Protocol for a Review of Global Software Development Models

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1 Introduction

We conduct a review of the literature to identify the reported Global Software Development (GSD) process models to include process capability, maturity, stage models, and frameworks. We are particularly interested in establishing the extent to which GSD process models are evaluated and applied in practice. Our study updates research conducted in 2010 [7] to now include GSD models developed between 2010-2019.

This protocol includes our research question, search terms, search strings, inclusion and exclusion criteria, and our preliminary results from our searches. We also include the references of the related work.

2 Research Question

What process models (including capability, maturity, stage model, and frameworks) are used in practice in globally distributed software development?

3 Search Terms

Table 1. Search Terms.

<table>
<thead>
<tr>
<th>Category</th>
<th>Keywords</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global software development</td>
<td>Distributed software development, Global software development, Collaborative software development, Global software engineering, Globally distributed work, Collaborative software engineering, Distributed development, Distributed teams, Global software teams, Globally distributed development, Geographically distributed software development, Offshore software development, Offshoring, Offshore, Offshore outsourcing, Dispersed teams</td>
</tr>
</tbody>
</table>

4 Search String

((Global OR gsd OR gse OR dsd) AND ((model OR framework OR method) AND (capability OR process OR maturity)))
5 Electronic Bibliographic Databases

Searches were conducted in the following databases:

– IEEE Digital Library (IEEEXplore)
– ACM Digital Library
– Science Direct (Elsevier)
– Scopus

6 Inclusion and Exclusion Criteria

6.1 Inclusion

– Publication year: 2010-2019
– Language: English
– Full text available and accessible
– Peer reviewed work
– Experience reports
– Answers our research question
– Empirical studies and theoretical studies will be included.

6.2 Exclusion

– Exclude that not relate to the process of software development
– Exclude duplicated studies (where authors report similar results in two or more publications – e.g. a journal paper that is an extension of a conference paper). Exclude the least detailed paper, or if unclear exclude the paper that is published in the more notable venue.
– Exclude sources which did not discuss the concept of software development
– books, presentations, blogs

7 Results
<table>
<thead>
<tr>
<th>Model</th>
<th>Scope/Focus Type</th>
<th>Levels</th>
<th>Practices</th>
<th>Empirically evaluated</th>
<th>Empirically evaluated from</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITO model [3]</td>
<td>Business/Organization Capability</td>
<td>4 Levels</td>
<td>Not defined</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Outsourcing Maturity Model [1]</td>
<td>Business/Organization Capability</td>
<td>5 Levels</td>
<td>Not defined</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Process Maturity Framework (PMF) [8]</td>
<td>Technical/Project Maturity</td>
<td>3 Levels</td>
<td>24 Practices in 4 areas</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Collaboration Maturity Model [5]</td>
<td>Business/Project Maturity</td>
<td>15 Levels</td>
<td>Not defined</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>SQM-CODE model [10]</td>
<td>(Business &amp; Technical/Organization Capability</td>
<td>5 Levels</td>
<td>84 Practices in 4 areas</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>GTM [9]</td>
<td>Organization &amp; Project Capability</td>
<td>4 Levels</td>
<td>20 Sub-practices and 70 recommendations</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>ADAPT [11]</td>
<td>Project</td>
<td>Not defined</td>
<td>Not defined</td>
<td>10 guidelines and 29 practices</td>
<td>Yes</td>
</tr>
</tbody>
</table>
References