



# A Business Case Approach for Process Improvement

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# Agenda



- Definitions
- Challenges of process improvement
- Process Improvement Process
- Business Case for Process Improvement
- Conclusions



# Definitions

- Process Improvement
  - Project/Organizational objective of continually improving project performance, based upon defined goals
  - Goals include: Quality, Productivity, CMM rating, etc.
- Performance Catalysts
  - Means by which process improvement occurs



# Challenges Of Process Improvement



- Looking for the ‘silver bullet’
- Chasing after buzzwords
- Many initiatives fail
  - Not enough time
  - Not enough commitment
  - Not planned or budgeted correctly
- Pilots may work, but roll-out is difficult



# What's the Underlying Problem?



- Process Improvement activities are projects!
  - Identical to engineering or production projects
- Must have same attributes
  - Plans
  - Follow-up on Execution
  - Trade-offs and Risk Mitigation
  - PROCESS!!



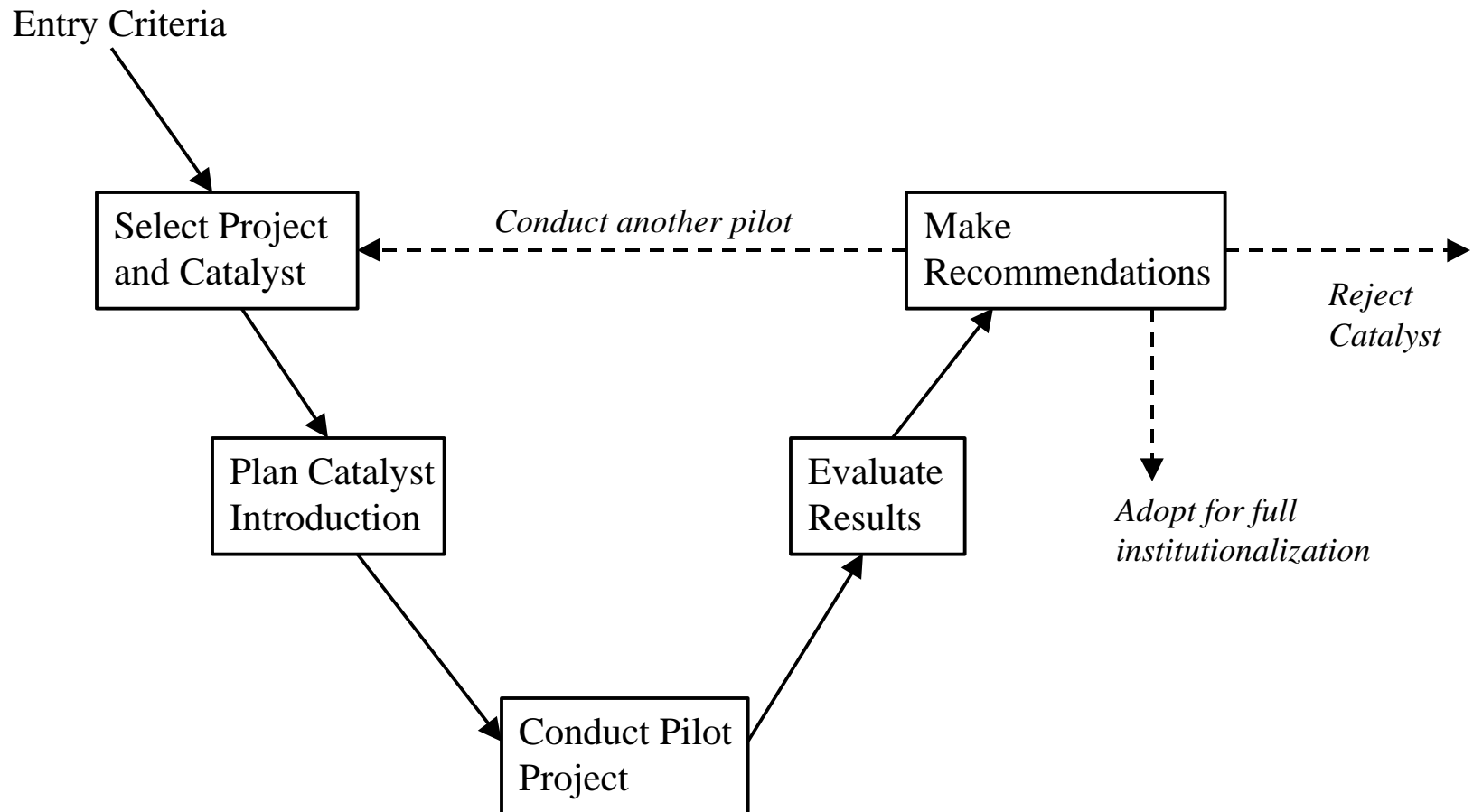
# What's the Underlying Problem?



- Process Improvement must be managed
  - Steps to follow
  - Milestones for decisions
- Lack of a Business Case approach
  - Why are you doing process improvement?
  - What will it cost?
  - What is the benefit?



# Process Improvement Process





# Business Case for Process Improvement





# Step 1: Select Project and Catalyst

- Two numbers that matter for any Catalyst:  
Cost of Entry and Return on Investment
  - Cost of Entry = Cost of Introduction + Cost of Support + Cost with Catalyst Usage
  - Return on Investment = Catalyst Benefit / (Cost of Introduction + Cost of Support)
- One must estimate these numbers for each Catalyst to select the one(s) to try



# Step 1: Select Project and Catalyst



- Refinement of terms
  - Cost of Introduction = Cost of Training + Cost of Acquisition + Cost of Installation + Cost of Learning Curve
  - Cost of Support = Cost of Availability + Cost of Learning Curve Mitigation (coaching) + Cost of Maintenance



# Step 1: Select Project and Catalyst

- Refinement of terms
  - Catalyst Benefit = Efficiency Savings + Quality Savings + Risk Savings
    - Efficiency Savings = Cost of Usage of Previous Process - (Estimated) Cost with Catalyst Usage
    - Quality Savings = direct and indirect benefits due to higher quality
    - Risk = Probability of Risk Occurring \* Cost of Risk Occurrence



# Step 2: Plan Catalyst Introduction



- After selecting Catalyst, create catalyst introduction plan
  - Goal
  - Pilot Scope
  - Catalyst to be Introduced
  - Catalyst Support
  - Measures of Effectiveness
  - Budget
  - Schedule
  - Risks and Mitigations



## Step 3: Conduct Project



- Tools
- Training
- Coaching
- Reference Material
- Measure Usage of Catalyst
- Discussions with project staff



## Step 4: Evaluate Results



- Analyze Data
- Measure actual ROI
- Measure actual Cost of Entry
- Capture Qualitative Information



# Step 5: Make Recommendations



- Select one of the following options
  - Conduct additional pilots to ensure repeatability, or to address open issues
  - Define an approach for full institutionalization of the catalyst
  - Reject the catalyst as being ineffective for the organization



# Results from using this approach on the IMBC Project



	<b>Inc 1</b>	<b>Inc 2</b>	<b>Inc 3</b>	<b>Inc 4</b>	<b>Inc 5</b>	<b>Inc 6</b>	<b>Inc 7</b>	<b>FQT</b>
<b>Expected cost with old Process (SM)</b>	<b>70.3</b>	<b>182.3</b>	<b>236.2</b>	<b>315.3</b>	<b>413.4</b>	<b>617</b>	<b>745.1</b>	<b>746.3*</b>
<b>Cost with new Catalyst (SM)</b>	<b>23</b>	<b>42.5</b>	<b>55.7</b>	<b>86.1</b>	<b>101.5</b>	<b>127.8</b>	<b>161.4</b>	<b>178.3</b>
<b>Cost of Introduction and Support (SM)</b>	<b>8</b>	<b>11</b>	<b>14</b>	<b>16</b>	<b>23</b>	<b>27</b>	<b>28</b>	<b>28</b>
<b>ROI</b>	<b>5.9</b>	<b>12.7</b>	<b>12.9</b>	<b>14.3</b>	<b>13.6</b>	<b>18.1</b>	<b>20.8</b>	<b>20.3</b>

\* does not include cost of rework (effort to correct failures that would have been found) during FQT using old process





# Conclusions

- Attributes
  - Process can be applied for any catalyst (technology, process, etc.)
  - Helps manage process change
  - Provides objective data for decision maker
- Process has been applied at Picatinny
  - Introduced Cleanroom Software Engineering
  - ROI of over 20 to 1