

Ofgem RiiO-2 Consultation Team
10 South Colonnade
Canary Wharf
LONDON
E14 4PU

7th March, 2019

Dear Martin,

Re: MTC Response to RiiO-2 sector specific methodology consultation focusing on questions CSQ 44, 45, 46, 47, 48, 49 and 50.

Thank you very much for the opportunity to respond to your consultation on the RiiO-2 sector specific methodology consultation.

The Manufacturing Technology Centre (MTC) is a non-profit distributing company limited by guarantee, part of the High Value Manufacturing Catapult, and was established at Ansty Park, Coventry in 2010 with the objective of bridging the gap between academia and industry. In partnership with industry, academia and other institutions we develop and prove innovative manufacturing processes and technologies in an agile, low-risk environment through Technology Readiness Levels (TRL) 3 to TRL 7.

Through the High Value Manufacturing Catapult model and specifically for manufacturing, we have seen significant growth and demand for our services and offerings since 2010 which has been independently verified through an EY report in November 2017¹ and therefore we believe we can provide some valuable input to the innovation related questions posed as part of the RiiO-2 consultation based on our experience.

Our responses are outlined to the questions as posed below, along with a summary concluding statement.

CSQ44. Do you agree with our proposals to encourage more innovation as BAU?

We welcome the ambition to see a culture and ambition of innovation within utility businesses at the heart of the proposal.

We believe however that there should be caution around introducing a model which would require utility companies to self-fund all innovation for common challenges across the industry themselves (other than those related to Energy Transition). Specifically we reference the statement around a suggested change in approach to funding 'operational and maintenance' projects.

¹ UK SBS PS17086 Catapult Network Review

Given the natural cost efficiency drive, and in the absence of a mechanism to fund innovation, our expectation would be that companies will choose to invest any time and funding into 'continuous improvement' rather than true or transformative innovation. They will therefore focus more on 'sure bets' and ideas at higher TRL. We believe that over time this risks leading to the innovation culture and feed from university research drying up and the industry stagnating. Such an outcome is one of the reasons for the creation of the Catapult network. The 2010 BEIS Independent report from Herman Hauser² concluded that to stimulate and ultimately protect long-term economic prosperity and UKGDP that a system of Catapults be introduced. Whilst the UK RiIO-1 Network Innovation Allowance (NIA) model is clearly not a Catapult, in many ways the NIA framework provides a similar outcome from its function, in providing similar potential benefits to our model, in providing a framework to develop innovation through TRLs.

We also believe that removing the NIA mechanism could remove the collaborative approach we have observed independently across the sectors in the areas of 'engineering innovation' and can drive to a more insular, competitive structure. Through the NIA mechanism there is the opportunity to co-fund and share risk, which we observe as a positive outcome through our engagement with the sector.

We have related experience of the absence of such a mechanism in the Construction sector through our work on the I3P programme. Prior to the shared collaboration and work, individual companies were innovating independently and learning the same lessons which was both inefficient and was leading to innovation slowing, as individual organisations were losing their appetite to continue. Through the collaborative work on common challenges, the sector is now more united and the model of shared risk is becoming more efficient and effective. MTC's experience is that transfer of technology from one sector to another is the most cost effective form of innovation. A collaborative sector wide approach to this transfer process is of greater benefit to consumer than individual company intervention.

We would encourage Ofgem to undertake a comparison between innovation cultures and approach between the water and electricity and gas sectors as part of their final decision. Our subjective analysis based on engagement with utilities is that the electricity and gas companies are more developed and more able to innovate and this can therefore be correlated to the availability of the innovation funding stream and current package driving collaborative behaviours. Whilst one reading of this is that the culture is being created and therefore the stimulus can be removed, this must be set against the risks a complete removal would create and the unintended consequences this could bring.

CSQ45. Do you agree with our proposals to remove the IRM for RiIO-2?

We cannot comment on this proposal as have no direct relevant experience.

We do recognise that the transition of innovation into business as usual is one of the most difficult elements and as a centre we look to support this through supply chain engagement alongside training and competence provision as two of the fundamental pillars of the Catapult model.

² The Current and Future Role of Technology and Innovation Centres in the UK 2010

CSQ46. Do you agree with our proposals to introduce a new network innovation funding pot, in place of the Network Innovation Competition, that will have a sharper focus on strategic energy system transition challenges?

The UK requires further innovation to meet its 2050 climate change ambitions. Specifically there is a need to focus more on CO₂ targets for the Heat and Transport sectors, as demonstrated by the June 2018 CCC report to parliament³. It is therefore right that there is a strategic focus on projects which support energy system transition with climate change as a primary focus. We also welcome the recognition that this could be for a mix of earlier TRL research based projects alongside some demonstrators within the portfolio.

The key to any model will be to define the criteria for projects that meet the 'energy transition'. Clearly there are large cross vector projects which closely align to the challenges as set out under the Clean Growth Strategy and being closely aligned to such funding mechanisms as the ISCF.

However we, as a primary centre for manufacturing innovation, would flag that innovation will have a significant role to play in developing some transformational technologies that may not at first glance be 'energy system transition'. For example, robotics and autonomous systems, additive manufacturing, machine learning and big data are themes that will generate opportunities in utilities in the coming years. Given the focused health and safety requirements and developments of new standards associated with technologies in these such areas, it is important that these areas are kept within the umbrella of 'energy transition' as no single organisation will be able to underwrite such risk as a funding network through business as usual. Similarly, a case can be made that reusing assets and extending asset life through adopting new technologies (e.g. additive manufacturing and 3d printing) is supporting the energy transition in making a more sustainable utility infrastructure. (A complementary potential solution is proposed in our response to question 48).

An option might be to align innovation strategic direction for innovation to the Clean Growth Strategy and BEIS calls for innovation which could be summarised within the regular innovation strategies as challenge statements and the route these are looking to be addressed through. If done there would then be the opportunity to turn the innovation strategy document into a strategic delivery document with direction on aligning topics and funding mechanisms and calls through the Regulatory Allowance, Innovate UK and BEIS. This could allow a pathway to ensure that there was a route to deliver a full scope of innovation projects and requirements from robotics through to Hydrogen.

CSQ47. Do you have any views on our proposals for raising innovation funds?

We have no experience in the funding mechanism for regulated gas and electric businesses, however we believe that it is appropriate as a principle that there is a common pot for which all UK consumers pay. How this is administered is a regulatory matter to discern the most appropriate mechanism.

³ Reducing UK emissions – 2018 Progress Report to Parliament

CSQ48. Do you think there is a continued need for the NIA within RII0-2? In consultation responses, we would welcome information about what projects NIA may be used to fund, why these could not be funded through totex allowances and what the benefits of these projects would be?

In our response to question 44 we have outlined the case for retaining an innovation stimulus, such as NIA, and our view of the potential risks to certain innovation types of removing such a mechanism.

One further point to add is that the model needs to retain innovation stimuli at all levels of the supply chain. There are several models through which this can be achieved, however the NIA mechanism is currently able to fund innovations through third parties in the supply chain to a network. The benefit of this should not be underestimated, since removing this stimulus will more than likely impact the network efficiency longer term, should the focus in future purely be on a supply chain for 'Energy Transition'.

We believe that an NIA style mechanism should be retained for:

- Innovation challenges which are common across the industry as identified through the common strategy; and
- Innovation projects or concepts which are focused at lower TRLs – potentially up until TRL 7; and
- Innovation projects which are time bound and given funding to 'prove' an outcome in a specific time period against a fixed cost. (This would reduce drift and encourage rapid proto-typing but must allow failure as an option, as we would hypothesise this is why some projects are drifting in current RiiO1 period)

In discussions with the utilities and in reading their innovation strategies we see common challenge areas across multiple areas so it is difficult to be specific on what projects NIA should fund. However some examples of common areas could include (and excluding areas assumed to be under Energy Transition):

- (a) Robotics and remotely operated devices ~ safety and customer (no dig) benefits;
- (b) Remote corrosion inspection and Non Destructive Testing ~ safety and inspection;
- (c) Big data analysis and deep learning computing;
- (d) Augmented Reality/Virtual Reality and its linkage to asset management and decision making; and
- (e) New technologies from related industries – e.g. 3d printing.

Our view is that these would not be funded under a 'totex' allowance as the current TRL level is not sufficiently developed.

Ofgem could therefore consider an administratively light but managed process (similar in approach and principle to NIC / Innovate UK) where Networks could collaborate and manage

and let calls collectively on common challenges such as those illustrated above and linked to the published Innovation Strategies. This could be funded through a central pot, aligned to network size for financial contribution.

CSQ49. If we were to retain the NIA, what measures could be introduced to better track the benefits delivered?

We cannot comment on the specifics of monitoring and measuring innovation benefits as have no direct experience of how utilities do this within their processes and businesses.

However we are aware from having attended some industry sessions that there is currently a collaborative project across gas and electric companies looking to answer this question. We would encourage Ofgem to strongly consider the outputs of this work if they are not already engaged.

CSQ50. Do you agree with our proposals for electricity distribution companies prior to the commencement of RIIO-ED2?

We support the principle of electricity companies engaging in collaborative projects prior to the closure of their settlements alongside the principle of retaining the status quo until the end of 2023 for their individual settlements.

Summary

In summary the MTC believe that the NIA and NIC mechanisms have been largely successful in introducing a model whereby innovation and an innovation culture is starting to be established within gas and electricity networks and crucially their associated supply chains via third parties. This is seen through strong collaboration and cross vector projects. Clearly with the 2050 climate change challenge there is a natural focus on energy transition projects, however we believe that Ofgem must maintain a mechanism to fund higher risk innovation at lower TRLs to ensure the sector does not stagnate.

Yours sincerely



Paul Hadley
Deputy Director – Economic Development