RADVIEW

The Intellectual Property Of Test Engineers

If you believe that software quality is important, then the intellectual property (IP) of the testing process is as important as the IP of the software application. Just as a company will go to great lengths to preserve the IP of its development or manufacturing team, the testing team requires the same protection if a company is committed to producing quality software.

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But what is the IP of the testing team? I believe it is the documentation of a thoughtfully applied quality process that captures the elements of a successful test operation. When test planning and deployment is documented, followed and continuously improved, the work is no longer simply "looking for bugs," but a serious, well-managed approach that is an essential element of business success.

To protect and elevate the process that enables this success, you must be able to capture and illustrate it. And to illustrate the process, you must understand what each component adds to the test and QA organization's IP. Here's what I believe the crucial elements of test IP are, and how they can be improved to produce higher-quality software.

The major elements that represent the test and QA IP for an organization are test scripts and reporting, the construction of the testing system itself and the documenting of all the testing elements.

To elevate these individual testing components to the level of IP, the adoption of open standards is crucial. It simplifies the writing of test scripts and reporting, and it ensures interoperability and the exchange of code and data between testing systems—something that rarely happens today. This step will lead to standardization in the way software is tested, evaluated and reported on, ultimately leading to higher-quality software.

The two main areas that will benefit from the adoption of open standards are test scripts and reporting. Test scripts are at the heart of many test automation systems, defining both single test cases and complete test-automation execution. While some test systems offer proprietary scripting languages, other systems use programming languages or open-script-level languages. I would argue that an open script language such as Python or JavaScript should be used to access the vast availability of the resources of an open standard language and to avoid the complexity of a programming language.

Another function that would benefit from the use of open standards is the reporting of results. With its ability to define the meaning and structure of data, XML can fill this reporting role by providing a way to compare results between different systems. We would have a common way of judging the performance, integrity and overall quality of a software application. Furthermore, an XML-based test database system could also provide a standard for sharing test execution and test planning information.

Another example of leveraging a standard is the exploitation of the user interface for application testing. The UI provides a common interface to applications, and testing from the user's point of view is an excellent way to verify application behavior.

To ensure that a test system is well documented and maintainable, a "building blocks" approach helps. Each building block can then focus on one test case or specific UI operation.

The use of version-control software for test scripts and building blocks will aid in tracking the evolution of the scripts, further documenting the test process.

Here's what you can do to increase the value of your company's testing IP:

- Insist on using open standards. Use XML for any interchangeable or reported data. Use openly available scripting languages to control the execution of your test system.
- Insist on building your test system from integrated elements, each of which is well documented and easy to maintain.
- Make sure your test system tolerates changes easily; minimize the impact of a single change to a single element, and maintain version control of test components.
- Insist on application testability as a design rule. Each element used by your software must be accessible and testable by your testing system.
- Accept the need for different skill sets within your test organization. Understand that you need test planners, test architects, designers and test engineers in your organization playing the different roles in building your test system.
- Promote industry standards for every key element of the testing system, and encourage others to adopt the same principles.

These are what I consider to be the important elements of test and QA departments' IP, and what I believe it takes to produce high-quality software today. The time required to pursue these activities will pay off in more efficient testing and better software. In short, this work is what needs to be encouraged to advance the way we develop and deploy software today, and to ensure high-quality software applications. ☒

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