We need to talk: The importance of communication in model development and use

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Abstract: Have you ever planned, built, run or applied a model on a project without, at some point, being frustrated that someone (or several people, or entire organisations) just didn't 'get it'? I'm yet to encounter such a situation or hear from the community of such an occurrence. Whilst my experiences relate to the fields of environmental science and water resources, issues around communication in modelling are agnostic to the technical field. I've also observed that these frustrations carry through the entire process and are experienced by all parties involved. Further, these difficulties add complexity, time and stress to the process, and can throw up genuine barriers to sufficient scoping in the early stages through to mistrust or inappropriate adoptions or interpretations in later stages.

Where is it going wrong? Why with increased understanding and focus does it continue to go wrong? How can we course correct? There are elements within the control of this community, but how do we influence other stakeholders to come to the communication party? Water modelling best practice commonly referred to in Australia (Jakeman et al., 2018) strongly emphasise communication end to end – working closely with stakeholders during the scoping phase, through to the communication of findings phase including documentation, uncertainty and visualisation of results. The more context that is understood by the modelling team upfront, and the more insights the end users have on the process, the greater the chance of success. This edges the relationship from communication towards collaboration. It is seen in transitions in the way modelling is approached, for example working in an agile manner, encouraging modellers to speak to each other daily as well as the inclusion of stakeholders in technically focused sprint reviews. While consensus may not be reached, increased transparency leads to more engaged, informed, and productive dialogue between stakeholder groups with their respective interests.

How do we, though, acknowledge and account for the reality that many modellers are simply not built this way, and simply imposing a process that we should engage with is setting the system up for failure? One of the leaders in the hydrological modelling community confessed his ideal job would have been *"one where people would push problems under my office door to solve"* (Nathan 2018). There is the counterpart challenge that many strategists and end-users glaze over when graphs, statistics are put in front of them. Socially we are seeing more advocacy and respect for people being able to play to their strengths and respond systematically in a supportive way. Can we learn from this and use these insights in our next step forward?

Finally, there is the challenge of the sheer number of stakeholders. Many are involved in the complexities of managing water resources, as is likely the case for any context that requires complex modelling. Indeed, even within a single organisation, there can be multiple overlapping projects, technical perspectives and strategic interests. For modelling to be most efficient and effective, there needs to be an awareness and an accessibility to users, which includes the practical access as well as suitable supporting information.

While collectively the modelling community have made several steps forward, and the user community is reaching out for more integration through interactive reporting and dashboards to interrogate results more fully, we are still very much on the journey. We must continue to step towards our user base to gain the most benefit from our hard work.

REFERENCES

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