发起人高层会议总结报告

RAGHAV S. NANDYAL
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Dear Raghav Nandyal:

一、总体发现

在本次 CMMI 高级成熟度评估中，主任评估师、翻译老师和 6 位 ATM 辛勤工作，举行了多场访谈和文档审查，通过他们丰富的经验和专业的技能，全面地了解了我们公司的 CMMI 成熟度水平，并在评估结束后，提供了宝贵的建议和改进建议，以便我们进一步提高运营和管理水平。本次评估总共发现了 29 项改进建议。改进建议分为工程管理、项目管理、支持管理、过程管理 4 类，其中，工程管理 10 条，项目管理 6 条，支持 6 条，过程管理 7 条以及 5 个全局发现结果。经过公司高层经理、EPG 过程改进小组、项目经理、QA、CM、OT 等过程改进中的重要角色研究讨论，一致认为主发现改进项与公司的实际情况高度符合，符合度为 95%。

二、经验教训

我们从工程管理、项目管理、支持、过程管理四个方面分别进行总结。

工程管理

确保在需求规格说明书编写过程中使用明确的分析方法和技术，以减少主观性的影响。为每个非功能性需求明确定义衡量指标和度量标准，对于性能需求，可以定义响应时间、吞吐量等指标来衡量性能表现。对非功能性需求进行优先级排序，确保团队和利益相关者能够明确了解哪些需求是最关键和优先考虑的。可以采用层

次分析法、用户需求调查等方法来进行需求优先级的评估和排序。

我们需要进行更全面、详细的需求收集工作，确保在概要设计之前对非功能性需求进行充分的分析和捕捉。加强团队的沟通和协作，确保团队成员之间有良好的沟通渠道和协作机制。增强评审人员对设计原则对质量影响的充分认识，并纳入评审检查单。

在测试方面，为了更深入的分析缺陷产生的根本原因，在后续的工作中我们打算成立一个项目缺陷库，从多个维度分析缺陷，归类总结经验，同时识别共性缺陷、可避免的缺陷，定期针对项目组人员展开培训，提升编码技能，预防未开发需求犯同样的错误。在之前的测试中，我们更加关注的是正向流程验证，主要测试业务的正常逻辑是否能够走通，以及在正常逻辑多并发运行过程中是否有潜在的性能问题，往往忽视了各种异常情况对服务造成的影响。针对这一点我们会设计软件异常测试的测试用例，并制定异常用例的模板进行评审，从而提高我们的产品质量。

项目管理

在项目的开发过程中，对平台生成、全新、重用、改造四种类型的代码进行定义描述，并添加到项目评估报告中，从而进一步提高我们的代码编码生产率。我们也会严格遵守代码标准，定期做好代码审查，特别注意改进代码注释以方便维护。

在后续的项目风险管理中，重新审查和完善风险管理计划，确保对中高优先级风险制定了充分的缓解措施和应急措施。对于概率较小的风险，也要确保制定相应的应急措施，以防止缓解措施失效。在制定缓解措施和应急措施时，要考虑到缓解措施失效的可能性，并制定备选方案以应对该情况。

其次重视项目管理过程中的干系人管理和进度管理，在干系人识别与管理中明

确干系人对干系人的影响，并将影响类型分为技术、财务、资源、进度等，为每个干系人评估他们对计划的影响范围。在进度管理中增加明确的责任人和协助人，及时提供任务相关的信息、资源和支持，解答他们可能遇到的问题，及时处理任何潜在的问题或障碍。通过以上方法提高客户满意度数据质量，从而更准确的度量我们的商业目标。

支持

在质量把控工作方面，需要对常见的不符合项进行汇总和量化分析，总结不符合项目间的共性问题，深入分析其根本原因及严重程度，针对不同根因产生的问题提出对应的改进措施，并向 EPG 和高层经理提出过程改进建议。

在人才培养方面，需要快速适应市场变化，制定出符合公司战略发展的战略培训计划，协助研发部门建立和完善组织胜任力评估模型和岗位能力评价模型，不断提高员工的综合素质，定期的收集员工培训需求，结合员工培训总结和员工技能表不断调整培训计划。因材施教地对不同员工、不同成长阶段进行针对性的培训，从而有助于员工的快速成长。

过程管理

进一步明确资产的复用方式和复用层次，在实际工作中，技术层面上的复用相对比较简单，我们对这部分的认知也最多，而且由于开源的普及，现在有丰富的中间件让我们选择，我们可以基于它们，逐步构建适合自己的技术体系。

在系统测试用例这方面保证所有的有效和无效的测试用例都考虑到，并进行记录和分析，这样才会减少对遗留缺陷密度的影响，否则可能会和制定的目标有较大的偏差。加强对过程的管理和跟踪，确保设置更精准的目标，更好地实现组织的商业目标。

三、现实意义

1）提高软件开发和维护的质量，降低软件开发和维护的成本：直接针对组织的软件开发和维护能力进行评估，可以为组织提供有效的指导和支持，有助于实现稳定且可预测的开发过程，帮助组织在软件开发和维护领域取得更高的成功率和更高的质量。同时，可以帮助组织在项目管理、流程改进、技术、质量保证和人员开发等方面进行有效的改进，从而提高工作效率，降低成本和减少浪费。

2）促进组织内部合作和沟通，提升组织整体管理能力：评估帮助我们建立了一套可量化度量的流程、标准、过程资产，让组织内部以及各个部门之间的合作沟通更密切，促进了组织内部的团队合作和共同努力，并且使用最佳实践（比如最新的工具、技术和方法等）进行 PDCA 的持续改进，从而增强了组织的凝聚力和领导力。

3）提高组织信誉度，提升客户满意度和信赖度：通过评估，组织可以证明其拥有高效、可重复、高质量的软件开发和维护流程，并从中获取一定的认可，从而提高其在行业中的声誉和竞争力。此外，可以帮助组织提高产品和服务的质量，提高客户满意度和信赖度，这也可以帮助组织吸引更多的客户，并增加客户签约续约率。

综上所述，评估可以帮助组织提高软件开发和维护的质量，降低成本，促进组织合作沟通，提升组织管理能力，提高组织的信誉度和竞争力，并改善客户满意度和信赖度，具有非常实际的意义。

四、改进措施

首先，EPG 小组会将本次评估中发现的弱项、问题、建议等，汇总形成《过程改进建议表》并在 EPG 会议上分析讨论和评审确定，然后向 发起人汇报，确定改进的

优先级及责任人，制定和跟进执行具体的《过程改进计划》。此外，涉及到需要调整的标准过程文件和模板，我们会在下次 EPG 会议上进行评审并发布，同步配置更新到相应的过程资产库中。

其次，针对《过程改进计划》制定我们详细的的活动步骤、试点计划、推广方案等，发起人组织高层经理、EPG 成员进行研讨改进实施注意事项及潜在障碍和可能风险，向组织申请专项过程改进资金、培训等支持。改进实施过程中，相关人员需要选用恰当的契机先做改进试点，试点反馈有效再逐步复制推广。

最后，EPG 小组会对整个改进过程进行全流程监控，帮助组织专注于关键的改进项目，对改进效果进行度量和量化分析，以便识别改进领域。在此同时，按需对团队进行培训和辅导，使用最佳实践协助提升团队素质，实现更高的质量和更高的业务成功率，不断提升公司的整体竞争力来实现商业目标。

此次评估和日常实践中我们也认识到，实施 CMMI 并不是一项单次活动。随着时代的发展，软件发展和维护环境也在不断变化。因此，我们需要学会从自身的实践中不断总结经验，提出新的挑战，并寻求更高的成熟度等级。

我在此授权并同意 SITARA Technologies 在 SITARA 的出版渠道上分享我们的评估成果，在 SITARA Technologies 认为合适的情况下宣传我们的评估成果。

青岛中瑞云数科技有限公司

发起人：杨少杰

2023 年 6 月 13 日

EXECUTIVE SESSION BRIEFING - SPONSOR FEEDBACK

RAGHAV S. NANDYAL
SITARA TECHNOLOGIES PVT. LTD.

Dear Raghav Nandyal:

Overall Findings:

In the recent CMMI High Maturity appraisal, the lead appraiser, RI, and six ATM members worked diligently. They conducted multiple interviews and document reviews, leveraging their extensive experience and professional skills to comprehensively understand our company's CMMI maturity level. After the assessment, they provided valuable suggestions and improvement recommendations to further enhance our operational and management capabilities. A total of 29 improvement suggestions were identified, categorized into four areas: engineering management (10), project management (6), support management (6), and process management (7), along with global findings. These improvement suggestions were thoroughly examined and discussed by key stakeholders in the company, including senior managers, the EPG process improvement group, project managers, QA, CM, OT, and others involved in the process improvement. It was unanimously agreed that the primary improvement suggestions align well with the company's actual situation, with a compliance rate of 95%.

Lesson Learned:

From the perspective of engineering management, project management, support, and process management, we conducted a summary.

Engineering Management:

To ensure the objective nature of the requirement specification document writing process, it is essential to employ explicit analysis methods and techniques, reducing subjective influences. For each non-functional requirement, it is crucial to define clear measurement indicators and metrics. For performance requirements, metrics such as response time and throughput can be established to evaluate performance. Prioritizing non-functional requirements is vital to ensure the team and stakeholders have a clear understanding of which requirements are critical and should be given priority. Methods like Analytic Hierarchy Process (AHP) and user requirement surveys can be employed for evaluating and prioritizing requirements.

We need to conduct a more comprehensive and detailed requirements gathering process,

ensuring thorough analysis and capture of non-functional requirements before the high-level design phase. Strengthening team communication and collaboration is essential, establishing effective channels and mechanisms for communication among team members. Enhancing the reviewers' understanding of how design principles impact quality is crucial, incorporating them into the review checklist.

In the testing aspect, to conduct a deeper analysis of the root causes of defects, we plan to establish a project defect repository in our subsequent work. This repository will facilitate the analysis of defects from multiple dimensions and allow us to classify and summarize our experiences. Moreover, it will help us identify common defects and avoidable issues. We also plan to conduct regular training sessions for project team members to enhance their coding skills and prevent the recurrence of similar errors in undeveloped requirements.

In our previous testing efforts, we have primarily focused on validating the forward process. Our main objective was to ensure that the normal business logic flows smoothly and to identify any potential performance issues during concurrent operations. However, we often overlooked the impact of various exceptional scenarios on the service. To address this, we will design test cases specifically for software exception testing and develop a template for reviewing these exceptional cases. By doing so, we aim to improve the quality of our products.

Project management

During the development process of the project, we should define and describe four types of code: platform-generated, brand new, reusable, and refactored. These definitions and descriptions should be added to the project assessment report to further enhance our code development productivity. We should strictly adhere to code standards and conduct regular code reviews, with a particular focus on improving code comments to facilitate maintenance.

In the subsequent project risk management phase, we should review and refine the risk management plan to ensure sufficient mitigation measures and contingency plans are in place for high and medium priority risks. For risks with lower probabilities, we should also ensure the formulation of corresponding contingency measures to prevent the failure of mitigation measures. When devising mitigation and contingency measures, we should consider the possibility of the failure of mitigation measures and develop alternative plans to address such situations.

Next, it is important to prioritize stakeholder management and schedule management in the project management process. In stakeholder identification and management, we should clearly define the influence of stakeholders on each other and categorize the types of influence, such as technical, financial, resource, and schedule-related. Each stakeholder

should be evaluated for their impact on the project plan.

In schedule management, we should assign clear responsibilities and provide timely information, resources, and support to the responsible individuals and collaborators. We should address any questions they may have and promptly address any potential issues or obstacles. By implementing these methods, we can improve the quality of customer satisfaction data and accurately measure our business objectives.

Support

In terms of quality control, it is necessary to compile and quantitatively analyze common non-compliance issues, summarize the shared problems across projects, and conduct in-depth analysis of their root causes and severity. For each problem arising from different root causes, corresponding improvement measures should be proposed, and process improvement suggestions should be submitted to the EPG and senior managers.

In talent development, it is important to quickly adapt to market changes and develop a strategic training plan that aligns with the company's strategic development. This plan should assist the R&D department in establishing and improving competency assessment models and job competency evaluation models, continuously improving employees' overall qualifications. Regular collection of employee training needs should be conducted, and training plans should be adjusted based on employee training summaries and skill matrices. Tailored training programs should be designed for different employees at different stages of growth, facilitating their rapid development.

Process Management

To further clarify the reuse methods and levels of assets, it is important to consider the different levels of reuse and how assets can be effectively reused. From a technical perspective, reuse is relatively straightforward, and we have a good understanding of this aspect. Additionally, with the popularity of open source technologies, we now have a wealth of middleware options to choose from. We can gradually build our own technical ecosystem based on these options.

In terms of system test cases, it is crucial to ensure that all valid and invalid test cases are considered, recorded, and analyzed. This approach will help reduce the impact on the density of residual defects and prevent significant deviations from the set objectives. Strengthening process management and tracking is essential to set more accurate goals and better achieve the organization's business objectives.

Relevance

a. Enhancing software development and maintenance quality while reducing costs: Assessing the organization's software development and maintenance capabilities directly provides effective guidance and support, enabling stable and predictable development processes. This helps the organization achieve higher success rates and quality in software development and maintenance. It also facilitates improvements in project management, process enhancement, technology, quality assurance, and personnel development, leading to increased work efficiency, cost reduction, and waste reduction.

b. Facilitating internal collaboration and communication, elevating overall organizational management capabilities: The assessment helps establish a quantifiable set of processes, standards, and process assets, fostering closer collaboration and communication within the organization and between departments. It promotes teamwork and collective effort within the organization and encourages continuous improvement through the use of best practices, such as the latest tools, technologies, and methodologies, utilizing the PDCA (Plan-Do-Check-Act) cycle. Consequently, it strengthens the organization's cohesion and leadership.

c. Enhancing organizational reputation, customer satisfaction, and trust: Through the assessment, the organization can demonstrate its efficient, repeatable, and high-quality software development and maintenance processes, earning recognition and enhancing its reputation and competitiveness in the industry. Additionally, it helps improve the quality of products and services, elevating customer satisfaction and trust. This, in turn, attracts more customers and increases customer contract renewal rates.

In conclusion, the appraisal can help organizations improve the quality of software development and maintenance, reduce costs, facilitate collaboration and communication, enhance organizational management capabilities, increase organizational reputation and competitiveness, and improve customer satisfaction and trust. It holds significant practical significance.

Improvement measures

Firstly, the EPG team will consolidate the weaknesses, issues, and suggestions identified in this assessment into a "Process Improvement Recommendations" document. This document will be analyzed, discussed, and reviewed during the EPG meeting, and then reported to the sponsor. The priority of improvements and responsible parties will be determined, and a specific "Process Improvement Plan" will be formulated and monitored for execution. Additionally, any necessary adjustments to standard process documents and templates will be reviewed and published during the next EPG meeting, with synchronous updates to the corresponding process asset libraries.

Secondly, for the "Process Improvement Plan," we will develop detailed activity steps, pilot plans, and promotion strategies. The sponsor will organize discussions among senior managers and EPG members to explore implementation considerations, potential obstacles, and risks. Support for specialized process improvement funding and training will be sought from the organization. During the implementation process, relevant personnel will initiate improvement pilots at appropriate opportunities and gradually replicate and promote them based on effective pilot feedback.

Lastly, the EPG team will monitor the entire improvement process, focusing on key improvement projects and measuring and quantifying improvement results to identify areas for further enhancement. Simultaneously, training and coaching will be provided to teams as needed, using best practices to enhance team capabilities and achieve higher quality and business success rates. This continuous improvement process will contribute to enhancing the overall competitiveness of the company and achieving its business goals.

Throughout this assessment and daily practice, we have realized that implementing CMMI is not a one-time activity. With the development of time and the continuous evolution of the software development and maintenance environment, we need to continuously learn from our own experiences, present new challenges, and optimize the maturity.

青岛中瑞云数科技有限公司

I hereby authorize and give consent to SITARA Technologies to share our appraisal accomplishments on SITARA's publishing channels, giving publicity to our appraisal accomplishment as SITARA Technologies deems it fit.

Qingdao Zhongruiyunshu technology Co., Ltd

Yang Shaojie (Sponsor)

June 13, 2023