


Estimation and Planning

 @rchatley #doc302

In this section we look at estimating and planning your development tasks. Projects always have deadlines of one sort or another. People will always ask you “when will that be ready?” or “how long will that take?”.

Hofstadter’s Law

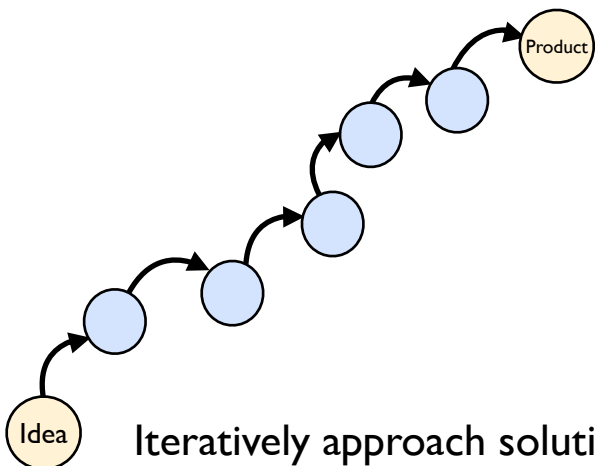


“It always takes longer than you expect, even when you take into account Hofstadter's Law.”

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A common characteristic of software projects is that they fail to meet their deadlines. Software engineers seem to be innately optimistic in their estimates of how long things will take. In projects with a hard deadline this can lead to a lot of stress and long hours towards the end of the project, which is not good for the health of the project or the people working on it.

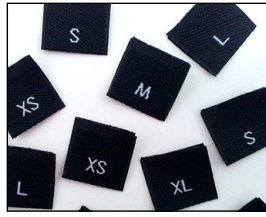
Agile development practices aim to help us work at a sustainable pace, releasing incremental versions of the software at regular points throughout the project. We get more regular feedback about how we are doing, how accurate our estimates are, and what we might realistically be able to complete by the deadline. Armed with this information we can make better decisions.



We aim to work in small chunks, both of time and of functionality. Each iteration we focus on delivery one or two complete features, so that we can demo them to the users and get feedback. We try not to spend a whole iteration on a “technical” task like a database schema that has no visible output. It’s hard to get feedback on what we’re doing until we have a completed usable feature.

If we realise after a couple of iterations that our general progress is slower than we imagined, then we can use this information to replan the later phases of the project well in advance.

T-Shirt Sizing



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T-Shirt Sizing is a simple way of estimating the relative size of different tasks - if this one is “medium”, then that one is “large”. It’s an easy technique to get started with, but it is difficult to use for predicting time, as it is not very quantitative.

<http://www.mountaingoatsoftware.com/blog/estimating-with-tee-shirt-sizes>



We often do estimation in the planning meeting.....



There are often problems coming to a consensus on what the estimate should be for a certain story, and it can be affected by a number of social and psychological effects. One technique you can use to try to reach consensus more quickly is planning poker, where each member of the team picks a number from a set of cards, and all are revealed at the same time.

We have some sets of planning poker cards if you want to use them - or it’s easy to make your own (or use an app).



If there is agreement, we move on. If there is a lot of variation, we need to discuss more. In this way we often uncover assumptions that people are making “oh, I thought we would store that in the database...”, “oh, yeah, I forgot about currency conversions...”.

The cards are a useful mechanic for keeping the momentum up in the discussion, and stopping teams from getting caught up for too long on unimportant details. However, they also help to point out when we don’t understand enough to estimate clearly.

Iteration Plans

ToDo	In Progress	Done
<div>3</div>		
<div>1</div>		
<div>8</div>		
<div>5</div>		

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It is common to display the iteration plan on a task board. During the iteration we can move tasks across the different stages to keep a track of progress. This is known as tracking and gives us the current state of work within the iteration. We can use this to see what is in progress, what is yet to be started, what is done, and whether it looks likely that everything that was planned for the iteration will be completed by the end of the timebox.

Iteration Plans

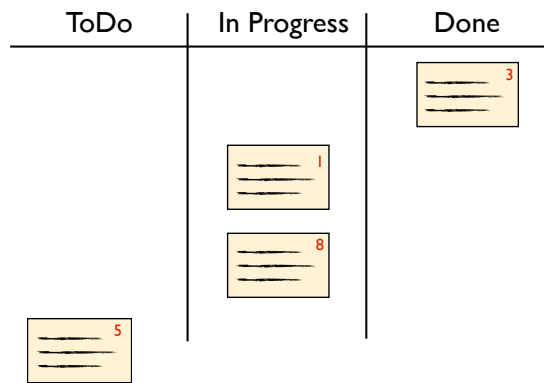
ToDo	In Progress	Done
	<div>3</div>	
	<div>1</div>	
<div>8</div>		
<div>5</div>		

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You may like to add notes like who is working on each task, or if a particular task is blocked “e.g. waiting for server to be set up”.

The task board gives us a good discussion point for standup meetings. Often teams hold their standups standing in front of the board. It shouldn’t feel like the board belongs to the project manager (if you have one), the whole team should use and update it constantly.

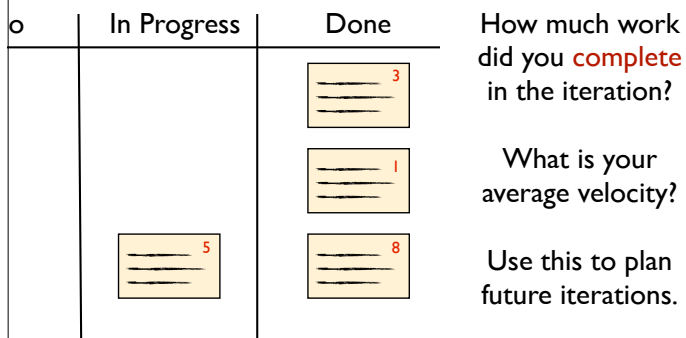
Iteration Plans



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Ideally at the end of the iteration, everything that was in the todo column at the beginning of the iteration ends up in the done column. This does not always happen...

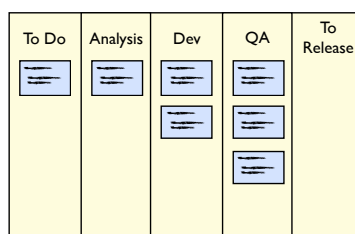
Velocity



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It is hard to predict how much your team can do in a week, especially at the beginning of a new project, with a new team. The only way to really know is to measure. Measure how many story points worth of work you complete on average as each iteration passes. Use this velocity information to help plan what you can commit to in each subsequent iteration.

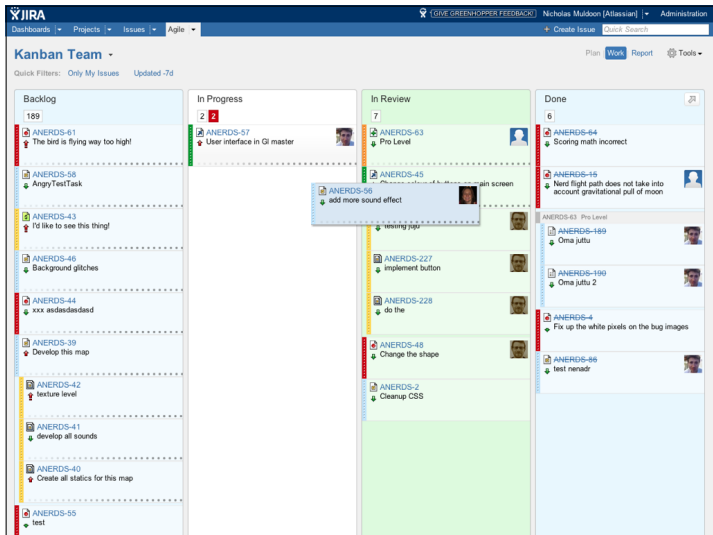
More Swimlanes



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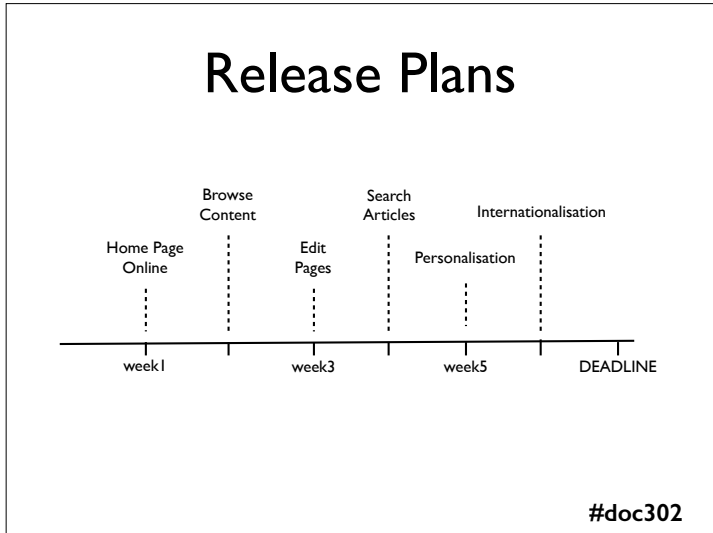
Some teams prefer different numbers of phases in their task board to show in more detail how each story is progressing. Try different things and find something that works well for your team.

Teams following a Kanban process may also have queues between phases, and work-in-progress limits to help them improve the flow and throughput. You might like to read more about these techniques.

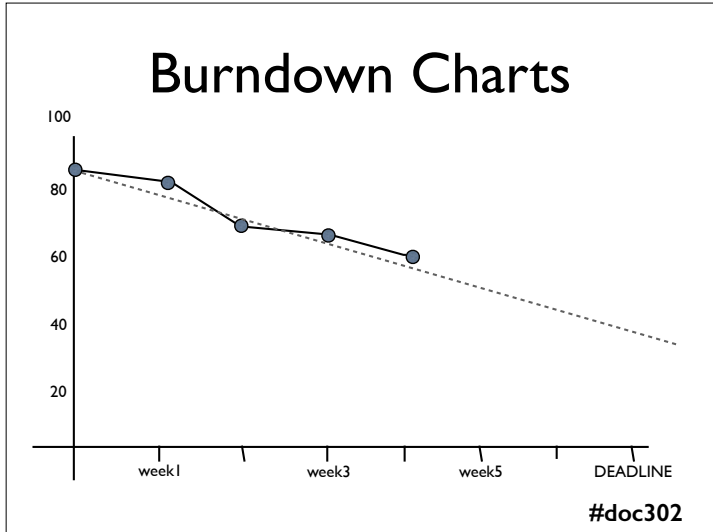


For teams that do not sit together in one place (perhaps because they work in a multinational company, or just on different floors of the same building) they may prefer to use a digital version of the card wall. A number of tools are available that try to support this, for example Trello, Mingle and Jira/Greenhopper.

There is much discussion as to whether digital or analogue methods are better for this kind of work.

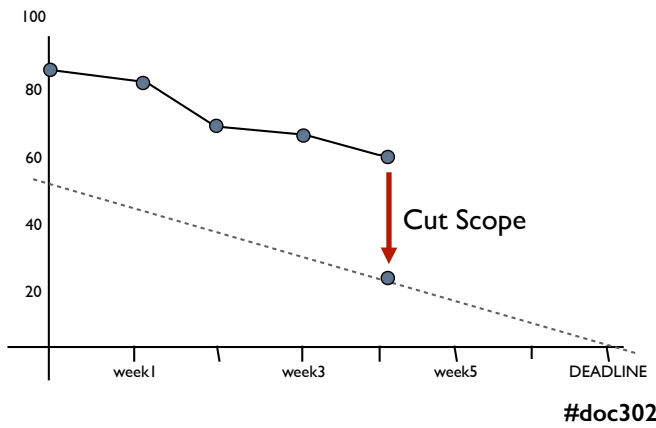


Often you want to have some idea of a longer term plan than just the next iteration or two. These are known as release plans, and can give high level themes to be worked on in each iteration, without too much detail. Too much detail here is often wasteful, as you are likely to change this plan as the project proceeds.



To see whether you are likely to hit the targets that you set yourselves, you can use a chart like a burndown chart. You can see how many story point you have completed over time, and how many you still need to do. By extrapolating the graph you can get an idea of whether you are going to hit your deadline or not.

Burndown Charts



If you realise you are not going to hit your deadline, you need to do something. Let the customer know as soon as possible. People prefer bad news to surprises. They may change the deadline, or you can negotiate to remove some of the lower value features from the plan to cut the scope of development.

Planning and Tracking

Divide your project into individually deliverable units

Estimate what you can do by when.

Constantly monitor progress and update the plan.



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