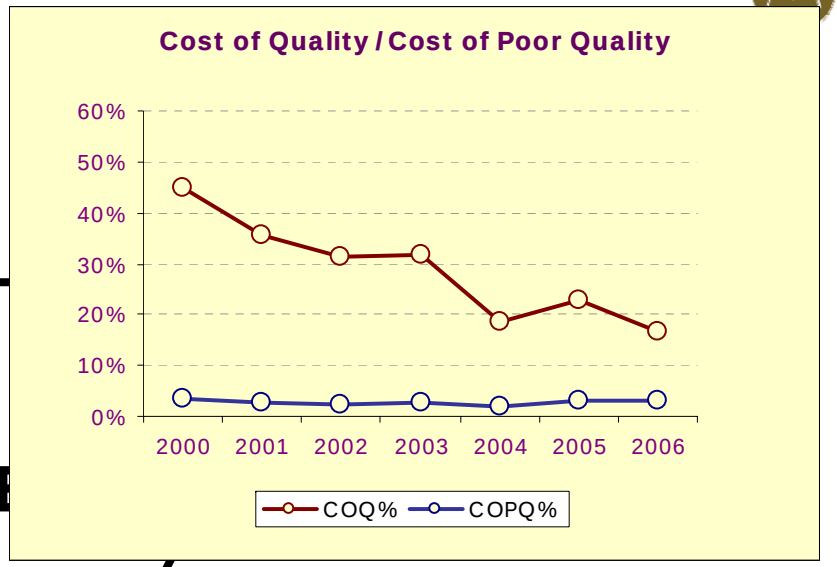

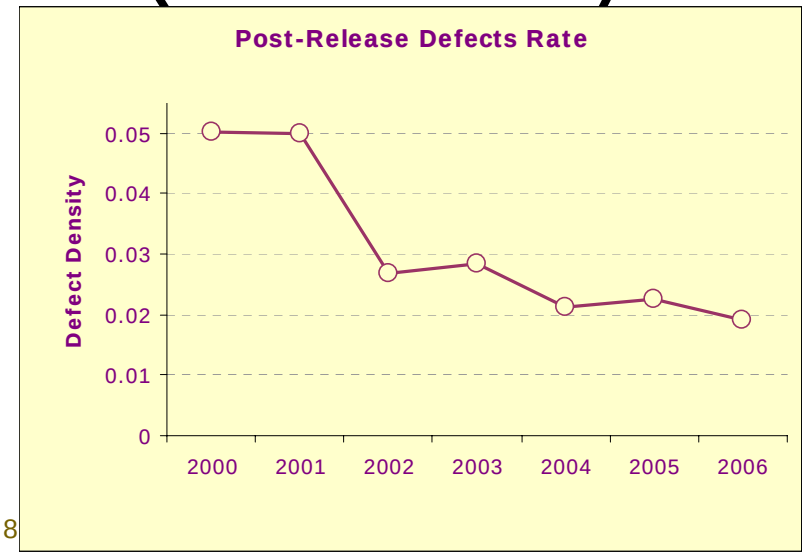

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Conclusion

- SPI is an integral part of organization's culture
- Linkage between Business and Process Improvement Goals
- Use of proven SPI methodologies like Digital Six Sigma
- "Management By Data" principles
- Organization-wide
- Focusing on problem prevention

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Thank you!

QUESTIONS?

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