



How to Evaluate Test Automation Tools

How To Ensure You Pick the Right Test Automation Tool For Your Team

Bewildered by the number of Test Automation Tools on the market? Confused about how to select the tool that is right for you? “How to Evaluate Test Automation Tools” will take you through a step by step process for selecting and choosing the test automation tool that will deliver the results you need. We’ll cover the five stages you need to consider, as well as listing essential tips learnt from experience.

- ✓ After reading this white paper you will know:
- ✓ How to set about identifying the problem.
- ✓ Why assessing appetite for change is so important.
- ✓ How to select the front runners.

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Evaluating Test Automation Tools

This white paper looks at a process for evaluating Test Automation tools. Whilst this process will be applicable for many different types of tools used in the software testing arena, particular emphasis is given to Test Automation tools.

Test Automation tools are primarily used by test teams to automate the regression testing process. Test automation tools are useful in helping to free up a test team to concentrate on the technically difficult testing and release them from many of the repetitive tests that soak up so much of a testers time.

Test automation tools come in many different forms. Some focus solely on GUI automation others on web testing. These differences mean that no one tool can be recommended for everyone. Different companies, teams and even individuals will have differing requirements. So like most initiatives that implement a new process or tool, the big quest is to find the one that is the best fit for your requirements.

The process we recommend for evaluating test automation tools is broken down into 5 stages:

1. Identify the problem
2. Assess the appetite for change
3. List the potential tools
4. Select the front runners
5. Trial Phase

Put simply, you need to start by identifying your requirements and finish by selecting the tool that is the closest match to those requirements.

1. Identify the Problem

Before you start selecting potential test automation tools as candidates for evaluation you should be clear about the problem you are looking to solve. Identifying the problem usually consists of answering these 4 questions:

- What is wrong with our existing process/tool?
- What requirements must the tool meet to solve the problem?
- What constraints must the tool work within?
- What benefits should a new tool provide?

The test automation process doesn't exist in isolation. Many other processes and tools will interact with the test automation process. Some good examples would include: configuration management, defect tracking, requirements management, etc. If you need to improve these areas of the process then set up separate evaluation process for these processes and tools. You'll find it more manageable to concentrate your efforts on evaluating each process and tool separately (even if they do have to coexist together).

Here are some thoughts and tips, from our experience, on capturing requirements for a test automation tool:

- Capture an overall view of the problem and the desired characteristics of its solution in a vision document.
- Identify all the potential users and detail their relationships. For example, how does the test manager currently assign tests to testers?
- Don't forget the non-functional requirements. For example, how quickly should a test analyst be able to create a test case?
- Make sure you involve all interested parties in the requirements capture phase. The development team and project management teams are usually very interested in the output from the test automation process.
- Requirements change over time. Once you've finished the initial capture, go back and reevaluate each requirement to see if it is still valid.

Once you have identified the problem you may decide that it is not a big enough problem to warrant a significant amount of effort fixing. It may well be that the outcome from this step is that you decide you are happy with your existing test process. For example the effort of implementing may be more than the benefits you will reap. If, however, you do decide that there are significant benefits to be gained then you will want to look at your team's appetite to take on the analysis and implementation of a new automation tool.

2. Assessing the Appetite for Change

Before you set off on your quest to select and implement a new tool consider the team's appetite to take on that change. It is crucial that you have the resources to implement a new test automation tool successfully.

There is no point continuing down this road if no one else within the team sees the same problem or wants to resolve it. It won't matter how good the tool is if no one is convinced they should use it.

Likewise, it won't matter how slick the tool is if no one has the time to start using it.

Some thoughts and tips, from experience, on assessing the appetite for change within your team:

- Long established teams that are set in their ways will generally take more time convincing and more time to persuade to use a new tool
- New people joining a team tend to be more open to picking up new tools, processes and procedures. So a good time to pick up a new tool could be when you are recruiting for new team members.
- If you have any team members that are likely to get excited about implementing new tools, capitalise on this. You are looking at creating momentum to implement this change and people like this are invaluable in generating that momentum.

All of these points are worth considering seriously when deciding if you should implement a new tool, as well as how much time and effort will be involved. Certainly you are taking a big risk in trying to implement any new tool if nobody within your team is hungry for change. If they are hungry for change then it is time to pull together a list of potential tools for consideration.

3. Listing Potential Tools

In order to list potential tools you first need to be clear about the requirements the tool needs to meet. Having identified these requirements in our first “Identify the Problem” step it is now advisable to split these requirements into categories like “essential”, “important”, “nice to have”, and “not required”.

With the “essential” requirements in mind it is fairly straight forward to go through a full list of test automation tools and discard the tools that obviously are not going to meet your needs. So you may go through the list of tools and decide that low cost is an essential requirement for you. For example if you are looking for an effective solution at a competitive price, then HP’s Quick Test Professional (largely regarded as the most comprehensive but most expensive solution) can be ruled out early on.

Use this first high level pass to whittle away the options to just a handful of tools that you can evaluate in more detail. Once you have been through your list and struck off the tools that clearly are not going to meet your “essential” requirements you will have a short list for consideration. It is this shorter list of tools that you can now focus your attention on analysing in more detail.

4. Selecting the Front Runners

Now that you have a cut down list of potential tools it is time to start the detailed evaluation process. The best approach for this is to create an evaluation matrix and score each tool based on your requirements and an associated quality score. First assign a relevancy value to each requirement category:

Essential = 1

Important = .75

Nice to have = 5

Not required = 0

You would then list your requirements with the requirements relevancy value beside. So go through your complete list of requirements and assign each one a relevancy figure as follows

TOOL FEATURE	RELEVANCY
Usability	1
Web testing	.75
Consultancy	0

From here we would then take each tool in turn and rate each area on a scale of 1 to 10. So perhaps the first tool you consider has great usability so you would award this tool a 9 for the usability. At the end we then total up the score for each tool. So your evaluation matrix might look something like this...

TOOL FEATURE	RELEVANCE	Tool 1		Tool 2	
		Rating	Score	Rating	Score
Usability	1	9	9	5	5
Web testing	.75	6	4.5	10	7.5
Consultancy	0	7	0	0	0
Total			13.5		12.5

You could go through this exercise as a team or you could even get everyone in the team to enter their own results (and then collate at the end). Either way, at the end of this exercise you should have 2 or 3 front runners that you can take forward to a formal trial stage.

Some points to note about this method of evaluation:

1) Every test team has its own requirements for a test tool, so it is important to accurately identify the requirements and the features that you need from a test automation tool. Get this analysis wrong and you'll pick the wrong tool.

2) Many tool providers supply their own feature comparison tables. It isn't difficult to see that most tool providers select a list of features that paint their tool in the most favourable light. So our recommendation would be to list your own required feature set and completely ignore the ones provided by the tool suppliers

3) Sometimes it is not the fact that a product has a feature that is important. The important point is if you "need" that feature and if the tool implements it in a way that fits well with your requirements (you'll only find this out by trialling a product, not by looking at a supplier's feature list).

With a short list of 1, 2 or even 3 tools you are now in a position to start the trial phase.

5. Trial Phase

It is important to trial tools on a small project or mock project before making a selection. Whilst a list of features might look like a good fit on paper, there is nothing that beats using a tool in the real world.

If you have the time and resources, trial three of the selected options. If you don't have the time and resources then pick the leader from evaluation matrix and trial that tool first. If the fit is good then you don't have to trial the other candidates. However, it is good practice to trial 2 or 3 tools in the real world in order to make an effective comparison.

Before embarking on the trial it can be useful to create a list of success criteria. You could take each of your original requirements and turn them into individual success statements. For example, if image comparison is a key requirement for you this could be defined as "the tool will be able to intelligently compare expected screen shots with actual screen shots to determine the test result". Or perhaps from a different perspective, "The testers should not have to spend significant amounts of time getting the image comparison features to work effectively". With these statements you are aiming to create an un-ambiguous set of criteria that allows you to judge if the tool is going to provide the benefits you are expecting.

If you are trialling more than one product it can be very useful to pull together a new evaluation matrix that lists the success criteria you have specified and the two or three tools you are evaluating in a live environment. This will likely improve the objectivity of your comparison.

Conclusion

Picking the wrong test automation tool can be a costly mistake. Not only would the wrong selection mean a significant amount of wasted time from the evaluation but it is also likely to cause delays as your team struggles to work with the wrong tool. In many respects you are probably better off sticking to an existing tool or process rather than implementing the wrong tool.

On the flip side of this, however, picking the right tool can lead to big productivity increases, increased team motivation and, ultimately, improvements in the release quality of the products you are testing. The difference between selecting the wrong tool and the right tool comes down to getting the evaluation process right. Follow our recommended evaluation process and we are confident that you'll see the results you are looking for.

Don't forget though, with the tool selected the work is only just beginning. The next phase, the implementation phase, is just as important to get right. Probably even more critical to get right if you are going to reap the benefits from one of the many very good test automation tools available today.

What to do next

Test Management Systems Ltd specializes in providing software testing tools and test automation resources to the software testing industry. For help and support with your next software test automation project please contact us.