A Preliminary Study of the Adherence to the Communication Maturity Model in Four Software Organizations

Nelson Leitão Júnior[1], Ivaldir Farias Junior[2], Sabrina Marczak[3], Rodrigo Santos[4]

[1]CESAR.EDU

[2]CIn – Universidade Federal de Pernambuco (UFPE)

[3]FACIN – Pontifícia Universidade Católica de Porto Alegre (PUCRS)

[4]PESC/COPPE – Universidade Federal do Rio de Janeiro (UFRJ)

`ngslj@windowslive.com, ihf@cin.ufpe.br,`
`sabrina.marczak@pucrs.br, rps@cos.ufrj.br`

***Abstract**. This paper aims to classify four software organizations with experience in distributed software development in the Communication Maturity Model (C2M), along with a brief introduction of the model itself and the assessment method used to identify the maturity level in each company.*

1. Introduction

Communication has regularly been reported as one of the main challenges in distributed software development (DSD) for several reasons. For instance, team members work in time zones with no overlapping hours and cannot synchronously meet without one of the parts changing working hours. In other cases, miscommunications take place because team members do not speak the same language or share the same culture. In addition, given the lack of face-to-face opportunities to chat, even with advances in technology, communication frequency is still often low when compared to co-located development. It can cause delays in decision-making or clarification requests, for example, jeopardizing deadlines and work progress.

Given this context, we proposed the C2M, a communication maturity model that aims to help companies to improve communication in their distributed projects [Farias Junior 2014]. However, for organizations to be able to apply the C2M and identify how mature their communication practices are, an assessment method is needed. We briefly introduce our model and the strategy used to assess the maturity of four organizations, which is an initial draft of a to-be-proposed assessment method as well as the results of the assessments in order to share with the community our initial insights on the matter.

2. C2M Model

The most appropriate way for measuring the organizational maturity on a discipline (or domain) seems to be a maturity model approach [Alonso and Soria 2010] and that is the role of C2M in communication discipline. The C2M is based in four existing maturity models: CMMI, eSCM, MR-MPS, and Wave. It specifies four maturity levels: *casual*, *partially managed*, *managed* and *reflective*, each composed of a set of practices. Details can be found in [Farias Junior 2014].

3. C2M Assessment Method: A Draft Proposal and Pilot

Inspired on the MA-MPS assessment method [Softex 2012], we proposed a set formularies and interviews with project stakeholders as a mechanism for data retrieval to assess communication in DSD projects. We piloted our assessment strategy in four organizations: *A* (medium, Americas & Asia, 10 years of experience in DSD), *B* (micro, Americas, 2 years of experience in DSD), *C* (medium, Americas, 9 years of experience in DSD), and *D* (medium, Americas, 11 years of experience in DSD). During an interview, C2M practices used within an organization were identified by verifying evidences they took place (or were absent) and the implementation level of each practice. Results are represented by the means of a characterization method, based on the rules of the MA-MPS [Softex 2012].

The assessment proceeded as follows: *Step 1* – the characterization was applied in extracted data from the assessment of the practices in the organizations that were selected for adherence verification; this task resulted in a data-mapping table; *Step 2* – the data mapping table was aggregated in a format of practices on its respective maturity factors and exposed an aggregation factor which was named as 'adherence'. This factor was calculated according to the following formula: *adherence = (more than 50% of incidence of 'Totally implemented' or 'Largely implemented' practices)*; and *Step 3* – all 'adherence' values were aggregated for each C2M maturity level, as a percentage factor that indicates overall adherence on each assessed organization (see Table 1).

Table 1 – Findings

Maturity Level	Maturity factors	Number of practices	Org. A	Org. B	Org. C	Org. D
2	10	25	40%	20%	40%	50%
3	13	24	38%	15%	38%	38%
4	4	9	50%	25%	25%	0%

4. Findings

None of the assessed organizations was completely adherent to any of the C2M Levels, but all of them managed to get some effort in communication practices within their DSD projects. Organization B had the lowest overall score, probably by the fact that is a smaller company, still adjusting its development processes for DSD. In addition, the results indicated that the first C2M level had better adherence scores for organizations A, C and D, which indicates a common acceptance of most communication-related known practices by larger development organizations.

References

Alonso, J. and Soria, I. M. De (2010). Enterprise Collaboration Maturity Model (ECMM): Preliminary Definition and Future Challenges. *Enterprise Interoperability IV: Making the Internet of the Future for the Future of Enterprise*, 9p.

Farias Junior, I. H. De (2014). C2M - A communication maturity model for distributed software development. PhD Thesis. CIN, UFPE, Recife, 287p.

Softex (2012). MPS.BR - Melhoria de Processo do Software Brasileiro, guia geral MPS de software. 58p.