



Webwaves



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In *Preview* 178 Dave Annetts foreshadowed an introduction of the rest of the new-look ASEG Web Committee. Fresh from the 2015 ASEG-PESA COC I had volunteered to help out. We have been steadily making progress and one day you may even be able to navigate the ASEG website on a mobile device.

Based in Perth, I operate a geophysical consultancy. Terraspect is focussed on the application of seismic methods to the exploration and engineering industries. In particular, I am a land seismic processor specialising in refraction statics. I am also the agent for the GLOBE Claritas processing suite in Australia.

The Web Committee has been busy over the past few months looking at how to improve the ASEG website. This inspired me to use this Webwaves column to write about one of the approaches that is commonly used in website development. Agile is one of the foremost approaches to web and software development, and the principles of Agile development are highly transferable to the geophysics industry.

What is Agile?

The analogy I favour is that of missiles (<http://www.coopersystems.com.au/>

[what-is-agile/](#)). Take the Tomahawk Cruise Missile. It is designed to deliver a warhead over a long distance with high accuracy. Before firing the missile the target is well defined, and any deviations are mapped out. After deployment the missile flies at subsonic speeds following a set path using the built-in GPS along with other guidance systems. This is not agile.

Instead, let us consider an air-to-air missile like the AMRAAM. The AMRAAM travels at Mach 4 and has beyond visual range capabilities. When the pilot fires the missile he is aiming at a moving target. When fired the AMRAAM flies as fast as it can at the current projected location of the target. Frequent RADAR updates allow the missile to change course and intercept the moving enemy fighter. This is agile.

Why is this relevant to us? With the traditional case, we assume that we have the perfect plan and that no additional input data will allow us to improve our results. This is a perfectly acceptable approach in an environment where there is no change in data.

With the agile case, we use continual feedback to modify our plan. Any new input data or technology is used to modify our plan and adapt to the new scenario. As explorationists and geophysicists we are constantly acquiring new data that can be used to improve our models and hypotheses. By adjusting to these new data we can truncate poor outcomes and expedite positive ones.

The Agile Manifesto for software development is simple (<http://agilemanifesto.org/>):

- Individuals and interactions over processes and tools
- Working software over comprehensive documentation
- Customer collaboration over contract negotiation

- Responding to change over following a plan

That is, while there is value in the items on the right, items on the left are valued more.

The Agile Manifesto is based on 12 principles, some of which can be directly applied to exploration. These are:

Welcoming changing requirements, even in late development.

- Who hasn't had a project change significantly?

Building projects built around motivated individuals, who should be trusted.

- Instead of using gangs of unskilled employees, smaller teams of highly skilled and motivated people can collaborate to produce better results.

Teams reflecting regularly on how to become more effective, and adjusting accordingly.

- A canned approach to geophysics and exploration is not very innovative. The most effective teams embrace new technologies/ideas/methods.

The Agile approach can be used in geophysics and exploration. It favours an environment that empowers team members; one in which they are self-organised and motivated. Frequent iterations of working models are encouraged, as is the collaboration with clients and stakeholders. With an ability to respond to change, it is ideally suited to the exploration environment where additional data are being collected.

There are plenty of useful links on the internet about the Agile approach. Here are a couple to get you started:

https://en.wikipedia.org/wiki/Agile_software_development

<http://www.agilegeoscience.com/> (some of Matt Hall's early blog posts explore similar ideas to this article)

Thanks to Nick Edwards for his input on the Agile approach.