



**Administrative  
Appeals Tribunal**

**DECISION AND  
REASONS FOR DECISION**

**H2O Exchange Pty Ltd and Innovation and Science Australia (Taxation)  
[2019] AATA 4195 (14 October 2019)**

Division: **TAXATION AND COMMERCIAL DIVISION**

File Number(s): **2017/2454**

Re: **H2O Exchange Pty Ltd**

**APPLICANT**

And **Innovation and Science Australia**

**RESPONDENT**

**DECISION**

Tribunal: **Deputy President B W Rayment OAM QC**

Date: **14 October 2019**

Place: **Sydney**

The reviewable decision is affirmed.

.....[sgd].....

Deputy President B W Rayment OAM QC

## CATCHWORDS

*TAXATION – research and development tax offset – development of software platform for water trading – whether R&D activities are “core R&D activities” or “supporting R&D activities” within the meaning of Division 355 of the Income Tax Assessment Act 1997 (Cth) – whether internal review for a variation of a decision can be made while the decision is under external review – whether outcome can be known or determined in advanced – whether outcome amounts to new knowledge – decision affirmed.*

## LEGISLATION

*Income Tax Assessment Act 1997 (Cth) ss 355-5, 355-25, 355-30, 355-705*

*Industry Research and Development Act 1986 (Cth) ss 27L, 27M, 32A*

*Industry Research and Development Decision-making Principles 2011 cl 5.2*

## CASES

*Moreton Resources Limited v Innovation and Science Australia [2019] FCAFC 120*

## REASONS FOR DECISION

**Deputy President B W Rayment OAM QC**

**14 October 2019**

1. The applicant seeks review under s 30E of the *Industry Research and Development Act 1986* (the IR&D Act) of an internal review decision made by a delegate of Innovation and Science Australia on 24 April 2017 under s 30D(2) of the IR&D Act, that certain activities in which the applicant engaged in the income years 2013-14 and 2014-15 were not “core R&D activities” within the meaning of s 355-25 of the *Income Tax Assessment Act 1997* (the ITA Act), and that they were also not “supporting R&D activities” within the meaning of s 355-30 of the ITA Act.

2. If the respondent or this Tribunal on review, standing in the shoes of the respondent, determines that the core R&D activities and/or supporting R&D activities were involved in the relevant tax years, the Commissioner of Taxation is bound by that finding for the purposes of assessing the applicant's income tax liability for the relevant years, in accordance with s 355-705 of the ITA Act. Notional deductions and consequent tax offsets in favour of the applicant would normally then become available.

## **BACKGROUND**

3. The applicant set out to establish a business consisting of an online water exchange that would allow the owners of water rights (both entitlements and allocations) in the Murray Darling Basin, within New South Wales, Victoria and South Australia, to submit them for sale and allow purchasers to acquire those rights. Trading rules for each State were in different terms and were from time to time altered, and each would need to be complied with for an interstate transaction. Successful transactions required registration in one or more States, and it was intended that the applicant would attend to obtaining such registration. The trading requirements and registration requirements varied from one jurisdiction to another, and may cross borders, thereby requiring compliance with the rules of two or more jurisdictions. The applicant would derive its income from the parties to transactions effected, by charging transaction fees to both buyer and seller. Brokers and traders might be involved in particular transactions. Buyers would pay sellers or intermediaries through the proposed payment portal intended to be established by the applicant as part of its platform. It seems to have been the case that the applicant intended to extend its work beyond the Murray Darling Basin. The applicant mentioned in correspondence that it was doing work with the Queensland water authorities.
4. The applicant had prior experience in a carbon exchange, which also involved an online trading portal. It was interested in expanding its frontiers.
5. The applicant set out to establish the water trading business at the request or invitation of several governments, who had, it was said, tried without success to find an existing platform that could be used or adapted for the purpose.
6. There was in existence at the time the work was done, several other online platforms which enabled trading in water rights to occur, which resembled the enterprise which the applicant desired to conduct in some respects.

7. The technology partner chosen at the relevant time by the applicant for this purpose was a Canberra based IT company called Veritec. The applicant called no witness and produced limited documentation from Veritec. By the time of the hearing, they had ceased to deal with Veritec. Instead, the applicant called Dr Fearn, a software engineer and coder with university qualifications in computing science, who had no involvement in the work done by Veritec and said to satisfy the statutory criteria. The applicant explained that it had been unable to locate the witnesses from Veritec who actually did the work in the relevant income years of 2013-14 and 2014-15.
8. The respondent called Mr Harding, who had experience both with the trading of water rights and in the collaboration with others in the development of software platforms. He also had no involvement in the work done on behalf of the applicant. The applicant challenged his expertise in relation to software development but did not otherwise cross-examine him on the contents of his report.
9. The applicant applied on 22 July 2014 to the respondent for registration of its activities conducted in the 2013-14 income year as research and development activities. On the following day, 23 July 2014, the respondent approved the registration of the research and development activities detailed in the application for the 2013-14 income year. The letter stated that the registration of activities does not, by itself, render the activities described in the registration as eligible core or supporting R&D activities, which it described as the responsibility of the R&D entity, under self-assessment. It notified the applicant that AusIndustry may examine a registration in detail and that this may lead to a formal finding about the eligibility of some or all of the registered activities. The respondent did examine the claimed core R&D activities in due course.
10. For the following income year, 2014-15, the applicant filled out the application for registration in similar terms to its 2013-14 application. On the same day the respondent registered the activities and wrote a letter in similar terms to that described in the previous paragraph.
11. The respondent subsequently considered whether the activities in both income years amounted to core R&D activities or supporting R&D activities and found that they did not. The applicant requested an internal review and the outcome of that review was also



unfavourable to the applicant. The internal review decision is the decision that is reviewable in the Tribunal.

## THE STATUTORY BACKGROUND

12. Division 355 of the ITA Act is headed Research and Development. It's object and the means by which the government intends to achieve that object are set out in s 355-5 which is in the following terms:

### **355-5 Object**

- (1) *The object of this Division is to encourage industry to conduct research and development activities that might otherwise not be conducted because of an uncertain return from the activities, in cases where the knowledge gained is likely to benefit the wider Australian economy.*
- (2) *This object is to be achieved by providing a tax incentive for industry to conduct, in a scientific way, experimental activities for the purpose of generating new knowledge or information in either a general or applied form (including new knowledge in the form of new or improved materials, products, devices, processes or services).*

13. The Division treats R&D activities as consisting of “core R&D activities” and “supporting R&D activities”.

14. “Core R&D activities” are defined in s 355-25 in the following terms:

### **355-25 Core R&D activities**

- (1) *Core R&D activities are experimental activities:*
  - (a) *whose outcome cannot be known or determined in advance on the basis of current knowledge, information or experience, but can only be determined by applying a systematic progression of work that:*
    - (i) *is based on principles of established science; and*
    - (ii) *proceeds from hypothesis to experiment, observation and evaluation, and leads to logical conclusions; and*
  - (b) *that are conducted for the purpose of generating new knowledge (including new knowledge in the form of new or improved materials, products, devices, processes or services).*
- (2) *However, none of the following activities are core R&D activities:*
  - (a) *market research, market testing or market development, or sales promotion (including consumer surveys);*
  - (b) *prospecting, exploring or drilling for minerals or \*petroleum for the purposes of one or more of the following:*

- (i) *discovering deposits;*
- (ii) *determining more precisely the location of deposits;*
- (iii) *determining the size or quality of deposits;*
- (c) *management studies or efficiency surveys;*
- (d) *research in social sciences, arts or humanities;*
- (e) *commercial, legal and administrative aspects of patenting, licensing or other activities;*
- (f) *activities associated with complying with statutory requirements or standards, including one or more of the following:*
  - (i) *maintaining national standards;*
  - (ii) *calibrating secondary standards;*
  - (iii) *routine testing and analysis of materials, components, products, processes, soils, atmospheres and other things;*
- (g) *any activity related to the reproduction of a commercial product or process:*
  - (i) *by a physical examination of an existing system; or*
  - (ii) *from plans, blueprints, detailed specifications or publically available information;*
- (h) *developing, modifying or customising computer software for the dominant purpose of use by any of the following entities for their internal administration (including the internal administration of their business functions):*
  - (i) *the entity (the **developer**) for which the software is developed, modified or customised;*
    - (i) *an entity \*connected with the developer;*
    - (ii) *an \*affiliate of the developer, or an entity of which the developer is an affiliate.*

15. "Supporting R&D activities" are defined in s 355-30 in the following terms:

**355-30 Supporting R&D activities**

- (1) *Supporting R&D activities are activities directly related to \*core R&D activities.*
- (2) *However, if an activity:*
  - (a) *is an activity referred to in subsection 355-25(2); or*
  - (b) *produces goods or services; or*
  - (c) *is directly related to producing goods or services;**the activity is a supporting R&D activity only if it is undertaken for the dominant purpose of supporting \*core R&D activities.*

16. It has not been suggested that any of the relevant activities falls within the exclusions mentioned in s 355-25(2).
17. Supporting R&D activities are associated activities directly related to core R&D activities. Therefore, the order of consideration is to determine first whether there are core R&D activities. If not, no supporting R&D activities will exist.
18. The purpose and context of the use of some of the terms used in s 355-25 is apparent from s 355-5. Section 355-5(1) explains that its object is to encourage industry to conduct research and development activities that might not otherwise be conducted because of an uncertain return, in cases where the knowledge gained is likely to benefit the wider Australian economy. Section 355-5(2) specifies that the object is to be achieved by providing a tax incentive for industry to conduct, in a scientific way, experimental activities for the purpose of generating new knowledge in either a general or applied form.
19. The “outcome” referred to in the definition of “core R&D activities” is required to be one that cannot be known or determined in advance. For that reason, the return from the activities is uncertain, and such that the activities might not, without the tax incentive, be undertaken. If the “outcome” is known or able to be determined in advance, there will be no “core R&D activities” for that reason alone. The outcome is the anticipated or desired result of the experimental activities. If that is unknown, based upon current knowledge, information or experience, then one element of the requirements for the tax incentive will be present. The existence of that element is one of the disputes between the parties that these reasons must resolve.
20. The question whether the outcome of the experimental activities can be known or determined in advance is to be determined on the basis of current knowledge, information or experience. The word “current” seems to direct attention to the knowledge, information and experience available when the project was initiated. For the second income year, the “current knowledge” may refer to that which was known at the beginning of the second income year. The project itself could lead to knowledge being derived by the applicant, which could be relevant in this case to the state of knowledge in the second income year.

21. In order to specify the outcome of the experimental activities, a starting point is to identify the activities in question. That identification itself led to some dispute on this review, and I will discuss that question first.
22. The Full Federal Court in *Moreton Resources Limited v Innovation and Science Australia* [2019] FCAFC 120 observed at [148] that:

*[T]he words “experimental activities” in the opening line of s 355-25(1) have very little, if any, work to do beyond reflecting the type of activities described in paragraphs (a) and (b) of the subsection. Paragraphs (a) and (b) contain a detailed description of activities. Activities must meet the descriptions in both paragraphs to satisfy the defined expression “core R&D activities”. The word “experiment” is used in paragraph (a): this paragraph refers to an outcome that can only be determined by applying a systematic progression of work that, among other things, “proceeds from hypothesis to experiment, observation and evaluation, and leads to logical conclusions”. Given the detail and content of the description in paragraphs (a) and (b), it is difficult to envisage activities that would meet the description in paragraphs (a) and (b) but would not be considered “experimental activities”. This is not to say that the word “experimental” in the opening line of the subsection is wholly superfluous. It is, at least, descriptive of the types of activities that are described in paragraphs (a) and (b).*

23. In the same case, the Full Court of the Federal Court discussed the relationship between Division 355 of the ITA and the IR&D Act. It emerges from the IR&D Act that the activities in question are those that the respondent (described in the IR&D Act as the Board) has registered. A decision of the respondent to register or to refuse to register is itself reviewable in this Tribunal, but no such review has been sought in these proceedings.
24. The activities registered by the respondent were expressed, for each of the relevant years in the same terms. The notice of registration sent by the respondent for the 2013-14 income year was dated 23 July 2014, and it referred to the “activities detailed in the application” for that income year. The application is T4 in the s 37 documents. The registered activities were those described by the applicant in its application dated 22 July 2014. The application described the project title as “Develop an on-line platform for the trading of water entitlements that integrates into Australian water registries databases”.
25. In a box headed “Objectives of the project” the applicant wrote:

*The trading of water entitlements and allocations is a growing market that is currently served by a number of brokers, stock & station agents etc, that trade over the counter (OTC) whereby buy/sell orders are received and the broker or agent will try and locate a third party for a complimentary transaction in the same trading zone. Transfer documents and contracts are then drawn up and lodged with the*



*appropriate government water entitlement registry, much the same process as conveyancing property. The current market is very fragmented as some brokers offer 'bill board' type exchanges, which are not used by competing brokers for conflict reasons. This method of trade will be superseded by the development of the H2O Exchange which is not conflicted and is aimed at providing a single point of liquidity.*

*The objective of the H2O Exchange is to develop a 'stock exchange' type on-line trading platform that not only binds buyers and sellers contractually but fully integrates with the various interfaces and databases of all relevant state and federal government water bodies. The interfaces being developed are expected to cause title to be registered electronically and in real time (in the case of 'allocation' trades) at the time of trade. This integration will occur where we are currently able to and we will set up the core technology to allow the adaption to other registries as they automate their systems. The platform will also incorporate an interface with a financial institution that will facilitate automated settlement at the time of the trade. In addition, settlement will also include the payment of any fees or duties applicable on the trade. The further objective of the project is to provide for seamless trading of water entitlements between jurisdictions with a common IT infrastructure.*

*Ultimately, it is anticipated that we migrate the Trading Platform to multiple international markets with resulting licencing and expert consulting export revenues.*

26. The next box filled out had the following instructions: "Describe the new knowledge intended to be produced by the core activities (i.e. experiments) in this project. Explain how it is different from current knowledge". This box was filled out as follows:

*The new knowledge being generated in each core activity is as follows*

*Core R&D activity 1.1 – The generation of a web based trading platform that incorporates a membership data base and CRM system that creates a legal framework that is binding on buyers and sellers and facilitates real time settlement instructions by linking with 3rd party financial institution (bank) to execute settlement, based on electronically generated instructions. Will also settle any fees and charges levied by the relevant authority at the time of the trade. There is no existing knowledge in this space.*

*Core R&D activity 1.2 – Incorporate within the platform the large matrix of complicated trading rules of various water authorities such as the only valid (ie complying) transactions will be allowed to proceed. This data is constantly changing, depending on the regulatory environment for different trading zones and will need to be maintained in real time to ensure the platform does not allow a non complying (sic) trade to take place.*

27. The instructions for the third box were: "Explain how the outcome of the core activities in this project could not have been known or determine (sic) in advance on the basis of current knowledge, information or experience". This box was filled out as follows:

*This is a substantial and complicated project that is being designed to interact with numerous stakeholders simultaneously. There is no 'off the shelf' product of any kind that can achieve the Platform objectives of real time on line trading and effect transfer of title and settlement of trade value, related fees and duties immediately. This is a major transfer of the required data in real time and the interaction with multiple systems, jurisdictions and service providers. The outcomes of which can not (sic) been known until each aspect has been tested and retested as each component of the system design is created and integrated. The company has invested substantial amounts to conduct R&D activities to achieve this outcome.*

28. Activity 1.1 ("development of core trading platform and date base, CRM and various APIs") was described in a box. The instructions were:

*Describe the core activity (i.e. experiment/s) carried out in the income year covered by this application. Include:*

- *a statement about the hypothesis of your experiment(s)*
- *brief details of the experiment(s)/testing carried out, results and conclusions*

The box was filled out as follows:

*Hypothesis: is that an internet based application that can interactively trade water entitlements can be created in such a way that all settlement and title processes can occur in real time. This Core Activity is the development of the Internet based commodity trading platform. This activity, apart from the necessary complex software engineering, required significant research into the water trading environment. The water trading environment covers multiple jurisdictions and regulatory regimes as well multiple extraction types. The trading engine needed to be engineered to cater for the particular nuances of the water trade and required multiple tests and experimental trades to ultimately incorporate the relevant product definitions. This involved generating the software that essentially embedded the terms of the relevant legislative requirements into the core trading platform. Water entitlement trading is covered by various State Government Acts that define what is a 'water entitlement' and the methodology and conditions under which that 'water entitlement' can be traded. (ie the difference between an entitlement and an allocation, the duration of allocations, where water can be drawn from, etc.) The platform was then engineered to develop the 'matching' criteria needed to complete a trade. Further development work was then required to incorporate customer data and CRM applications that not only determined key account and trading data but was used to populate the necessary information required for the development work noted in Core activity 1.2 below. The next aspect of this work was to develop and test (experiment) an application associated with a notification process which will notify all relevant stakeholders electronically of the trade details. This involved the real time electronic delivery of legally binding contract notes to both buyer and seller, populate the necessary water registry transfer forms with trade data and interact with accounting systems.*

29. Activity 1.2 (“Integration of matrix rules”) was described in a box with the same instructions as set out in the previous paragraph. The box was filled out as follows:

*Hypothesis; (sic) That real time updates of trading rules can populate the trading platform to ensure only eligible trades can occur. There are a large number of water trading zones in the Murray Darling Basin System each with their own trading rules that vary from time to time, typically, because of prevailing environmental conditions. The rules are different for ‘entitlement’ trades to those rules for ‘allocation’ trades, as are the rules applicable to the various trading zones. ‘Allocation’ trades can also happen cross border, therefore complicating the trading rules matrix and the process and documentation required to trade.*

*The system had to designed (sic) in such a way that we could embed this complex 3 dimensional matrix of rules into the trading engine. Then to design a method that would ensure that changes to the rules in each of these trading zones could be immediately updated. This will ensure that the the (sic) system will only process complying trades. A complying trade meaning that both buyer and seller meet the rules applicable for the transfer of that particular water entitlement or allocation*

*Experimenting first up involved only two of the trading zones. The interaction required with the trading zone proved to be ineffective initially as the method of advising changes to the rules was not provided in a data table that could be effective immediately thus the required changes to the matrix were not made in real time. The current core activity is work with these zones to provide electronic interface that is ‘pulled’ through by the platform or ‘pushed’ through by the department simultaneously when published on their web pages. Much like an email, that will carry a data file in the required format that will re-populate the platform automatically the movement the change takes effect in the zone.*

*The water trading rules for all zones as at a certain date have been created in a database on the platform and work continues to provide electronic updates. The system has been designed to compare the trading rules of each trading zone and each transaction type when orders are placed on the the (sic) platform. Users will now see colour codes on the buy/sell order appearing in the trading window (ie computer screen) to demonstrate to users whether their order can proceed, ie ‘Green’ comply and will proceed. ‘Amber’ trade will proceed but only with various predetermined conditions and ‘Red’ the order will not be accepted. To generate this outcome there involves numerous tests to access the data base of clients, which determined what water trading zone they were in thus defining their capacity to place an order given the matrix of trading rules embedded in the system.*

30. On 14 July 2015, the applicant sent an application for the following income year, 2014-15. It was in the same terms. On the same day, the respondent registered the activities for that income year, also sending a letter in the same terms as for the previous income year.



31. The IR&D Act contain provisions for the variation of the registered experimental activities. Such variation may be granted by the respondent upon application by the R&D entity in limited circumstances specified in s 27M of the IR&D Act. Otherwise, findings made by the respondent will produce automatic variations to registrations pursuant to s 27L of the IR&D Act. For example, the reviewable decision in this case, unless disturbed by the Tribunal on review, will lead to the activities once registered by the respondent to be, in effect, deemed never to have been registered: See s 27L(1). Such a deemed variation has effect for the purposes of the ITA Act, as s 27L(3) declares.
32. During argument on the review, attention was drawn to the fact that as things stand, the registered activities have not been varied by the respondent under s 27M of the IR&D Act.
33. On one view, which is disputed by the respondent, a variation to the registered activities was requested by the applicant in a communication dated 21 March 2016, but it did not lead to a variation made by the respondent. Prior to the last day of hearing fixed by me, the applicant applied for an adjournment so that it could obtain an internal review by the respondent (apparently recently requested by the applicant) of its failure to approve the variation of the activities said by the applicant to have been sought on 21 March 2016. I took the view that no adjournment for that purpose should be granted because the respondent, on an internal review, would not have power to grant the requested variation, even if it concluded that the applicant had in 2016 requested a variation. That is because the respondent's power to vary registered activities under s 27M of the IR&D Act arises only if, inter alia, the respondent complies with the "decision-making principles". The expression "decision-making principles" bears the meaning set out in s 32A of the IR&D Act being, relevantly, a legislative instrument made by the Minister that the respondent must comply with in deciding, amongst other things, whether making a variation under s 27M is justified. The Industry Research and Development Decision-making Principles 2011 is the relevant instrument. Part 5 of the instrument relates to principles applying to decisions about variation of registration. Clause 5.2(3)(c) provides that the respondent must not make a variation while a reviewable decision is the subject of external review under s 30E of the IR&D Act. Clause 5.2(1) provides that the respondent may make a variation of a R&D entity's registration within 10 months after the end of the income year. Those limitations show that the respondent would not now have power to make a variation of the registration of the applicant's activities. Even if clause 5.2(1) could in some way be



overcome by the applicant, the pendency of the present review would preclude agreement by the respondent to a variation of the registered activities.

34. Thus, I proceed on the basis that the relevant activities are those that the respondent registered. It is those activities that must be examined to determine their (anticipated or desired) outcome. It is that outcome which must be tested to determine whether (at the relevant time) it could be known or determined in advance on the basis of current knowledge, information and experience.

### **EVIDENCE BEFORE THE TRIBUNAL**

35. Returning to the statements of the applicant in the application forms, which described the registered activities, some of the evidence led before the Tribunal on this review should next be mentioned.
36. Mr Daley, the Chief Executive Officer of the applicant, gave some written and oral evidence before the Tribunal and was cross-examined by Ms Heger of counsel, who appeared for the respondent.
37. He stated that the applicant's exchange platform has (at the present time) achieved full automation in Victoria and partial automation in New South Wales and South Australia. He explained in his oral evidence that full automation has now been achieved for Activity 1.1 but not for Activity 1.2, which is still being developed at this time. His references to Activity 1.1 I take to refer to attempts to register transfers online, and his references to Activity 1.2 I take to refer to trying to reflect on the platform changes to trading rules in real time. Presumably, he means that changes made by each State are, at the present time, still introduced into the platform manually. He stated that he met with officers of the respondent in 2015 and stated to them that the applicant was experimenting with AI to allow instantaneous rule interpretation. This, I take it, is a reference to experimentation using Natural language or similar sophisticated software in an attempt to automate changes to trading rules by the various States. Mr Harding explained that because of differences in terminology between States, no simple search for key words would enable automated assimilation of changes made by relevant States to permitted transactions. Dr Fearn said that he thought that the effort would likely require the applicant to try to use AI software to accomplish the assimilation of changes made by the States, and the evidence

of Mr Daley suggested that indeed, experimentation with AI software was under way in 2015, although as at 2019 it was still under development.

38. Dr Fearn indicated that the task of incorporating AI software would be quite difficult. Mr Harding did not dispute that fact. The task had, as at the relevant income years, had been accomplished by manual alterations being made to other platforms permitting water trading.
39. The activities described by the applicant in its application forms, and therefore the activities registered by the respondent, mentioned only a desired result, with no indication of how it would be attempted to be achieved. What is described in the answers reproduced in paragraph [26] above in relation to Activity 1.2 is that the platform “will need to be maintained in real time to ensure that the platform does not allow a non-complying transaction to take place”. That description does not necessarily involve more than manual input of changed data.
40. The information given in paragraph [29] does not seem to envisage only manual updates being made to the platform. The applicant expresses their desire to design a method to ensure that changes made by the various jurisdictions will be “immediately updated”. The goal of making changes to the matrix in real time and the reference to re-populating the platform automatically suggest to me that manual updates were not the desired ultimate object.
41. The applicant gets by, even to this day, without real-time automated updates. What work was actually done, if any, with AI sophisticated software to attempt to automate the updating of changes to trading conditions during the relevant income years does not appear clearly from the evidence led before me. The statement of Mr Daley, to which I have referred above, to the effect that the applicant was experimenting with AI software was not made during the relevant income years, but in July 2015, shortly after the second income year had concluded.
42. The activities as described appear to recognise that because New South Wales and South Australia did not offer online registration of transfers, automation of conveyancing matters would not be then feasible. Within the information provided by the applicant set out in paragraph [25] above is the statement that integration will occur “where we are

currently able and we will set up the core technology to allow the adaption to other registries as they automate their systems". That suggests that while the goal of online registration was hoped to be reached, in the meantime, the applicant and its customers would have to comply with the use of paper forms in order to complete registration.

43. In a number of respects, therefore, the applicant indicated that the results it wanted to achieve were not presently feasible because of the condition of the water registries.
44. Section 355-25(1)(a) speaks of an outcome which cannot be known or determined in advanced but can *only* be determined by applying a systematic progression of work, based on the principles of established science and proceeding from hypothesis to experiment, observation and evaluation. That language does not cater for the situation of an outcome that depends on a government changing its procedures. Uncertainty stemming from an absence of control by the applicant is not uncertainty of outcome consistent with s 355-25(1)(a). It is the outcome of the experimental activities that must be uncertain in order to satisfy s 355-25(1)(a).
45. Nor is it the case that something which will be a task which is difficult (such as using sophisticated AI software to assimilate changes to trading rules expressed in different terms by different States), will necessarily involve uncertainty of outcome.
46. Will it be the case that if someone else has already achieved a desired outcome, the outcome can be known in advance? This question will not admit of a general answer for all cases in my opinion. If the person who achieved the desired outcome published his or her methodology, then both the achievement of the outcome and the way to achieve it will be known. However, if the person who already achieved the desired outcome kept the means by which it was achieved secret, then whether the outcome is known will depend on whether others desiring to achieve the same outcome can know that by using readily available software tools (or perhaps by reverse engineering consistently with intellectual property rights) they can achieve the same result. Otherwise, they might try and fail, even though another has succeeded by some unknown means.
47. It is clear from the evidence that parts of the activities described by the applicant are simple and easily accomplished by a competent professional. An example is the inclusion in the platform of a payment portal with a financial institution, so that the seller can be paid

and the applicant reimbursed. As mentioned in paragraph [25] above, incorporation of an interface with a financial institution is a matter where the outcome is known.

48. To some extent, perhaps to a large extent, building the online trading platform that the applicant described would be understood to involve choosing between a suite of known software tools and incorporating them into the platform. The incorporation may involve detailed work and perhaps complicated work and could involve one tool being discarded in favour of another, after it has been tried and rejected.
49. The respondent led evidence from Mr Harding specifically directed to the question whether the outcome was known in advance. The applicant led evidence from Dr Fearn, who was invited to comment on Mr Harding's report. Mr Harding was not cross-examined before me on his report. The applicant elected to cross-examine Mr Harding only on his expertise. Dr Fearn was cross-examined by the respondent's counsel.

#### **Evidence of Mr Harding**

50. Mr Harding had an acquaintance with the trading of water entitlements and allocations because he had worked for Waterfind Pty Ltd from July 2014 until March 2017. He acquired an understanding of the water market regulations and conveyancing rules across all States. He was for several months in 2014 a conveyancing officer and later in 2014 managed the market services arm of the company, which covered the conveyancing and policy teams. He has knowledge of the relevant guidelines imposed by the State water authorities, and the Commonwealth Murray Darling Basin Authority. He also had experience in collaborating in the design of software both for Waterfind and in other employments.
51. Mr Harding was asked in his letter of instructions to provide an overview of his understanding of Activity 1.1. He said:

6.1 *Based on my experience in software platform development and water trading, I broke down the description of Activity 1.1 ("**The Activity**") in the Application: Registration of R&D Activities ("**the Application**") (T4, p 72) into the establishment and incorporation of the following elements:*

*Activity 1.1: Development of core trading platform and database, CRM and various APIs.*



*The generation of a **web based trading platform** that incorporates a **membership data base and CRM system** that creates a **legal framework that is binding on buyers** and facilitates **real time settlement** instructions by linking with 3rd party financial institution (bank) to execute settlement, based on electronically generated instructions. Will **also settle and fees and charged (sic) levied by the relevant authority at the time of the trade**. There is no existing knowledge in this space.*

6.2 *My understanding and knowledge of these elements is as follows:*

6.2.1 **Web-based trading platform:** *A website or application that is accessible via the internet that a customer or broker can directly access, and list buy or sell orders for water entitlements and water allocation.*

*I have had experience operating, designing and testing web-based trading platforms from my employment at Global Commodities and Waterfind from 2009 to 2017.*

6.2.2 **Membership data base and CRM:** *A record of client information including details of their respective water assets.*

*I have extensive experience operating, designing, developing and testing membership databases and CRM software throughout my entire employment history dating back to 2006.*

6.2.3 **Binding legal framework:** *A structured system whereby the placing of buy and sell orders incorporates pre-acceptance of a binding legal agreement or accepts that a binding contract shall be formed when a buy and sell order are matched.*

*Through my work at Waterfind from 2014 to 2017, I learned the principles behind the use of contracts pre-signed in counterpart and attached to buy and sell offers to create a binding contract when matched with an eligible sell or buy offer.*

6.2.4 **Real-time settlement and payment of fees:** *The system is designed to incorporate automatic collection of payment from buyers, and subsequently payment to sellers and other involved parties (such as the approving authority).*

*Through my experience at UC Invest and Global Commodities, and my personal experience trading equities on the Australian Stock Exchange (ASX) through online share broking platforms such as Commsec (operated by Commonwealth Bank) as far back as 2006, I have a thorough understanding of the use of Direct Debit facilities provided by 3rd party*

*financial institutions to allow pre-authorized transfers of funds and settlement of invoices resulting from transactions initiated by clients through trading platforms.*

- 6.2.5 *The final element, described in the Objectives section of the Application (T4, p 72) but not mentioned in the Activity description, was the **complete automation of the conveyancing and registration process** – i.e. the conversion of the current system (at the time) of receiving, processing, approving of transfers and updating of respective title registries and water accounting systems by the respective water authorities into an instantaneous, computer-based system. This would require the adoption of a common system by all water authorities, or at a bare minimum the implementation by each state water authority of system of communicating directly with the H2OX system (often referred to as an API or ‘application programming interface’) and receiving instructions to update their own databases, some of which were only partially computerised at the time. It would also require these government water authorities to agree to a private company editing their legal ownership records with limited or no human oversight.*

*As manager of the conveyancing team at Waterfind from 2014 to 2017, I had a comprehensive knowledge of water trading and conveyancing process across South Australia, Victoria, New South Wales and Queensland. I also had a functional knowledge of water trading and conveyancing practices in Western Australia and Tasmania.*

- 6.3 *At the time of the Activity, the conveyancing process involved the completion of all necessary application forms and submission to the relevant water authorities to effect the transfer of water between parties. This process was predominantly paper-based and required the involvement of several parties including brokers, solicitors or conveyancers, water corporation officers, and accounts receivable/payable officers. Many state registries still maintained paper records for some of their asset registers. Based on my experience, many registration processes were a manual task and could take weeks or months. When I began working at Waterfind in July 2014 I was advised by a representative of the SA Department of Environment, Water and Natural Resources (DEWNR) that the official allowed time for the manual processing of River Murray allocation transfers, the most common transaction type in the Australian water market, between South Australia and Victoria was up to 20 business days.*
- 6.4 *I have not registered to view or use the H2OX platform so cannot comment on which of the above elements were successfully implemented. It is also not apparent from the documentation provided by H2OX which of the above elements were successfully implemented. However, based on the prevailing regulations and processes in place at the time of writing this report, and having submitted transfer requests to both South Australia or New South Wales authorities within the past 3 months, unless there is a*

*private agreement in place between H2OX and these authorities I do not believe the H2OX platform would have the ability to circumvent the manual approval process and receive immediate approval from either of the above authorities.*

[Original Emphasis]

52. Asked whether the outcome of those activities could be known or determined in advance on the basis of existing knowledge, information and experience at the time Activity 1.1 was undertaken and whether a competent professional could have known or determined it in advance, he said:

7.1 *While there may not have been an existing service that combined 100% of the elements H2OX outlined in Activity 1.1 (“**the Activity**”), aside from a fully automated conveyancing process all other elements were well known and established in many other industries and markets at the time Activity 1.1 was proposed to commence in September 2013 (per **T4, p 71**). Therefore, the outcome of the following elements could have been determined prior to undertaking the Activity.*

7.2 *Web-based trading platforms were widely used in 2013 in many different forms, including online share trading services bearing similar functions to the product planned by H2OX. For example, with online share trading, clients could submit buy or sell orders directly to the market via a web browser or application without the involvement of a broker (e.g. Commsec1). It is also evident from the response issued by H2OX on 13 October 2014 (**T8, p 198**), that they were aware of the pre-existence of this technology as they had licenced elements of the intended platform from CarbonTradeExchange (CTX), specifically the Core Trading Exchange for which they planned additional configuration to suit the needs of the new platform.*

7.3 *Membership databases and CRM products were also common in 2013 and available as off-the-shelf products (e.g. Salesforce2 - est. 1999) where the software provider can customise certain elements to the needs of the business (e.g. Adding a water entitlement register). It is stated in the response issued by H2OX on 13 October 2014 (**T8, p 201**) that they intend to use commonly available technologies including PostgreSQL (which would fulfil the data base component) and Java (which a programming language which could be used to program the user interface).*

7.4 *I know from my experience at UC Invest in 2006 that the purchase and customisation of CRM software was achievable, having worked with Pact IT Solutions to customise a version of the Maze CRM package licenced from Civica Education.*



- 7.5 *Regarding binding legal framework – this structure also existed well prior to 2013. Since the inception of online share trading, any clients who sign up for an online share trading account must sign an agreement acknowledging that once their buy or sell order has been accepted, they have entered into a binding legal agreement. For example, in Section 4(8) of the IG Markets Share Trading Customer Agreement (**Annexure C**), the customer must agree that their Instruction to Deal is binding. In conjunction with other sections of the agreement this enables the platform to enter into agreements based on the customer instructions, without the requirement of a single contract signed by both counterparties. From my personal experience, the facilitation of trading with the absence of a pre-existing counterparty can also be facilitated by an agreement between the customer (trader) and the broker (or exchange) that the broker's representative may enter into an agreement on behalf of the customer within the limitations of specific terms agreed and signed by the customer.*
- 7.6 *Real time settlement and payment of fees has been available through various e-commerce platforms for decades. An example of a peer-to-peer trading platform that incorporated a third settlement service is the online auction site eBay<sup>1</sup> (est. 1995). On the eBay platform, Buyers have the option of linking their bank account or credit card to their eBay account, and upon completing a purchase the funds are automatically deducted from their account, fees are deducted from this amount and the balance paid to the seller.*
- 7.7 *It is my view based on personal experience dealing with software suppliers, developers, and water authorities that with respect to the elements described in paragraphs 7.2 to 7.6, that the outcome of the activity could have been easily predicted, as the parties would be able to draw from existing knowledge and technology to assemble the platform. A competent professional with expertise in the development of web-based applications would have known that the combination of these elements was achievable.*
- 7.8 *Regarding the final element of the system – end-to-end automation of the conveyancing process, a competent professional with experience in the water conveyancing industry would have been aware at the time the Activity was undertaken that the Applicant would not have been able to achieve this outcome, based solely on external limitations. There were several stages of the application and transfer process that were controlled by external parties, particularly government agencies (water authorities) and registrars. Each state operated its own database to track licence holders and account balances and dictated the procedures for transferring water between holders. For example, in 2013 at the time of the development undertaken by H2OX, applicants were required to present an original, physical Certificate of Title for a Water Access Licence to the NSW Water Register in order to register any amendment or change of ownership for a NSW water entitlement. This process was in place when I began working at Waterfind and I was advised that this process had been in place*



*for several years prior, and this continued to be the requirement for several years until 2017 when I left Waterfind.*

- 7.9 *Aside from the Victorian Department of Environment, Land, Water, and Planning (DELWP), all other states required applications to be reviewed manually by an officer of the water authority prior to approval. This review process varied in length from 1-20 business days for Murray River allocation transfers, to 90+ days for more complex transfers involving groundwater allocation.*
- 7.10 *As stated previously in paragraph 6.15, when I began working at Waterfind in July 2014 I was advised by a representative of the SA Department of Environment, Water and Natural Resources (DEWNR) that the official allowed time for the manual processing of River Murray allocation transfers between South Australia and Victoria was up to 20 business days.*
- 7.11 *While working at Waterfind, the first application I submitted to DEWNR for the transfer of McLaren Vale groundwater allocation between two licence holders took over 5 months to be approved and recorded. This was not due to any errors requiring re-submission of the application, but was simply due to the internal requirements of the approval process which dictated that an officer of DEWNR must visit the location where the allocation was to be extracted, and conduct a scientific examination to determine whether there would be any detrimental geological or environmental impact caused by the extraction of additional water from the aquifer in that particular region.*
- 7.12 *Based on these external and commonly known limitations, the outcome of attempting to build a system independent of the pre-existing state-operated databases and processes, which would effect (sic) an immediate transfer of water assets and allow 'real-time' settlement, would have been easy to predict. Regardless of the level of sophistication of the software platform, the outcome would have been impossible due to the officially mandated procedures and processing durations dictated by the government authorities at the time.*
- 7.13 *Aside from the above information that was publicly available and easily accessible, it is particularly worth stating that at the time of the Application in July 2014, I was administering a web-based trading platform operated by Waterfind Pty Ltd that incorporated a membership data base and CRM including a comprehensive asset register of water licences amalgamated from the various government water registries. I was advised by Waterfind management that this platform had been operational for over 5 years at that time and by 2014 its features included an order submission interface for clients that automated the matching of compatible buy and sell orders, the contract generation and execution process, and creation of a binding legal framework on buyers and sellers. The platform also automatically determined all fees payable by applicants to the various authorities and*

*charged them accordingly. While this platform did not automate the entire conveyancing process, where possible it automated the completion of application forms and issued them to the applicants for execution.*

*7.14 Clients of Waterfind had access to this information, and there were no barriers for water owners or buyers to becoming a client of Waterfind and accessing this information, therefore I would argue that knowledge of the Waterfind platform could be considered as publicly available to those who sought it.*

*7.15 Based on my direct experience at Waterfind, it is my opinion that the outcome of Activity 1.1 had already been successfully achieved and demonstrated publicly by Waterfind prior to the proposed commencement of the Activity in September 2013, with the exceptions of the complete automation of the conveyancing process, the barriers to which I explained in paragraph 7.8, and the incorporation of a 3rd party financial institution for automatic settlement of trades and payment of fees.*

*7.16 Referring to the capabilities outlined in the letter to Georgia Brown on 13 October 2014 (T8, p 201), all capabilities listed were operational in the Waterfind platform as of September 2013 except for the following:*

- Lookup clients account balance*
- Interface to Vic DSE Registers*

53. He answered similar questions about Activity 1.2. His overview of his understanding of that activity was described as follows:

*11.2 Through my training and experience managing the exchange services and conveyancing department at Waterfind from 2014 to 2017 I have formed the following understanding of the Australian water market, and the conditions relevant to Activity 1.2.*

*11.3 Water ownership in Australia is bound to geographic regions, or zones. A water entitlement in a particular zone permits the owner to withdraw a pre-determined volume of water each financial year (generally referred to as an allocation) from either a groundwater source (using a well or pump) or by pumping from a river or creek.*

*11.4 In regions where trade is permitted by the water authority, if an entitlement owner does not use some or all of their annual allocation, they may transfer this volume to another licence holder. While many zones only permit trade between licence holders within identical licences, some water sources permit trading into and out of other zones. The water source with the greatest scope of inter-zone tradability is the Southern Connected System, covering the Murray River and certain connected tributaries from NSW,*

through Victoria, to South Australia (see Annexure D: Murray-Darling Basin Interstate trading zones).

- 11.5 Trading is governed by regulations published by each of the state water authorities, and the Murray-Darling Basin Authority (MDBA). These regulations designate which zones can trade with each other in an absolute sense but can also restrict or allow trading between certain zones on a day-by-day basis based on in-flows and out-flows from these regions. From my experience these restrictions are often announced and implemented with little or no prior notice, meaning there is a level of risk or uncertainty in water trading markets that must be managed closely by brokers and exchanges. A trade that may have been permitted at the time the contract was executed may be refused by the water authority when lodged the following day, due to an unexpected closure of trade between the seller's and buyer's zones. In these situations, the application fee is generally forfeited by the applicant despite the refusal of the trade.
- 11.6 Due to these ever-changing market conditions, it is critical for a broker or exchange not just to have a thorough understanding of the core rules and restrictions, but also to monitor various water authority news feeds daily or even hourly for announcements regarding the imposition or removal of temporary restrictions.
- 11.7 One way for a trading platform to avoid or reduce the need to take these restrictions into consideration would be to only allow trading between accounts in the same zone, as intra-zone trading is the least likely to be restricted by water authorities. However, my knowledge of Keynesian economics tells me this would have a great impact on the availability of water (and consequently on price), as irrigators within a geographic zone are subject to the same weather conditions and may therefore all have a demand for water during dry weather, or conversely all experience a surplus in wet weather. However, as the Southern Connected System encompasses the length of the Murray River, certain zones within this system may be experiencing a surplus at the same time other zones have a high demand for irrigation water, meaning the price of temporary allocation is not driven up by shortage. This highlights the enormous benefit to the market of facilitating inter-zone trade.
- 11.8 To provide a platform where users can place a buy offer and have their order automatically matched with the best compatible sell offer across all compatible zones, the system must be capable of comparing the buyer's licence with all sellers currently listed and determining whether water can be transferred from each seller to the buyer based on the rules and restrictions currently in place. In addition, since trade can at times be permitted in one direction but not the other (i.e. from Zone 10 to Zone 11, but not from Zone 11 to Zone 10), the relationship between zones is not simply linear but must be defined as a matrix. An example of a tradability matrix at a single point in time is below.



Buyer → Seller ↓	SA Murray (Zone 12)	Vic Murray (Zone 7)	Vic Murray (Zone 2)	NSW Murray (Zone 10)
SA Murray (Zone 12)	YES	YES	NO	NO
Vic Murray (Zone 7)	YES	YES	NO	NO
Vic Murray (Zone 2)	YES	YES	YES	NO
NSW Murray (Zone 10)	YES	YES	NO	YES

- 11.9 *Based on the information provided by the client in the Application, the activities undertaken by the Applicant in relation to identifying rule changes were described as follows:*

*“work with these zones to provide electronic interface that is ‘pulled’ through by the platform’ or ‘pushed’ through by the department simultaneously when published on their web pages.”*

*It is not evident from the material provided by H2OX whether any of the water authorities agreed to utilise the interface described above.*

- 11.10 *The reference to a 3-dimensional trading matrix acknowledges that these rules may change daily, or even intra-day, so the system must be able to recall the rules that were in place at any given time in the past so that it can verify whether a contracted trade was legal at the time it was created.*

*In my opinion, this three-dimensional system could be achieved simply by defining each rule as a database entry and including a ‘start time’ and ‘end time’ field for any given rule. If the new rule replaces an existing rule, to ensure contradictory rules do not exist, the rule being replaced remains in the database but is assigned an ‘end time’ value immediately before the ‘start time’ of the new rule. For new trades, the system should only apply the rules that have a ‘start date’ but no ‘end date’. When reviewing historical trades to determine legality, the system can locate the relevant rules where the start time is before the trade time and the end time is after the trade time.*



54. As to whether its outcome could be known or determined in advance at the time Activity 1.2 was undertaken, he said:

12.1 *With respect to the initial creation and incorporation of a systematic rules matrix, it would have been apparent prior to the commencement of Activity 1.2 that this outcome could be achieved. The rules were publicly available, clearly defined, and had been applied manually by brokers prior to the commencement of the Activity. At the time I began employment at Waterfind in 2014 I was instructed in the history of the Australian water market, including the background of several years of successful interstate allocation trading facilitated by large water broking companies, such as Waterfind and RuralCo Water, and many other independent broking firms (such as National Water Brokers, Waterpool and Wilks Water). Any water market professional with knowledge of these rules could have been able to translate them into a matrix that could be programmed by a software engineer, and while I am unaware of the level of sophistication of the RuralCo Water systems at that time, I had first-hand experience with the Waterfind system where these rules had already been systematised in their platform.*

12.2 *Regarding the second aspect of Activity 1.2 - the ongoing monitoring of changes to the rules and automatic updating of the rules matrix, the barrier to successful implementation of this element was the diverse format in which these changes were announced to the public. Due to each water authority having its own database, processes and regulations, in my experience the nature of the announcements did not just vary between authorities, but did not possess any internal consistency over time, and was predominantly not in a format that could be easily read and interpreted by an automated system. **Annexure E** is an example of the format these announcements could take. The information in this announcement pertinent to the operation of the exchange is in the opening sentences, which states that "trade from above the Barmah Choke to below the choke will be restricted". The software would need to be sophisticated to recognise which regions were affected by this announcement (namely, those regions of the Southern Connected System upstream and downstream of the Barmah Choke) and in which direction trade is limited, so it could translate this into a rule, eg. "Zones 6 and 10 can no longer sell to Zones 1, 7, 11, 12 and 13".*

12.3 *During my time working in the water market and analysing these announcements, I observed that the announcements did not have a consistent structure or format, nor did they always contain numeric data, so a system capable of performing the interpretation outlined in paragraph 12.2 could not simply be programmed to look for specific words or phrases, but would need to apply 'human-like' reasoning to determine the context and meaning of the announcement.*

12.4 *It is noted that Applicant did not state any intention to use computer software to overcome this obstacle. In the absence of this level of*

*sophisticated software, a competent professional with sufficient knowledge of the water market could have known at the time Activity 1.2 was undertaken that the outcome of the second aspect was not achievable.*

### **Evidence of Dr Fearn**

55. The evidence of Dr Fearn, who was asked to comment on Mr Harding's report, included a remark that the misconception surrounding this dispute is that the *outcome* is the new knowledge. He said that in practical terms, when research is undertaken within the business sector, it is more typical to have a hypothesis that asserts an achievable goal, but that *how* it is going to be achieved is not known. He gave the example of attempts to build a reusable rocket, where the outcome (the creation of such a rocket) is known to be achievable but precisely how to create it is not known in advance.
56. That evidence may actually support the respondent's case in one respect. If the goal was known to be achievable, and the goal was the building of a water exchange with certain characteristics, then the outcome may not be said to be unknown. How to build it, or at least one way to build it, would be what was established by a competent professional who did the software development required.
57. The desired outcome of the activities may in fact be new knowledge in at least some cases that satisfy the statutory criteria. Taking the case of Activity 1.1, the desired outcome identified by the applicant in its applications for registration is the building of an online trading exchange with certain characteristics. To say, as the applicant does in its applications to the respondent for registration, that there is no off-the-shelf software product available for the purpose does not show that the outcome of attempting to build such an online water exchange was unknown or could not be determined in advance.
58. As to Activity 1.1, Dr Fearn said that his understanding of the steps required to carry out that work aligned closely with Mr Harding's understanding. He said that the building of the CRM (Customised Relationship Management) required for Activity 1.1 would be complex, requiring much work. Dr Fearn suggested that the primary purpose of a CRM is to manage complex workflows associated with various data within a business and that these workflows would typically be specific to an industry. The CRM also interfaces with three separate software systems via different APIs, which can be very complex. He said that given the potential complexities of the H2O system, it may be that it would be easier and more cost effective to build a bespoke CRM system from the ground up rather than

customising an existing system. If a competent professional set out to build a CRM from the ground up, whether the outcome of that endeavour was uncertain would be a matter for expert evidence. Dr Fearn does not say that building a CRM from the ground up is a task the result of which cannot be known in advance.

59. As that evidence makes clear, a difficulty which both experts had in giving evidence before the Tribunal is that neither of them knew the detail of the work done by Veritec on behalf of the applicant in the relevant years, and they had to give evidence involving some speculation as to how it might have been achieved. The applicant explained that it could not locate those who were involved in the actual work said to be experimental.
60. Dr Fearn mentioned in his report a number of matters stated by Mr Harding as to Activity 1.1 with which he agreed. He accepted in cross-examination that in 2013 there was a reasonable arsenal of available frameworks in order to compile them in such a way that you could develop the web-based trading platform described by the applicant.<sup>1</sup> As to the CRM he accepted at Tr73 that in 2013 the software development technology needed to build the CRM was available as were the information and inputs needed to do into the CRM. The comments in his report, that the price would be difficult to calculate, were apparently based on a misconception that the regulations might affect the price at which entitlements and allocations were sold.
61. He agreed that full automation of the process as described in Activity 1.1 could not be achieved without a change to the government processes.
62. As to Activity 1.2, Dr Fearn said that he had no evidence that in the relevant income years, the applicant was using AI technology. He appeared to accept that without use of AI technology, automatic integration of the applicant's platform with changes to each State's trading requirements would be impossible.<sup>2</sup>

## CONCLUSION

63. In short, it seems to me that the two experts were, speaking generally, in agreement about the remarks made by Mr Harding about the outcome question. As to Activity 1.1, in part,

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<sup>1</sup> Transcript at pp 71–72.

<sup>2</sup> Transcript at p 93.



the outcome was known to be achievable, and in part, it was known not to be achievable because of the conveyancing requirements of two of the three States.

64. As to Activity 1.2, it may have been achievable using AI software but probably not otherwise. In fact, it is still said to be under development some five years later. The application for registration of activities does not indicate that AI software is to be used for any activity. Mr Daley's evidence that the applicant told the respondent that it was experimenting with AI software seems to relate to a discussion of 25 July 2015. Whether the reference to AI software was intended to refer to activity in the first or second income year, or even to a period after the end of the second year, is not clear. Nor does Mr Daley's statement say for what purpose the applicant was experimenting with AI software, or what experiments were done.
65. The following possibilities exist:
- (a) That the desired outcomes of Activity 1.2 in relation to the automated adoption of real-time changes in trading directions by the water authorities was impossible for the reasons explained in Mr Harding's report quoted in paragraph [54] above;
  - (b) That the applicant intended during either or both income years to have its system incorporate changes in water trading conditions by using AI software and in fact embarked on experimentation for that purpose which experimentation had an uncertain outcome;
  - (c) That the applicant intended during either or both income years to have its system incorporate changes in water trading conditions by using AI software and in fact embarked on experimentation for that purpose which experimentation had a certain outcome.
66. The evidence does not satisfy me that possibility (b), which is the only one favourable to the applicant, is correct. Even if possibility (b) were correct, it would affect only a small part, if any, of the registered activities.
67. In all other respects, I am not satisfied that the outcome of the registered activities was not known or able to be determined in advance.

68. If I were satisfied that possibility (b) were correct, the evidence before the Tribunal would not satisfy any aspect other than the outcome question of the matters arising under s 355-255(1)(a). No information has been provided about what experimental activities using AI software were embarked upon, whether those activities were based upon the principles of established science, whether a systematic progression of work was involved, and what hypotheses were considered.
69. For all of those reasons, the reviewable decision will be affirmed.

*I certify that the preceding 69 (sixty-nine) paragraphs are a true copy of the reasons for the decision herein of Deputy President B W Rayment OAM QC*

.....[sgd].....

Associate

Dated: 14 October 2019

Date(s) of hearing:	<b>4 &amp; 5 April 2019; 22 August 2019; 10 September 2019</b>
Counsel for the Applicant:	<b>Dr M Wolff</b>
Solicitors for the Applicant:	<b>BJH Lawyer</b>
Counsel for the Respondent:	<b>Ms Z Heger</b>
Solicitors for the Respondent:	<b>HWL Ebsworth Lawyers</b>