Global trends in Process improvement

SEPG North America, Oct 2013
Agenda

- Changing business environment
- Top 7 trends in Process improvement
- Case Studies
- Summary
“The Business environment around us is changing and changing faster than ever before”
Competition
Mobile Phones

CURRENT MARKET

Samsung, HTC, Nokia, Apple, BlackBerry, LG, Sony, Lenovo
Globalization
Globalization

• Largest consumer electronics company in the world by revenue?

• Worlds largest steel maker in terms of production?

• Second largest employer in IT services in India?
Changing Economic Climate
Recessions

Chart of the Day - www.chartoftheday.com
High cost of failures
Ariane 5 crashes 37 seconds after takeoff

Service Provider to Pay Millions In Compensation to Customers

Software Bug Compromises Privacy of Wireless Customers
Investments in Process improvement is to the tune of 1 to 1.5% of IT budget
64% of the Organizations have Process improvement budgets in the range of 1 to 1.5%,

KPMG Survey 2012 (Business Excellence)
Investment blocks for process improvement

- SEPG/Process group
- SQA/Audit group
- Measurement group
- On-line/Integrated QMS
- Tools and Technology
- Automation products
- Knowledge management
- Training
- Certifications
- Research
- Customer satisfaction
### Return on Investments

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>RANGE</th>
<th>MEDIAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total yearly cost of PI activities</td>
<td>$49,000 - $1,202,000</td>
<td>$245,000</td>
</tr>
<tr>
<td>Years engaged in PI</td>
<td>1 - 9</td>
<td>3.5</td>
</tr>
<tr>
<td>Cost of PI per Software Engineer</td>
<td>$490 - $2004</td>
<td>$1375</td>
</tr>
<tr>
<td>Productivity gain per year</td>
<td>9% - 67%</td>
<td>35%</td>
</tr>
<tr>
<td>Early detection gain per year</td>
<td>6% - 25%</td>
<td>22%</td>
</tr>
<tr>
<td>Yearly reduction in Time to Market</td>
<td>15% - 23%</td>
<td>19%</td>
</tr>
<tr>
<td>Yearly reduction in Post release defect reports</td>
<td>10% - 94%</td>
<td>39%</td>
</tr>
<tr>
<td>Business Value of Investment in PI</td>
<td>4.0 - 8.8</td>
<td>5.0</td>
</tr>
</tbody>
</table>

**Benefits**

- Provides competitive advantage
- Reduces delivery time
- Increased predictability of project costs and schedules
- Higher quality and productivity
- Reduced rework effort and Cost of Quality
- Improved customer satisfaction index
- Ensures consistent process and hence quality of deliverables from various locations

*Source: Quantitative benefits observed by SEI*
CMMI based process improvement is growing at a healthy rate
Capability Maturity Model Integration (CMMI) is a process improvement approach whose goal is to help organizations improve their performance. CMMI can be used to guide process improvement across a project, a division, or an entire organization.
Number of SCAMPI A Appraisals Reported

Source: CMMI Institute
Region wise breakup

Source: CMMI Institute
Maturity level profiling

Source: CMMI Institute

Based on the most recent appraisal of 5,550 organizations,
March 2013
Countries where appraisals have been performed

Source: CMMI Institute

<table>
<thead>
<tr>
<th>Angola</th>
<th>Argentina</th>
<th>Australia</th>
<th>Austria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bahrain</td>
<td>Bangladesh</td>
<td>Belarus</td>
<td>Belgium</td>
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<td>Cyprus</td>
<td>Czech Republic</td>
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<tr>
<td>Denmark</td>
<td>Dominican Republic</td>
<td>Egypt</td>
<td>El Salvador</td>
</tr>
<tr>
<td>Finland</td>
<td>France</td>
<td>Germany</td>
<td>Ghana</td>
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<tr>
<td>Greece</td>
<td>Guatemala</td>
<td>Hong Kong</td>
<td>Hungary</td>
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<tr>
<td>India</td>
<td>Indonesia</td>
<td>Iraq</td>
<td>Ireland</td>
</tr>
<tr>
<td>Israel</td>
<td>Italy</td>
<td>Jamaica</td>
<td>Japan</td>
</tr>
<tr>
<td>Jordan</td>
<td>Kenya</td>
<td>Korea, Republic of</td>
<td>Kuwait</td>
</tr>
<tr>
<td>Latvia</td>
<td>Lebanon</td>
<td>Lithuania</td>
<td>Luxembourg</td>
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<td>Macedonia</td>
<td>Malawi</td>
<td>Malaysia</td>
<td>Mauritius</td>
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<tr>
<td>Mexico</td>
<td>Morocco</td>
<td>Nepal</td>
<td>Netherlands</td>
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<td>New Zealand</td>
<td>Norway</td>
<td>Pakistan</td>
<td>Panama</td>
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<td>Peru</td>
<td>Philippines</td>
<td>Poland</td>
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<td>Portugal</td>
<td>Qatar</td>
<td>Romania</td>
<td>Russia</td>
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<tr>
<td>Saudi Arabia</td>
<td>Singapore</td>
<td>Slovakia</td>
<td>South Africa</td>
</tr>
<tr>
<td>Spain</td>
<td>Sri Lanka</td>
<td>Sweden</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Syrian Arab Republic</td>
<td>Taiwan</td>
<td>Thailand</td>
<td>Tunisia</td>
</tr>
<tr>
<td>Turkey</td>
<td>Ukraine</td>
<td>United Arab Emirates</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>United States</td>
<td>Uruguay</td>
<td>Venezuela</td>
<td>Viet Nam</td>
</tr>
</tbody>
</table>
### Most Appraisals reported per year by Country

*Source: CMMI Institute*

<table>
<thead>
<tr>
<th>Country</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>Total</th>
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<tbody>
<tr>
<td>China</td>
<td>104</td>
<td>278</td>
<td>476</td>
<td>499</td>
<td>508</td>
<td>560</td>
<td>2,425</td>
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<tr>
<td>United States</td>
<td>129</td>
<td>206</td>
<td>276</td>
<td>295</td>
<td>296</td>
<td>317</td>
<td>1,519</td>
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<tr>
<td>India</td>
<td>76</td>
<td>83</td>
<td>126</td>
<td>106</td>
<td>135</td>
<td>136</td>
<td>662</td>
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<tr>
<td>Spain</td>
<td>14</td>
<td>30</td>
<td>73</td>
<td>40</td>
<td>62</td>
<td>54</td>
<td>273</td>
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<tr>
<td>Korea, Republic of</td>
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<td>29</td>
<td>27</td>
<td>34</td>
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<td>29</td>
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<td>174</td>
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<td>Mexico</td>
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<td>18</td>
<td>31</td>
<td>35</td>
<td>31</td>
<td>46</td>
<td>165</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>9</td>
<td>16</td>
<td>17</td>
<td>13</td>
<td>21</td>
<td>10</td>
<td>86</td>
</tr>
<tr>
<td>Germany</td>
<td>10</td>
<td>16</td>
<td>10</td>
<td>14</td>
<td>18</td>
<td>9</td>
<td>77</td>
</tr>
</tbody>
</table>
Number of appraisals reported by continent (SVC only)

Based on 226 appraisals, March 2013
CMMI-ACQ Industry Trends

Source: CMMI Institute

<table>
<thead>
<tr>
<th>CMMI ACQ</th>
<th>16 Appraisals (2011 – 2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spain</td>
<td>4</td>
</tr>
<tr>
<td>France</td>
<td>2</td>
</tr>
<tr>
<td>China</td>
<td>2</td>
</tr>
</tbody>
</table>

CMMI ACQ - Specific Process Areas

- Acquisition Requirements Development (ARD)
- Solicitation and Supplier Agreement Development (SSAD)
- Acquisition Technical Management (ATM)
- Acquisition Verification (AVER)
- Acquisition Validation (AVAL)
PCMM Trends

Source: CMMI Institute

## BUSINESS IMPACT

### People Process

- Drop in appraisal time from 1 month to 1 week (IT Major)
- Cycle time drop from 60 to 40 days (IT Major)

### Employee Benefits

- 60% increase in ESAT
- 45% increase in people exceeding performance expectations due to competency recruiter

### Delivery Optimization

- Drop in Effort Variation by 31% (IT Major)
- Drop in rework due to higher competency (21% co-relation) [IT Major]

### Business Impact

- 12% increase in guest feedback scores (Hospitality)
- Enabled scalability

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Source: CMMI Institute

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Certifications are the major driver for Process Improvement in the industry
## Adoption trends

<table>
<thead>
<tr>
<th>Models</th>
<th>Adoption Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 9001</td>
<td>1,111,698 (2012)</td>
</tr>
<tr>
<td>CMMI</td>
<td>1413 (2013)</td>
</tr>
<tr>
<td>ISO 20000</td>
<td>620</td>
</tr>
<tr>
<td>ISO 27001</td>
<td>7,200</td>
</tr>
</tbody>
</table>
Common Frameworks adoption

**IT Services**

- ISO Based standards
  - 9000
  - 20000
  - 27001

- CMMI
  - DEV
  - SVC

- Frameworks
  - ITIL
  - COBIT

- Methods
  - Six Sigma
  - Lean
  - Agile

- People Maturity
  - PCMM

**IT Divisions**

- ISO Based standards
  - 20000
  - 27001

- CMMI
  - DEV
  - SVC
  - ACQ

- Frameworks
  - ITIL
  - COBIT

- Methods
  - Six Sigma
  - Lean
  - Agile
Multi-model adoption is common with nucleus being held by either CMMI Dev or ISO 9000
78 companies have certified to (and hence adopted) more than two IT standards – Sample size of 112 certified organization

KPMG Survey 2012 (Business Excellence)
Process improvement frameworks


TIMELINE

ISO  CMMi-SVC

CMMI-DEV

PCMM

CoBIT

EFQM

ITIL

MBNQA

Six Sigma

RMM

Six Sigma


TIMELINE

ISO  CMMi-SVC

CMMI-DEV

PCMM

CoBIT

EFQM

ITIL

MBNQA

Six Sigma

RMM
Process Improvement Models and Standards Landscape in IT Services

ISO 9000, Six Sigma (Lean)
 Manual processes are gradually being replaced by automated tools

 End to end Integration is still far off from reality
Automation in the IT sector vs. Other sectors

IT spending as a % of revenue
Centralized tool enablement function

- Sample Size of 114 companies,

KPMG Survey 2012 (Business Excellence)
Application of Automation in IT

Application Development - Automation

- Project Governance
- Project Management
  - Requirements 10%
  - Analysis 10%
  - Design 15%
  - Coding/Build 35%
  - Testing 20%
  - Release 10%

Infrastructure - Automation

Automation in IT
Infrastructure related areas

- Compliance Reporting
- Change Management
- Configuration Management
- Problem Resolution
- Application Release
- Visibility & Reporting
- License Consolidation
- Run-book automation
- Patch Management

Large scope for automation

Existing automation in the IT industry is 6%
### Popular Tools across Areas

<table>
<thead>
<tr>
<th>Process Area</th>
<th>Automation Scope</th>
<th>Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirement Management</td>
<td>Large</td>
<td>Requisite Pro DOORS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Koviar ALM</td>
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<tr>
<td></td>
<td></td>
<td>Digite</td>
</tr>
<tr>
<td>Project Planning</td>
<td>Medium</td>
<td>Digite</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adaptive Process Accelerator</td>
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<tr>
<td></td>
<td></td>
<td>MS Project</td>
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<td></td>
<td></td>
<td>PPM Studio</td>
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<td></td>
<td></td>
<td>EstimatorPAL</td>
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<td></td>
<td></td>
<td>SEER’s</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clearquest</td>
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<td></td>
<td></td>
<td>Minitab</td>
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<tr>
<td></td>
<td></td>
<td>Crystal Ball</td>
</tr>
<tr>
<td>Project Monitoring &amp; Control</td>
<td>Large</td>
<td>Clearcase</td>
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<td></td>
<td></td>
<td>Subversion</td>
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<td></td>
<td></td>
<td>Synergy</td>
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<td>PVCS</td>
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<td></td>
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<td>Dimensions CM</td>
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<tr>
<td>Measurement &amp; Analysis</td>
<td>Large</td>
<td>IBM Rational</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Microfocus</td>
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<tr>
<td></td>
<td></td>
<td>Microsoft VSTS</td>
</tr>
</tbody>
</table>
Industry specific models and frameworks are additionally being used for process improvement in specific domain and sectors.
Industry Specific Models

Telecommunications
- e-Tom
- TL 9000

Pharmaceuticals
- CFR

Financial Services
- SOX
- COBIT

Automotive
- ISO15504 and Automotive SPICE
- TS 16949 defines requirements in addition to those in ISO 9001:2008 specifically for the automotive industry
- QS 9000

IT/ IT Services
- TickIT guidelines are an interpretation of ISO 9000 for software development
- ISO/IEC 90003:2004 provides guidelines for the application of ISO 9001:2000 to computer software
- IEEE, CMMI, ITIL
TMMI for Testing
Source: TMMI Foundation

TMMi : CMMi in Testing

Lean In Testing

Six Sigma in Testing

Data Analytics in Testing

VoC in Testing : Product and testing

Organizations Certified

Level 3: 7
Level 4: 2
Level 5: 3

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TMMi Adoption and industry interface

Majority of organizations going for TMMi appraisal are IT consultants/service providers

- IT Services, 6
- Telecom, 2
- BFSI, 1
- Aerospace and Defence, 1

Majority of organizations assessed are now at Level 3 compliance

- Level 3, 8
- Level 4, 2
- Level 5, 1
Six sigma, Lean and Agile are common frameworks/methods used in IT organization and divisions
Percentage of Organization implementing Six Sigma
Agile: Methodology that closely reflects the Development process
Agile Findings!

- **49%** of businesses are using Agile development
- **52%** of customers are happy or very happy with Agile projects
- More than **50%** agree that prioritizing customer depends is the biggest Agile challenge
- **15%** increase in respondents who work where there are at least 5 Agile teams from 2011 to 2012
- Planning to implement agile development in future projects has increased from **59%** in 2011 to **83%** in 2012
- Most Agile-savvy groups are ScrumMasters and Project Managers (**57%**)
- Least Agile savvy groups are Product Owners (**3%**) and Executives (**2%**)
- The most popular Agile method used is Scrum (**52%**)
- The use of Agile project management tools has jumped by **8%**
- **52%** of companies state the biggest barrier to Agile adoption is the inability to change organizational culture

Source: Survey conducted by Serena Software at the Agile 2012 Conference in Dallas 7th State of Agile Development Survey by VersionOne
Process improvement models promise reduced costs, increased predictability of project costs and schedules, higher quality and productivity, shorter cycle time leading to increased customer satisfaction and higher employee morale.

The model based trend is growing and the market is also showing an interest in complementary approaches.

Multi-model approaches are gaining pace to address different aspects while integrated business excellence approach becomes vital for tapping the full benefits.
Thank You

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E: prasanths@kpmg.com