



THE ROLE OF INDUSTRY – UNIVERSITY COLLABORATION IN THE TRANSFORMATION OF CONSTRUCTION

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TRANSFORMING CONSTRUCTION NETWORK PLUS

The Transforming Construction Network Plus (N+) mobilises a new movement in the construction community, bringing together experts from a range of disciplines to tackle the most pressing problems across the digital, energy, construction,

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There are many benefits of collaboration between industry and academia, but each party may value these slightly differently⁴.

Typically, academics working in universities will value most the intellectual ideas and outcomes from their research, as well as the benefit (sometimes called impact) that their work has, say, for the general public, industry, or government.

Academics are interested in the opportunity to gain access and insights from firms, projects and practitioners to develop new knowledge, or new perspectives on their area of research demonstrating thought leadership. Academics describe this as 'data collection'. It gives them the chance to write scientific articles (journal papers) – these are a key motivator for many academics because their publication is regarded by peers as a mark of success – they may also write books or reports.

Firms, on the other hand, may place more value on the enhanced production and innovation opportunities that arise from R&D – the commercial benefit. Yet they could also benefit from access to the latest thinking, an impartial challenge to assumptions, new resources, capabilities and knowledge – if they worked with academics more routinely.

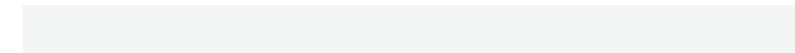
Working with universities offers input from skilled researchers, opportunities to co-create and shape new knowledge, and develop new R&D projects, patents and licenses. In some instances, streams of funding for research projects may only be accessible to industry when firms pair up with universities, to get the best from both worlds.

Given these potential benefits, are there ways in which industry and academics can work together productively, for instance, to create, share and implement new knowledge?

Knowledge production

Table 1 highlights some of the many ways academics, policymakers and practitioners can collaborate to produce new knowledge. The interactions show that collaborations can take place over a range of time periods – from a few days (for ad hoc advice or consultancy) to many years (for major programmes of R&D). Importantly, this can be determined based on

organisational needs, for instance, the collaboration might narrowly define the new knowledge to be created, or it may be much more open and exploratory. For more substantial, or long-term projects, firms should be aware that universities can employ additional staff members – called researchers, or research fellows – giving a dedicated, skilled resource to the collaboration.



In an engineering-based industry like construction, there is a tendency to focus research activity on the delivery of solutions to construction problems.

As a result, many in the industry view the role of the academic as an **'academic intellectual'**, undertaking the basic research that, along with engineering, feeds industrial application and development.

Less well known is the influence of those who we can describe as **'engaged academics'**. They often undertake collaborative research projects which influence the construction industry more widely, for example through the implementation of technical solutions, their input to policy, and their knowledge of industrial or organisational strategy (Box 1).

Such work may not always have a visible, immediate, 'bottom line' effect, but the good ideas from an engaged academic can spread through the thinking of a

Academics and research staff bring rigour, neutrality, and a degree of constructive challenge to their activities in a way that others simply cannot. They often use simple questions to do so.

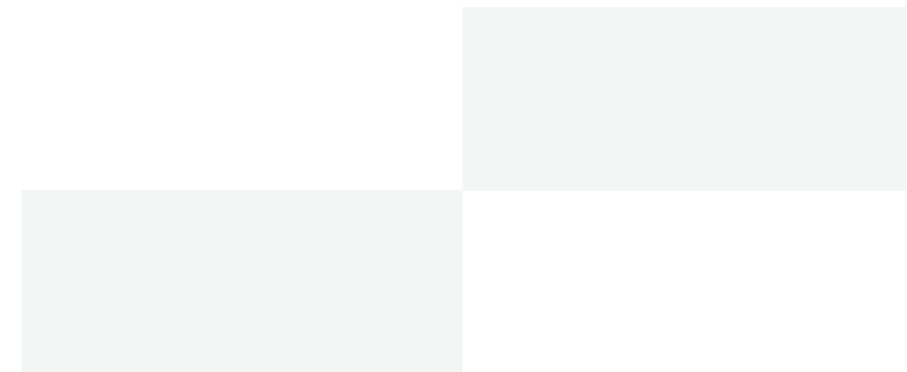
Many start with the simple question of *what* - describing what's going on in a particular situation, group, or around a particular event, for instance. Beyond this, many academics who study construction want to find out and understand *how* and *why* things happen.

For example, **organisational and project management academics** focus on exploring the underlying characteristics of shifts in industry best practice, distilling their findings to develop new perspectives,

positions, and theories (Box 1). Answering these really important *'why'* type questions take time and input from a lot of different perspectives. That is why academics who study management often use interviews and case studies, rather than simple closed questions (these tell you how much (%) something is happening, and not *why* it is happening).

The long-term impact that can be achieved through collaborations between engaged academics and industrial researchers can be exemplary and highly influential. Box 2 describes work on Project 13, which began as a university-based consultancy project. It is now in the language of the industry, helping large infrastructure projects to be organised effectively.

Table 2, below, shows some of the ways that academics typically go about sharing or exchanging the knowledge that they have gained through research – they can be collectively called **knowledge exchange pathways**. Across all the fields that relate to construction, academics are playing a key role in educating and developing people.



BOX 3: ENGAGED ACADEMICS – POLICYMAKERS, PRACTITIONERS AND ACADEMICS WORKING TOGETHER

As a society, we are facing a growing number of “grand challenges” such as the current pandemic, climate change, natural resource depletion, racial, gender and financial inequality that are beyond the control of individual organisations.

Many are looking to the United Nations Sustainable Development Goals as well as government policy documents to steer their new strategic projects, for example, achieving ‘net zero’ carbon in the next 30 years.

To tackle these challenges, we have to do things differently, and to do them differently.

This means we need to engage with risks that threaten society and industrial sustainability in both the short and long-term, as illustrated in Figure 2. Here, academics, practitioners, professional institutions, and policymakers all have important roles to play, and by working together, they will be better able to respond⁹.

The Transforming Construction Challenge (TCC) has played a significant role in coordinating change, working through the Centre for Digital Built Britain, the Active Building Centre, and the Construction Innovation Hub, which each build on relations between industry and academia.

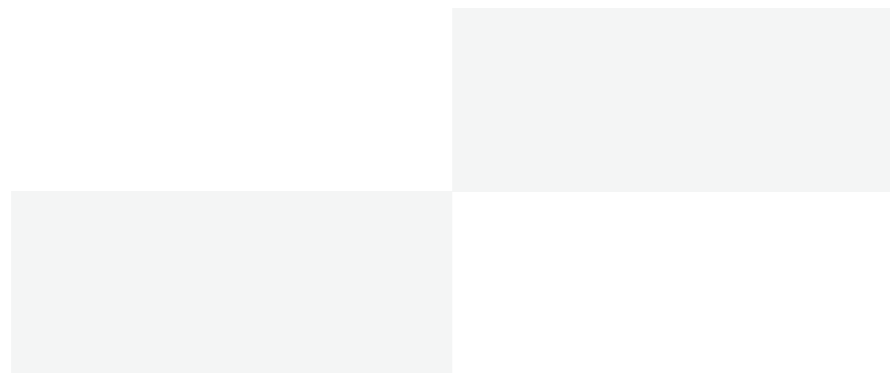
However, progress might be accelerated by developing a coordinated, mission-led coalition across the sector. In this way, firms, professional bodies and academics can work towards a common goal, playing an active role in developing a new approach to construction: to listen to, to learn from, and work with each other to take steps towards much needed systems change⁹.

For those in the academic community, however, the challenge for construction remains: how can we ensure the efficient and effective transfer of (discipline-based) academic knowledge to a (multi-disciplinary) industry?

The Transforming Construction Network Plus (N+) was established in 2018 as part of the Transforming Construction Challenge to help form a bridge between academic, policymaker and practitioner communities. The N+ is an example of a temporary industry-academia collaboration that has led to increased knowledge exchange between construction practitioners and researchers for the benefit of firms, industry and society.

In this role, it echoes the longer-term structures that have been put in place for the transport sector (Transport Research and Innovation Board – TRIB) and the water industry (UKWIR). Here, academics in related fields are brought together to address common problems in each industry, and a collective short and long-term research agenda is developed.

Maintaining the gains achieved from investment in the N+ will involve nurturing and coordinating the emergent communities of interest within the construction sector – perhaps using some of the mechanisms outlined in this Digest.



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