Improved Return On Investment using Agile Methods

A hypothetical scenario has been created in order to illustrate the opportunity for early Return On Investment (ROI) to when using an Agile delivery style. Agile favours frequent delivery of partial product rather than a single delivery at the end of a project.

The following is assumed;

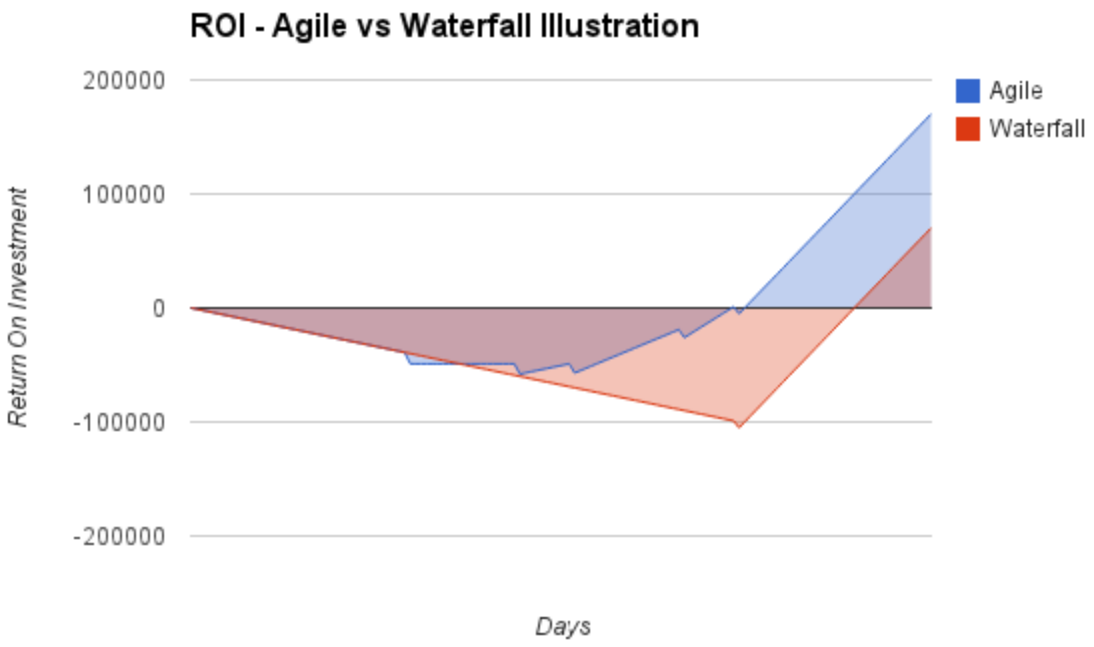
- Development costs £1,000 per day of development.
- Development effort will be 100 days[1].
- The cost of deploying the software is £10,000 per deployment[2].
- The product of development is a product which will save or earn £4,000 per day when complete.
- Viable releases are made at 40, 60, 70 and 90 days after the start of the project. These yield partial increments of value[3].

Release Day	**Release value (£ / day)**
40	1000
60	2000
70	3000
90	4000
100	5000

[1] Many studies suggest that Agile development is faster than Waterfall development. If this were to be included in this scenario, Agile would outperform Waterfall by a greater margin.

[2] In a continuous delivery environment, deployment is largely or fully automated. This means that the initial Agile deployment would likely be expensive and subsequent deployments cheap. This reduction in deployment costs are not used in this scenario. It should be noted that, had such a deployment cost model been used here, it would likely work more favourably for Agile deployment.

[3] Because the additional value gained from the release is never less than the cost of deployment in this scenario, the viable releases are always released. Depending on the relative deployment costs and value gained, this may not always be the case.



Notable features of this scenario are;

- The peak investment using Agile is £58,000 compared to £110,000 using Waterfall. This illustrates that more funding is required in this Waterfall scenario.
- By releasing partial product, some benefits are gained early. When the net financial gain is zero, since there are benefits to the users of the system and reduced project risk associated with releasing software early, the release is made. Early release also allows early feedback from users and can shape the future direction of the product.
- The Agile approach breaks even before the Waterfall approach. In this scenario Agile breaks even just before the end of development, on day 99. Waterfall doesn't break even until day 121. Funding is required for longer in the Waterfall scenario.
- Once the full product is completed, the value gained from it is the same in both Agile and Waterfall instances. This means that the Waterfall approach will always lag behind the Agile approach in terms of achieving any given level of value.

The shape of the Agile ROI curve will vary in any scenario dependent on the figures used. If deployment costs outweigh the value gained from deployment the decision can be taken not to release at any or all of the viable release points. In the worst case, where a single release is made at the end of the project, the Agile curve would overlay the Waterfall curve.

Test Driven Development is commonly used throughout Agile development, this leaves the created software in a more predictable and stable state than developing without these tests. These tests can be run easily, quickly, regularly, on demand and/or automatically. Any future enhancements can be made with confidence that existing functionality will not be broken without knowing very quickly.