

OVERSEER®: TAKING IT FORWARD

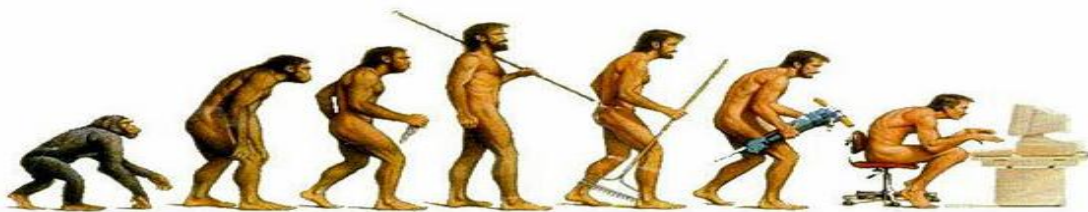
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The evolution of Overseer®

Overseer® was developed in the nineties to support farm management decisions around the growing use of fertiliser and understanding nutrient flows in farming systems to meet growing environmental concerns. Its value is in its ability to model a range of farm systems so land managers can make decisions with analysis specific to their situation.

As with other software, Overseer® is in a state of constant evolution to stay relevant in a constantly changing environment. Lehman's Laws of software evolution¹ tell us that to stay relevant a piece of software requires rigorous upgrading that deals with increasing complexity, maintains user-familiarity and grows to meet changing needs.



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The evolution of a software model can be far from smooth because pressure for change comes from different drivers at different rates. In the case of Overseer® the drivers include: the New Zealand freshwater regulatory environment that now requires more accounting for nutrient losses from farms; advances in information technology to support web-based applications; advances in science and national data sets; and evolving farming practices and systems.

Regulatory pressures

The 2011 National Policy Statement for Freshwater Management requires Regional Councils to set limits on water quality and to manage within those limits. How that is done is now being worked through by regulators and communities using a range of information including Overseer® estimates of nutrients losses from farms.

¹ http://en.wikipedia.org/wiki/Lehman%27s_laws_of_software_evolution

Advances in technology

Improved access to the cloud has led to increasing opportunities for web-based software, while information technology continues to advance at pace. While the last upgrade of Overseer[®] incorporated changes in science around soil drainage, it also significantly enhanced the ability for people to interact with Overseer[®] by establishing a web-based application.

Improvements in science and farming practices

Scientific knowledge and data sets continue to improve and provide more precise information for models like Overseer[®] making sense of complex real-life situations. Farming systems also continue to evolve (such as precision irrigation and precision fertiliser application) and over time new techniques and management practices make their way into mainstream.

It is through this multitude of evolutionary pressures that Overseer[®] development occurs.

Opportunities and Challenges

In this changing environment, software models such as Overseer[®] have to work hard to keep pace or face becoming irrelevant. This presents some challenges and opportunities for the management of Overseer[®] and the Overseer[®] development programme.

Meeting the changing needs of users

The growing use of Overseer[®] in policy compliance (primarily, but not exclusively, by Regional Councils) puts pressure on the model in terms of increased interest in the inherent uncertainties within the model and a need to have consistency around appropriate application of the model outputs. This provides an opportunity to open up wider conversations with users to understand the value of Overseer[®] and to set development priorities that ensure the model is fit for purpose and well understood.

Opportunities to integrate to build knowledge

The potential to integrate with national data bases (like Landcare Research's S-map) and other models provides a significant opportunity to increase the certainty of model outputs by linking into robust data sets and in allowing operators to manage information more consistently and efficiently. In cases of integration with data sets that are also freely available this is straight forward; in other cases, data ownership and commercial interests complicate integration.

The costs of maintaining relevance

The experience outlined in a post on the BMC Software IT Service Management blog, that IT developers are continually being asked to not only do more with less, but to deliver it more quickly, cost-effectively, accurately and to a broader audience, holds true for Overseer[®] and reflects the high cost of maintaining relevance. For a freely available model like Overseer[®] ongoing upgrades require ongoing commitment from the owners and a willingness to invest from the wider user community.

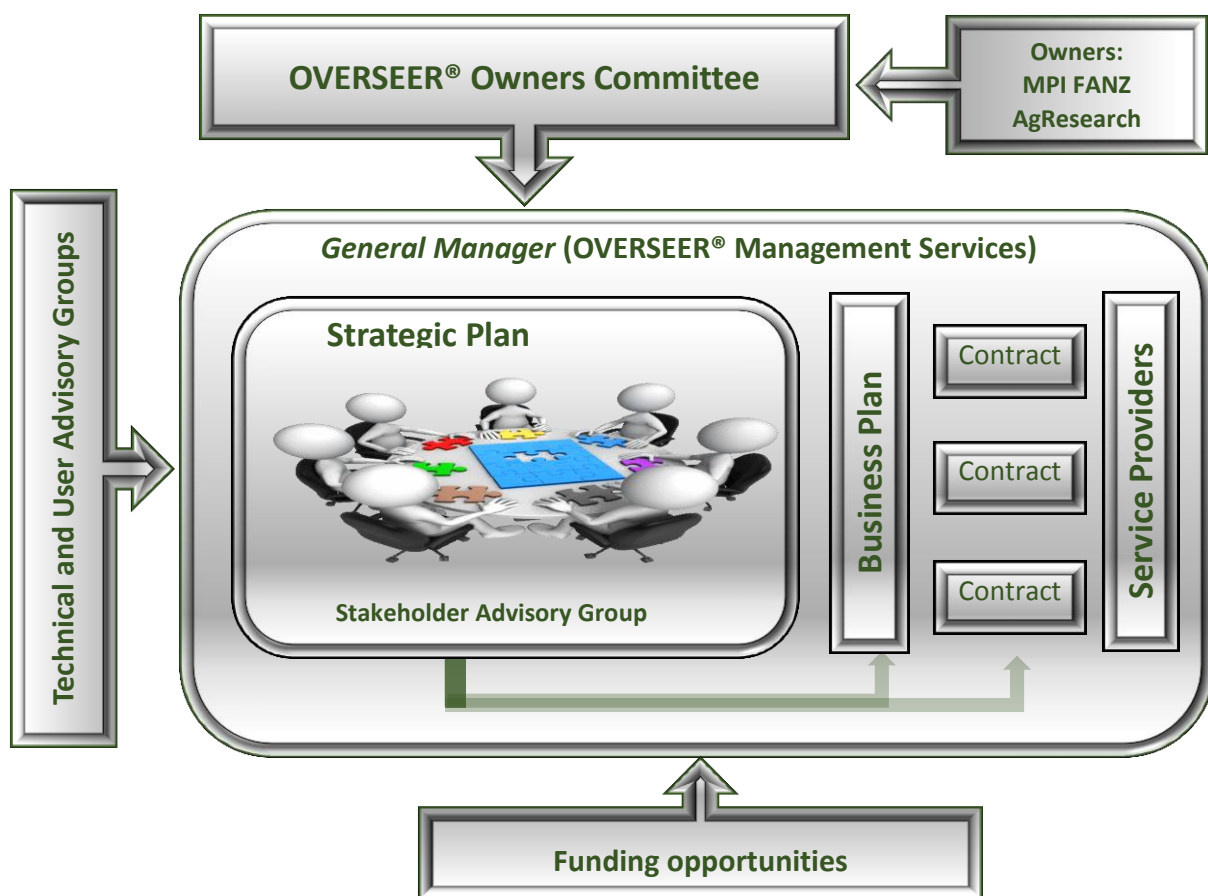
To deal more effectively with this wide range of opportunities and challenges, the owners of Overseer[®] set up a new management structure.

Updating Overseer[®] management

The Overseer[®] owner organisations (AgResearch, Fertiliser Association of New Zealand and Ministry for Primary Industries) recently designed a new management structure to realise the opportunities and manage the challenges for Overseer[®] into the future.

The approach to the ownership of Overseer[®] includes the principles of equal partnership, transparency, no surprises, working to agreed outcomes and collaboration. The management structure reflects this approach in a number of ways.

The new structure (pictured below) centralises the management of Overseer[®] under a General Manager who, following the ownership principles, manages the implementation of a strategic plan and runs the business. The General Manager also provides a much needed channel for engagement with stakeholders and the wider community. This will include external advisory groups to feed into the strategic planning process and discuss the needs of science and technology within the model.



Bringing in experts and stakeholders with a vested interest in Overseer[®] aims to open the doors on Overseer[®] to peer review; enable broad conversations about the policy environment that Overseer[®] sits in; and, allow input into the future development of the model.

The establishment of this management structure will roll out over the next year and a key corner stone will be the development of a longer-term strategic plan for Overseer[®]. Setting the strategic direction will then inform the business planning and the development work programme.

Building buy-in through inclusive management and stakeholder engagement will also support the growing partnerships with the different groups that see investing in Overseer[®] as good for their business

Update on current development work

Last year the Overseer[®] Owners progressed an agreed standard for inputting data into Overseer[®] to help address uncertainties in the way information is entered into Overseer[®].

This year we are progressing several projects to look into the uncertainties associated with the way Overseer[®] models cropping (as identified by the Foundation for Arable Research review), irrigation and drainage. We are also continuing the integration with S-map to ensure we can benefit from this important soil information database.

These working priorities will continue to improve the model as the community of Overseer[®] embeds the new management structure.