Business Case

Enterprise Quality Assurance: A Cost-Effective Choice

The lack of quality within software development life cycles can have serious consequences. Not only it will bring up the cost of development, but users might lose their confidence in the software due to a particularly high number of bugs or severe instability. An expert in quality assurance was therefore mandated to assume the role of testing team manager. By redefining the development processes, the level of quality was substantially increased, providing the best quality release of the software to date.

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The Client

- Software company
- Development team of more than 50 persons
- Serious lack of processes insuring quality within the development life cycle
- Insufficient quality of main company's software
- Damage reputation due to lack of reliability resulted in lost of market share

Success Factors

- Implementation of new quality assurance processes
- Better usage of bug tracking system
- Company's management support to necessary changes

Afflicted by a serious loss of confidence from their user base, a software company had a hard time to get rid of low quality problems within their main software product. Despite state-of-the-art functionality, the software was unstable, lack reliability and had many bugs. Newly arrived within the company, the quality assurance expert was able to quickly identify the source of the problem: poorly defined processes and a lack of rigorous work habits. A full analysis was then initiated, starting from requirements definition to market release. It turned out that throughout the entire production cycle, many activities were unstructured, isolated from each other's, and inadequately controlled. It was decided, with management's support, to put in place a set of processes which would aim at restructuring every development phase, to increase communication between parties, and to eliminate unnecessary or redundant tasks. Essential to these new processes, the testing team was implicated much earlier within the development cycle of new functionality. In addition, the bug tracking system was modified to the software project needs and its users were trained to use it in the right manner. Finally, to avoid regression problems, a stricter source code control methodology was implemented and greater emphasis was put on the usage of automated regression tests. The next software version was developed, tested, and put to market using these new processes, which resulted in a very positive response from the user community. Within the following months, the software regained its reputation, and sales increased significantly.

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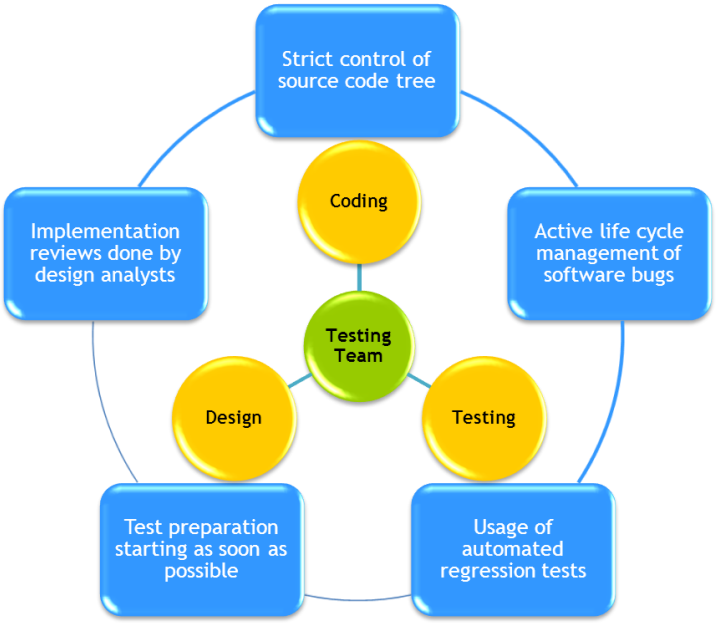
Approach

After analysis, the quality assurance expert came up with the following rules and processes:

❶ Technical meetings during which the design of new functionality is discussed must include at least one testing team member who will then be able to start test conception as soon as possible.

❷ Once a new functionality is coded, it must be validated by the business analyst, who wrote its design based on requirements, before it is handed over to the testing team.



❸ New functionality code must be strictly controlled and carefully integrated into the main source code tree.

❹ Bugs and change requests must be fully documented according to the software project parameters, and their status must be up-to-date at all time.

❺ Testing of new functionality must always be done in conjunction with a set of regression tests, preferably automated.

Risks and responses

Implementing new processes will cause significant changes in the work habits of many groups within the company. It is therefore crucial that all proposed enhancements are being exposed to key managers within the organization so to obtain their approval. It is also a good opportunity to receive feedbacks and ideas that could be integrated within the new processes. It is important that these be deemed acceptable by all, and adapted if necessary but without compromising fundamental quality assurance principles.

Catalysts

Achieving efficient quality assurance was done following these principles:

- Early involvement of the testing team within the development life cycle: at software design stage.
- Establishing quality gates defining when the software can moved from one development phase to another.
- Efficient usage of the bug tracking system which allows in-depth documenting and follow-ups of reported problems.
- Rigorous management of all branches of the source code tree so to avoid instability or corruption risks.
- Setting up of automated regression test suites to be regularly executed during the entire testing stage.

Benefits

Implementing quality assurance within the company's development and testing activities increases the quality level of produced software, which allows regaining customer's confidence and therefore getting back lost market shares. In addition, the new processes reduce loss of time caused by testers' late involvement and by lack of implementation reviews performed by design analysts, often resulting in costly coding rework. As well, rigorous managing of the source code and usage of automated regression tests decrease risks of instability, often only discovered after market release, and which are introduced within the software by faulty or undesirable code.

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