Response to Ofwat Consultation

Innovation funding and competition: further consultation on design and implementation

Knowledge Transfer Network

Contents

Introduction

In its strategy; Time to Act, Together (October 2019) Ofwat highlighted the importance of innovation for meeting the challenges faced by the water industry in a cost effective and sustainable way. In December 2019 the decision was made by Ofwat to make available up to £200m of additional funding between 2020 and 2025 (the next regulatory period) for innovation in the water sector.

In the document “Innovation funding and competition: further consultation on design and implementation”, published in May 2020, Ofwat set out proposals for possible models for the delivery of the innovation funding. It invited comments on the policy issues, and design and implementation of the innovation funding and competition.

This document comprises the views of Knowledge Transfer Network (hereafter KTN) on the consultation and follows the format of questions asked in Annex 2 – List of consultation questions.

While we are broadly in alignment with the proposals set out in the consultation, KTN is keen to see that provision is made, not only to align funding and competitions with the Joint Innovation Strategy. In order to secure the greatest possible long-term benefit for the UK economy, we consider it important to make sure that the funding informs and is informed by the medium and long-term research strategy. To this end, we suggest a formal dialogue with the Water Interest Group of UK Research and Innovation or equivalent representation on the steering group.

Introduction to KTN

About KTN

Knowledge Transfer Network (KTN) helps businesses get the best out of creativity, ideas and the latest discoveries, to strengthen the UK economy and improve people's lives. KTN is a network partner of Innovate UK.

KTN links new ideas and opportunities with expertise, markets and finance through its network of businesses, universities, funders and investors. From agri-food to autonomous systems and from energy to design, KTN combines in-depth knowledge in all sectors with the ability to cross boundaries.

KTN employs over 200 sector-specific experts and innovation managers and has a membership of over 50,000 active subscribers to newsletters. In 2018-19 KTN delivered 421 networking events, with 32,867 delegates and brokered 953 business-to-business and business-to-research collaborations[1]. Much of the work that KTN does is cross-sectoral in order to stimulate new connections.

A key element of KTN 's activity involves the promotion of Innovate UK-funded competitions, running briefing and brokerage events to help develop consortia (most Innovate UK competitions require collaboration between organisations) and working with individual organisations to effect introductions to prospective partners. KTN has developed a range of programmes around the optimization of Innovate UK's competition processes and how to help applicants to refine their submissions to improve their chances of success. These include good practice guides, tools to embed sustainability, the Women in Innovation initiative and the Innovation Canvas tool. The KTN Access to Finance and Funding team helps applicants to refine their pitching techniques and advises on securing private investment.

What KTN does

In addition to the general networking activity and brokerage that KTN undertakes, it is also responsible for the delivery of large projects and programmes relating to innovation. Some examples are outlined in brief below.

- **Industrial Strategy Challenge Fund**

Since its inception in late 2016, KTN has been at the heart of shaping and delivering the Industrial Strategy Challenge Fund (ISCF)[2]. KTN convened and facilitated the sector groups in order to determine the challenges themes and has worked closely with Innovate UK to establish the scope of competitions to allocate project funding. KTN staff work alongside Innovate UK Challenge Leads to deliver the competitions and manage the stakeholder groups associated with this high profile national initiative.

[1] Knowledge Transfer Network Annual Report 18/19 https://admin.ktn-uk.co.uk/app/uploads/2019/11/KTN_2018_19_FINAL_02.pdf

[2] https://www.ukri.org/innovation/industrial-strategy-challenge-fund/#pagecontentid-0

In the first three years of the ISCF, £986m of government funding has been allocated to 497 projects across a wide range of challenge areas including Digital Security, Electric Propulsion, Quantum Technologies, Batteries, Industrial Decarbonisation, Healthcare, Manufacturing, Robotics, Satellite Systems and Construction. KTN staff are involved in the delivery of all of these challenge competitions and associated activity.

- **Infrastructure Industry Innovation Partnership (i3P)**

i3P (https://www.i3p.org.uk/) is an innovative new platform that allows companies and major projects in the infrastructure sector to collaborate in order to deliver infrastructure for the future. By fostering a truly collaborative culture of innovation across both infrastructure clients and their supply chains, i3P creates a 'safe space' to identify areas for potential industry improvement, idea sharing, and joint project activity.

The initiative is managed by KTN on behalf of its Partners, which include the UK's largest construction projects (Crossrail, HS2, Hinkley Point C, Thames Tideway, Highways England, Environment Agency, Anglian Water, Network Rail, Heathrow) and the organisations responsible for their delivery (many of the country's largest consultants and contractors). In addition to the partners, membership of i3P includes many supply chain organisations, often being those that will actually implement the innovations that come from i3P activity.

The projects undertaken under the auspices of i3P come under 3 broad categories: Discovery, Impact and Spark.

- **Discovery** projects are based on research into state-of-the-art in certain thematic areas.
- **Impact** projects address specific technical challenges that are common to a number of partners and will have relevance to the whole sector.
- **Spark** projects can be on any topic with industry-wide relevance and usually address broad thematic challenges, e.g. processes to help deliver a zero-harm culture, or wearable technologies in the construction sector.

I3P is overseen by a Strategy Board made up of senior members of Partner organisations and independent experts. Since launching in 2012 (in its former guise as Innovate18), i3P has delivered close to 900 innovations and has been hailed by senior figures in infrastructure as a great success.

- **Innovation Exchange (iX)**

The Innovation Exchange (https://www.ktninnovationexchange.co.uk/) works with large corporate Challenge Owners that have 'here-and-now' industrial problems which, by definition, have proven resistant to being solved by usual means – through existing supply chains or internal resources. Using a structured process, KTN works with the Challenge Owner to translate the problem for a wider audience and then, using the unique cross-sectoral reach of KTN, competitions are run to connect solution-providers from a range of sectors to the Challenge Owner.

The process is managed through KTN's bespoke platform and is designed to make the submission of an application straightforward and streamlined. Since launching in 2018, iX has run more than 50 competitions and received over 400 applications, resulting in technology trials and contracts to the value of £1.9m between Challenge Owners and solution providers. As a result of the success of the programme in the offshore wind energy sector, it has now been used in the nuclear industry, energy

systems engineering, ports and harbours, defence, chemicals manufacture and the water industry (United Utilities).

- **Knowledge Transfer Partnerships**

Innovation requires knowledge, technology and skills. Knowledge Transfer Partnerships (KTPs) bring these elements together and in so doing they address government policy, aligning with the Industrial Strategy, driving business innovation and supporting world-class talent initiatives to tackle low productivity. The KTP programme[3] has been running for more than 40 years and in that time has worked with more than 12,000 organisations. Between 2015 and 2019, 798 businesses were supported with £218m of grant funding – all administered and overseen by KTN staff. Because of the distinctive nature of the KTP; creating a three-way partnership between a suitably qualified graduate, a business and an academic team, KTN advisers are uniquely well-acquainted with UK university research capabilities.

- **Sector-specific Initiatives**

In addition to its programmes that cross industries, KTN delivers a number of sector-specific initiatives, including the **UK5G Innovation Network** (with Cambridge Wireless and TM Forum), **Immerse UK** - dedicated to advancing the immersive technology sector, **Food Innovation Network** (for Defra), and a wide range of Special Interest Groups – time-limited projects that focus activity and accelerate innovation in a specific area. Some examples of Special Interest Groups of relevance to innovation in the water sector are:

- Robotics and Autonomous Systems
- Geospatial Insights (co-delivered with the Ordnance Survey)
- Synthetic Biology
- Additive Manufacturing
- Battery Systems
- Hydrogen Economy

KTN and Water

KTN has long been closely involved with the water utility sector and water-using industries. In its former incarnation as the Environmental Sustainability KTN, it published a number of sector reports and roadmaps[4], produced in conjunction with a wide range of industry and academic stakeholders for NERC and the Technology Strategy Board.

As part of the Infrastructure Systems team within today's KTN, Jonathan Abra is the main point of contact for the water sector. Jonathan has worked for KTN since 2009 and has helped many technology developers access funding for research, development and deployment of innovative projects. In addition, Jonathan has worked with numerous sector bodies to (British Water, Water Industry Forum, UK Water Partnership, BRE, Building Products Association, British Geological Survey, HR Wallingford, Royal Society of Chemistry) to deliver events addressing specific challenges related to

[3] https://www.gov.uk/guidance/knowledge-transfer-partnerships-what-they-are-and-how-to-apply

[4] "Energy Efficient Water & Wastewater Treatment", "Towards Chemical Free Water and Wastewater Treatment", "Integrated Urban Water Management", "A Vision for a Low Carbon Water Sector in 2020", "Prioritising Water Catchment Management Research", "Micro & Community Scale Domestic Waste & Wastewater Treatment Technologies".

water. Jonathan is well connected in the water innovation space and has close connections with many research teams and business partnerships functions in universities across Britain. He has been a steering group member on the UKRI Water Interest Group, the ERDF-funded Water Hub (NE England), EPSRC-funded fellowships and programmes (Twenty65, Safe&SuRe, Liveable Cities) and UK Water Partnership working groups.

In 2017, KTN ran two workshops, in London and Leeds, that were attended by over 50 stakeholders from across the water sector. The workshops were convened to explore the possibility of a Catapult Centre for Water however the expansion of the Catapult network was cancelled the day after the second workshop. Notwithstanding this, the workshop delegates considered the events to be successful in their gathering of a common industry view on the needs and possible deliver route for innovation in the sector.

In spite of the paucity of water-specific funding , Jonathan has successfully worked with colleagues across the KTN in order to ensure that the water sector and its supply chain is able to access sources of funding and engage with other sectors, including chemistry, biotechnology, data science, construction and materials.

Jonathan has recently been joined at KTN by Nilam Banks. Nilam was formerly employed by Anglian Water @One Alliance as Continuous Improvement Manager and subsequently as the manager of its Water Innovation Network (WIN). In her role at WIN, Nilam was responsible for managing network members and other stakeholders, creating a bespoke innovation process system to manage proposals from submission, through assessment and delivery and for liaising with Anglian Water staff to translate and promote their challenges through innovation calls. Nilam worked closely with the management team of Anglian Water's Shop Window initiative to help roll out technologies for deployment in real-world situations.

Responses to Consultation Questions

In an effort to contribute as much value as possible to the consultation process, answers have been given to all of the questions posed in the Ofwat consultation document. In some instances, where the question does not relate directly to the experience or expertise of KTN, an attempt has been made to indicate how we see the process may be impacted, based on our knowledge of innovation more broadly.

Q1: Do you agree with our proposed default arrangements for managing IPR and royalties? Do you think these arrangements work for different types of projects and activities (e.g. new technology vs. process innovation, roll-out activities etc.)?

In general, we do agree with the proposed default arrangements as set out.

It is important to distinguish between background and foreground intellectual property as proposed and to protect the rights of all who bring IP to bear on a project.

It is standard practice for Innovate UK collaborative R&D project participants to agree the appropriate sharing of jointly created IP in advance of the start of the project, as proposed in the Ofwat consultation document. It should be noted, however, that there are often significant disparities between the interests of SME technology developers and large corporate end-users of technology such as water companies. For this reason, it is suggested that a mechanism is put in place to mediate between parties in order to ensure equitable arrangements are arrived at. This is especially important to protect the interests of technology developers in the event that the innovation activity continues beyond the funding period.

Q2: What alternative arrangements should we be considering for IPR/ royalties?

We do not have alternative suggestions for the allocation of IPR and royalties. The return of royalty payments to customers in proportion to the amount funded is considered fair and relatively straightforward.

Q3: Do you agree with the principle that data generated through the innovation competition should be open by default?

In general, we do agree that data generated through the innovation competition should open by default ***where appropriate***.

Rather than completely open access, we suggest that data should be curated and made available upon request unless there are reasons why that might not be in the interests of public safety, security or there is another valid argument against doing so. As a minimum we believe it should be the case that data generated in projects undertaken by contributing utilities should be available to all. In addition, the fact that this data has been generated and is available through due process should be actively promoted.

Furthermore, we consider that, as a minimum, the names of winning consortia, the project title and amount of funding secured, should be made public. The information relating to project winners should include a public description of the project aims and objectives.

Q4: Do you agree with our proposed approach (*to risk sharing*) and that we should consider alternative arrangements beyond company contributions?

We strongly agree with this approach to apportionment of risk and reward. It is worth noting that Innovate UK's most favourable terms for participation in collaborative R&D are 70% funding for SMEs. As such it might be considered that 90% funding is generous, however it is acknowledged that the proposed innovation fund is different in nature from Innovate UK funding.

Q5: Do you agree that a guideline minimum company contribution of 10% is appropriate in this context?

We consider that a contribution is necessary to incentivize performance. If companies are required to have a stake in the outcomes it is helps to focus efforts on the project and therefore increase the likelihood of positive results. The proposed level of 10% seems reasonable, however for projects with larger budgets there may need to be consideration of affordability for SME technology companies.

Q6: Do you agree with the overarching approach (*to the types of project funded*) we set out here?

We do agree with the overarching approach and in particular to the emphasis placed on roll-out of technologies and processes developed during the lifetime of the project. Albeit Ofwat has stated that "*we stopped short of introducing a backward-looking roll-out reward"*, we consider that the need to consider roll-out in the application process is important. Similarly, the rewarding of "fast-followers" is to be encouraged.

One mechanism that has not been mentioned, but may be worth considering, is the Innovate UK practice of reserving the right not to fund applications from organisations when those organisations have been deemed not to have made 'a substantial effort to exploit' the results of previously funded projects. Applicants should be aware that if they do not roll-out the technologies and processes that they develop, they will find it harder to obtain funding in future rounds of the competitions. A more extreme version of this approach is to include claw-back clauses for failure to roll out, however we consider such a mechanism to be overly cumbersome and fraught with difficulty. Nonetheless it is important to demonstrate value for money for customers.

Q7: What are your views on introducing separate, proportionate, arrangements for small-scale projects? How might we define small-scale projects for the purposes of the innovation competition?

It is our experience that there is much to be gained from 'light-touch' arrangements for the assessment and oversight of smaller scale projects. The 'Innovation Voucher' type of scheme; whereby a company can obtain a relatively small sum of money quickly in order to undertake a short-term, low-cost intervention, has been shown to be a good way to encourage smaller companies to engage with the innovation process. KTN has managed to source solutions to a variety of industry challenges using the slimmed-down application form and rapid assessment tool that is incorporated in the Innovation Exchange platform (see above for further detail).

For the purpose of the innovation competition, small-scale might be defined in terms of cost and duration. We would also suggest a limit on the number of participating organisations in any small-scale project. Typically, such interventions might be constrained to project costs of less than £50,000, a duration of less than 6 months and no more than two organisations participating *in addition to* the water company (or companies) involved.

Q8: Do you agree with our proposal for ensuring roll-out is at the heart of the innovation competition? How might we reward both leaders and fast followers in this space?

We do agree with the proposal for ensuring that roll-out is at the heart of the Innovation Competition. Although the UK water sector has shown itself willing to engage in a wide range of R&D and Innovation activity, it is a truism that water companies are generally keen to see something demonstrated in another (or preferably more than one) company before adopting it themselves. We believe that encouragement of collaborative projects involving multiple end-users and the 'open-by default' approach to data will result in more rapid acceptance (hence adoption).

To further incentivise deployment of successful solutions, a combination of measures might be employed, including but not limited to:

- Weighting of future funding bids in favour of those that have demonstrated their willingness and ability to deploy rapidly
- Conversely, penalizing companies that have not made significant efforts to deploy solutions
- Variable funding rates based on previous performance

On completion of projects (or substantial milestones) it is important that successes should be showcased to demonstrate the value of the Ofwat innovation fund and to make the wider sector aware of the products and processes developed.

Q9: What practical arrangements should we introduce to ensure adequate ring-fencing of the innovation funding?

We consider that the proposals made in the consultation document are broadly appropriate. Quarterly collection of contributions to the joint innovation funding pot seems to strike the right balance between asking for money up-front and collecting just-in-time. The phrasing used in the consultation document indicates that transfers will be made at '*the beginning of the quarter in which the innovation competition is expected to run*'. This approach seems problematic, in as much as any delays in collection or processing of contributions could have knock-on impacts on project delivery. For this reason, we consider that contribution should be taken at least one quarter in advance and payment made quarterly in arrears on submission of a valid claim.

The administration of the joint pot by an independent management organization (to be appointed) is, in our view, correct. The management organization should be overseen by a body with representation from the contributing parties and subject to independent audits.

It is our view that, once funding has been awarded, projects should be monitored to ensure compliance with the project plan and budget. To this end, it is our contention that funding should be paid in arrears and on receipt of a progress report.

Q10: Do you think the proposed innovation challenge approach will help better enable partnerships and collaboration between companies and third-parties, in particular smaller innovators? Are there alternative approaches we should be considering? How can we make sure this approach works in practice?

We believe that the proposed Innovation in Water Challenge approach, allowing greater involvement by small innovators, SMEs and other actors not currently involved in the water sector, is an appropriate approach. KTN would be very happy to share our experience of making similar initiatives work successfully. It is considered that such a Challenge ought to be run at least twice per year. In order to raise the general level of collaborative capacity – the ability to work on joint innovation activity – within the supply chain, we would suggest a continuous programme of support for innovators (targeting SMEs) be run alongside the competitions.

In order to make it work in practice we consider that the Innovation in Water Challenge should be thematic/directed rather than completely open. Giving a framework within which to operate encourages applications from organisations with genuine interest in solving challenges and helps to reduce the number of speculative and frivolous submissions which can be time-consuming and do not contribute to the success of the scheme. This has shown to be the case with our iX and I3P programmes, both of which are relevant to the current consultation.

Q11: Do you agree with our proposed approach to returning funds to customers? Are there any other circumstances, not considered here, under which we might consider returning funding to customers?

We have not studied the reconciliation rulebook and consider that the approach to returning funds to customers is primarily a matter for the water companies and Ofwat.

Q12: Do you agree with our proposed approach for managing interactions with the price review?

Yes. Output Delivery Incentives (efficiency incentives) relate to the performance of the company in its entirety. By their nature, trials of innovation are small-scale. Innovation is inherently uncertain regarding outcomes and, if the proposed funding and competition mechanisms are set with the appropriate level of ambition, it is our contention that some projects should be expected to fail. The added incentive to protect the company's ODI performance ought to help focus participants' attention on making trials as successful as possible. We believe that the marginal additional risk might also encourage collaborative trials, whereby end-users of potential solutions jointly shoulder the outcomes.

Q13: Do you agree with our proposed amendments to the principles? Are any further amendments to the principles required to reflect our approach to outstanding policy issues outlined in this document?

We agree with those amendments and consider the principles for the Innovation Funding and Competition to represent a sound basis for implementation of the scheme as proposed.

Q14: Do you agree with our proposed focus, major strategic themes and overall approach for the competition?

We agree that it is important to start making a difference and, as importantly, to generate a 'buzz' around the funding and competition. Accordingly, the tactic of identifying quick-wins through a focus on close-to market solutions is supported by KTN.

Similarly, it is critical to engender a spirit of collaboration and common purpose within the extended community. Having achieved this, through a process of 'finding out what works' with the I3P initiative, KTN is well-placed to help implement mechanisms that will develop such a culture. We would be pleased to share that learning. KTN is willing to discuss how we might participate in the delivery of the initiative.

It is necessary to spend time to scope challenge themes for the more strategic or high-value competition calls and therefore we consider that the launch of this style of competition should be delayed somewhat. Even so, we believe that all three strands of activity (Innovation in Water, Enabling Activities, and Main Competition) should be implemented within the first year of operation. Only by doing so will it be possible to comprehensively review the approach ahead of any re-configuring for Year 2 onwards.

The thematic focus seems entirely appropriate in the current environment: **climate**, **ecology and environment** and **resilience** considerations ought to underpin the innovation strategy for the long-term security of the sector and our economy and society. One way to effect change in the most efficient and transparent manner, ensuring **public value**, in addition to the sustainability goals, is to operate on the basis of an **open data** environment. These themes should inform all competitions and act as criteria against which project proposals are judged. While individual issues will be more specific in nature, they should be viewed in the context of these overarching principles. The Mott MacDonald LITSoN[5] study for UK Water Partnership (Linking Innovation to Societal Needs) established a good framework for assessing the impacts of R&D and Innovation on the wider society and should be considered when setting the scope of competitions. KTN and Innovate UK have developed a tool to help technology developers embed principles of sustainability in their products and services and we would be happy to discuss how the 'Horizons' approach might be incorporated in or adapted for use alongside the innovation funding support.

One point on which we are unclear relates to the degree to which Innovation in Water Challenge competitions will be open. It appears from our reading of the consultation document that water companies are to identify proposals that they wish to put forward for funding, to be judged by an independent expert panel. It is unclear how this mechanism might operate and there is a risk that, without opening the competition to a wide range of 'unusual suspects', you end up with business as usual funded by another means. It is the contention of KTN that all competitions should be completely open; with the acceptance that this approach may be impractical for the 'big-ticket' projects in the Main Competition.

The Centre of Excellence concept was looked at during our 2017 workshops to explore the idea of a Catapult Centre for Water. While the concept was widely accepted as having value, it was noted that few of the participants believed this should entail a significant investment in facilities: rather it would comprise a hub-and-spoke model. This would involve a central point of contact or secretariat (a 'one-stop-shop') which would act as the focus for activities that took place at existing facilities around the country (see for instance the Test Facilities Register developed for UK Water Partnership[6])

[5] https://www.theukwaterpartnership.org/news/is-the-uk-water-industry-prepared-to-tackle-the-challenges-of-the-future

[6] https://www.theukwaterpartnership.org/initiatives/test-facilities-register

Q15: What is the appropriate split of available funding between the Innovation in Water Challenge, the main competition and enabling activities?

Based on a projected spend of £40m per annum we consider that an appropriate division of funding between the three activity strands is

- Innovation in Water Challenge 25%
- Main Competition 65%
- Enabling Activities 10%

Such a split allows for a number of 'big-ticket' programmes, involving significant investment in assets, while still allowing for a high level of spend on close-to-market challenge-led projects and sufficient in the 'process improvement' space.

Q16: What are your views on the feasibility of running all three types of activities in the pilot year, and on the proposed timings in Annex 3?

We believe that it is feasible and advisable to deliver activity under all three strands in the first year of operation.

Due to the impact of COVID-19, the timings in Annex 3 appear overly ambitious and while there is still significant uncertainty regarding the future of industry and how we might conduct 'normal' business, it seems prudent to work to a timeframe but with a floating start-date.

Q17: Do you agree with our proposed approach to key implementation considerations outlined here?

We consider that the implementation considerations are well-judged.

The tender process to appoint an administering organization should be open and transparent, as stated. The mechanism for funding that organisation's running costs should also be open and transparent.

We agree that the size and nature of the competitions should be reflected in the application process. The design of application processes is an area in which KTN is well-verse as a result of its close involvement with a wide range of different Innovate UK funding initiatives. The amounts funded in these different competitions range between tens of thousands and millions of pounds. For our own Innovation Exchange programme, we have devised and successfully implemented a short-format application process to encourage as many organisations as possible to apply.

Similarly, we agree that the scrutiny of bids should be proportionate to the value and complexity of the proposed projects. Monitoring and oversight of each project should be open by default with due consideration for aspects of security of critical assets and customer rights and the protection of IP in line with agreed principles.

The evaluation of the effectiveness of the competition should be undertaken regularly and subject to comparison with equivalent schemes for the purpose of benchmarking.

Head Office

Knowledge Transfer Network Ltd
Suite 218 Business Design Centre
52 Upper Street
Islington
London N1 0QH

Telephone: 03333 403251
Email: enquiries@ktn-uk.org
ktn-uk.org
@KTNUK