

Daddy are we there Yet? The Software Estimation Analogy

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It was a glorious sunny day so I decided to take the kids to the sea-side. After about half an hour, someone small on the back seat asked “Daddy? Are we there yet?” Having driven this route many times before, I answered “Yep, we’re almost there” since I knew we had travelled at least 15 of the 20 miles to the coast. Then we hit the traffic. The last 5 miles took 2 hours!

My “customer” had requested an update on progress. I was confident that I could estimate completion because I had travelled that road many times before. Therefore, I had prior knowledge on which to base my estimates. I also had road signs giving me an independent way to verify progress, adding further weight to my estimates. Because of this, I was confident in estimating a completion time based on the remaining miles we had travel; I reckoned about 15 mins (although I cunningly didn’t tell my “customer” because I wanted to give them a pleasant surprise when are actually arrived). What I didn’t anticipate at all well was the extra traffic on the road and how this would affect progress.

An hour after the first time, the “Customer” asked for an update on progress. You see, the “customer” had no interest whatsoever on how many miles we had to travel - he wanted to know *when* he was going to be able to start making sand-castles and splashing in the sea. An hour earlier, I had said “...almost there”: What the “customer” heard was “we’ve been travelling for half an hour and we are almost there - that must mean less time that we’ve used so far, perhaps 5-10 mins?”. When I hadn’t given an update, despite hitting the traffic, the “customer” was still none the wiser and was still anticipating a conclusion to the journey any second now.

Given that I had travelled the route a many occasions before, how could I have got my estimate so badly wrong? Or did I? Let’s break this analogy into bits and see what could have been done differently.

1. Setting Expectations

At the start of the journey, I offered no estimates, no interim milestones or alternative goals - in fact, no plans at all. The only objective I set was the final goal - to be at the sea-side. Furthermore, I gave my customer no way to assess progress for themselves because they had no way to assess where we were - they were totally lost and relying on me for assurance and feedback on progress. However, my biggest crime was not letting them know that I could measure progress in miles but could not anticipate progress in hours, *the only thing that they were actually interested in.*

Lesson learned: Measuring the distance was easy and predictable and was not going to vary regardless of what day or time of day we travelled the journey. Furthermore, we can tell the customer that they could monitor progress by watching the total miles gradually reduce. However, we should have set the expectation that although we can measure miles and how long it took to travel the previous mile, we could not predict how long it will take to travel the next mile unless we already know the traffic conditions for the next mile. Knowing this, we should have agreed an interim goal another alternative plan e.g. break the journey or go somewhere else with less traffic.

2. Measuring Progress & Providing Feedback

My customers knew that they were going to the sea-side but didn't know where that was or how long it would take to get there. What's more, in all honesty, they wouldn't even know when they had arrived until I told them. I knew the distance but couldn't predict how long it would take to get there because I had no experience of doing that journey *on the particular day*. As it turned out, the situation on that day was going to mean that progress would be very slow indeed, particularly in respect of time as opposed to distance.

Lesson learned: Heavy traffic was always likely to be a big risk when driving to the coast on a sunny day. This could easily have been anticipated. Furthermore, it should have been made clear that we could not predict when the heavy traffic might start, if at all. We should have provided the customer with this information at the start of the journey. We should have made it clear that if this risk occurred, we might be stuck in traffic for an indeterminate length of time. We should also have explained that whilst there were numerous interim landmarks that would help us measure progress in miles, this would not help us in any way determine to total journey time. If the heavy traffic had occurred in these circumstances, we could have involved the customer in a discussion about a change in plan and possibly a different final location.

Conclusion

Providing estimates for the completion of a software project requires a lot of information, all of which has to be complete and accurate. In the above analogy, we knew the route and the distance to our journey's end. If this journey had been a software project, we would have a full list of requirements and an estimate of completion for each requirement – equivalent to knowing our distance and average miles per hour. Add up all the estimates for each piece of functionality and we have the same sort of estimate as we had above without adding in the “heavy traffic” factor.

Sadly, however, most software projects don't start like this. It's a lot more common to be asked for estimates before we have the details of our journey. In fact, the most common to be asked for estimates before we have the details of our journey. In fact, the most common situation is that we know we have to get to the side-sea but we don't know which coast or even our mode of transport. Providing an estimate of completion for a software project in this situation is going to be nothing more than uneducated guess-work. After all, if we can be almost 100% out when we have 100% of the requirements correct, what chance do we stand when we only have 5% of the information we need? The answer? Somewhere between 0% and a very lucky guess!