

04

Trade processing and water market information

This part includes three chapters on issues relating to trade services for Murray–Darling Basin water markets, transaction costs and information transparency, as well as the ACCC’s recommendations to address issues identified.

Chapter 10 discusses the roles and functions of public and private trade service providers, including brokers, exchange platforms, trade approval authorities and registers, and information service providers. It considers the evolution of trade services over time, noting both recent improvements and current shortcomings. Chapter 10 also examines the transaction costs associated with water trading, considering the impact of regulatory approval processes for individual trade applications and the cost of intermediaries on individual trading decisions.

Chapter 11 examines information transparency in Basin water markets. It identifies the information necessary for water market traders to make decisions that are in their best interests. It then analyses the current state of transparency, and identifies underlying issues that contribute to poor transparency. Finally, it presents the ACCC’s assessment of the changes needed to improve transparency.

Chapter 12 presents a suite of recommendations to address the issues identified in chapters 10 and 11, which the ACCC considers will improve water trade services and increase water market transparency.

10. Trade services and transaction costs

Key findings

- Water markets in the Basin are complex, with a great variety of product types available to trade⁵⁷² and a range of fees market participants must consider when making trading decisions.
- Trade services – advising, matching, clearing, settlement, registration and information – are provided by a range of private and public entities with diverse technological capabilities.
- While the diversity in the supply of trade services provides flexibility and competition, a lack of standardisation undermines market confidence, integrity and transparency.
- Intermediaries are continuing to develop innovative products and services, but trade approval authorities are failing to keep up and this is leading to poor market outcomes.
- Irrigators within irrigation infrastructure operator (IIO) networks face different trade processing and transaction costs that may require more complex decision making.
- Differences in Basin State trade approval authorities' technological capabilities are causing an uneven playing field in the Southern Connected Basin. This is particularly an issue for trading through the Barmah Choke, where holders of Victorian water rights benefit from the technological advantages of the Victorian Water Register compared to the New South Wales administrative system.
- Much of the digital infrastructure supporting trade services is inadequate and substantial benefits would flow from significant investment. Private and public trade service providers are making ongoing investments in improvements, but these are not consistently applied across the Basin and do not go far enough to provide the framework necessary to reduce transaction costs and improve information flows and quality to achieve whole-of-market efficiency.
- The main problems are outdated and disconnected information technology (IT) infrastructure for trade services, differences in underlying legislative frameworks, legislative gaps, and different approaches by private trade service providers leading to varying information quality, timeliness and transparency. Each of these issues needs to be addressed; but they need to be addressed collectively, not independently.
- Three key areas that need reform are: (1) reducing transaction costs by improving ease of trading, (2) improving the quality of information and (3) improving the flow of information between entities involved in Basin water markets and water management.

10.1 Trade services: what services are provided, by whom and why?

In the Murray–Darling Basin, a range of different entities provide trade-related services, and in some cases roles overlap. The trade-related services covered in this chapter are:

- **Advisory services:** assisting potential buyers and sellers to assess the market, form price expectations, and make decisions in the market
- **Information services:** collecting, cleaning, aggregating and disseminating market-relevant information
- **Matching services:** connecting buyers and sellers
- **Clearing services:** ensuring buyer and seller honour contract obligations, and assessing and approving trade applications

⁵⁷² Trade includes a transfer (that is, a trade that does not involve the payment of consideration).

- **Settlement services:** facilitating the actual transfer of payment from buyers to sellers, and transfer of title from sellers to buyers and updating water accounts and/or registers to reflect approved transactions
- **Registration services:** recording ownership and trades on state based registers established under water management legislation. Settlement for some trades does not take place until registration
- **Water accounts:** recording water credits and debits, including from trades. This function is linked to register systems.

Table 10.1 provides an overview of which entities provide which services in Basin water markets. Competition (markets) exists for some of these services (such as advisory, matching and information services), while others are provided by natural monopolies such as trade approval authorities and registries.

Clearing and registration services, performed by Basin State trade approval authorities, registries and irrigation infrastructure operators (IIOs), are not subject to competition through market mechanisms, although Basin State trade approval authorities are subject to economic regulation as natural monopolies.⁵⁷³

Table 10.1: Services performed by different trade service providers in Basin water markets

	Advisory services	Matching services	Clearing services	Settlement services	Registration services	Information services
Brokers and agents	Always	Always	Partly ^a	Sometimes – financial only	Never	Sometimes
Exchange platforms	Sometimes	Always	Contractual obligations ^a	Sometimes – financial only	Never	Sometimes
IIOs	Sometimes	Sometimes	Checks water accts and trading rules, sometimes contractual obligations	Title, and sometimes financial	Always	Sometimes
Basin State approval authorities	Never	Never	Checks water accts and trading rules ^a	Partly – title only	Never	Sometimes
Registries	Never	Never	Never	Always – title only ^b	Always	Always
Information providers	Never	Never	Never	Never	Never	Always

Source: ACCC analysis of broker and exchange websites, as well as state water management legislation and the *Water Act 2007* (Cth).

Notes: (a) Clearing is split across exchanges and trade approval authorities.

(b) There is not a separate settlement service which coordinates title and financial transfers. In water, for financial settlement to take place the Registrar must notify the intermediary holding the buyer funds that the trade has been approved, settled and registered and that the money can be released to the seller.

10.1.1 Trade services help reduce transaction costs for traders

Water markets provide market participants with the flexibility to buy and sell water, provided they can find a trading partner, have sufficient information available to understand the value of the water they are trading, and have a way of ensuring the trade is actually completed.

Trade services help with all of these things. For example, matching services reduce the costs of searching for a trading partner; advisory and information services help buyers and sellers form price

573 Trade approval charges levied by Basin State trade approval authorities are regulated as water planning and management charges under Basin State law, and also by the Water Charge Rules which are enforced by the ACCC. See <https://www.accc.gov.au/regulated-infrastructure/water/water-charge-rules>. Under the NSW regulatory framework, IPART sets WaterNSW's allocation trade charges. While IIOs are also subject to the Water Charge Rules, there is no direct regulation of IIO charges for trade approval services.

expectations; clearing, settlement and registry services all ensure the trade is completed correctly, and in line with trading rules.⁵⁷⁴

While some trade services (for example, some information services) are freely available, generally trade service providers recover their costs through fees or charges paid by market participants. Further, some public costs incurred in undertaking broader water planning and management activities also benefit market participants by providing an underlying foundation that participants rely on. This includes activities like metering water usage, river operations, and the planning and administration of water rights and trading frameworks. These broader costs are generally recovered through charges on tradeable water right holders, or may in part be funded via governments from consolidated revenue.

Thus, both private and public transaction costs are incurred in providing the different services required to support a competitive, stable and enduring market.

However, if transaction costs are too high, the economic benefits delivered by water markets can be eroded and market participation can decrease. Transaction costs can also vary for different market participants, contributing to an uneven distribution of the net benefits and increasing the variability of buy and sell offers in water markets.

10.1.2 Advisory services range from general market information to tailored trading advice

Many market participants engage brokers to provide advisory services to better understand the water market. As discussed in section 8.2, many water market intermediaries provide advisory services to their clients which assist buyers and sellers to decide when and where they want to trade, and to form price expectations.

Brokers and exchange platforms which provide advisory services draw on a range of information sources – for example, climate and water availability data published on government websites, industry forecasts, and historical trade data from Basin State registers and IIO websites.

As advisory services are usually coupled with matching services, the advisor may also have access to data from previous trades which they have facilitated, and add value by analysing raw data from other sources in order to gain actionable insights. When this occurs, advisory service providers may *create* information asymmetries between brokers and traders. This is discussed in more detail in section 8.8.

10.1.3 Only intermediaries provide information on buy and sell offers but information on approved trades is more widely available

Many brokers and exchange platforms publish (or provide for access by members) historical information on price, trading patterns, products and volumes traded on their platform or for trades they facilitated.⁵⁷⁵ Because this information is not standardised in any way, and suffers from quality issues (discussed further in section 11.3), market confidence has been impacted by fragmented information and the resulting difficulty in obtaining a true and complete view of market price and market depth.⁵⁷⁶

Basin States also publish information from water registers on approved trades of water access rights within their jurisdiction. However, each state publishes this information slightly differently, and this is explored further in chapter 11.

Basin-wide information services like those provided by Waterflow and the Bureau of Meteorology (BOM) Water Market Information Dashboard (discussed in section 11.3.4) provide general information

574 Allen Consulting Group, 'Transaction costs of water markets and environmental policy instruments', *Report to the Productivity Commission*, 2006, p. 11; Department of Agriculture, *Submission to the Murray-Darling Basin water inquiry issues paper*, 30 January 2020, p. 11; A Loch, SA Wheeler and C Settre, 'Private transaction costs of water trade in the Murray-Darling Basin', *Ecological Economics*, vol. 146, 2018, p. 561; Ricegrowers' Association of Australia, *Submission to the Murray-Darling Basin water inquiry issues paper*, 30 January 2020, p. 5.

575 ACCC, *Water market intermediaries – industry developments and practices*, 2010, https://www.accc.gov.au/system/files/Water%20market%20intermediaries%20-%20industry%20developments%20and%20practices_0.pdf, viewed 6 May 2020, p. 9.

576 Goulburn Murray Irrigation District (GMID) Water Leadership, *Submission to the Murray-Darling Basin water inquiry issues paper*, 30 January 2020, p. 10.

to a wide variety of stakeholders, beyond just market participants, such as the general public, policymakers and researchers. These services seek to bring together information from disparate sources but are not regarded as *intermediaries* because they do not actively facilitate trade.

While the BOM collates historical trade data from the Basin State registers and some IIOs⁵⁷⁷, it does not collect information from intermediaries. Waterflow does collect this information for some intermediaries and presents additional analysis on current buy and sell offers. Waterflow publishes information on buy and sell offers in close to real time, retrieving data from intermediaries it has agreements with as frequently as every ten minutes, and it is continuing to expand the number of intermediaries it collects information from.⁵⁷⁸ It also relies on the BOM dashboard for historical trade data.⁵⁷⁹

10.1.4 Intermediaries provide a variety of matching services via bulletin boards, online platforms and automated matching services

Services for matching buyers and sellers are key to well-functioning markets as they assist both buyers and sellers to find the best opportunities to trade. During the transition to formal water markets in the Basin through unbundling of land and establishment of trading rules, intermediaries emerged to facilitate trade in the newly formed markets.⁵⁸⁰

There are now multiple exchange platforms and brokers who offer matching services in the Basin (see appendix B). These services include automated matching on exchange platforms using algorithms, auction style listings, 'buy-it-now' listings, and manual matching by brokers. Manual matching can take place, for example, when a broker has one client who wants to buy and another who wants to sell and the trade could either be lodged directly to the trade approval authority by the broker, or via an exchange platform. Box 10.1 provides an overview of different types of matching services available.

Some IIOs⁵⁸¹ also operate exchange platforms to facilitate trade within, into and out of their networks. These platforms can be used directly by water right holders, or they can be used by brokers on behalf of their clients. Some other IIOs offer brokerage or bulletin board style matching services for their members, and many offer aggregation services aimed at reducing the transaction costs incurred by members trading into and out of the network.

577 Under the *Water Act 2007* (Cth), the BOM is required to collect and publish information a variety of water information, including water markets data from the Basin State trade approval authorities and Central Irrigation Trust, Coleambally Irrigation Co-operative Limited, Murray Irrigation Limited and Murrumbidgee Irrigation Limited.

578 Waterflow, FAQ, 2019, <https://www.waterflow.io/faq>, viewed 15 December 2020.

579 Available at: <https://www.waterflow.io/>.

580 ACCC, *Water market intermediaries – industry developments and practices*, 2010, https://www.accc.gov.au/system/files/Water%20market%20intermediaries%20-%20industry%20developments%20and%20practices_0.pdf, viewed 6 May 2020, p. 2.

581 Some IIOs have exchange platforms which are managed and run by a separate and independent company.

Box 10.1: Water market intermediaries provide a variety of matching services

The different types of matching services provided by Basin water market intermediaries can be distinguished according to the level of transparency provided to market participants, and the degree of discretion or ability to negotiate a trade. For the purposes of this report, several different types of matching are defined (table 10.2).

Table 10.2: Types of matching

Description	Trading benefits and costs	Level of transparency
Facilitated by intermediaries		
<p>Broker-negotiated, outside of platform</p> <p>Trades negotiated and lodged with trade approval authorities via a broker, without the involvement or use of an exchange platform</p>	<ul style="list-style-type: none"> ▪ High level of discretion/negotiation. ▪ Principal incurs broker commission costs and relies on broker to find trading partner. ▪ Broker lodges trade approval application form(s). 	<p>Limited transparency for other market participants:</p> <ul style="list-style-type: none"> ▪ buy and sell offers may have been publicly advertised (e.g. on a broker's bulletin board), but are not necessarily ▪ completed trades appear in Basin State / IIO registry data and possibly on broker's own website.
<p>Negotiated by a broker or individual off platform, lodged via platform. Also referred to as an 'off-platform' trade</p> <p>Trades negotiated via a broker without the involvement or use of an exchange platform, but lodged for approval via an exchange platform</p>	<ul style="list-style-type: none"> ▪ High level of discretion/negotiation. ▪ Principal incurs broker commission costs and relies on broker to find trading partner. ▪ Broker outsources lodgement of trade approval form(s) to exchange platform. 	<p>Moderate transparency for other market participants:</p> <ul style="list-style-type: none"> ▪ buy and sell offers may have been publicly advertised (e.g. on a broker's bulletin board), but are not necessarily ▪ completed trades appear in Basin State / IIO registry data and also on the exchange platform (and possibly broker's own website).
<p>Matched on-platform</p> <p>Traders matched and lodged for approval via an exchange platform. Covers different kinds of on-platform matching, including automated matching via algorithm, 'buy-it-now' (i.e. buyer selects advertised parcel), automated exchange pools, platform-based auctions</p>	<ul style="list-style-type: none"> ▪ Lower level of discretion/negotiation: buyers generally take what's on offer or are matched via a rule-based or mathematical process that is known beforehand to market participants. ▪ Principal incurs exchange platform commission costs. ▪ Exchange platform lodges trade approval form(s). ▪ May also be used by brokers to save on search costs (time) and outsource lodgement of trade approval form(s). 	<p>Moderate-high transparency for other market participants:</p> <ul style="list-style-type: none"> ▪ buy and sell offers are visible on platform ▪ completed trades appear in Basin State/IIO registry data and also on the exchange platform (although may not be able to link platform and registry data) ▪ level of transparency may depend on exact matching method.
Other		
<p>Principal-negotiated, outside of platform</p> <p>Trades negotiated and lodged for approval without the involvement of any water market intermediary.</p>	<ul style="list-style-type: none"> ▪ High level of discretion/negotiation. ▪ Principal incurs search costs (time). ▪ Principal lodges trade approval form(s). 	<p>Very low transparency for other market participants:</p> <ul style="list-style-type: none"> ▪ buy and sell offers unlikely to have been publicly advertised ▪ completed trades likely only appear in Basin State/IIO registry data.

Intermediaries hold significant volumes of market-sensitive information

As brokers and exchange platforms are involved in the matching of buyers and sellers, they also become the holders of valuable information on the willingness to pay, parties of trade, date of contract, volume traded, and sometimes the reason for trade. There is no interoperability between water exchange platforms, and there is no current requirement to disclose the extent to which the same parcels of water are listed on multiple exchanges. Stakeholders have expressed concern that market-sensitive information is dispersed across a number of brokers and exchange platforms in the Basin. There is also concern that the products and services offered vary across the exchange platforms and are not standardised, and that dispersal of buy and sell offers across multiple sites (and some not even online at all) makes it difficult to accurately gauge market depth.⁵⁸²

In response to this concern, some stakeholders had called for a central exchange or an 'ASX for water' to increase transparency and better understand market depth.⁵⁸³ However, there have also been concerns that this could increase costs and require additional regulation⁵⁸⁴, and some stakeholders' positions have changed.⁵⁸⁵

As noted in box 10.1 above, exchange platforms not only provide matching services, but also provide services for trade approval form lodgement. As such, many trades which appear to originate from an exchange platform have actually been negotiated off-platform⁵⁸⁶ (table 10.3) and indicates the market depth offered on exchange platforms is less than what may be suggested from trades published by the exchange platforms. For exchange platforms that publish information on trades that are pending approval by the Basin State trade approval authorities, this practice increases the amount of timely data available to the market.⁵⁸⁷

582 See for example, Murrumbidgee Valley Food and Fibre, *Submission to the Murray-Darling Basin water inquiry issues paper*, 30 January 2020, p. 2, which states that 'totally transparent water trading platform and water register that follows the same rules and principles as other property, share and business ownerships in Australia urgently needs implementation as already outlined in the NWI and the *Water Act 2007*'.

583 For example, Victorian Farmers Federation, *Submission to the Murray-Darling Basin water inquiry issues paper*, 13 February 2020, p. 11.

584 Australian Water Brokers Association, *Submission to the Murray-Darling Basin water inquiry issues paper*, 30 January 2020, p. 4.

585 Such as, Victorian Farmers Federation, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 11.

586 As discussed in section 6.2, an on-platform trade is one where buy and sell orders are matched on the exchange platform, either automatically or selected by the customers without negotiation, while an off-platform trade is one where the trade was negotiated directly by parties or through a broker and then placed on the platform for processing and settlement.

587 As discussed in sections D.2.5 and D.2.7 of appendix D, the time taken by trade approval authorities to process trades and for intermediaries to lodge trades after buy and sell offers have been matches delays the timely publication of trading data and water market participants must undertake additional research to understand the 'current' state of the market.

Table 10.3: Proportion of trades lodged by exchange platforms where buyer and seller were matched on-platform, within the Southern Connected Basin

Water Year	Exchange Platform A	Exchange Platform B ^a	Exchange Platform C ^b	Exchange Platform D ^c	Exchange Platform E	Total (inclusive of IIO exchange platform)	Total (exclusive of IIO exchange platform)
2017-18	28%	100%	49%	100%	100%	70%	61%
2018-19	27%	100%	67%	100%	100%	77%	73%
2019-20YTD	30%	100%	66%	100%	100%	74%	70%

Source: ACCC analysis of s. 95ZK responses.

Notes: Table shows proportion of trades lodged (i.e. submitted for approval) by an exchange platform that were also matched on-platform. For example, in 2018-19, 27% of trades lodged by Exchange Platform A were also matched on Exchange Platform A. Includes trades within IIOs. Limited to trades ACCC classified as on-platform or off-platform and that could be matched to Basin State and IIO trade data. 2019-20YTD = 2019-20 year to 30 November 2019.

(a) While this IIO-based exchange platform matches trades within its network, it is available to water market participants outside of the IIO (who must pay the Basin State application fee for trading water into or out of the IIO's bulk licence).

(b) As this exchange platform did not record how buy and sell orders were matched, on-platform trades were assumed to be those where the buy order, sell order and trade were submitted to the platform quasi simultaneously (within five seconds).

(c) Includes trades where strike date was not provided.

For trades matched on-platform, many are between buyers and sellers within the same trading zone (table 10.4). This suggests interzone trade is currently not readily facilitated by exchange platforms without off-platform negotiations.

Table 10.4: Proportion of trades matched on-platform where buyer and seller are in different trading zones within the Southern Connected Basin

Water Year	Exchange Platform A	Exchange Platform B ^a	Exchange Platform C ^b	Exchange Platform D ^c	Exchange Platform E	Total (inclusive of IIO exchange platform)	Total (exclusive of IIO exchange platform)
2017-18	33%	0%	37%	61%	10%	24%	37%
2018-19	36%	0%	42%	70%	26%	34%	43%
2019-20YTD	21%	0%	30%	59%	8%	24%	29%

Source: ACCC analysis of s. 95ZK responses.

Notes: Table shows proportion of trades that were matched on-platform where the buyer and seller were in different trading zones. For example, in 2018-19, 36% of trades matched on Exchange Platform A had buyer and seller in different trading zones. Excludes any trades not matched on-platform. Includes trades within IIOs. 2019-20YTD = 2019-20 year to 30 November 2019.

(a) While this IIO-based exchange platform matches trades within its network, it is available to water market participants outside of the IIO (who must pay the Basin State application fee for trading water into or out of the IIO's bulk licence). The trading zone of these external participants was not available in the data provided by the exchange platform to the ACCC.

(b) As this exchange platform did not record how buy and sell orders were matched, on-platform trades were assumed to be those where the buy order, sell order and trade were submitted to the platform quasi simultaneously (within five seconds).

(c) Includes trades where strike date was not provided.

10.1.5 Trades are processed, recorded and registered across multiple water registers and water management systems

Basin States and IIOs generally use water management systems to monitor and record water credits, use and ownership through water accounts. In contrast, a 'water register' (or system of multiple registers) maintains a record of ownership (similar to a lands title register) and a record of trades between water rights holders. The two processes are closely intertwined, and information recorded in system one will affect the records of the other. Basin States have implemented a variety of systems to enable these processes.

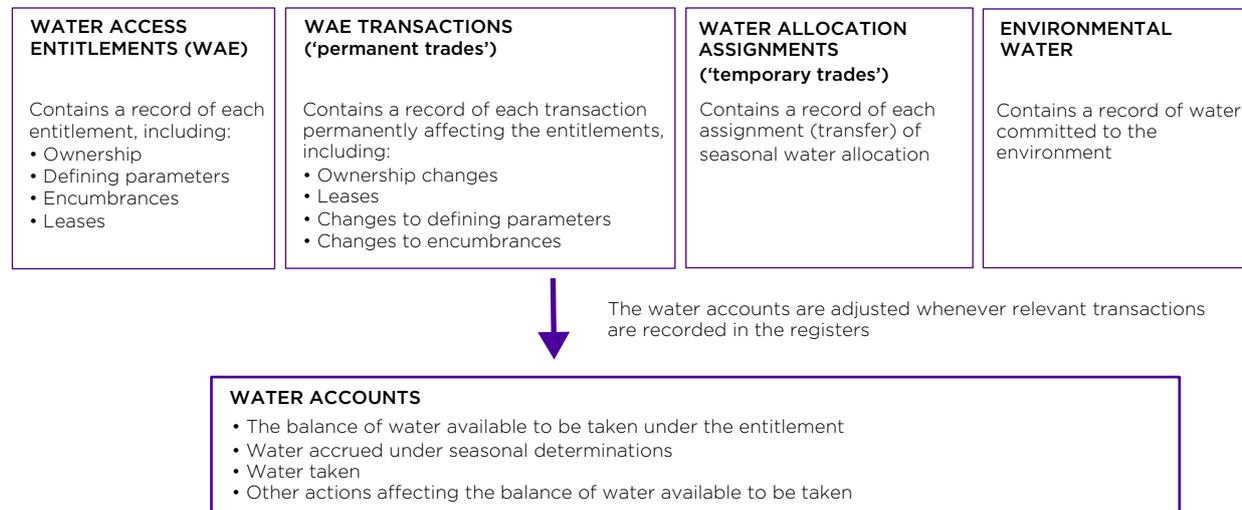
What the National Water Initiative and Water Act envisaged for water registers

The former National Water Commission's (NWC) *Compatibility of Water Registers* report considered the conceptual model set out in figure 10.1 below would encompass all components of a registry system, but that in practice it was up to states whether they chose to have one 'register' which captured all of these separate components, or kept them as separate registers with the appropriate linkages.⁵⁸⁸ The report was clear that accounts are not considered to be a 'register' for the purposes of the National Water Initiative (NWI), but are closely linked to the register system.

Water accounts show the actual amount of water available for use or trade by an individual, and can be considered like a bank account with credits and debits. The information recorded in the registers often affects the water accounts. Changes in entitlement ownership or location parameters may require establishment of new accounts or changes to entitlements linked to accounts. Water allocation trades are however given effect by adjusting the accounts and not by registration.

The NWC considered the importance of linkages between registers and water accounts so that changes are made within a tight timeframe (one working day is recommended) and the information kept in the separate systems remain synchronised.⁵⁸⁹

Figure 10.1: Components of a water register system



Source: National Water Commission, *Compatibility of Water Registers Report*, 2005, p. 3.

Basin State water registers are established under state-based water management legislation. Their primary purpose is to maintain accurate and current records about ownership and interests in water rights, and a clear record of all transactions relating to them (with transactions either in the same register as ownership or a separate linked register).⁵⁹⁰ While the record of the transaction may sit within

588 National Water Commission, *Compatibility of Water Registers Report*, 2005, p. 5.

589 National Water Commission, *Compatibility of Water Registers Report*, 2005, p. 5.

590 For example, South Australia's register: <https://www.environment.sa.gov.au/topics/water/water-markets-and-trade/water-register>, viewed 1 December 2020.

the register, the transaction itself must also be reflected in water accounts within water management systems in order to determine account volumes available for use, trade and carryover.

The ACCC requested data from the Basin States and medium and large IIOs on water accounts (including all credits and debits), allocation trades, and entitlement trades. This data was provided to the ACCC in various different structures, some of which reflect the differences in systems used to record accounts and register trades and ownership (see appendix G for analysis on the quality of these datasets).

The differences between the registers and the water management systems also have implications for transparency.

Generally, the register provisions in the relevant state legislation will require that the following be recorded on the register in relation to each water entitlement:

- name and contact details of holder(s)
- water resource which entitlement relates to
- date of issue and (if relevant) expiration
- date of any variation
- date of any transfer
- date of surrender or cancellation
- information prescribed by regulation.

However, Victoria also requires water consumption to be recorded as part of their water register. The retail register records usage of allocation available to consumptive and environmental entitlements, and interacts with the wholesale water register, which records bulk usage (water diverted from a waterway to an irrigation district). Standardised data sharing protocols exist between the Victorian Water Corporations and the Victorian Water Register (VWR) in order for the Water Corporations to meet their obligations to update the VWR with water account information.

Although IIOs have a role in approving trade applications, and managing their members' or customers' accounts, they are not required to maintain registers under the relevant state water management legislation. The ACCC understands that maintaining a separate register would be burdensome, particularly for smaller IIOs, and may not necessarily offer any real benefits to either their members or broader market transparency. CICL summarised this issue in their submission:

CICL also has concern that the ACCC is mandating registers should be separate from water management systems. If there is to be investment in designing new systems the investment should deliver efficiency and robust systems that minimise the potential for human error. IIOs core business is the supply of irrigation (and in some cases drainage services) to their customers. Our water management systems and water allocation account management are inextricably linked. Our systems need to be automatically linked or a single system.⁵⁹¹

As such, the ACCC now considers that improvements to IIO systems will achieve greater benefits and enable improvements necessary to reduce transaction costs, increase information flows and improve transparency (see section 10.3.3).

Unlike the other states, New South Wales sets up Water Allocation Accounts in its legislation.⁵⁹² These Water Allocation Accounts must record credits and debits, and allocation assignments that are given effect when the details are entered into the account and not when recorded in the assignment division of the register.

591 Coleambally Irrigation Co-operative Limited, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 14.

592 *Water Management Act 2000* (NSW), s. 85.

Trade approval, clearing, settlement, registration and information services are provided by multiple agencies

Each state's water management legislation sets out that the role of trade approval authorities is to undertake the trade clearing process, which involves assessing the trade application against criteria set out in the relevant Act (which can then refer to various other documents). In most states, legislation will provide that certain trades (particularly entitlement trades) do not take effect until they are *registered* – thus, registration is a separate but related process to trade approval (see table 10.5). In some states, trades will take effect when a water account is updated⁵⁹³ or will take effect from the date of the assignment.⁵⁹⁴

In New South Wales and South Australia, IIOs act as trade approval authorities for both temporary and permanent trade of irrigation rights, and also for trade of water delivery rights within their networks.

Table 10.5: Responsibilities of trade approval authorities and registries in the Basin

	Trade approvals (Allocations)	Register (Allocations)	Trade approvals (Entitlements)	Register (Entitlements)
Qld – Sunwater schemes	Sunwater	Not required in Act, do not have register	DRDMW (not all require approval)	Titles Registry
Qld – DRDMW schemes	DRDMW	Not required in Act, do not have register	DRDMW (not all require approval)	Titles Registry
ACT	- ^a	- ^a	EPSDD	EPSDD
NSW	WaterNSW (unless within an IIO)	WaterNSW (unless within an IIO)	WaterNSW (not all require consent)	NSW LRS
NSW – IIOs	IIO	Register not required in Act	IIO	Register not required in Act
Victoria	Water Corporations (Water Corporations responsible, but partner with DELWP for VWR online approvals)	Water Corporations (Water Corporations responsible, but have data sharing protocol in place with VWR)	Water Corporations for approval, Registrar for registration	VWR (Registrar is responsible, but partner with Water Corporations)
SA	DEW (unless within an IIO)	DEW	DEW (unless within an IIO)	DEW
SA – IIOs	IIO	Register not required in Act	IIO	Register not required in Act

Notes: DEW: Department for Environment and Water; DRDMW: Department of Regional Development, Manufacturing and Water⁵⁹⁵; EPSDD: Environment, Planning and Sustainable Development Directorate; LRS: Land Registry Services; VWR: Victorian Water Register.
(a) ACT currently has no temporary trades, and therefore no temporary trade approval function or register of temporary trades.

There are also different processes set up in legislation for approvals, consents, notifications and registrations. The differences in the types of dealings specified in the state legislation impact transaction costs. For example, if a water holder needs to conduct two dealings (one to divide the entitlement and then another to transfer a divided part of an entitlement) rather than being able to transfer part of an entitlement in one dealing, they may face higher transaction costs.⁵⁹⁶

The types of dealings specified in the state legislation or on trade forms also impact the data that is available to market participants. For example, by not specifying separate dealings for same-party or related-party transfers, trade data quality is reduced by being unable to differentiate trade types and the true depth of water markets.

593 SA and NSW for allocation assignment.

594 Victoria for allocation assignments.

595 Formerly the Department of Natural Resources, Mines and Energy.

596 The impact of this on IIO transformation transaction times is shown in section D.2.4 of appendix D.

10.2 The evolution of trade services in the Southern Connected Basin

10.2.1 NWI objectives and principles for trade services

The National Water Initiative (NWI) envisaged a nationally-compatible system of trade services and trade services infrastructure, despite a state-based approach to public trade services.

The *Water Act 2007* (Cth) specifies the following objectives and principles for water market and trading arrangements for the Murray–Darling Basin, which are drawn from NWI commitments. The objectives⁵⁹⁷ are:

- (a) to facilitate the operation of efficient water markets and the opportunities for trading, within and between Basin States, where water resources are physically shared or hydrologic connections and water supply considerations will permit water trading
- (b) to minimise transaction cost on water trades, including through good information flows in the market and compatible entitlement, registry, regulatory and other arrangements across jurisdictions
- (c) to enable the appropriate mix of water products to develop based on water access entitlements which can be traded either in whole or in part, and either temporarily or permanently, or through lease arrangements or other trading options that may evolve over time
- (d) to recognise and protect the needs of the environment
- (e) to provide appropriate protection of third-party interest.

Relevant principles include:

- (3) All trades should be recorded on a water register. Registers will be compatible, publicly accessible and reliable, recording information on a whole of catchment basis, consistent with the National Water Initiative.
- (15) Institutional, legislative and administrative arrangements will be introduced to improve the efficiency and scope of water trade and to remove barriers that may affect potential trade.

These excerpts show compatibility between the state systems and registers was and is an objective of the NWI and the *Water Act*, to reduce transaction costs and provide good information flows to the market. Options for reform should strive to fulfil these objectives, which cannot be achieved by states implementing reform in isolation of each other but require a more prescriptive and guiding framework to achieve these aims on a whole-of-Basin level.

10.2.2 Previous attempts to harmonise and improve trade processes and transparency have only delivered limited improvements

The National Water Market System (NWMS) and Common Registry Solutions (CRS) projects did not deliver Basin-wide improvements

The NWMS program sought to achieve the NWI objectives of improved water information flows through the delivery of a national water market website and a registry system that would support the water market. It aimed to fill a gap through the establishment of a CRS, which would contain both water rights holder and resource level accounting capabilities. The NWMS work program also included data and data quality management activities, a support regime for its ongoing operation and enhancements to existing water registry systems in Victoria and Queensland.

The provision of this national water market registry system was the goal of the CRS project, which aimed to ensure states had:

⁵⁹⁷ *Water Act 2007* (Cth) Schedule 3, s. 3.

- registers that recorded property rights and supported water accounting and resource management activities
- processes that improved transaction times for trades and dealings
- interoperability between registers to improve the efficiency of interstate trade.

The CRS was planned to be fully integrated with operational systems and also provide a platform for automating information aggregation and dissemination of information. However, the project was far more complex than anticipated, and was unable to be delivered due to high cost of standardising the states' registers. The NWMS project was terminated in 2014 without the delivery of any accounting system.

Nonetheless, the NWMS project did deliver the improvements in trade processing and registers seen today, such as the Victorian enhancements where investments of \$5.1 million in funding from the Australian Government⁵⁹⁸ and \$4.6 million of Victorian funds⁵⁹⁹ enabled electronic lodgement and automated processing of allocation trade applications on the VWR (further discussed in appendix C). Victoria was only able to meet the Council of Australian Governments (COAG) service standard for interstate trade in 2011-12 following these enhancements to its water register.⁶⁰⁰

COAG service standards need reform if public trade services are to improve

Prior to the introduction of service standards for allocation and entitlement trade, there was an inconsistent approach where not all trade approval authorities had service standards, and those that did varied by scope. For example, in 2007 the typical time for regulatory approvals for entitlement trades in New South Wales could take up to 6 months while those in Victoria took 4 to 6 weeks.⁶⁰¹

COAG⁶⁰² service standards for processing times⁶⁰³ that were introduced in July 2009 provided states with a benchmark. Most states have been able to achieve the service standards for entitlement and allocation trade since 2010-11.⁶⁰⁴ However, approval times did not significantly improve for New South Wales or South Australia. The allocation trade approval times continue to differ due to the innovations implemented by some trade approval authorities while others continue to rely on paper-based processing.

While Victoria's allocation trade approvals are assessed by an automated online processing system, which has provided same-day approvals for most intrastate trade applications within the Southern Connected Basin since 2016-17, the other Basin States rely on slower more manual processes (see section D.2.1 in appendix D). New South Wales has achieved next business day approval times for most approved intrastate allocation trades in the Southern Connected Basin since 2017-18, while South Australia has approved 90% of its allocation trades within 4 to 6 business days since 2013-14.

Despite calls from the Productivity Commission and the ACCC that the service standards be tightened⁶⁰⁵ and reviewed⁶⁰⁶, there has been no change to service standards since 1 July 2009. The

598 COAG, 'Implementation Plan for Enhancements to Victorian Water Register Systems', *National Partnership Agreement on Water for the Future*, 2010; COAG, 'Implementation Plan for Enhancements to Victorian Water Register Systems (Stage 2)', *National Partnership Agreement on Water for the Future*, 2012.

599 Department of Environment, Land, Water and Planning (Victoria), *Enhancing the Victorian Water Register*, 2019, <https://www.water.vic.gov.au/planning/environmental-contributions/third-tranche-of-the-environmental-contribution/water-entitlements-and-market-reform/enhancing-the-victorian-water-register>, viewed 8 May 2020; Victorian Auditor-General's Report, *Administration and Effectiveness of the Environmental Contribution Levy*, 2014, p. 28.

600 Aither, '10-year evaluation of the Environmental Contribution', *A report prepared for the Victorian Department of Environment, Land, Water and Planning*, 2015, p. 84.

601 Allen Consulting Group, op. cit., p. 17.

602 On 29 May 2020, National Cabinet agreed to the formation of the National Federation Reform Council (NFRC) and the cessation of the Council of Australian Governments (COAG).

603 As discussed in section D.2.1 of appendix D, Basin States agreed to process at least 90 per cent of entitlement trades that have reached approval stage within 20 business days. For allocation trades, at least 90 per cent of intrastate trades need to be processed within 5 business days (10 for South Australia) and at least 90 per cent of interstate allocation trades within 10 business days (20 for South Australia).

604 Loch, Wheeler and Settre, op. cit., p. 569.

605 Productivity Commission, *National water reform*, Report no. 87, 2017, p. 128.

606 ACCC, *Water trading rules – Final advice*, 2010, p. 122.

standards are also only aspirational with no consequences for trade approval authorities that fail to meet them.

Consequently, market participants continue to call for harmonised and faster trade approval processes⁶⁰⁷ with many pointing to current inconsistencies in approval times between states.⁶⁰⁸ Extended processing times from trade approval authorities also delay the timely publication of trading data associated with the trade (see section D.2.5 in appendix D), which increases the transaction costs for market participants as they must undertake additional research to better understand the 'current' state of the water market.

Basin States' trade approval fees vary with each state's use of technology, the processes for facilitating trade and the size of their cost-recovery base

Under the NWI, the Commonwealth and states agreed to cost recover the administration and water resources management of the Basin, including the water accounting systems that facilitate water trading.⁶⁰⁹ Each Basin State is responsible for its spending and cost recovery, where fees charged to water users and traders should be closely linked to the state's costs of the activities.⁶¹⁰

This means water registry, accounting and management costs should be recovered from entitlement holders via entitlement fees while trading costs and specific trade-related registry functions should be recovered from traders via trade approval fees. While trade approval application fees have not materially changed since 2015–16, fees do vary by state depending on the costs incurred to facilitate water trading, how efficiently trade approval services are delivered, and the number of trades that costs can be recovered from.⁶¹¹

As each Basin State has developed its own trading rules and systems, some provide trade approval and registry services more efficiently than others. For example, Victoria has online and paper-based allocation trade submission options where fees for in-person submissions are almost twice that for online. This cost differential reflects the reduced labour costs associated with the automated online processing system, and the ACCC considers this also encourages the online submission of trades. In contrast, South Australia's high fees reflect its current reliance on labour to manage its paper-based system⁶¹² and smaller number of trades (see section 10.4.1).

10.2.3 Unbundling and reform of trading rules created an approval role for IIOs

All water trades incur transaction costs from a trade approval authority or similar entity. Water allocation trades outside of IIO areas require approval from the relevant state government authority (or authorities when trading interstate) while irrigation right trades that occur wholly within an IIO's area will require approval from that IIO. Trades between a trader within an IIO area and a trader outside of the same IIO will incur transaction costs from both the state trade approval authority and the IIO. This trade approval role for IIOs arose from the reforms which unbundled water from land.

607 Coleambally Irrigation Co-operative Limited, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 11; SunRice Group and Ricegrowers' Association of Australia, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, pp. 6, 30.

608 Almond Board of Australia, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 4; Australian Water Brokers Association, *Submission to the Murray-Darling Basin water inquiry issues paper*, 13 November 2020, p. 3; Coleambally Irrigation Co-operative Limited, *Submission to the Murray-Darling Basin water inquiry issues paper*, 13 February 2020, p. 12; Select Harvests, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, pp. 8–9.

609 Council of Australian Governments, *Intergovernmental Agreement on a National Water Initiative*, 2004, paragraphs 64 and 67(i).

610 *Water Act 2007* (Cth), Schedule 1 – Murray-Darling Basin Agreement, Schedule 2, s. 4(3).

611 See section C.1.3 in appendix C.

612 However, South Australia is modernising its water registry and is expected to improve its future trade processing capability.

While the IIOs need to maintain water management systems to keep track of water usage and availability, they have not been required to maintain a register under the NWI. Further, some IIOs place greater importance on water accounts rather than trade registers:

Members in our IIO have online visibility of all their water holdings and usage. It would not be practical, efficient or effective, to separate the components of IIO irrigators water holdings and usage into separate “registers”; entitlement, annual allocation, private carryover and usage are all very interrelated.⁶¹³

Trade within IIOs offers many benefits for members, such as lower fees and in some cases faster matching and approval times. For example, Murray Irrigation runs an exchange platform with automatic matching (see appendix B) and does not charge its members fees for internal trades (see appendix C). However, the IIOs’ approval role does increase transaction costs and introduce fragmentation when water is traded into and out of irrigation networks.

Irrigators within IIOs face different trade processing and transaction costs

Water traders within irrigation districts in New South Wales and South Australia are also impacted by additional trading rules and fees set by IIOs, which vary widely between networks (see section C.2 in appendix C). While some IIOs charge less for temporary trades within their network than the intrastate allocation trade fee, this is not always the case. Additionally, trading water into and out of the IIO’s network can incur more significant costs, and also attract Basin State trade approval authority fees, while permanent trading or leasing of irrigation rights outside of the IIO district requires the irrigation right first be transformed into a water entitlement. Decision making becomes complex for traders in IIO networks where temporary trades outside of the network can incur IIO and Basin State fees that are greater than the IIO’s fee to permanently trade the water right within the network.

10.2.4 Private and public trade service providers have invested in improvements, but not all market participants benefit

Public investments in developing the COAG service standards, improving consistency of trading rules and IIO fees, and introducing automatic lodgement facilities have all contributed to reducing monetary and non-monetary private transaction costs.⁶¹⁴ For example, Victorian and Commonwealth co-investments in the Victorian Water Register (see section 10.2.2) have contributed to market participants’ high regard of the Victorian approvals process when compared to other states.⁶¹⁵

Victoria’s automated trade approval system gives intermediaries an opportunity to check the feasibility of trades in real-time and settle intrastate trades within hours. This functionality is further enhanced by the provision of the ‘Broker API’, where intermediaries can develop their own digital infrastructure for automated lodgement of trade applications. Figure 10.2 shows Exchange Platform C, which predominantly facilitates intrastate trade in Victoria, used this application programming interface (API)⁶¹⁶ in 2018–19 to record 100% trade approval rates⁶¹⁷ and faster trade lodgement times than other intermediaries, even when only Victorian trade approval applications are considered.

Figure 10.2 also shows intermediaries tend to lodge Victorian trade applications the soonest after a trade has been matched⁶¹⁸, followed by New South Wales, then South Australia. This could be due to the ease of using the electronic lodgement facilities or if there is a limited trading window. For example, as there are no limits on the trade of water within and into South Australia then there is less incentive for

613 Renmark Irrigation Trust, *Submission to Murray–Darling Basin water inquiry interim report*, 13 November 2020, p. 4.

614 Loch, Wheeler and Settre, *op. cit.*, p. 571.

615 AWBA, *Submission to the Murray–Darling Basin water inquiry issues paper*, 30 January 2020, p. 22; Victorian Farmers Federation, *Submission to the Murray–Darling Basin water inquiry interim report*, 13 November 2020, pp. 5, 9, 12, 15 and 20.

616 APIs are a set of tools for building software that interacts with other software.

617 ACCC analysis based on Victorian Government’s response to voluntary information request.

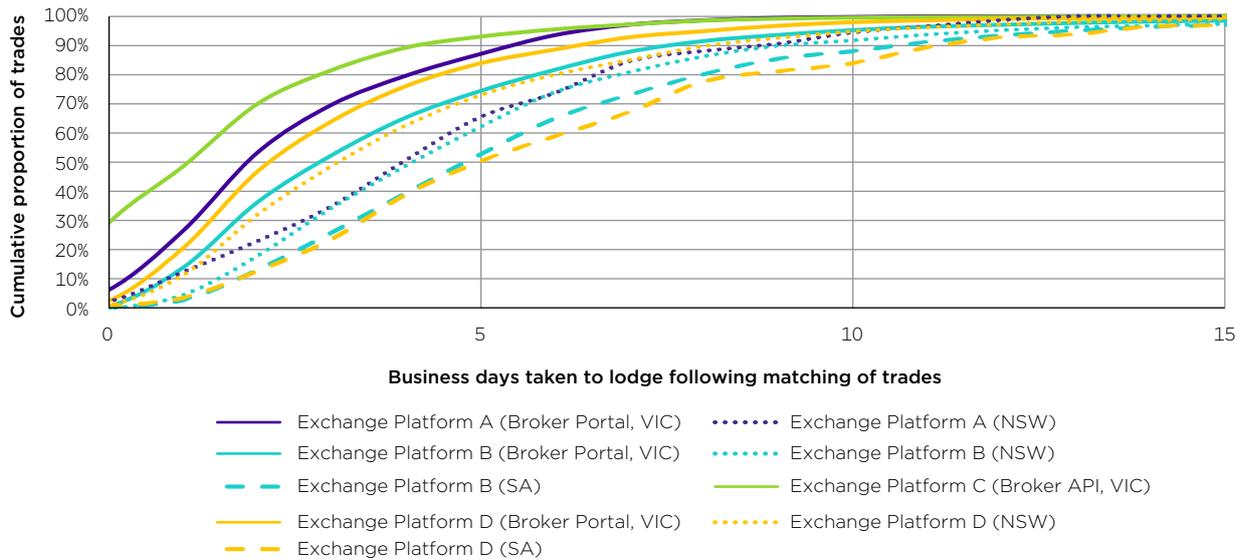
618 The ACCC acknowledges that some trades were for water products such as forwards, carryover or contractual leases. In the case of forwards and contractual leases, the trade applications may not be lodged until closer to the time of delivery as agreed between the buyer and seller, while carryover trades may not be lodged until the end of the water season.

the timely lodgement of trades. Trades into and out of IIOs, which is not a process that affects Victorian intrastate trade, also contribute to extended trade lodgement times.⁶¹⁹

In the case of interstate trades with Victoria, brokers must first lodge the trade through the Broker Portal or API to generate the ‘application form’ that must also be included in the application to New South Wales or South Australia⁶²⁰ as per the Murray–Darling Basin Agreement (Schedule D – Processing Interstate Transfers of Water Allocations) Protocol 2010.

Other factors that can affect the time between when a trade is matched and when it is lodged include the time taken for an intermediary to issue a buyer an invoice and when that invoice is paid.

Figure 10.2: Number of business days taken for exchange platforms to lodge Southern Connected Basin trades with Basin State trade approval authorities from 1 July 2017 to 30 November 2019



Source: ACCC analysis based on NSW, Victorian and SA governments’ responses to voluntary information requests and s. 95ZK responses.

Notes: Includes zero dollar trades. Time lags exclude weekends and public holidays (based on the jurisdiction of the trade approval authority).

While the use of Victoria’s automated trade approval system to deliver fast approvals is currently limited to intrastate trades due to the current limitations of the interstate trade process (discussed further in 10.3.3), technological development in trade application lodgement facilities may encourage intermediaries to compete on trade processing times.

For example, Waterexchange has also invested in electronic trade application portals to improve their interactions with private and public trade approval authorities (some IIOs and Sunwater), but very few IIOs were able to provide the necessary data for the ACCC to assess the benefits of this investment in terms of lodgement times.⁶²¹

The ACCC recognises the overall trajectory is that trade processing times have decreased and will likely continue to do so. However, there are still some outliers and trade approval fees still can differ significantly.

619 ACCC analysis based on NSW, Victorian and SA governments’ responses to voluntary information requests and s. 95ZK responses. See also section D.2.2 in appendix D for a comparison of IIO’s trade processing times compared to WaterNSW’s trade approval lags for intrastate trade.

620 Department of Environment, Land, Water and Planning (Victoria) 2021, <https://waterregister.vic.gov.au/water-trading/my-water/broker-instructions>, viewed 2 February 2021.

621 While table G.4 (in appendix G) shows some IIOs’ trading datasets were missing fields, for some IIOs information is also stored in separate systems that could not be integrated with the supplied trading data in time for more complete data to be provided to the inquiry. Additionally, IIOs are not required to meet any service standards for temporary trade.

South Australia is in the process of introducing its new \$14.7 million Water Management Solution system⁶²², which is expected to decrease trade processing fees, enable the electronic lodgement of trades and automated approval assessments, and better integrate with the interstate trading interoperability protocol. Given South Australia has the highest trade approval fee in the southern connected Basin (\$277 for the 2020–21 water year⁶²³) this initiative is expected to go some way towards meeting stakeholders' calls for more harmonised or equal allocation trade approval fees in the southern Basin.

Differences in Basin States' trade approval processes can also create an uneven playing field when there are limited trading opportunities and trade approval authorities process trades using a 'first come, first served' queuing system⁶²⁴ where market participants compete to be 'at the head of the queue'.

In the case of the Barmah Choke, this queue-based approach can favour those with water rights in Victoria compared to New South Wales (see section 10.3.4) and create incentives for electronic lodgement of trades through intervalley and interstate trade limits.

The Victorian Water Register offers online lodgement facilities for both intermediaries and individual traders. Intermediaries who have applied for authorisation are able to lodge forms via the Broker Portal/API. My Water allows holders of Victorian water rights to register for a My Water account which provides them with electronic access to the Victorian Water Register to see their accounts and trade allocation.⁶²⁵

Uneven playing fields can also occur within a state. Kilter Rural submitted that not all features available through Victoria's Broker Portal/API are also available through My Water, disadvantaging My Water users.⁶²⁶ For example, Victorian water rights holders who wish to trade interstate must engage a broker if electronic lodgement is required; without a broker, the tradeable water rights holder can only trade interstate by lodging a paper form with their water corporation (see section D.3.2 of appendix D).

The organic digitisation and digitalisation of trade services and data flows shows that public and private entities are responding to demand for improved information and trade services. However, it inevitably means that some areas are developing faster than others and that multiple entities are solving similar problems in different ways. While these individual investments may reduce trade processing times and costs for some water market participants, the approach also points to an increasingly complex network of unharmonised data flows and digital infrastructure, which introduce inequalities in some circumstances and that will be unlikely to deliver the 'whole-of-market' transparency stakeholders are calling for.

10.3 Current shortcomings and concerns about trade processes

Significant efforts have been made by governments in cooperation with other stakeholders to pursue NWI objectives and develop an effective and efficient market system. However, while there has been some success, many objectives have not been met in full, and fragmented roles and responsibilities and inconsistent approaches to numerous market related issues across the Basin remain. The following sections look mostly at processes for water allocation trades and temporary irrigation right trades, but also touch on entitlement trades and broader frameworks.

While there are some clear differences in both structural set up of trade approval authorities and registers, as well as information collection and publication across the states, the Basin States have agreed to certain levels of transparency and processing standards in relation to water trading in the course of water reform processes over the last 15 years.

622 Department for Environment and Water (South Australia) 2019, <https://www.environment.sa.gov.au/licences-and-permits/water-licence-and-permit-forms/new-state-water-register/frequently-asked-questions>, viewed 9 June 2020.

623 Department for Environment and Water, South Australia, *Fees, Charges and penalties*, <https://www.environment.sa.gov.au/topics/water/water-markets-and-trade/fees-and-charges>, viewed 5 November 2020.

624 See section 14.1.6 in chapter 14.

625 Victorian Water Register, n.d., <https://waterregister.vic.gov.au/water-trading/my-water>, viewed 20 February 2021.

626 Kilter Rural, *Submission to the Murray Darling Basin water inquiry interim report*, 13 November 2020, p. 4.

If these trade-related services are not provided efficiently, or actually create problems for market participants, they will impact the overall efficiency of the market. This can happen via several avenues:

- Trade-related services are a crucial source of market data and information. If they fail to provide high quality information to the market in a timely manner, prices may not incorporate information on certain market-relevant factors (that is, there are externalities which are not 'priced in'), leading to inefficient allocation of water resources. Further, market participants may take action to 'fill in the gaps' themselves, but where they are acting on incomplete or poor quality data, may make ill-informed decisions on water market participation and related investment.
- Trade-related services may also provide information to the market in a way which generates information asymmetries (one market participant has access to information which another does not), which can allow certain participants to capture proportionally more gains from trade. This has distributional impacts on market participants. Information asymmetries can also create space for market misconduct, such as insider trading, to occur.
- If trade-related services are inefficiently provided, and costs are recovered from market participants, transaction costs can erode gains from trade and potentially form a barrier to entry for some participants.
- If trade-related services are provided in a way which offers advantage to some users over others, this can also inadvertently allow certain participants to capture proportionally more of the gains from trade. As this chapter discusses, water markets are becoming increasingly technologically sophisticated, but technological progress is markedly uneven. This context gives rise to the question of whether trade-related services are being provided in a way which allows technologically sophisticated users to benefit at the expense of other users.

Where private markets do not deliver the 'right' level of information and advisory services due to externalities, or provide them in ways which create information asymmetries, there may be a rationale for governments to play a role in providing advisory and information services. However, public service providers are generally limited by their legislative frameworks, which can be slow to change and continuously trying to 'catch up' to the needs of market participants.

10.3.1 Trade processes continue to be provided differently by the states as a result of differing legislative, market architecture and system underpinnings

There continue to be differences in states' water rights frameworks, trade frameworks, trade processing systems and registers, despite major reforms and commitments to better facilitate efficient water markets. Previous attempts at harmonising processes, such as developing a single interstate trade form, have also encountered challenges due to the differences in terminology used across the states.

While the need for changes to improve approval and registry processes have long been recognised, there remains no overarching mandatory driver for this change due to the voluntary and high-level nature of commitments.

For example, there is no clear requirement that states revise terminology to be consistent, no requirement that trade forms must clearly identify trade type, and no clear compliance and monitoring role placed on state agencies to ensure price reporting by sellers is accurate. The ACCC does however note that the some states have been working together to improve price reporting by making changes to water allocation trading forms such as requiring sellers to disclose a reason for trade.

To better understand the cause and extent of these differences, the ACCC has undertaken a targeted review of Basin State water management law to examine provisions underpinning these frameworks (see appendix E).

Changes to state water management law were required to give effect to unbundling (see section 2.3.1). Each state however did this differently, and at different times. As a result of this, there are more than 150 classes of water entitlements in the Basin, and the specification of unbundled rights differs

substantially from state to state.⁶²⁷ This has created a situation where there continues to be differences in terminology between the states, differences in the rights of water entitlement holders and differences in fees and application processes when undertaking a dealing that changes their rights. The differences can give rise to stakeholder confusion about the nature of rights being traded. For example, Queensland legislation uses the term ‘Water Allocation’ to refer to a permanent or ongoing entitlement, while all other states (as well as the Commonwealth legislation) use this term to refer to the specific volume of water allocated against a water access entitlement in a particular period (per water year).

The consequence of these differences is that slightly different rights are afforded to individuals and the resulting trading processes also differ.

There remain gaps in what information Basin State and IIO trade approval authorities have authority to collect and verify

The ACCC has identified that data items such as product type and ‘strike date’ should be captured and then publicly reported by the registers (see section 11.3.4). The ACCC notes that Victoria and New South Wales have made progress in this area. This could be achieved within current frameworks, as legislation generally provides for trade forms to be changed over time (and the forms themselves sit outside legislation). However, past issues with price reporting demonstrate the challenges with simply just adding a new field to a form. It can take years to implement, require changes to information technology (IT) systems (to be able to store updated/new data), and the quality of the data may not be sufficient. Moreover, data quality cannot be guaranteed; for example, it could be incorrect due to human error, or may be intentionally false or misleading. This creates the need to verify data provided.

Data collection from market participants in the Basin States already has a legislative basis, where each state requires participants to lodge an approved form determined by the Minister or their delegate.⁶²⁸ Each state also has a legislative provision outlining that it is an offence to provide false and misleading information. These provisions together provide the legal basis for the applicant being required to properly complete and execute a form for a trade application to be processed. However, trade approval authorities generally lack the basis and authority to question what has been provided on the form, and to seek verification. Thus, the current situation is that government approval authorities have the authority to collect information, but face difficulties in verifying it.

Further, while the states do have this legislative basis available to them, IIOs do not. Any trading forms they create do not need to be completed by irrigators as per a legislative requirement. The approach in state legislation could be expanded to IIOs to provide them with the authority to collect information.

States have different processes for trade approval and registration that result in different trade forms and datasets

Despite having a legislative basis available to require trade forms to be fully completed by traders, there are still differences in the underlying states’ entitlement and trading frameworks causing these forms to differ across the states. These differences are summarised in table 10.6 below.

627 MDBA, *Water markets and trade*, 2019, <https://www.mdba.gov.au/managing-water/water-markets-and-trade>, viewed 6 May 2020.

628 *Landscape South Australia Act 2019*, s. 125(5)(a); *Water Act 1989* (Victoria), ss. 33AW, 48PA.

Table 10.6: Differences in water rights terminology and dealing types across the states

	Queensland	ACT	New South Wales	Victoria	South Australia
Water Access Entitlement	Water Allocation	Water Access Entitlement	Water Access Licence	Water Share	Water licence
Entitlement dealing types (includes water access entitlement trade and permanent trade of irrigation right)	Transfers, leases, subdivisions and amalgamations	Permanent or limited period transfer	Transfer, term transfer, conversions, subdivision and consolidation, assignment of rights under access licence Within IIOs, irrigation rights and delivery rights trade	Transfers of ownership, limited term transfers, standing directions, divisions and consolidations	Transfers of whole licence (absolute or limited time), transfer of entitlement, surrender and variation Within IIOs, irrigation rights and delivery rights trade.
Temporary trade types (includes water allocation trade and temporary trade of irrigation right)	Seasonal water assignment	-	Water allocation assignment Within IIOs, irrigation rights and delivery rights trade	Assignment of water allocation	Allocation transfers Within IIOs, irrigation rights and delivery rights trade
Who is considered an applicant for allocation trade?	Seller only	-	Buyer and seller	Seller only	Seller only
Secondary market products	No mention in Act	No mention in Act	No mention in Act	No mention in Act	No mention in Act

Source: ACCC analysis.

The key findings from the comparative analysis of states' trading frameworks (see appendix E for further details) are:

- The number and types of 'dealings' for tradeable water rights varies substantially across states, and is rarely referred to in the same terms.
- Trades can take effect differently⁶²⁹, which varies the risk taken on by parties (for instance, until recently in South Australia, permanent trades took effect as soon as approved – now applicants can choose whether the trade takes effect on approval or when registered on the Water Register).
- Trade assessment processes are also different, and while most require assessment of trading rules and available account balance, some include additional considerations (such as public interest in South Australia). There are various different trade approval authorities and structures.
- Trade assessment frameworks and trading rules can be spread across legislation, regulations, orders, and plans or protocols specific to particular water management areas, making it difficult for traders to fully grasp all the requirements of trade processes, and to understand how processes differ across geographic areas and according to the rights traded. Victoria makes trading rules available in one place.
- Trade administrative processes also differ; sometimes as a result of the underlying framework. For example, because both buyer and seller are considered applicants in the New South Wales legislation, the signatures of both parties are required for allocation trade.
- Trade registration is often performed by a separate entity to trade approval. For example, in Victoria the trade approval role for water share transfers is delegated to the Water Corporations, while the registration on the Victorian Water Register is the responsibility of the Registrar.⁶³⁰

629 National Water Commission, *Compatibility of Water Registers Report*, 2005, p. 15.

630 *Water Act 1989* (Vic), s. 84C(2A).

- Water products such as forwards and options are given effect by trade approval authorities via the same process as a standard water allocation trade. While the states are free to add an additional field to the approved form asking for reason for trade, there is no legislative driver to collect this information as the trade is processed under the same administrative and legal framework.

10.3.2 Trade services are failing to keep up with market innovations

As water markets have evolved, participants have developed new water products and services under existing water access entitlement frameworks, that help irrigators better manage their water and risk.

Key examples are:

- Aggregation services to move water through IVTs: As discussed in section 8.10.1, brokers provide aggregation services for clients to help them move and trade water through IVTs and also into and out of IIO networks.⁶³¹ The transfers required to enable this service is not appropriately captured in Basin State trade forms, even with the recent reason for trade reforms (see section 11.2.2). These trades are usually lodged and recorded as a zero dollar trade.
- New products: Carryover parking, forwards, contractual leases, options.⁶³²

Trade services that process, approve and record these trade types have not kept pace with these innovations. While Basin State trade approval authorities have started to capture information regarding the type of water product traded, this only applies to some of these products; as of February 2021, reforms to capture 'trade type' are limited to 'traditional' spot market trades, contractual leases, forwards and carryover parking, and only New South Wales has to date started making this data publicly available. This means that it will likely be some time before market participants have access to good quality data on different type of trades – with even longer lags for new products or services for which information is not yet captured – making price discovery difficult. This lack of information about newer products and services also likely impedes their uptake.

10.3.3 Much of the digital infrastructure supporting trade services is inadequate and needs investment

Basin States' diverse technological capabilities slow interstate trade and limit opportunities for timely and centralised publication of information

Interstate entitlement trading and allocation trading in the Southern Connected Basin is governed by Schedule D of the Murray–Darling Basin Agreement and its accompanying protocols. The Murray–Darling Basin Agreement (Schedule D – Processing Interstate Transfers of Water Allocations) Protocol 2010⁶³³ outlines a five step process which the states have agreed the approval authorities will follow in processing interstate allocation trades in the Southern Connected Basin.

At the first step, the protocol requires that forms be submitted to the destination state and to the origin state. To facilitate this, the states have developed an interoperability⁶³⁴ protocol, which sets up File Transfer Protocols (FTP) to update each other on the assessment status of interstate trade applications. Victoria has submitted that it is supportive of improving automation of interstate interoperability.⁶³⁵ However, Basin States will need to improve the consistency of their currently diverse trade approval systems (table 10.7) to achieve this while ensuring all market participants benefit regardless of where their water rights are held.

631 Some IIOs also provide aggregation services for their customers when trading into and out of the IIO's network.

632 As discussed in section 9.12.2 in chapter 9, bona fide options have not yet been developed for Basin water markets; the options that are currently traded are physically-settled only.

633 *Murray–Darling Basin Agreement (Schedule D – Processing Interstate Transfers of Water Allocations) Protocol 2010*. Available at: <https://www.legislation.gov.au/Details/F2010L02473>.

634 This term is used by the Southern Connected Basin States to describe their file sharing arrangement for supporting interstate trade.

635 Victorian Government, *Submission to the Murray–Darling Basin water inquiry interim report*, 13 November 2020, p. 2.

Table 10.7: Basin State trade approval authorities' technological capabilities

Basin State	Features and issues
<p>Victoria</p> <p>Highly digitised and automated, high interoperability with MDBA and some other Victorian systems.</p>	<ul style="list-style-type: none"> ▪ All information received on paper-based or online application forms is stored digitally.⁶³⁶ ▪ Digitised trading rules allow for automated intrastate trade approvals, with only paper-based applications received by the Water Corporations requiring manual assessments – or online lodged application which meet a certain exception that requires manual intervention. ▪ Recent reason for trade reforms capture trade transfer type and only allow zero dollar trades to be processed under limited circumstances.⁶³⁶ ▪ Trades undertaken by environmental water holders are tracked through accounts. ▪ Communicates with the MDBA automatically through an API interface for trade through the Barmah Choke. ▪ Communicates with New South Wales and South Australia through a file sharing arrangement for interstate trades. ▪ Has two-way information flows with Victorian water corporations' systems, which have their own systems to manage billing and other information (such as meter reads). ▪ Also communicates with interfaces for land parcel and bore information. ▪ Water share trades are not digitally supported, and require separate lodgement with the relevant water corporation for approval and then lodgement with the Registrar for registration.
<p>New South Wales (WaterNSW)</p> <p>Partially digitised with no automation, no interoperability with MDBA.</p>	<ul style="list-style-type: none"> ▪ Trades are manually input by WaterNSW staff using information provided on trade forms. ▪ Trade restrictions and system rules have been added into the Water Accounting System to prevent trades being processed where a rule would be breached. ▪ WaterNSW staff manually check water access licence details to determine application of the Variable Usage Charge⁶³⁷, and can manually apply the applicable trading rules and assessment framework. Application outcomes are provided manually with the aid of templates. ▪ Recent reason for trade reforms capture trade transfer type, including environmental water, and only allow zero dollar trades to be processed under limited circumstances.⁶³⁸ ▪ Communicates with the MDBA through an online portal for trade through the Barmah Choke. Trade details must be manually entered into the portal. ▪ Communicates with South Australia and Victoria through a file sharing arrangement for interstate trades. ▪ Trade, water use and other information is shared with Qld as needed to facilitate and manage trade under the New South Wales – Queensland Border Rivers Intergovernmental Agreement 2008. ▪ Trade participants must separately lodge registration forms with NSW Land Registry Services (NSW LRS) following receipt of WaterNSW approval for entitlement trade, and records on NSW LRS register may not distinguish when entitlements are sold wet or dry, impacting the quality of pricing data.

636 Department of Environment, Land, Water and Planning (Victoria), *Increasing transparency of allocation trading*, 2020, <https://waterregister.vic.gov.au/images/documents/Reason-for-trade-fact-sheet.pdf>, viewed 29 January 2021.

637 This charge is applied to all allocation trades where the destination water access licence does not hold a New South Wales works approval, and so also applies to non-water users such as investors and certain categories of water users such as environmental water holders.

638 WaterNSW, *Application to Assign Surface Water Allocation*, 2020, <https://iwas.waternsw.com.au/InteropFormPDF/InteropPDFServlet?formName=surface>, viewed 29 January 2021.

Basin State	Features and issues
South Australia Current system is partially digitised with no automation and no interoperability. Future system will be highly digitised, with automation.	<ul style="list-style-type: none"> ▪ Trades are manually input by DEW staff using information provided on trade forms. ▪ DEW staff manually check water volumes on licence, and apply the applicable trading rules and assessment framework, and the application outcome is then decided offline before being entered into the system. Applicants are advised of the outcome of their application by letter. ▪ Trade form currently requires a reason to be supplied for zero dollar trades only, but will be reviewed following its system upgrade.⁶³⁹ ▪ Communicates with New South Wales and Victoria through a file sharing arrangement for interstate trades. ▪ Electronic records of relevant licences, authorisations and permits for water trade and water use are also digitally stored in the system, along with meter readings and the billing engine. ▪ Future upgrade to the Water Management Solutions (WMS) will enable online lodgement and access to a Customer Portal. Interstate trade processing will continue to be undertaken using the existing file sharing arrangement. ▪ The new customer portal will also allow customers to consolidate multiple licensing instruments.
Queensland (Sunwater) Limited digitisation with no automation or interoperability. Trade forms are retained for record-keeping purposes.	<ul style="list-style-type: none"> ▪ Application forms and supporting documents are stored in a document management system. ▪ Where incomplete trade forms with minor omissions are submitted, Sunwater staff may assist trading parties by requesting and accepting omitted information required to complete forms. ▪ Trades can be submitted in paper form, electronically and through the Waterexchange platform. ▪ Trades are assessed manually. ▪ Trade participants must separately lodge registration for permanent trades after approval from Sunwater is sought (if required). ▪ Limited digitalisation to fulfil reporting requirements (such as to the Bureau of Meteorology). ▪ There is no information sharing requirement between Sunwater and DNMRE or Queensland's Titles Office.
Queensland (DRDMW) Partially digitised with no automation and no interoperability.	<ul style="list-style-type: none"> ▪ Trades are manually input by DRDMW staff using information provided on trade forms. ▪ DRDMW staff manually check availability of water to trade. Applicants are advised of the outcome of their application by letter. ▪ Trade form currently requires a reason to be selected for non-environmental zero dollar trades. ▪ Information is held digitally in DRDMW's water accounting system and the Queensland Titles Office. Data can be extracted from each system and shared for internal and external reporting purposes. ▪ Trade participants must separately lodge registration for permanent trades after approval from DRDMW is sought (if required). ▪ Trade, water use and other information is shared with New South Wales as needed to facilitate and manage trade under the New South Wales – Queensland Border Rivers Intergovernmental Agreement 2008. ▪ No automated communication between each of the systems involved in temporary and permanent trade.^b ▪ DRDMW is currently investigating technology and digital solutions to improve access to water information.

Notes: (a) Victorian water corporations can receive trade application forms in person, where the information received is manually input and digitally stored in the Victorian Water Register. Technical information received as part of take and use licence transfers is stored in water corporations' own systems.
(b) There is no information sharing requirement between the DRDMW's water accounting system and service providers' systems.

639 Department for Environment and Water (SA), *Submission to the Murray–Darling Basin water inquiry interim report*, 13 November 2020, p. 2.

Most IIO systems and data focus on members' account balances

IIOs vary greatly in regard to the number of members or customers they have, as well as their technological systems, infrastructure and processes. Some IIOs' finance, water management and water trading systems are highly interoperable, but many IIOs use specialist software only for water management and finance, and manage trade through Microsoft Excel spreadsheets. Some IIOs continue to rely on paper-based systems for trade. This should not be taken to imply that any IIO's IT system is not fit-for-purpose for water management within its network. However, in the context of enabling more seamless data transfers and more consistent data quality across different entities, this assessment seeks to evaluate the likely level of change that could be needed to improve whole-of-basin information transparency.⁶⁴⁰

Based on information voluntarily supplied by IIOs to the inquiry, the ACCC considers each IIO's technological solution for how they record Irrigation Rights and Water Delivery Rights, and their trade is broadly correlated with the number of trades they approve. IIOs with more trading activity may have invested in technology to reduce the administrative burden of processing trades manually and/or encourage trade. For example, investments in interoperable systems can also facilitate shorter irrigation right trade approval times (see figure D.12 in appendix D).

Based on the data IIOs' were able to produce from their systems⁶⁴¹, some IIOs' current IT systems seem to limit IIOs' ability to produce trading datasets suitable for sharing more broadly for informational or analytical purposes.

The four largest NSW and SA IIOs (Murray, Murrumbidgee, Coleambally and Central Irrigation Trust) are already required to supply BOM with trading data, and they and others also provide data to the ACCC to perform its water monitoring function. The IIOs have been fulfilling these requirements and have systems set up to provide this data.⁶⁴² The IIOs providing data to BOM are likely best placed to produce high-quality trading data suitable for broader use given the technology investments they have already made, and may only need to make small changes to how they administer and manage trades to improve the quality of the data.

For example, price and the date a trading application is received are not recorded for most IIO trades (see table G.4 in appendix G) despite other transaction information already being recorded such as the date the trade was approved, trade volumes and customer identifiers.

640 Refer to the recommendations in chapter 12 which explore ways that existing arrangements could be leveraged to improve whole-of-basin information transparency.

641 The assessment of the data produced from these systems is limited to what was provided to the inquiry within limited timeframes, and may not fully reflect the complete reporting capabilities of these systems.

642 Bureau of Meteorology, *Persons and Classes of Persons*, 2019, http://www.bom.gov.au/water/regulations/schedules/document/Persons_and_Classes_of_Persons.pdf, viewed 8 February 2021.

The fragmented approval process contributes to a range of issues:

- Trade processing can be slow as multiple trade forms must be lodged, each with different informational requirements and methods of lodgement.
- Transparency is reduced as extended processing times limit the provision of timely information to the market, and increase the information asymmetry that favours the exchanges and brokers involved in the trade.
- Transparency is reduced for regulators and trade approval authorities due to the fragmented information systems. In the example, only the exchange platform, and perhaps the IIO depending on the IIO's trade records system and whether a broker water account is used to transfer water into, will hold information on who the buyer and seller are. The New South Wales approval authority will only see a trade from the IIO to an unnamed Victorian buyer while the Victorian approval authority will only see a trade from an unnamed New South Wales seller to the private diverter.

Interoperability for interstate trade in the Southern Connected Basin should be broadened to achieve greater benefits

The ACCC considers that the arrangements in the Southern Connected Basin to share information between the relevant state trade approval authorities for interstate trade are working as intended, along with arrangements to transfer information on interstate intervalley trades, or trades through the Barmah Choke between Victoria and the Murray-Darling Basin Authority (MDBA). However, these information sharing arrangements only apply to a small proportion of trades and are only a small component of the trading experience.

For example, while the interstate trade interoperability protocol facilitates information sharing between trade approval authorities in the Southern Connected Basin, traders are still required to submit applications in both states, and separately pay fees in each state. Intrastate traders only need to submit one form and pay fees once. Further, the information shared only facilitates the approval (or rejection) of a trade and the Basin State trade approval authorities and registers will have incomplete records of interstate buyer or seller names and may have inconsistent records on price and trade types (where this information is recorded in the register).

As discussed in the previous section, these incomplete records make it more difficult for regulators to have a complete picture of trade in the Basin.

Poor information flows contribute to data quality issues

Basin State and IIO trade approval functions have evolved into a complex mix of multiple paper-based and electronic systems that have resulted in poor quality whole-of-market data. Information captured and stored by some entities needs to be entered manually into another entity's information capture and storage system. Such poor data practices risk the introduction of errors each time the information is manually entered, and the accuracy of supplied data becomes increasingly difficult to assess and verify as it becomes increasingly disconnected from its point of generation.

The current trading environment involves Basin States approval authorities, IIOs and intermediaries with very few automated data flows. Manual data entry can introduce referential integrity issues through typographical errors or where the wrong reference key is entered for a trade across multiple trade approval authorities, such as for interstate trades. Inconsistencies can also occur where data needs to be translated for different environments, such as where South Australia uses kilolitre (kL) volumes on its trade forms while New South Wales and Victoria use megalitres (ML).

The ACCC considers improved information flows between entities, and only requiring information to be entered once will greatly improve the quality of data generated and used for processing trade. The current mix of automated and manual information flows also contributes to inconsistent processing times and trade administration costs, and limits access to timely information (see section D.2.7 of appendix D).

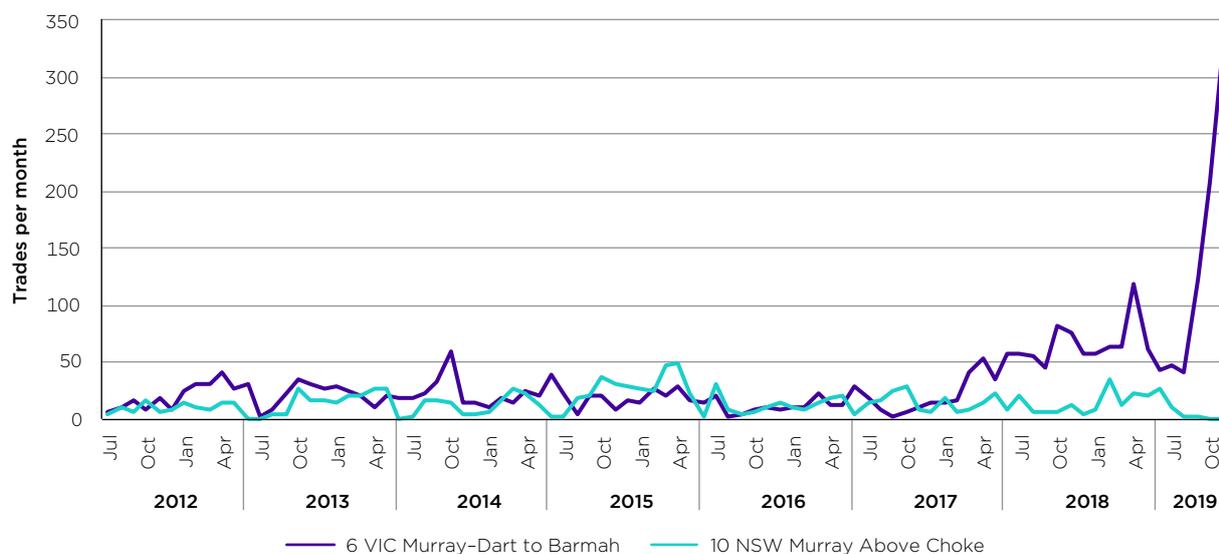
Mechanisms for access to trading opportunities differ between states, creating an uneven playing field

The diverging technological capabilities of Basin State trade approval authorities can also introduce asymmetries in the market where some traders may have better access to trading opportunities over others. One example of this is trade through the Barmah Choke between zones 6 and 10 (VIC Murray – Dart to Barmah and NSW Murray Above Choke) and zones 7 and 11 (VIC Murray – Barmah to SA and NSW Murray Below Choke), where a trade restriction is in place to protect water delivery to existing entitlement holders and for environmental reasons (section 14.1.2).

While the trading rules for the Barmah Choke are the same regardless of whether trade occurs from the New South Wales or Victorian trading zones upstream of the choke (see section 3.2.1), there is technological difference that appears to be giving Victorian water rights holders an advantage when there is the opportunity to trade. Since mid-2018, holders of Victorian water rights have been more successful in applying for trade through the Barmah Choke than those that hold New South Wales water rights (figure 10.4 and figure D.21 in appendix D).

This advantage rises from differences in how the two trade approval authorities seek advice from the MDBA on whether to approve (or refuse) a trade.⁶⁴³ Interstate trade between Victoria and New South Wales requires approval from both states and so the same process is applied to all trade applications. However, the MDBA co-developed an API with Victoria to automate the provision of advice on trade through the Barmah Choke⁶⁴⁴ that only Victoria’s automated trade services can support. The ACCC considers the co-develop of this automated approval process has given Victorian water rights holders this competitive advantage.

Figure 10.4: Number of approved trades through the Barmah Choke for holders of upstream water rights in Victoria (zone 6) and NSW (zone 10) from July 2012 to November 2019



Source: ACCC analysis based on NSW and Victorian governments’ response to voluntary information requests.

Notes: Includes zero dollar trades.

643 Murray-Darling Basin Agreement (Schedule D – Permissible Transfers between Trading Zones) Protocol 2010 (Cth), ss. 8, 10.

644 Datacom, 2018, *Serverless water trading – Murray Darling Basin Authority Barmah Choke API*, <https://www.datacomgroup.net/Case-Studies/Software/Murray-Darling-Basin-Authority-Barmah-Choke-API.aspx>, viewed 8 December 2020.

10.4 Transaction costs of allocation trade are low in general, but could be reduced

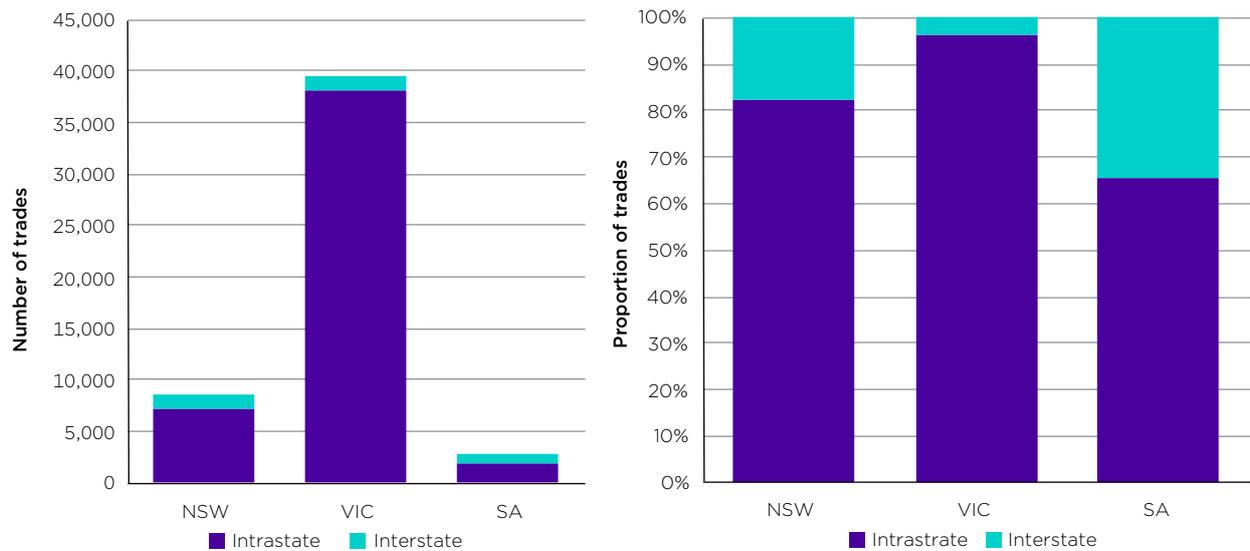
10.4.1 Market participants prefer to trade intrastate rather than interstate

Each of the Basin States in the Southern Connected Basin has a very different makeup of intrastate, interstate and total allocation trades. Figure 10.5 shows that during 1 July 2017 to 30 November 2019:

- Victorian water trade buyers undertook almost 40,000 allocation trades, where 96 per cent were for water sourced intrastate.
- New South Wales buyers executed almost 9,000 trades, less than a quarter of Victoria's total number of trades, but only 83 per cent of trades were for water sourced intrastate.⁶⁴⁵
- South Australian buyers had the smallest number of trades and the smallest proportion of trades where water was sourced intrastate (65 per cent).⁶⁴⁶

These trading volumes also show Victoria is able to cost-recover from a significantly greater number of trades than New South Wales and South Australia.⁶⁴⁷ South Australia also has a labour-intensive trade processing system that, when combined with its lower number of trades, contributes to trade application fees almost six times those in Victoria and New South Wales (see section C.1 in appendix C).

Figure 10.5: Number (left) and relative proportion (right) of intrastate and interstate trades for buyers from 1 July 2017 to 30 November 2019



Source: ACCC analysis based on NSW, Victorian and SA governments' responses to voluntary information requests.

Notes: Includes zero dollar trades. Data has been updated since the interim report.

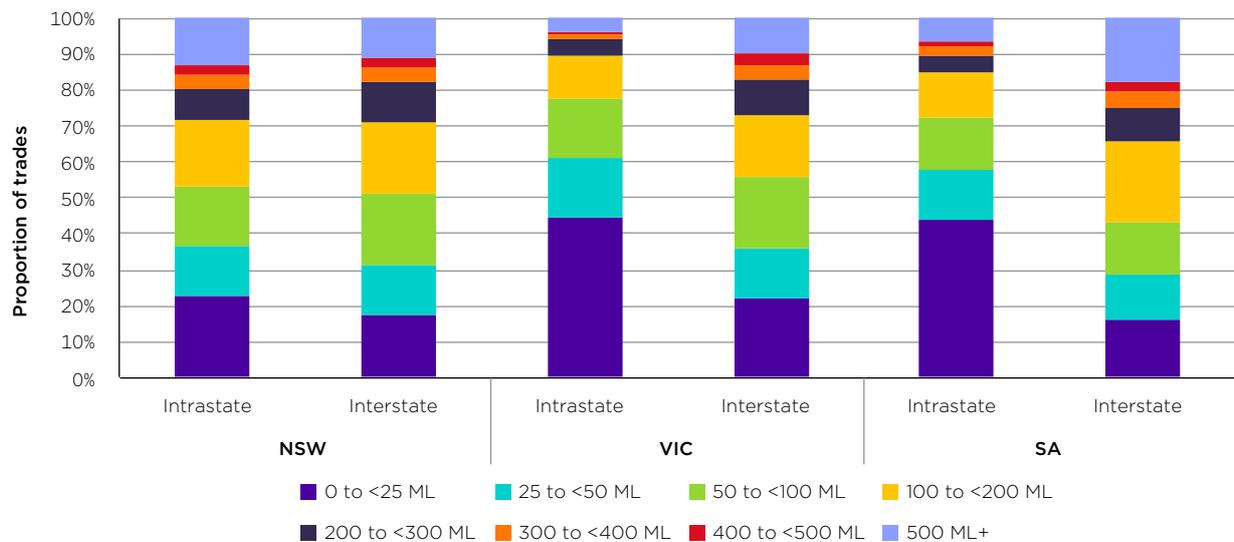
Interstate trade is characterised by larger volume trades than for intrastate trades (figure 10.6). This may be due to a combination of transaction costs such as higher trade approval fees, longer processing times, intervalley transfer limits and difficulties finding interstate trading partners. These in combination likely make small volume interstate trades uneconomic.

⁶⁴⁵ However, there were over 22,000 temporary trades within Coleambally, Murrumbidgee, Murray, West Corugan and Western Murray from 1 July 2017 to 30 November 2019, which increases the proportion of trades for water sourced from intrastate to 95%. Source: ACCC analysis based on IIOs' responses to voluntary information requests and s. 95ZK notices.

⁶⁴⁶ Trade within IIOs is also a significant proportion of trading activity within South Australia, where there were over 6,000 temporary trades within Central Irrigation Trust and Renmark from 1 July 2017 to 30 November 2019. This increases the proportion of trades for water sourced from intrastate to 89%. Source: ACCC analysis based on IIOs' responses to voluntary information requests.

⁶⁴⁷ This observation is maintained even when trades within IIOs are included.

Figure 10.6: Relative proportion of intrastate and interstate trades by water volume per trade for buyers from 1 July 2017 to 30 November 2019



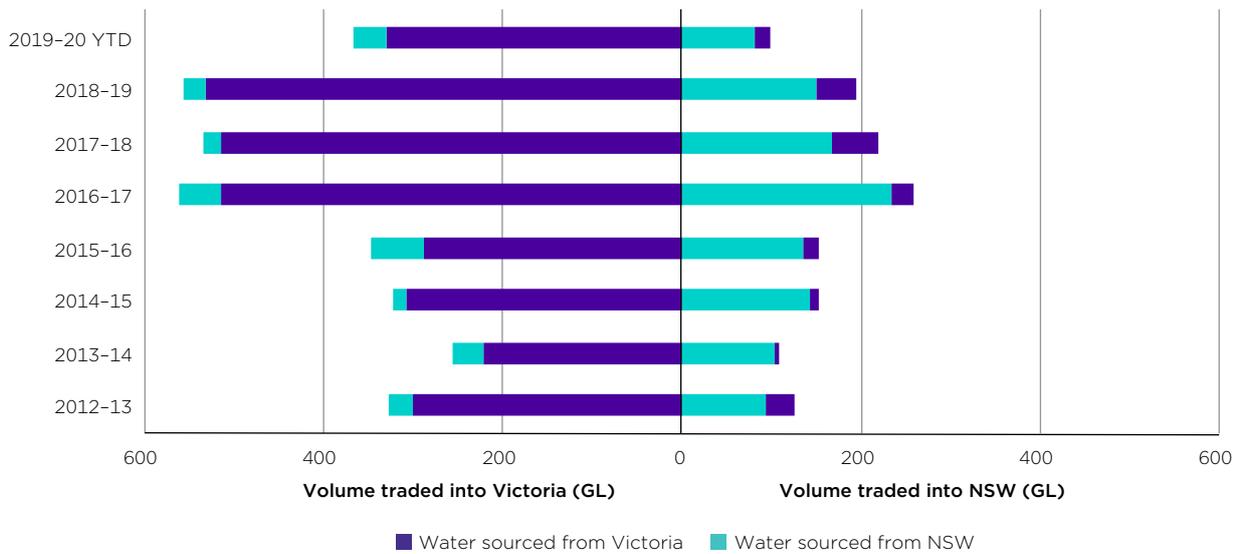
Source: ACCC analysis based on NSW, Victorian and SA governments' responses to voluntary information requests.
 Notes: Includes zero dollar trades. Data has been updated since the interim report.

Trade between the New South Wales Murray and Victorian Murray trading zones below the Barmah Choke (zones 7 and 11) is not limited by any physical capacity constraints. The only barriers that exist between these two trading zones are the New South Wales to Victoria spill-risk trade limit⁶⁴⁸ and the interstate trading process.

Using these zones as an example, figure 10.7 shows buyers prefer intrastate trading rather than interstate trading, with significantly more trading occurring in Victoria than New South Wales. The preference for intrastate trading over interstate trading could be due to the greater trade approval fees incurred for interstate trading, the longer approval times or costs associated with finding trading partners. This clearly shows that state borders present a barrier to trading that reduces competitive neutrality of hydrologically indistinguishable water sources and contributes to the fragmentation of water markets.

648 Figure 3.17 in chapter 3 shows the New South Wales to Victoria spill-risk trade limit has generally not been binding in recent years.

Figure 10.7: Allocation trade in the New South Wales and Victorian Murray trading zones below the Barmah Choke, by source and year



Source: ACCC analysis based on NSW and Victorian governments’ responses to voluntary information requests.
 Notes: Includes zero dollar trades. 2019-20YTD = 2019-20 year to 30 November 2019. Data has been updated since the interim report.

10.4.2 The structure of IIOs’ trading fees encourage more localised trading

Trades within, into and out of IIOs follow a similar pattern to the Basin States, with most irrigators in IIOs showing a preference for internal trades (figure 10.8).

Figure 10.8: Relative proportion of trades within, into and out of IIOs for buyers in IIO networks from 1 July 2016 to 30 November 2019

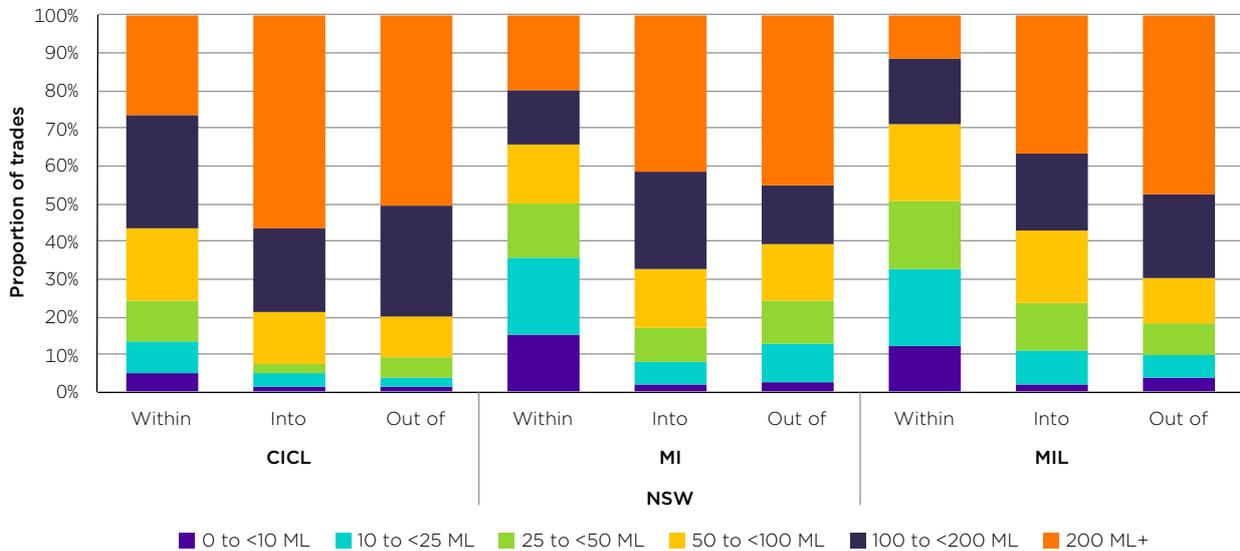


Source: ACCC analysis based on IIOs’ responses to voluntary information requests and s. 95Zk responses.
 Notes: Includes zero dollar trades.

As outlined in section C.2 (in appendix C), some IIOs charge less for internal temporary irrigation right trades (trades within the IIO’s network) than the fees for intrastate allocation trade. However, external temporary trades (into and out of IIOs’ networks) attract higher fees and also incur Basin State trade approval fees. These greater monetary costs as well as the need to submit multiple trade forms can suppress the number of trades into and out of IIO networks and encourage larger volume transactions.

Figure 10.9 shows the impact of this for trade within, into and out of the CIT, MI and MIL networks although it is observed across all the IIOs analysed (see figure D.8 in appendix D).

Figure 10.9: Relative proportion of trades by water volume per trade within, into and out of the Coleambally, Murrumbidgee and Murray IIO networks from 1 July 2016 to 30 November 2019



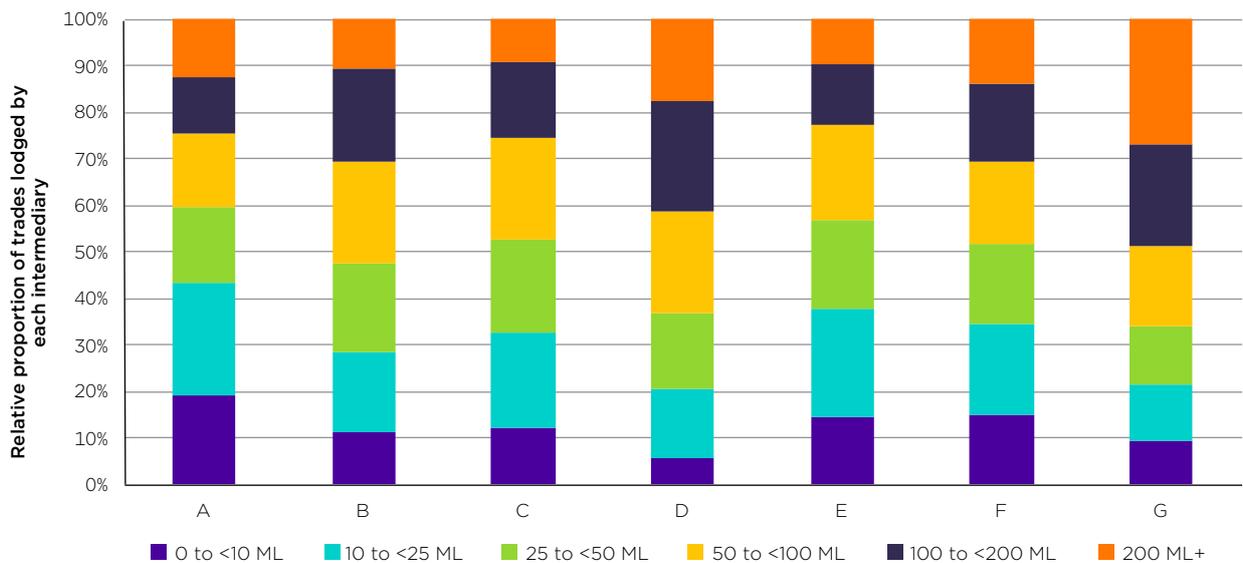
Source: ACCC analysis based on IIOs' responses to voluntary information requests.

Notes: Includes zero dollar trades.

10.4.3 Volumes traded via intermediaries suggest the costs of intermediary services are relatively low

Figure 10.10 shows the distribution of water volumes traded through brokers and exchange platforms in Victoria are closer to the water volumes traded within IIOs than those traded into or out of IIO networks. This suggests the transaction costs incurred for intermediaries services are low, and are not impeding the trade of small volumes where Basin State trade approval fees are low.

Figure 10.10: Relative proportion of trades lodged by intermediaries by water volume per trade in Victoria from 1 July 2012 to 30 November 2019



Source: ACCC analysis based on Victorian Government response to voluntary information request.

Notes: Includes zero dollar trades. Letters A through G represent different intermediaries.

10.4.4 The costs of trading differ and increase complexity of decision making for market participants

Transaction costs can differ in water trading within the Basin for various reasons, primarily driven by the various products and markets which exist. For example, the cost of trading water within a zone to a known buyer (neighbour to neighbour) or a trade within an IIO in New South Wales or South Australia (perhaps facilitated by the IIO by 'pooling' or aggregating small volumes), differs substantially to the transaction costs associated with trading water between zones (particularly when there are trade restrictions).

The case study below outlines the transaction costs associated with a trade between a hypothetical irrigator location within an IIO in New South Wales (Murray Irrigation) and an interstate buyer in Victoria (serviced by Goulburn-Murray Water), and also considers how the transaction costs vary with only small changes to the scenario.

Box 10.2: Case study

Transaction costs for a temporary trade within an IIO network to an interstate buyer

Assume a seller and buyer have engaged brokers that are both registered users of Waterexchange. Fees for using the exchange are absorbed by the brokers.

1. The seller's broker charges 2 per cent of the value of the trade for its services while the buyer's broker charges \$2 per ML with a \$75 minimum.⁶⁴⁹
2. The brokers have negotiated for the buyer to be responsible for all IIO and Basin State trade approval authority fees.
 - a. Murray Irrigation's \$85 charge for a temporary trade with an external trader is charged to the seller's Murray Irrigation account but this charge is ultimately passed through to the buyer.
 - b. Waterexchange is charged \$49.94 for lodging a trade approval form with WaterNSW (where New South Wales is the origin state) and \$47.50 for submitting the trade to the Victorian Water Register for approval (Victoria is the destination state). WaterNSW also charges Murray Irrigation the \$390 variable usage charge for interstate allocation trade (\$1.95/ML for the Murray). These costs are also passed through to the buyer.
3. For a 200ML trade at \$600/ML (that is, a trade value of \$120,000):
 - a. The seller is charged \$2,400 in brokerage fees and receives \$117,600 for the trade. Monetary transaction costs are 2 per cent of the trade value.
 - b. The buyer is charged \$400 in brokerage fees and \$572.44 in trade authority approval fees (total fees of \$972.44) and pays \$120,972.44 for the trade. Monetary transaction costs are 0.8 per cent of the trade value.
4. An interstate trade can take WaterNSW and the Victorian Water Register up to 10 business days to process. As Waterexchange is responsible for the lodgement of both trade forms the approvals could occur concurrently.

Table 10.8 summarises the brokerage fees and the trade authority fees (trade approval fee and variable usage charge) for this scenario, and also shows how the transaction costs can vary with broker selection and the locations of the trading zones.

⁶⁴⁹ Refer to section C.3 in appendix C for an overview of broker and exchange trading fees.

Table 10.8: Summary of transaction costs

Scenario	Seller's costs		Buyer's costs		
	Brokerage (\$)	Total fees as % of trade value	Brokerage (\$)	Trade authority fees (\$)	Total fees as % of trade value
Base case (NSW to Victoria)	2,400	2.0	400	572.44	0.8
Buyer and seller swap brokers	400	0.3	2,400	572.44	2.0
Destination zone in SA ^a (NSW to SA)	2,400	2.0	400	783.94	1.0
Origin zone in Victoria ^b (Victoria to Victoria)	2,400	2.0	400	47.50	0.4
Trade is for a smaller trade volume of 50ML	250	2.0	75	321.94	3.4

Notes: (a) If the buyer was in South Australia, the transaction may have taken twice as long to process (20 business days).
(b) If the seller was in Victoria, the transaction may have taken up to five days to process (as an intrastate trade), halving the trade approval time.

10.4.5 Individuals' experiences of trade approval process can vary significantly

Trade approval authority fees vary significantly between states, and market participants would prefer a more consistent approach across states.⁶⁵⁰ However, trade approval authority fees are set on a basis of cost recovery under the National Water Initiative.⁶⁵¹ The variation in fees highlights the fragmented nature of water resources management in the Murray–Darling Basin, where each state has developed its own trading rules and systems (as discussed in appendix E) and some provide trade approval and registry services more efficiently than others.

The number of water trades in each state also varies, which affects trade approval fees as some states are able to recover costs from a significantly greater number of trades than others (see section 10.4.1). For example, in addition to fixed trade approval fees, New South Wales also applies a variable usage charge on interstate allocations. While Marsden Jacob Associates previously found this charge decreases the value of New South Wales water sold to traders in Victoria and South Australia⁶⁵², a more recent study suggested the variable usage charge was not material in decision-making⁶⁵³ and did not impact efficient trade.⁶⁵⁴ Instead, intervalley transfer constraints were considered to have a larger influence on the water market in particular trading zones.⁶⁵⁵

While entitlement trading times have become more consistent across the Basin States, trading times for allocation trades continue to differ due to the innovations implemented by some trade approval authorities while others continue to rely on paper-based processing.⁶⁵⁶ Victorian investment in telemetry and automation⁶⁵⁷ mean intrastate allocation trades in Victoria can be submitted online for near-instantaneous approval. Conversely, the paper-based allocation trade process and quarterly meter

650 Australian Water Brokers Association, *Submission to the Murray–Darling Basin water inquiry issues paper*, 30 January 2020, pp. 3, 22; Ricegrowers' Association of Australia, *Submission to the Murray–Darling Basin water inquiry issues paper*, 30 January 2020, p. 10; WEX Water Pty Ltd, *Submission to the Murray–Darling Basin water inquiry issues paper*, 13 February 2020, p. 5.

651 Council of Australian Governments, *Intergovernmental Agreement on a National Water Initiative*, 2004, paragraphs 64 and 67(i).

652 Marden Jacob Associates, 'The impact of infrastructure charge structures on water trade in the Murray–Darling Basin', *Report prepared for Australian Competition and Consumer Commission*, 2015, p. 15.

653 Aither, 'Review of water trading: The impact of IPART's regulatory framework on water trading markets', *A final report prepared for IPART*, 2018, p. 30.

654 IPART, *Submission to the Murray–Darling Basin water inquiry issues paper*, 30 January 2020, p. 2.

655 Aither, op. cit., p. 28.

656 SunRice, *Submission to the Murray–Darling Basin water inquiry issues paper*, 13 February 2020, p. 13.

657 Victorian Government, *Submission to the Murray–Darling Basin water inquiry issues paper*, 13 February 2020, p. 5.

reads⁶⁵⁸ contribute to extended trade approval processing times of up to 10 business days in South Australia.⁶⁵⁹

Water traders within irrigation districts in New South Wales and South Australia are also impacted by additional trading rules and charges set by IIOs. There is also a view that IIOs negatively impact water markets due to delays processing the transfers of water entitlements and water allocations.⁶⁶⁰ However, the ACCC found IIOs' processing of temporary irrigation right trades was highly variable. While few IIOs were able to include the date a trade application was received in the data provided to the ACCC, trade approval times for those that were able to ranged from same-day approvals of sell offers on an IIO's exchange platform to another IIO approving at least 90 per cent of approved trades within 14.5 business days (see section D.2.2 in appendix D). The ACCC recognises that IIOs are not required to meet any service standards for processing trades.

While transaction costs for water allocation trades from irrigation districts decreased from 2009–10 to 2016–17 due to reductions in both Basin State agencies' and IIOs' water trade fees, decreased transaction costs were not observed for water entitlement trades, likely due to the complex nature of entitlement transfer assessments⁶⁶¹ such as when there are changes to the water source or water management area associated with the entitlement.⁶⁶² However there is also an incentive for an IIO to charge high fees for permanent trade out of their network to recover costs invested by the IIO in maintaining its irrigation infrastructure without greatly impacting the costs recovered from other irrigators who remain on the IIO's network.

10.5 Stakeholder feedback on trade processes and transaction costs

Stakeholders were generally supportive of the options presented in the interim report to improve the consistency of trade processes and reduce transaction costs across the Basin State trade approval authorities.⁶⁶³

Submissions from the South Australian and Queensland departments responsible for trade processing pointed to some of the changes already underway. The Department for Environment and Water (SA) pointed to its current work of reforming its ageing water licensing systems with automation, which they expect will improve intrastate and interstate water trade processing and reduce transaction costs.⁶⁶⁴ The then Department of Natural Resources, Mines and Energy (Qld)⁶⁶⁵ outlined the steps it had taken to support better water utilisation via water markets including establishing market information hotlines and protocols for releasing unallocated water, and is working on the digitisation of trade rules and automation of processes to reduce transaction costs.⁶⁶⁶

While some stakeholders acknowledged recent improvements to Basin State trade approval authorities' information capture processes, such as the 'reason for trade' reforms⁶⁶⁷, others noted that there

658 Department for Water and Environment (SA), *Metering Improvement Plan*, 2019, p. 17; Victorian Government, *Submission to the Murray-Darling Basin water inquiry issues paper*, 13 February 2020, p. 5.

659 Australian Water Brokers Association, *Submission to the Murray-Darling Basin water inquiry issues paper*, 30 January 2020, p. 3; WEX Water Pty Ltd, *Submission to the Murray-Darling Basin water inquiry issues paper*, 13 February 2020, p. 5.

660 Riparian Capital Partners, *Submission to the Murray-Darling Basin water inquiry issues paper*, 30 January 2020, p. 10.

661 Loch, Wheeler and Settre, op. cit., p. 571.

662 Allen Consulting Group, op. cit., p. 23.

663 Coleambally Irrigation Co-operative Limited, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 11; National Farmers Federation, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 15; New South Wales Government, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 2.

664 Department for Environment and Water (SA), *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 2.

665 Since 12 November 2020, the Department of Regional Development, Manufacturing and Water has had responsibility for water in Queensland.

666 Department of Natural Resources, Mines and Energy (Queensland), *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, pp. 2–3.

667 Coleambally Irrigation Co-operative Limited, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 11; H2OX, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 6; Lachlan Valley Water Inc, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 2.

continues to be significant variation across the Basin.⁶⁶⁸ Consequently, there was strong support for the harmonisation of trade approval application forms⁶⁶⁹, processing timelines⁶⁷⁰ and fees⁶⁷¹. Select Harvest also pointed to the range of costs that affect their trading decisions, such as the variable usage charge for interstate trade out of New South Wales, water authority and broker administration fees, trade approval and storage fees, and commissions.⁶⁷²

There was also support for implementing technological solutions to improve trade approval processes. Stakeholders continued to call for trade approval applications to be automated or processed in near-real time⁶⁷³, and many supported the ACCC's preliminary view to implement a digital protocol.⁶⁷⁴

Waterexchange considered that a digital protocol to enhance interoperability between the various entities was the best option for improving water markets trade processing, submitting that the digital interoperability they have implemented with a number of IIOs has provided faster trade processing times and real time reporting and approval of trades.⁶⁷⁵

The Victorian Government submitted that it preferred a distributed model as this is likely to be more resilient than a centralised system, and would allow for state specific systems.⁶⁷⁶ Other stakeholders also supported Basin States' continuing to have their own systems and conventions⁶⁷⁷, whereas Murray Irrigation supported the consolidation or harmonisation of roles or institutions to streamline and save administration costs.⁶⁷⁸

Further stakeholder feedback on other options raised in the interim report are presented in section 12.8.

10.5.1 Demand for improved trade approval processes is motivated by a desire for more timely water market information

Improvements to trade processing to improve the quality and timeliness of core market data, and the reporting of real-time approvals were also widely supported.⁶⁷⁹ The NSW Irrigators Council (NSWIC) submitted that options for reforming aimed at improving information transparency should be focused on improving quality, timeliness and accessibility of information.⁶⁸⁰

668 Almond Board of Australia, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 4; Murray Valley Private Diverters, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 2; Select Harvest Limited, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 8.

669 H2OX, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 5; Public Interest Advocacy Centre, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 13.

670 Leeton Shire Council, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 4; SunRice Group and Ricegrowers' Association of Australia, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 30.

671 H2OX, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 5; Murray Valley Food and Fibre Association, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 6; National Irrigators Council, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 17.

672 Select Harvest Limited, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 8.

673 Murray Irrigation Limited, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 7; NSW Irrigators Council, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 18.

674 Kilter Rural, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 6; Lachlan Valley Water Inc, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 2; National Farmers Federation, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 8; WaterExchange, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 3.

675 WaterExchange, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 3.

676 Victorian Government, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 2.

677 Coleambally Irrigation Co-operative Limited, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, pp. 11,12; National Farmers Federation, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 7; NSW Irrigators Council, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 22; Victorian Farmers Federation, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, pp. 13,15.

678 Murray Irrigation Limited, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 7.

679 Almond Board of Australia, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 4; Australian Water Brokers Association, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, pp. 7-8; Murray River Group of Councils, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 3; NSW Farmers Association, *Submission to the Murray-Darling Basin water inquiry interim report*, 4 December 2020, p. 8.

680 NSW Irrigators Council, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 18.

There were also calls for information to be made available on trades in process, provided there was sufficient clarity on when a trade was pending approval.⁶⁸¹

H2OX supported an automated flow of information from exchange to registers, stating it would greatly improve accuracy of data and also timeliness of data.⁶⁸² H2OX consider that the benefits would substantially outweigh the minor costs involved. Almond Board Australia similarly submitted that while costs were a concern, this would be offset by the time and effort currently invested analysing inaccurate or incomplete information.⁶⁸³

10.6 ACCC's assessment of trade services: What needs to change and why does it need to change?

10.6.1 Diversity in the supply of matching and advisory services lacks standardisation and undermines market confidence

There is considerable competition in the supply of information, advisory and matching services. There are however some conduct concerns, which are explored in greater depth in chapter 8.

The ACCC considers that where key functions of water markets exist or take place in digital spaces, such as online exchanges or trading platforms, these platforms need to be able to digitally connect and directly receive information from trade approval authorities and registers, and vice versa. Similarly, where trade takes place in a more 'manual' way – for example, in a small rural community using face-to-face negotiations and paper trading forms – traders still need to be able to submit trade applications for approval, and (at a minimum) receive notification of the outcome of their application.

This is also recognised by Waterexchange which, despite being one of the intermediaries that continues to innovate, recognise the benefits of retaining some elements of the markets' current operations, particularly for those that only trade on limited occasions:

It is our strong view that the silent majority of these irrigators are satisfied with the current operation of the water markets. In our experience most irrigators have a trusted relationship with their Water Broker and only have a need to buy or sell relatively few times in a given water year, for which the transaction(s) typically runs smoothly.⁶⁸⁴

10.6.2 Increased automation offers opportunities to reduce transaction costs

The Victorian Water Register's same day approval for the majority of intrastate trades, regardless of the day of submission⁶⁸⁵, demonstrates the benefits of automating trade approval and water registry processes. However, improved integration between states is required to extend these benefits to interstate trade. The performance of the Victorian Water Register has demonstrated the benefits of Victorian and Australian governments' investments, and should encourage other Basin States to modernise their systems and registers, and learn from the Victorian experience.

Increased digital linkages between the states' systems and water registers could deliver better outcomes for others with an interest in water market information, such as the Bureau of Meteorology. A consistent approach to trade approval with increased automation and better links between the states' systems and registers would reduce approval times and improve users' experiences of trade approval services, particularly for those who trade interstate. Such improvements will go some way towards increasing the breadth and depth of water markets.

681 Cotton Australia, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 4; National Farmers Federation, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 17.

682 H2OX, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 5.

683 Almond Board of Australia, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 4.

684 Waterexchange, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 1.

685 See section D.2.1 of appendix D.

There also needs to be better integration between the trade approval authorities, registries and the brokers and exchange platforms where trades are negotiated and deals are struck. Investments to reduce lags between the time a deal is struck and when that trade data becomes available to market participants will help create a transparent market and reduce some transaction costs.

However, without Basin-wide reform of trade services some water market participants will continue to experience significantly greater transaction costs than others. Irrigators in particular IIOs who wish to undertake allocation trading outside of their irrigation district are charged trade fees by their IIO and Basin State trade approval authority, while irrigators who seek to transform their irrigation right into an entitlement right in New South Wales may experience far longer approval and registry times than their South Australia counterparts due to New South Wales's fragmented administrative processes.

10.6.3 There is an opportunity to harmonise and improve market efficiency

The ACCC set out the legislative differences in terms of entitlement frameworks, trade processing and registers across the states in the interim report, and that these drive differences in trade processes. However, while the ACCC considers that it is important to understand these legislative differences across the states (explored further in appendix E), the causes of many trade processing and transaction costs issues are more strongly linked to legislative gaps, ageing and disconnected IT systems and incomplete data capture.

There are however some legislative differences which would benefit from harmonisation where possible.

The ACCC considers that while states continue to play a role in water management, options which deliver *harmonisation*, *co-ordination* and *translation* between the different jurisdictions are more suitable than options which deliver *centralisation*. In line with this, the ACCC's view is that a Digital Messaging Protocol and a Water Market Information Platform that brings together (but does not replace) diverse information sources, is the most appropriate pathway to improving trade services and minimising transaction costs across the Basin (see recommendations 7 and 10-12 in chapter 12).

This approach is also supported by stakeholders such as Coleambally Irrigation:

CICL supports increased communication effort to assist market participants navigate different states' terminology as opposed to asking one or more states to change their terminology, thereby potentially creating more confusion within a state.⁶⁸⁶

The ACCC considers that the following issues arise due to the current fragmented trade services environment:

- Interstate trades take longer to process and cost more to apply for than intrastate trades, and this may be decreasing trade across the Basin and decreasing market depth.
- The transaction cost experiences of traders differs across the states – with some experiencing advantages such as same-day approvals, lower fees and better access to opportunities to trade through IVTs.
- Automated approvals and trade feasibility checks are only available to some water market participants in Victoria.
- New South Wales traders need to obtain and pay for a zero-share water access licence (WAL) to trade, whereas those in South Australia and Victoria can set up allocation accounts without licences and without paying fees.
- Terminology and processing differences between states can encourage market participants to only seek trading partners in limited trading zones.
- Price is not required by most of the Basin States' Acts to be reported on trade forms. While states deal with this by making price a mandatory field on trade forms, they however face issues in terms

686 Coleambally Irrigation Co-operative Limited, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 3.

of ability to verify price and (now recently) reason for trade, with only Victoria having audit functions through the Broker Portal/API.

10.6.4 Reduce transaction costs, improve the quality of information, and improve the flow of information

In summary, the ACCC found that trade processes and costs can be quite complex and vary considerably depending on the context of individual trades, although – with the exception of a few cases – trade approval fees are generally low and are not causing significant issues for market participants. Findings from other parts of this report indicate that market participants respond to differences in monetary and non-monetary transaction costs by taking actions such as using brokers to aggregate small parcels to reduce fees, and that it can be difficult to compare the costs of different parcels of water allocation (or other products offered) because of substantial differences in approval fees, broker or exchange platform fees or commissions, and different approaches as to which party (buyer or seller) bears these costs.

Three key elements that need reform in this space are to reduce transaction costs by improving ease of trading, improving the quality of information and improving the flow of information between current and future entities involved in Basin water markets and water management.

The ACCC considers that the improvements in trade processes identified in this chapter must be considered in conjunction with broader reform to realise the true extent of benefits. Chapter 12 presents the ACCC's recommendations to improve trade services, transaction costs and market transparency.

11. Transparency

Key points

- Good quality and timely water information is key to improving market confidence and enabling better-informed trading decisions across Basin water markets.
- While water market transparency is one of the objectives of the National Water Initiative, transparency concerns remain and, in some cases, have continued to increase.
- While there have been many improvements to water market transparency in recent years, past progress on transparency in Basin water markets has fallen short of delivering the information water market participants need.
- Water market data in the Basin is not meeting user needs because of the following issues:
 - gaps in data collection and validation, reducing data quality
 - a lack of user-driven solutions, resulting in websites and other information sources that some users find confusing
 - fragmented and dispersed information, driven by lack of data sharing arrangements
 - conflicting sources of data, undermining confidence
 - differing terminology across Basin States.
- There has also been a lack of transparency in relation to decision making across the Basin, and decisions such as allocation announcements need to be better communicated to market participants.
- While transparency issues in the Basin remain, there have been recent steps in the right direction. The ACCC is strongly supportive of the ongoing transparency and information improvements made by Basin States and the newly-funded Murray–Darling Basin Water Information Portal, which aims to bring together disparate sources of information.
- There is an opportunity to bring recent initiatives together and broaden the vision to better harness information to improve ease of trading, increase market understanding, inform river operations and help identify and quantify impacts of trade.
- In particular, there is an opportunity to rethink the vision for the Murray–Darling Basin Water Information Portal initiative. This initiative should be broadened to include harnessing data from private trade service providers, and address issues of data quality.
- Change is needed to improve information quality and information flows:
 - There need to be obligations on entities to collect, verify (where possible), store and share information.
 - There is a need to identify and set criteria for information that may be relevant to the market that, if met, require that information to be made available to the market.
 - There is a need, building on current projects, to design information publication in a way that provides the ‘whole picture’ and engages end users.

11.1 The information necessary for efficient markets

The efficient allocation of water resources using market mechanisms relies on water market participants having access to timely and relevant market information and making well-informed choices on how they engage with markets, so that price signals accurately capture all relevant information.⁶⁸⁷ In a transparent market, all traders would have access to timely and reliable market information that allows them to understand current market conditions, compare trading offers and make decisions that are in their best interests.

Trade services across the Murray–Darling Basin are provided by multiple public and private entities (see chapter 10), resulting in fragmented and inconsistent datasets that can favour market participants with the time and resources to invest in collating and understanding this information. This fragmentation can also facilitate the entrance of market intermediaries to provide advisory and information services to fill information gaps, which can result in smaller and newer market participants relying on them to form price expectations, provide advice and, facilitate and lodge trades.

Transparency of decision-making processes is also important, particularly where decisions can impact the supply between and within states and trading zones, and sometimes create arbitrage opportunities.

11.1.1 Different information users have different information needs

One of the challenges in improving information transparency is that different information users have different needs.

The ACCC gathered information from a range of sources to assess current information availability and different stakeholders' information needs.

The ACCC has examined information transparency in the Basin water markets by identifying the information necessary for water market traders to make decisions that properly reflect the value they place on water at a given point in time. This information would result in effective and efficient markets and improve productivity. Beyond this, the ACCC has also considered the information needs of other parties involved in water markets, such as regulators, river operators, approval authorities, policy-makers and market analysts.

The ACCC obtained information from the Basin States on their water trading websites to understand which websites market participants currently visit to view trading information. Website traffic data supplied by Commonwealth and Basin State agencies show the Victorian Water Register's allocation trade page was the most frequently visited, followed by the Bureau of Meteorology's Water Markets Dashboard and the Department of Agriculture, Water and Environment's market price information page (table 11.1). A comparison of the Victorian Water Register webpages shows over the October 2019 to September 2020 period information was most often sought for allocation trade.

⁶⁸⁷ According to standard economic theory, market mechanisms achieve efficiency by using price to equate marginal costs and benefits. If some information on costs or benefits is missing, then the market may misallocate resources compared to the full-information case.

Table 11.1: Government sources of water market information, webpage views and location of Australian visitors

Agency	Webpage	Page views ^a	Proportion of Australian visitors by Basin State				
			Qld	NSW	ACT	Vic	SA
Victorian Water Register	Allocation trading	22,860	3%	19%	2%	71%	4%
BOM	Water Markets Dashboard	14,729	18%	33%	7%	26%	10%
DAWE	Market price information	12,895	7%	27%	8%	30%	16%
Victorian Water Register	Water share trading	10,815	5%	18%	3%	69%	5%
NSW DPIE	Trade dashboard	3,650	3%	71%	4%	9%	1%
Victorian Water Register	Available water by owner type	2,801	4%	26%	7%	53%	9%
Sunwater	Water Trading	1,442	n/a	n/a	n/a	n/a	n/a
Victorian Water Register	Trade opportunities	609	3%	21%	6%	62%	7%
SA DEW (Water Connect)	Allocation trade charts	1,848	5%	18%	4%	16%	54%
SA DEW (Water Connect)	Entitlement trade charts	2,139	n/a	n/a	n/a	n/a	n/a
SA DEW	Useful sources	69	0%	16%	9%	16%	58%

Source: Government agency voluntary information requests.

Notes: (a) Page views for the period October 2019 to September 2020. Numbers may not up to 100% due to non-Basin State, overseas, or 'not set' location page visits. Data was supplied over different and inconsistent time frames, while most data was provided for the time period of October 2019 to September 2020, some data was supplied for only 8 months, while others were supplied for 62 months (July 2015 to October 2020), and as such the figures presented in this table are not directly comparable.

The ACCC also received feedback from stakeholders via submissions and consultation meetings on the data and information stakeholders considered they needed to trade or otherwise perform their role in water markets. For example, SunRice, submitted:

The level of transparency and disclosure of water market information is not currently sufficient to support a properly functioning market. SunRice understands from growers that there is only limited information available about how rights are created, what volumes are available, who is acquiring water, and how it is being used, consumed or traded. There is currently no water holdings / entitlements register or platform. In addition, the information that is available is difficult to access and understand, and is not always updated in real time. As a result, it provides limited useful insights or information for water users.⁶⁸⁸

Further stakeholder views on transparency and their information needs is presented in sections 11.3 to 11.5 below.

The Australian Dairy Industry Council conducted a survey in response to questions posed in the ACCC's interim report, such as what information users are relying on and found that:

Survey respondents flagged that they are accessing a wide range of information sources to effectively understand and use water markets and products. This information was largely sought through other farmers and peers, brokerage services, and freely accessible sources such as websites. The survey results, though not a statistically relevant sample, indicate that dairy farmers in the MDB highly value seasonal forecasts and water availability updates, as well as trading bids and offers for particular products.⁶⁸⁹

The ACCC also gathered evidence from past assessments of Basin water market stakeholders' information needs.

688 SunRice, *Submission to Murray-Darling Basin water inquiry issues paper*, 13 February 2020, p. 7.

689 Australian Dairy Industry Council, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 14.

In 2014, BOM engaged Aither to conduct a study to scope opportunities to better meet user needs with water information products. This included consulting on awareness of BOM's products, to which Aither reported there was low awareness. It found there was very little awareness of the BOM's National Water Market System (NWMS) and Regional dashboards and even lower levels of use.

Aither assessed that most direct market participants were mainly getting water market information from private sector sources, but that there were concerns about fragmentation and gaps. Aither identified a number of ways to improve the user experience, such as by integrating trade data with water availability, and undertaking further user engagement to fully understand the costs and benefits of options and courses of actions listed by Aither (including making a new dashboard, maps, downloadable data, tabular reporting and apps).

The ACCC also drew on evidence from recent consultations by the Victorian Government, summarised in box 11.1, and a report undertaken by Marsden Jacob Associates, commissioned by MDBA (box 11.2).

Box 11.1: What kind of transparency do stakeholders want? Evidence from Victoria

Victoria's 'Closing the Loop – Water market transparency'⁶⁹⁰ report identified that stakeholders were concerned with transparency beyond just knowing who owns the water, and that transparency to them meant more than this. Some areas in which Victoria heard more transparency would be useful included:

- reasons for allocation trade, to enable identification of leases, forwards, carryover parking, same-party or related-party transfers, and trades that occur on the spot market
- river operations such as identifying who owns what water in dams and how much water is allocated to deliver water
- insights on irrigation demand and activity and how much is committed to use
- market concentration in both allocation and entitlements
- how much allocation is held by the environment, privately and by corporations
- the use of carryover over time to assess trends.

Stakeholders also wanted monitoring to ensure compliance against water laws, and better enforcement.

New South Wales is currently undertaking similar consultation to understand what information users want to be able to get out of the water register.⁶⁹¹ BOM is also conducting user needs analysis for its information portal projects, and also conducted user needs analysis in 2014. The user needs analysis conducted in 2014 was specifically for the early development of the BOM Water Markets Dashboard. The current user needs analysis for upcoming water information portal projects is far broader, covering water information such as rainfall, streamflow, soil moisture, water availability, water use as well as water trade.

690 Department of Environment, Land, Water and Planning (Victoria), *Closing the Loop report—Water Market transparency*, 2019, www.engage.vic.gov.au/download_file/23337/2913.

691 NSW Department of Planning, Industry and Environment, <https://www.industry.nsw.gov.au/water/licensing-trade/trade/have-your-say>, viewed 7 February 2021.

Box 11.2: Current market data requirements – evidence from a recent study

As part of its 2018–19 audit work program, in May 2019 the MDBA published a two-part audit of water trade price reporting (Price Reporting Audit). The MDBA then subsequently commissioned Marsden Jacobs Associates to undertake a scoping study on water market products, as a first step to delivering on the recommendations from the Price Reporting Audit.

Part of this scoping study comprised an assessment of the set of information needed for a ‘fully informed market’. The report found that the key requirements were:

- Date trade contracted
- Date trade application received by the Authority
- Date trade application approved by the Authority
- Water licence number of buyer and seller (or, for a lease, of lessee/lessor)
- Buyer/seller type (e.g. Water Corporation/irrigation infrastructure operator (IIO), Private, Environmental) (or, for a lease, lessee/lessor type)
- Entitlement class
- Origin and destination of water (e.g. to/from zones if interzone trade possible)
- Trade volume
- Price per megalitre (ML)
- Type of trade
- Arrangement start date and duration of arrangement (for a lease).

The study further noted that ‘[i]t is important to recognise there are a range of market users whom all require varying degrees of information in order to be classified as fully informed. The data requirements for an irrigator may be very different to those of water industry consultants. However, we believe that the above information could be captured and presented so that it provides benefits to all market participants, regardless of their market understanding.’

Source: Marsden Jacob Associates, March 2020, *Murray-Darling Basin Water Market Products Scoping Study*, report prepared for MBDA.

11.1.2 Water market participants should have equal access to key information for decision making

Based on consultation undertaken in this inquiry, its own analysis and examination of past relevant ‘user needs’ analysis, the ACCC considers that all water market participants should have equal access to the following water and water market information to make well-informed trading decisions:

- **Water supply and demand data** – supply data such as forecast water availability, expected allocations, and demand data such as weather conditions, and predicted demand from plantings
- **Pricing and other transactional data** – current and historical market prices for water product types across the Basin, and other de-identified transactional data such as volume, origin and destination trading zone(s), water access entitlement class (if relevant), trade type, and additional information for historical trades – strike date, reason for trade, submitted date, and approval date
- **Cost of trading** – trade approval fees and intermediary charges
- **Market depth** – how much water is currently for sale
- **Trading partners** – timely information on the buy and sell offers for a range of water product types across the Basin

- **Product types** – the types of market products available and the advantages and costs associated with each
- **Market rules and processes** – market rules, allocation announcements and policy changes, and unbiased information on opportunities to trade
- **Consultations** – information on when consultation processes for rule or policy changes are occurring and how stakeholders can be involved
- **Water accounting methods** – the processes applied by Basin States when accounting for losses and managing spill risk
- **Total amount of water for consumptive use** – how much water there is in the system available for use (total volume allocated to entitlements, plus aggregate volumes carried over from previous water years)
- **Information on whether and how trade has impacts or imposes costs on the system which are not directly reflected in prices** – for example, impacts on the environment, extent of conveyance losses and how they are accounted for, or impacts on the system’s capacity to deliver water to other water rights holders. This is important for traders who have preferences over outcomes such as environmental and social impacts. As in other sectors, many market participants are interested not only in price but in other unpriced aspects (often captured in notions of ‘ethical consumption’ or ‘social corporate responsibility’)
- **Transparency of relevant rule making and rule implementation** – such as decisions on allocation announcement timings or enforcement priorities, as well transparency on how the allocation and carryover policies and rules being enforced were originally devised.

While some of the above falls outside the scope of water market information, it is clear that market participants require information which allows them to understand the broader context in which markets operate and the impacts or outcomes associated with trading decisions (referred to in the interim report as ‘secondary information’).

The ACCC also recognises that there are additional transparency concerns relating to information that some consider should be disclosed during private dealings, for example, dealings between a broker and a client. Information asymmetries can exist between the diverse groups of trader types who are actively competing with each other in the water market (such as between investors and irrigators), and also between brokers and their clients in providing advisory services. This type of information need is considered in section 6.7.

While market participants need the information outlined above to be publicly available and accessible, regulators have different information needs. A whole-of-Basin regulator has been recommended in chapter 9 and, if adopted, the regulator will need access to information that enables it to properly monitor, verify and enforce any compliance obligations. The information needed for successful regulation of market participant conduct is considered in chapters 6 and 8. While some of this information is already collected by trade approval authorities, other information will need to be specified for collection and sharing with the regulator through new obligations (set out in chapters 9 and 12). The information needs of river operations and compliance agencies are also assessed in more detail at chapter 14, while some improvements to data collection and sharing in this regard are proposed at chapter 12.

11.2 Overview of water market information transparency: past reform and recent improvements

11.2.1 Past progress on transparency in Basin water markets has not delivered the information water market participants need

In 2004, under the NWI, states and territories committed to establishing water market and trading arrangements that facilitated intrastate and interstate trade and water resource accounting to support public and investor confidence in the amount of water being traded, extracted, recovered and managed.⁶⁹²

The states and territories also agreed under the NWI (and later formalised in the *Water Act 2007* (Cth)⁶⁹³) to have compatible water registers for entitlements and trades (both entitlement and allocation) on a whole-of-Basin or catchment basis⁶⁹⁴ that would go some way to minimising transaction costs through ‘good information flows’.⁶⁹⁵ While the information to be supplied by the Basin States to the MDBA to maintain the water entitlement transfer register was prescribed⁶⁹⁶, no guidance was provided for trading information or how registers should capture the trading of different types of water products. The Water Act sets out the objectives and principles, but does not create obligations on Basin States or IIOs to publish specific information from their registers. The state water management acts also do not specify what information from a register must be made available, but do generally require registers to be available for public inspection.⁶⁹⁷

Under the NWI, water registers were envisaged to accommodate the trading of entitlements in whole or in part, temporarily or permanently, through lease arrangements or any other water product that may evolve.⁶⁹⁸ These commitments were formalised in the *Water Act 2007* (Cth).

The lack of a commitment to develop a coordinated approach has resulted in the states maintaining different register arrangements, both as internal systems and in what and how they publish information. The differences in their systems have given rise to lags in interstate trading relative to intrastate trade, despite the Murray–Darling Southern Connected Basin (Southern Connected Basin) States’ file sharing arrangement (interstate trade interoperability protocol).⁶⁹⁹

Further, until recently, there had been little progress in developing agreed approaches for adapting water trade administration processes and water registers in line with developments such as the introduction of new water products. Despite NWI commitments to enable new products, trade administration processes and registers have not adapted alongside these new products, with the result that uptake of new products is being hampered by insufficient information and a lack of price discovery.

In particular, most new water products such as forwards, contractual leases and carryover parking are executed through the allocation trade framework: from the Basin State’s perspective, they are indistinguishable from standard allocation trades. These data quality issues persist when this data is then forwarded to the BOM for collation, as these other product types remain mixed in with allocation trade data and are not separately identifiable.

When data is forwarded on to BOM for collation and publication there is no requirement for different trade types to be labelled differently either by the seller when completing the trade form, or by the authority when entering the trade into the system.⁷⁰⁰ These outcomes arise due to the fact that contracts underpinning new products are entered into without the involvement of trade approval

692 *Intergovernmental Agreement on a National Water Initiative*, paragraphs 58(i) and 80.

693 *Water Act 2007* (Cth), Schedule 3 – Basin water market and trading objectives and principles, ss. 4(3).

694 *Intergovernmental Agreement on a National Water Initiative*, paragraph 59.

695 *ibid.*, paragraph 58(ii).

696 *Water Act 2007* (Cth) Schedule 1 – Murray–Darling Basin Agreement, Schedule D, s. 16.

697 See Appendix E for further details.

698 *Intergovernmental Agreement on a National Water Initiative*, paragraph 58(iii).

699 See section 10.3.3 in chapter 10 and D.2.1 in appendix D.

700 Bureau of Meteorology, *Explanatory Notes for Water Regulations Metadata and Contextual Information Category 6: Information about water rights, allocation and trades, subcategories 6a, 6b, 6c, 6d, 6e, 6f and 6g*, 2016, p. 23.

authorities; for example, the trade approval authority does not approve the forward contract, but rather the allocation trades that take place under those contracts.

New South Wales and Victoria have both now updated their trade forms (online only for Victoria) to record the reason for trade, which will go some way to correct this transparency issue. Initiatives are also now focusing on linkages and data sharing arrangements, which is a step in the right direction at not only improving the presentation of data to end-users, but also looking to address gaps and disconnects.

In terms of broader water information (beyond core water market transactional data), the quality of information continues to suffer from differences across the states and also dispersion across multiple websites within a state. Concerns in relation to the transparency of this information are explored at section 11.5 below, and have been increasing due to a number of factors – such as changing demand profiles, and increased carryover – resulting in irrigators wanting to understand how water management decisions are made given their impact on water availability.

Information on buy and sell offers (current market offers) is currently left to the market and is dispersed across a number of websites. Waterflow has been a significant improvement in this regard, as a repository which brings together historical trade data, with storage volumes and also current bids and offers (see case study in box 11.5).

11.2.2 Ongoing initiatives and consultations by Basin States are improving the transparency of water registers

Transparency consultation – asking water users what information they need and how they want to access information

Both Victoria and New South Wales have conducted consultation processes to better understand the type of information transparency water users need. New South Wales conducted consultation in 2018, after implementing its ‘Water Reform Action Plan’, a key commitment of which was to ensure greater transparency. The New South Wales Department of Planning, Industry and Environment (DPIE) has developed the WaterInsights portal since then as a measure to improve access to information. New South Wales’s recent discussion paper focuses on ways improve engagement with the water registers, and is seeking to understand water users’ informational needs.⁷⁰¹ The outcome of this engagement may influence the direction and development of the latest water information tools and information published from the water register.

In Victoria, a 10-year strategy outlines DELWP’s actions to improve users’ experiences with the Victorian Water Register. The strategy notes the Victorian Water Register has progressed from a single, standalone system to a partnership across seven Victorian government and water sector organisations and is a collection of several interdependent systems.⁷⁰² According to the strategy:

This includes improving consistency, accuracy and completeness, as well as the opportunity to deliver new insights via integration with related data (such as climate or agricultural production).⁷⁰³

The strategy recognises the changing needs and expectations of Victorian Water Register users, where increased population and climate change are increasing pressure on water resources. This pressure is recognised as a critical driver for improving the register so that water resources can be managed effectively and efficiently.

The 10-year strategy outlines that legislative amendments will be considered to ‘streamline the transfer process and enable transactions to be lodged and processed electronically’.⁷⁰⁴

701 Department of Industry, <https://www.industry.nsw.gov.au/water/licensing-trade/trade/have-your-say>, viewed 19 January 2021.

702 Department of Environment, Land, Water and Planning (Victoria), *Victorian Water Register 10 Year Strategy 2019–2028*, 2019, www.waterregister.vic.gov.au/10-year-strategy, viewed 26 June 2020.

703 *ibid.*

704 *ibid.*, p. 6.

The strategy also recognises that improving access to data and information will assist water users in knowing when and how to engage in water markets and support better decisions, and identifies ‘providing an interface that can be navigated easily and quickly, and processes that are clear and efficient’ as a desired outcome.⁷⁰⁵

‘Reason for trade’ and ‘strike date’ reforms – New South Wales and Victoria

New South Wales has updated its allocation trade form to require traders to provide ‘strike date’ and a reason for trade, and will only accept zero dollar trades for limited trade reasons. Victoria has implemented similar changes, albeit only for its online forms (which covered 85% of trades by number and 61% by volume in 2018-19⁷⁰⁶). South Australia, as part of its broader Water Management Solutions system project, is currently investigating ways to implement similar changes to its online forms.

New South Wales has also started collecting information on broker facilitated trades (as listed as a proposed recommendation in the ACCC’s interim report), and environmental water holder trades. Victoria already collects information on lodging party.

Recent reforms by New South Wales and Victoria have sought to improve some aspects of data quality, but do not resolve data-entry errors or data accuracy issues

While the ACCC strongly supports the updates to trade approval forms⁷⁰⁷, these improvements also highlight the importance of flexibility in the future. The changes aim to achieve better trade type categorisation and to capture the true date on which trade occurred (strike date), which should also result in better price reporting and more accurate trade type identification in publication. However, the list of trade types may not continue to suit the evolving market, and this may result in more use of the ‘other’ category than intended.

One example of this is the phenomenon of ‘aggregation’ or ‘pooling’ type trades, which entail a number of trades aggregating smaller parcels of water allocation onto a particular licence or account, ahead of a single larger trade (possibly also with subsequent trades to disaggregate). Such trades generally take place using IIO or broker licences or accounts to aggregate. The ACCC understands that these trades are undertaken primarily as a way to reduce transaction costs and also in some cases to facilitate IVT transfers (because a single application for a large volume of intervalley trade may have a greater chance of success than multiple smaller trades, given current ‘first in, first served’ IVT administration rules). For example, SA IIO Renmark Irrigation Trust (RIT) submitted that they conduct these trade types on behalf of members to minimise irrigators trading costs.⁷⁰⁸

This trade type would only be captured under ‘other’ and the state register would not have visibility of volumes, reasons for trade or prices of the individual parcels, increasing the proportion of zero dollar trades (as explored in appendix G).

Therefore, flexibility in capturing trade data as market activity evolves is key. The ACCC understands the concerns regarding the missing ‘reason for trade’ data have been long-held and have undermined confidence in register and BOM data. This data gap is also particularly relevant to the ACCC’s findings that IIO and register data is disjointed and fragmented (see section 11.3.4), and is relevant to recommendations in chapter 12 regarding better harnessing existing information and sharing this data.

These trade form reforms alone will also not introduce an ability to verify information provided, nor reduce data-entry errors (see section 12.4.3 for recommendations related to improving data validation). CICL submitted that it supports efforts to automate the flow of price information and the clearer definition of the type of trade as has recently been required by New South Wales. However, CICL stated that without cost information, the true value of introducing automation to enable price verification is not known.⁷⁰⁹

705 *ibid*, p. 6.

706 ACCC analysis based on Victorian Government’s response to voluntary information request.

707 See: <https://waterregister.vic.gov.au/about/news/327-introduction-of-reason-for-trade-for-online-allocation-trades> and <https://www.watarnsw.com.au/customer-service/ordering-trading-and-pricing/trading/faqs-water-trading>.

708 Renmark Irrigation Trust, *Submission to Murray–Darling Basin water inquiry interim report*, 13 November 2020, p. 5.

709 Coleambally Irrigation Co-operative Limited, *Submission to Murray–Darling Basin water inquiry interim report*, 13 November 2020, p. 12.

Publishing more detail from registers – New South Wales, Victoria and BOM

Victoria has now commenced publishing information on the largest entitlement holders.⁷¹⁰ New South Wales has started publishing the newly added ‘reason for trade’ variable for New South Wales allocation trades.⁷¹¹ BOM has started publishing water entitlements on issue with identifiers.⁷¹²

Water portal Tableau products – WaterNSW and Victorian Water Register

DELWP has released the ‘Water Market Watch’ app to allow water users to access Victorian Water Register information across a range of digital devices⁷¹³, providing users with information on ‘Seasonal Determinations, Water Market Prices, Trading Limits and Spill declarations’ and the ability to set up customised notifications and alerts.⁷¹⁴

DELWP has also begun releasing more information in response to its 2019 transparency consultation process. This includes three new dashboards which show available water by owner type, allocation trade scatter plot, and trade opportunity and limits insights.⁷¹⁵ The allocation trades dashboard visualises insights on approved allocation trades in table and chart format. The allocation trades dashboards only includes what DELWP consider to be ‘commercial’ trades, which are defined as non-zero dollar trades. The available water dashboard extends the functionality of ‘available by owner type’ information to each trading zone rather than simply being available at the water source level. The trade opportunities dashboard adds detailed information on intervalley trade opportunities in the current year and provides insights on the way these opportunities have changed over time and what factors have influenced them.

In New South Wales, WaterNSW has added the ‘Water Insights Portal’ to its webpage, which is intended to provide users with ‘timely information in a visual manner to help you make informed water planning decisions’.⁷¹⁶ This includes a dashboard which consolidates key water resource information, allows users to access real-time information on surface water (including major rivers), major dam levels, dam inflows and groundwater and WaterLive, a mobile phone app. The latter allows users to access real-time data of interest to them and setup push notifications for when new, relevant data is added to WaterNSW’s ‘Real-Time Water system’, in addition to featuring interactive maps and multiple app-customisability options.

These new dashboards, while providing useful insights, are limited in functionality in terms of allowing for bulk data downloads. The differences in the NSW and Victorian dashboards are in some ways driven by the user-needs consultation approaches to developing the products, and aim to service local informational needs. MDBA noted this in their submission to the interim report, in which MDBA stated ‘many aspects of water use and trade are necessarily localised as compared to a truly mobile product, so reform should be pursued at a local scale’.⁷¹⁷

Modernising South Australia’s trade approvals and water licensing system

South Australia recently consulted on legislative changes to support the introduction of its new Water Management Solution system. This \$14.7 million project, jointly funded by the Australian and South Australian Governments, is expected to decrease trade processing fees and enable the electronic lodgement of trades, automated approval assessments, increased data capture (such as reason for trade and strike date) and better integration with the interstate trading interoperability protocol. Given South Australia has the highest trade approval fee in the Southern Connected Basin (\$277 per

710 Victoria Water Register, <https://waterregister.vic.gov.au/water-trading/market-insights/large-water-owners>, viewed 4 February 2021.

711 WaterNSW, <https://waterregister.watarnsw.com.au/water-register-frame>, viewed 4 February 2021.

712 Bureau of Meteorology, <http://www.bom.gov.au/water/dashboards/#/water-markets/mdb/at>, viewed 4 February 2021.

713 Department of Environment, Land, Water and Planning (Victoria), *Water market app now available*, 2019, www.water.vic.gov.au/media-releases/2019/water-market-app-now-available, viewed 26 June 2020.

714 Department of Environment, Land, Water and Planning (Victoria), *Water Market Watch App*, 2019, www.waterregister.vic.gov.au/water-trading/water-market-watch-app, viewed 26 June 2020.

715 Department of Environment, Land, Water and Planning (Victoria), www.waterregister.vic.gov.au/about/news/318-new-market-insights-to-increase-transparency, viewed 26 June 2020.

716 WaterNSW, *Customer Newsletter*, 2019, www.watarnsw.com.au/_data/assets/pdf_file/0006/148749/Regulated-Newsletter-September-2019.pdf, viewed 26 June 2020.

717 Murray Darling Basin Authority, *Submission to Murray–Darling Basin water inquiry interim report*, 13 November 2020, p. 6.

application for the 2020–21 water year⁷¹⁸) this initiative is expected to go some way towards meeting stakeholders' calls for more harmonised or equal allocation trade approval fees in the Southern Basin.

Queensland's Rural Water Management Program (RWMP) is evolving into overarching Rural Water Futures

The Queensland Government's submission to the interim report outlined the transformational change the Rural Water Futures program (which has evolved from the RWMP) will deliver to the management, measurement and reporting of rural water in Queensland – including delivering water information transparency.⁷¹⁹

11.2.3 Commonwealth initiatives are coming together to centralise some water information

DAWE, MDBA and BOM projects

There have been a number of recent initiatives and projects aimed at improving transparency across the Basin. Firstly, BOM started publishing Water Reporting Summaries for Basin Catchments on a fortnightly basis.⁷²⁰ These summaries were the first phase of the larger project to deliver more detailed water reports in the Basin at a near real-time frequency. Secondly, the *Northern Basin Information Portal* is due for completion in three years' time and will consist of modelling, remote sensing and installation of gauges, and a Northern Basin portal with public and compliance-officer levels of access. Thirdly, DAWE were working on an *information platform* 'to provide a one-stop shop for water storage, in-stream flows and trade information' which was set to deliver its first release by Quarter 3 in 2021, and leveraged the BOM *Near Real-time Water Reporting* project.⁷²¹

On 14 December 2020, a joint media release from The Hon Keith Pitt MP, the Minister for Resources, Water and Northern Australia; The Hon Melinda Pavey MP, NSW Minister for Water, Property and House; The Hon Glenn Butch MP, Queensland Minister for Regional Development and Manufacturing and Minister for Water announced several projects to improve Murray–Darling Basin water information. The media release noted that the projects will receive a total of \$35 million funding, a portion of which is allocated to delivering a water information portal. The funding is from the Australian Government in response to the Water Compliance Review and the agreed actions under the Murray–Darling Basin Compliance Compact.⁷²²

The announcement stated that BOM 'is playing an integral role in building a new water information website that will provide information users want, in the way they want it.'⁷²³ Given the level of overlap of some ongoing projects outlined above, a collaboration with MDBA, DAWE, BOM, Geoscience Australia, New South Wales and Queensland has been formed to create a *Murray–Darling Basin Water Information Portal*, which is being led by BOM and is scheduled to be completed by late-2023 but with early versions rolling out from mid-2021.

The information available through the *Murray–Darling Basin Water Information Portal* will benefit from data sharing agreements currently being negotiated with the states, and improvements in hydrometric networks and river reach modelling to come from the recently commenced Hydrometric Networks and Remote Sensing Funding Program.

718 Department for Environment and Water South Australia, <https://www.environment.sa.gov.au/topics/water/water-markets-and-trade/fees-and-charges>, viewed 5 November 2020.

719 Qld Department of Natural Resources, Mines and Energy, *Submission to Murray–Darling Basin water inquiry interim report*, September 2020, p. 2.

720 Bureau of Meteorology, *Water Reporting Summaries for MDB Catchments*, 2020, www.bom.gov.au/water/nrtwreporting/, viewed 26 June 2020.

721 Department of Agriculture, Water and the Environment 2020, *Murray–Darling Communities Investment Package*, p.5, <https://www.agriculture.gov.au/sites/default/files/documents/murray-darling-communities-investment-package.pdf>, viewed 26 October 2020.

722 Pitt, K (Minister for Minister for Resources, Water and Northern Australia), <https://minister.awe.gov.au/pitt/media-release/mdb-water-information>, viewed 4 February 2021.

723 Pitt, K (Minister for Minister for Resources, Water and Northern Australia), <https://minister.awe.gov.au/pitt/media-release/mdb-water-information>, viewed 4 February 2021.

The combined Near Real-Time Water Reporting and Northern Basin Water Information Portal projects provide the BOM with \$9 million to develop the *Murray-Darling Basin Water Information Portal*. As outlined above, the \$35 million announcement also includes a number of other initiatives.

This centralised portal will integrate various pieces of information to provide users with a full picture of conditions on a catchment basis. The portal will also receive more timely feeds of data from the relevant entities through the data sharing and API arrangements. BOM have indicated that the approach intends to be collaborative to begin with and data standards and requirements may then be formalised with amendments to the Water Regulations once all data needs are known.

Waterflow

Marsden Jacob Associates (Marsden Jacob) received a grant through the Business Research and Innovation Initiative (BRII) to investigate the potential to develop a viable water market information platform.⁷²⁴ The BRII challenge was to improve the transparency and reliability of water market information.

Through their scoping work, Marsden Jacob discovered that there was strong demand for a service that aggregates and analyses water market information and presents this information in an easier to understand and customisable way.⁷²⁵ Marsden Jacob found in their interviews that many market participants made trading decisions that were not always well informed, because the information available was time consuming and challenging to cleanse and analyse.⁷²⁶

Marsden Jacob developed the proposal for Waterflow, an app which collects and presents water market information from various sources in one place. The app was launched in 2019 and collates market information, including buy and sell offers from selected broker websites, and makes them available in one place. The app also offers market commentary and intends to 'save water participants many hours researching water prices, availability and rule considerations'.⁷²⁷ In April 2020, Waterflow added Ruralco Water Brokers to its buy and sell listings, bringing the total number of participating broker firms to seven.⁷²⁸

Waterflow is a relatively new product, and has been well received so far by market participants, and CICL submitted that:

Waterflow is an easy to use platform which allows market participants to tailor the information to their trading zone. This is an important advance which removes some of the complexity for participants. Waterflow needs more exchanges to participate in the platform to be effective. Other private exchanges are all useful data sources. Anecdotal feedback from our members is they value WaterMart because of its transparency and all transactions are listed.⁷²⁹

724 Australian Government, 2020, www.business.gov.au/grants-and-programs/business-research-and-innovation-initiative/customer-stories/mja-waterflow, viewed 22 June 2020.

725 Marsden Jacob Associates, *Water Market Information Platform Feasibility Report*, 2017.

726 *ibid.*

727 Australian Government, 2020, www.business.gov.au/grants-and-programs/business-research-and-innovation-initiative/customer-stories/mja-waterflow, viewed 22 June 2020.

728 Participating brokers are: RuralCo, Waterpool, National Water Brokers, Wilks Water, H2OX, Key Water, and Elders. See Waterflow, 2020, Twitter, www.twitter.com/WaterflowAU/status/1247410821866516481, viewed 22 June 2020.

729 Coleambally Irrigation Co-operative Limited, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 15.

11.2.4 Ongoing initiatives to improve transparency of water management, compliance and enforcement decisions

MDBA is publishing more information on river operations

MDBA recently published the Annual Summary of River Operations and the Independent River Operations Review Group, which is the first time this report has been made available publicly.

In response to the interim report, the MDBA submitted that '(s)ignificant work has been done by the Basin states and the Commonwealth over the last few years to improve compliance in water take and increase trust and confidence that users are following the rules.'⁷³⁰

States agreed to the Murray–Darling Basin Compliance Compact which aims to restore confidence through improved transparency (and other measures)

In December 2018, the Australian, New South Wales, Victorian, Queensland, South Australian and Australian Capital Territory governments agreed to the Basin Compliance Compact (the Compact). The Compact is a collaborative, joint commitment, with an overarching objective to 'restore public confidence in water resource management in the Basin by providing transparency and accountability of surface and groundwater management and regulation, and a consistent approach to compliance and enforcement practices by governments across the Basin'.⁷³¹ This demonstrates Basin States and Commonwealth governments conceive transparency to be fundamentally linked to accountability and to effective enforcement and compliance.

The Compact commits the states to publish a work program to improve transparency and for the program to be fully implemented by 2025.⁷³² The MDBA must also prepare annual reports to Council of Australian Governments⁷³³ and the Basin Ministerial Council on the progress of Compact commitments.⁷³⁴

The MDBA's 2019 Assurance Report⁷³⁵ demonstrates that while some progress on agreed milestones has been achieved, not all key commitments have been met and some aspects are lagging behind agreed schedules.⁷³⁶ For example, the report notes the following concerns in relation to transparency commitments:

- Queensland made significant progress since the previous report but missed some water information transparency and metering commitments that were due in 2019.⁷³⁷
- South Australia had not published its water information transparency improvement program (including any relevant exemptions).⁷³⁸
- Scoping for a Basin-wide system that provides publicly accessible and real time advice on environmental watering was due in September 2018 but was not complete. The lack of progress on this priority action was highlighted in the 2018 Independent Assurance Committee report, which noted an 'apparent lack of collective commitment from some states and the [Australian Government] Department of Agriculture and Water Resources to this item' and called for a re-commitment to this Basin-wide system. While the MDBA noted some progress was made in the form of a signed funding agreement, but that 'the funding agreement does not extend to implementing the projects',

730 Murray Darling Basin Authority, *Submission to Murray–Darling Basin water inquiry interim report*, 13 November 2020, p. 6.

731 Australian Government, *Murray–Darling Basin Compliance Compact*, 2018, www.mdba.gov.au/sites/default/files/pubs/Basin-Compliance-Compact-12-December-2018.pdf, viewed 25 June 2020, p. 1.

732 *ibid.*, p. 3.

733 On 29 May 2020, National Cabinet agreed to the formation of the National Federation Reform Council (NFRC) and the cessation of the Council of Australian Governments (COAG).

734 Murray Darling Basin Authority, 2019, www.mdba.gov.au/node/5066, viewed 22 June 2020.

735 Murray Darling Basin Authority, *Murray–Darling Basin Compliance Compact Assurance Report 2019*, 2019. As at February 2021, the most recent report available is the 2019 report.

736 *ibid.*, p. 4.

737 *ibid.*, p. 5.

738 *ibid.*, pp.5–6.

and that '[t]he Australian Government Minister for Water may or may not decide to contribute to implementation, once the project plans are complete'.⁷³⁹

Overall, the MDBA stated that: 'Should these [key commitments not yet met] not be completed in 2020, the key objectives of the Compact are at risk of not being achieved, particularly with respect to transparency and accountability of water management.'⁷⁴⁰

The MDBA's evaluation shows that despite renewed in-principle agreements on the importance of improving transparency, practical progress and sufficient compliance still lags behind intent, and funding arrangements to deliver transparency commitments are not secure.

The ACCC also received submissions in response to the interim report from each Basin State, and has conducted in depth analysis on recent improvements in communications on carryover levels, allocation policies and other decision making. The ACCC has identified ways to further enhance this transparency, which are detailed in chapters 14 and 15.

11.3 Lack of access to a 'complete picture' impacts market confidence

In the interim report, the ACCC reported that stakeholders consider there is inadequate accessible and high quality information on historic (approved) trades, and current buy and sell offers (this type of information was referred to as 'primary information' in the interim report). This view prevails despite the extensive work outlined above in relation to efforts to improve the delivery of information to users in the Basin.

This section outlines further feedback received on the broader water information which stakeholders consider is necessary to participate in water markets (some information was previously categorised as secondary information in the interim report), and the ACCC's view on these concerns.

11.3.1 Stakeholders find government water market information websites confusing and of poor quality

Stakeholders consider the current Basin State and BOM water market information websites are confusing and do not provide access to good quality data in the form that they need. Concerns and ACCC views are summarised in table 11.2.

739 *ibid*, pp.40-41.

740 Murray Darling Basin Authority, *Murray-Darling Basin Compliance Compact Assurance Report 2019*, 2019. As at February 2021, the most recent report available is the 2019 report.

Table 11.2: Overview of main stakeholder concerns and ACCC's response

Example of stakeholder types raising concern	Stakeholder concern/view	ACCC response
Irrigators Investors	<p>Poor quality and lack of timeliness of publicly available register information (due to trade approval authority processing lags) leads to difficulties in understanding prevailing market prices and assess trading opportunities.⁷⁴¹</p> <p>Aware Water support increased transparency in the water market – particularly in relation to timely, accurate and comprehensive price and volume data.⁷⁴²</p>	<p>The ACCC recognises that there are initiatives in place to reduce the lag, even in terms of timelier reporting to BOM.</p> <p>SA and Qld are also upgrading their systems to improve processing timeliness.</p> <p>The ACCC has made some recommendations in this regard in chapter 12.</p>
Irrigators Environmental water holders	<p>Inconsistencies in collection and dissemination of core market information across Basin States leads to additional costs to understand prevailing market prices and assess trading opportunities across states.⁷⁴³</p>	<p>The ACCC recognises the large non-price transactional costs which individual irrigators can face when participating in water markets. The ACCC supports the recent improvements to try to reduce these, and considers that the recommendations outlined in chapter 12 will work to further reduce these costs.</p>
Irrigators Environmental water holders	<p>Inability to distinguish 'new products' in Basin State trading data leads to difficulties in understanding prevailing market prices (especially prices for 'new products') and assessing trading opportunities.⁷⁴⁴</p>	<p>The ACCC recognises the work being progressed by states to fix this issue by identifying different types of trades on trade forms.</p> <p>The ACCC has made some further recommendations in this regard in chapter 12.</p>
Irrigators	<p>Significant proportion of zero dollar trades leads to difficulties in understanding prevailing market prices and assessing trading opportunities.⁷⁴⁵</p> <p>Improving information is a reform priority. The most effective way of improving information would be to make a trade approval conditional on price disclosure ('no price, no trade'). A single web information portal would be an access point to data held by state registers.⁷⁴⁶</p>	<p>The ACCC recognises the work being progressed by some states to fix this issue by requiring parties to disclose a reason for trade so that they can publish different types of trades.</p> <p>There however remain issues in terms of the ability to verify trade reason and price. The ACCC has made some recommendations in this regard in chapter 12.</p>
Brokers	<p>Lack of information on ownership and trade within IIOs leads to difficulties in understanding prevailing market prices and assess trading opportunities.⁷⁴⁷</p>	<p>The ACCC considers that it is necessary for there to be greater transparency on trade activity within IIO networks, particularly given the high levels of trade activity in some networks.</p> <p>The ACCC has made some recommendations in this regard in chapter 12.</p>

741 Citrus Australia, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 3.

742 Aware Water, *Submission to Murray-Darling Basin water inquiry issues paper*, 30 January 2020, p. 2.

743 Webster Limited, *Submission to the Murray-Darling Basin water inquiry issues paper*, 13 February 2020, p. 4.

744 National Irrigators' Council, *Submission to the Murray-Darling Basin water inquiry issues paper*, 30 January 2020, p. 7; Commonwealth Environmental Water Holder, *Submission to Murray-Darling Basin water inquiry issues paper*, 13 February 2020, p. 5.

745 New South Wales Irrigators' Council, *Submission to Murray-Darling Basin water inquiry issues paper*, 30 January 2020, p. 7; Commonwealth Environmental Water Holder, *Submission to the Murray-Darling Basin water inquiry issues paper*, 13 February 2020, p. 5.

746 Chris Guest, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 3.

747 Australian Water Brokers Association, *Submission to Murray-Darling Basin water inquiry issues paper*, 30 January 2020, p. 4; Webster Limited, *Submission to Murray-Darling Basin water inquiry issues paper*, 13 February 2020, p. 4.

Example of stakeholder types raising concern	Stakeholder concern/view	ACCC response
Other	Reform progress has been too slow and little has changed ⁷⁴⁸ , and that this is continuing to give some participants an edge over others. ⁷⁴⁹	The ACCC considers that the previous attempts to improve information transparency in basin markets have been met with many challenges and complexities. The ACCC has made some recommendations in this regard in chapter 12.

Overall, stakeholders consider reporting on historical trades is inaccurate, incomplete, untimely and dispersed across multiple state websites and presented in different ways. This has led to stakeholders, such as GoFARM, indicating support for the options proposed in the interim report:

There needs to be standardisation of Basin State registers, including the implementation of standards for trade processes and reporting requirements and reporting of contracts for leases, forwards and carryover parking to registers. This could be achieved through greater interoperability between Basin State registers or the creation of a single water market information platform for publishing water availability and trade information. An information portal that links state registers and IIO trade data in real time would be beneficial and a relatively low-cost solution to provide whole of market information across the southern MDB compared to some of the other options presented in the interim report.⁷⁵⁰

Some participants note that ‘water allocation markets are very dynamic – historical price information is not so useful to inform daily decisions when competing and changing in-season crop demands, anticipated rainfall, evaporation, and anticipated temperatures are impacting actual demand and supply for irrigation water.’⁷⁵¹ This emphasises the need for broader information to be available and not to solely focus transparency efforts on improving register data.

Zero dollar trades and unverified price reporting continue to be an issue and price reporting obligations are not working as intended. The MDBA audit has prompted Basin States to adopt changes to facilitate users disclosing price information more easily, such as providing for a reason for trade, details of the MDBA’s audit are detailed below in box 11.3.

748 Lin Crase, *Submission to Murray–Darling Basin water inquiry interim report*, 13 November 2020, p. 2.

749 Chris Guest, *Submission to Murray–Darling Basin water inquiry interim report*, 13 November 2020, p. 3.

750 GoFARM, *Submission to Murray–Darling Basin water inquiry interim report*, 13 November 2020, p. 3.

751 Argyle Capital Partners, *Submission to Murray–Darling Basin water inquiry interim report*, 13 November 2020, p. 4.

Box 11.3: MDBA price audit findings, recommendations and response

Background

The MDBA has a broad audit function and undertakes audits as part of its annual work program, or in response to specific incidences.⁷⁵²

The MDBA price audit comprised two parts. The first part assessed the ability of the approval authorities to collect, record and publish price information reported to them. The second part looked at whether water traders were complying with section 12.48 of the Basin Plan Water Trading Rules (BPWTR) and accurately reporting price to the approval authorities in their trading forms. Price reporting obligations are relatively new, commencing in 2014 when the BPWTR came into effect. To conduct part 2, an independent assurance on compliance was undertaken by Deloitte by selecting a random sample of trades from each of the states.

The MDBA released the findings of the price audit in May 2019.

MDBA price audit findings

Part 1 of the audit found that 'no Basin State has robust arrangements in place to ensure comprehensive, accurate price information'.⁷⁵³ The audit also found that no Basin States required evidence to support prices reported.⁷⁵⁴

State-specific findings also included identifying some discrepancies between what was recorded on trade forms and what was on public water registers and published by BOM.⁷⁵⁵ The audit also found that, at the time, Queensland did not include price as a field on temporary trade forms.⁷⁵⁶

Part 2 of the audit found that there was some confusion around the existence or purpose of s. 12.48 and a lack of price controls meant that blank prices were accepted and inappropriately processed as zero dollar trades.⁷⁵⁷ Part 2 also found that overall 50% of trades sampled were not compliant with s. 12.48.⁷⁵⁸

Marsden Jacobs also conducted a scoping study for MDBA on secondary market products in 2020, which found secondary products suffer from transparency issues and weaken market price transparency.⁷⁵⁹

752 Murray-Darling Basin Authority, 2020, <https://www.mdba.gov.au/publications/mdba-reports/audit-assurance>, viewed 22 June 2020.

753 Murray-Darling Basin Authority, *Water Trade Price Reporting under Basin Plan, Part 1: Basin State processes and procedures for collecting water trade price information*, 2019, p. 2.

754 *ibid.*, p. 3.

755 *ibid.*, p. 7.

756 *ibid.*, p. 14.

757 Deloitte, *Water Trade Price Reporting under Basin Plan, Part 2: Independent assurance report of individual trades*, 2019, p. 2.

758 *ibid.*

759 Murray-Darling Basin Authority, <https://www.mdba.gov.au/publications/independent-reports/murray-darling-basin-water-market-products-scoping-study>, viewed 7 February 2021.

MDBA price audit recommendations

Part 1 of the audit included Basin-wide recommendations that all state trade forms include compulsory price fields, registry systems should require a reason to be provided for a zero dollar trade, price validation processes be implemented that are consistent across the states, and the states work with BOM to ensure quality data is provided for improved reporting by BOM.⁷⁶⁰

Part 2 of the audit recommended that price reporting should be made mandatory on all trade application forms, and that support should be given to both brokers and individual traders through trading sessions, information guides and reporting templates.⁷⁶¹ Part 2 also recommended pursuing online portal lodgements as a way to reduce manual data entry errors, and double handling of trade information.⁷⁶²

MDBA response to recommendations

In October 2019 the MDBA responded to its Water Trade Price Audit Report outlining the ways it intends to work with Basin State counterparts to improve information collected and reported by state registries. The MDBA stated that it will work with Basin State counterparts to undertake a gap analysis of information requested at the time that transactions are recorded in state registries and will then work towards developing a standard set of data fields which could be captured by the states and presented as more comprehensive water market information. The MDBA also noted in its response that it 'will also explore longer term options to develop and implement a common Basin-wide Compliance Framework for trade information'.

The MDBA is now progressing its response to improve monitoring, validation and compliance, as well as water trade information and reporting (see also box 11.2 above).⁷⁶³ The MDBA has committed to work with Basin States to undertake a gap analysis of information requested at the time transactions are recorded in registries. The MDBA also committed to develop a standard set of fields which can be captured on the registers and presented to the market.⁷⁶⁴ Furthermore, the MDBA acknowledged the inefficiencies of multiple systems, and committed to working with the states and BOM to harmonise registers and explore longer term options to develop and implement a single Basin-wide information system.⁷⁶⁵

The *Water Act 2007* (Cth) gave BOM a new water information role, with a requirement to produce annual water accounts.⁷⁶⁶ The Act requires entities specified in the regulations to provide information to the BOM. The Act also gives BOM discretionary power to publish information on water access rights, trades or leases of water access entitlements and irrigation right and water allocation announcements and allocation trades.⁷⁶⁷ BOM uses the discretionary power to publish the Water Markets Dashboard, but unlike the annual water accounts, BOM is not legally obliged to publish this information.

The *Improving Water Information* program was the first attempt to centralise the collation and publication of Australian water information⁷⁶⁸ and required standardisation of the terms and definitions that different states had developed for water entitlements, allocations and trades.⁷⁶⁹

760 Murray Darling Basin Authority, *Water Trade Price Reporting under Basin Plan, Part 1: Basin State processes and procedures for collecting water trade price information*, 2019, p. 5.

761 Deloitte, *Water Trade Price Reporting under Basin Plan, Part 2: Independent assurance report of individual trades*, 2019, p. 4.

762 *ibid*, p. 4.

763 MDBA, *Water Trade Price Reporting Audit: Management Response*, 2019, p. 7.

764 *ibid*, p. 2.

765 *ibid*, p. 3.

766 *Water Act 2007* (Cth) Part 7, ss. 118-135; *Water Regulations 2008* (Cth) Part 7, ss. 7.01-7.11.

767 *Water Act 2007* (Cth) Part 7, s. 123(1)

768 Bureau of Meteorology, 'Advances in water information made by the Bureau of Meteorology from 2007 to 2010', *Improving Water Information Program Progress Report*, 2010, p. 5.

769 R Vertessy, 'Water Information Services for Australians', *Australian Journal of Water Resources*, vol. 16, no. 2, 2013, p. 99.

BOM's role in water market information is one part of its role in terms of delivering water information. BOM's Water Information Program looks to publish information that can answer the following questions:

- How much water is available today, relative to the past?
- How is the water in our rivers and aquifers changing?
- What is the water availability outlook?
- Who is entitled to use water and how much are they using?
- How is the rate and pattern of water use changing?
- **How much water is being traded and for what price? (water market information)**
- How much water is being allocated to the environment?
- How much water is being lost to evaporation and leakage?
- How is climate change impacting on our water resources?

In terms of its role in relation to water trade information, regulations made under the *Water Act 2007* (Cth) requires Basin States and some IIOs to provide information to BOM. BOM consolidates this information and provides a dashboard showing the volume of water traded and volume weighted average prices. Users are also able to download transaction data from the dashboard. The dashboard was one outcome from the National Water Market System, the same initiative which looked to create a common register.

BOM has used its power under the *Water Act 2007* (Cth) to specify the manner and form in which some data is to be provided by entities under the Water Regulations. However BOM has not used its power to issue broader compulsory information standards in relation to water market data.

Current criticisms of BOM's data are mostly related to the accuracy of the data which BOM receives from the trade forms lodged with the states and consequently flows through to BOM's data quality.⁷⁷⁰ Aither's work in 2014 indicated low levels of awareness of BOM's water products, and while significant improvements have been made since then, the website analytics do demonstrate that further engagement and user reach is necessary (see table 11.1 above). For those that are aware of the products, the ACCC has heard concerns such as '(t)he BOM dashboard is hard to navigate and it is not clear how the data is cleansed to remove the same trade being reported through the different registers.'⁷⁷¹

11.3.2 Stakeholders find it difficult to assess market depth and current market price

Stakeholders consider current price and market depth is not well known as buy and sell offers are dispersed across multiple exchange platforms and broker websites. Concerns and ACCC views are summarised in table 11.3.

770 Almond Board of Australia, *Submission to Murray-Darling Basin water inquiry issues paper*, 5 March 2020, p. 7; Commonwealth Environmental Water Holder, *Submission to Murray-Darling Basin water inquiry issues paper*, 13 February 2020, p. 5.

771 Coleambally Irrigation Co-operative Limited, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 15.

Table 11.3: Overview of main stakeholder concerns and ACCC's response

Example of stakeholder types raising concern	Stakeholder concern / view	ACCC response
Irrigators Irrigation infrastructure operators (IIOs) Government bodies	Market information such as price is dispersed, presented in different formats and is difficult to access ⁷⁷² , which leads to difficulties in determining market depth and the full extent of trading opportunities, and creates an 'un-level playing field' because some participants have a comparative advantage in making use of fragmented information. ⁷⁷³	While the ACCC acknowledges that this continues to be a concern, the Waterflow website is beginning to fill this gap. As more brokers sign on to Waterflow and update their websites regularly, Waterflow will be in a position to provide more complete data.
Exchange platforms	The two key drivers of market transparency and efficiency, which are price and liquidity discovery, are very difficult to determine currently. A key issue in the current water market is that there is no single exchange that lets every participant see every buy and sell order in real time, in one place. ⁷⁷⁴	The ACCC considers increased connections between exchange platforms and brokers, and with the proposed Backbone Platform and presenting information on the Water Market Information Portal ⁷⁷⁵ , will help to bring together information so that current market price and market liquidity is easier to determine.
Industry bodies	If a grower uses more than one broker, their water parcel could potentially be listed on many broker websites, therefore giving a false sense of 'supply' to the market. ⁷⁷⁶	The ACCC also understands that assessing market depth even on the one exchange platform can be difficult when parcels are listed in zones where they can be delivered rather than where originate (however, a unique identifier could make identifying these parcels possible).

The ACCC heard that traders look to the large exchange platforms (H2OX and Waterexchange), and to Basin State registry data, to inform their price expectations, but lean more heavily on the exchange platforms because of issues with the registry data (especially timeliness and inability to distinguish different types of allocation trade). Reliance on brokers and exchange platforms for relevant market data is a concern for some participants. The ACCC considers that this concern is related to the lack of regulation which currently applies to brokers and exchange platforms, explored in chapter 8 with recommended regulatory response in chapter 9.

While exchange platforms and brokers do provide market information either publicly or to their members, there is no obligation on them to do so. There is also no overarching obligation that applies to all trades and all brokers in relation to record keeping. This has created a situation in which the information published by exchange platforms and brokers differs in format and timeliness, and can be difficult to navigate.

Exchange platforms also present bids and offers in different ways, for instance, Waterexchange presents water for sale by its destination, meaning the same parcel is listed under multiple zones (identifiable by parcel number). This is also true for some Basin State dashboards. For instance, the Victorian Water Register's 'Allocation trading' webpage generally reports trade as being within a zone, into a zone or out of a zone; users need to scroll to the bottom of the page and undertake a bulk download of historical trade data to access information on origin and destination zones associated

772 For example, Coleambally Irrigation Co-operative Limited, *Submission to the Murray-Darling Basin inquiry issues paper*, 13 February 2020, p. 8; Department of Agriculture, *Submission to the Murray-Darling Basin inquiry issues paper*, 30 January 2020, p. 11; Murrumbidgee Irrigation, *Submission to the Murray-Darling Basin inquiry issues paper*, 13 February 2020, p. 3; Numerous irrigator submissions, such as AJ and MH Spiers, *Submission to the Murray-Darling Basin inquiry issues paper*, 30 January 2020, p. 1.

773 New South Wales Irrigators' Council, *Submission to the Murray-Darling Basin inquiry issues paper*, 30 January 2020, p.7; Fruit Growers Victoria Ltd, *Submission to the Murray-Darling Basin water inquiry issues paper*, 13 February 2020, p. 2.

774 H2OX, *Submission to the Murray-Darling Basin inquiry issues paper*, 13 February 2020, p. 5.

775 Refer to chapter 12.

776 Citrus Australia, *Submission to the Murray-Darling Basin inquiry issues paper*, 30 January 2020, p. 9.

with individual trades.⁷⁷⁷ In contrast, WaterNSW's website provides more easily accessible data on both origin and destination per transaction, and also publishes Water Access Licence (WAL) numbers associated with transactions, allowing data users a greater ability to track water allocation movements over time. However, WaterNSW's website does not provide information by trading zone, and provides it only by water source.

Box 11.4: Are transaction costs included in water price information sources?

The Bureau of Meteorology (BOM) maintains the Water Markets Dashboard, which collates volume and price data for water entitlements and allocations.⁷⁷⁸ This information is reported to BOM by trade approval authorities and some IIOs under the *Water Act 2007* (Cth) and Water Regulations 2008 (Cth).

Trade approval authorities and some IIOs are required to supply BOM with the gross and net sale price for each trade, where the gross price is 'the transfer price as agreed between legal entities inclusive of all applicable transaction costs' while the net sale price is exclusive of these transaction costs.⁷⁷⁹ BOM considers transaction costs to include:

search, negotiation and enforcement costs including, but not limited to, all government water transfer fees and charges applicable to water trade, conveyance charges and professional service fees (such as accountants, brokers, lawyers).⁷⁸⁰

However, BOM only report the net price as trade approval authorities and IIOs only request a single dollar value per trade. While trade approval authorities and IIOs may also be able to supply their approval fees to BOM, any additional transaction fees incurred by the water market participants to facilitate the trade would not be captured and the additional transaction cost information would be incomplete. Further, trade approval authorities' forms are inconsistent. For allocation trades, WaterNSW requests a value per volume (\$/ML)⁷⁸¹ while the Victorian Water Register requests a total sale value⁷⁸², where transaction costs may be inadvertently included.

Additionally, the prices reported in trade approval applications can be erroneous or intentionally left blank, and none of the authorities require trade applications to provide evidence to support the entered trade price.⁷⁸³ Without consulting the traders, there is no clarity on which fees have and have not been included in the reported trade price.

While there is no legal requirement to provide information, intermediaries now compete with registers to supply the emerging information services market. These providers include brokers and exchange platforms who use the data generated from their advisory and matching services, sometimes supplemented with publicly available registry data, to provide information to the market.

Exchange platforms and brokers are the key source of buy and sell offer data. As part of their matching and information services, water brokers and exchange platforms often list their current buy and sell offers publicly or privately to members on the platform. For example, Waterfind provides a real-time

777 Victorian Water Register, n.d., *Allocation Trading*, <https://waterregister.vic.gov.au/water-trading/allocation-trading>, viewed 2 February 2021. The webpage, however, does not make clear that more detailed information on trading zones is available via this feature, with the result that some users may not be aware that this information is available.

778 Bureau of Meteorology, 2020, <http://www.bom.gov.au/water/dashboards/#/water-markets/mdb/at>, viewed 20 May 2020.

779 Bureau of Meteorology, *Explanatory Notes for Water Regulations Metadata and Contextual Information Category 6: Information about water rights, allocation and trades, subcategories 6a, 6b, 6c, 6d, 6e, 6f and 6g*, 2016, pp. 19 and 26.

780 Bureau of Meteorology, n.d., *Australian Water Information Dictionary*, <http://www.bom.gov.au/water/awid/id-544.shtml>, viewed 24 February 2021.

781 WaterNSW, *Application to Assign Surface Water Allocation*, 2015, <https://www.waternsw.com.au/customer-service/service-and-help/forms>, viewed 20 May 2020.

782 Department of Environment, Land, Water and Planning (Victoria), 2018, https://waterregister.vic.gov.au/component/waterregister_reports/report/view?type=F4&rid=WS_039, viewed 20 May 2020.

783 MDBA, *Water Trade Price Reporting under the Basin plan Part 1: Basin State processes and procedures for collecting water trade price information*, 2019, p. 11.

water market for allocation and entitlement trades but this is limited to its members and not publicly available. Additionally, many IIOs also operate their own exchange platforms.⁷⁸⁴

Box 11.5: A snapshot of water information in Murrumbidgee – with and without using Waterflow

Looking at price and other related data without using Waterflow

The BOM’s new fortnightly near-real time statements provide a snapshot of climate and forecasts information. This fortnightly statement also provides information on approved trades.

Then to obtain current price information, it is necessary (to gain a full understanding) to look at the public websites of (for example) H2OX, Key Water, Waterpool, Waterexchange, Wilks Water and Elders, all of which are either water market exchange platforms or brokers who publish offers via an online bulletin board service.

Waterexchange lists buy and sell offers inclusive and exclusive of trade approval authority processing fees, but does not specify brokerage fees as this can vary.

Looking at price and other related data with Waterflow

Waterflow⁷⁸⁵ aggregates and disseminates water information from a variety of sources. While many of the larger water market intermediaries now supply data to Waterflow, exchange platforms and brokers have no obligation to supply their buy and sell offer data. Waterflow relies on the BOM Water Markets Dashboard⁷⁸⁶ for recent trade data, and this information therefore suffers from quality and timeliness issues.

Information such as allocation announcements and storage levels is provided by Waterflow.

Waterflow consolidates all sell offers in the market for the zone chosen, and presents this in an easy to compare view.

Figure 11.1: Listings displayed by Waterflow for zone 11 on 10 December 2020

CURRENT LISTINGS				
>		BEST PRICE \$210 / ML	MATCHED LISTINGS 17	MATCHED VOLUME 2,321 ML
>		BEST PRICE \$220 / ML	MATCHED LISTINGS 4	MATCHED VOLUME 500 ML
>		BEST PRICE \$260 / ML	MATCHED LISTINGS 4	MATCHED VOLUME 1,580 ML
>		BEST PRICE \$270 / ML	MATCHED LISTINGS 2	MATCHED VOLUME 650 ML
>		BEST PRICE \$300 / ML	MATCHED LISTINGS 1	MATCHED VOLUME 500 ML

Source: www.waterflow.io

784 Some IIOs have exchange platforms which are managed and run by a separate and independent company.

785 Marsden Jacob Associates, 2020, <https://www.waterflow.io/>, viewed 26 October 2020.

786 Bureau of Meteorology, n.d., <http://www.bom.gov.au/water/dashboards/#/water-markets/mdb/at>, viewed 7 February 2021.

11.3.3 Stakeholders consider access to good quality water supply and demand information needs to be improved

Some stakeholders consider that better supply and demand information (including allocation announcements and IVT openings) is what is really needed to help market participants. For example, Argyle Capital Partners stated that ‘we suggest there is greater benefit to market participants through the provision of information in relation to:

- regional water supply including forecast supply (water allocation announcements) under different rainfall conditions; the volume of water allocations announced year to date; the volumes of water allocation used/applied year to date; the volume of supplementary water pumped/taken; the carryover volumes accessed year to date; conveyance volumes and constraints from region to region (zone to zone); and
- regional water demand including the relative returns for various competing crop enterprises; the relative scale (planted area and maturity profile) of various crop enterprises (annual and permanent); their resulting aggregate irrigation requirements year on year etc.⁷⁸⁷

Australian Dairy Industry Council’s survey of members also strongly indicates the importance of this type of information:

DA Survey Question: What information do you use to effectively understand and use water markets and products? (Choose all that apply)		
Answer Choices	Responses	
	Percentage	Number
Seasonal forecasts/updates on water availability and allocations	93.4%	57
Pricing in terms of current bids and offers for water market products	78.7%	48
Trade and carryover rules	49.2%	30
Production planning and water budgets	39.3%	24
Historical trading information including water market products and price	34.4%	21
Information on different water products and how they work	26.2%	16
Carryover limits for each valley	26.2%	16
Other (please specify)	0%	0
Total respondents for this question: 61		

Source: Australian Dairy Industry Council, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 15.

One factor that can diminish predictability in a market is inconsistent or unexpected timing of announcements or decisions in the market. Select Harvests Limited submitted that:

As an irrigator, SHV is required to continuously monitor seasonal conditions, trading opportunities and government announcements, to ensure we can trade water to our farms for consumptive use when required.⁷⁸⁸

Another submission articulated the impact of unpredictability and uncertainty around government announcements, and the timing of these. Marianne Graham submitted that:

‘By far and away, the largest non-transparent factor in the market are the unexpected announcements and non-transparency of the [Murray-Darling Basin Authority (MDBA)], Water NSW, NSW DPIE and Victorian Water Authorities decision.’⁷⁸⁹

787 Argyle Capital Partners, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 3.

788 Select Harvests Limited, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 4.

789 Marianne Graham, *Submission to Murray-Darling Basin water inquiry interim report*, 4 December 2020, p. 1.

Under section 12.49 of the Murray–Darling Basin Plan, public announcements that are of a decision that relates to actions Commonwealth or Basin State agencies are undertaking and can be reasonably expected to have a material effect on the price or value of water access rights, are considered to be ‘water announcements’. Under section 12.50, water announcements must be made generally available. However, the requirements are not meeting stakeholders’ needs and transparency concerns remain.

For example, while the MDBA’s River Murray Weekly Report on 18 November 2020 flagged that an IVT call out would occur,⁷⁹⁰ stakeholders who had relied on the MDBA’s annual outlook were caught unaware and attributed this to a significant price increase.⁷⁹¹ The ACCC considers there is an opportunity to more explicitly highlight and draw attention to announcements that will have direct and possibly significant market impacts.

11.3.4 Confidence in current market data has been affected by quality issues

Insufficient access to comprehensive, consistent and accurate market data can create information asymmetries, which can reduce market efficiency (see appendix G for detailed discussion on data quality issues in register data). The key findings are outlined below.

Improvements in Basin State register data is needed to meet user needs

The ACCC has found that there is plenty of information capture in current water trading processes, and there are attempts to bring data together (BOM’s role), however the multiplicity of systems has resulted in poor quality and incomplete whole-of-market data. The lack of quality and timeliness of register data is undermining its usefulness for market participants, with participants often reporting that they will instead refer to exchange platform websites to see recently completed trades.

Each Basin State currently publishes information from their water registers, in line with the National Water Initiative (NWI) principles and objectives. While each state (except Queensland) has provisions in state water management legislation to both maintain and make available a public register which records water allocation trades, very little is specified in terms of what is recorded, how it is verified, time in which it must be made public, what must be made public and how it must be made public. This has led to each state developing different trading forms, recording information differently and publishing different information.

While detailed trade information is mostly available for both entitlement and allocation trades (noting that no water allocation trade (called seasonal water assignment) information is available in Queensland, and only share component trading is available in New South Wales), the datasets and user interfaces are inconsistent. The datasets also do not accurately report on price or product type (noting recent improvements in some states may soon make product data available). Furthermore, lags between trade agreement date and publication date can contribute to price dispersion and can create concerns about misconduct thus reducing market confidence.

The key issues are (see appendix G for further information on key data quality issues):

- Conflicting definitions of a water allocation trade and a water allocation transfer, making it difficult to compare across sources.
- Zero dollar/missing price trades due to inadequate trade forms (for example, less than 30% of IIO trades overall recorded a price, and over 30% of all trades (by number of trades) in the Southern Connected Basin were reported as zero dollar trades between water years 2012–13 and 2018–19).
- Trades within IIOs in New South Wales and South Australia are not captured on state registers, but they contribute a significant proportion of trade activity (between 1 July 2016 and 30 November 2019, the number of internal trades (including transfers) of temporary irrigation right was higher than the number of water allocation trades within New South Wales and South Australia, as recorded on the state registers)

790 Murray Darling Basin Authority, *Weekly Report 18 November 2020*, 2020.

791 Marianne Graham, *Submission to Murray–Darling Basin water inquiry interim report*, 4 December 2020, p. 1.

- Inability to distinguish commercial allocation trades, related or same party trades and other water products (the ACCC undertook trade categorisation analysis, see appendix G)
- Inability to distinguish broker facilitated (or broker as principal) trades, as lodgement pathway and authorised agent is not captured consistently
- Inability to see the strike date for approved trades, as this has been not captured on trade forms
- Lack of timeliness – resulting from lags between ‘strike date’, form lodgement and approval and then eventual publication (see appendix D, figure D.20 which shows that lodgement lags have a significant impact on price dispersion ratios)
- Diverse user interface with different reporting limitations and differing presentations of data across the states making it difficult to engage with what data is presented (for example, Victoria’s Water Register interface is very different to WaterNSW’s)
- Inability to ‘match’ trades on registers with bids and offers on exchange platforms (lack of common identifiers for transactions)
- Inconsistencies in what data on ownership is available (For example, the NSW LRS water title register allows for individuals to search the register by name, but this service is only available in person.)
- Inability to see full picture of interstate and inter-zone trade (with some register interfaces just showing movements in and out of zones, without showing origins and destinations per trade without downloading the data)
- While trading zones are used by some Basin States, New South Wales only provides information by ‘water source’, meaning data is published for the ‘New South Wales Murray Regulated River Water Source’ and it is not possible to identify the trading zones
- Different cleansing methodologies are applied to the data which can be difficult to identify
- For a potential regulator, issues also include the inability to identify individuals across states, or sometimes even within a state. A person may open multiple accounts or own multiple water rights under slightly different names. The lack of a requirement to record ABN or ACN, or other unique identifiers means that it is not then possible to identify individuals. Given there is no requirement to provide an ABN or ACN, the ACCC’s analysis of Basin State data indicates very low levels of recording – at just 4% of entitlements in Victoria recording with an ABN or ACN for the owner, and 18% in South Australia.⁷⁹² Corporations are required to provide their ACN in some instances. It is also not possible to identify related parties.

There is a need to implement ways for trade approval authorities and regulators to verify information. While the ACCC recognises that providing false and misleading information is prohibited through state based legislative mechanisms, there is a need to facilitate better data validation and verification – particularly to detect data entry errors.

There are some obvious necessary improvements, in relation to both information collection and information publication – for example, by requiring the reason for trade to be disclosed in trading forms, and ensuring that the list of reasons adequately covers evolving water market products and can respond dynamically.

The ACCC considers the centralisation of this information, with other water information, necessary to improve transparency (recommendation 12).

Water market information currently presented on BOM’s Water Markets Dashboard does not meet user needs

The ACCC found that both the quality of data that BOM receives from states and IIOs requires improvements, so too does the BOM user-interface and presentation of information.

For example, entitlement trade data include a mix of entitlement ownership transfers, changes to entitlement water volumes, IIO transformations (although the ‘core’ water right holder hasn’t changed) and some leases. The allocation trades data also consists of a variety of water product types, with

⁷⁹² See appendix G to this report.

forwards, options, transfers between a single owner's licences, shorter-term leases, and trades for environmental flows all included. These issues are not unique to BOM and stem from the same issues existing in Basin State registers.

BOM's data also suffers from quality issues in relation to price information not being subject to validation or verification, resulting in many zero dollar trades (although some legitimate non-commercial transfers) and outliers. BOM conducts data cleansing and publishes this methodology, however this methodology for both cleansing and calculating median price differs to that of other information providers. The ACCC also heard concerns that it was sometimes unclear what cleansing has been applied to data published by BOM, and the ACCC also considered that this information could be presented in a more accessible way.⁷⁹³ For example, BOM now removes allocation trades where the price is reported to be below \$5/ML or above \$10,000/ML.

The *Water Act 2007* (Cth) provides authority to the Director of Meteorology to issue mandatory National Water Information Standards, by legislative instrument.⁷⁹⁴ Once standards are issued, persons specified in the Water Regulations as required to provide BOM with information must do so in compliance with any applicable National Water Information Standards.⁷⁹⁵ The provision allows for standards to be issued in relation to collecting water information, water monitoring and measurement, through to water accounting.

However BOM has not used these provisions to create such mandatory standards but has instead taken a collaborative and voluntary approach with the states and IIOs in order to promote information standards and guidelines, and the BOM highlights the challenges in collecting data from many organisations all of which have their own documentation and business need requirements.

In summary, BOM has very few levers to improve data quality and timeliness, particularly in relation to missing data (such as strike date or price) and is reliant on the trade approval authorities collecting better quality data and being able to provide it to BOM in a more timely and automated manner. The provisions in the Water Act do also specify that in developing any standards, BOM must consult with the States in preparing the standards. The ACCC considers that such a consultative approach must be undertaken in developing any new provisions relating to standards as well.

The BOM is also conducting user needs analysis to inform the development of the information portal.

Better publicly available information on trade within IIOs is needed

There is currently a gap in available information on the trading activities within IIOs, and as discussed in chapter 10, some substantial trade activity occurs within these networks. Although, as described above, some IIOs report information to BOM, this current arrangement is not delivering good quality, timely or accessible information for the following reasons:

- Not all IIOs are required to provide data to BOM.
- Data is only required to be provided to BOM on a weekly basis.
- BOM's website makes it difficult to assess internal IIO trades.
- Price information is often missing.

793 Information is presented in the Help FAQ section of the Water Information Dashboard – see: <http://www.bom.gov.au/water/dashboards/#/common/help/faq>

794 Section 130, Part 7, *Water Act 2007* (Cth)

795 Section 126(b), Part 7, *Water Act 2007* (Cth).

Differing legislation and systems, as well as gaps in the current frameworks are a significant driver of transparency issues in relation to historical trade data

The ACCC considered the benefits in increasing ‘harmonisation across the Basin States’ registers through consistent terminology and data structures’ in the interim report, and sought feedback on the impacts of this preliminary recommendation. The MDBA submitted that:

The MDBA strongly agrees that more work is needed to improve the quality and availability of market data, and fully supports the ACCC’s preliminary options for improvement. In particular, the MDBA strongly supports the ACCC’s option to establish a trade processing and market reporting framework. However, there are some significant barriers to progress in this area and further incentives and legislative mandates may be needed to drive improvement under such a framework.

For example, under section 12.48 of the Basin Plan the obligation to report the price of a trade is on the seller. There is no requirement for Basin states to ensure that they accurately collect and record this information and there are limited levers for the MDBA to influence improvement in this area. The development of a trade processing and market reporting framework would need to be supported by a review of the legislated reporting obligations, to ensure reporting requirements match the data sought under the framework (i.e. reporting of irrigation and water delivery rights as well as water access rights) and the responsibility for data collection and reporting is clear and appropriate.⁷⁹⁶

Aither, New South Wales Government and WaterNSW have noted concern in relation to the costs, and particularly were concerned about ‘repeating unsuccessful past multi-jurisdictional efforts’.⁷⁹⁷

MFFA agreed with the ACCC’s findings in the interim report that current trade application forms and approval processes are strongly linked to the underlying legislation which defines tradeable water rights in each jurisdiction, and that legislation can act as a constraint to respond to stakeholders’ calls for improved water market information and transparency.⁷⁹⁸

Commonwealth Scientific and Industrial Research Organisation (CSIRO) have submitted that the best way forward in this respect is to make minor changes to existing terminology so that it can be translated (harmonised) more easily. This will also enable the states to maintain their own language where possible.⁷⁹⁹

Exchange platform and broker information is dispersed, with no central place to view all bids and offers

Information on buy and sell offers is failing to meet user needs. The ACCC has found the main issues regarding information on buyer and seller offers are:

- dispersion of offers across multiple platforms, while some are not published at all⁸⁰⁰
- a lack of regulation for brokers and exchanges means there are no obligations on brokers and exchanges to publish information and stakeholders may not trust information on these websites and consider they may not represent the ‘whole picture’⁸⁰¹
- Waterflow is relatively new in this space, and is still establishing itself as a known and trusted source – and is limited by the information published by other entities
- a lack of linkage between exchange and broker bids and offer data and Basin State register data means that it is difficult to trace how buy and sell offers ‘turn into’ actual approved trades.

796 Murray–Darling Basin Authority, *Submission to Murray–Darling Basin water inquiry interim report*, 13 November 2020, p. 10.

797 Aither, *Review of the Interim Report of the ACCC Water Market Inquiry*, 2020, p. 27.

798 Bureau of Meteorology, 2020, <http://www.bom.gov.au/water/awid/id-544.shtml>, viewed 8 May 2020.

799 Commonwealth Scientific and Industrial Research Organisation, *Submission to the Murray–Darling Basin water inquiry interim report*, 13 November 2020, p. 3.

800 Peer-to-peer trading, or trading through some brokers will not appear online as ‘bids’ or ‘offers’.

801 The Robinvale Table Grape Growers Advocacy Group, *Submission to Murray–Darling Basin water inquiry issues paper*, 30 January 2020, p. 5, and Almond Board of Australia, *Submission to Murray–Darling Basin water inquiry issues paper*, 5 March 2020, p. 16.

Allocation and IVT opening announcements can sometimes be unpredictable and insufficiently transparent, impacting prices

While the Basin Plan Water Trading Rules require water announcements to be made generally available, this requirement is not meeting users' needs. There has been concern that announcements are not predictable, and the underlying reasoning is not transparent – this is explored further in section 15.1.5.

For example, the recent 'interim Murrumbidgee allocation' neatly reflects the trade-off between flexibility and certainty. New South Wales DPIE demonstrated flexibility by allocating additional water to users a week earlier than it would have otherwise done, allowing users to use or trade that water earlier. However, the unanticipated deviation from the previously accepted schedule of announcements may have undermined some business decisions already made by water users, such as those who suffered as a result of potential price decreases from this announcement.

This example shows that flexibility in market architecture arrangements may inadvertently favour better resourced market participants such as dedicated traders over irrigators, who may be less likely to have access to market information at all times.

11.4 Some concerns about investors and brokers are related to information deficiencies

The ACCC also heard general concerns about misconduct, some of which have been fuelled by a lack of transparency and information deficiencies, as set out in section 6.3.

The ACCC found that many transactions which may appear suspicious upon first inspection were easily explained once the transaction type was known. Other transactions were misinterpreted as occurring on the same days due to differences between the trade approval date which appears on the register and the date the transaction occurred which is not public.

This supports the needs for the trade type and strike date to be collected by trade approval authorities and to be published on registers. This will increase confidence in trading activities, and increase the quality of register data.

Sections 8.6.3 and 6.3 explore these issues further.

11.4.1 Stakeholders are concerned about perceived information asymmetries

Stakeholders have concerns that intermediaries and large market participants benefit from information asymmetries. Concerns and ACCC views are summarised in table 11.4.

Table 11.4: Overview of main stakeholder concerns and ACCC’s response

Water technology companies	Concern that intermediaries have access to greater information and that there are information asymmetries in the market. ⁸⁰²	<p>The ACCC considers that the role of intermediaries does generate rich transaction data which may not be available to others. The ACCC considers that the roles intermediaries play in the market offers many benefits, but that regulation is required to manage potential conflicts.</p> <p>The ACCC considers that improvements to market information (as recommended in chapter 12) will go towards addressing concerns arising from information advantage.</p> <p>Chapter 8 also proposes a general obligation to act in the best interests of the client and to disclose conflicts.</p> <p>Chapter 9 also recommends broadening the insider trading prohibition which address intermediaries taking advantage of some information asymmetries.</p>
Government bodies Researchers	Water market education is needed to assist participants make better use of information available and increase water literacy. ⁸⁰³	<p>While the ACCC considers that the primary issues are related to information quality and accessibility, there is also a role to improve water market education to enable better use of available resources. Such initiatives have been taking place recently, and include the initiatives by PIRSA⁸⁰⁴ in SA, and AgVic has also run water market seminars.</p> <p>The ACCC has also recommended a Water Market Education Program (see recommendation 13).</p>

A combination of factors (such as increased demand below the Choke increasing prices) has given rise to increasing concern that larger traders have access to information (and also technical ability) which enables them to take advantage of IVT openings. However, brokers have been playing a role in facilitating smaller parcels of water moving through the IVT constraints by aggregating parcels to increase chances of trade approval in the ‘first in, first served’ system (explored in section 8.10 of chapter 8).

11.4.2 Some stakeholders consider water ownership and trade details should be made public to improve confidence and expose misconduct

Lack of transparency of water trading has given rise to some stakeholders considering that the best solution to this is to create a national register of water ownership, which includes publishing names of individual water rights holders. There have also been Bills debated in New South Wales Parliament in this regard.⁸⁰⁵ Victoria has recently commenced publishing details for large water entitlement holders – to date, only the names of companies, since Victorian legislation currently prohibits the release of personally identifiable information.⁸⁰⁶

802 Civic Ledger, *Submission to the Murray–Darling Basin water inquiry issues paper*, 30 January 2020, p. 1.

803 Dr Lana Hartwig and Professor Sue Jackson, *Submission to Murray–Darling Basin water inquiry interim report*, 13 November 2020, p. 8; Murray Darling Association, *Submission to Murray–Darling Basin water inquiry interim report*, 13 November 2020, p. 12; Murray–Darling Basin Authority, *Submission to Murray–Darling Basin water inquiry interim report*, 13 November 2020, p. 8.

804 Department of Primary Industries and Regions, https://www.pir.sa.gov.au/primary_industry/industry_support/water_market_literacy_program, viewed 4 February 2021.

805 For example see: Water Management Amendment (Water Rights Transparency) Bill 2020, <https://www.parliament.nsw.gov.au/bills/Pages/bill-details.aspx?pk=3751>.

806 Department of Environment, Land, Water and Planning (Victoria), *Water Market Transparency – Options paper*, 2019.

The ACCC understands there have been calls for a national water register which publicly discloses the names and other identifying details (such as addresses, ABNs, ACNs) of entitlement holders. Also, some stakeholders have called for the names and other identifying details of significant traders to be made public.⁸⁰⁷

This issue has been topical for some time, with differing views – such as the Matthews Report concluding that:

...as water generally is a community-owned resource, members of the public have a right to satisfy themselves that it is being used in compliance with the law. The overall objective of publishing water management information and data in a transparent way that is accessible to the public is to improve compliance effectiveness and public confidence in the regulation of our water resources. Ken Matthews concludes that full transparency would add considerably to a more compliant culture among water users.⁸⁰⁸

In contrast, some stakeholders have expressed significant concern about personally identifiable details being made public. For example, CICL submitted that:

CICL... has concluded increased transparency of ownership is not relevant to improving the operation of the water market. As the ACCC has identified, it is behaviours if harmful that require regulation, not ownership.⁸⁰⁹

11.4.3 Information deficiencies need to be addressed to support effective market conduct regulation

Publishing ownership and trade details will not support efficient markets

The ACCC has found that it is not necessary to publish identifiable information in relation to water ownership or trading activities in order for market participants to understand trends in trading activity and trading opportunities. The ACCC's view is that investment to provide this kind of information is not likely to materially assist stakeholders to make trading decisions, and there are other transparency improvements which should be pursued first. The reasons for this are:

- Publication of identity details in many, if not most, cases is insufficient to classify a person or entity into classes of interest to stakeholders. For example, consider a trader name of 'Smith holding Ltd.' – in this case, the holder name provides no information on whether this entity is an irrigator or other water user. This may lead to unintentional or deliberate misuse of published information ('misinformation').
- Stakeholders may respond strategically to publication of entitlement details by taking action to 'mask' their identity (such as transferring entitlement holdings into the name of related parties with less identifiable names) – this outcome would work directly against the objective of improving transparency.
- The introduction of a Market Regulator and Market Conduct Rules (as recommended in chapter 9) will ensure that market monitoring, which includes access to names and trading activities, is conducted to detect any market issues.

Moreover, the ACCC considers that publication of identity details may have several drawbacks or unintended negative consequences:

- Publication may be inconsistent with personal privacy laws, particularly when relating to information on individuals.
- Publication may allow certain service providers with avenues to inappropriately approach individuals to pressure them to engage in trade.

807 *ibid.*

808 NSW Government, *NSW Water Reform Action Plan Transparency measures consultation paper*, 2020, p. 2.

809 Coleambally Irrigation Co-operative Limited, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 17.

- Publication may allow inappropriate targeting of individuals or entities who are perceived to be engaging in inappropriate conduct, even where the conduct is lawful.

The ACCC continues to consider that a better approach is to balance transparency and privacy concerns by improving the quality, timeliness and accessibility of *de-identified* trade data, and at the same time to address concerns about misconduct or scope to 'take advantage' more directly (as recommended in chapter 9).

Addressing information deficiencies will work to improve market confidence and efficiency

Data consistency is required to support the proposed whole-of-Basin regulator. While there is currently no whole-of-Basin regulator, Basin States and the MDBA would have difficulty in using the existing information framework to investigate conduct of traders, both on exchange platforms and in trading forms to the Basin States.

The ACCC has faced challenges in piecing together a cohesive picture of trade to investigate misconduct, as outlined in chapter 6 and in appendix G.

The ACCC outlined some of these challenges in the interim report, and Citrus Australia submitted that 'the lengths the ACCC have had to go to obtain sufficient information to investigate stakeholder concerns are a testament for the need to improve collection, coordination and transparency of data.'⁸¹⁰

11.5 Insufficient transparency of decision making and how rules are made and applied contributes to uncertainty

Stakeholders expressed concerns about the difficulties they face in understanding how decisions are made, and how rules are applied. This particularly relates to allocation and carryover policies, although the concerns extend more generally.

Concerns and ACCC views are summarised in table 11.5 and table 11.6 below.⁸¹¹

11.5.1 Stakeholders consider government decision making in the Basin is not transparent

Some stakeholders have expressed some concern that although there are requirements to make decisions 'generally available', these decisions are having significant undesirable market impacts, which one stakeholder summarised as:

If you are looking at the factors that create instability and issue in markets I don't believe you can leave out the non-transparency of the Govt entities which have a huge effect on prices in the market and recently are very unexpected.⁸¹²

⁸¹⁰ Citrus Australia, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 3.

⁸¹¹ Some of the information types in these tables were categorised as 'secondary information' in the interim report.

⁸¹² Marianne Graham, *Submission to Murray-Darling Basin water inquiry interim report*, 4 December 2020, p. 1.

Table 11.5: Overview of main stakeholder concerns and ACCC's response

Example of stakeholder types raising concern	Stakeholder concern / view	ACCC response
Irrigators IIOs Exchange platforms	Lack of transparency of allocation decisions and later announcements leads to difficulties in planning water use and trading strategies, and can increase water prices. ⁸¹³	The ACCC considers that while the states are meeting their requirements to make allocation determinations generally available, there are still concerns that the underlying policies do not allow individuals to predict or accurately anticipate these announcements, particularly due to a lack of clarity over how discretion is being applied by water managers.
Investors	There is a need to increase transparency and communication of water allocation and river operation decisions. ⁸¹⁴	The ACCC agrees there is scope for improvements to the transparency of allocation decisions and how river operations decisions are balancing conflicting objectives.
IIOs	Policy changes should only occur if the need is strongly demonstrated as being in the interests of good water stewardship within the MDB and there is a rigorous cost-benefit assessment. ⁸¹⁵	The ACCC is aware of the significant costs and disruption that will be caused by pursuing more substantial policy reforms, as well as the presence of 'reform fatigue' among many market participants. For this reason, the ACCC recommendations in chapter 16 focus on 'no regrets' changes, supported by further work to improve the evidence base on issues before pursuing major reforms.
Irrigators	Current and past decisions about trading rules do not adequately or transparently take into account how trade and use of traded water affects volumes in storage, river operations and conveyance losses. This concern about trading rule decision making also spurs a general concern about third party impacts of trade, affecting attitudes towards trading in general. ⁸¹⁶ Lack of transparency in how conveyance losses are calculated and where financial liability for losses should accrue. ⁸¹⁷	The ACCC considers that there are information gaps in this regard. Without the deployment of improved technologies and modelling to better capture this information, this issue will remain. Proactive steps to investigate and publicise findings on the factors influencing entitlement reliability will help improve market confidence.
Irrigators	Current and past decisions about access to carryover do not adequately or transparently take into account how carryover affects entitlement reliability or timing or allocations to entitlement holders. This affects water markets by creating uncertainty about supply and demand. This concern also leads to perceptions of unfairness, affecting attitudes towards water markets and water policy in general. ⁸¹⁸	The ACCC has found that carryover use can potentially impact entitlement reliability through affecting spill risk, forfeitures and evaporation losses. While spill risk impacts appear relatively well managed, and forfeiture impacts are relatively small, the ACCC does recommends that Basin State governments cost evaporation losses to individuals to control for third party impacts.

813 Australian Grape and Wine Incorporated, *Submission to the Murray-Darling Basin water inquiry issues paper*, 30 January 2020, p. 7; Water Find Pty Ltd, *Submission to Murray-Darling Basin water inquiry issues paper*, 30 January 2020, p. 6; Deborah Arthur, *Submission to Murray-Darling Basin water inquiry issues paper*, 13 February 2020, p. 1.

814 Aware Water Group Pty Ltd, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 2.

815 Renmark Irrigation Trust, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 7.

816 Murrumbidgee Valley Food and Fibre Association, *Submission to Murray-Darling Basin water inquiry issues paper*, 30 January 2020, p. 4.

817 Riverina and Murray Joint Organisation, *Submission to Murray-Darling Basin water inquiry issues paper*, 5 March 2020, p. 6.

818 Marieann Westerhoff, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 1; Robert Caldwell, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 1.

11.5.2 Stakeholders consider that trading rules, allocation and carryover policies are too complex, too dispersed and not transparent

The ACCC heard concerns that important information, such as allocation policies and river operations policy, which can significantly impact water pricing, are inadequately communicated to the irrigators and traders who rely on these to make business decisions.⁸¹⁹

Table 11.6: Overview of main stakeholder concerns and ACCC's response

Example of stakeholder types raising concern	Stakeholder concern / view	ACCC response
Irrigators	There is inadequate information 'for the public to understand market operations, what is driving policy change/or external influences on market directions.' ⁸²⁰	The ACCC considers that the lack of transparency relating to allocation policies and announcements allows for distrust to arise, and in some instances misconceptions to prevail. Chapter 16 recommends that the states commit to improved transparency of the inputs, assumptions and administrative decision making involved in determining allocation announcements.
Irrigators Councils	Concerns that information about market architecture, including carryover and allocation policies, and trade and intervalley trade (IVT) rules is difficult to find, lacks clarity and is complex, making it difficult to make informed trading and water use decisions, and to assess current and likely future conditions based on currently available information. ⁸²¹ Concerns that IVT rules are opaque ⁸²² and access to opportunities is unequal (lack of a 'level playing field'). ⁸²³	The ACCC has observed that many policies have developed over time and often in response to water management issues that differ between areas in the Basin, creating complexity and many differing rules. The ACCC has considered this complexity in light of other market architecture and governance changes, and considered that the first step for market architecture reform is to better communicate policies and increase transparency of policy documents (both how the documents came about (decision-making) and transparency of what the policy means in a practical sense).
Irrigators	Concerns that insufficient information on water in storage is available to make credible assessments of current and likely future conditions; in particular, that insufficient information is provided on the volume of carryover in storage, making it difficult to predict likely allocations using only aggregate storage data (e.g. dam levels). ⁸²⁴	The ACCC has observed that aggregate (see recommendation 15) storage data (e.g. dam levels) is an insufficient basis for predicting future allocations, but that Basin States have generally made insufficient effort to refocus attention on other relevant data points, such as storage inflows. The ACCC considers Basin States could provide better information to help users understand how existing volumes in storage, and past and expected future inflows, relate to future allocations.

819 Murrumbidgee Valley Food and Fibre Association, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 2.

820 Murray Valley Private Diverters, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 4.

821 Almond Board of Australia, *Submission to Murray-Darling Basin water inquiry issues paper*, 5 March 2020, p. 18.

822 Fruit Growers Victoria Ltd, *Submission to Murray-Darling Basin water inquiry issues paper*, 13 February 2020, p. 3; Almond Board of Australia, *Submission to Murray-Darling Basin water inquiry issues paper*, 5 March 2020, p. 18; Leeton Shire Council, *Submission to Murray-Darling Basin water inquiry issues paper*, 30 January 2020, p. 2.

823 New South Wales Irrigators' Council, *Submission to Murray-Darling Basin water inquiry issues paper*, 30 January 2020, p. 2; Barossa Infrastructure Limited, *Submission to the Murray-Darling Basin water inquiry issues paper*, 30 January 2020, pp. 3-4.

824 The Australian Farming Services, *Submission to Murray-Darling Basin water inquiry issues paper*, 30 January 2020, p. 2.

11.5.3 Confidence in decision making has been impacted by lack of transparency

There are multiple factors which are currently impacting on the transparency of decision making in the Basin. Primarily, it is driven by the fragmented governance arrangements and insufficient provision of easy-to-access and easy-to-understand information. Improvements in relation to governance are addressed in chapter 17, and some specific recommendations in part 5 of this report.

The MDBA commented on how it is improving transparency:

Work has been started to improve the transparency of the information including improving the quality and relevance to users of the information routinely published on the MDBA's river operations activities, and examining how to improve the information that it is required to publish about water access rights, based on previous advice provided by the ACCC.⁸²⁵

The ACCC considers the centralisation of this information, as well as transparency of actual governance arrangements (clarity of who does what), with other water information, necessary to improve transparency (recommendation 12).

Difficulty in accessing and understanding different trading rules may be a factor explaining preferences for intrazone trade

The ACCC found a preference among traders for intrazone trading (see appendix D). While this preference may reflect the lower transaction costs of intrazone trading (ease of finding trading partner, lower trade approval application fees and shorter trade processing times), it may also be the case that this preference arises from the relative ease of only needing to understand the trade rules that apply to a limited number of zones.

The ACCC considers that making information on trading rules more consistent and accessible may assist market participants to make better informed trading decisions and make better use of interzone trade opportunities.

Allocation announcements and other decisions need to be better communicated to the market

The ACCC found that some information about allocations, managing extreme events and delivery risks and issues are not well communicated to the market. Additionally, over time, the relationship between dam volumes and allocation determinations in New South Wales has changed, likely due in part to the impacts of carryover and changes in state shares. This has contributed to views that there has been a change in how allocations are made, which heightens the importance of improved transparency of how these decisions are made.

While the ACCC heard concerns about New South Wales's allocation policy and that changes had been made to it, the ACCC could not identify any changes to the actual policy. These misconceptions and understandings about allocation policies are inhibiting market confidence and contributing to distrust of water management agencies more generally (see section 15.1 for more detail). There is a need for improved transparency around decision making and the inputs and calculations involved in these decisions.

Information on entitlement reliability, allocations and carryover policies needs to be improved and available in one place

The ACCC acknowledges that stakeholders' stated difficulty in understanding carryover arrangements partly reflects the wide range of carryover policies in place for Basin water resources, and that different arrangements are necessary to some degree because of the underlying hydrological differences, storage characteristics, the make-up of entitlements on issue, and allocation policies for the relevant water resources. However, the basis for carryover policy settings (and implicitly, the differences between carryover policies) does not always appear to be well-explained to relevant entitlement holders.

825 Murray-Darling Basin Authority, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 8.

Stakeholders' experiences also reflect that information about carryover arrangements has not always been provided in a consistent way across the Basin. Victoria and South Australia both have easy to find information on their carryover policies.⁸²⁶ New South Wales also recently consolidated its water accounting rules summary which lists carryover and account limits.⁸²⁷

The ACCC also observes that, due to carryover and other influences, dam levels are no longer as reliable as a proxy for allocation levels (see section 15.1.6). Where there are changes in policies that change water system operation, Basin States need to highlight this to stakeholders. Without this information, it is more difficult for market participants to manage their risks and confidently plan their water trading and use strategies.

More generally, the ACCC considers that a lack of easy-to-find information about all policies, including carryover arrangements and its impacts on storages and markets, leads to confusion and reduces water holders' confidence to participate in the market. This reduction in confidence and reluctance to participate in the market prevents water being traded to its most economically efficient use and inhibits the opportunity to improve welfare. The ACCC considers centralisation of information in more detail below at 11.7, and provides further details on the recommendation in chapter 12. Section 13.4.4 considers the inconsistencies in policies and requirements across the Basin in more detail. As noted in section 14.1.8, the ACCC considers Basin States should work to improve understanding of how entitlement reliability, allocations and carryover policies work.

It is not possible to track and trace water from allocation to use

Water trading does not always involve one single transaction between a buyer and seller. This is because of the many trading zones and markets that exist within the basin, and the level of risk that participants are willing to engage in differs, so some traders will aggregate and move water to zones where there is demand. This has given rise to aggregation services being offered by intermediaries to reduce transaction costs for traders and increase the likelihood of a parcel of water being traded through IVTs where there are limited trading opportunities. Some IIOs also offer pooling services to reduce transaction costs. However, this practice further complicates understanding where water was originally allocated and where it is eventually used.

For a regulator to assess the 'life-time' of a megalitre of water within the basin, it would need to be 'tagged' from allocation and tracked through each subsequent trade or transfer, or carry over until it is eventually used.

Section 13.5.1 explores the various reasons why tracking water can help to create data that is fit for purpose in measuring water market impacts. Insufficient data showing where and when traded water is being used, and the lack of connection between bulk and retail water accounting, make it harder to definitively determine the role of trade in contributing to issues observed in water markets.

11.6 Looking forward: change is needed to improve information quality and flows

The ACCC's view on informational needs of market participants is outlined at section 11.1.2 above. This section sets out specific aspects that are needed to deliver this information in a timely, consistent and easily accessible way, while also ensuring the information is of high quality.

Chapter 12 then sets out a detailed recommended reform package for information transparency and trade services improvements to meet these needs.

826 Department of Environment, Water, Land and Planning (Victoria), n.d., <https://waterregister.vic.gov.au/water-entitlements/carryover/carryover-rules>, viewed 7 February 2021; Department for Environment and Water (South Australia), n.d., <https://www.environment.sa.gov.au/topics/river-murray-new/information-for-industry/south-australian-private-carryover>, viewed 7 February 2021.

827 NSW Department of Planning, Industry and Environment, <https://www.industry.nsw.gov.au/water/allocations-availability/water-accounting/accounting-rules-summary-dashboard>, viewed 4 February 2021.

11.6.1 Standards for data collection need to be implemented

While transparency concerns in some sense are connected to improving the publication/dissemination of information, in other cases the real need is to introduce data collection and sharing standards to improve data quality. A key example is price of water trades, whereby the information is sometimes not collected, resulting in issues in publication.

The introduction of water market data standards might build on existing legislative provisions, for instance the National Water Information Standards provisions in the *Water Act 2007* (Cth) could be updated. Alternatively, it could involve a single body (for example, the recommended Water Markets Agency) ensuring compliance with comprehensive and mandatory data requirement standards, which could be in the form of a code or primary legislation. The standard can extend to the way in which information is collected, and BOM is already working with Basin States to harmonise terminologies for more consistent reporting of water market information as part of the development of the Murray-Darling Basin Water Information Portal.

Australian Government and Basin States governments should review terminology to identify where it can be harmonised or standardised, and where barriers to the collection of information can be removed or reduced (such as any lack of authority to collect certain information).

The current data issues which flow from this mismatched language and processes is well described by BOM, that 'the variety of methodologies and practices employed in collecting, managing and transferring this data means that it is difficult for other data customers to determine the fitness for purpose of the data and any derived information. The Bureau's role as the national water information provider has highlighted the difficulties in producing national information from data collected in different ways and without reference to agreed or commonly applied standards and guidelines.'⁸²⁸

Examples of completed and implemented standards and guidelines in water information are:

- National Industry Guidelines for hydrometric monitoring⁸²⁹
- the National Industry Guideline for water quality metadata⁸³⁰ (non-mandatory Australian industry recommended practice)
- the Water Accounting Standards 1 and 2.⁸³¹

The Bureau has exercised some of its powers in relation to water market data and has issued a Water Data Transfer Format, which specifies that certain data providers are required to provide specified water information to the Bureau in XML format.⁸³²

Setting up the correct mandate for information collection also requires funding, as outlined by NSW Irrigators' Council who submitted:

IIOs have expressed that they don't have the powers nor capacity to verify information provided by customers/brokers. The onus of accuracy in information provided to IIOs must rest on the customer providing the information.⁸³³

The pathway forward for reducing reporting burden, increasing information flows, and developing standards and a mandate to collect and verify information is explored in chapter 12. Part 5 of this report also includes relevant recommendations in terms of collecting more data, such as recommendation 17 which outlines the ACCC's view on the need to strengthen existing commitments to better metering and measurement of water take across the Basin. In addition, recommendation 15 outlines the need to fill some gaps in relation to decision-making transparency.

828 Bureau of Meteorology, n.d., <http://www.bom.gov.au/water/standards/aboutStds.shtml>, viewed 21 December 2020.

829 Bureau of Meteorology, n.d., <http://www.bom.gov.au/water/standards/niGuidelinesHyd.shtml>, viewed 21 December 2020.

830 Bureau of Meteorology, n.d., <http://www.bom.gov.au/water/standards/niGuidelineWQmetadata.shtml>, viewed 21 December 2020.

831 Bureau of Meteorology, n.d., <http://www.bom.gov.au/water/standards/wasb/awas.shtml>, viewed 21 December 2020.

832 Bureau of Meteorology, n.d., <http://www.bom.gov.au/water/regulations/dataDelivery/overview/wdtfFormat.shtml>, viewed 21 December 2020.

833 NSW Irrigators' Council, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 20.

11.6.2 Standard reporting from registers needs to be developed

While the method for publication is discussed below, and further in chapter 12, there are some key variables from register data that should be collected and published in a standardised manner by each Basin State going forward:

- product type (for example lease, forward, option)
- strike date
- match type (was it negotiated, was it automatically matched on a platform)
- lodging party type (was it lodged by a broker, off-market)
- lodging party name and broker company (not to be published).

Additionally, bids and offers, and trade within IIOs, must be more transparent and able to be shared to link to register data. Standards for providing this information should also be made (see chapter 12).

The ACCC considers mandatory service standards for data publication should be introduced, and could build on the existing COAG service standards for trade processing. The publication standards should include timeframes (either real-time from trade approval or near-real-time) and also include a standardised publication format, where possible (extending to market information, beyond the current Australian Water Account Standards).⁸³⁴ These standards could also include publication of other information, beyond only historical approved trades. This is discussed further as part of the recommendations package in chapter 12. The recommendation package aims to deliver the right level of data quality and transparency needed for information users such as irrigators, policy makers and regulators.

11.6.3 Transparency obligations on intermediaries are needed

The ACCC has recommended (recommendation 1) that intermediaries should have obligations to report specified and standard information in the specified format to a central repository (see discussion of the proposed Backbone Platform in chapter 12). This obligation should include data on bids and offers from exchange platforms (including platforms run by irrigation infrastructure operators (IIOs)), and trade data from Basin State and IIO approval authorities.

The ACCC considers this data reporting by intermediaries could best be achieved by using ‘compliant by design’ software which packages and transmits the intermediaries’ data into the required format as specified by a Digital Messaging Protocol (see chapter 12 for further detail).

As discussed in chapter 9, the ACCC also recommends that to address the enforcement challenges with price reporting obligations, the obligation should be relocated from the Basin Plan water trading rules to the new centralised integrity and conduct regulation, and be enforced by a new basin-wide regulator, or existing centralised regulator (see chapter 16 for more information about governance options).

There is also a need to place obligations on intermediaries to disclose certain information to their clients, to reduce information asymmetries. Such obligations are explored in chapter 9. This covers information that is not necessary to be published, but must be provided to clients

11.6.4 More information on governance processes, decision making and rule making should be made available

There has been increasing scepticism and concern expressed by some stakeholders in relation to river operator decisions and the trade-offs river operators make to manage delivering water. Stakeholders want to know more about how these trade-off decisions are made. Section 17.4.4 deals with these with recommendations to improve the transparency of decision making and rule making processes.

In relation to IIOs, the ACCC recommends (in chapter 9) that people with access to information about upcoming amendments to IIO policies, before that information is made public, should be prohibited

⁸³⁴ Bureau of Meteorology, n.d., <http://www.bom.gov.au/water/standards/wasb/awas.shtml>, viewed 7 February 2021.

from using that knowledge to gain an unfair advantage in the market. The ACCC also recommends that the IIOs should generally increase transparency of such decisions and reasons for decisions.

The ACCC also considers that information on water announcements needs to be better communicated to the market, and has recommended that such information be made available on the Water Market Information Platform.

11.6.5 More information should be available to regulators and River Operators

Currently, no market participant, regulator or policy maker has access to the complete picture of water trading or water movement. The ACCC considers that the proposed market regulator should also be given access to comprehensive and identified⁸³⁵ data feeds on water market activity for surveillance and reporting purposes. This will enable the regulator to monitor the market, analyse trade data across the Basin, and detect any misconduct.

Chapter 14 details what further information should be made available to better support river operations. Information on water storages, levels of carryover, and available water also need to be more transparent. Measures to achieve this are discussed in chapter 14 (in terms of content) and chapter 12 (in terms of the mechanism, being the Water Market Information Platform).

11.6.6 Accessible and good quality data must be coupled with improved water market consultation and education

While the ACCC found that the primary need is to build resources to make information more accessible, there is also need to engage in meaningful consultation and increase water market education. This will ensure that the water information recommendations (chapter 12) are able to deliver the greatest benefit to users, and reduce existing asymmetries where larger players are likely to make better use of existing information. Recommendation 13 outlines a proposed water market education program.

11.6.7 A materiality trigger is needed to determine what information needs to be published

The Basin Plan Water Trading Rules specify that a water announcement must be made generally available and is defined as:

- (a) an allocation announcement;
- (b) a carryover announcement; or
- (c) a public announcement by an agency of the Commonwealth or of a Basin State that:
 - (i) is of a decision that relates to actions that the agency is undertaking, or may or will undertake; and
 - (ii) can reasonably be expected, if made generally available, to have a material effect on the price or value of water access rights.

An announcement is considered to have a 'material effect on the price or value of water access rights if the announcement is reasonably likely to influence persons who commonly acquire water access rights in deciding whether or not to acquire or dispose of such rights.'⁸³⁶

The ACCC considers there is the need to expand the scope of this requirement to cover 'market moving' announcements more generally, including announcements made by non-government entities.

The ACCC notes this rule only covers a limited set of decisions or announcements that are likely to have a material effect on water markets; the scope is limited to announcements by government agencies, and does not cover decisions which are not intended to be announced (even though the impacts of

835 In this context, an 'identified data feed' is one which contains personally identifiable information, such as the names of traders.

836 Basin Plan, 2012 (Cth), s12.49.

an unannounced decision could still have ramifications for water markets⁸³⁷). It is also limited to water access rights; meaning it does not apply to other types of tradeable water rights, such as water delivery rights and irrigation rights.

There is no consistent framework to release information from the water registers in the Basin States. While the *Water Act 2007* (Cth) and state water management acts set out broad objectives and principles for water registers and water information, the only obligation in the *Water Act 2007* (Cth) is placed on BOM to publish the Annual Water Account.⁸³⁸ BOM is then also given the discretion to publish more regular reports on water information.

The *Water Act 2007* (Cth) does not contain any standards on what information and how frequently the states should publish water register data. The state water management acts, while setting out broad principles for water registers, lack a requirement to publish regular and timely data. Most states only have a requirement to make water registers available for public inspection⁸³⁹, without setting how this is to be made available or what information is to be presented. New South Wales also currently includes an ability for the Minister to ‘restrict access to information in the Access Register or any part of the Register’.⁸⁴⁰ Victoria’s Water Act includes a purpose provision which outlines the register has a specific information and transparency role, where it is to provide ‘records and information about ownership and use of water-related entitlements.’⁸⁴¹ New South Wales Water Minister Melinda Pavey proposed some amendments to the Water Register provisions in the *Water Management Act 2000* (NSW) in 2020, but these were voted down in the Legislative Council. If enacted, these amendments would have required ‘public access to information in Access Register’ and information ‘to be made available through an electronic search facility on a publicly accessible website’.⁸⁴²

Therefore, the ACCC considers the framework discussed above provides a basis from which to develop a similar threshold test in relation to publication of all water information (including water register data), not just decisions. That is, in considering what information or data needs to be made available, the relevant test should also be whether publication of the information is likely to reasonably influence decisions to acquire or dispose of tradeable water rights.

While such a trigger is necessary, the ACCC considers that there is already substantial information available in relation to water markets. As such, the main recommendations in this regard are to improve the ways in which current information is captured to improve quality and to fill some small gaps, and primarily to improve the publication of data by creating more accessible data.

11.6.8 A ‘single point’ is needed to make information available to the market

There is a need to create a central point of publication for all water information, and for this central point to be accessible, standardised and provide high quality and timely data and information. The first step is understanding user needs and removing lags from trade data. The ACCC is supportive of BOM’s current approach to consultation, and understands BOM is now consulting with a broad range of water information users to understand the varying needs and how the new portal can cater to these.

Governments and industry need to build on current efforts to improve the quality, timeliness and accessibility of information relevant to the water market. This should include more effective ways to involve and consult with IIOs and frontline operators.⁸⁴³

837 Example of such decisions include decisions about how much water in storage to hold as reserves, which affects allocations to entitlement holders and therefore may impact both supply and demand for tradeable water rights; or river operations decisions which affect deliverability, spill risk, or intervalley trade account balances.

838 *Water Act 2007* (Cth), s. 122(1).

839 For example, s. 241(4) of the *Landscape South Australia Act 2019* (SA) and s. 71J(1) of the *Water Management Act 2000* (NSW).

840 *Water Management Act 2000* (NSW), s. 71J(3)(b).

841 *Water Act 1989* (Vic), s. 84B(a).

842 NSW Legislative Assembly, Constitution Amendment (Water Accountability and Transparency) Bill 2020, First print, Proposed amendments.

843 Coleambally Irrigation Co-operative Limited, *Submission to Murray–Darling Basin water inquiry interim report*, 13 November 2020, p. 2.

The ACCC considers that MDBA's submission to the interim report succinctly summarises the information issues and the balancing act in deciding what and how information should be published:

Increasing access to information is important to support water holders to make the best use of their water assets. However, there are disparities in water holders' capacity to use the information available. Complex information favours those who can access the expertise needed to analyse information and take advantage of opportunities. Improvements to information need to be guided by users in terms of the type of information, level of detail, and access channels that suit their needs. Improvements should be complemented by education activities to ensure improved decision making. Dissemination of information also needs to be managed to ensure equal access and avoid creating opportunities for arbitrage.⁸⁴⁴

Along with these responses and continuing concerns, many submissions also supported the preliminary findings and recommendations on transparency and the need to harmonise and coordinate data collection and reporting.⁸⁴⁵

Water markets have evolved beyond the original National Water Initiative (NWI) commitments and current data collection and sharing processes are not sufficient. The ACCC's view is that water markets are now reaching the point where both opportunity and necessity to deliver more transparency are aligning:

- governments have largely settled key aspects of setting the 'cap' aspect of the 'cap-and-trade' system: even though the 'gap' is not yet 'fully bridged', and differing views remain on the final portion of water recovery, many water resource plans have been accredited by the MDBA and there is less need for states to focus on the 'cap' aspect, leaving more room to focus on the 'trade' aspect
- new digital tools are reducing the costs of information provision and allowing for user-centric delivery models
- climatic changes and changes to demand profiles mean users need a 'complete picture' of water availability, allocations, delivery risk, spill risk, price and climate forecasts outlook
- water markets have matured to the point of developing products which do not neatly fit into the simple 'allocation/entitlement trade' paradigm envisaged under NWI commitments.

844 Murray-Darling Basin Authority, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 8.

845 Murray-Darling Basin Authority, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 5.

12. Recommendations to improve trade processes, transaction costs and information

Key points

- Trade-related services are crucial to water market operations, but they currently adversely impact transaction costs and transparency.
- Market participants have variable access to information to make trading decisions, experience inconsistent transaction costs and have inequitable access to trading opportunities. This hinders the efficiency of water markets.
- Trade approval processes and the accuracy and availability of water market data need to be improved, simplified and standardised across states and trading zones, particularly within the Southern Connected Basin. Minimum standards and agreed processes need to be consistent and mandated, not aspirational or voluntary.
- Improved integration is needed between private exchange platforms, trade approval authorities, and water registers, along with better integration of irrigation infrastructure operator (IIO) registers with broader water accounting, trade processing, and information frameworks.
- Water market information needs to be available in one place, be easily understood, be made available quickly, and presented in a way users can easily customise. There needs to be greater use of innovative digital technologies to deliver water market information in 'user-centric' ways.

The ACCC recommends a suite of actions to address these issues. These actions build on and extend various current initiatives by governments and private trade service providers.

The key recommended actions are:

- Trade approval processes and digital systems should be upgraded to ensure a 'level playing field' for traders in the Southern Connected Basin.
- Reshape and harness current initiatives, such as the Murray-Darling Basin Water Information Portal, to prepare to transition towards broader change.
- Implement Water Market Data Standards, to improve the quality and sharing of information across the Basin.
- Invest in three key pieces of digital infrastructure
 - a Digital Messaging Protocol, which will use software and code to share the information required in the Water Market Data Standards
 - a digital platform (referred to as a Backbone Platform in this report) to act as a central hub that will facilitate digital connections between trade service providers, river operators and water market regulators
 - a public-facing central information portal to make disparate information and data accessible in one place.
- Implement a Basin-wide water market education program to give market participants a better understanding of water products and trading rules.
- Implement digital tools to track water allocations to support regulatory oversight and potential policy options to better manage interzone trade and delivery issues.

While governments have a key role leading and resourcing these recommendations, this package should be designed and implemented in close collaboration with private trade service providers such as brokers, exchange platforms and IIOs. Water market participants also need to be consulted in an ongoing, meaningful way to ensure all initiatives are developed in a manner that is fit for purpose and meets their needs.

12.1 Water markets need increased digitalisation of trade services, improved data quality and improved data flows

The ACCC's findings on trade services, transaction costs and information transparency – presented in detail in chapters 10 and 11 – are that while the current state of trade-related services are enabling the market to function, significant improvements are needed. Core market information such as price and 'strike date' are siloed, and there is insufficient integrity within datasets and ability to link datasets to enable effective monitoring of market activity (also explored in subsection 5.5.1 in chapter 5). Although there are significant recent and ongoing initiatives to address these market deficiencies, the Basin States and other trade service providers are generally not making best use of the available technologies, meaning that trade applications, trade data and water accounting data are created and stored in outdated, disconnected systems.

This chapter provides the ACCC's recommendations on how to improve trade services and leverage digital technologies to secure the necessary improvements to enhance the *quality* and *flow* of water market information, and to streamline trade approval processes to reduce costs and increase consistency and transparency for market participants.

The digital transformation of trade services is already underway. The ACCC considers now is the opportune time to shape how the digital transformation of trade services can benefit more market participants, and improve market efficiency by allowing the market to function better. At the same time, this transformation should facilitate the data flows needed to provide necessary oversight of the market and improve river operations to generate improvements in market architecture (discussed at 14.2.3 in chapter 14).

Further, the need to create data feeds for the proposed market regulator (see chapter 9) offers the opportunity to leverage that change to develop new, multipurpose digital infrastructure to support a variety of trade services. While transformational change will not be without costs, the ACCC considers the overall net benefit in delivering market efficiency is likely to be substantial. The market architecture recommendations (discussed in chapter 16) also propose significant enhancements to data collection, storage and sharing; in fact, the first step in implementing broader structural changes to the market architecture is to improve the information basis and data flows which underpin market architecture and river operations decision making. For example, water usage is not currently metered in the same way across the Basin, and there is a need to move to more timely, consistent and accurate metering to better understand usage.

12.2 Water markets are already on a path of increased digitalisation

Australian and Basin State governments have recently made a number of announcements regarding new digital tools and projects to increase transparency, complementing initiatives and improvements already underway by industry and Basin State government agencies (see section 11.2). The current trajectory points to an increasingly complex network of unharmonised data flows and digital infrastructure, which will be challenging for regulators to navigate, can introduce uneven playing fields in some circumstances and will be unlikely to deliver the 'whole-of-market' transparency stakeholders are calling for.

Private water market participants are also taking their own initiative to increase and improve digital connections for trade in the Basin. This includes an exchange platform's use of the Victorian Broker API⁸⁴⁶ and Waterexchange's custom-built digital connections to some IIOs and Sunwater. While this digitalisation of trade services and data flows shows that public and private entities are responding

846 The Victorian Water Register's application programming interface (API) allows a user to 'build [their] own computer system to directly link via an API to the Victorian Water Register – this may be useful for brokers and exchanges who do a large number of trades. This API gives [the user] the same facilities as the Broker Portal and is subject to the same Agreement.' See <https://waterregister.vic.gov.au/water-trading/my-water>, viewed 6 February 2021.

to demand for improved information and trade services, it also inevitably means that some areas are developing faster than others, and that multiple entities are solving similar problems in different ways.

Technological advancement in trade services is not all that has occurred; there have also been advances in institutional frameworks for data sharing. In particular, the Bureau of Meteorology has been developing bilateral and multi-lateral data sharing arrangements as part of its hydrometric sensing project (see section 11.2.3). While these arrangements currently focus on the Northern Basin, and in several cases are highly tailored to a specific project or initiative, they lay a foundation that can be built on to improve data sharing for water markets and water management more generally.

The existing digital connections and initiatives underway demonstrate that trade processes are already on a path to digitalisation. These technological and institutional innovations are gradually improving water data and data flows, but in a piecemeal way. Without structured reform, the ACCC considers trade service providers – both public and private – will continue to form many-to-many information and data-sharing relationships. This may ultimately lead to higher barriers to entry for new participants into the trade service sector (intermediaries or information services) as new entrants will be required to establish multiple connections in order to conduct trades or aggregate data for customers. The plethora of different custom-built technologies may also be difficult for water market participants to navigate, making it harder for them to compare trade service providers and inhibiting their ability to make optimal trading decisions. The ACCC considers there is an opportunity to reshape this trajectory before these types of linkages become too bespoke and result in these kinds of issues or barriers.

12.2.1 A vision for where trade services could go with the proposed recommendations

The ACCC has evaluated the current state of digital transformation processes and projects currently underway in Basin water markets to assess the potential benefits of options to improve trade services and transparency. The recommendations presented in this chapter seek to address the identified shortcomings by introducing:

- Water Market Data Standards: comprehensive data and technical standards to achieve standardised and comprehensive data collection and data-sharing
- a Digital Messaging Protocol: ‘compliant by design’⁸⁴⁷ software for trade service providers to comply with standards and make efficient connections between entities
- digital infrastructure to achieve interoperability to improve the access, use and performance of trade services: in particular, a Backbone Platform to act as a central hub for trade services and a central data repository, and a public-facing Water Market Information Platform.

In addition to these central recommendations, a number of other complementary actions are recommended.

These recommendations are discussed in detail in the following sections.

Table 12.1 compares the current state of trade services, the likely future trajectory in the absence of recommended changes, and the anticipated future state if the proposed recommendations are adopted.

⁸⁴⁷ Meaning software that packages and sends data for regulatory purposes. This means that data holders are not required to manually intervene in data production and can send data directly from systems.

Table 12.1: Digital infrastructure for Basin water markets: current status and future trajectories

Current status	Likely status quo future trajectory	Anticipated future trajectory with proposed recommendations
<p>Traders look across multiple websites to find the current market price and get a sense of the current market depth. Traders also have limited or no ability to identify where a parcel of water is advertised via multiple intermediaries.</p> <p>Additionally, there are many off-platform bids and offers which traders will never see and are not digitally recorded.</p>	<p>Websites like Waterflow bring together bids and offers into a format similar to Realestate.com.au. Waterflow is continuing to have more brokers sign up, increasing its coverage. However, some data quality issues will persist as not all bids and offers are published on websites, and there is no obligation to update websites. Waterflow scrapes the websites of these brokers and exchange platforms, and some brokers present things differently such that Waterflow needs to 'translate' information. Most of these translations are now automated.</p> <p>Government initiatives to improve information transparency will make historical trade data easier to access, but still do not integrate data from private service providers such as exchange platforms, and do not adequately address data quality issues.</p>	<p>The proposed data standards and digital infrastructure will enable data quality checking and validation in 'real-time'. For example, water product type and price information will be fed directly from the exchange platforms and brokers' systems into trade forms, reducing errors and increasing consistency. The proposed Backbone Platform infrastructure will also be a central hub for translating information, meaning that regardless of the trade type or region, the brokers and exchange platforms will feed the necessary data into the Backbone Platform and the platform will then determine what information to send where. Housing this functionality within the Backbone Platform means that it can also assist in reducing the conflicts of interest that have been reported about IIOs, as only the information that the IIO requires to approve the trade and update accounts will be sent from the platform to the IIO.</p> <p>The proposed Digital Messaging Protocol will ensure that all bids and offers lodged via exchange platforms, trades and trade reports are passed to the proposed market regulator (the Water Markets Agency, recommendation 26) via the Backbone Platform, meaning exchange platforms do not need to separately report to the regulator ('only once' principle for data flows).</p>
<p>Traders submit a mix of paper and electronic application forms for allocation trades.</p> <p>Some jurisdictions do not have electronic lodgement facilities.</p>	<p>Online form lodgement is enabled in Victoria through the My Water portal. South Australia is also moving to online lodgement with their water management system enhancements, due to come online from mid-2021.</p> <p>NSW is still some way behind in moving to online allocation trade lodgement.</p>	<p>The proposed Backbone Platform will build on existing online lodgement facilities and will broaden them for all states and IIOs. It will allow for traders to only need one form for interstate trade and trades in and out of IIOs. The Backbone Platform will support the direct translation of information from brokers' and exchange platforms' data feeds to complete the form, and to translate the inputs from the form into the specific information required for each state. This will remove the need for states to standardise data requirements and terminology. Paper-based trades can continue to be supported using existing Basin States processes, where data would instead be input to the new Backbone Platform system.</p>
<p>Exchange platforms and brokers lodge either online or paper forms to trade approval authorities.⁸⁴⁸</p>	<p>Exchange platforms, such as Waterexchange, are continuing to look at ways to improve connections to trade approval authorities to reduce manual processing steps and create more competitive services. However, these connections are customised and unique; and do not provide for a scalable solution.</p>	<p>Exchange platforms and brokers will directly connect to the proposed Backbone Platform, which then connects to all trade approval authorities' systems and water registers. This will require exchange platforms and brokers to only build connections to one piece of digital infrastructure.</p> <p>This type of digital environment will also help to allow for competition to emerge, as new entrants will only need to establish one connection in order to conduct trades in all states and IIOs.</p>

848 The Victorian Water Register (VWR) does allow for some connections via either their API or Broker Portal. Waterexchange also has some connections with IIOs.

Current status	Likely status quo future trajectory	Anticipated future trajectory with proposed recommendations
<p>Irrigation infrastructure operators (IIOs) are not required to keep water registers and do not publish information on individual trade transactions (although most publish aggregate trade data, for example via annual reports). Only some IIOs report trade data to the Bureau of Meteorology (BOM).</p>	<p>Initiatives like the National Irrigation Corporations Water Entitlement Register (NICWER) in the past have attempted to bring greater transparency to activity within IIOs.</p> <p>Some IIOs have also noted this gap. However, a main barrier to improving transparency in this space is the funding required for implementation. Also, IIOs vary greatly in size and the amount of trading activity that occurs. Some IIOs noted there would be very little benefit in increasing transparency and digitalising, and that the costs would be significant and would need to be recovered from small customer bases.</p>	<p>By moving all activities into the Digital Messaging Protocol and Backbone Platform, there are opportunities to improve the information collection and publication practices of IIOs.</p>
<p>Data and information from trade approval authorities and registers is translated 'in-house' before being sent to the BOM. The BOM then conducts some limited data cleaning and quality checks for each information provider, but does not undertake general data quality assurance procedures.</p>	<p>The addition of reason for trade on trade forms in NSW and Victoria will help to improve the quality of data received by the BOM, although the data for the Southern Connected Basin will be incomplete until SA also collects the same data. The coordination demonstrated by NSW and Victoria on the reason for trade changes also suggests there may be coordination when the data is supplied to BOM.</p>	<p>The proposed Backbone Platform will retain both the untranslated and translated information from brokers and exchange platforms.</p> <p>The trade approval authorities and registries will be able to check data sent to them from the brokers and exchange platforms in an easier way by using the Backbone Platform to validate data sent from these entities.</p> <p>Built-in quality checks can also be made to the Backbone Platform's central data repository, which is where all information from the registers and trade approval authorities is stored before de-identified and select information is then automatically sent to the proposed public-facing Water Market Information Platform.</p> <p>Increased digitalisation will also reduce data entry errors and improve data quality from this perspective as well.</p>
<p>There is currently no whole-of-market regulator, therefore it is not necessary to have a single detailed dataset with common identifiers.</p>	<p>The ACCC is recommending a market regulator (the proposed Water Markets Agency) that will have powers to monitor and investigate misconduct. This role will not be supported by the current set-up of trading data.</p>	<p>The Water Market Data Standards (including the technical transmission requirements of the Digital Messaging Protocol), software and Backbone Platform will support the market regulator by providing more timely (potentially near real-time), detailed, accurate and comprehensive data on trading activities. This will be achieved by establishing the data feeds directly from exchange platforms, brokers, trade approval authorities, IIOs, and registers into the Backbone Platform data repository.</p>

12.3 Learning from previous attempts to consolidate and centralise water market data and trade processing

The ACCC has considered the feedback from stakeholders in response to the interim report, conducted research on current state systems and legislation, and considered past attempts to improve trade processes across the Basin States. One important finding is that Basin States have implemented extensive improvements to not only their registers, but also their water management systems and water information systems. While there is still some way to go, the starting point for this reform package is significantly different to that experienced in 2008 when the Common Registry Solutions project began (see box 12.1). There have also been significant technological developments in that time, with Australia deploying some high-tech Regulatory Technology (RegTech⁸⁴⁹) solutions. Some of these RegTech solutions have been adopted in water, such as DELWP's use of telemetry and sensors and software for remote water monitoring to provide real-time data to improve compliance.⁸⁵⁰

The Productivity Commission's information paper on RegTech draws out some important points regarding the use of technology in regulatory settings, and the expectations of customers, individuals and businesses that technology will improve and simplify regulatory compliance. The ACCC considers that many of the recommended changes in this chapter can be built into software to deliver 'compliance by design', whereby reporting is packaged up in the required format by the software, reducing the burden on trade service providers.

The Productivity Commission's report also notes the *Modernising Business Registers (MBR) Program* to create 'a contemporary digital registry platform, allowing other registers and information (such as the new Director Identification Number) to be added to the platform over time.'⁸⁵¹ This has particular relevance to the ACCC's proposed package being flexible and adaptable, and to include the ability to record unique customer identifiers.

849 'RegTech' is a concept which refers to using information technology to enhance regulatory processes. It first arose in the financial sector, with innovations such as digitisation of manual reporting processes, and has since expanded to many sectors across the economy.

850 Productivity Commission, *Regulatory Technology Information Paper*, 2020, p. 10.

851 *ibid.*, p. 12.

Box 12.1: National Water Markets System and Common Registry Solutions initiatives: What went wrong and what can be learnt from this?

In 2008, COAG endorsed the development of a National Water Market System (NWMS) to improve the efficiency and effectiveness of water markets by increasing the transparency of market information, reducing transaction costs and improving interoperability of state registers where water can be traded interstate. As part of the Water for the Future initiative, the Australian Government committed to investing \$56 million into a National Water Market System in late 2009. Funding was however ceased in 2014, and it is estimated that during this time more than \$30 million was invested into the project.

The NWMS was to encompass both a national information portal and a common register to replace existing water registers in New South Wales, South Australia, Western Australia, Tasmania, the Northern Territory and the Australian Capital Territory. Improvements were also planned for Victoria and Queensland to enable seamless data transfer between the different systems and provide more timely information to the market.

While the Common Registry Solutions (CRS) initiative was not realised, the information portal progressed and the NWMS website was launched in late 2010. This portal was handed over to BOM.

What went wrong and what can we learn from this?

The NWMS was due to be completed in June 2012, but was terminated before it was finished in 2014. Precisely what progress was made in the CRS component of the NWMS is not well understood or publicly documented.

What is known is that when the design phase of the project was finalised, it became apparent that the remaining budget would not be sufficient to finalise the project – leading the project to be discontinued.

There were however significant enhancements made to the registers as part of this program.

The experience of the NWMS/CRS suggests:

- while there was considerable cooperation between the states to develop the CRS, the states were not willing to persist with the initiative once the Australian Government ceased funding the initiative (and correspondingly discontinued its leadership and co-ordination role)
- the amount of change required on the state systems to adopt a CRS was extensive
- some benefits from NWMS persist today; such as significant register enhancements and a better understanding of commonality between the state processes
- recommending the implementation of a single register system is not likely to receive traction given this past attempt demonstrates the benefits do not outweigh the complexities and costs, and it is not as simple as lifting all state registers and combining into one register.

Past efforts by governments to improve trade processing have largely focussed on setting up or improving arrangements for interstate trade, without modifying broader trade processing and working with existing system limitations. Key milestones have been the development of interoperability protocols in the Southern Connected Basin and NSW-Queensland Border Rivers, and the recent collaborative initiative to develop consistent 'reasons for trade' categories for allocation trades. Past efforts by industry have focussed on developing brokers and exchange platforms (online intermediary portals facilitating automated trading) to more seamlessly interact with trade approval authority information technology (IT) systems (notably, the development of IIO approval portals undertaken by Waterexchange).

Previous efforts to improve transparency have often focused on bringing together disparate data sources, rather than improving data quality by modifying and improving data collection processes. The centralised information projects currently being developed by the Bureau of Meteorology (BOM) and the Department of Agriculture, Water and Environment (DAWE) indicate the Australian Government recognises the need for centralised information services. However, none of these projects individually

meet the market's need for cohesive, timely and better quality bid, offer and 'approved trade' information. These projects fail to adequately address issues with trade data inputs (such as trade forms with different mandatory fields, different terminology and varying quality checks) and the provision of timely data (for example, one prominent broker does not update published trade opportunities and there is a lack of mandatory service standards on Basin State trade approval authorities).

12.4 A pathway for improving trade services and water market data

The ACCC recommends ten key actions (recommendations 5 to 14), which together set out a pathway for the reform and digital transformation of water trade services, to improve service provision, data quality, and data flows in water markets. The recommended package seeks to leverage technological innovations to provide the ability to deliver increased transparency, reduced transaction costs, and increased potential to monitor trading activity (improve market integrity) through decentralised or 'distributed' solutions. The key feature of this approach is that the protocol would not entail any necessary centralisation of trade-related services, and therefore competition for these services would remain.

The sequencing of individual recommendations is discussed as relevant in the body of this chapter.

12.4.1 Reshape current initiatives to prepare to transition towards broader change

Systems and processes need to be updated to provide a 'level playing field' for market participants

As set out in chapters 10 and 11, water market participants have different experiences with trade processes and transparency depending on which state they own and trade water in, and whether they hold water rights within an IIO.

Currently, market participants in Victoria have an advantage because Victoria has invested in (i) online lodgement portals (ii) automation of trade processing and (iii) Application Programming Interfaces (APIs) to interface with MDBA systems for trade across the Choke. Victoria and South Australia also allow market participants to automatically and costlessly open up a new account if needed for trade, whereas a new entrant into the NSW market has to go through a costly and time consuming process to obtain a zero-share water access licence (WAL). This means that NSW market participants generally miss out on opportunities to trade through the Choke, and sometimes have incentive to move their water through Victoria, simply to take advantage of Victoria's systems. Also, NSW and SA systems both incentivise market participants to use aggregator services when trading interzone (and also Victoria to a lesser extent, due to the Goulburn IVT access being allocated on a 'first come, first served' basis).

The ACCC's view is that these different systems form an uneven playing field for traders, and it should be the responsibility of governments to fix this. The ACCC considers the following actions would deliver the greatest benefit in levelling the playing field:

- NSW should build functionality to submit trade applications online.
- NSW should allow market participants to costlessly and quickly open water allocation accounts – whether this is a 'zero share WAL' as currently is the case, or something more like a Victorian ABA or a South Australian allocation account.
- NSW should build API access with MDBA for automating approval of trades through the Barmah Choke, drawing as relevant on Victoria's example.
- Victoria, NSW, SA and MDBA should collaboratively invest funds and resources to build a 'trading rules engine' (machine readable trading rules developed from simplified legislative instruments) to facilitate automation for all allocation trade in the Southern Connected Basin and should update the interoperability protocols (this could be based on Victoria's existing trading rules engine, or could be part of the more general upgrade recommended in recommendation 11).

The ACCC also recognises that these issues may become less relevant over time if longer-term solutions to reforming IVT access mechanisms are adopted (see recommendation 22 on this point).

► **Recommendation 5**

Implement technical and procedural solutions to provide consistency for interzone trade

New South Wales, Victoria, South Australia and the MDBA should work collaboratively to upgrade trade processing systems and interoperability protocols to ensure these systems provide consistency for market participants wanting to access interzone trade opportunities. In principle, this should happen as part of enhancements that move all states towards the longer-term goals outlined in recommendations 10 and 11.

This will help ensure that market participants in some states are not disadvantaged relative to participants in other states when accessing interzone trade opportunities, particularly when opportunities are limited due to trade restrictions such as the Barmah Choke trade restriction and the Goulburn and Murrumbidgee intervalley trade limits. It will also help ensure traders face more consistent and neutral incentives when deciding whether or not to use aggregator services/brokers when trading interzone.

Reshape current information portal initiatives to be ready to implement the broader vision for digital infrastructure

As outlined above and in chapter 11, there are currently several initiatives underway to improve information transparency. A number of these entail some kind of online information portal.

As detailed below, the ACCC recommends these initiatives be consolidated and efforts to date should be leveraged to refocus towards delivering a single Water Market Information Portal. However, this does not mean simply ceasing work on existing initiatives (a lesson learned from the NWMS experience); rather, these initiatives need to be re-envisioned in light of the 'end goal' of delivering the 'single point of truth' that stakeholders have repeatedly called for.

In light of this, the ACCC recommends some specific actions for governments engaged in current portal initiatives (recommendation 6). These actions can be implemented now, in advance of more significant change to deliver the single Water Market Information Portal and other more significant technological change.

► Recommendation 6

Reshape current information portal initiatives

Australian and Basin State governments should work collaboratively to substantially improve existing information portal initiatives to improve information availability and prepare to transition towards the proposed digital infrastructure for water markets, particularly the proposed Water Market Information Platform (see recommendation 12).

This will ensure that benefits of existing initiatives are leveraged and that water market transparency continues to improve during the transition to the proposed new legal framework and digital infrastructure for water markets.

Priority actions are:

- New South Wales to publish water access licence (WAL) and water trade data for the NSW Murray Regulated River water source in a manner that clearly identifies which zone(s) are associated with the WAL or trade (as applicable).
- South Australia to implement collection and publication of 'reason for trade' and 'strike date' data from trade application forms, in line with actions already undertaken or committed to by New South Wales and Victoria.
- The Bureau of Meteorology to incorporate into its water market information dashboard data from New South Wales, Victoria and South Australia on 'reasons for trade' and 'strike date' as soon as practicable.
- Australian government agencies to map existing and 'in development' data sharing agreements relevant to water market data or related information such as rainfall, inflows and storage levels, river flow data, water allocations, intervalley trade limits, environmental watering.
- All information portals which display price data to document and make available easily accessible metadata on how price series are calculated, including explaining any data cleaning processes undertaken prior to derivation of aggregate or average price series.

12.4.2 Implement underpinning legislation, Water Market Data Standards and guidance

The ACCC's view is that technological change and improvements to trade services need to be underpinned by a coherent legal framework, which sets out the obligations and powers of the relevant parties in relation to the collection, recording, cleaning and transmission of water market data and information in the Basin.

Once this framework is in place, standards then need to be set, to specify details such as what data needs to be collected, stored, and shared; by whom; and in what format. Further, there may be a need to issue guidance or establish 'best practice' to complement the standards and to ensure sufficient flexibility.

The ACCC therefore recommends creation of obligations and standards for water market data, via three components:

1. obligations/mandates specified in legislation, covering
 - a. requirements for trade service providers to collect and share certain information
 - b. compliance/enforcement functions in relation to water market data and information obligations
 - c. governance roles and functions for the recommended new digital infrastructure described in recommendations 10 to 12 below
2. Water Market Data Standards, covering key elements on how water market data and information is collected, stored and shared

3. voluntary industry guidance on best practice and consultation with digital service providers to understand what can be delivered.

Decisions on exactly how to formulate these components should be made in consultation with trade service providers and market participants, and in view of the need to provide sufficient and high quality data to the proposed market regulator for it to undertake its functions efficiently and effectively.

These are explored in greater depth below.

A legislative mandate is needed to improve data collection, transmission and reporting

A legislative obligation to conform to standards is crucial to the success of the implementation of the proposed new digital technologies for water markets (see recommendations 10 to 12), and will ensure that the stepping stones such as 'reason for trade' are implemented consistently across the states and across IIOs.

The ACCC also notes that the *Water Act 2007* (Cth) already provides for the Bureau of Meteorology (BOM) to issue mandatory National Water Information Standards (see box 12.2). These arrangements provide that the standards are enforceable, and allocate the enforcement role to the Minister.

While it is open to governments to use these existing routes to implement the recommended Water Market Data Standards, the ACCC notes that to date BOM has not sought to make use of the National Water Information Standards provisions in relation to water market data (while there are standards for other water information, discussed in chapter 11).⁸⁵²

Legislative obligations and authorisations need to apply to trade service providers, so that they are equipped with the authority to fulfil their obligations under the standards. This is particularly important for public trade service providers, so as to not create a situation where standards require actions that conflict with public entities' roles and powers.

Given the recommended creation of a Water Markets Agency, the ACCC considers it may be more appropriate to (re)assign responsibility for developing the Water Market Standards to that entity, rather than to have BOM issue the standards under its existing powers. Assuming the Water Markets Agency were to take on this role, BOM could continue to have a role as an implementation partner with the Water Markets Agency, particularly to leverage BOM's existing experience with Basin State arrangements.

Finally, the ACCC notes that under the *Water Act 2007* (Cth) there is no explicit requirement to consult with trade service providers and water market participants in the development of National Water Information Standards (although the Director of Meteorology may undertake any consultation considered appropriate); the ACCC considers that such consultation is fundamental to the effectiveness of data standards for water markets and should be explicitly required.

This legislative mandate is required to achieve interoperability, as the requirements to adhere to the standards will also include connection and data transmission requirements (the Digital Messaging Protocol).

There also need to be clear compliance and enforcement functions in relation to water market data and information obligations. The ACCC recommends these functions also be assigned to the proposed Water Markets Agency.

852 Bureau of Meteorology, n.d., *Water Data Collection Standards*, <http://www.bom.gov.au/water/standards/aboutStds.shtml>, viewed 26 January 2021.

Box 12.2: National Water Information Standards under the Water Act 2007

The *Water Act 2007* (Cth) provides for the issuing of National Water Information Standards by legislative instrument.

The standards may cover any of the following aspects:

- a. collecting water information
- b. measuring water
- c. monitoring water
- d. analysing water
- e. transmitting water information
- f. accessing water information
- g. retaining and storing water information
- h. reporting water information
- i. water accounting
- j. any other matter relating to water information that is specified in the regulations.

For the purposes of these standards, 'water information' is defined as 'any raw data, or any value added information product, that relates to: (i) the availability, distribution, quantity, quality, use, trading or cost of water; or (ii) water access rights, water delivery rights or irrigation rights'; or any metadata relating to data of a kind referred to above.

The Act allocates the role of issuing National Water Information Standards to the Director of Meteorology, and also requires the Director to consult with Basin States in preparing any National Water Information Standards. The Director may delegate any or all of these functions to an SES employee or equivalent.

The role of enforcing the standards (via the issuing of compliance notices) is allocated to the Minister, or an authorised person appointed by the Minister.

Source: *Water Act 2007* (Cth), ss. 120(e), 130, 132, 133, 134.

Review water management law to harmonise or standardise terminology where possible

The first step towards developing Water Market Data Standards is to understand the current inconsistencies in water market data, and identify whether these arise from differences in state based legislation.

The ACCC's analysis of water management law – set out in chapter 10 and detailed in appendix E – shows there are substantial differences in the definitions of property rights set out in each Basin State's water management law. Each State also uses its own terminology; some of this is due to real differences in underlying property rights structures (for example, the NSW concept of 'share component' has no exact equivalent in other states); but sometimes differences in terminology are more a product of history. Given the underlying differences in the property rights frameworks, the ACCC does not consider that completely standardised terminology across the Basin is an appropriate next step, and may create more difficulty for those engaging in trade. However, harmonising approaches and terminology, drawing on National Water Initiative (NWI) language and concepts where relevant, remains a useful longer-term goal.

There are also some differences in the way that water allocation trades are described in legislation (see table 10.6), which gives rise to differences in approaches and terminology. For example, both a seller and buyer are considered applicants for an allocation trade in New South Wales, but this is not the case in other states.

The current data issues which flow from mismatched terminology and processes are well described by BOM, which stated that ‘the variety of methodologies and practices employed in collecting, managing and transferring this data means that it is difficult for other data customers to determine the fitness for purpose of the data and any derived information. The BOM’s role as the national water information provider has highlighted the difficulties in producing national information from data collected in different ways and without reference to agreed or commonly applied standards and guidelines.’⁸⁵³

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) also acknowledged this issue of different ‘languages’ and ‘traditions’, and submitted that the best way forward in this respect is to make minor changes to existing terminology so that it can be translated (harmonised) more easily. This will also enable the states to maintain their own language where possible.⁸⁵⁴

The ACCC agrees with the perspective of CSIRO, and considers Australian and Basin State governments should review terminology in Basin State and Commonwealth water management law to identify where it can be harmonised or standardised, ahead of implementing the proposed Water Market Data Standards. Any roadblocks limiting the collection of information (such as any lack of authority to collect information) should be also identified, and removed or amended if possible.

Implement Water Market Data Standards

The ACCC recommends the introduction of mandatory Water Market Data Standards to provide a consistent framework underpinning the collection, storage, transmission and publication of water market data and related information.

The scope of the standards should extend, at a minimum, to transaction-level trade records, but could also apply to related aspects such as the keeping of water accounts and water registers.

The standards should specify what information is to be collected, and should draw on existing efforts across the Basin to standardise data collection. For example, the development of the standards should build on the work to capture ‘reason for trade’. The data standards would specify exactly how each trade approval authority should then collect, store, transmit and publish that data item.

Introduce Basin-wide common party and transaction identifiers

Recommendation 4 in chapter 9 recommends that traders be required to include on trade application forms a unique party identifier issued to them.

Complementing this recommendation, the data standards should set out technical requirements underpinning the issuing and use of these Basin-wide common party identifiers, for example, how these identifiers should be used to record ownership of accounts and trading parties (with the obligations to use such identifiers set in the underlying legislation, see chapter 9). The standards should similarly provide for the use of Basin-wide single transaction identifiers to uniquely identify all trades of tradeable water rights.

The Digital Transformation Agency (DTA) has also announced the Digital Identity system, which will offer ways to better verify identity, and this initiative could be leveraged by the proposed water markets Backbone Platform or Digital Messaging Protocol in the future.⁸⁵⁵

Introduce standards for information sharing and to enable interoperability

High-level requirements for data sharing and interoperability should be set in the Water Market Data Standards, leaving the technical specifics to the Digital Messaging Protocol (see section 12.4.3). The standards should include that the transmission of data must be in a specified format.

The Australian and Basin State governments should look to other industries which have taken similar steps to increase digital connectivity between many dispersed market players in order to facilitate data transfer and sharing.

853 Bureau of Meteorology, <http://www.bom.gov.au/water/standards/aboutStds.shtml>, viewed 4 February 2021.

854 Commonwealth Scientific and Industrial Research Organisation, *Submission to Murray–Darling Basin water inquiry interim report*, 13 November 2020, p. 3.

855 Digital Transformation Agency, <https://www.dta.gov.au/our-projects/digital-identity/digital-identity-system>, viewed 4 February 2021.

Standards should be scalable/expandable to cover as much of the trading and water accounting system as is desirable

The data standards could cover water accounting aspects that underpin trade, but which are not purely trade-related, such as how water allocation accounts should be kept (for example, specifying agreed credit and debit transaction types and guidance on how different transaction types should appear in water accounts).

The ACCC has conducted several sector case studies to provide examples of how data standards have been approached in other sectors (see box 12.3 in section 12.6, and see appendix F). These case studies show that there are several successful models for developing and implementing data standards, but that a feature of all successful models is close collaboration between government and industry in standards development.

► **Recommendation 7**

Implement Water Market Data Standards to provide a clear and fit-for-purpose framework for water market data and water trade services

Australian and Basin State governments should establish mandatory Water Market Data Standards governing the collection, storage, transmission and publication of water market data and related information by trade service providers.

This will deliver a robust and consistent legal framework to bring about improved data quality and water market data flows, leading to improved transparency for water market participants and enhanced interoperability between trade service providers.

Key recommended actions are:

- Develop Water Market Data Standards to provide a consistent framework underpinning the collection, storage, transmission and publication of water market data and related information (noting that technical specifications such as for data transmission will be implemented via the proposed Digital Messaging Protocol and proposed Backbone Platform – see recommendations 10 and 11).
- Trade service providers such as brokers, exchange platforms, irrigation infrastructure operators and Basin State trade approval authorities and register operators should have clear obligations to provide data as specified in legislation and to comply with the proposed Water Market Data Standards (see recommendation 1).
- Establish a centralised Water Market Data Standards compliance and enforcement role to ensure compliance with the standards once they are established. It is recommended the Water Markets Agency (see recommendation 26) should have this role.
- The Water Market Data Standards should specify the form, and process for issuing and use, of Basin-wide common party identifiers for tradeable water rights holders, and Basin-wide single transaction identifiers to be used to uniquely identify all trades of tradeable water rights.
- Harmonise or standardise terminology in water management law, where possible, as part of changes to legal frameworks to implement the proposed Water Market Data Standards.

Development of Water Market Data Standards should be undertaken collaboratively by government, trade service providers and water user representatives (such as irrigator groups, environmental water holders and traditional owner groups), and should be based on meaningful ‘user needs’ consultation with water market participants.

Introduce comprehensive service standards for trade processing and data publishing

The ACCC's view is that existing COAG service standards should be updated to be commensurate with improved technology and trade application processes.

As identified in section 10.2.2, there has been no change to trade approval service standards since 1 July 2009. Despite processing improvements and past recommendations from the ACCC and Productivity Commission to tighten service standards, trade approval times continue to fail to meet the expectations of market participants.

The service standards should also include publication standards (publication standards are covered by the Water Market Data Standards recommended above). The publication standards should include timeframes (either real-time from trade approval or near-real-time) and also include standardised publication formats, where possible.

► Recommendation 8

Implement mandatory trade approval service standards

Australian and Basin State governments should implement consistent mandatory service standards that apply to all trade approval authorities, including irrigation infrastructure operators.

This will help ensure that trade approvals are undertaken in a consistent and timely manner.

Implement rules and processes for water announcements

As identified in section 11.6.2, there is no comprehensive framework for how market-sensitive information is released. The Basin Plan Water Trading Rules do require persons making 'water announcements' to ensure they are 'generally available'⁸⁵⁶, but the definition of what constitutes a 'water announcement' is quite narrow, and there is no consistent process for how announcements should become generally available.

The ACCC considers that the creation of the proposed Water Market Information Platform offers the opportunity to introduce a consistent process, whereby all market-relevant announcements are published on the platform. This should apply to all announcements which meet the current definition of 'water announcements' under the Basin Plan, but should also be broadened to cover other decisions and announcements, including those made by non-government entities.

The existing threshold test in the Basin Plan rule is that the announcement 'can reasonably be expected, if made generally available, to have a material effect on the price or value of water access rights', where 'material effect' means the announcement is reasonably likely to influence persons who commonly acquire water access rights in deciding whether or not to acquire or dispose of such rights.⁸⁵⁷ The ACCC considers this threshold test remains appropriate, except that it should be extended to apply to all tradeable water rights, not only water access rights.

The ACCC therefore recommends that governments implement rules and processes for water announcements, based on the existing rules in the Basin Plan, but broadened to cover market-sensitive announcements and decisions more generally.

856 Basin Plan 2012 (Cth), s. 12.50.

857 Basin Plan 2012 (Cth), s. 12.49.

► **Recommendation 9**

Implement rules and processes for water announcements

Australian and Basin State governments should implement rules and processes for water announcements, which apply, at a minimum, to all governments or government agencies, and all trade service providers. This should build on existing relevant provisions in the Basin Plan Water Trading Rules (note that recommendation 3 proposes relocating these rules into the proposed new conduct and integrity legislation).

Agencies or organisations making water announcements should be required to provide them to the proposed Water Market Information Platform in a timely manner (see recommendation 12). The current materiality criterion applying to water announcements – that the announcement ‘can reasonably be expected, if made generally available, to have a material effect on the price or value of water access rights’⁸⁵⁸ – should be retained, but broadened to apply to all tradeable water rights.

The recommended processes for making water market announcements could be integrated into the proposed centralised legislation (see recommendation 1).

This will ensure that information which could materially affect the price or value of water access rights will be accessible by all market participants from a single source, at a specified time.

12.4.3 Implement new digital infrastructure to support improved trading, data flows and data quality

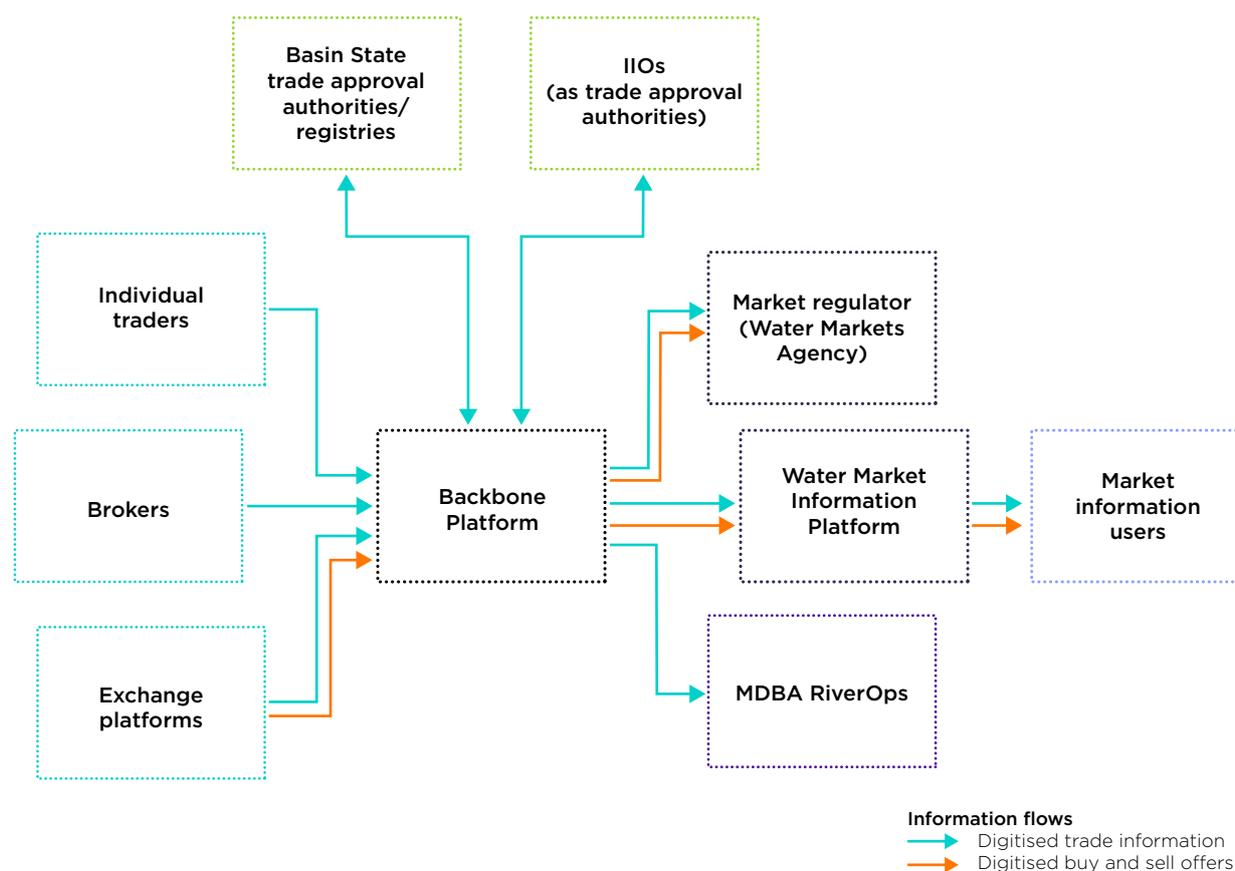
The ACCC recommends three new pieces of digital infrastructure be established for Basin water markets:

1. a Digital Messaging Protocol to enable the transmission of data as specified in the Water Market Data Standards (recommendation 10)
2. a Backbone Platform for trade lodgement and trade data repository should be implemented across intermediaries, trade approval authorities, IIOs and registers as a model for interoperability (recommendation 11)
3. a public-facing Water Market Information Platform (recommendation 12).

Figure 12.1 provides a schematic of how these three pieces of digital infrastructure could fit together. The ACCC notes, however, that the design and implementation needs to be determined by government in collaboration with trade service providers, and in consultation with market participants.

858 Basin Plan 2012 (Cth), s. 12.49(2)(c)(ii).

Figure 12.1: Proposed trading and information sharing arrangements in Basin water markets with the Backbone Platform and Digital Messaging Protocol



Source: ACCC analysis.

Implement a Digital Messaging Protocol for water markets

The ACCC considers that after the introduction of the Water Market Data Standards, which sets high-level standards and requirements for data transmission and interoperability, there will then be a need to develop messaging standards and specifications for the transfer of information, and to develop the software and code which executes these standards and specifications. This is encompassed in the notion of a 'Digital Messaging Protocol'. The Digital Messaging Protocol will deliver:

- enhanced interoperability between Basin State systems and registers, by providing automated digital connections (that is, machine-to-machine connections) and the ability to directly interface between the proposed digital platform (Backbone Platform), irrigation infrastructure operators, private exchange platforms and Basin State trade approval authority systems and water registers
- the ability to securely transmit data and trade applications between trade service providers
- the ability to automatically execute instructions, and automate collection, cleaning and publishing of water market data.

Digital messaging protocols are in use throughout the economy. For example, the internet employs a range of protocols to operate, and industry-specific protocols have been developed, such as the Electronic Data Interchange (EDI) protocol developed for Australia's wool industry (see case study F3 in appendix F). Broadly speaking, digital messaging protocols involve establishing a common digital language and set of rules (code) for use in digital processing and data transmission. They are a building block to facilitate machine-to-machine interfaces, and help ensure that many different systems can integrate seamlessly.

The ACCC recommends that a mandatory Digital Messaging Protocol should be introduced for water markets, to implement data collection, management and transfer processes that are consistent with mandated standards, and which is able to be deployed across government and non-government

water trade service providers. This should entail the creation of data feeds into a data repository (whether centralised or distributed in form; this point could be decided in consultation with industry and IT experts).

The protocol would allow for some autonomy to be retained by different entities: for example, IIOs could have autonomy over trade within their own networks, so long as their processes deliver the information as specified in the protocol for use by other stakeholders. The ACCC recommends the proposed Water Markets Agency be assigned the role of overall responsibility for the Digital Messaging Protocol, which would include working with governments and trade service providers to develop an agreed governance framework that sets out what level of autonomy and responsibility each entity has in developing particular aspects. The proposed Water Markets Agency should also be assigned a compliance and enforcement role in relation to the protocol once it is implemented.

The protocol would also deliver high quality and timely data to the regulator, thereby reducing costs for the market regulator in exercising its monitoring functions, compared to the status quo. For example, the Digital Messaging Protocol could gather data from exchange platforms and registers, store it in the central data repository of the Backbone Platform, and provide a single (near-)real-time information feed or secure access to the repository for the market regulator.

The protocol will enable information to be entered only once (the 'once only' principle); information would then be stored and shared consistently with the relevant entities (for example, trade approval authorities, regulators), with clearly-specified rules to 'translate' between individual systems as needed.

Principles for designing the Digital Messaging Protocol

Recognising that considerable collaborative effort would be required to construct the protocol and then ensure entities' systems are correctly using the protocol and are compliant with the underlying Water Market Data Standards, the ACCC's view is that the following principles for an open Digital Messaging Protocol for water market administration could form a useful basis:

- The protocol should bring increased automation of trade approvals by allowing transmission of *instructions* for processing trades as well as data contained in trade applications
 - Processing for some trades may still require human intervention, but trade approval authorities should aim to agree on a set of circumstances in which trade approvals can be automated (that is, agreeing if the specified conditions are met, then trade applications can be automatically processed; otherwise trade application processing requires human intervention).
 - Work should be done to simplify trading rules ahead of this implementation.
- The protocol should be 'open' in the sense that it should allow third parties to build additional services 'on top'⁸⁵⁹
 - Exchange platforms and brokers should be able to make use of the protocol to develop new services or product offerings for clients.
 - Given all information will be captured in one place (that is, in the data repository of the Backbone Platform), the Digital Messaging Protocol should facilitate APIs or other automated interfaces which allow third parties to develop information services which draw on the information generated by the protocol and stored in the Backbone Platform.
- The protocol should allow for increased product diversity and be adaptable to changes
 - For example, the protocol should be able to handle various trade types and specify the different pathways, approvals, required documentation and registration.
- The protocol should be formulated using a nested governance approach, which allows different users to control different levels of the protocol.

859 For example, the ASX is investing in Digital Asset and their Digital Asset Modelling Language (DAML) to develop a distributed ledger technology (DLT) platform which will allow fintechs to develop overlays that will interact its CHES Replacement.

- The protocol should be flexible and accommodate future changes to the regulatory environment for water markets
 - For example, the protocol could include specification of data flows to trusted parties (for example, regulators) and include in-built audit functions.
- The protocol should be certifiable, in the sense that it should be possible to certify that an individual entity's IT systems or processes are compliant with or are correctly using the protocol.

Digital and system enhancements are needed to transition towards implementing new technologies for water trading and trade-related services

Trade approval authorities should invest further in electronic lodgement and assessment facilities, and digitally codify trading rules (that is, translate the rules into code so they can be applied by computers – sometimes referred to as ‘rules as code’). Trade approval authorities should also invest in real-time tools to help tradeable water rights holders check the feasibility of their proposed trades. Victoria already has tools in place, such as the ‘Trade Limits and Opportunity’ interactive and dynamic map that enables a user to enter trading zones and volumes to see if the trade is allowed, and whether any limits apply.⁸⁶⁰ The Victorian Broker Portal also enables brokers to run ‘feasibility checks,’ with customer’s consent, to check the allocation account balance and trading rules to see if a proposed trade would be approved. These tools should be adopted by other Basin States (and ideally also the larger IIOs).

These enhancements will enable allocation trades to be processed automatically (in most instances) and will help to reduce transaction costs in the longer term, resulting in greater benefits as trade activity increases (particularly more complex interzone or interstate trade). Without this type of investment, continual improvement in data flows and data quality will be stifled. The ACCC notes there has been general acknowledgement that water management (including trade) needs to become more digital, although concerns remain about funding for smaller entities, such as some IIOs.

The Queensland government has indicated it is exploring a number of technology and digital solutions, and submitted that it is investigating ways to:

translate trade rules in draft water plans into digital processes and workflows so they can be automated and efficiently implemented before plans are finalised.⁸⁶¹

IIOs should update their IT systems to support new reporting requirements, and collect and share the same type of trade information that government trade approval authorities provide (particularly trade prices). The software should be ‘compliant by design’, and the ACCC recommends using an approach similar to the Single Touch Payroll approach (used to streamline businesses’ tax reporting obligations, see case study F1, appendix F). In this approach, the employers’ data collection and processing do not change at all, but the recording and packaging in the ‘back end’ by the digital service provider is done in line with the standards set by the Australian Taxation Office (ATO). Harnessing the use of software in this way was also recognised by the Productivity Commission in their RegTech information paper:

Increasingly, businesses are using software that not only meets the internal needs of the business but is also capable of providing the necessary information to fulfil regulatory obligations or to demonstrate compliance through automation. While it is rational that businesses and regulators would work to ensure the interoperability of their processes to minimise undue compliance burdens, this necessitates deliberate action – aligning the timing of data collection and reporting, data definitions and software, for example. Furthermore, this action can take some years and represent a substantial investment by regulators and businesses, with the scope and timing of the benefits often uncertain.⁸⁶²

Key steps for implementing the Digital Messaging Protocol

Key recommended first steps are:

860 Victoria Water Register, <https://waterregister.vic.gov.au/TradingRules2019/>, viewed 7 February 2021.

861 Queensland Department of Natural Resources, Mines and Energy, *Submission to Murray–Darling Basin water inquiry interim report*, 13 November 2020, p. 2.

862 Productivity Commission, *Regulatory Technology Information Paper*, 2020, p. 20.

- Map digital information flows which already exist in Basin water markets. The ACCC recommends Australian and Basin State governments, in consultation with trade service providers, undertake an exercise to map and understand all digital information flows which already exist in the Basin water markets. For example, the Victorian Water Register already allows for connection via application programming interfaces (APIs) to allow different trade service providers to digitally connect through ‘machine-to-machine’ connections. The specifications or software designs used for these APIs could form a useful starting point for developing technical specifications for the Digital Messaging Protocol.
- Fully implement current reforms such as adding ‘reason for trade’ to (online) trade application forms across all Basin States, to ensure that all necessary information is captured in trade forms, ready to be shared.

Building on these foundations:

- Prepare to establish (further) digital links between trade matching services (for example, exchange platforms), trade approval authorities and the proposed Backbone Platform by documenting IT system architectures.

Under the leadership of the proposed Water Markets Agency:

- Develop the Digital Messaging Protocol, using a collaborative or co-design approach with water trade service providers and IT providers.
- Private trade service providers such as brokers, exchange platforms, IIOs and information service providers implement system changes needed to comply with the Water Market Data Standards and to collect, store and transmit water market data and related information using the Digital Messaging Protocol.

► **Recommendation 10**

Adopt a comprehensive Digital Messaging Protocol for the capture, storage and transfer of water market data and trade applications

Australian and Basin State governments should work collaboratively with trade service providers to establish and implement a mandatory Digital Messaging Protocol for water trade and water market data, which will enable:

- enhanced interoperability between Basin State registers, by providing automated digital connections (that is, machine-to-machine connections) and the ability to establish a direct digital interface between the proposed digital platform (Backbone Platform), and irrigation infrastructure operators, private exchange platforms and Basin State trade approval authority systems and water registers
- the ability to securely transmit data and trade applications between trade service providers
- the ability to automatically execute instructions, and automate collection, cleaning and publishing of water market data.

It is recommended that the proposed Water Markets Agency (see recommendation 26) play a lead role in developing the Digital Messaging Protocol, and should be assigned the role of enforcing adoption of the protocol (once established), as required by legislation. The proposed Water Markets Agency should also be assigned the responsibility of developing appropriate governance arrangements for the Digital Messaging Protocol.

When fully implemented, the Digital Messaging Protocol should give effect to the relevant requirements of the proposed Water Market Data Standards (see recommendation 7).

The Digital Messaging Protocol should be implemented in conjunction with the proposed Backbone Platform and public-facing Water Market Information Platform (see recommendations 11 and 12).

The ACCC recommends Australian and Basin State governments consider subsidising some of the cost of in private service providers' system upgrades to assist with the transformational change needed to deliver digitised trading processes and digital infrastructure for water markets.

Implement a Backbone Platform to act as a central hub for trade services and water market data

The ACCC recommends the creation of a Backbone Platform for water market data and trade services to deliver a 'central hub' for trade lodgement and trade data repository, by connecting various trade service providers. This connection is specified and managed by the use of the Water Market Data Standards and Digital Messaging Protocol.

The Backbone Platform is not intended to operate as an exchange platform or to replace the role of existing trade approval authorities, although the proposed single lodgement portal and 'trading rules engine' could assist trade approval authorities to undertake their roles in a more timely and consistent manner.

Components of the Backbone Platform

The ACCC considers the Backbone Platform should comprise the following components as a minimum:

- a secure digital repository of water market data and related information that can be drawn on for a variety of purposes, with appropriate controls to protect personally identifiable and commercially sensitive data
- digital connections between the platform and trade service providers, river operators and water market regulators, using the Digital Messaging Protocol, and automated data feeds to the public-facing Water Market Information Platform, which also enable

- data validation and verification checks, for example, data feeds provided by intermediaries and registers automatically through the Digital Messaging Protocol to the platform should be subject to automated quality control
- APIs to extract data from the digital repository of water market data for the proposed Water Markets Agency.

The following additional functionalities should also be incorporated, potentially in a second stage:

- a single portal for lodgement of allocation trade applications for the Southern Connected Basin
- a harmonised 'trading rules engine' capable of automatically assessing the feasibility of proposed trades against trading rules and other requirements for water allocation trades in the Southern Connected Basin.⁸⁶³

The use of in-built quality control mechanisms for trade form submission, once the single portal for lodgement is adopted, will support improved quality and completeness of water market information (for example, mechanisms whereby a user cannot submit a trade for approval without declaring a price and/or also providing supporting evidence at the time of lodgement).

Key steps for implementing the Backbone Platform

The following steps are recommended in preparation for transitioning towards the digital Backbone Platform:

- Consider the Australian Government's Digital Service Platforms Strategy, which outlines the key components in developing digital platforms to fully realise their benefits.⁸⁶⁴
- Implement legislative changes and new governance arrangements to enable effective leadership and coordination of these initiatives.
- Enable legislation to mandate access to data stored in the Backbone Platform for regulatory purposes. See recommendation 1 for details on this point.

The Backbone Platform will need to be operated by an independent entity with the mandate to access, store and transmit the relevant data. These roles could be assigned to an existing institution such as the Bureau of Meteorology, or could be embedded as a core function of the recommended new entity, the Water Markets Agency. In principle, the Backbone Platform and central public-facing Water Market Information Platform could be operated by different entities, as long as the required data feeds were established and appropriate relationships between the two operators were established and maintained. These platforms could also be operated by the same single entity.

The ACCC recommends the proposed Water Markets Agency be assigned the role of developing appropriate governance arrangements for the Backbone Platform, and deciding whether to operate the platform itself, or assign this role to another entity (while retaining oversight as part of its general oversight and regulatory roles).

Assuming a single portal for lodging trade applications is adopted, there would no longer be a need to complete different forms for different states. Interstate accounts could be checked much more quickly, and there could be seamless transfer of information and data via the protocol to a user-friendly Water Market Information Platform.

863 The ACCC acknowledges that it may not be possible to digitally code all trading rules, and therefore that there still may be a role for manual assessment of some trade applications, even if the proposed harmonised trading rules engine was fully implemented.

864 Digital Transformation Agency, <https://www.dta.gov.au/our-projects/digital-service-platforms-strategy/six-keys-success>, viewed 4 February 2021.

► Recommendation 11

Implement a digital platform ('Backbone Platform') to act as a single repository for water market data and a single hub for trade approvals

Australian and Basin State governments should work collaboratively with trade service providers to establish and implement a digital platform ('Backbone Platform') to underpin trade services and water market data.

It is recommended that the proposed Water Markets Agency (see recommendation 26) play a lead role in developing the Backbone Platform and operating it, or have oversight of its operation, once established. The proposed Water Markets Agency should also be assigned the responsibility of developing appropriate governance arrangements for the Backbone Platform.

Establishing the Backbone Platform will help streamline trade approvals and the collection and dissemination of water market data by providing a single hub through which water trade applications are made, and within which water market data is stored.

When fully implemented, the Backbone Platform should comprise:

- a secure digital repository for water market data and related information
- digital connections between the Backbone Platform and trade service providers, regulators, approval authorities river operators, and the public-facing Water Market Information Platform, with purpose- or entity-specific access controls
- single portal for lodging trade applications (Southern Connected Basin)
- harmonised 'trading rules engine' for assessing trade application against trading rules (Southern Connected Basin).

The Backbone Platform should be implemented in conjunction with the proposed Digital Messaging Protocol, public-facing Water Market Information Platform and in compliance with the proposed Water Market Data Standards (see recommendations 7, 10 and 12).

When implemented together, these technologies will form an underlying digital framework and common digital 'language' and processes, upon which different trade service providers can build their own digital infrastructure.

The Backbone Platform is not intended to operate as an exchange platform or to replace the role of existing trade approval authorities, although the proposed single lodgement portal and 'trading rules engine' could assist trade approval authorities to undertake their roles in a more timely and consistent manner.

Implement a Water Market Information Platform, building on existing initiatives and harnessing other proposed new technologies

As discussed in 11.2.3, the Australian Government (along with the Basin States) has already started to develop a centralised water information platform, and the project has been provided with significant funding. As such, the ACCC considers that the Water Market Information Platform should make use of the Digital Messaging Protocol to improve data quality of public information, by drawing on an aggregated feed of information for all bids and offers made on exchange platforms, as well as data on approved trades (sourced from registers and IIOs). The information presented on the Water Market Information Platform should be, where possible, information from the central data repository contained within the Backbone Platform, which has been standardised and quality checked. This will help to improve data quality and increase market participants' ability to assess information across zones and states more easily.

The MDBA's submission to the interim report highlighted the need to consider the information needs of all users, not just users in a particular area:

In connected markets, that cross state borders, the presentation of information needs to be carefully considered. In connected systems the presentation of information needs to consider all users in the system, not just users within the state. Without these considerations, increasing the availability of information will create further complexity and confusion, and increase knowledge disparity between users.⁸⁶⁵

The ACCC considers that the centralised information platform currently being pursued by DAWE should be broadened and enhanced following the short-term recommendation implementation, as well as the completion of the Digital Messaging Protocol and Backbone Platform. The ACCC has found that improving data quality for trade data, and increasing transparency of decision-making is equally as important as providing this information in a central place. The platform should therefore harness the many improvements that Basin States are making to their trade data and water information, to deliver the greatest benefit. This also presents an opportune time to coordinate and harmonise terminology where possible as data collection is being revised, and efforts to consolidate on the new platform are pursued.

The ACCC has gathered considerable evidence from stakeholder submissions, consultations, and user needs analysis undertaken by other government agencies to establish a baseline assessment of what information water market participants want and need. This is presented in chapter 11.

However, the ACCC acknowledges that this process could be further built on and expanded. The ACCC therefore recommends that the next step is to more definitively identify the set of informational requirements to be incorporated into relevant legislation, and the form in which this information should be stored and shared into standards, conventions and/or guidelines.

The ACCC emphasises that, in implementing the proposed platform, governments need to continue to consult with water market participants and industry to understand the different types of information required to participate in water markets, and how this information could be verified by regulators. This work needs to acknowledge that there are multiple user groups, including irrigators, environmental water holders, brokers and exchange platforms, IIOs, traditional owner groups, policy makers and regulators. Many of these information users are also information generators; therefore, many people and entities will need to be consulted on what they need, but also on what they can provide. There are also multiple information needs, meaning consultation needs to more explicitly map which pieces of information are needed for which purpose.

Scope of the Water Market Information Platform

At a minimum, the platform should make publicly available:

- water market data, appropriately de-identified, including

⁸⁶⁵ Murray-Darling Basin Authority, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 8.

- for all completed tradeable water right transactions, transaction data such as price (ideally net and gross of trade fees), volume, origin and destination trading zone(s), water access entitlement class (if relevant), trade category, strike date, submitted date, approval date
- current buy and sell offers (including relevant details so that current offers are comparable with historical transaction data) – this would utilise information provided via the Backbone Platform, with links back to broker or exchange platform websites so that users could take up these trading opportunities
- information on the cost of trading – trade approval fees and intermediary charges
- IVT account balances
- information on relevant government policies and decision-making, such as
 - information on market rules and processes – market rules, allocation announcements and policy changes, and unbiased information on opportunities to trade
 - notifications about market-relevant consultations – information on when consultation processes for rule or policy changes are occurring and how stakeholders can be involved
- water announcements (see also recommendation 9), which could include
 - allocation announcements
 - spill risk declarations or other announcements relating to carryover
 - notifications about market-relevant consultations – information on when consultation processes for rule or policy changes are occurring and how stakeholders can be involved.

The platform should also provide information on, or links to, the following:

- water supply and demand data – supply data such as forecast water availability, expected allocations, and demand data such as weather conditions, and predicted demand from plantings
- water accounting methods – the processes applied by Basin States when accounting for losses and managing spill risk
- educational resources (see also recommendation 13 on this point).

The platform should harness improved data quality and data flows made available by implementation of the proposed Water Market Data Standards, Digital Messaging Protocol and Backbone Platform. The platform should also be ‘open’ in the sense that it allows third parties to harness the information available on the platform to provide markets with ‘value added’ services and products, such as specialised reports, forecasts, integration with other data sources.

The ACCC’s findings support that the platform should be interactive, user-customisable, display high quality information and be developed based on identified user needs. Once the platform is established, user needs consultation should be ongoing, to ensure that the platform continues to meet users’ needs and expectations over time.

Key steps for implementing the Water Market Information Platform

The establishment of a central, public-facing Water Market Information Platform will require a series of obligations being placed on different entities to ensure comprehensive and high quality data is provided to the platform (covered by the Water Market Data Standards). Rules regarding the operation of the platform itself will also be needed; for example, to ensure that the platform is operated consistently with privacy laws and appropriate arrangements are in place to ensure there is no inappropriate accessing of data feeds prior to their being published on the platform. For example, there should be a requirement that any transaction records being made available on the platform should be suitably de-identified, and that water announcements or other information likely to influence the price of tradeable water rights need to be provided to, and published on, the platform within a suitable timeframe (see recommendation 9 on this point).

Permissions for data providers (for example, water market intermediaries and IIOs) could enable providers full access to data they provided (via the Backbone Platform and automatically sent to the public-facing platform), and more restricted access to data provided by others. Permissions for the proposed market regulator should enable the regulator to access identified records, and permissions

for River Operators should provide real time, de-identified data relevant to River Operations, suitably aggregated (for example, River Operators likely would require aggregated, not individual, usage data).

The Water Market Information Platform will need to be operated by an independent entity with the appropriate authority to publish data and control data feeds coming from the Backbone Platform. The ACCC recommends the proposed Water Markets Agency be assigned the role of developing appropriate governance arrangements for the Water Market Information Platform, and deciding whether to operate the platform itself, or assign this role to another entity (while retaining oversight as part of its general oversight and regulatory roles).

► Recommendation 12

Implement a public-facing Water Market Information Platform which harnesses improved data collection and quality

Australian and Basin State governments should build on centralised information platform initiatives already in place to improve the transparency of water market information. Industry and government should work collaboratively to implement a public-facing Water Market Information Platform.

This will ensure all the key information market participants need to make well-informed trading decisions is available from one location, is accurate and is up-to-date.

It is recommended that the proposed Water Markets Agency (see recommendation 26) play a lead role in developing the public-facing platform and operate it, or have oversight of its operation, once established. The proposed Water Markets Agency should also be assigned the responsibility of developing appropriate governance arrangements for the Water Market Information Platform.

At a minimum, the platform should make publicly available:

- water market data (in general, sourced via automated data feeds from the digital repository contained in the Backbone Platform)
- information on relevant government policies and decision-making (see recommendation 15 concerning improving transparency of policies and procedures)
- water announcements (see recommendation 9).

The Water Market Information Platform should be implemented in conjunction with the proposed Digital Messaging Protocol and the Backbone Platform (see recommendations 10 and 11).

12.4.4 Address some specific information issues with targeted solutions

Implement a Basin-wide Water Market Education Program

Chapter 4 identified that many stakeholders, particularly irrigators, find water markets complex, and some lack confidence in their own ability to make beneficial trade decisions.

While the implementation of the Water Market Information Platform will provide greater transparency, and other recommendations in this report will help simplify water markets for users to some degree, the ACCC considers there remains a need to equip water market participants to make best use of the information.

Therefore, the ACCC considers that the Australian Government should develop and implement a Water Market Education Program. Implementation of this program should comprise one of the functions of the proposed Water Markets Agency.

The program's objective should be to enable current and potential water market participants to understand the different water products on offer, the rules governing what products can be traded and where, and the factors they should consider when evaluating the prices they wish to receive or offer for different products.

Development of the program should involve stakeholder consultation to effectively address areas that irrigators think most important to their engagement with, and confidence in, water markets. More broadly, stakeholder engagement should inform both the development of educational resources, and the communication mediums for content delivery.

While the exact content of the program should be developed consultatively, the ACCC considers that broadly the program could cover:

- the basic functions and operation of water markets, including relevant regulatory bodies and dispute resolution avenues
- the water market products available to irrigators, including newer products, and how these products may meet irrigators needs
- how to access and use water markets, including accessing water market exchange platforms and trading
- deliverability and access to water through IIOs, including with reference to IVTs
- the function and operation of state registers
- changes to the water market, including in response to the recommendations made in this report.

Program content should be delivered in a manner that ensures ease of access; for example, via delivering online and 'in person' seminars, at times that take into account irrigators' own schedules and availability. Content delivery will be assisted by the involvement of IIOs, brokers, water exchange platforms, water information service providers and Basin State governments in content development and delivery.

Program resources should be kept up to date.

► Recommendation 13

Implement a Basin-wide Water Market Education Program

The Australian Government should develop a Basin-wide Water Market Education Program, in collaboration with irrigation infrastructure operators, brokers, water exchange platforms, water information service providers and Basin State governments.

This will assist current and potential market participants – especially irrigators – to better understand water products and trading rules, and to engage confidently in water trading.

Implement digital tools to track water allocations

Currently, it is not possible to trace water from its original point of allocation to its eventual use. This means that any policy, trading rule or water management option which relies on the ability to track how water moves in fine detail is difficult to implement in practice. Section 14.2.3 (in chapter 14) notes some of these issues in relation to river management and market architecture; section 8.6.3 (in chapter 8) notes some of these issues in relation to tracking movements of water allocation in trading activity, particularly when trades involve aggregated movement of water through brokers' or IIOs' accounts.

Given the foundational role that tracking allocations has for regulatory oversight and potential policy options to better manage interzone trade and delivery issues, the ACCC recommends that governments implement water allocation traceability when implementing the proposed Digital Messaging Protocol. This should provide the ability to track water allocations from the time they are first credited to the holder's account, through trades or carryover transactions, to when they are finally used or forfeited.⁸⁶⁶

⁸⁶⁶ The ACCC acknowledges that water allocations in unregulated systems operate somewhat differently to regulated systems: holders' accounts are not credited with a specific volume for use or trade, but rather holders may take water from the unregulated system, up to a maximum volume and in line with the conditions on their licence – for example, may extract a certain amount or at a certain rate, over a given time period, and subject to triggers such as flow levels. Thus, traceability mechanisms for unregulated systems may differ from mechanisms for regulated systems.

This functionality should be first considered in the Southern Connected Basin context, where there is a real need to improve understanding of how water moves through different accounts at both the bulk and retail levels. However, such functionality could also prove useful in other contexts, such as for better tracking of environmental watering activities in unregulated systems.

In essence, traceability involves implementing a system to identify a product or certain aspects of a product – for example, ownership and location – and trace changes to these over time and space. The experience of other sectors – particularly mechanisms for livestock traceability and supply chain traceability – shows that there are many ways to implement traceability (see case studies in appendix F). The ACCC recommends governments draw on experience in other sectors in developing traceability systems for water.

The ACCC also notes that if distributed ledger technology (Blockchain)⁸⁶⁷ is to be considered in this context, some thought should also be given to the potential for this technology to be deployed in other ways to improve water management and accounting, including water trade records. The Productivity Commission's report on RegTech notes that 'Blockchain technology could also be used to register physical asset transactions. For example, the Swedish Land Registry has begun small-scale official use of Blockchain to register land and property ownership (McMurren et al. 2018).'⁸⁶⁸ The ACCC also notes successful Blockchain 'WaterLedger' use case trials undertaken by Civic Ledger, in two relatively simple systems outside the Basin.⁸⁶⁹

► **Recommendation 14**

Implement lifetime traceability for water allocations

Australian and Basin State governments should implement lifetime traceability for water allocations when implementing the proposed Digital Messaging Protocol.

This will make it possible to trace water from its original point of allocation to its eventual use. This will facilitate implementation of policies, trading rules or water management options that rely on the ability to track how water moves in detail.

The governments should implement this in consultation with water market participants, river operators and infrastructure operators.

12.5 Stakeholders are generally supportive of this proposed package

In the interim report, the ACCC proposed the following groupings as short-term and medium-term options:

- Increase interoperability and harmonisation by continuing current work towards consistent terminology and data structures.
- Improve information provided to the Bureau of Meteorology.
- Trade forms should capture reason for trade or trade type, trade source, lodgement pathway and lodging party.
- Remove the ability for zero dollar trades to be approved or recorded unless certain conditions are met (as exception).
- Each Basin State should have a clear and standardised legislative mandate to keep a register to record all entitlement trades and all allocation trades.

867 Distributed Ledger Technology is defined as technological infrastructure and protocols that allows simultaneous access, validation, and record updating in an immutable manner across a network spread across multiple entities or locations.

868 Productivity Commission, *Regulatory Technology Information Paper*, 2020, p. 15.

869 Civic Ledger, 'Improving Water Markets and Trading Through New Digital Technologies – Mareeba-Dimulah Water Supply Scheme', *Pilot Research Project Report prepared for CRC for Developing Northern Australia*, 2020.

- Each state's water management law should clearly specify water market information roles for water registers.
- Irrigation infrastructure operators should be required to establish and maintain standardised registers and publish trade data.
- Standards for trade processes and reporting requirements should be implemented.
- Explore options and value in reporting contracts for leases, forwards, and carryover parking to registers and/or annotating allocation trades conducted under a contract.
- Different types of entitlement trades and allocation trades need to be better identified through a new and standardised 'dealings' framework.

The interim report also listed a number of major technological options as part of longer term reform. The ACCC presented this broad range of options in order to canvass feedback from stakeholders on options, and to better understand the limitation and benefits of these options for water users and governments.

Some stakeholders expressed their support for changes to trade processing being underpinned by clear and comprehensive mandates.⁸⁷⁰ Specifically, the Murray Valley Food and Fibre Association (MVFFA) submitted that each Basin State should have clear legislative mandates in regards to entitlement trade and allocation trade registers, standards and processes for trade approval applications, and recording and publishing trade data.⁸⁷¹ The MVFFA also suggested these requirements should apply to all entities engaged in processing trades, including exchange platforms and IIOs.

While stakeholders who provided submissions differed in exact views, overall there was general support for investment in digital trade services in a way that fostered more integration between different trade service providers, rather than replacing exchange platforms, trade approval authorities or registers with a single service provider. Some submitters, while supporting reform in principle, also raised concerns about costs.

Waterexchange noted that they supported the notion of increasing digital connections between exchange platforms and trade approval authorities, and noted that this is something that they already have in place with some IIOs and are pursuing implementing the Victorian Water Register Broker API. Waterexchange's submission to the Interim Report further noted:

[W]e concur that a digital protocol to enhance interoperability between various entities is the best option for the water markets. In this regard Waterexchange is already well advanced with existing digital interoperability in place with a number of IIO's and discussions underway with DELWP and others. This interoperability has provided benefits in respect of faster trade processing time together with live time reporting/approvals of trades which has delivered a more seamless customer experience.⁸⁷²

Kilter Rural stated that it 'supports continued implementation of technology solutions to increase market integrity through improved transparency and efficiency. Accurate and timely information providing visibility of market depth and price discovery should be readily available to all market participants. Also the development of secure transaction clearing services is important to manage counterparty risks.'⁸⁷³

Lachlan Valley Water submitted that it '[s]upports NSWIC [New South Wales Irrigators Council] position that single digital platform including availability and trade information would be useful rather than a central trading platform (which would result in high transaction costs and would remove the role for brokers).'⁸⁷⁴

870 Waterexchange, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 3.

871 Murray Valley Food and Fibre Association, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 6.

872 Waterexchange, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 3.

873 Kilter Rural, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 6.

874 Lachlan Valley Water Inc, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 2.

Basin State governments, as outlined above, have been on a path of improving both trade services and transparency. In line with this, the ACCC has received support from the Basin States who have submitted the following in response to the interim report:

- The Queensland Government referred to its Rural Water Future program and its end-to-end transformation of how sustainable water management is delivered, which includes modernising trade and market facilitation by improvements such as automation, capturing and providing more timely information and digitally recording transactional information in a secure way that supports the market.⁸⁷⁵
- The NSW Government noted the actions already taken to improve trade rules, information and transparency, and supported the ACCC's recommendations to improve transparency particularly in relation to oversight of intermediaries.⁸⁷⁶
- The Victorian Government considered there is merit in exploring the use of digital technologies to improve transparency and is supportive of improving automation and tracking allocation trades.⁸⁷⁷ The Victorian Government also noted a preference for a distributed model as a more resilient system than a centralised one, and considered that a monopoly framework should be avoided. It also cautioned against the proposed change being too ambitious or unrealistic given previous failed attempts.
- The South Australian Government also supported the ACCC's potential recommendations, and considers the WMS program will deliver on many of the aspects identified by the ACCC.

The MDBA submitted that improvements to information should be guided by user needs and complemented by education activities to ensure improved decision making.⁸⁷⁸ The MDBA also submitted that it 'supports investment in the aggregation of data in systems and sources as an important aspect of the pathway forward however we caution that this alone is unlikely to be transformational against the backdrop of issues highlighted in the interim report. Solutions must continually be assessed against the problem to be solved and the outcome sought.'⁸⁷⁹ The ACCC agrees with this view, and recommends the creation of a Water Markets Education Program (see recommendation 13), and that the digital innovations recommended in this chapter are grounded in meaningful user needs analysis and consultation.

The MDBA further submitted that:

- The MDBA supports the ACCC's preliminary view to harmonise and coordinate trade processing and reporting. This would generate clear benefits in terms of reducing market complexity and improving market efficiency. A consistent framework would also be a sensible first step to harmonise trade market data across different water registries as a prerequisite for creating a single water market information platform.
- The suggestion to develop a trade processing and market data framework could facilitate this process. However, given the number of entities involved in processing trades, significant consultation would be needed to develop an effective framework, with sufficient buy-in from stakeholders. Legislative change may also be needed to ensure there are clear obligations to adhere to the framework.⁸⁸⁰

The ACCC's proposals regarding improvements to IIO registers and trade approval processes received more mixed responses from IIOs.⁸⁸¹ While many IIOs acknowledged the need to improve in principle, questions about funding and resources, and the potential implication for IIO customers' fees, were raised by some IIOs, particularly several smaller and member-owned entities. For example, Central Irrigation Trust (CIT) considered that a number of the short term incremental solutions raised in the Interim Report 'should be inexpensive to implement', but raised significant concerns about the costs of

875 Queensland Department of Natural Resources, Mines and Energy (now Queensland Department of Regional Development, Manufacturing and Water), *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 2.

876 NSW Government, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 2.

877 Victorian Government, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 2.

878 Murray-Darling Basin Authority, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 8.

879 Murray-Darling Basin Authority, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 6.

880 Murray-Darling Basin Authority, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 10.

881 The ACCC received submissions from 5 IIOs.

structural change. CIT also strongly opposed significant changes to IIO registers, noting that existing CIT registers were developed to suit operational and customer needs, and anticipating that ‘the suggested changes would see significant cost associated with rewriting our registers to in our view marginally improve water market information. This cost would be paid for the members of our business with the benefit being water market participants most of whom are not our members.’⁸⁸²

In contrast, Coleambally Irrigation Cooperative Limited (CICL) supported ‘further work to identify the opportunities to improve interoperability between state registers, IIOs and exchanges.’⁸⁸³ CICL’s view was that:

[S]ignificant further work is required between and with the owners of the various systems to establish clearer options and costs for how to address the issues identified in this report, many of which are known issues. Further work must draw together policy, administration, information technology and communication accountabilities in organisations to deliver practical, affordable and effective solutions. In addition, governments need to learn how to constructively engage with IIOs and include IIOs in the development of practical implementation options. Solutions involving IIOs must not be developed in isolation from IIOs business’ models.⁸⁸⁴

Murray Irrigation Limited (MIL) stated that it supports the concept of ‘one information platform with real-time recording of trade data from all other exchange operators and transparency to support market operation...to develop this system governments should fund the implementation and maintenance of a trade portal with consistent, simple and cost free data links from IIO’s back to this portal.’⁸⁸⁵

The ACCC acknowledges these concerns and notes that – consistent with NWI principles for cost recovery – costs should be borne by beneficiaries or funded from consolidated revenue where a clear community service obligation is defined.⁸⁸⁶ See also discussion on this point at section 12.6 below.

Mr Damian Crowe expressed concern that the options raised in chapter 11 of the interim report were ‘a mixture of requirements, data architectures, strategies, technology platforms and solutions.’ Mr Crowe emphasised the importance of ‘building up layers of institutional knowledge’, and cautioned against narrowing down options too far before establishing the business requirements and evaluation criteria. Mr Crowe also identified that there are a wide range of models to deliver more integrated trade services and information flows.⁸⁸⁷ The ACCC agrees that further user needs analysis and consultation is an important foundational step to underpin further change. The ACCC has also crafted its recommendations for digital infrastructure for water markets in a way that allows for further business case analysis and project planning prior to implementation.

Dr Lana Hartwig and Ms Sue Jackson noted their concern that ‘some of the digital centralisation and streamlining options put forward on page 30 of the interim report might constrain the development of relationships with brokers; an outcome that could see some Aboriginal groups less likely to trade, or not trade at all. This would not only compromise this much needed income opportunity for Aboriginal entities, but also the water access opportunities that buyers benefit from via these trades.’⁸⁸⁸ The ACCC considers the package recommended below will retain broker and client relationships.

882 Central Irrigation Trust, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 6.

883 Coleambally Irrigation Co-operative Limited, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p.2.

884 *ibid.*, p.2

885 Murray Irrigation Limited, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 5.

886 Council of Australian Governments, *Intergovernmental Agreement on a National Water Initiative*, 2004, paragraphs 64 and 67(i).

887 Damian Crowe, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, pp. 5–8.

888 Dr Lana Hartwig and Sue Jackson, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 8.

12.6 Digital transformation of services for water trade: Implementation considerations

The ACCC recognises that transformative change is required to deliver the technological innovations outlined in recommendations 10 to 12. This will require collective effort and investment from governments and trade service providers.

The ACCC notes that many different sectors of the economy are currently undergoing or have recently undergone a process of increased digitalisation. The ACCC notes there is significant potential to learn from adoption of digital messaging protocols and related standards in other sectors. To start to bring together some of this experience, the ACCC conducted 5 sector case studies (see box 12.3 and appendix F). Lessons learned from this analysis helps water market participants and governments understand 'best practice' for technical aspects, and also provide insights into governance of the protocol development and implementation, as well as practical guidance on how different parties with a stake in the protocol can work together. The ACCC notes that conducting further case study or cross-sectoral comparison could be a useful tool to further understand how to implement the recommendations presented in this chapter.

Box 12.3: Implementing data standards, digital messaging protocols and centralised portals: lessons learned from other sectors

To effectively draw on learnings from other sectors that have undergone digitalisation and adopted data standards, the ACCC conducted five sectoral case studies. The full case study reports are available in appendix F.

The key 'lessons learned' are summarised here.

E-conveyancing

The states and territories have shifted to electronic conveyancing (e-conveyancing) at different stages, with some yet to roll out e-conveyancing.⁸⁸⁹ Five states have mandated the use of electronic conveyancing, such as NSW in July 2019, SA in August 2020.⁸⁹⁰

E-conveyancing demonstrates an example of developing interoperability.

Now that there are two players in the market, the next issue which has been debated at length is how to design a market in which competition can be encouraged. The issue requires establishing the regulatory framework, risk framework and the actual market model to support competition. This also means making a decision on the technical nature of the connections between Electronic Lodgement Network Operators (ELNOs), Electronic Lodgement Networks (ELNs) and the state registries (and other relevant entities) – and whether this should be done in a nationally standardised way, or on a state-by-state basis. This decision has not yet been made.

While the ACCC considers that the development of standards used by the Digital Messaging Protocol (at recommendation 12) should involve processes of co-design, collaboration and industry consultation, the process also needs to be mindful of differing levels of resourcing available to stakeholders and their ability to engage in such processes.

Additionally, e-conveyancing demonstrates some learnings from a multi-jurisdictional approach to develop a national standard, and the magnitude of the task in coordinating. The regulator involved in this coordination and development of a national approach must be appropriately resourced, and the ACCC has acknowledged the good work that ARNECC has achieved but that they remain somewhat hampered by funding constraints.⁸⁹¹

Duplication of costs has also been an issue for parties involved in e-conveyancing, with each new entrant establishing links to registries, banks and revenue offices, while the Enterprise Service Bus (ESB) approach (similar to the Backbone Platform proposed at recommendation 11) is designed to avoid this.

889 Tasmania and NT have not yet rolled out e-conveyancing.

890 See: <https://www.nswlrs.com.au/eConveyancing>, while the ACT has enacted e-conveyancing, it will not mandate the use of it and still allows for paper forms.

891 ACCC, *ACCC report on e-conveyancing*, 2019, p. 20.

Single Touch Payroll

Single Touch Payroll (STP) and Standard Business Reporting (SBR) more broadly demonstrate the potential to reduce regulatory burden and compliance costs for industry through the use of RegTech, and using digital solutions that are built into business software and essentially store information for regulatory purposes in the course of standard business operations (that is automated information collection). This means that data collection remains the same, but reporting is standardised. The SBR approach also aligns itself with the relevant international (ISO) standards where possible.

This is particularly relevant in the water space where the ACCC has identified that significant information is generated but the data capture, storage and sharing is not harnessing the full potential of the data. Currently there is also considerable double entry of information, whereby information manually recorded on a form is then also resubmitted on another form.

There are also considerable concerns about who will bear the cost of increased regulation, and there is a need to identify ways in which current information can be better harnessed rather than creating more reporting obligations and increasing compliance costs.

Also of particular relevance to the recommendation 10 regarding the implementation of a Digital Messaging Protocol, is the use of mandating standards by reference to an 'approved form' in the legislation. This could work effectively for water trade also by allowing for the technical requirements to be outside of the legislation, but the mandate to be within.

The STP program undertook significant consultation with industry in order to develop the framework for the Digital Service Providers, and has taken a staged implementation approach. These learnings can be applied in the water space, where any major RegTech change, such as the Digital Messaging Protocol, will require not only the mandate but also industry and Basin State buy-in and consultation.

The multiple opportunities to leverage the data collected and shared through STP also demonstrates the benefits that the Digital Messaging Protocol and near real-time data could provide in water markets.

Australia's National Livestock Identification System

The National Livestock Identification System (NLIS) is Australia's system for the identification and traceability of cattle, sheep and goats. The key components of this system are:

- Livestock identifiers: All livestock are identified by a visual or electronic eartag/device.
- Location identifiers: All physical locations are identified by means of a Property Identification Code (PIC).
- Transaction records: All livestock location data and movements are recorded in a central database.⁸⁹²
- Traceability standards, which provide a set of minimum standards for identifying livestock and recording livestock movements.
- Enforcement to ensure compliance.⁸⁹³

The NLIS is underpinned by state/territory legislation, which forms the regulatory framework for the system, and is endorsed by major producer, feedlot, agent, saleyard and processor bodies.

The NLIS is currently operated by the Integrity Systems Company (ISC) a wholly-owned subsidiary of Meat & Livestock Australia (MLA). ISC delivers a suite of integrity programs for Australia's red meat sector (including NLIS), and also provides promotional and educational services. The ISC is also responsible for developing and delivering the Digital Value Chain Strategy and Livestock Data Link, two ongoing initiatives to make better use of existing and new data, including data from the NLIS central database, and to conduct research and development to ensure the best digital tools and database management systems are used to strengthen red meat integrity systems over time.⁸⁹⁴ ISC and MLA have invested approximately \$65 million into the NLIS over the 12-year period between 2006 and 2017. Over that period, the annual operating cost of the NLIS was \$5.4 million, funded predominantly through red meat industry levies, with matching government research and development levy investment.⁸⁹⁵

892 NLIS, n.d., *How does the NLIS work?*, <https://www.integritysystems.com.au/identification--traceability/national-livestock-identification-system/>, viewed 19 November 2020.

893 Commonwealth of Australia, 2019, *Feasibility of a national horse traceability register for all horses: Chapter 2 – Animal Traceability in Australia*, https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Rural_and_Regional_Affairs_and_Transport/NationalHorseRegister46/Report/section?id=committees%2Freportsen%2F024292%2F27428#footnote62target, viewed 12 October 2020.

894 Integrity Systems Company, n.d., *About the Integrity Systems Company*, https://www.mla.com.au/globalassets/mla-corporate/meat-safety-and-traceability/documents/isc-factsheet_18_lr.pdf, viewed 19 November 2020.

895 Commonwealth of Australia, 2019, *Feasibility of a national horse traceability register for all horses: Chapter 2 – Animal Traceability in Australia*, https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Rural_and_Regional_Affairs_and_Transport/NationalHorseRegister46/Report/section?id=committees%2Freportsen%2F024292%2F27428#footnote62target, viewed 12 October 2020.

Centralisation of record-keeping has been a critical step for the NLIS, and was feasible in part because of limited state-level roles

The NLIS provides an example of a multi-party system where many actors report transactions (livestock movements) to a central record (the NLIS database), in order to provide a comprehensive, 'single point of truth' for livestock traceability. The central database is administered by a purpose-built, independent entity, the ISC.

Centralisation of the NLIS database was feasible in part because – unlike for water trade – states and territories do not have a role in approving transactions (in this case, livestock movements), and there is no centralisation of livestock management at the state/territory level. This meant that there was no strong driver to keep record-keeping at the state level; in fact, there were considerable benefits from adopting the more centralised approach, particularly given that livestock regularly crosses state borders, and the need to ensure a nationally-consistent approach to biosecurity risk management.

In contrast, water resources need to be managed at the trading zone, water source and Basin levels, and all trades need to be approved by the relevant approval authorities. This entails a much more active role for Basin State governments, and also for irrigation infrastructure operators. Also, given interstate trade currently forms only a very small proportion of water allocation trade, and a minute proportion of water access entitlement trade, the expected benefits from centralising records management and trade administration in the water context are likely to be lower than for the NLIS context. This suggests that while there may be benefits from centralising water market information and data, there is less of a strong driver to centralise the actual records management functions in the water context.

Staged implementation and differing requirements have caused complexities and confusion

The NLIS has differing requirements for different animal types, and across jurisdictions. Further, introduction of NLIS requirements has used a staged approach, across animal types, jurisdictions, and participants, which has made it harder for participants to understand their reporting obligations and to achieve compliance. The lesson learned from this experience is that a consistent approach should be pursued as the 'first-best' approach, with deviations from this being carefully considered. Applying this lesson to water markets suggests that requirements for collecting, storing, and transmitting water market information should be as consistent as possible across jurisdictions, types of trades, and water market participants.

Mandating requirements in legislation is a necessary but not sufficient component of the NLIS

The ISC, which operates the NLIS, identified that mandating requirements via legislation is 'not enough of a reason for participants to comply'; participants 'need a compelling reason to comply', and 'value propositions need to be established across all participant segments to encourage end-to-end compliance'.⁸⁹⁶ This experience highlights the need to ensure obligations provide clear benefits to data providers (in the water context, trade service providers), as well as the sector more generally.

⁸⁹⁶ Integrity Systems Company, *Submission to Senate Inquiry into the feasibility of a National Horse Traceability Register for all Horses*, 2019 <https://www.aph.gov.au/DocumentStore.ashx?id=e111eb50-fcb9-4baa-83cf-139a7ffde86f&subId=669772>, viewed 19 November 2020.

Data standards and digital information systems in the Australian wool industry

Australia's wool industry relies on a range of digital tools to ensure wool markets and related services operate efficiently and effectively, both within Australia and internationally. The key components of this digital infrastructure are:

- Electronic Data Interchange (EDI): industry-specific data standards and the Digital Messaging Protocol which implements this standard. The EDI standards form a central digital backbone which underpins both wool trading directly, and other digital tools such as the WoolQ information platform.
- WoolQ digital information portal, comprising: Market Dashboard, Market Auction, Market Bulletin Board, Market Order Book, and Market Administration components.
- 'E-specis': a recent innovation to replace paper-based forms with digital forms that are automatically saved and transmitted or made accessible to the different parties who need the data.

These tools also rely on a range of standards and guidelines developed by and for industry.

Digital tools developed for the wool industry are predominantly industry-led and managed, with relatively smaller and indirect roles for government. Wool industry participants – particularly key industry bodies such as AWEX, AWI, AWTA, Australian Wool Handlers (AWH) and the National Council of Wool Selling Brokers (NCWSB) – play the central role in developing digital tools and fostering adoption by individual wool industry participants.

Data standards can work in a voluntary context given the right conditions

Use of the EDI data standards and software is ubiquitous within the wool industry, even without their use being mandated via legislation or regulation. This shows that industry participants see value in the standardisation and ease-of-transacting that the EDI system brings.

One aspect driving industry to participate is that the wool supply chain is geographically diverse, but also more linear than in water markets, where irrigators (as well as other market participants) could enter on the supply side, demand side, or both. In the wool industry, there is a higher cost in using non-digital approaches (i.e. paper documentation) to facilitate transactions, both in terms of transmitting and verifying information, than would be the case for a market less geographically dispersed. There is also little incentive for certain participants to not participate out of an intent to maintain a small, localised market.

In contrast, in water markets, some market participants who are opposed to the geographical movement of water (e.g. out of an irrigation district or trading zone) may have incentive to opt out of reforms which encourage standardisation and lowering of transaction costs of trade. This means that, while there may be significant support for introducing data standards for water markets, a mandatory approach may be warranted to ensure that reforms have the appropriate coverage. However, not every aspect necessarily needs to be mandated – for example, there could be a high level mandatory requirement of participation, but the exact requirements for data provision (e.g. format, periodicity) could be specified in industry standards and/or guidelines.

Digital tools can build on each-other, underpinned by high quality, industry-accepted standards

This case study shows that it is not necessary to have a single digital technology to deliver all aspects of the digitalisation of trade services. It is possible to have an integrated ecosystem of technologies; however, in this approach, underlying data standards are crucial to ensure seamless interoperability between different technologies in the ecosystem.

The key learnings for the water context are that these underlying data standards should be developed first, and that interoperability and seamless interfacing between different digital tools should be a key design criterion for those tools. Ad hoc initiatives currently being developed in the water sector are being developed in isolation from each-other, and are unlikely to deliver this integrated outcome.

Reliance on single industry-wide digital tools can create additional risks that need to be well-managed

Core digital technologies in the wool industry were subject to a serious cyberattack in 2020. The incident showed that the technology provider was unprepared and had insufficiently robust security protections and risk management strategies, and as a consequence was slower than expected to respond to the incident.

The lesson learned for the water sector is that if water trade is going to move towards adopting industry-wide custom-built software (in line with ACCC recommendations), there will need to be a focus on building in security protections and risk management strategies from the outset. Examples of strategies that could be taken to help ensure secure and resilient technologies is to use distributed approaches or cloud-based services to make systems more robust; and to plan in advance for potential security incidents or other robustness threats.

In addition to building on lessons learned from other sectors, the ACCC also encourages this new investment to be built on existing partial efforts towards harmonisation and standardisation, for instance the existing interoperability protocol for processing interstate water allocation trades in the Southern Connected Basin (box 12.4) and the Victorian Water Corporation Integration Standard Interface Specification (box 12.5), the Water Regulations 2008 (Cth) which currently regulate provision of water trade information to the Bureau of Meteorology, and the NWI national terminology for tradeable water rights.

Box 12.4: Interoperability protocol for processing interstate water allocation trades in the Southern Connected Basin

- Interstate trading is currently managed through file sharing arrangements in the Southern Connected Basin.
- This file sharing arrangements between authorities in Victoria, New South Wales and South Australia means they are able to share the status of interstate application form with each other automatically.
- This is important for interstate trading as the destination state has no other way of checking that the origin allocation bank account has a sufficient allocation balance to fulfil the trade. Therefore, the applicants must apply in both states, and the origin state will assess the application and share a status of 'pre-approved' or 'refused' with the destination state via the file transfer process.

Box 12.5: Victorian Water Corporation Integration Standard Interface Specification

- As the water authorities are responsible for processing trade applications in Victoria, but are required to register this information, DELWP and the authorities have implemented file sharing arrangements to automate this process.
- The water register is the central repository where water entitlement and related information is stored and managed. To facilitate the day to day operations of each authority, an interface for information exchange between the water register and water corporations is available for each water corporation to use. This is referred to as the 'standard water corporation interface'.
- Data can be exchanged in two directions, either from the water corporation to the register, or from the register to the water corporation.
- The standard interface consists of 13 XML files which are generated by the water register for consumption by the water corporations.
- There is a scheduled data exchange process from the water register to the water corporations. Files relevant to the water corporation are stored in a folder on the water register hosted FTP server, which the water corporation then fetches from.
- The exchanges allow the water corporation to synchronise their back end systems with the water register. Water corporations also send information to the register on water usage, pending water orders and spill allocation information.

In relation to the Digital Messaging Protocol recommendation, CSIRO's submission to the interim report provides some useful guidance on how this could be implemented in a context of the Basin's many differences in 'language' and 'traditions' (box 12.6).

Box 12.6: Implementing a Digital Messaging Protocol in the complex Basin context: guidance from CSIRO

The ACCC [Interim] Report provides options for improving information flows and transparency in the Australian water market. The first two, 11.3.1 Open Digital Messaging Protocol and 11.3.2 Single water market information platform, focus on ensuring the information is compatible across the market, the former by sharing information between markets and the latter by centralising the information. The other options focus on the form of trading and the mechanisms and institutions required for trustworthy transactions.

Both a protocol and a platform can be seen as different points on a continuum. A protocol is needed for the right part of the digital ecosystem in order to provide a single platform.

Water trading registries are state based and have been developed to meet the needs of intra-state trades and to some extent can accommodate trades from interstate. Each state (and in some cases each region) have a local language (set of terms) and local traditions (rules) for water measurement and trading. The language and traditions are not necessarily aligned across state boundaries so it is not always possible to cleanly translate from what is meant in one state to another.

A common exchange format, if sufficiently rich, can identify how information can be translated from one state water language to another. Each state can preserve its own language. It can take significant effort to work through all the significant language changes required to realign the terms across the states. In the short term a protocol would need to support the transfer of terms in their local form for reporting as is. A protocol would also need to be extensible to support changing needs. The Bureau of Meteorology (the Bureau) publishes a glossary of terms across the national water market system that translates between state registries. This could be improved for the purposes of an efficient market because it was designed to support the Bureau's reporting requirements.

Once a protocol is in place, creating a single information platform is straight forward if the protocol has dealt with the mismatch in language. However the single platform is not a replacement for the state based registries and would reflect different local languages. Translation of traditions (rules) is harder as it is based on secondary trading information mentioned in the ACCC report. These are typically available in the form of legislation. In markets for financial products, Product Disclosure Statements (PDS), support the price information given to customers. Secondary water information could be treated the same way. The challenge is to provide the secondary information succinctly.

Source: CSIRO, submission to Interim Report, pp. 2-3.

Significant investment is required

The ACCC acknowledges that the implementation of these recommendations to deliver digital infrastructure for water trading is likely to require the commitment of significant funding. Our view is that transformational investment in Basin IT systems is necessary to support the operation of fair and efficient water markets and provide the necessary information flows.

The ACCC particularly notes the concerns raised by some irrigation infrastructure operators (IIOs) about the costs involved in upgrading IT systems (see section 12.5 above). As the improved transparency of IIO systems will benefit market participants within and outside of IIO networks, and contribute towards improving confidence in water markets more generally, the ACCC considers that costs of upgrades should not solely be recovered from IIOs' relatively small customer bases. For example, costs could be recovered from traders (whether inside or outside the IIO) via trade approval fees, and/or costs could be funded via governments from revenue in respect of a defined Community Service Obligation.

There will be some level of regulatory burden imposed on exchange platforms to establish the technological infrastructure to provide bid and offer data to the market regulator, and for IIOs to provide information from their registers and water management systems. The ACCC notes in particular that some IIOs still use paper-based records to administer water accounts and trading within their networks. The ACCC considers development of the Backbone Platform could entail an agreement

about transitioning from paper forms and manual processing. The ACCC considers that these transition periods are helpful in trialling and bringing all players on-board, and could even take a staged approach similar to that of Single Touch Payroll (STP) (see appendix F) whereby smaller businesses were given a later deadline to transition over to STP reporting.

The ACCC considers introducing a Digital Messaging Protocol with the oversight by a market regulator will help direct private investment in electronic infrastructure to linking with the protocol, which can enable data flows for a variety of purposes, rather than only linking to a single entity (the market regulator). The protocol would also standardise the inputs and outputs necessary for trade and compliance activities – that is, the information that trade approval authorities receive from individual traders, brokers and exchange platforms (inputs), and the information then sent to the central information platform and the market regulator (outputs). As such, the ACCC sees these recommendations as redirecting existing investments in bilateral and ad hoc digital interfaces and improvements, into more harmonised, intentional investment that has holistic coverage of the wide range of trade service providers. The ACCC recommends governments provide funding and leadership to assist private trade service providers in this transition.

In the case of IIOs, these investments could be in the form of the development of ‘off-the-shelf’ software for IIOs, which should be compliant with the Digital Messaging Protocol by design. Alternately, there could be individual investment to each IIO for IT system upgrades.

The ACCC notes that the Digital Messaging Protocol approach could also provide other benefits such as lowering the barriers for new entrants to the intermediary services and information provision markets. In the long-run, this should help encourage competition and facilitate new ways to extract value from current and future water market data and related information, which will help recoup the costs of these investments.

Access to digital infrastructure must be equitable, and some users may require additional support

Implementation of new digital infrastructure would need to take into account the potential for strategic misuse of the infrastructure by market participants. Experience with the Victorian Water Register broker portal and My Water portal shows that there is potential for sophisticated software to automate trade applications, which may advantage some market participants over others. The ACCC considers that this risk could be at least partly mitigated via use of standardised interfaces between the Backbone Platform, the Water Market Information Platform and different classes of users when implementing the Digital Messaging Protocol. For example, all exchange platforms would use the same interface for lodging trade applications with trade approval authorities via the Backbone Platform, to limit the incentive for individual exchange platforms to develop a customised interface to gain advantage. The ACCC also recommends in part 5 of this report that Basin States reform arrangements and administrative processes for interstate trade; reforms in this space should also help eliminate existing incentives for ‘rent seeking’ expenditure on technology or other tools to be ‘at the head of the queue’ for trade opportunities.

Another possible challenge is that there may be some resistance to a newer technological solution from some users. For example, while Victorian traders have been able to lodge their intrastate allocation trades wholly online for a smaller fee (\$47.50) than for the paper-based process (\$89.50) since December 2013⁸⁹⁷, 16% of intrastate trades during 2018–19 were submitted through the paper-based process.⁸⁹⁸ Therefore, increased digitalisation of trade processes may need to cater for different user preferences (for example, not rule out the option to submit trade forms in-person or on paper), and be coupled with education and guidance so that users feel comfortable using the technology.

Strong leadership and good governance is required to facilitate the substantial collaboration required to deliver digital infrastructure

A final challenge is that implementation of this distributed approach would require substantial collaboration between all parties – exchanges, IIOs, and Basin States. There is a need to establish clear governance frameworks for the protocol, and to address practical questions such as who is responsible

897 Water (Resource Management) Regulations Amendment Regulations 2013, S.R. No. 163/2013.

898 ACCC analysis of Victorian Government’s response to voluntary information request.

for which areas of the protocol, and how to ensure all actors implement the protocol as envisaged. Given the track record of collaborative initiatives in the water sector to date, there is a risk that instead of delivering a Basin-wide, streamlined and co-ordinated trade processing and data collection system, this initiative could instead result in deadlock and derail existing stand-alone initiatives to improve specific aspects. To mitigate this risk, the ACCC recommends that leadership of, and responsibility for, the implementation of the Digital Messaging Protocol, Backbone Platform, and Water Market Information Platform be placed with a single entity with a clear mandate to deliver this digital infrastructure, in collaboration governments and trade service providers. There also should be obligations on entities to provide information as required by legislation and the Water Market Data Standards.

The ACCC notes that the Digital Messaging Protocol will not in itself address stakeholder concerns on the variable fees charged by each state's trade approval authority or remedy discrepancies in processing times. While the protocol would deliver efficiencies in data entry through automation, trade processing would continue to be limited by the approaches implemented by each of the Basin States. However, the ACCC considers that implementing the Digital Messaging Protocol and Backbone Platform, upgrading approval authorities' systems, and introducing Water Market Data Standards and trade approval service standards should together work to standardise trade approval processes and technology, which should over time help trade approval fees to converge.

12.7 Centralisation versus harmonisation of trade services

The ACCC found that the separate state (and IIO) approval authorities and registers create challenges in conducting some interzone and interstate trades as processes are different and more time consuming, and Basin States have inconsistent trade processing fees (see section 10.4.4). However, only around 8% of allocation trade in the Southern Connected Basin occurs interstate, and approval times for interstate trade are three business days or less for 90% of interstate trades involving NSW, and four business days or less for 90% of trades involving SA and Victoria. The ACCC therefore considers that targeted investment to improve trade processing is a more proportionate and cost-effective measure to respond to stakeholders' concerns than consolidating state (and IIO) registers.

The ACCC does however recognise the importance of delivering user interfaces for trade that are as streamlined and harmonised as possible for market participants. The ACCC's analysis shows that key differences driving different state approaches are embedded in state legislation and regulation, or are the result of different processing systems and accounting arrangements.

On balance, the ACCC considers that the costs of centralising registers and trade approval services are unlikely to deliver the benefits sought by water market participants, and will not necessarily reduce the risks of discrepancies between different data systems compared to the status quo (because although certain aspects will be consolidated, others will become fragmented). The ACCC considers the key problems that most require addressing can be addressed through models that maintain the Basin States' registers and competition in broker and exchange platform services. Identifying this has enabled the ACCC to rule out the single register or single exchange as the ideal solution.

12.8 ACCC view on other options considered in the interim report

This section briefly sets out feedback received from stakeholders and the ACCC's views on other options for reform of trade services canvassed in the interim report, which have not been adopted as part of the ACCC's recommendations to improve trade services and water market data.

12.8.1 Feedback on other options explored in the interim report was mixed

The ACCC received various submissions with mixed views on the options for reform of trade services canvassed in the interim report. H2OX submitted that they did not consider it necessary for each state to have separate and distinct registers, and that a single register could provide all of the relevant

information.⁸⁹⁹ The NSW Government submitted that a consistent, basin-wide register of entitlements was one possible key step to improve trust in the market⁹⁰⁰, and the National Irrigators Council submitted it would be a good aspirational goal to seek to have states combine their registers in the long term.⁹⁰¹ However, the Victorian Farmers Federation (VFF) submitted that a single common register for all water accounting for both trade and delivery was not preferred⁹⁰², while the NSW Irrigators Council (NSWIC) considered a single common register could be developed through a single information portal and continue to enable Basin States to manage their registers.⁹⁰³

In response to the central exchange option, H2OX submitted that this would simplify price discovery and market depth discovery to create a level playing field for water market participants.⁹⁰⁴ However, irrigators and the Australian Water Brokers Association expressed concern that a central exchange would increase transaction costs.⁹⁰⁵ The NSW Irrigators Council also cited additional concerns that a single exchange platform would remove flexibility for peer-to-peer trade and have only one price for water in each market.⁹⁰⁶ The VFF submitted that the ability for buyers and sellers to strike 'off-market' deals is important to provide competition to brokers and exchanges.⁹⁰⁷

Responses on improving IIOs' trading processes and information transparency was also mixed. There was some support for more transparency on trading from IIOs⁹⁰⁸, while the IIOs ranged from cautiously supporting further consideration of interoperability between the IIOs, Basin State registers and exchange platforms⁹⁰⁹ to focussing on the cost of reform.⁹¹⁰

Specific suggestions included that IIOs be required to submit daily to the respective water registers all internal water trades⁹¹¹ or that they establish and maintain comparable registers for both temporary and permanent trades, within, out of and into their networks.⁹¹²

However, Lachlan Valley Water (LVW) noted that any proposal for IIOs to establish and maintain registers must include IIO consultation, and that there should not be costly requirements imposed on IIOs who already operate their own information systems.⁹¹³ This was echoed by Coleambally Irrigation, who submitted that IIOs need to be involved in reform discussions and not have regulation or technology imposed on them.⁹¹⁴ The issue of cost was also raised by the National Irrigators Council, which suggested resourcing and assistance needed to be provided to IIOs to implement consistent new arrangements.⁹¹⁵

899 H2OX, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 6.

900 New South Wales Government, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 2.

901 National Irrigators Council, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 17.

902 Victorian Farmers Federation, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 13.

903 NSW Irrigators Council, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 22.

904 H2OX, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 9.

905 Australian Water Brokers Association, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 8; Lachlan Valley Water Inc, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 2; NSW Farmers Association, *Submission to the Murray-Darling Basin water inquiry interim report*, 4 December 2020, p. 11; NSW Irrigators Council, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 18.

906 NSW Irrigators Council, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 18.

907 Victorian Farmers Federation, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 18.

908 Australian Water Brokers Association, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, pp. 7-8; GoFARM, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 2; WaterExchange, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 3.

909 Coleambally Irrigation Co-operative Limited, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 1.

910 Renmark Irrigation Trust, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 5.

911 Australian Water Brokers Association, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, pp. 7-8.

912 Murray Valley Food and Fibre Association, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 6.

913 Lachlan Valley Water Inc, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 2.

914 Coleambally Irrigation Co-operative Limited, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 11.

915 National Irrigators Council, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 17.

The VFF submitted that changes to existing entitlements or legislative ‘checks and balances’ should only be considered where there is a compelling benefit.⁹¹⁶ Central Irrigation Trust also was opposed to the legislative changes suggested in the interim report, and held the view that states should work together cooperatively with a goal of improving trade services and quality of information.⁹¹⁷

12.8.2 Single exchange platform for posting and matching trade offers

One option raised in the interim report was a single mandated exchange platform for trading. This approach would entail:

- creating a single mandatory online platform for matching buyers and sellers
- maintaining the separate state approval authorities and registers underneath.

The interim report outlined several variations on this ‘single exchange’ option, including:

- one exchange covering all types of trade, including both temporary and permanent products
- one exchange for temporary trade (water allocations and temporary trade of irrigation rights) and another for permanent trades (water access entitlements and permanent trade of irrigation right, including leases)
- one exchange per trade type (for example, one exchange for ‘spot’ trades, another for forward trades and another for carryover parking)
- the option of taking a similar approach to the National Electricity Market (NEM), entailing
 - a spot market in which supply and demand conditions determine prices in real time
 - instant and automatic matching through the central system
 - operator acts as principal in each trade
 - pooling of offers.

A single exchange has been supported by a few stakeholders, for the following reasons:

- Both the Victorian department and ABARES⁹¹⁸ supported the implementation of a centralised exchange for interzone or interstate trade. The Victorian department expressed a preference for an interstate exchange to be the ‘point of truth’ for the amount of water available for trade (note this does not extend to a single exchange for trade between different Victorian zones). ABARES considered a single exchange that received all the bids and offers would be required to support ABARES’ proposed ‘smart market’ for the interzone trade in the Basin⁹¹⁹, but that this exchange would not require real-time trading and would reduce demand for a ‘single market price’.
- H2OX consider that a single exchange can deliver the market depth needed. H2OX have been proponents of a single water exchange, but do not consider that simply centralising information is going to bring about the benefits needed.⁹²⁰
- SunRice Group and RGA reported over 50% of survey participants were in favour of a single exchange.⁹²¹
- Murray River Group of Councils propose a Trade Repository which ‘would receive, match and publish the details of every trade.’⁹²²

A single exchange has been opposed by stakeholders for the following reasons:

916 Victorian Farmers Federation, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 14.

917 Central Irrigation Trust, *Submission to the Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 6.

918 ABARES, *Submission to Murray-Darling Basin water inquiry interim report*, 18 December 2020, p. 8.

919 ABARES, *Submission to Murray-Darling Basin water inquiry interim report*, 18 December 2020, p. 16.

920 H2OX, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, pp. 7-8, 9.

921 SunRice Group and the Riceworkers’ Association of Australia, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 53.

922 Murray River Group of Councils, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 4.

- Waterexchange consider placing one company in charge will not fix the issues identified in the ACCC's interim report.⁹²³
- Murray Irrigation Limited (MIL) stated that it did 'not agree with the concept of a single centralised transaction platform. An important component to competitive trade is customers and brokers leveraging some principles of market competition. Water could simply end up being the one price (either high or low) for a certain product type.'⁹²⁴
- The National Irrigators Council (NIC) stated it did not support a single exchange 'given it would lead to the creation of a monopoly, high transaction costs, remove flexibility for peer-to-peer trade, and have only one price for water in each market.'⁹²⁵

While there is some support for a single and central exchange from some stakeholders, on balance the ACCC is of the view that the additional benefits beyond those that could be achieved with the proposed recommendation package do not outweigh the additional costs. There is currently good competition between intermediaries to provide advisory and matching services.

A mandated single exchange also limits the ability for market participants to negotiate directly with each other, and makes it more difficult to engage in more complex or non-standard dealings (for example, bundled transactions of different water rights types, transactions for non-monetary consideration). It would also make it difficult for persons who wish to only engage in localised trading (for example, irrigators wanting to trade only within their irrigation district) to form these smaller markets. This limiting of avenues for trade which are currently available, and valued by stakeholders, could inadvertently *decrease* rather than *increase* market participation.

In the Southern Connected Basin, the ACCC estimates that – at most – currently only 25–30% (by number) or 10–17% (by volume) of water allocation trade annually occurs on-platform, meaning the trade is matched at arms-length on one or other of the currently-operating exchange platforms. A further 43–56% (by number) or 12–17% (by volume) of trades are matched off-platform but are still *lodged* via these platforms, meaning the trade is bilaterally negotiated but the platform is used as a convenient lodgement portal; the remainder is entirely off-platform, meaning applications are lodged with approval platforms via other, non-platform, avenues.⁹²⁶

There are examples of 'single markets' in other sectors – for example, the Australian Wool Exchange, Australian Stock Exchange, and various livestock exchanges. In practice, these are not actually complete monopoly central exchanges, as all allow for 'off-market' or 'off-platform' transactions. In these cases, data reporting protocols are in place for 'off-market' or 'off-platform' transactions although coverage and quality varies (for example, 'direct' or 'over-the-hooks' livestock sales⁹²⁷, private treaty wool sales⁹²⁸, or 'dark pools' in the ASX context⁹²⁹). In the ASX case, there is also a further regulatory mechanism whereby 'dark pool' transactions under a certain value threshold are required to form prices within a price band determined by 'on-market' transactions; this is a mechanism which is not currently

923 Waterexchange, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 3.

924 Murray Irrigation Limited, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 8.

925 National Irrigators Council, *Submission to Murray-Darling Basin water inquiry interim report*, 13 November 2020, p. 7.

926 ACCC analysis of NSW, Victorian and SA governments' responses to voluntary information requests and s. 95ZK notices. Note these shares are overestimates, because platform data acquired from exchanges *includes* internal irrigation right trades facilitated by platforms, whereas Basin State registry data does not include these trades.

927 For example, just over 30% of Australian lambs were sold via direct sales in 2014-15, and 30% of cattle in 2012-13; <http://sheepproducers.com.au/wp-content/uploads/2018/01/FINAL-Sheepmeat-market-structures-and-systems-investigation-report.pdf>, https://australianabattoirs.com/wp-content/uploads/2014/05/sub74_dept-agric.pdf, viewed 11 December 2020. The ACCC's Cattle and Beef market study identified significant shortcomings in data quality and coverage for direct sales and over-the-hooks marketing channels, but also deficiencies for saleyards, for cattle sales. See https://www.accc.gov.au/system/files/1128%20Beef%20and%20cattle%20report_D08.pdf, viewed 11 December 2020.

928 Private treaty wool sales comprise around 10-20% of total wool market sales, with the proportion varying significantly with market conditions. See <https://www.woolwise.com/wp-content/uploads/2017/07/WOOL-422-522-12-T-09.pdf>, viewed 11 December 2020.

929 'The value of activity on unlit or dark markets has been 'as high as about 40% but probably averages in the range of 25 to 30%. The ASX noted that this level is well below that in the United States, which can be above 50%.' Recent ASIC reports indicate that around 10% of trade is public and private pools, with another 15% of 'oversize' blocks (i.e. trades that can occur out-of-market due to their special size. See https://www.apf.gov.au/Parliamentary_Business/Committees/Joint/Corporations_and_Financial_Services/Membership/asic/asic20131Feb/c02 ; <https://asic.gov.au/regulatory-resources/markets/market-structure/equity-market-data/2020/equity-market-data-for-quarter-ending-june-2020/>, viewed 5 November 2020.

considered as necessary in the water context, but which could be introduced into the proposed conduct regulation framework if warranted at a later date.

A single exchange for interzone allocation trade, could potentially form part of a long-term solution to the market architecture issues related to interzone trade and deliverability. For example, the 'smart market' solutions under consideration require a single 'smart market operator' to work effectively. Therefore, while not recommending that a single exchange is needed now, a transition toward a single exchange in the long-term may be needed to fully address these market architecture issues. Chapter 16 discusses these possibilities in more detail.

In summary, the ACCC considers that by setting the technology up to enable multiple players to connect more easily to the Backbone Platform, and through it to multiple other parties it will then be up to the market to figure out if more or fewer exchange service providers are required. By improving interoperability, the market will be encouraging competition in these services. Over time, a preferred exchange may naturally emerge via competition. The ACCC considers this is a preferable outcome to mandating a single created monopoly and ruling out competition by regulation.

12.8.3 An 'ASX-like approach' for water: multiple platforms for bids and single clearinghouse

The interim report also considered the option of an ASX-like approach, which would entail:

- maintaining and encouraging competition in exchange platforms for *matching* buy and sell offers
- restriction of access to the exchanges to registered users (such as brokers)
- a set of rules governing behaviour on the platforms and the behaviour of the exchange platform operators
- optionally, limiting off-platform trades, and/or prohibiting lodging of bids on multiple exchanges
- a single clearinghouse for *clearing* matched trades, which would entail existing trade approval authorities delegating their trade approval role (which is part of the clearing process) to the clearinghouse operator
- automation and integration between the exchange platforms, the clearinghouse, and respective underlying state registers and trading rules.

There was no support for the reallocation of IIOs' trade approval roles to state trade approval authorities. While there was support for further alignment of Basin State trade approval processes and a single portal or single form for lodgement of trade applications, there was little discussion and no strong support for reallocating Basin State trade approval roles to a single entity either.

On balance, that ACCC's view is that the additional benefits of reallocating trade approval roles to a single centralised entity that could be achieved with the proposed recommendation package are not likely to outweigh the significant costs. Moreover, the proposed approach for the Digital Messaging Protocol and the inclusion of a harmonised trading rules engine and a single trade application portal as functionalities of the Backbone Platform (which would then digitally transmit the applications through to the relevant approval authorities) would sufficiently mimic the outcomes that could be obtained from establishing a central clearinghouse.

12.8.4 Single common register

The interim report also considered the option of a single common register, as follows:

- ownership and trade for all water access rights in the Basin to be stored in a single common register
- all water account transactions (for example, announced allocation credits, usage debits, trade debits and credits) to be reported to this register at stipulated timeframes (such as on a monthly basis) – this would require reconciliation mechanisms between the central register and infrastructure operators' systems.

Feedback provided to the ACCC in consultation meetings and via submissions have indicated that a single register would not be a viable option for the following reasons:

- A single register has not been supported by Basin States and some stakeholders, primarily due to the costs associated with previous attempts at standardising registers under the Common Register Solution (CRS) or where registers support other operational needs (such as for IIOs). The CRS component of NWMS was abandoned in part because the very high costs of attempting to standardise registers. The project was far more complex than anticipated.
- CSIRO staff that worked on the Bureau of Meteorology's national water data collection program recalled the difficulty in reaching agreement across the states in relation to water information specified in Schedule 3 of the Water Regulations 2008. CSIRO staff noted that standardising terminology and presenting a national view can unintentionally encourage data users to just look at their local information instead: that is, because putting information into standardised, national terminology and reporting frameworks meant that it was difficult for individuals who are used to their local context to interpret nationally-standardised information.

The ACCC has found that the benefits of centralisation in terms of improving ease of interstate trade are not likely to be substantial enough to warrant the costs involved. Interstate trade made up just 7.7% of Southern Connected Basin allocation trades during 1 July 2017–30 November 2019 (excluding internal IIO temporary trades of irrigation rights).⁹³⁰

The ACCC agrees with the concerns raised by stakeholders, and considers that the additional benefits of a single common register, beyond the proposed recommendation package, are unlikely to outweigh the costs. The circumstances that ultimately caused the CRS to be abandoned have not been resolved and remain relevant. There is also little evidence to suggest that a single register will achieve the outcomes that market participants seek, and would significantly disrupt IIO operations if IIO registers were also incorporated. See also the discussion on the merits of harmonisation versus centralisation of trade services at section 12.7 above.

12.8.5 Full transparency: publishing identifying details of all market participants, including allocation account details

As explored at in chapter 11, some stakeholders have been calling for a national water register which publishes the names of water owners and water traders.

The interim report considered this option, but the ACCC's preliminary view was that publishing identifying details will not help solve market issues, for the following reasons:

- Publication of identity details in many, if not most, cases is insufficient to classify a person or entity into classes of interest to stakeholders. This may lead to unintentional or deliberate misuse of published information ('misinformation').
- Stakeholders may respond strategically to publication of entitlement details by taking action to 'mask' their identity (such as transferring entitlement holdings into the name of related parties with less identifiable names) – this outcome would work directly against the objective of improving transparency.
- Publication of identity details may have several drawbacks or unintended negative consequences.
- Publication may be inconsistent with personal privacy laws, particularly when relating to information on individuals.
- Publication may allow certain service providers avenues to inappropriately approach individuals to pressure them to engage in trade.
- Publication may allow inappropriate targeting of individuals or entities who are perceived to be engaging in inappropriate conduct, even where the conduct is lawful.⁹³¹

The ACCC retains this view. Having considered the information needs of market participants (outlined in chapter 11), the ACCC does not consider that publication of these details will provide the assistance that stakeholders need to make informed trading decisions, and other improvements to information should instead be prioritised. The ACCC also continues to consider that the publication of personal

930 ACCC analysis of NSW, Victorian and SA governments' responses to voluntary information requests.

931 ACCC, *Murray-Darling Basin Water Markets Inquiry: Interim Report*, 2020, p. 391.

details could lead to adverse outcomes, and further fuel concerns about misconduct of some traders as it may not always be possible to display 'the full picture'. The ACCC considers it more important that a regulator charged with monitoring and compliance have access to complete and identified trading data, which will provide market confidence in this way.

The ACCC considers that a better approach is to balance transparency and privacy concerns by improving the quality, timeliness and accessibility of *de-identified* trade data, and at the same time to address concerns about misconduct or scope to 'take advantage' more directly by the establishment of a whole-of-market regulator.