Tips for manual testers working in an agile environment

Matt Archer

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Introduction

Welcome to the review edition

If you are reading this page it means you have decided to invest some of your time and potentially your money in a book that is still a work-in-progress. Thank you for showing an early interest. After reading the pages that follow, if you would like to share your thoughts I can be contacted using the details below.

Email: matt@expresssoftware.co.uk

Twitter: @MattArcherUK

Hastag: #AgileManualTesters

As you read each tip, you will notice that there is a corresponding illustration. If you feel the urge to doodle on any of the graphics or create contrasting versions of your own then feel free to share these too. Feedback doesn't have to be limited to the written word.

The more observant amongst you may also notice that tip 49 does not have a title and I am truly unsure what it should be. Some time ago I arbitrarily decided that the book should contain 50 tips. If you have any thoughts about what the 50th and final tip should be, I would be more than happy to hear your suggestions.

Acknowledgements

Section T.B.C.

Notes:

Personal support, including friends and family.

Professional inspiration (currently sorted alphabetically) including Gojko Adzic, James Bach, Michael Bolton, Lisa Crispin, Paul Gerrard, Dorothy Graham, Janet Gregory, Julian Harty, Elisabeth Hendrickson, Cem Kaner, James Lyndsay, Alan Richardson.

Other people who I have embarrassingly forgotten in this draft!

Why a book of tips?

Whenever I join an agile team I ask myself the following question. How can I provide meaningful, quality-related feedback in a way that is compatible with the values and pace of agile software delivery, whilst maintaining independence, diligence and predictability?

You would be forgiven for thinking that after many years of asking myself this question I would have converged on a common answer. Nothing could be further from the truth. The reality is that every agile team is different and must continually be the subject of various experiments and trials to help the team evolve a blend of testing practices that will aid them in achieving their particular testing goals.

It is for this reason that you are reading a book of tips rather than step by step tutorials for specific testing practices. It is through these snippets of information that I hope to seed new ideas in your mind that will inspire you alter the way you work by trying something new.

Maybe that new thing will work for you; maybe it won't. Either way, you will have expanded your experience of testing in an agile team through your own success or woes. This, in my opinion, is a great way to study the craft of testing and continue to improve as a tester. I wish you the best of luck in all your agile testing endeavours and I hope you enjoy the tips. You can read them in any order you like.

Why have you focused on manual testing? What about automation?

Section T.B.C.

Note:

There already exists countless resources that do a good job of explaining automation and more specifically automation in an agile context. I did not want to repeat them here.

Conversely, there are few resources that look at testing in an agile environment from the perspective of a manual tester.

The book does include three tips on the topic of automation. Their purpose is to help manual testers spot risky automation so they can identify points in time when manual testing may need to form part of the mitigation for failed automation.

Whilst there is no plan to address the topic directly, by focusing solely on manual testing, I would like to think that this book can also help dispel some myths about manual testing in an agile environment, including manual testing doesn't have a place in agile teams and every testers need to learn how to write code to be of value to an agile team.

Why all the pictures and graphics?

Section T.B.C.

Notes:

I didn't want to have page after page of text.

I believe visual anchors help people remember.

It's a cliché, but sometimes a picture is worth a thousand words.

Tips

Tip 1: Appreciate that an agile tester never blindly follows a tip or practice

Tip T.B.C.

Notes:

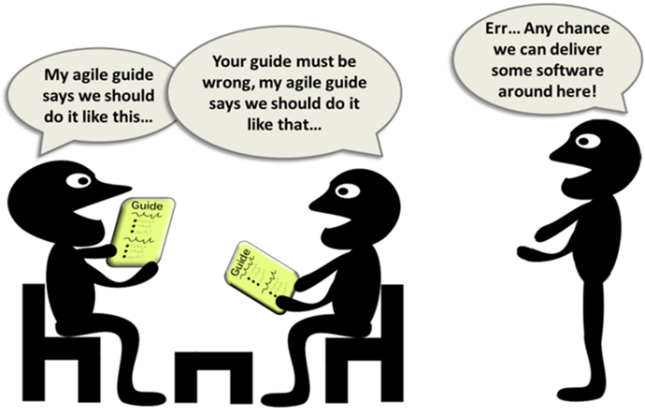
No piece of advice, including the tips in this book, should ever be followed blindly or without intelligently adapting that advice to something sensible that meets your own team's objectives.

Be careful that you are not introducing new ideas to the detriment of other practices in your team, both old and new. If you are replacing an existing practice, is the net result positive?

Sometimes you may feel that a particular tip or piece of advice doesn't apply to you or your team. That's fine, don't force it.

Trying to incorporate every tip in this book into your project is unlikely to end well. Take what is useful. Leave the rest.

Tip 2: Tailor your agile testing practices to meet your specific needs



Some agile testing techniques appear so popular it can be difficult to keep them in perspective, alter them to meet our needs or choose to ignore them entirely. But this is what successful agile teams do daily.

It can be great fun debating the theoretical pros and cons of one approach against another, however, arguments both for and against a given approach are often invalided as soon as it is used in practice.

With this in mind, never be scared to try something new. Testers can waste days discussing whether a given approach is a good idea. This can be avoided by agreeing

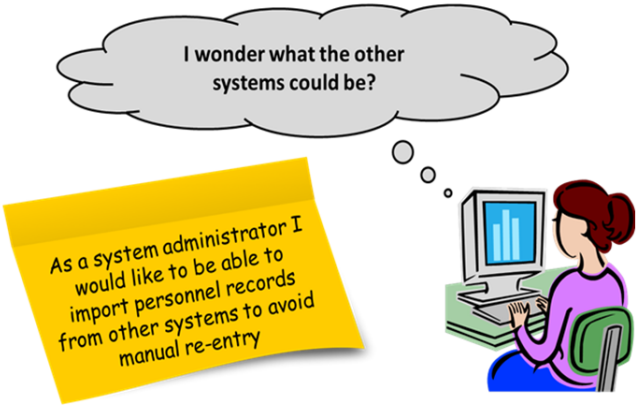
to perform a small trial. And by small, I mean as small as possible. Forget trying something for the whole of the next sprint, try it solely for the next story you build. At the very least it will give you a real example to discuss rather than the theory.

You may think that you don't want to compromise and instead stick to the agile ideal, but being adaptable is at the heart of agile. What follows is an extract from the extremeprogramming.org website. Many consider it to be the most important XP Rule. "Fix the process when it breaks. I don't say if because I already know you will need to make some changes for your specific project. Follow the XP Rules to start with, but do not hesitate to change what doesn't work."

Tip 3: Understand the risks associated with manual test scripts

To be completed.

Tip 4: When testing (or preparing) don't allow yourself to be blocked



If your project aims to release their software ten months from now, losing a day because your work is blocked can often be dismissed as inconsequential. Contrast that to an agile team that aims to release every ten days. Spending a day idle becomes much more significant.

Traditionally, testers have placed strict entry criteria before their activities, but if we took this approach to agile testing we would spend the majority of our time underutilised, supposedly blocked. One way to improve your productivity is to discard the notion of needing a "complete specification". Instead, ask yourself what is the bare minimum I need to begin testing. The rest can come later.

Even when we begin to test early, it is easy to block or significantly delay ourselves by spending too much time pondering the gaps in our knowledge. When you encounter such a gap, resist the temptation to speculate for too long, especially in isolation.

If you believe the information is known within the team, now is a good time to remember the three 'C's that describe the journey of a user story; card, conversation, confirmation. If a conversation isn't available or doesn't leave you satisfied, leave yourself a note to revisit the gap at a later time and move on. Above all, don't allow yourself to become blocked, either by other people or yourself.

Tip 5: Don’t try to test so quickly that you slow yourself down

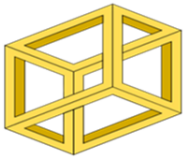
To be completed.

Tip 6: Enrich your knowledge and expectations using multiple oracles

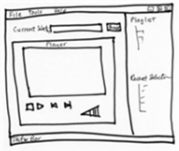
Our software

Other software

People



Real world constraints



Prototypes

Previous bugs

When it comes to using requirements as a source of information, the testers I meet fall into two groups. Those that test based upon what is committed to paper about each requirement and those that test based on the spirit of the requirements. It is the latter group that tends to find more bugs.

I attribute much of this outcome to the second group's willingness to enrich their knowledge by searching for additional oracles to expand their understanding of how a piece of software is expected to work. This is a practice I frequently recommend, especially to testers working in

agile environments where detailed written explanations are scarce.

With this in mind, a good place to start your search is away from the written word. A wealth of information can be harvested from people, ranging from subject matter experts to the developer who created the story. Needless to say, a conversation about the story can be useful, but few things beat a hands-on demonstration of the story, a prototype or the existing solution that the new software will replace.

I would also recommend consulting your own expectations which may have formed by testing an earlier version of the software, using similar software, previously seen bugs or real world constraints.

With an infinite number of oracles available it can be difficult to know when you know enough. There are as many answers to this question as there are oracles, so I will opt for my favourite. If you feel like you still have outstanding questions, keep looking for answers.

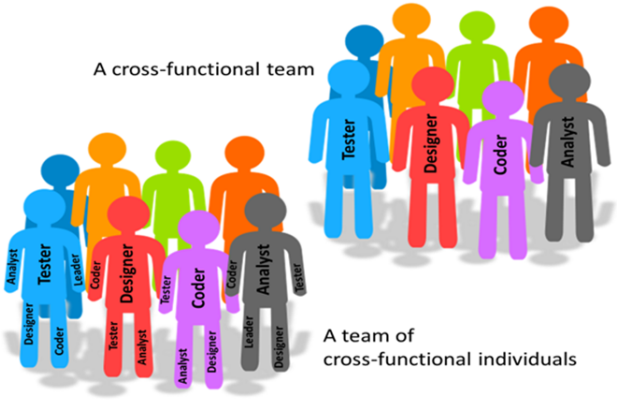
Tip 7: Favour dedicated learning resources to educate new testers

To be completed.

Tip 8: Before you document information, question who it is for

To be completed.

Tip 9: Help your team by undertaking work that isn't testing



For an agile team to deliver high quality, potentially shippable software at the end of every sprint it needs a variety of skills. For some agile teams, these skills are segmented across different team members who are typically assigned job titles that describes their primary contribution to the team, such as 'tester' or 'designer'.

Working in a cross-functional team where individuals work around a single discipline won't stop you from working in an agile way or delivering high quality software to your customers on a regular basis.

That said, your team is unlikely to deliver software as quickly (or with as many features) as a team who encour-

ages its members to be cross-functional individuals. From a testing perspective, this mean helping your team progress at a fast, yet sustainable pace, by performing work that typically wouldn't be performed by a 'tester'.

This doesn't take away the need for specialists, not only related to testing, but for all areas of software development. It does, however, mean that any time you question your suitability for a particular task it should be based upon your knowledge, experience and aptitude for the task at hand, not because you think it is work for another role. By broadening the work you undertake, not only will you be helping your team but it will often make you a better tester too.

Tip 10: Ask questions, but if nobody knows the answer, research yourself

To be completed.

Tip 11: Follow an exploratory approach to your testing

To be completed.

Tip 12: Keep supporting information in a single place (not in your tests)

To be completed.

Tip 13: Set testing objectives that realistically align with regular releases

To be completed.

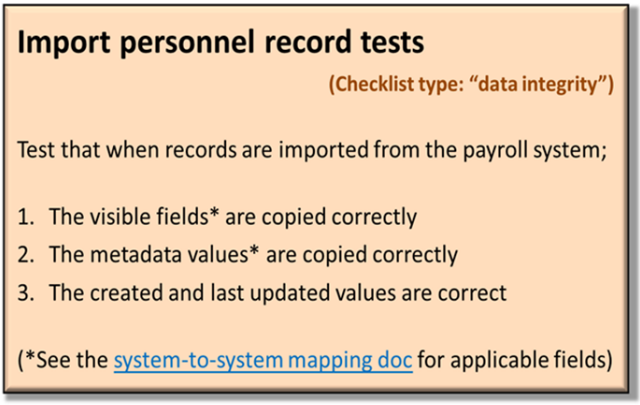
Tip 14: Be cautious of any sprint that is organised like a waterfall

To be completed.

Tip 15: Look to automated tests for inspiration for manual test ideas

To be completed.

Tip 16: Share common information with other members of the team



When testers work in isolation it is easy to forget that some of the information that we gather and store for future use is the same, or very similar, to the information that other team members document.

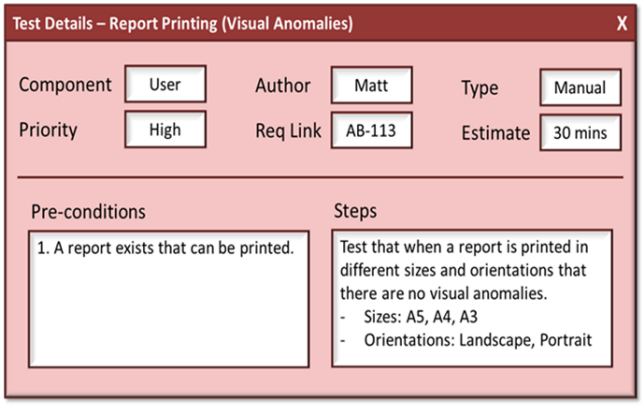
In agile development teams, testers typically work much closer with other team members which helps highlight this kind of repetition. That said, even when the overlap becomes obvious, the practice of "my documentation" is one of the hardest habits to break.

I attribute much of this resistance to the practice of using documents to represent key milestones and the rate of document production as an indicator of progress. Based on this

mentality, reusing another team member's documentation can feel like you are not providing measurable value. In reality, this type of reuse will give you more time to focus on the things that make you valuable, like finding bugs.

This emphasis on documents is something that agile teams replace with a focus on working, business impacting software. Testers can help support this ethos by looking for opportunities to reuse existing documentation that have already been produced and either updating or amending it directly, or referencing existing documents from their tests or new (typically much shorter) test-centric documentation that only contains information that cannot be found elsewhere.

Tip 17: Use traditional testing tools in a way that makes you agile



Some agile teams have the luxury of being able to chose the tools they use, but others are tied to particular tools or venders which may not necessarily be their first choice due to a lack of agile credentials.

If you find yourself in this situation, it is worth remembering that just because a vender had a particular usage pattern in mind when they created their tool, doesn't mean that you have to follow it. As an example, you could combine what the tool vender may consider different tests into a single record to reduce your test preparation and maintenance effort, whilst also placing related tests in context.

When you use a traditional tool in an agile way, it is not uncommon for people to worry about skewed metrics. In the example above, where we used to have 20 "test" records we may now only have five.

If you encounter this feedback, it can be useful to ask how the metric is being used. Are people assuming that an area with less "tests" can be tested in less time? I hope not. Or maybe that an area with more "tests" will be tested more thoroughly? An equally risky assumption. You can help your team by explaining how some of your tool's metrics have debatable value regardless of how it is used. It will also serve as a good opportunity to discuss what information your team would like and how you can accurately provide it.

Tip 18: Ask yourself what you can do to improve overall team performance

To be completed.

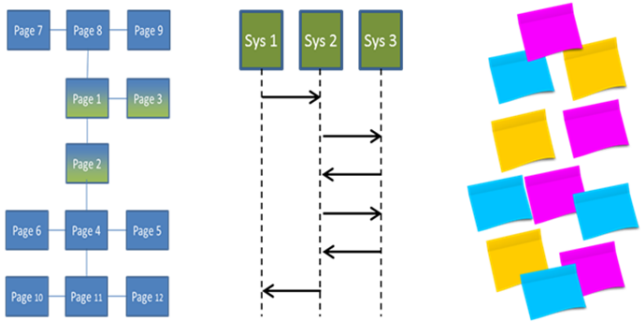
Tip 19: Learn how your software works under the covers

To be completed.

Tip 20: Value demonstrations over written explanations

To be completed.

Tip 21: Use self-generated maps to help organise your testing



To help organise our testing, we frequently divide software into parts. These individual parts can then become the focus for different activities, including test planning, designing, executing and reporting.

Traditional processes tend to dictate that testers should rely on artefacts created by other people to provide a map of the software and its different parts. A common example is to use a functional specification as a guide to partitioning the software's capabilities.

Whilst this type of information is useful, relying solely on models and specifications created by other people to guide our testing carries the risk of limiting our work to what

others have committed to file. A risk that becomes even more prevalent when you consider that agile teams value working software over comprehensive documentation.

In the absence of a provided structure, there is the temptation to wonder chaotically through the system looking for bugs. To do this is to overlook our ability to create our own abstractions of the system.

You can create your own maps using any tool or format. My only tip is not to be afraid of creating multiple maps or even temporary ones. Their goal is to help you consciously decide where to focus your testing next based upon everything you have learnt so far. Whichever maps help you with this task, are the maps for you.

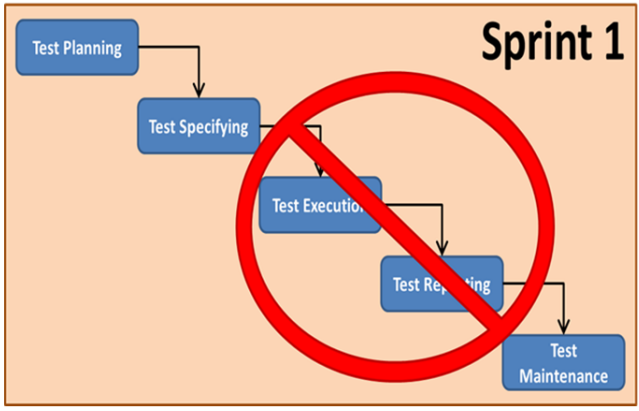
Tip 22: Look for opportunities to generalise less relevant interactions

To be completed.

Tip 23: Offer to demonstrate the team's software to your customer

To be completed.

Tip 24: Resist overlaying traditional testing processes onto a sprint



Agile projects rarely complete something in a single sitting, instead opting to progressively elaborate their understanding of the software and the software itself over time. It is useful to remember this aspect of agile when deciding how to perform our testing tasks.

It is not uncommon for testing to be organised around a planning-specifying-executing-reporting-maintaining pipeline, but this carries the risk of achieving failure in any project, agile included. In addition, testers who overlay this approach to testing onto a sprint carry the risk of feeling at odds with the rest of the team, to the point that even the most test-sympathetic teams can feel like a challenge.

One way to overcome this problem is to progressively elaborate our testing in the same way that the team evolves the software. This doesn't preclude an element of upfront test planning within a sprint or early test ideas, but be mindful that some aspects of the solution are yet to be decided and those aspects already decided may change.

This turns questioning into an finely-balanced art. Early questions are to be encouraged, but demanding a complete specification is unlikely to allow your team to work in the agile way it desires. Similarly, providing early feedback is rarely a bad thing, but raising a mountain of bugs against an early prototype as if it were a release candidate is unlikely to get you an invite to view future early work.

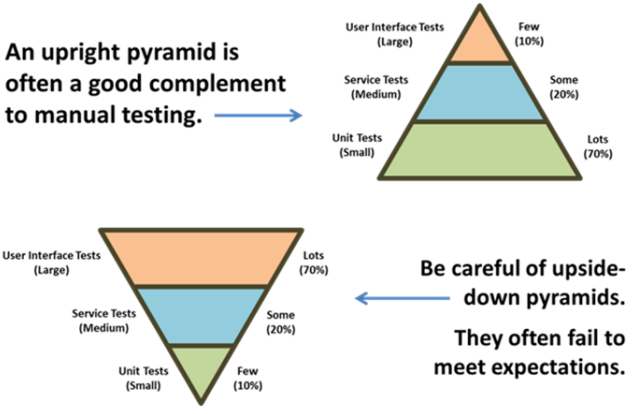
Tip 25: Consider using the gherkin notation to record manual tests

To be completed.

Tip 26: Describe tests using design techniques and a coverage target

To be completed.

Tip 27: Learn how to spot risky automation: an upside-down pyramid



The next three tips are about automation. Not because I think every tester should learn how to code, but because it is useful to be able to recognise automated tests that may fail to meet expectations.

The majority of agile teams create different types of automated test. Some focus on a few lines of code, others encompass chains of integrated systems. Some run in milliseconds, others minutes. Some interact via the user interface (UI), others probe underlying services.

When relying on automated tests, the most risky and unreliable tend to be those that cover the largest area, take

the longest to run and interact with volatile aspects of our software, like the UI. We cannot always avoid these tests, but a team can aim to use them sparingly.

This is where the test automation pyramid can help identify risky strategies by suggesting a ratio between focused, quick, beneath-the-UI tests and broad, slow, against-the-UI tests. Predictably, the ratio is in favour of the focused, quick, beneath-the-UI tests.

If your team's automated tests go against this ratio, I recommend taking a closer look. If what you discover is of questionable value, discuss with your team how manual testing can temporally help, including any extra support and resources required to fill the gap.

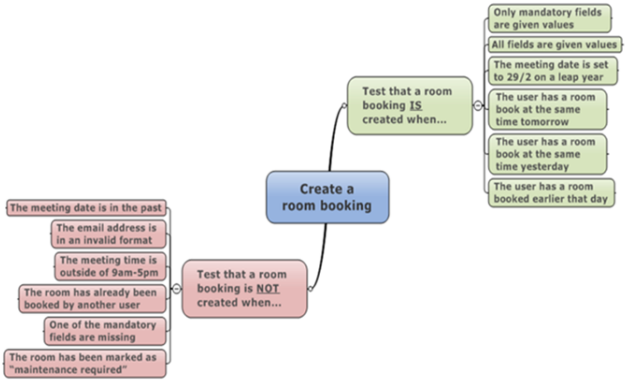
Tip 28: Learn how to spot risky automation: infrequent execution

To be completed.

Tip 29: Learn how to spot risky automation: most runs “fail”

To be completed.

Tip 30: Consider visual ways of representing your tests



Have you noticed how reading makes people tired? It doesn't affect everyone, but for some people the act of reading line after line of text makes them drowsy and less alert. This is one of the pitfalls of using large volumes of text to describe our tests; sleepy testers!

This is one of the reasons why I encourage teams to consider how they could represent some of their tests in a more visual manner. A common example is to depict related tests in a single mind map, but other options exist from sketch-noting to more structure diagrams.

Helping testers stay alert is a benefit for any team, but there are other specific benefits that make representing

tests visually an attractive idea to testers working in a fast paced, agile environment.

In much the same way that using a physical card to write user stories, the act of representing tests visually tend to focus our mind on the essentials. The physical constraints make it hard to do anything else. This tends to make them quick to create and more notably, update.

When we visually represent our tests, we also tend to unshackle ourselves from predefined, linear patterns of work. Consequently, tests expressed in this way can often be performed in an order that feels most appropriate at the time, with minimal additional effort.

Tip 31: Use abstractions to help you plan, but don’t lose focus on reality

To be completed.

Tip 32: However you document your manual tests, don't repeat yourself

For years, programmers (at least the good ones) have known that when one piece of code looks very similar to another piece of code then this typically isn't a good sign. If something needs changing in the first piece of code, then the same change will almost certainly need to be made in the second piece of code too.

The more duplication that exists, the greater the chance that a mistake will be made during the update, the update will only be made in some places or changes will be rejected / ignored due to the daunting amount of effort that often

comes with such duplication.

Unsurprisingly, when the description for one manual test looks very similar to the description for another then this typically isn't a good sign either. It generally isn't a good sign for any tester, but for a tester who is working in a agile team where 'responding to change' is valued over 'following a plan', duplication can quickly spell trouble.

So next time you find yourself reaching for the copy & paste icons, consider the duplication that you may be about to introduce into your manual tests. And more importantly, consider the future maintenance cost to you and the team.

Tip 33: Attend the daily stand-up to keep in sync with your team

Few things are more confusing for a project sponsor than a team that is evidently busy but failing to deliver high quality software at regular intervals. To the casual observer, the behaviour is paradoxical. If everyone is busy, how can the team's delivery rate be so slow?

In such a situation I would recommend that the team reviews their cohesion. Is everyone driving towards the same short-term goals or are people working on activities that are at best required for a future sprint or worse, activities that are unknowingly not required at all?

From a testing perspective, this type of redundancy can come in many forms. A common example is the prepara-

tion of tests that are never executed because the target of those tests has significantly changed or placed out of scope without the tester's knowledge.

As our understanding of other people's work improves, the more cohesive (and less wasteful) we tend to become. It is for this reason that I advise testers to always attend their team's daily stand-up.

Daily stand-ups also present opportunities to invite people to collaborate. Whilst strictly not part of the standard three-question agenda, I see little harm in a tester augmenting their update with an invitation to pair or an offer to review another's work. I encourage this practice because it is these collaborative activities (not just meeting once a day) that make a team truly cohesive and strengthen their chance of delivering high quality software on a regular basis.

Tip 34: Be prepared to occasionally trade testing early for technical debt

To be completed.

Tip 35: Build a support network of people that can aid your testing

To be completed.

Tip 36: Invent a multi-dimensional scale to discuss documentation detail

To be completed.

Tip 37: Familiarise yourself with how agile teams organise "requirements"

To be completed.

Tip 38: Question the efficiency of representing each test separately

Over the course of testing history, many of us have been taught to consider tests as separate entities. This thinking has affected the way that we tend to represent and store our tests. As an example, think about the last test management tool you used. There is a good chance that the tool you used represented tests as separate records.

Contrast this to the typical response you get when you ask another tester to describe how they will test a particular aspects of a system. Their response is often a collection of test ideas, rather than a single suggestion. After a brief pause, that collection is often expanded or inspires another collection of tests focused on a different quality risk.

Whilst keeping long and elaborate tests in isolation can help manage their complexity, representing all of our tests as separate entities can hinder the creative process described above. Even if we are able to transform a batch of tests into separate records without succumbing to boredom or forgetting test ideas, it is likely that the design behind those tests will be lost in translation. The cost to maintain a large number of separate records should also not be overlooked.

With this is mind, I recommend that you use a mixture of styles to represent your tests, favouring those that are most efficient. As you experiment, do not feel obliged to document tests separately.

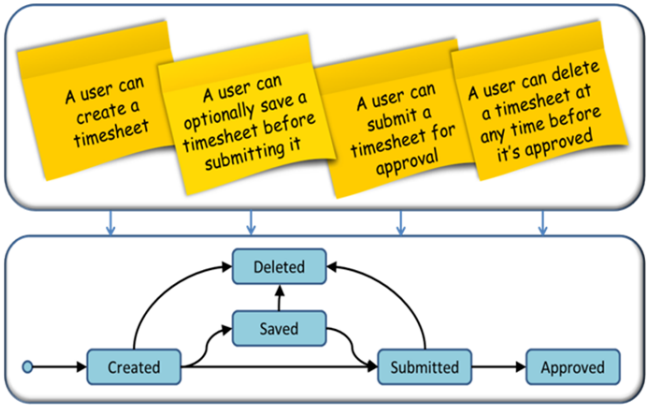
Tip 39: Appreciate examples, even those that aren't automated

To be completed.

Tip 40: Regularly remind people that testing is everyone's responsibility

To be completed.

Tip 41: Test multiple stories together to uncover different perspectives



Efficient agile teams are often compared to a well-managed production line, with new stories flowing quickly from a concept, through development and testing, before being rapidly released so that users can immediately benefit from their introduction.

This type of efficiency gives the team and their clients a competitive advantage over slower agile teams and teams following traditional process models, but it also introduces some potential testing pitfalls.

When we test in a fast paced team, it is easy to become too focused on the individual units of work that progress

through our production line (the features / stories), without considering the bigger picture.

To help mitigate this risk, I recommend thinking about each new story from a variety of different perspectives, including how it relates to stories already released. By combining multiple stories together you will typically unearth a more complicated assortment of inputs and interactions that can be the basis for wider-ranging tests.

That said, be careful not to lose focus entirely. It is important to supplement (not replace) our focused tests with tests that are based on a broader viewpoint. I say this because it is typically a variety of tests from many different perspectives that help us minimise effects like inattentional blindness and find the greatest number of bugs.

Tip 42: When you describe your tests, don’t just copy existing documents

To be completed.

Tip 43: Agree a simple means of visually tracking your testing

To be completed.

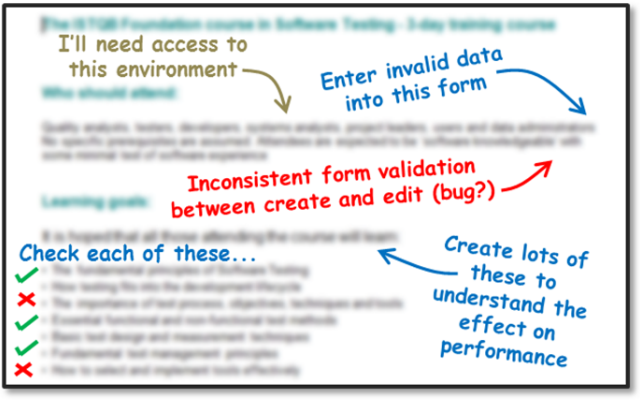
Tip 44: Encourage your team to automate their build and deployment

To be completed.

Tip 45: Agree a place for everything and keep everything in its place

To be completed.

Tip 46: Use existing documents as a canvas for test ideas and bug reports



At the beginning of each sprint, agile teams agree what they will deliver, after which they try to avoid changes in scope, but even teams that follow this practice cannot insolate themselves entirely from unexpected work. This means that sometimes things need testing at a moment's notice so that a release decision can be made.

In these situations a careful balance must be met. If we spend too much time on supporting activities like preparation and reporting then we risk having little time to test. That said, if we spend too little time on supporting activities, we risk our testing being ill-considered and any

information we do discover may be hard to communicate.

When you encounter a problem of this nature, a practice worth considering is using an existing document as a canvas to record everything related to your testing, from your test ideas to your bugs.

By documenting testing in this way we can often express information using fewer words as it is presented within the context of an existing document. Our information is also automatically aligned to a familiar structure and is quickly accessible in a single location, ready to share.

When your testing is finished you can digitally archive or discard your annotations, it's up to you. The key thing is you have tested quickly, but also systematically and in a way that can be easily explained.

Tip 47: Consider bringing many tests together into a single checklist

To be completed.

Tip 48: Try to avoid requesting unwanted features via the backdoor

To be completed.

Tip 49: To be confirmed

To be completed.

Tip 50: “Live as if you were to die tomorrow, learn as if you were to live forever”

To be completed.
