Implementing CMMI in a Virtual Development Organization

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MedPlus

- Customer facing software division of Quest Diagnostics Incorporated.
  - Hospital / IDN
  - HIE / Government
  - Physician Office

- Quest Diagnostics is the world’s largest chain of clinical diagnostic laboratories.
  - Grown by acquisition
  - Disparate systems and data centers
  - Greater than a half million specimens per day
Care 360 Lab Orders and Results

- Originally developed in 2000
- >60% percent of Quest Diagnostics orders pass through Care 360 LOR
  - >300,000 per day
- 990,000 registered users
- 44,000 simultaneous peak users per day
- 42,000,000,000 unique results
- 19 TB of data
- Six Sigma up time
- Every specimen represents a human life
- Awarded United States Patent #7,567,913
Diagnostics Services Group

- Extremely virtual team
- 45 Developers, requirements analysts, QA analysts, support analysts, PM’s and resource managers in 16 locations
- Modified waterfall SDLC
- 4 releases per year
- Six Sigma trained
  > 2 Black Belts, >10 Green Belts
- Daily all hands calls
- Heavy use of instant messaging and smaller conference calls.
- High employee satisfaction
- Function points analysis showing consistently high productivity
LOR Team Geographically
Why CMMI?

- Low CMMI penetration in HealthCare IT
  - Not a necessity for sales in our market space
- Create a more predictable process
  - Make post release week feel like any other week
- Improve quality where possible
- Align to customer goals
- Maintain autonomy
  - Team structure and geography unique to our organization
How did we get to Level 5?

- Management involvement
  > Training
- Leveraged Six Sigma training and culture
  > Access to Master Black Belts
- Stretch to achieve a level then refine those processes while pushing to achieve the next level.
  > SEPG
  > Obtain practitioner feedback and refine
  > Perfect is the enemy of good for initial processes
- Keep focus on the reasons for process improvement
- Tap into innovative spirit
  > Particularly at the High Maturity levels
Results

- Assessed at CMMI Level 2 - August 2005
- Assessed at CMMI Level 3 – July 2008
- Assessed at CMMI Level 5 – June 2010
- Acknowledged process leaders in our organization and company
- Increased visibility into status of processes during development phases and increased understanding of process capability yielding increased confidence in final product
- Increased visibility into linkage between micro activity and fulfillment of customer goals
QPPO Dashboard.

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<thead>
<tr>
<th>Category</th>
<th>Component</th>
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<th>Metric</th>
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<tr>
<td>Quality</td>
<td>Reduce Number of Defects Detected</td>
<td>ST01</td>
<td>Reduce System Test Defects</td>
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<tr>
<td>Quality</td>
<td>Reduce Rework on System Test</td>
<td>ST35</td>
<td>ReduceRejected Bug Fixes</td>
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<tr>
<td>Quality</td>
<td>Improve Quality of Software in Test Phase</td>
<td>GI</td>
<td>Implement Quality Indicator Tool</td>
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<td>Defect Yield</td>
<td>ST11</td>
<td># of Defects per CTQ</td>
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<td>Productivity</td>
<td>Improve Estimation Accuracy</td>
<td>LOEREP</td>
<td>REP vs LOE Estimates</td>
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<tr>
<td>Productivity</td>
<td>Improve Planning Estimates from Historical Data</td>
<td>PP01</td>
<td>Estimated Time vs Actual Time</td>
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<tr>
<td>Productivity</td>
<td>Improve Planning to Support Portfolio Changes</td>
<td>DSCUTFIX</td>
<td># of Days for Design, CUT, ST Bug Fixes</td>
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**Legend:**
- Green: meeting target or better
- Yellow: between baseline and target
- Red: below baseline
Questions?

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