
Seven issues and opportunities

- Success of SPI based in fixed maturity levels (CMM, CMMI, etc...)
- Flexibility of continuous architecture (ISO/IEC 15504-5, CMMI, etc...)
- Using multiple models at same time (example: CMMI, ISO 9001 and PMBOK)
- Two groups: one define models (SEI, ISO/IEC) and other only use models (software organizations)
- More specific models: OOSPICE, Automotive SPICE, ...
- Model-driven engineering for process improvement
- Fundamental concepts: Capability Levels, Process Area and Process Capability Profile
Proposal

The next four slides, introduce a proposal with:

- a definition for a (Process Capability Profile)-Driven (Process Engineering)
- Process Capability Profile as a model of Process
- PRO2PI (Process Capability Profile to Process Improvement) as an approach to using elements of multiple models under the proposed Process Engineering
- PRO2PI experiences in software intensive organizations

{(Process Capability Profile)-Driven (Software and any other Knowledge Intensive Human Work) (Process Engineering)} is

(1) The application of (engineering), which is concerned with "creating cost-effective solutions to practical problems by applying scientific knowledge to build [concrete or abstract] things in the service of mankind", to the (definition, usage, management, establishment, measurement, change, improvement and co-evolution)

of consistent pair of
- process capability profile,
- software and any other knowledge intensive human work

oriented by the (process capability discipline), as a mean to achieve (organizational excellence):

(2) the application of (engineering), to the (definition, usage, management, establishment, measurement, change and improvement)

of (process capability model)

for a more specific technological context or domain;

and

(3) the study of approaches as in (1) and (2).

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ISO/IEC 15504

PRO2PI approach

More specific model

Organization and organizational unit's business goals and context

process improvement actions

organizational unit process

process performance results

process capability results

defineP

assessPr

useP

defineM

Context and characteristics of a segment or domain

Good practices from process capability models (SW-CMM, ISO/IEC 15504-5, iCMM, CMMI-SE/SW, OPM3, COBIT, eSCM-SP, MR-MPS, ...), from other types of reference models (ISO 9001, PMBOK, ISO/IEC 12207, SWEBOK, EFQM, PNQ, RUP, ...) and/or from any other source

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### PRO2PI experiences

<table>
<thead>
<tr>
<th>Characteristic and year interval of the utilization</th>
<th>#projs.</th>
<th>#uses</th>
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<tbody>
<tr>
<td>Software process improvement cycle in an organization [1999-2002]</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Software process improvement cycle in another organization [2002-2003]</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Establishment of process capability profiles to improvement [2000-2005]</td>
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<td>12</td>
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<tr>
<td>15504MPE Project [2003-2004]</td>
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<td>5</td>
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<tr>
<td>Process improvement in groups of organizations [2004-2005]</td>
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<td>8</td>
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<tr>
<td>Development of more specific process capability models [2004-2005]</td>
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<td>7</td>
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<tr>
<td>Students projects in professional SPI courses [2004-2005]</td>
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<td>164</td>
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<td><strong>TOTAL</strong></td>
<td><strong>32</strong></td>
<td><strong>200</strong></td>
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**Conclusion**

The proposed process engineering and the PRO2PI approach aim to guide the software intensive industry, specially small software intensive organizations, in the establishment of relevant, feasible, opportunistic, systemic, representative, traceable, specific and dynamic process capability profiles to drive more innovative and successful business oriented process improvements cycles, as an evolution of the current process improvement approaches composed by the implementation of the fixed “one size fits all” maturity levels of SW-CMM and CMMI models.
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