

# DELIVERING TRANSFORMATIONAL CHANGE THROUGH RESEARCH-LED INNOVATION

Stantec Technical Directors, Elliot Gill and Professor Chris Digman explore the role that practitioners have in creating transformational change to benefit clients and customers.



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## It is now clear a business as usual approach will not deliver transformational change in performance

Our water industry is facing many challenges whilst striving to meet customer expectations, keep bills affordable and enhance the water environment. This is set within the context of a 'declared climate emergency', an ageing infrastructure base and whether we can efficiently exploit new technologies. A further emergency will arise if we don't quickly align the right people and technologies to address these challenges and effect transformational change. At the same time, we operate in a tough economic environment where more is continuously expected for less.

So how will we achieve transformational change to meet the performance, cost and resilience challenges we face? Will it result from a 'silver bullet – big bang solution' discovered through blue-sky research alone? There are exciting research programmes that have this in mind, but we will require more fast paced improvements, most likely driven through collaboration between those with a delivery (practitioner) and research mindset. However, this collaboration can be difficult due to conflicting business and commercial interests.

Furthermore, do we have a research and development plan set out that is coordinated and managed to ensure that the right

collaborative research is driven at the right time, with the necessary levels of funding?

## The benefits of collaboration that strengthen research led innovation

No single university professor, water utility, equipment supplier, construction firm or consultant has the answer to creating transformational research outcomes.

We need to collaborate in smarter ways so that innovation is unlocked and embedded to deliver lasting value. And we need to do this quickly. Whilst research and academia are seriously striving to improve uptake, through a 'pathways to impact' approach, it can be argued there is much more to do.

Firstly, it's important that as practitioners, we invest in our people to have strategic relationships with Universities, taking on visiting roles that support university research by sharing our practitioner and problem-solving mindset. These roles require a low-self-interest, to the individual or the organisation, but the wider dividends can help strengthen blue-sky and applied research proposals, help pinpoint critical needs and help create connections. For applied research, closer to utility operations and delivery it can help focus the research and avoid duplication with industry-led advances. There is of course the balance of available time – but will consider this aspect later.

Secondly, collaborating on industry driven research such as from UKWIR<sup>1</sup> and CIRIA<sup>2</sup>, to tackle near market issues provides a wider view. Bringing together academics, smaller specialist firms and practitioners offers strong and diverse teams, especially when ideas and innovation from outside the water sector are introduced. For example, the development of BEST<sup>3</sup> for CIRIA brought together academics from the UK and Europe, along with practitioners and SMEs with a wide range of skills to create a tool that is supporting how the industry considers costs and benefits when choosing more sustainable multi-stakeholder solutions to the problems of pollution and flooding.

## Creating the right mindset to innovate through research

Of course, research-led innovation can be very bottom-up. Nurturing a culture within organisations, especially practitioner ones, where the acceptance of the status-quo is not acceptable and continuous improvement is normalised, enables people to 'research and innovate'. Therefore, investing internally, within a structure that applies the principles of sound science can lead to home grown innovation. This benefits people with their own development and meet their appetite to 'make-a-difference'. At Stantec we have seen the importance of providing a clear mechanism for our people to submit their ideas for evaluation (for example through a grant scheme), and then the delivery framework, project management and guiding technical support to help turn ideas into reality. A great example in the UK is how through Stantec's grant system we created our Climate and Rainfall Toolbox, building on leading-edge research from Imperial College, London. The toolbox improves how we plan for and design greater resilience in wastewater systems.

## Is it a question of funding?

Of course, there is always a desire to have more available funds for research from blue-sky through to near-market. Certainly, if this was well focused, the probability of more research driving innovation and leading to transformational change would increase, but it is never that straight forward.

Collaboration between academics and practitioners can be highly productive but there are barriers in the market for practitioner organisations' fuller involvement which discourage it. For example, do we need to revisit the incentives for practitioner organisations to become substantially more involved in research and development activity. This could provide not only supportive technical knowledge but bring the programmatic delivery experience to enhance research outputs. Transformational change will be hastened if there is greater participation and sharing of risks across the supply-chain of practitioners in collaborative research activity.



## Harnessing the power of collaborative research will yield greater benefits for Customers, Communities and the Environment

Further thought may also be applied to liberalising the intellectual property rights being shared between client and suppliers. This could enable the sharing of the benefits across the industry and ultimately communities and act as an incentive for more supply-chain investment in research and innovation.

Our experience of delivering programmes of work across the UK and globally highlights the power of the 'spend to save' approach. This requires the appropriate framework and governance, but when the needs are identified early, research led innovation can deliver value. But what should we do when there is not the time to meet a required outcome? This may be due to many reasons but having a more mature system that helps ensure that if the outcomes to society are worthwhile –regulation and governance allows the space to be created and for the research to take place, delaying the achievement of the short-term outcome. We can help to minimise this requirement,

through the creation of collaborative research roadmaps.

## Collaborative roadmaps with programmatic delivery

If challenged we must admit that established industry structures and processes are weak at the swift identification of knowledge gaps, commissioning research to fill these and then delivering research which makes a rapid difference to outcomes.

We believe that research roadmaps are critical tools to improve this process. They can be strengthened through a programmatic approach to delivery with an accountable 'innovation integrator' directing investment and collaboration, thus making sure jigsaw-pieces are completed and envisaged benefits shared for the good of water customers and the environment. Such leadership would inject much needed pace into the process and sense of urgency in striving for solutions and co-ordination of activity with

partners beyond the United Kingdom would add further value.

## Creating transformational change is not optional and research plays a key role

We face compelling reasons to enable rapid and transformative change in the water industry. The climate emergency is compounded by an ageing infrastructure designed and constructed for a different time. We are strong advocates for research-led innovation, based on sound science, offering solutions to the challenges we face. It is imperative that academics and practitioners (consultants, contractors and water utilities) collaborate with well-calibrated incentives and leadership to drive forward improvements so to affect the transformational change.

1 ukwir.org/eng/leading-the-water-industry-research-agenda  
2 ciria.org  
3 susdrain.org/resources/best.html