



# Mid-term evaluation of Queensland Water Modelling Network

Evaluation report

An evaluation report prepared for Department of Environment and Science  
19 October 2022

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## Abbreviations

<b>3CP</b>	Capability, Collaboration and Capacity Program
<b>CoP</b>	Community of Practice
<b>DES</b>	Department of Environment and Science
<b>EOI</b>	Expression of Interest
<b>KEQ</b>	Key Evaluation Criteria
<b>MEDLI</b>	Model for Effluent Disposal using Land Irrigation
<b>NSW</b>	New South Wales
<b>QWMN</b>	Queensland Water Modelling Network
<b>RD&amp;I</b>	Research, Development and Innovation
<b>RfQ</b>	Request for Quote
<b>SPG</b>	Strategic Partnerships Group

# Acknowledgment of Country

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Aither acknowledges Aboriginal and Torres Strait Islander people as the First Peoples of Australia and the Traditional Custodians of its lands and waters. We pay respect to the deep connection First Nations people hold with Country and celebrate the continuing effect of cultural knowledge and practices on Country and communities across Australia.

We pay our respect to Elders past and present, whose knowledge and leadership has protected Country and allowed First Nations spirituality, culture and kinship to endure through the ages.

We recognise the injustices and hardship faced by First Nations communities and reflect on opportunities for all Australians to play a part in reconciliation and the development of mutual understanding and respect across cultures.

# Executive Summary

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The Queensland Water Modelling Network (QWMN) was established to provide the tools, information and collaborative platforms to deliver transformative change within the Queensland water sector and with influence nationally. This mid-term evaluation assesses the appropriateness, processes and outcome achievement of QWMN at the mid-point of the current funding tranche.

## By the numbers <sup>1</sup>

5

PhD students funded as Innovation Associates.

14

PhD students involved in the Innovation Cluster.

343

participants across 9 Community of Practice events (includes in-person and online).

**55** different organisations comprised the consortiums submitting the **27** proposals for the 2022 tender.

**\$374,000** to fund **9** RD&I projects in Year 2. RD&I leveraged an additional **\$570,000**. <sup>2</sup>

**49.7%** increase in website users. <sup>3</sup>

At least **\$250,000** of leverage funding through the 3CP program. <sup>3</sup>

<sup>1</sup> From March 2021 to April 2022.

<sup>2</sup> July 2021-June 2022.

<sup>3</sup> From March 2021-February 2022.

## Evaluation findings

QWMN continues to appropriately address clear and ongoing needs in the Queensland water sector. The network has delivered its programming effectively, supported by efficient management from the QWMN Secretariat. QWMN is achieving or progressing towards its short and medium-run outcomes and is building a foundation for achieving its long-run outcomes and vision. To ensure continued success of the network, some opportunities have been identified to improve program delivery and transition QWMN's focus to program outcomes.

### QWMN remains an appropriate response to address a clear and ongoing need

QWMN has been appropriately addressing needs of the water sector over the past two years. Overall, the network targets the right topics and activities to provide decision-makers with scientific evidence, modelling and tools to support their decisions. The two pathways for allocating project funding allow the network to support research addressing specific gaps in the water sector, as well as larger strategic needs. QWMN should clearly communicate what types of projects it funds and how practitioners can receive funding for projects that will address a specific technical need.

QWMN continues to build capability and collaboration among practitioners and encourages a more strategic approach to water management. There are opportunities to further focus on sector needs, such as technical upskilling, development of early career practitioners and further engagement of decision-makers.

## QWMN processes are efficient and effective to deliver program needs

QWMN has continued to deliver its programming effectively and collaboratively. The network fosters relationships with various water practitioners through the RD&I tender process. Additionally, the Queensland Secretariat and 3CP program leaders have continued to build connections with private organisations and government decision-makers.

The program maximises its budget for both the RD&I and 3CP programs and leverages funding through time and materials contributed by practitioners to increase the program's reach.

Project management and 3CP activities are well-run, and QWMN adapts its processes over time to continuously improve. The two-stage tender implemented in Year 2 streamlined the process, though QWMN needs to be clearer about the requirements of each stage to avoid duplication of effort by tender proponents.

Communication before and during events or projects is an area of strength for QWMN. There is an opportunity to improve communication of the outputs and outcomes of these activities to further enhance QWMN's impact.

## QWMN continues to progress towards achievement of intended outcomes

QWMN continues to achieve its short-run outcomes and is making some progress toward realising its medium-run outcomes. The program is investing in strategic modelling requirements to address key risks and issues. The knowledge generated through this investment is shared across different user groups and continues to build the capability of both practitioners and end users. In Year 2, the program focused on how to incorporate traditional knowledge and cultural values into the modelling pipeline and took several steps to begin this process.

Project and event outputs are a strong foundation for achievement of QWMN's medium- and long-run outcomes. However, if these outputs are not utilised by end users, QWMN will have limited ability to deliver its goal of transformative change in the sector. There needs to be a greater focus on how QWMN's current program can progress the desired outcomes, including continuing relationship-building and engagement with decision-makers. Looking ahead, QWMN may consider how program design of future iterations of the network may be targeted towards achieving program outcomes.

## Recommendations

Evaluation findings demonstrate that QWMN is a well-run organisation that achieves desired program outputs. This provides a foundation for the network to achieve its vision of being a *"state-wide network with national influence that delivers transformative change."*

The program has reached a maturity level where the most significant gains will be made from improving transparency and communication and ensuring all elements of the program are clearly focused on delivering outcomes. This evaluation identified several themes QWMN should focus on to enable the realisation of the broader program outcomes. These themes include increasing transparency and communication of processes and outputs, targeting specific strategic needs and progressing program outcomes.

Recommendations have been made under each theme to address opportunities to improve the QWMN's appropriateness, process and outcomes.

## Increasing transparency and communication of QWMN's processes and outputs

- **Recommendation 1:** QWMN should more clearly and transparently communicate:

- The types of projects currently being funded and whether they are tactical or strategic
- The opportunities available for funding for more prescriptive, tactical projects
- **Recommendation 3:** QWMN should highlight the make-up and diversity of successful RD&I tender teams and emphasise the need for well-aligned collaborations.
- **Recommendation 4:** QWMN should clearly define and communicate the requirements of both stages of the tender process to reduce burden on participants and reviewers.

### Targeting specific strategic needs

- **Recommendation 2:** QWMN should undertake steps to better understand the barriers to entry and specific needs of potential or early career modellers. Activities that will engage these groups and build the needed local capacity and capability prioritised equally to those that will engage more experienced modellers

### Progressing program outcomes

- **Recommendation 5:** QWMN should assess major barriers to engagement with decision-makers and develop an action plan for continuing to raise its profile among them
- **Recommendation 6:** QWMN should ensure all activities, events and projects are explicitly required to consider program outcomes
- **Recommendation 7:** The QWMN should begin strategic planning to identify the most appropriate next iteration of the network

QWMN is well-placed to deliver on these recommendations. Recommendations 1-5 build upon work that QWMN is already doing, while Recommendations 6 and 7 highlight areas to which QWMN can turn their focus. Communicating and being clear about what the network is currently doing will give stakeholders confidence in the program's outputs. This may lead to increased uptake of outputs and progress towards QWMN's outcomes. Equally prioritising early career modellers will help fill one of the most critical gaps in the sector. At the same time, explicitly focusing on outcomes may reprioritise the mix of activities and outputs QWMN needs to deliver in order to achieve those outcomes. At this point, the network may begin looking to the future to identify what next steps are required to realise the program vision.

# 1. Overview of the Queensland Water Modelling Network and the Mid-term evaluation

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Queensland's water resources are central to every community. Water supports agriculture, health, cultural uses and industry and also nurtures the state's natural environment. Multiple pressures, including climate change and variability, groundwater over-extraction, pollution, erosion, and run-off are currently adversely affecting Queensland's communities, economies, and environment.

Water modelling and robust scientific evidence are used in Queensland to design policy and undertake effective water resources planning and management. The Queensland Water Modelling Network (QWMN) provides tools, information, and collaborative platforms intended to create change within the Queensland water sector and develop influence nationally.

QWMN conducts yearly evaluations of its program. Periodic evaluation is vital to ensuring the program continues to deliver on outcomes and intent. This Mid-term evaluation takes stock of the program thus far and identifies where outcomes are being met or progressed or where action is needed to better direct resources and activities to achieve desired program outcomes.

## 1.1. About the QWMN program

QWMN was established in 2017 to support best-practice water modelling and the uptake of model results by decision-makers. The network was initially resourced for a four-year funding tranche (FY 2016-17 to 2019-20), and subsequently received approval for a second four-year tranche (FY 2020-21 to 2023-24).

Investment is led by five key goals, as described in *the QWMN Research, Development and Innovation Strategy 2021-2024* (Queensland Government 2021):

1. Build a state-wide network with national influence to deliver transformative change
2. Foster integrated and scalable modelling to address water risks and opportunities
3. Champion a community of practice to leverage expertise
4. Encourage strategic co-investment and co-production in water modelling research, development and innovation
5. Increase application of water modelling to inform decision-making.

These goals are delivered through three program areas:

- A Research, Development and Innovation (RD&I) investment program, including: i) strategic evaluations; ii) individual projects; and iii) reviews and responses
- A capacity and capability building program, targeting government, research and private sectors (currently referred to as the Capability, Collaboration and Capacity Program (3CP))
- An underpinning effective governance process/structure

Overall, QWMN's vision is to develop a state-wide network with national influence that delivers transformative change.

## 1.2. Purpose of the Mid-term evaluation

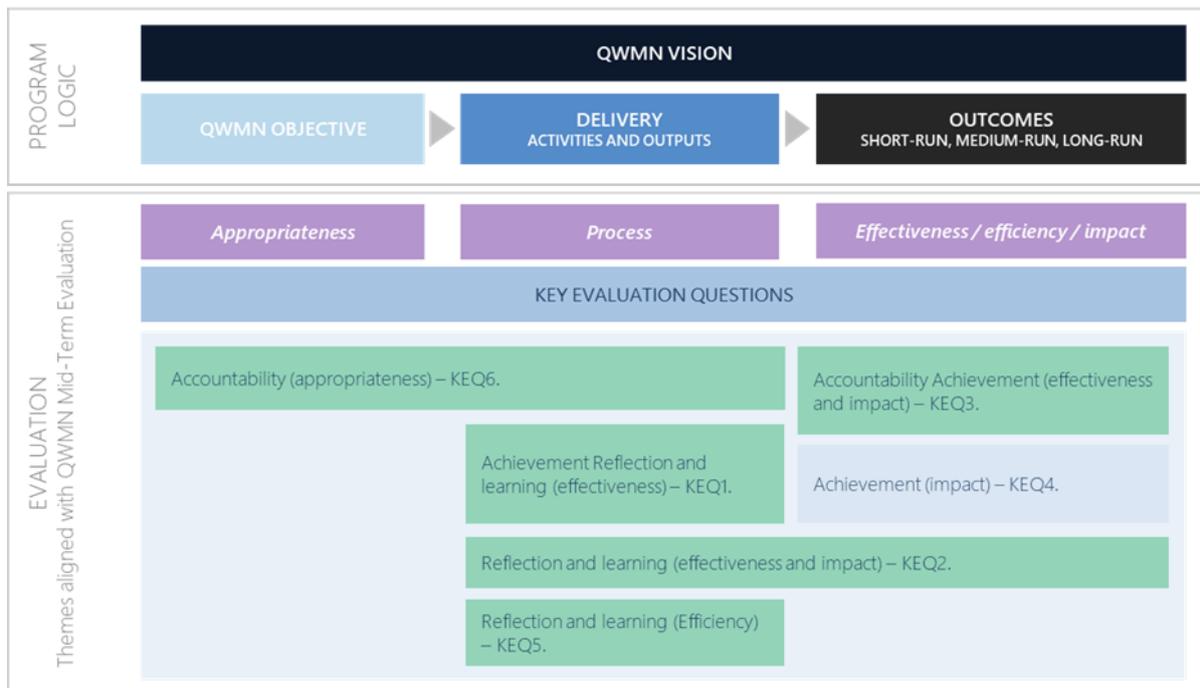
Periodic evaluation of the QWMN supports adaptive management of program delivery and outcome achievement. Evaluation is fundamental to the long-term success of QWMN by identifying the best use of limited resources to realise program outcomes. The purpose of this Mid-term evaluation is to measure the overall effectiveness and appropriateness of Years 1 and 2 of the second funding tranche (2020-2024), as well as to assess achievements of, or progress toward, the program's intended outcomes.

The Mid-term evaluation utilises two years of insights and data to assess the appropriateness and efficiency of program processes and focus areas and to identify areas for continued improvement. It identifies progress towards the intended short- and medium-run outcomes and how they may contribute toward achievement of the program's overall vision. In areas where opportunities for improvement are identified, the evaluation recommends focused actions for the next two years. This Mid-term evaluation provides evidence of QWMN's progress and achievements, helping give ministers, industry partners, universities, the community, and other stakeholders confidence in the value of QWMN and supporting the case for future funding.

## 1.3. Approach to evaluation

This Mid-term evaluation uses an approach aligned with the *Queensland Government Program Evaluation Guidelines* (Queensland Government 2020) to assess program appropriateness, process and effectiveness. The evaluation approach builds on knowledge and methods developed through previous evaluation and evaluation planning, including the Year 1 evaluation program logic (Appendix A), approach and findings and the *M&E Framework (2020 - 2024): Queensland Water Modelling Network* (Alluvium 2020).

The evaluation has been guided by the *Mid-term Monitoring and Evaluation Plan* (Aither 2022), including a conceptual approach to evaluation outlined in Figure 1, which shows the relationship between the program logic, evaluation themes, and key evaluation questions (KEQs). The Program Logic is located in Appendix A: Program Logic.



Note The annual evaluation is focused on collecting data to answer KEQs in the green boxes indicated. Some sub-questions from KEQ4 also require annual data to be collected to inform Year 4 evaluation.

Figure 1 Conceptual relationship between program logic, three evaluation themes and KEQs

The KEQs were used to assess three evaluation themes:

- Appropriateness of the program (considers the needs and objectives of the program)
- Process (considers delivery inputs, activities and outputs)
- Effectiveness and efficiency of the program (considers the progress and achievement of outcomes)<sup>1</sup>.

The evaluation used an iterative approach to develop findings and recommendations based on multiple lines of inquiry, drawing on data obtained through two approaches:

- Review of documentation, including the Year 1 evaluation and Year 2 documents provided by QWMN
- Stakeholder engagement, including targeted individual or small group interviews and an online survey distributed to the broader QWMN contact database

<sup>1</sup> Note: The evaluation focused on Years 1 and 2 of the current funding tranche but also considered activities that built upon outputs and outcomes from the previous tranche of funding.

## Box A: Stakeholder engagement plays a key role in the mid-term evaluation

Stakeholder engagement was used as a critical source of information for this mid-term evaluation. A combination of semi-structured interviews and an online survey were used to gather data. Participation was voluntary for both engagement approaches. Figure 2 shows the representation across stakeholder groups for each form of engagement.

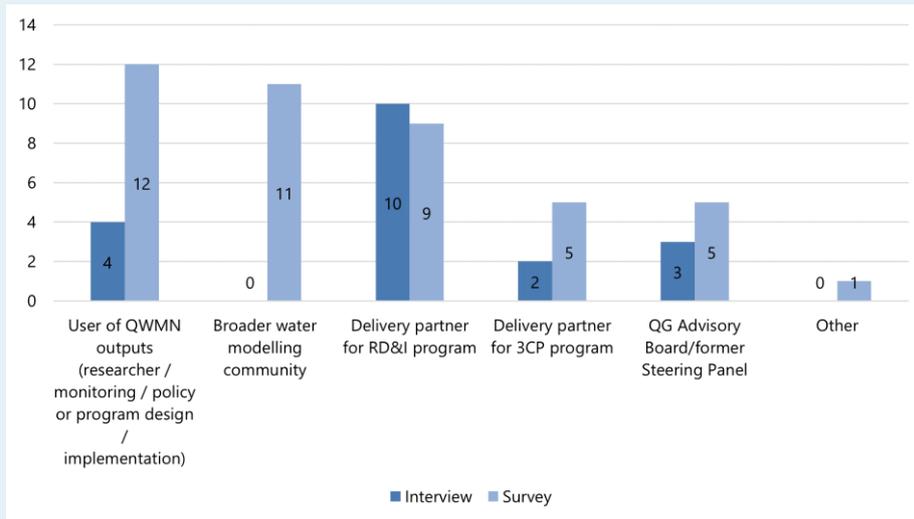


Figure 2 Proportion of stakeholders engaged from various groups involved with QWMN

### Semi-structured interviews

Interviews followed a semi-structured approach with high-level, guiding questions based on the KEQs. Each interview was approximately one hour long and included one to four people. In total, 10 interviews were undertaken with 23 stakeholders.

### Online survey

The online survey focused on capturing respondents' perceptions, agreement and satisfaction using an opinion scale and multiple-choice questions to quantify responses. Open-ended questions were used to elicit further feedback. A total of 23 responses were received from a range of stakeholders across the sector. Appendix B: Survey Questions and Results provides a summary of survey questions and responses.

## 1.4. Structure of the report

The following sections of this report present the findings and recommendations of the Mid-term evaluation. Findings and recommendations are organised by the three evaluation themes (as outlined in Section 1.3):

- Section 2: Appropriateness – QWMN remains an appropriate response to address a clear and ongoing need
- Section 3: Process – QWMN processes are efficient and effective to deliver program needs
- Section 4: Outcomes – QWMN continues to progress towards achievement of intended outcomes

Supporting details of the evaluation approach and results are provided in the appendices:

- Appendix A: Program Logic
- Appendix B: Survey Questions and Results

## 2. QWMN remains an appropriate response to address a clear and ongoing need

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QWMN has been appropriately addressing needs of the water sector over the past two years. Overall, the network targets the right topics and activities to provide decision-makers with scientific evidence, modelling and tools to support their decisions. It continues to support relevant water research and development through its strategic and tactical RD&I tenders. The collaborative process for determining strategic topics has ensured the most essential issues are addressed by the tender. The network also supports coordination and collaboration between members of the sector, as well as upskilling, through its 3CP program. Yet, there continues to be a need for further development of capability, collaboration, and robust data in Queensland, and the network remains a suitable way to address these needs.

This evaluation did identify several areas where QWMN may better serve network users and address sector gaps. For the RD&I program, this includes becoming clearer and more transparent when communicating the types of projects funded by the program. This will ensure a broad range of stakeholders continue to participate in tenders and that prescriptive projects continue to fill sector gaps while the innovative projects address broader strategic concerns. For the 3CP program, there are opportunities to focus more strongly on targeting underrepresented groups, such as early career modellers, and to provide some additional targeted upskilling opportunities for modellers at all stages of their career.

### 2.1. QWMN continues to address clear needs and risks in Queensland's strategic modelling capacity and capability

QWMN continues to address the needs and risks identified by the 2014 Queensland Chief Scientist's *Science Capability Audit - Water* (the Water Audit) and is well-placed to further address these ongoing gaps in the sector.

The Water Audit identified gaps and risks to effective water management, including:

- Reduced capability in water-related science, research and development across Queensland, especially within the government
- Silos and lack of coordinated effort to understand emerging, strategic water issues and risks
- Challenges translating science to policy and decision-making

The original four-year tranche of funding allowed QWMN to lay the groundwork for addressing these gaps. The network has built upon this foundation during the first two years of this current funding period. Stakeholders commented on the importance of QWMN as a collaborative platform across the Queensland modelling sector for networking, capability-building and encouraging a more strategic approach to addressing gaps and risks. Organisations in other jurisdictions recognised the benefits that QWMN creates in Queensland, noting that their own states do not have the same focused, strategic direction that QWMN brings.

QWMN continued its multifaceted approach to addressing Water Audit gaps, including:

- Direct funding for research, development and innovation to address priority modelling needs and broader strategic questions to inform decision-making (RD&I program)
- A separate Capability, Collaboration and Capacity Program that delivers events and services to build capability and capacity of Queensland modellers and to encourage collaboration between groups across the sector (3CP)

This approach remains appropriate to address the breadth of issues and gaps facing the sector. There is still a need for QWMN outputs and a space for the network to grow or expand within this approach. For example, the amount of RD&I funding for QWMN has increased yearly. However, this is still significantly lower than the total amount requested through the tender process each year, indicating that there continues to be a greater demand for projects than current QWMN funds can meet (Figure 3).

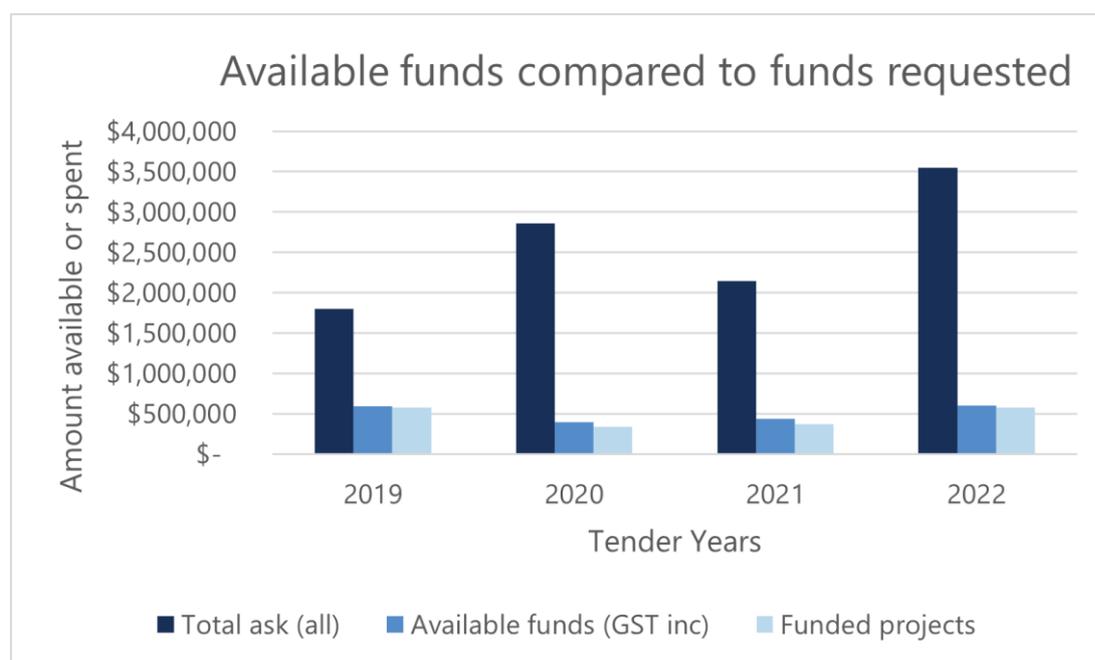


Figure 3 Funds available through QWMN tender compared with total amount of funding requested during the tender process (all tenders)

The network originally focused on South-East Queensland; however, since 2020 it has expanded to incorporate more regional members of the sector into both the RD&I and 3CP programs. This has received positive feedback from stakeholders over the past two years with the desire for this to continue.

*"People outside of South East Queensland and Brisbane have heard about events and have benefitted from research outcomes. They are more enthusiastic about everything but have had a steep learning curve."*

Additionally, QWMN is continuing to produce useful outputs, such as the recently published, comprehensive review of Model for Effluent Disposal using Land Irrigation (MEDLI) model, a foundational model used across the sector. Many stakeholders also noted that collaborative and strategic thinking are not yet cemented within the sector, and that without QWMN as the catalyst or central place for collaboration, the sector would likely return to being siloed, losing its forward momentum for research and strategic thinking.

## 2.2. RD&I tender topics are addressing sector needs but need to continue balancing strategic and the innovative investment

The RD&I investment program is central to the QWMN's efforts to address knowledge and modelling gaps. The Year 1 evaluation recommended QWMN consider a separate and complementary approach to market that identifies specific strategic needs for Queensland. This was intended to help better target QWMN activity towards strategic or other sector needs to counterbalance the RD&I program's innovation focus. The updated procurement approach, which allows stakeholders to submit a proposal through targeted tactical procurement or an open strategic tender, has partially addressed concerns from stakeholders over the lack of funding for more prescriptive sector needs. However, this evaluation identified confusion surrounding that process. Clearer and more transparent communication is needed to ensure network users take full advantage of both processes, so that QWMN continues to fund the most appropriate combination of projects.

### 2.2.1. QWMN RD&I tender topics are well-aligned with strategic priorities

Stakeholders expressed that the 2021-2022 RD&I tender topics were generally well-aligned with the strategic priorities and needs of the sector as expressed in the 'challenge statements'. Much of this was attributed to the consultation process QWMN conducted when creating the 'challenge statements'. This also provides a strong example of the collaborative nature of the network. These 'challenge statements' address high-level gaps and issues facing the sector. However, there is the perception among some stakeholders that this innovation needs to be better balanced with the sector's more prescriptive, tactical needs.

Stakeholders also identified broad areas for future investment, based on emerging challenges and risks or gaps in the sector. Some of these specific topic areas are captured in Box B. These suggestions illustrate areas that stakeholders indicate are under-served and may be ones to focus on in the following year's funding. QWMN would need to conduct further engagement to determine if these areas would be best served through responses to an innovative challenge statement or if there are more prescriptive needs to address through tactical procurement.

#### Box B: Potential future focus areas

Stakeholders engaged for this evaluation highlighted key topics they felt should be the focus for RD&I program in the future. These topics generally targeted specific areas of water use:

- Marine environment
- Deep drainage modelling
- Groundwater use
- Recycled water use

Stakeholders also stressed that model development should be a focus of the RD&I program, highlighting the importance of QWMN's tactical procurement process for these more prescriptive data and model needs. While QWMN intends the RD&I program to support strategic priorities not being addressed elsewhere in the sector, stakeholders still see the program as a place to fund more prescriptive sector needs as well. These expectations impact areas and topics they target as important.

Further clarity of RD&I purpose may be considered as QWMN looks ahead to the next two years of funding, as well as future iterations of the network.

### 2.2.2. QWMN needs to better communicate opportunities available for funding tactical projects

Stakeholders are broadly satisfied with the RD&I tender topics. However, stakeholders were not always aware of the tactical procurement aspect of the RD&I program. Due to this, some stakeholders have the perception that a disproportionate amount of funding has been allocated to innovation and 'visionary' projects rather than necessary tactical needs.

*"It should be more about what's needed (sometimes) rather than what is visionary."*

There is also the perception among some stakeholders that only small-scale projects are funded. QWMN does fund a few large-scale projects that span more than a year; however, the majority are small-scale due to the network's limited funding.

The view of disproportionate funding allocation may be attributed to a lack of clarity surrounding QWMN's two approaches to the tender process. This two-approach process is based on a recommendation from the Year 1 evaluation which suggested consideration of separate and complementary approaches to procurement for prescriptive and innovative projects. Applicants have the option to submit proposals through an open tender market approach, responding to the year's challenge statements (majority of RDI funding), or through a more targeted tactical procurement process for specific topics QWMN has determined are important for the sector/region. The open tender process caters to opportunities identified by the sector for innovation and expansion while the tactical procurement approach is designed to complement that process, targeting specific prescriptive issues and links with new partners in the priority regions that did not arise during the open tender. The tactical projects are more specifically bounded and have a smaller funding allotment and timespan.

The lack of clarity between the two approaches may have provided the view that tactical projects are not being funded. While a higher proportion of funding was allocated to projects through the open tender in 2021-2022, clear communication on the tender process is important to ensure stakeholders understand how proposals are selected for funding and where they can submit a proposal if there is a topic they want to address. This will optimise transparency and ensure QWMN is addressing the most essential topics from across the sector.

## Recommendation 1

**QWMN should more clearly and transparently communicate:**

- The types of projects currently being funded and whether they are tactical or strategic
- The opportunities available for funding for more prescriptive, tactical projects

## 2.3. The 3CP program is well-targeted but can provide additional focus on some sector needs

The 3CP program is well-targeted, and its actions improve engagement within the Queensland water modelling sector. The numerous topics and activities run by the program provide practitioners with a broad range of capability- and capacity-building opportunities. The current range of activities encompasses most user groups, including regional stakeholders. The 3CP also supports engagement with the RD&I program by sharing project outputs. Networking and the community of practice (CoP) are still regarded by participants as an essential element of the program. However, there is an appetite for more connection to technical upskilling opportunities, greater support and engagement of early career practitioners and further engagement of decision-makers and end users. The subsections below provide more details on the desire for technical opportunities and the need for engagement of early career modellers. Discussion of further engagement with decision-makers is addressed in Sections 3.1.1 and 4.3.

### 2.3.1. QMWN participants look to QWMN for technical upskilling opportunities

Several stakeholders who participated in this engagement stated that they would like to see more technical offerings events from the 3CP and look to the program to provide technical capability-building. This is at odds with the current 3CP program which does not have a strong focus on providing technical courses. The program has established the Water Modelling Hive, early in Year 2, with the objective of developing technical skills and knowledge in modellers in Queensland; however, it is difficult to assess its appropriateness in-practice from current available information. Additionally, program managers believe there are other entities better-placed to provide technical capability-building.

Access to technical (and non-technical) offerings may foster increased engagement with early career modellers. Stakeholder suggested this may be because early career modellers are eager to expand their knowledge and skillset in water modelling and related topics, such as GIS or data communication. Further discussion on the engagement of early career modellers can be found in Section 2.3.2. Partnerships with other technical training providers may be a possible avenue for addressing stakeholder expectations. Box C collates specific areas of technical interest that stakeholders suggested through the survey and interview process. These may be topics for 3CP to consider as they continue to develop the Water Modelling Hive.

#### Box C: Topics of technical interest

Stakeholders engaged for this evaluation identified the following topics as potential areas for QWMN help to further improve sector capability and capacity:

- Specialist workshops in key water modelling areas
- Masterclasses on modelling using machine learning techniques
- Technical skills training in the use of specific modelling software and techniques
- Discussion sessions with water software providers e.g., TUFLOW, InfoWorks, MIKE on modelling limitations and application
- Skills or methods for communicating models beyond reports (i.e. GIS, videos, etc)

### 2.3.2. QWMN effectively targets most modeller cohorts but could prioritise early-career modeller engagement

QWMN effectively targets current modellers. However, it should continue to balance this with prioritising development of the next generation of modellers. The Water Audit identified vulnerabilities related to modelling capability across government departments engaged in water planning, policy and management as key individuals retired or resigned. There is pressure in the modelling sector for knowledge-sharing amongst age groups and career levels to mitigate this organisational risk.

*"Need to be mindful to bring in new modellers into the sector but also building the skillset of modellers for now and the future is important."*

QWMN has targeted this gap between upcoming and experienced modellers in the first two years of this funding tranche through various approaches. These include supporting the five Innovation Associates, opportunistic internships, a mentoring program, and other CoP events aimed at career development for new modellers. For example, the Innovation Cluster is an expansion of the Innovation Associate program and provides 14 doctoral candidates with access to opportunities for networking and career development. A university-level mentoring program involving 17 mentees is another example of action in this area. Many stakeholders share the view that these programs are a success, but some stakeholders did express a need for better continuity, specifically another cohort of co-funded PhD, master's students or post-doctoral researchers, following on from the Innovation Associate program. These practitioners emphasised the cost-effectiveness of developing strategic research outputs through students and post-docs and the loss of progress the sector may experience if current student research is not followed through.

QWMN also needs to engage students and early career water professionals prior to the PhD level and even outside academia. Young water professionals with no prior modelling background may be interested in learning modelling skills. In both the Year 1 and Mid-term evaluation engagement process, stakeholders raised concerns about the limited number of events targeting students and early career modellers, as well as their attendance at other QWMN events.

*"The Innovation Cluster only focuses on post-graduate, but there could be some way to engage other students. [It is] beneficial to engage with students before they are in that area to encourage someone to do a PhD on water modelling."*

The 3CP program does run occasional free experience-sharing and career development workshops aimed at this cohort which have been successful, and activities like this should be emphasised. QWMN should also prioritise removing cost barriers for students to attend all events, as well as gaining an understanding of the different needs and approach to engagement, learning and motivation for these groups.

## Recommendation 2

QWMN should undertake steps to better understand the barriers to entry and specific needs of potential or early career modellers. Activities that will engage these groups and build the needed local capacity and capability prioritised equally to those that will engage more experienced modellers.

### 3. QWMN processes are efficient and effective to deliver program needs

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Over the last two years, QWMN has delivered its programming effectively, supported by efficient management from the QWMN Secretariat. The QWMN Secretariat has facilitated effective collaboration across government, research and the private sector and has worked to raise the profile of QWMN with decision-makers.

The revised, two-stage tender process for RD&I worked well in Year 2. This streamlined the process and ensured a large number of proposals from a variety of groups conformed with specifications and could be considered for funding. However, confusion regarding the requirements for each stage did lead to additional work and duplication that can be avoided in the future with clearer specification.

Communication before and during events or projects is a strong aspect of the QWMN process. This is important, as communication is essential for achieving QWMN aims of fostering collaboration within the sector and determining gaps which need to be filled. However, there is an opportunity to improve post-event and project communication. This will ensure that potential users are aware of project or event outputs and understand how they might utilise them in their work. This will contribute towards QWMN's medium and long-run outcomes.

#### 3.1. Overall, delivery of the network's program remains effective and collaborative

##### 3.1.1. QWMN continues to foster collaboration

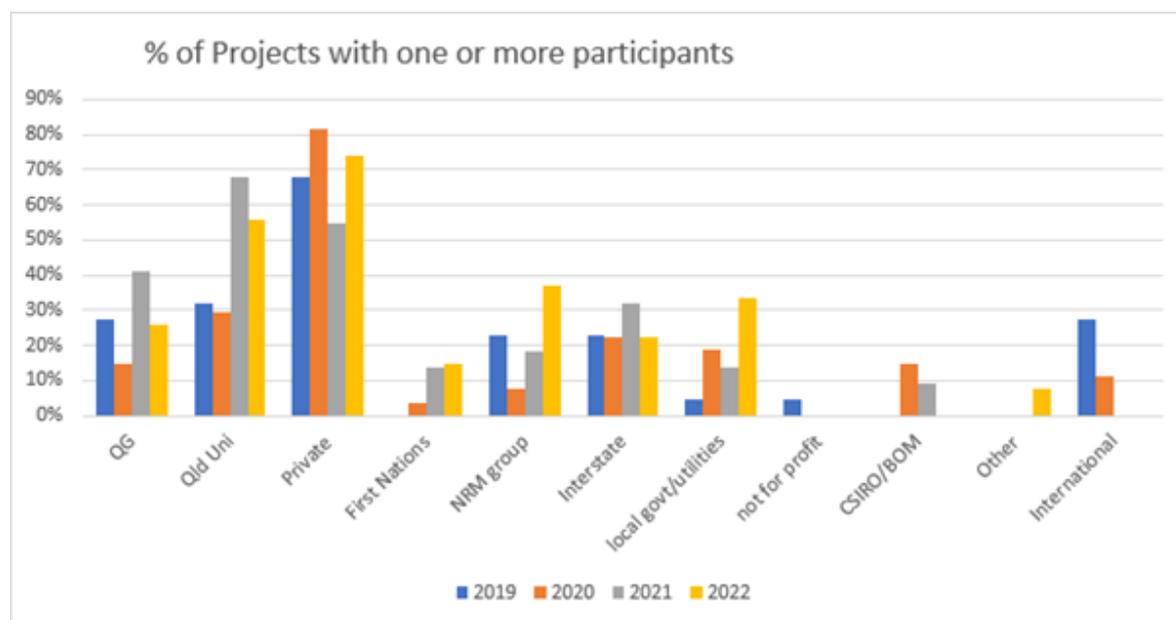
QWMN continues to promote collaboration through funded research and 3CP events. The 3CP program has further developed the CoP it established during previous years. Stakeholders expressed that the networking and collaboration opportunities arising from these events continue to be one of the more significant benefits of the program.

*"The ability to connect with like-minded collaborators and researchers and have a convenient method to approaching work has been great."*

The QWMN Secretariat has continued to build upon previously established connections and relationships. This includes promoting communication across the Department of Environment and Science (DES) and other departments to identify key policy gaps that QWMN can address. The Secretariat also further fostered relationships outside of DES, such as with the New South Wales (NSW) Department of Planning and Environment and organisations like Healthy Land and Water within Queensland who are both considering co-funding separate RD&I proposals that align with key challenges for their organisations. As well as promoting collaboration and expanding influence, expansion of co-funding opportunities is an effective way for QWMN to do more within its limited budget.

## The RD&I tender process

QWMN continues to promote collaboration in its RD&I tender process. A new requirement explicitly identifying First Nations Peoples involvement in each project has taken a step towards fully collaborative research projects. Figure 4 illustrates the different groups involved in QWMN-funded project teams and how the make-up of teams has changed between 2019 and 2022. While members of the private sector still make up a high proportion of project participants, the past two years show a general trend in increasing the variety of different groups involved in the tendered projects.



Source Queensland Water Modelling Network update May 2022

Figure 4 The percentage of RD&I tender projects that had members from each sector group (2019-2022)

Despite the evidence of increased diversity in project participation, and feedback from stakeholders that collaboration does improve project outcomes, there remain perceptions to the contrary. Some practitioners expressed views that the

*"process is extremely competitive and does not necessarily foster collaboration (despite requiring two or more partners)."*

This perception of competitiveness was related to the formation of tender teams to meet QWMN's requirements for a multi-group tender. The QWMN tender requirement for collaboration ensures that a variety of organisations are involved in each funded project; however, project groups do often include returning organisations who lead the teams and may be the main name associated with the project. Stakeholders noted there are a few organisations who appear to secure funding every year. This perception can foster an atmosphere of competitiveness where, rather than trying to develop a relevant and well-matched team, potential tenderers aim to secure the partnership of those organisations they feel will win the money.

*"[The] tender process requires developing teams and putting in a bid but it would be beneficial to have people collaborating rather than competing with each other."*

Perceptions of competitiveness and lack of diversity could potentially inhibit the interest of prospective tender participants leading to fewer proposals, and the associated innovative ideas, being submitted. QWMN should further highlight the diversity of groups winning projects to counter this potential misperception. While QWMN does share the tender teams on the QWMN webpage as an announcement after the tender is completed and within the project summaries, the information is not always obvious or easy to find longer-term. QWMN may need to improve the visibility of this information and may consider creating a clearer user pathway to where the projects are listed on their website, highlighting the project team along with the project title on that webpage, and/or creating a reference page where users could see a list of projects and their collaborators in an easy-to-search table format for both tender applicants and general users.

### Recommendation 3

**QWMN should highlight the make-up and diversity of successful RD&I tender teams and emphasise the need for well-aligned collaborations.**

#### *Network profile among decision-makers*

The Year 1 evaluation recommended that QWMN should consider options to raise the network's profile within government departments and councils. Over the past year, the Secretariat began developing relationships with both state governments (Victoria and NSW) and with the Commonwealth government. These relationships remain in early stages, but the Secretariat has identified shared challenges between Queensland and the other jurisdictions, such as communication and climate change, and is committed to continue building these relationships.

The 3CP program has not had a significant focus on relationship development with government decision-makers. Instead, the establishment of the Strategic Partnership Group (SPG) has been their attempt to translate outputs of CoP events into action by bringing together DES and private sector groups. While the establishment of the group, and its purpose, is well-documented, it is difficult to determine how effective the SPG is in practice or what outputs or impacts the group has produced thus far.

Section 4.3 further discusses the impact of QWMN's work to raise its profile among decision-makers and provides recommendations for the future (Recommendation 5).

#### 3.1.2. QWMN continues to deliver its program effectively and efficiently

QWMN continues to deliver a significant number of outputs within its budget. This success is facilitated by the continuation of effective program management and administration by both the Secretariat and the 3CP team. Stakeholders emphasised that the success of QWMN has largely been linked to the Secretariat's management of the program.

#### *Administration*

The QWMN governance and administrative approach, executed by the QWMN Secretariat, is effective. Overall, RD&I program delivery partners find that project administration is clear and simple (Figure 5).

*"QWMN is well-run and communication is clear. Things aren't allowed to slip off."*

Of the 11 respondents to the survey question regarding project administration, one respondent felt that project administration was onerous and focused more on producing a final report rather than completing productive research (Figure 5).

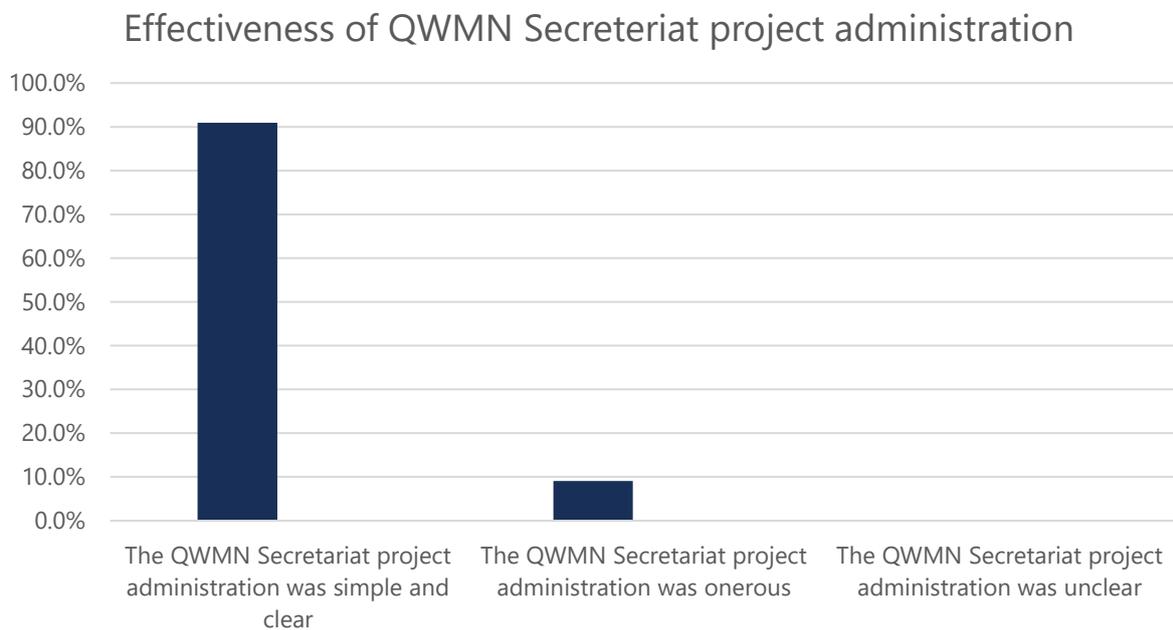


Figure 5 Survey results: How effective was the QWMN Secretariat project administration?

### Project timeframes

The Year 1 evaluation recommended increasing project timeframes, in response to feedback that short project timeframes were not suitable to all projects. This was enacted in Year 2 where QWMN extended project timeframes from nine months to one year and piloted a two-year project option. However, stakeholders still found one year to be too short for some projects and there is a strong interest in the longer timeframes or larger budgets to allow researchers to understand monitoring results and how they can be used in decision-making.

*"[QWMN] only would fund one year out of two-year projects. Lots of people will apply for bigger projects to get more long-term funding. Some people have walked away from the processes due to this which is a loss of collaboration and potential research."*

Project length and budget may be larger programmatic considerations as QWMN moves forward. This links with further discussion in Section 4.3.

### Budget management and focus

QWMN has again delivered their program on budget. Within the total budget, 80% of funding was utilised for RD&I and 3CP activities and only 20% for governance and administration. Expanding from the three RD&I projects funded and delivered during Year 1, five strategic projects and four smaller tactical projects were delivered at the end of Year 2 (Table 1). This year saw the addition of 'tactical' procurement projects in the RD&I program. The addition was in response to the Year 1 evaluation report which recommended identifying and targeting high-value strategic needs alongside the

innovation-style challenge statement procurement. However, as discussed in Section 2.2, stakeholders still expressed a need for more targeted areas to be addressed and did not seem aware that there was a process established for that purpose. This emphasises the need for communication of QWMN's work in tactical procurement, per Recommendation 1.

Table 1 RD&I projects funded through Year 2

Project title	Partners	Tender process approach
Stream bank erosion modelling in the Great Barrier Reef catchments – Stage 2	Alluvium Consulting, The University of Melbourne	Strategic
A gamified digital twin of a trading scheme for sediment and nutrients in Southeast Queensland to improve health of waterways and Moreton Bay	Aurecon, Costello Consultancy, CSIRO, Deltares, GHD, Griffith University	Strategic
Landscape-focused digital twin for local engagement in water governance in monsoonal river systems	Australian National University, Northern Gulf Resource Management Group)	Strategic
A framework to marry models and data: even an imperfect match can be valuable	Alluvium Consulting, Department of Resources (Paddock to Reef Modelling), Queensland University of Technology, The University of Queensland	Strategic
Re-imagining a water model (Source) as an experiential multiplayer game: A case study in nitrogen offsetting in Moreton Bay	Alluvium Consulting, BTN, Healthy Land and Water, The University of Queensland	Strategic
Regional pilot application of QWMN fellow MERGE gully erosion model	Griffith University and FBA	Tactical
Workshop on wetlands modelling gaps and dependencies	2Rog Consulting and Wetlands, DES	Tactical
Monitoring changes in land management practices (Fire) for water quality outcomes	Cape York Water Partnership and RAIN consulting	Tactical
Extreme Events - Innovative approach to documenting the largest floods in the Wet Tropics catchments and determining their effects on pollutant fluxes to the Reef	James Cook University	Tactical

### 3.2. The phased tender process is beneficial but could be further refined

The tender process has improved from Year 1 with the introduction of a phased tender process involving an Expression of Interest (EOI) stage followed by a Request for Quote (RfQ) stage where successful EOIs can be further refined. The EOI stage simplifies the process and reduces resource requirements by allowing applicants to test ideas and then refine their proposals to ensure they meet QWMN requirements.

*"The tender process was better than previous years. Project calls were based on those who progressed from the EOI stage which was useful. This gave applicants time to build collaborate approaches and allowed academic institutions more time to develop proposals and seek approvals from their administration."*

Tenderers and reviewers found the process improved. However, both stated that the requirements from each stage need to be more clearly articulated to reduce burden and avoid repetition. Some applicants invested significant amounts of time and effort into preparation of a detailed proposal at the EOI stage, despite the two-page suggestion. In these cases, reviewers found there was little difference between the EOI and the submitted proposals, yet they had to spend the time reviewing both. Stakeholders suggested providing clearer and more upfront guidance, regarding the simplicity of the EOI step, and a reduced timeframe for submitting the EOI, as the long timeframe last year made some think they needed to develop a larger response. This will need to continue to be balanced, however, with allowing enough time for consortia to form around proposals. Stakeholders also suggested training around proposal writing to support unsuccessful applicants in future funding rounds (an activity QWMN has done in previous years).

Clear specifications around each stage of the process will ensure the barrier to entry remains low, keeping the tender accessible to many potential groups. This will also reduce the time required for reviewers, who volunteer services to the process.

The Year 1 evaluation recommended that QWMN provide feedback to technical advisors and reviewers to clarify how the final decision on successful projects was made. QWMN followed through on this recommendation and provided additional transparency and increased confidence in the evaluation process from a reviewer perspective. However, some tenderers noted a lack of visibility over the process and final decisions, stating:

*"The specific selection criteria are not clear."*

*"The tender process is also mysterious."*

*"Some people who have walked away may have felt that some people are given funding so no point in applying. More transparency around the decision process should be provided."*

While these responses were outliers to overall general satisfaction with the process, the fact that several different stakeholders were compelled to express their confusion is worth noting. There was not enough evidence from the evaluation data to determine from where this confusion stems, and therefore, if or where further clarity might be needed. However, this idea of lacking transparency in

outcome decisions links with the perceptions of competitiveness and lack of diversity discussed in Section 3.1.1. Communication of processes is key to addressing these concerns.

## Recommendation 4

**QWMN should clearly define and communicate the requirements of both stages of the tender process to reduce burden on participants and reviewers.**

### 3.3. QWMN should improve communication of project outputs and outcomes

QWMN executes its activities, events and projects well but could improve communication of processes, outputs and outcomes. Aither reviewed QWMN's communication protocols, website and newsletter, in addition to the stakeholder engagement part of this evaluation. These processes appear to be robust and align with general best practice for an organisation like QWMN. Overall, QWMN is thorough in its advertising of events and open tenders, using QWMN and state agency newsletters and targeted emails, LinkedIn, promotional posts by partners (e.g. the International WaterCentre and the Australian Rivers Institute) and word of mouth. During projects and events, communication is simple, clear, and generally at the right level of engagement. Some project participants commented that they, perhaps, could have had more interaction with the Advisory Board but did not find it detracted or distracted from their overall experience developing a project with QWMN. Project reports are found on the QWMN website, as are the details of some past events. Several stakeholders commented on the difficulty of finding specific information on the website and the need for the Secretariat and 3CP program to reconcile their email mailing lists to avoid inconsistencies in who receives what information.

Both casual QWMN participants and stakeholders more heavily involved in the network indicated that it is sometimes difficult to understand the outputs and outcomes of QWMN. This lack of understanding included: what projects are being funded, project outputs, and outcomes of the 3CP program.

*"From an outside perspective, sometimes it is difficult to understand what is produced by the program."*

The 3CP program is making efforts to raise awareness of the projects produced by the RD&I program. One of the most effective ways of doing this has been through a link to the final project report in the 3CP newsletter. The RD&I reports, themselves, include good material, but linkages between funding, outputs, outcomes and next steps do not always appear clear. It is an understandable challenge to communicate about projects which are very specific, and therefore, have limited audiences, but these audiences will be the end users of project outputs, leading to the outcomes QWMN hopes to achieve from the program.

## 4. QWMN continues to progress towards achievement of intended outcomes

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QWMN continues to achieve its short-run outcomes and is making some progress towards realising medium-run outcomes. The network has continued to invest in strategic modelling requirements to help the water sector model and address key risks and issues and build capability and capacity of modellers and end users. Knowledge generated by these investments is being actively shared across Queensland and beyond state borders.

QWMN project and event outputs have built a strong foundation for achieving longer-run outcomes. However, the network is reaching a point where the focus needs to shift from producing outputs to achieving the longer-run outcomes of the program. A lack of focus on outcomes may lead to outputs not being utilised by end users and limit QWMN's ability to influence water planning and policy decisions.

A greater awareness of QWMN outputs among commonwealth, state and local government would encourage more involvement from decision-makers, and QWMN should continue to actively engage with government leaders to raise QWMN's profile. At the same time, QWMN needs to look ahead to future iterations of the network and how program design may contribute towards an increased ability to achieve program outcomes.

### 4.1. Short-run outcomes continue to be realised or progressed

As found in the Year 1 evaluation, QWMN continues to realise its short-run outcomes, as described in the program logic (Appendix A: Program Logic). This provides a foundation from which the network can build towards its medium and long-run outcomes. Stakeholders reflected that these short-run outcomes are evident during QWMN events and discussions where networking and collaboration have increased between industry partners, researchers, and government departments. Table 2 provides evidence of continued achievement of, or progress towards, the short-run outcomes.

Table 2 Summary of progress on short-run outcomes

Short-run outcome	Summary of Progress
Models refined and aligned with user needs	Stakeholders still consider RD&I challenge statements and outputs relevant and useful for addressing research needs within the sector.  The majority of survey respondents stated that QWMN has developed and improved models that are better suited to users' needs and produce outputs that are better integrated with program design and investment.
Models integrate with and support monitoring activities	QWMN has developed tools that integrate with existing monitoring activities. For example, the Wetland Hydrology Review (2021) investigated improvements in wetland modelling. The outcomes of this review allowed the wetlands team within DES to have discussions with other organisations on further development of the wetlands model for applications beyond urban stormwater.

Short-run outcome	Summary of Progress
Improved sector capacity and capability to use and apply models	<p>QWMN has improved capability and capacity within the sector.</p> <ul style="list-style-type: none"> <li>• 41% percent of survey respondents felt that 3CP events had helped them learn new skills or knowledge that can be applied to their jobs</li> <li>• 23% felt the events reinforced skills they already had</li> </ul> <p>Government stakeholders were involved in interview panels where several interviewees stated that their skills on a topic were learnt from 3CP events.</p>
Improved government capacity and capability to use and apply models	<p>Stakeholders from the government attended 3CP events in South East Queensland which provided them with opportunities to connect with modellers and have discussions on improving their research approaches.</p>
Knowledge created from reviews	<p>Knowledge within the sector has been generated from reviews. For example, QWMN commissioned a review of the science underpinning the MEDLI model to ensure it reflects recent research and supports best practice in soil science. The findings from this review also contributed to other QWMN models in soil hydrology and nutrients.</p>
Knowledge generated is shared across targeted groups	<p>Knowledge has been shared across the Queensland water modelling community, nationally and internationally through PhD cohorts. For example, the Innovation Cluster supports knowledge-sharing among doctoral candidates by providing an avenue for them to communicate their research outputs to potential users and to build their networks.</p> <p>Some stakeholders have stated:</p> <p><i>"The Innovation Program addresses knowledge sharing and decision-making. Field work components of the project will produce two years of data that can be used for other projects".</i></p>
Models consider traditional knowledge and cultural values	<p>QWMN has incorporated consideration of traditional knowledge as a requirement in the tender process.</p> <p>The program is also funded a pilot study to investigate approaches to incorporating First Nations land management into technical water modelling.</p>

### *Incorporating traditional knowledge and cultural values*

The Year 1 evaluation report noted that QWMN had not invested in or progressed the stated outcome: "models consider traditional knowledge and cultural values." In Year 2, the network began working towards this outcome in two ways. Firstly, QWMN made explicit the involvement of First Nations people in the proposal as an evaluation criterion. Secondly, the network is investing in a pilot study on incorporating traditional knowledge into water modelling. Many stakeholders acknowledged the need for consideration of traditional knowledge in models and noted that QWMN was making a good start. However, most stakeholders were unsure of the most appropriate next steps required for

achieving this outcome. They felt that it was not specifically that models need to incorporate or model traditional knowledge but that it must be used to inform water management and modelling.

## 4.2. QWMN is making progress towards some medium-run outcomes

QWMN outputs are contributing towards achievement of some of the established medium-run outcomes (Figure 6). However, during interviews, stakeholders struggled to articulate exactly how specific outcomes may have been achieved. Most found the medium-run outcomes to be quite broad and difficult to determine where specific impacts or outcomes within the sector linked back to QWMN. Short-run outcomes are smaller in scope, and therefore, less dependent on external factors than longer-run outcomes. Many external factors influence the realisation of medium- and long-run benefits, including government water planning and management programs, government funding and focus and decisions by individuals and private entities. However, QWMN can play an enabling role - providing robust information and developing relationships so the information and its importance are shared with the right people.

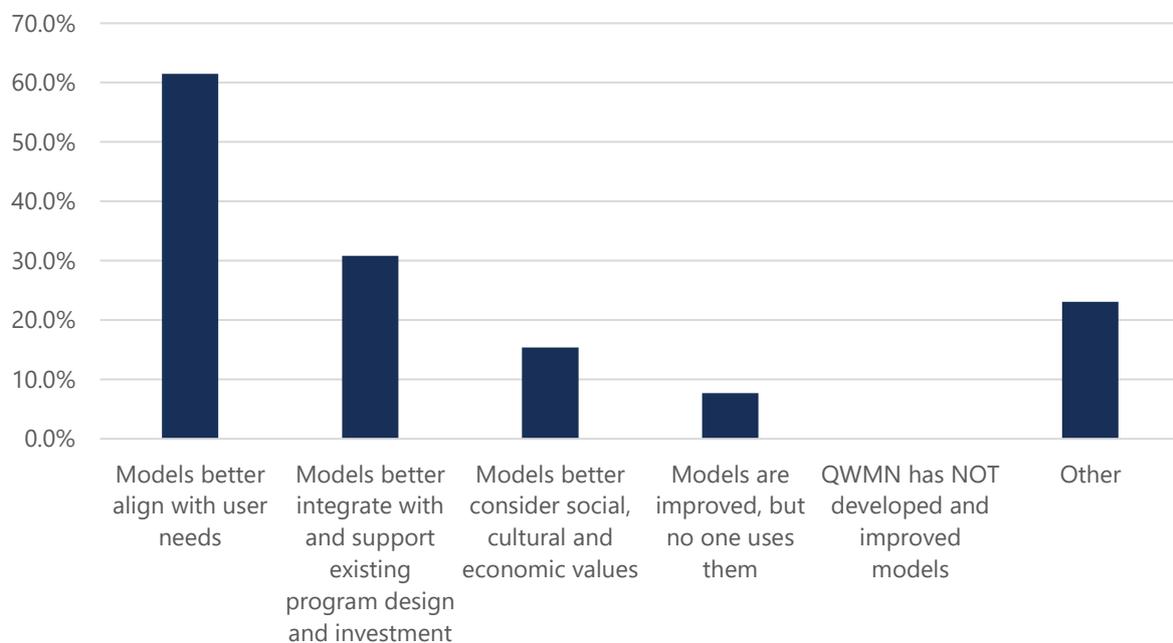


Figure 6 Survey results: In your experience, have QWMN events or knowledge outputs contributed to any of the following outcomes?

In some cases, specific progress towards an outcome or a barrier to achievement could be identified (Table 3). Continuing from Year 1, knowledge is being shared across the modelling community. However, it was less clear whether this shared knowledge is being utilised by end users, improving water planning and decision-making or improving integration of different types of models.

Table 3 Progress towards medium-run outcomes

Medium-run outcome	Summary of Progress
Improved water planning, decision-making and ongoing research in Queensland	<p>One example of on-going research that stemmed from a QWMN event but progressed beyond is a paper on collaborative approaches to water modelling being undertaken as a partnership between multiple QWMN stakeholders and funded outside the QWMN RD&amp;I process.</p> <p>QWMN is laying the groundwork through meetings with decision-makers and potential partners (i.e. state and federal governments and potential local partners in-state).</p> <p>Stakeholders found it difficult to draw clear links between QWMN outputs and improvements in water planning and decision-making.</p>
Improved fit-for-purpose integration of Queensland hydrology, groundwater and water quality models.	<p>Stakeholders found it difficult to identify specific examples of progress towards this outcome.</p>
Models inform and address water risks and opportunities	<p>Stakeholders found it difficult to identify specific examples of progress towards this outcome.</p>
End users have the advice available to make informed water risk management decisions	<p>Some stakeholders felt that QWMN projects help convert technical modelling into useful outputs (such as the Offset Bay game generated through one of the RD&amp;I projects). However, there are many tangible outputs from QWMN that do not progress further. This includes several case studies identified last year, such as:</p> <ul style="list-style-type: none"> <li>• Modelling from <i>Between a hot place and hypoxia study</i></li> <li>• <i>Critical review of climate change and water modelling in Queensland</i></li> </ul>
Knowledge generated is shared across the broader Queensland water modelling community	<p>Many examples exist of knowledge sharing across the Queensland water modelling community and beyond the state.</p> <p>Within Queensland:</p> <ul style="list-style-type: none"> <li>• Collaboration on projects between various organisations across various geographies for the RD&amp;I tenders</li> <li>• QWMN events share knowledge with practitioners across the sector</li> </ul> <p style="padding-left: 40px;"><i>"This is where I learn."</i></p> <p style="padding-left: 40px;"><i>"It helps keep me up to date."</i></p> <p>Outside of Queensland:</p> <ul style="list-style-type: none"> <li>• QWMN remains a leading national initiative and example for other states forming their own networks.</li> <li>• States with shared interests (such as NSW and Queensland) share project outputs.</li> </ul>

Medium-run outcome	Summary of Progress
Improved integration of traditional knowledge and cultural values in water planning and management	QWMN is currently focused on achieving its short-run outcome (to have models consider traditional knowledge and cultural values). Determining how this inclusion might look is essential so that improved integration can be achieved. This outcome may be longer-term than QWMN's four-year funding cycle.

While considering the broad and ambitious nature of the medium-run outcomes, and the external factors that may impact their achievement, progress towards the outcomes is a success. However, there may be ways to enhance people's awareness of program outcomes. This will be discussed further in the following section (Section 4.3).

### 4.3. Network users remain focused on project delivery and outputs

Despite the discussion in Section 4.2 of progress towards some of the medium-run outcomes, network users remain focused on project delivery or event-specific goals and outputs, rather than outcomes. This likely contributed to the difficulties many had with articulating if and how outcomes are being achieved during the engagement for this evaluation. When asked about specifics related to the medium-run outcomes, many provided more specific examples of project outputs. At this point in the program, QWMN is successfully producing outputs as described in the program logic (Appendix A: Program Logic). The next phase is to transition the network and network's participants to focusing on outcomes. As people focus more on the outcomes, they may consider if the current processes, activities and outputs are the most appropriate for achieving these outcomes.

The project and activity focus of QWMN means that the network will naturally have a focus on delivering outputs. However, outcomes must become a focus, if the overall QWMN vision is to be achieved. Over the next two years, QWMN should work within the current program design to put a more explicit focus on the outcomes of events and project outputs. In the long-term, QWMN may consider a change to program design, if deemed necessary, to facilitate a more consistent focus on outcomes.

#### Box D: Engaging decision-makers to achieve outcomes

Many of the medium- and long-run outcomes revolve around decision-makers utilising data and capability produced by the program. In order for this to occur, QWMN needs to continue to raise its profile among decision-makers. This may involve engaging them at an earlier stage, like when QWMN determines its strategic priorities, or determining the most appropriate seniority level at which to engage these groups. However, while this evaluation is able to identify decision-maker engagement as a challenge, it does not have enough information to determine specific barriers and solutions.

### *The future of the QWMN*

At this point, it is beneficial for QWMN to begin considering the future of the program. This current iteration of the network is running smoothly and is appropriately addressing the needs of the sector. While there are areas for changes to the program and improvements in process, these are small compared to the sort of program design or structural changes that may be needed to expand upon what it has already established.

*"I would like to see a focus on longer-term outcomes, with larger inter-connected projects."*

There was a significant amount of discussion from stakeholders regarding expansion or structural changes to how the network operates, in order to achieve an expanded vision. While these types of changes are out of the purview of the network in its current form, this is the time to begin program design for a future funding tranche which would build upon the foundation of networking, project outputs and awareness raising. One model highlighted for consideration was a programmatic approach, rather than the individual project model currently followed. This approach may also help with achieving program outcomes by starting with the outcome and determine what program of activities and research will lead towards that outcome.

#### **Recommendation 5**

**QWMN should assess major barriers to engagement with decision-makers and develop an action plan for continuing to raise its profile among them.**

#### **Recommendation 6**

**QWMN should ensure all activities, events and projects are explicitly required to consider program outcomes.**

#### **Recommendation 7**

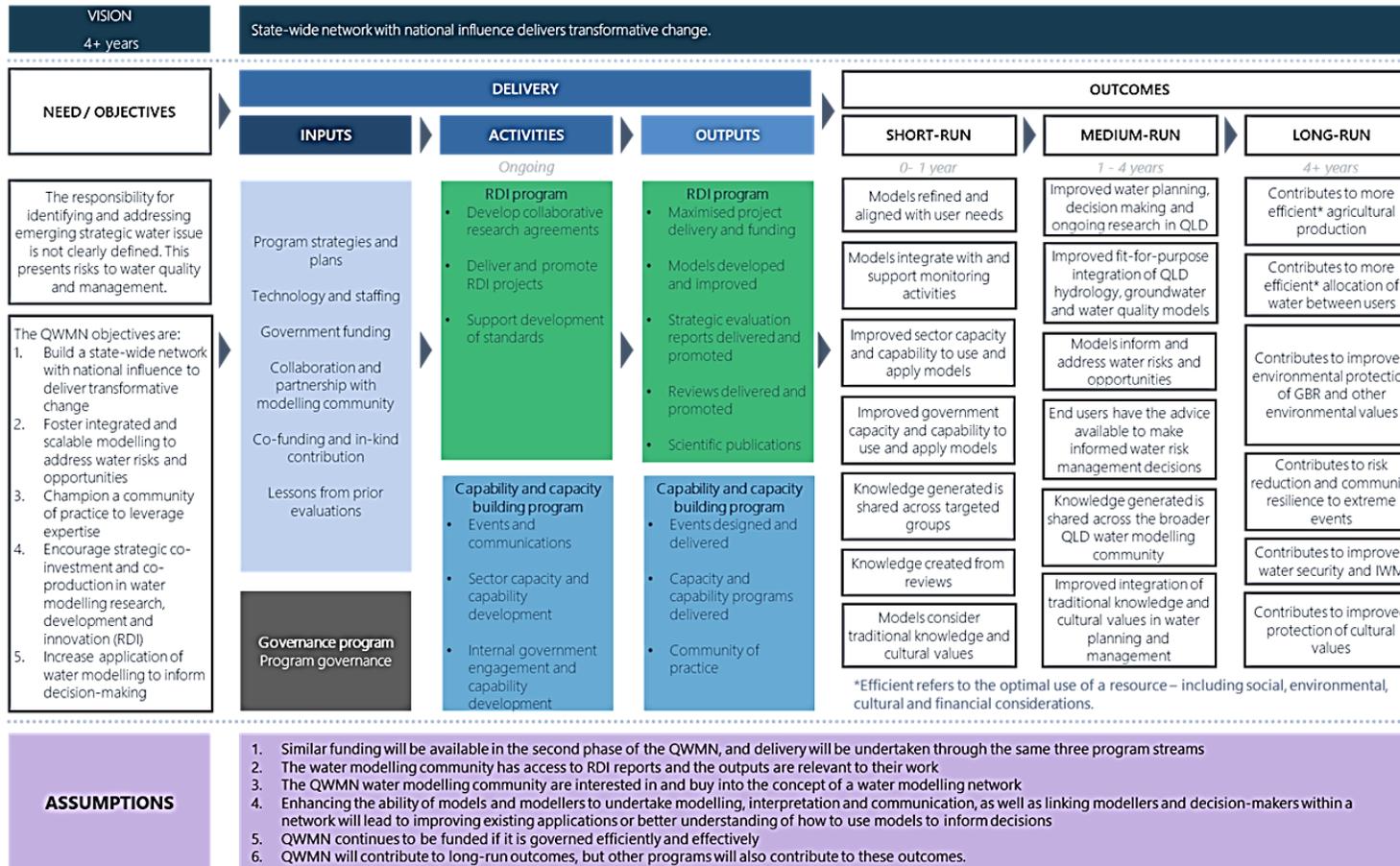
**The QWMN should begin strategic planning to identify the most appropriate next iteration of the network.**

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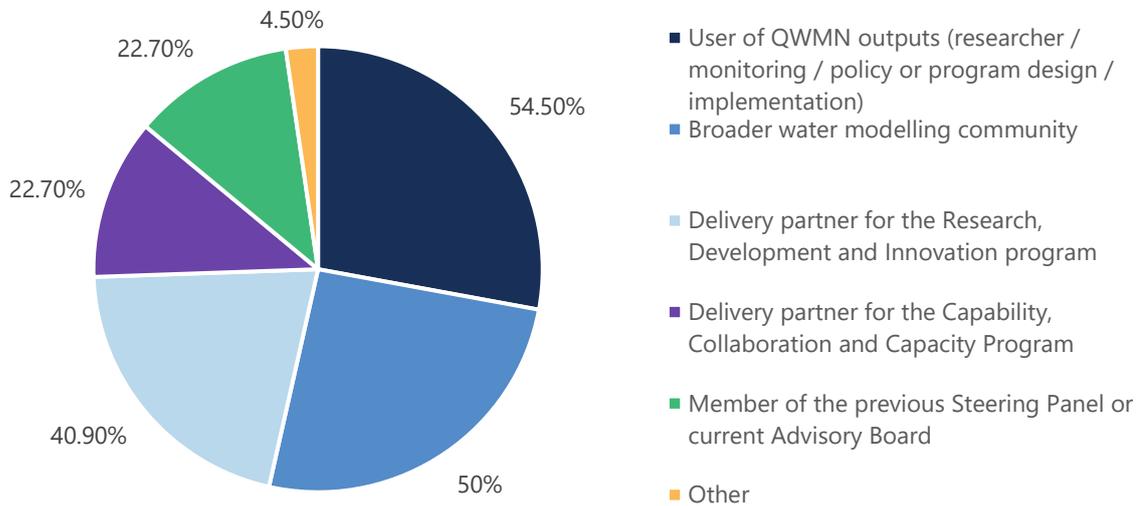
# Appendix A: Program Logic



Source Adapted from *M&E Framework (2020-2024): Queensland Water Modelling Network*

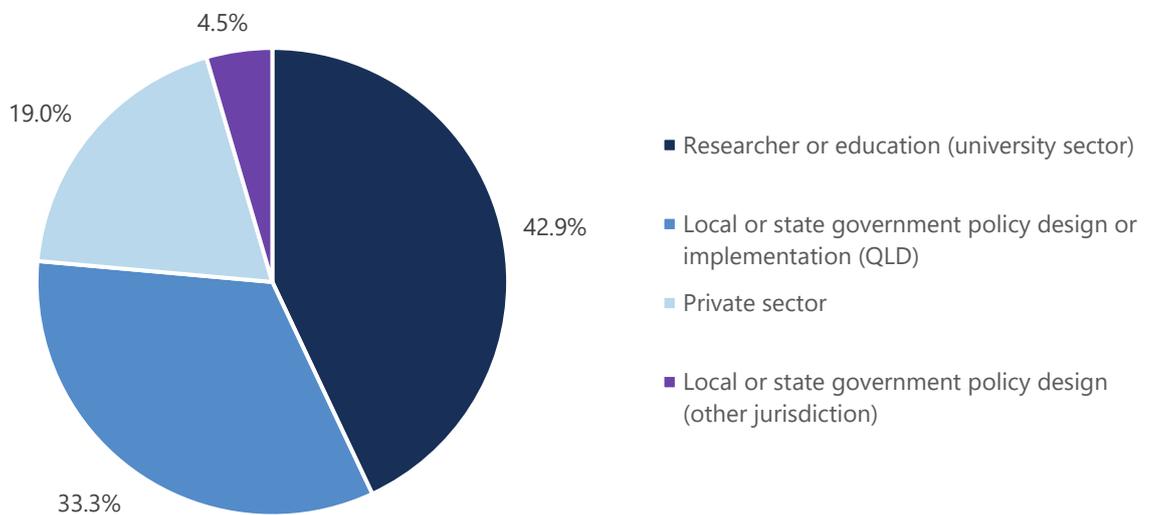
# Appendix B: Survey Questions and Results

*Question 1: How would you describe your involvement with QWMN?*

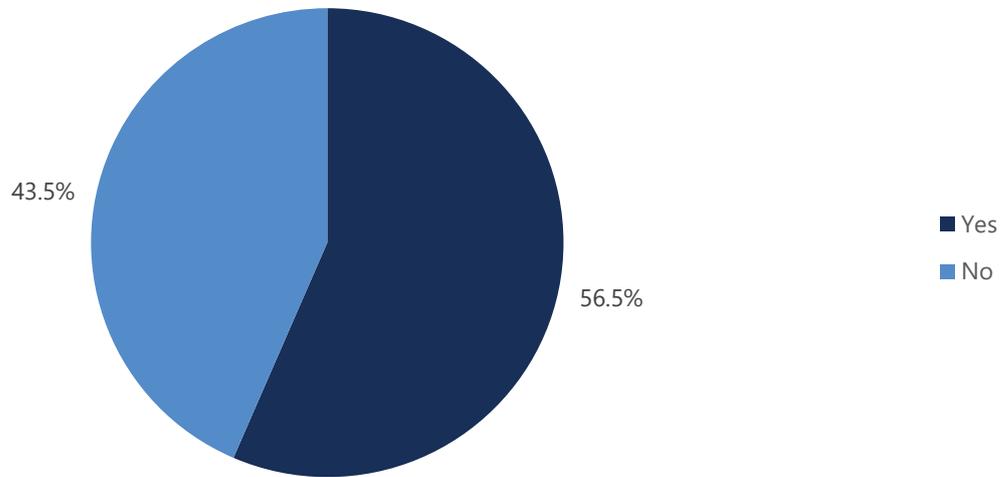


Note Respondents were able to select more than one answer for this question.

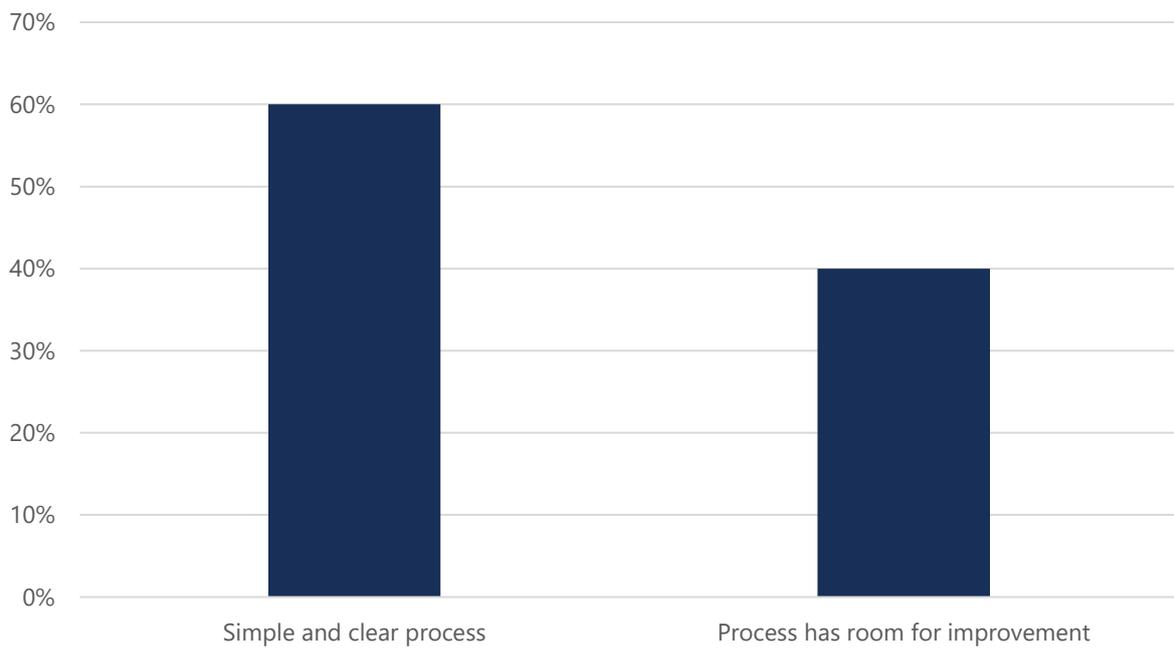
*Question 2: What is your role in the Queensland modelling community?*



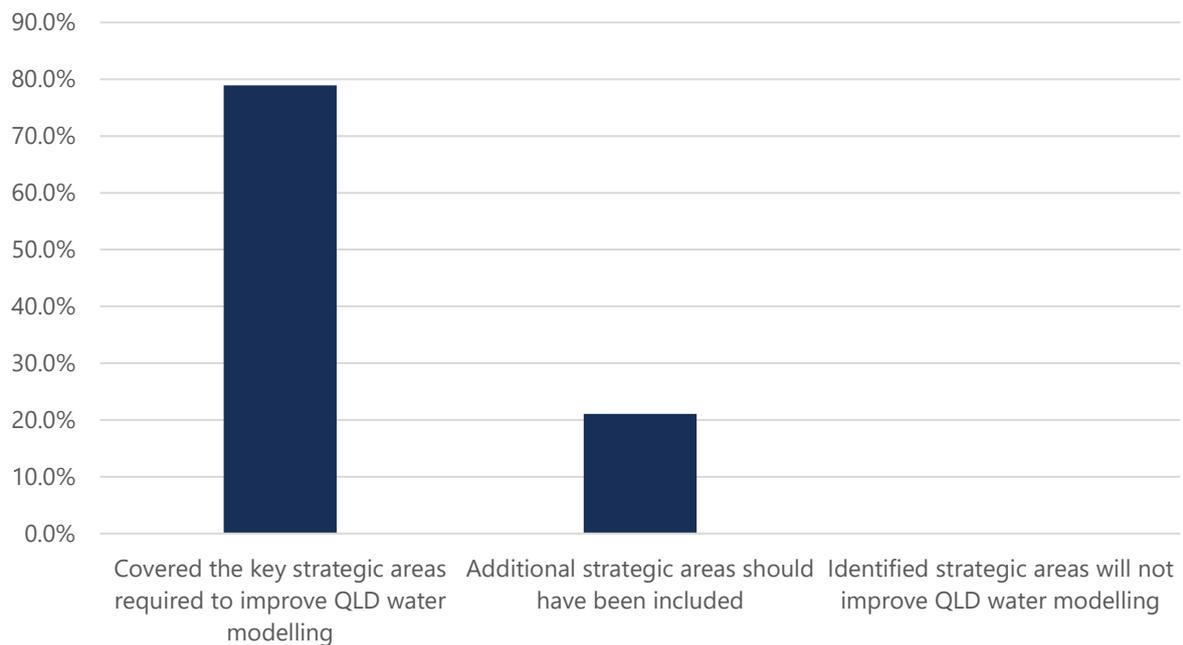
Question 3: Have you taken part in a QWMN funded Research, Development and Innovation Project or tender process in 2021 calendar year?



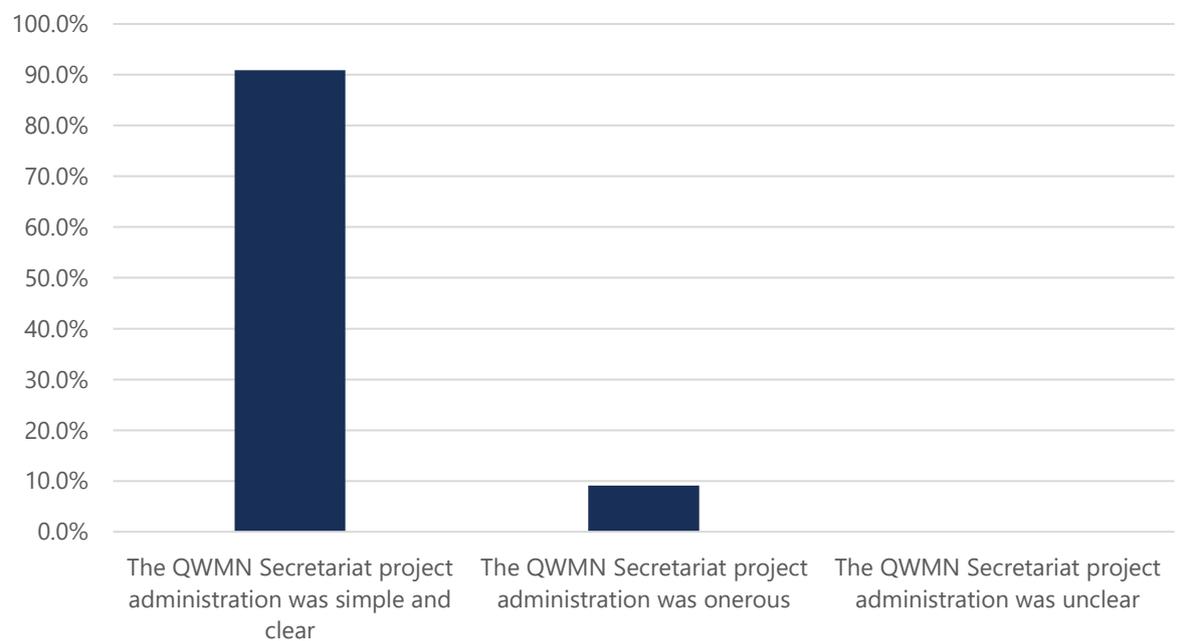
Question 4: If yes, how effective was the QWMN Secretariat tender process?



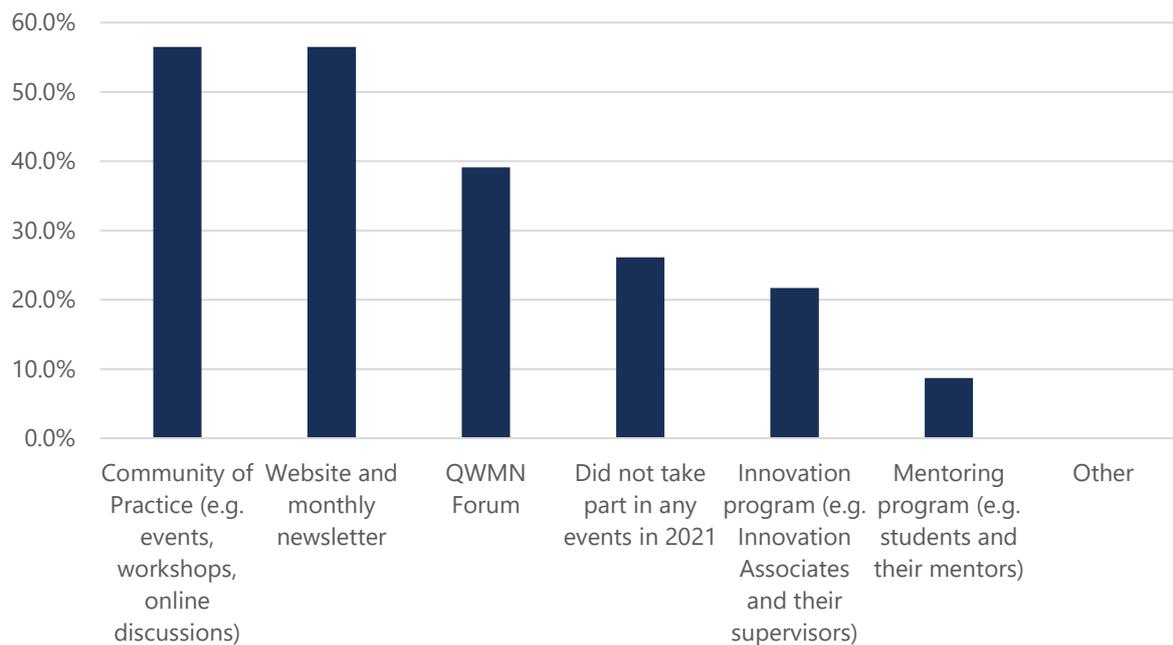
Question 6: Were the strategic priorities and focus of the QWMN tender process in 2021 appropriate?



Question 8: If you were successful in the tender process, how effective was the QWMN Secretariat project administration?

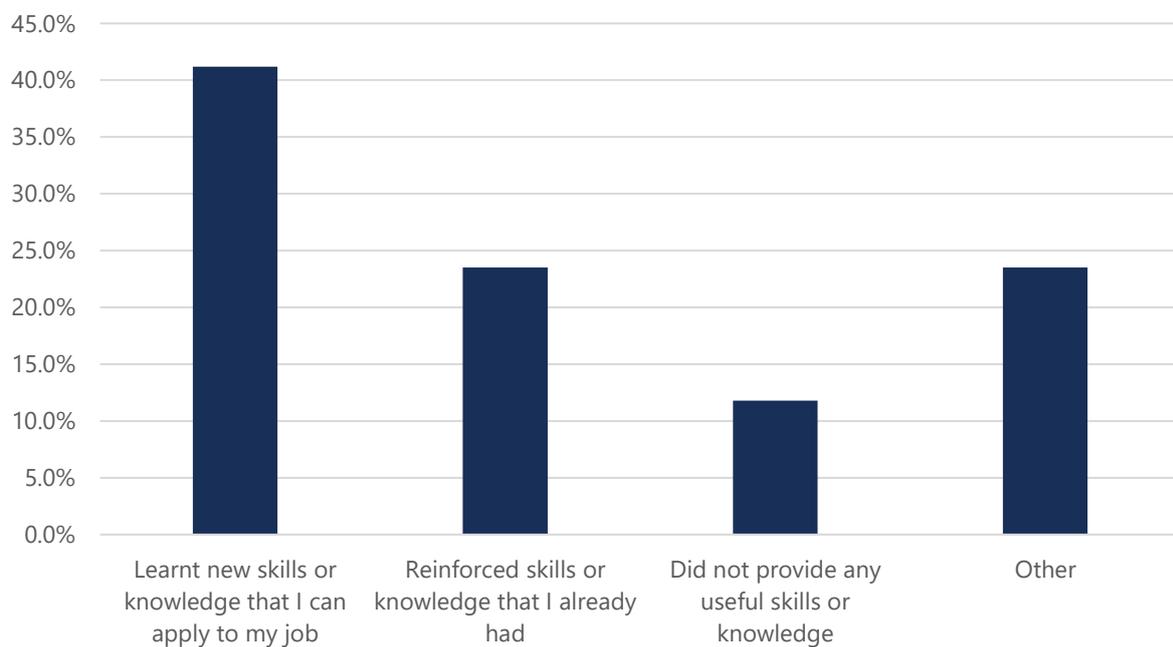


*Question 7: Have you taken part in any capacity and capability events or services in 2021?*

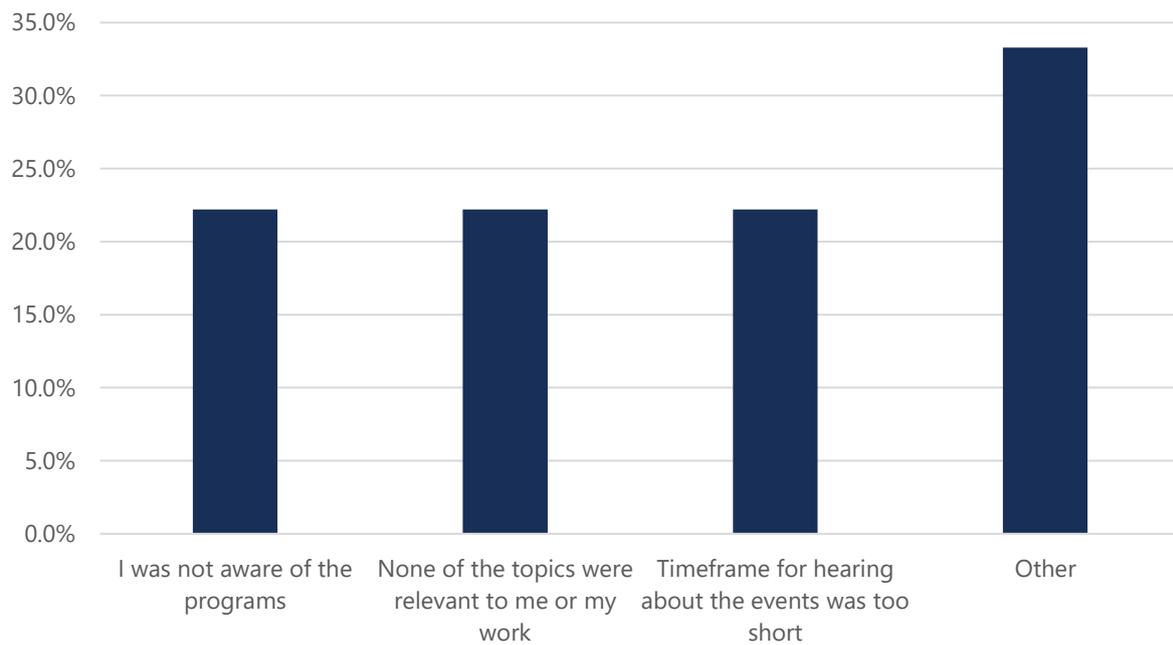


Note Respondents were able to select more than one answer for this question.

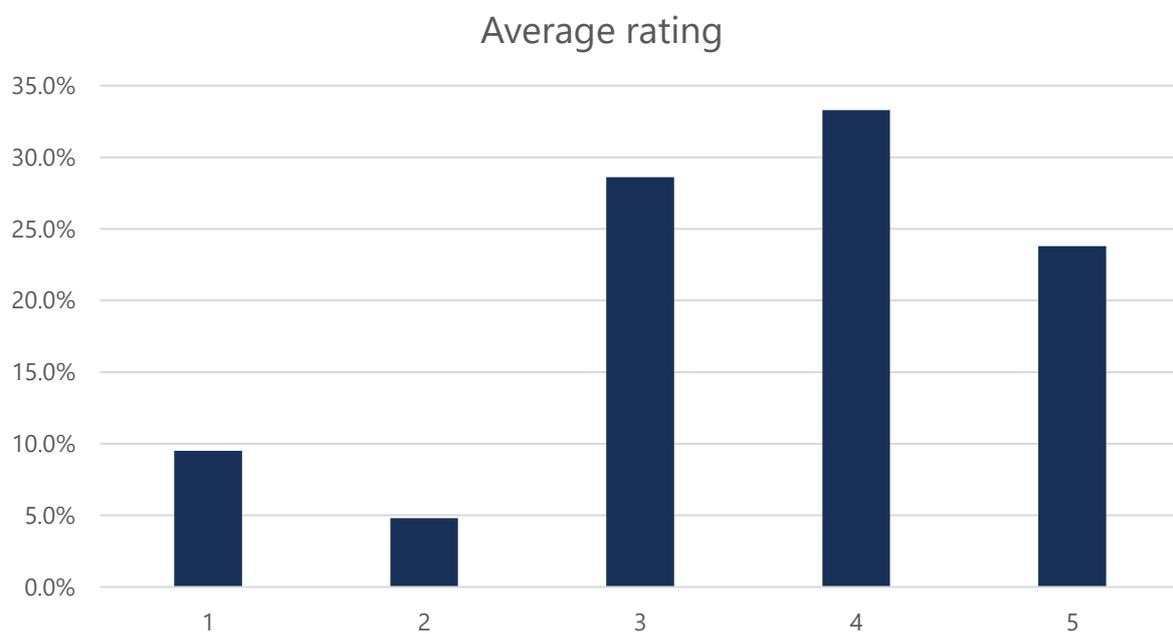
*Question 11: If yes, what did you get out of the events or services?*



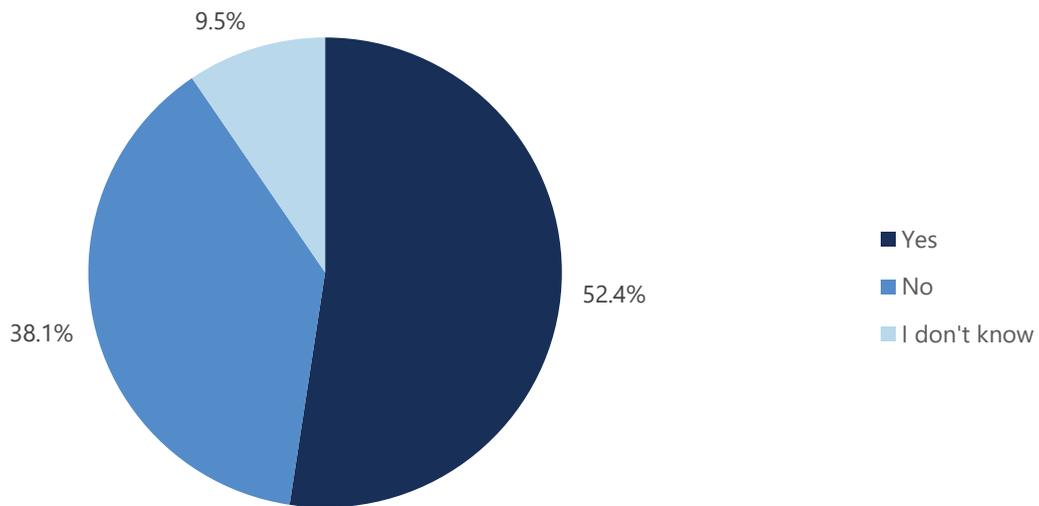
Question 12: If you did not attend any QWMN events, please provide feedback as to why



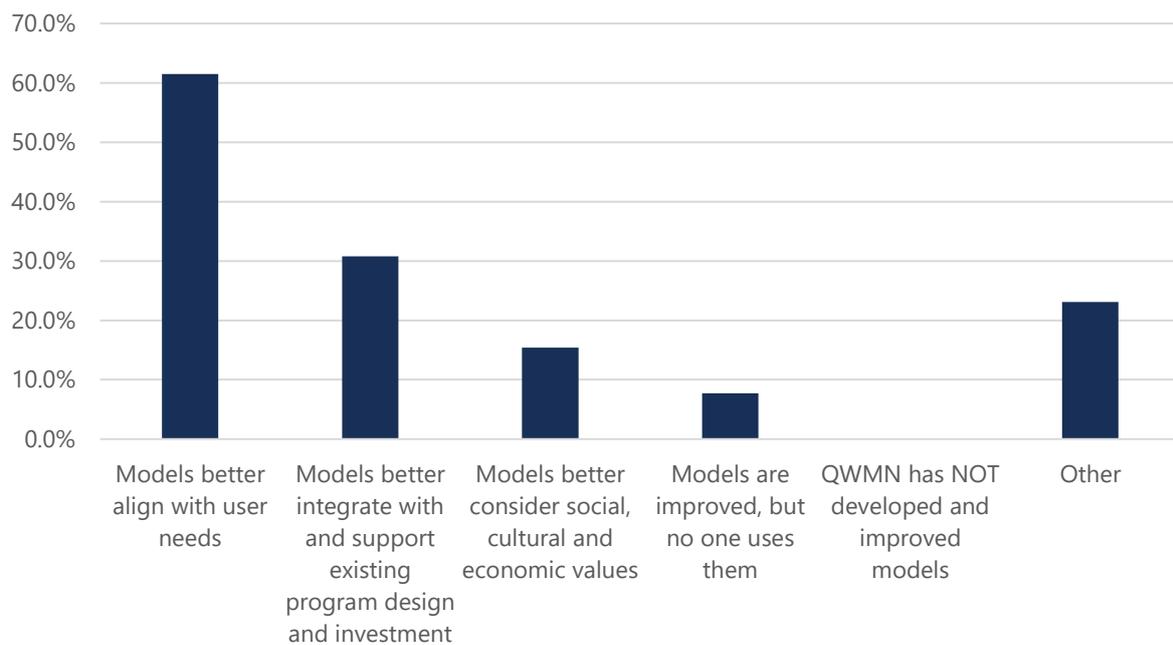
Question 14: How well do QWMN models and research align with your needs? (Scale 1 to 5 with 1 being 'not very useful' and 5 being 'very useful and can inform or improve my work')



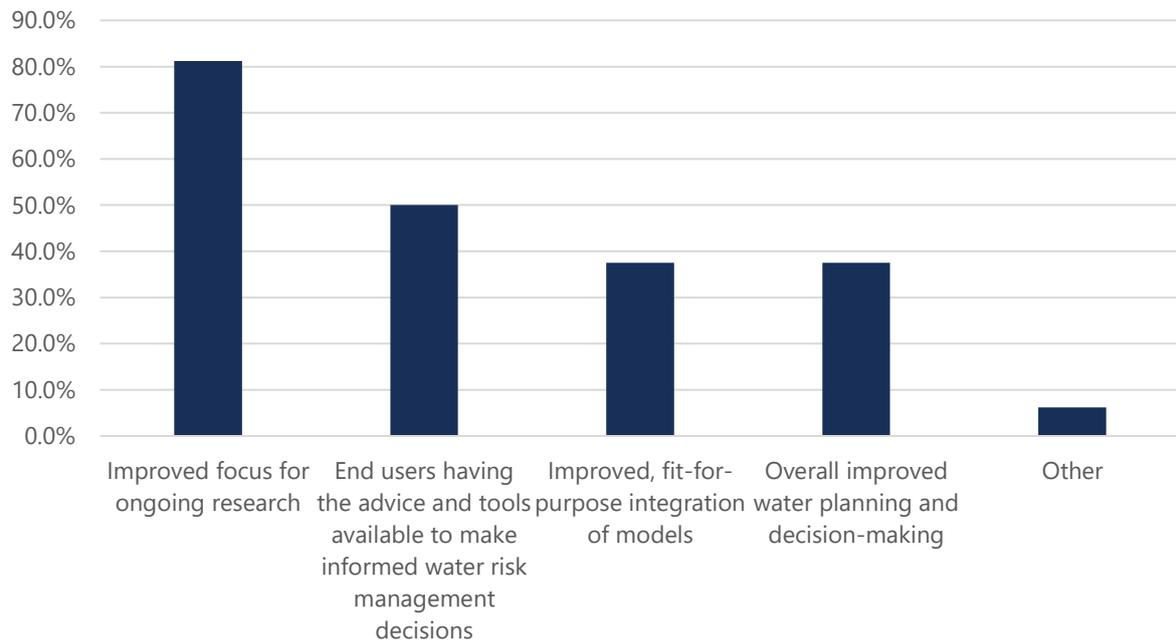
Question 16: Has QWMN has developed new models or improved existing models?



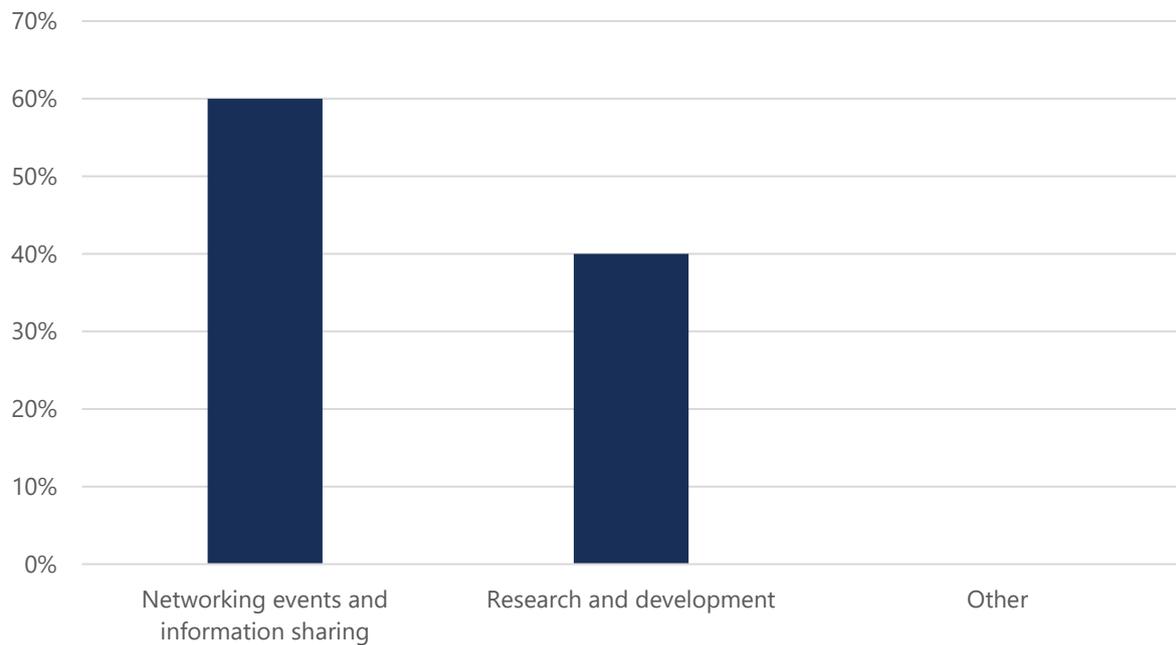
Question 17: Please explain your answer (from Question 16).



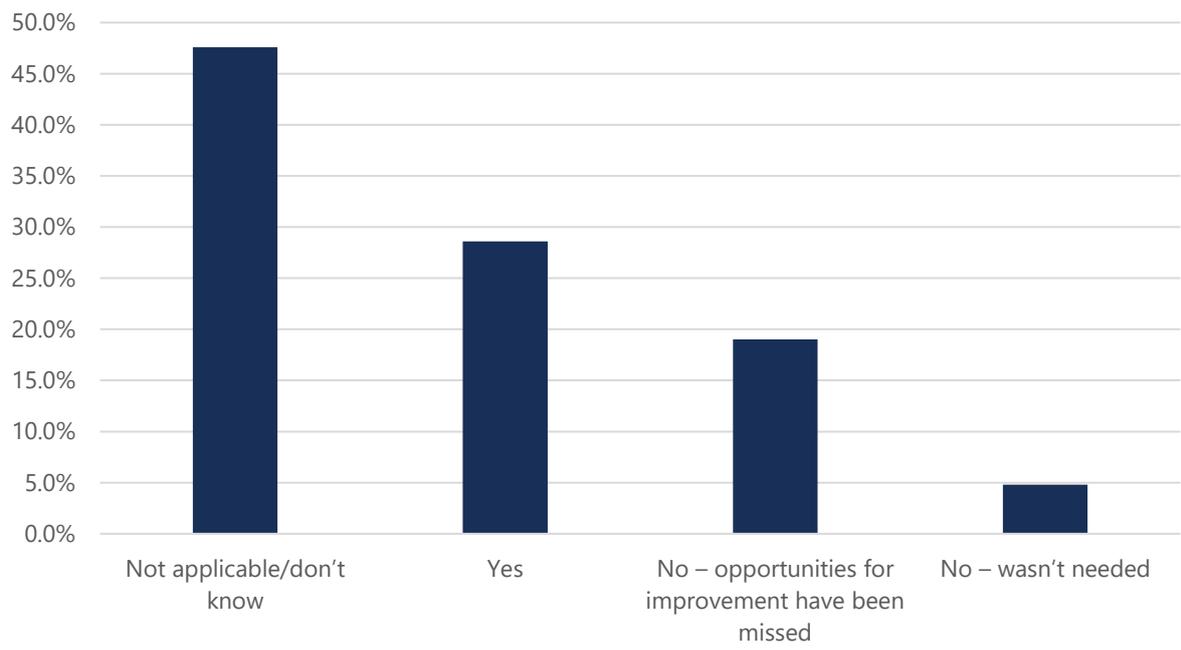
Question 18: In your experience, have QWMN events or knowledge outputs contributed to any of the following outcomes.



Question 19: What part of the QWMN have you found most useful?



Question 21: Has the QWMN adapted and changed to better meet user needs?



# Document History

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## Revision:

Revision no.	09
Author/s	Andrea Salus, Cassandra Stevenson
Checked	Emma Dovers
Approved	Martijn Gough

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