ANALYSIS OF THE PROBLEMS OF QUALITY IMPROVEMENT IN THE SOFTWARE DEVELOPMENT PROCESS AND APPROACHES TO THEIR RESOLUTION

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In the contemporary information technology industry, software quality increasingly depends not only on the characteristics of the final product but also on the quality of the development process itself. International standards, as well as models for the assessment and improvement of software development process quality, provide formalized approaches to evaluating and enhancing processes. However, their effectiveness in practical implementation often proves to be lower than anticipated.

Within the conducted analysis, criteria for assessing the quality of the software development process were examined, including structure, manageability, predictability, measurability, adaptability, optimization, and knowledge integration. A number of challenges were identified that complicate the achievement of these criteria in practice. The CMMI and SPICE models, along with the SPI approach, were also analyzed, and several problems associated with their implementation were identified. These include the formal application of models without consideration of the specific organizational context; a low level of result predictability and lack of adaptability to changes; limited use of metrics and analytics; absence of feedback mechanisms and "Lessons Learned"; and insufficient attention to corporate knowledge as a factor that can enhance decision-making effectiveness and alignment of team actions.

Addressing these issues requires a transition from the formal use of models to context-oriented quality management, emphasizing the integration of corporate knowledge at all stages of the software development life cycle - from requirements definition to maintenance. Corporate practices should be grounded in "Lessons Learned" and adapted templates. When combined with CMMI or SPICE models, this enables not only the assessment of process maturity but also its practical achievement through continuous learning.

Solving the problems associated with improving the quality of the software development process necessitates not merely following models, but creating an environment that fosters knowledge exchange, feedback, analytics, and adaptability. In this context, corporate knowledge becomes a key resource that bridges external standards with actual practices, forming a foundation for a self-learning organization capable of ensuring sustainable quality under changing conditions.

References:
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2 International Organization for Standardization. ISO/IEC 33020:2019 - Information technology - Process assessment - Process measurement framework for assessment of process capability. Geneva: ISO, 2019.