The Rapid Assessment of Software Process Capability

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Outline

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Introduction

- Process assessment is typically seen as requiring intensive use of resources.
- The importance of assessment in improvement projects for small and medium size enterprises, and correctly identifies the need for a specific approach to such assessment.
- A key issue for many small and medium size companies - in particular - is the ability to obtain meaningful and reliable evaluations of capability with limited investment of time and resource.
Design Concerns

- The assessment is conducted within a one-day timeframe.
- The assessment is based upon an assessment model of limited scope, with a standard set of eight processes
  - the high level Software Development process (ENG.1) is assessed as a whole
- The competence and experience of the assessors is seen as of primary importance.
- Data collection is limited to the single technique of moderated discussion by performers of the processes.
- Generation of ratings of capability is performed by a process of consensus-gathering.
RAPID

Rapid Assessment for Process Improvement in software Development
### Scope of the Assessment

<table>
<thead>
<tr>
<th>Requirements Gathering</th>
<th>CUS.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Development</td>
<td>ENG.1</td>
</tr>
<tr>
<td>Project Management</td>
<td>MAN.2</td>
</tr>
<tr>
<td>Configuration Management</td>
<td>SUP.2</td>
</tr>
<tr>
<td>Quality Assurance</td>
<td>SUP.3</td>
</tr>
<tr>
<td>Problem Resolution</td>
<td>SUP.8</td>
</tr>
<tr>
<td>Risk Management</td>
<td>MAN.4</td>
</tr>
<tr>
<td>Process Establishment</td>
<td>ORG.2.1</td>
</tr>
</tbody>
</table>

- The Capability Dimension of the assessment model is identical in structure to that in ISO 15504-2;
  - for most assessments, the scope of the model is limited to Levels 1, 2 and 3.
There is a complete set of questions / indicators for each process across all capability levels

- this provides a set of 210 questions in the model.

The questions / indicators are based on

- an analysis of the outcomes of the processes,
- the results of achievement of the various process attributes for each capability level.

The assessment model is incorporated into a paper-based assessment instrument which is employed as the basis for the discussions in the assessment;

- all participants are provided with a copy of the instrument.
Assessor Roles

- RAPID places substantial emphasis on assessor competence for the method.
- The two assessors conducting the assessment adopt two roles - team leader and support assessor.

- **The team leader:**
  - prepares the plan of the assessment with the sponsor of the organization
  - during the assessment facilitates the discussion of the capabilities of the processes by encouraging frank and open discussion about the activities of the organization.

- **The support assessor:**
  - records the evidence discussed against the relevant sections of the assessment instrument.
Issues in Conducting Assessments

- Organisational demographics are collected before the site visit.
- The first part of the site visit is restricted to discussion of Requirements Gathering and Software Development.
- The remaining supporting processes can usually be discussed much more quickly on the basis of the earlier agreements.
- Key findings focus on:
  - Strengths of the organisation.
  - Risks and improvement opportunities identified in the discussions.
Application

- 25 assessments conducted so far.
- Size range from 3 to 120 staff.
  - average 10 - 12 staff
- All commercial software developers using leading-edge technologies.
- Intimate knowledge of their selected market.
  - very close relationship with their clientele
  - good understanding of their clientele’s requirements
## Investment costs

<table>
<thead>
<tr>
<th>Task</th>
<th>Person(s) involved</th>
<th>Typical Effort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepare and send demographic questionnaire</td>
<td>Team leader</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Complete demographic questionnaire</td>
<td>Sponsor</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Prepare Assessment Plan</td>
<td>Team leader</td>
<td>30 minutes</td>
</tr>
<tr>
<td>Prepare Assessment Instrument</td>
<td>Team leader</td>
<td>30 minutes</td>
</tr>
<tr>
<td>Conduct RAPID Assessment</td>
<td>Team leader</td>
<td>8 hours</td>
</tr>
<tr>
<td></td>
<td>Support Assessor</td>
<td>8 hours</td>
</tr>
<tr>
<td></td>
<td>Organization Participants</td>
<td>8 hours</td>
</tr>
<tr>
<td>Prepare Assessment Report</td>
<td>Team leader</td>
<td>6 hours</td>
</tr>
<tr>
<td></td>
<td>Support Assessor</td>
<td>4 hours</td>
</tr>
</tbody>
</table>
Validation Strategy

- Up to 5 of the assessed organisations will have a full assessment of capability (based on ISO 15504-5) conducted.
- Results will be compared with the RAPID results.
- Two validation assessments have been performed so far, and results are highly consistent.
  - Significant differences can be explained by weaknesses in the method and/or model, and these are being improved.
Conclusions

- The strength of RAPID lies in the customer’s involvement with the assessment.
- The restricted scope and the timeframe of one-day, makes RAPID a feasible assessment approach for small organizations.
  - The cost of performing the assessment is not exorbitant.
  - It also has strong potential for performance of snapshot assessments on projects within the larger organization.
- Benchmarking information can be provided quickly for organizations assessed using RAPID.
- Feedback from participants has been uniformly positive.