ICAEW KNOW-HOW
BUSINESS AND MANAGEMENT FACULTY

OPEN INNOVATION: A GUIDE

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1.   TESTING THE 'OPEN' WATER

Doing 'Open Innovation' means, quite simply, being open to the idea of working in new ways, with new partners or new relationships within your existing supply chain, to create ideas and then bring them through to market. The 'open' part can have very different meanings depending on your industry, your size, your particular strengths as an organisation, and your experience at crafting novel collaborations that reveal new routes to value creation.

Although the terminology is relatively new, many businesses will find that they have been doing this already for a long time. However, as research and practice have evolved, new ways of seeing and doing open innovation have become clearer. In this report we explore some of the opportunities, challenges, and ways of working that can help you decide what kind of open innovation might work for your firm, and how to try some open innovation experiments of your own.

One feature of open innovation that research has highlighted repeatedly is the use of business experiments. Innovating in a new way requires a leap of faith, often keeping traditional performance metrics out of the way to deliver some kind of bounded freedom, a sandpit where new ideas can flourish or fail without fear, and where failure itself is a valuable learning experience (not a career-limiting one). The scale and scope of your experiments do not really matter – the aim of this report is to show what may be possible and offer some practical advice on how to proceed. We start by looking at the language of innovation, and the different ways that it takes place in organisations.

Ideas Into Action: Belief-based Experiments

Trialling new collaborations and ways of working is often seen as a business experiment: the results are uncertain, but there's a belief that something valuable could be created, or learnt. But how do you evaluate such an experiment? And just as importantly, when? These are two of the most important questions to work out answers to, but in reality you may need to suspend your desire for such certainty and allow belief, combined with plenty of budgetary slack, to rule the day, at least initially. Often, evaluations begin with case studies and descriptive indicators that the project is on track. It's important, though, to always remember the strategic rationale for your open innovation experiments, and embed that rationale into your management and measurement approaches with much greater zeal than your financial controls.

Stevenage Bioscience Catalyst was created as an open innovation experiment after a senior leader at GSK spent time exploring new ways to tackle the 'squeezed middle' of bioscience innovation in the UK. A decision to focus ruthlessly on the quality of science coming into the incubator became the strategic beacon that guided all decisions. Deliberately soft targets for occupancy rates were set for the new building, so that tenants could be admitted only when they were deemed a good fit. Nobody was admitted simply because they wanted to come in and could pay the rent – even when half the floor space was empty – because the goal was to

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build a place that would advance science. Furthermore, prospective tenants were interviewed in depth and their ideas reviewed in detail by a panel of industry experts, before they were invited to take up lab space. As the site evolved, performance metrics that focussed on scientific advancement, such as grant and investor funding coming into tenants, were the key barometers of success, rather than the profitability of the site itself.

2.   CHARACTERISING INNOVATION

Businesses innovate all the time. Ideas don't have to come out of a structured process or a costly R&D programme in order to be called innovation. All we mean by innovation is the conversion of an idea into a valuable product, process or way of doing business. So the innovation process in any firm is a description of the many different ways in which they bring ideas to life: whether that's the simple refinement of an existing manufacturing process, a product refresh, or an entirely new business model that delivers new products to new markets in new ways.

Incremental Innovation

Terms such as 'incremental' and 'radical' are used to describe the technological innovations themselves, and how different they are from the technology that preceded them. Anything 'incremental' may not have the greatest cache (who wants to be the person that made someone else's invention just a bit better?), and yet it is probably the most common and most important form of innovation that most businesses engage in. It should not be underrated. After all, James Watt's entry into the steam engine market in 1775 was based on incremental improvements over Thomas Newcomen's steam engine, which had been pumping water out of mines successfully for over 50 years. The incremental improvements, however, made steam power more efficient, safe and useable away from the coal mines. With these advancements, steam could be used to support British industry, enabling energy to be provided without locating factories next to rivers, where they were reliant on waterwheels. Steam was the power that drove the industrial revolution.

Whilst this story is well known, the open innovation aspect is not always framed as such. Yet we know that it was the coming together of the inventor (Watt) with the entrepreneur (Boulton) that turned novel ideas into genuine innovations: ideas that are destined for commercialisation and deployment in the marketplace. With a powerful network thanks to his membership of the Lunar Society, Boulton was well placed to draw on ideas from a broad spectrum of leading thinkers, and leverage that network to identify new markets for steam power. So, whilst Watt's innovations were a long sequence of incremental improvements, the technology he developed was a powerful enabler of major disruptions in manufacturing but also transport, as steam ships replaced sailing ships, underpinning England's rapid growth as a global trading nation.

Disruptive Innovation

Another innovation term that has become important is 'disruption', used to describe an innovation that changes fundamental features of the way we do business. Whereas terms like incremental and radical focus attention on the technology change, disruption is much more about how business models, ways of working, and entire markets are changed or created as a result of one or more technological advances.

Disruption alters the shape of an industry in some way, revealing new sources of value, new ways of creating and capturing that value, and new forms of competitive advantage. Originally, disruption was described as a low-end, low-price offering that competed on new bases of performance. Following a disruption there might be an extended period of incremental innovation, as differentiated products enter the market and new niches are identified and exploited.

A good example of this form of disruptive innovation is the launch of the Eee PC by Asus in 2007. This computer coined the term 'netbook', as Asus led the way in offering a highly portable device with a 7" screen, low-cost processor, smaller keyboard and basic Linux OS (rather than Windows), all with the aim of producing a portable, personal computer at a fraction of the cost of a traditional notebook. Initially the target was emerging markets, but the concept caught on quickly with

students and others, and by the end of 2008 netbooks (not just from Asus) had grabbed an impressive 20% share of global laptop sales. From here, the netbook in this particular form only had a few years left before it would dwindle and almost disappear; yet the netbook had spawned a new wave of incremental innovation, with increasing choice in the small but high-performance laptops market (the 'ultrabook'), as well as low priced tablets without keyboards, enabled by advances in touchscreen technology.

Another variant of disruption that researchers have explored is 'high end disruption'. An example of this type of market change can be seen in the telecoms industry, with the arrival of the mobile phone. Unlike low-cost netbooks, early mobile phones were regarded as premium products because of their portability, despite being inferior as a communication device in almost every other way: expensive, unreliable, cumbersome and heavy (in the 1980s a mobile phone was the size of a house brick).

Open Innovation

The term 'open innovation' is one that sits alongside all three of these, but instead of focussing on the nature of the technology, business model or market change being made, it considers *where ideas come from and the journey they take, through different organisations, to reach existing, new or changed markets*. The 'open' part does not mean that suddenly we expect everyone to open their pandora's box of ideas up to external scrutiny and exploitation; nor does it mean switching off your internal 'idea factory' and just drawing in ideas from elsewhere. What open innovation reflects is an acceptance that valuable ideas can come from a wide range of sources, some expected, some novel, some from different parts of your organisation or from outside it. It also stresses the need to develop strategies that enable you to find, evaluate, acquire then assimilate these ideas. Or conversely if you are an early-stage innovator, to develop the skills and networks required to identify, target and sell your emerging ideas to the right customers.

As part of this open innovation process, you need to identify what needs to be kept 'closed' and protected, as well as determining which ideas, relationships or intellectual property can be shared. This sharing may be in a limited and contractually enforced way, or there may be value in being entirely open in order to facilitate wider commercial activity based on your core technology, ultimately supporting your longer-term goals. For example, IBM have been significant, long term investors in open source, providing the financial, technological and organisational resources needed to support a growing global ecosystem of innovators. By taking a leading role, they can promote interoperability and portability of new technologies, more open governance and standards creation, and ultimately generate value for their clients while constantly positioning themselves as the technology leader.

Ideas Into Action: Unpacking Industry Evolution

We can become so deeply embedded in our industry and its ways of working that we don't analyse the way new technologies have emerged, changed working practices, or disrupted business models over the years. Unpacking the course of technological and business model change can reveal new insights into the competitive landscape, and help you to understand the way different organisations are structured, as well as the specific capabilities they have built up. This is also important because often organisational cultures and ways of working reflect deep-rooted connections to certain technologies and business practices. If you intend to test new ways of working, you must first understand cultural norms around collaboration, innovation, and experimentation.

Analysis of the outdoor education sector revealed an entirely new perspective on the way these businesses had evolved over the past 30 years. When Bridgepoint Development Capital acquired Inspiring Learning in 2016 for an estimated £100m, they were not only acquiring the largest provider of educational residentials for school children in the UK, but they were also buying in to its role as lead disruptor of the sector. A critical turning point for outdoor education happened in 1991, when new regulations effectively created a market-place for outdoor education, which until then had been centrally resourced by Local Education Authorities. This opened the way for a shift from off-site experiences in mountains that required highly skilled

staff working with small groups, to a quasi-industrial model where private providers acquired large sites, close to cities, and delivered tightly managed adventurous experiences at scale, within their own grounds. The value of the business, which drove its ultimate sale price, came from the expected growth of this market, the asset base of this business, and the significant barriers to entry from outside the sector but also from smaller in-sector firms, that would struggle to achieve the same economies of scale as Inspiring Learning.

3.   REDRAWING BOUNDARIES

As with most 'new' concepts, the roots of open innovation can be seen in early research exploring the movement of knowledge and ideas both within and between organisations. As early as 1969 Allen and Cohen wrote a paper entitled *Information flow in laboratories* and concluded that certain individuals in R&D teams became 'stars' within their information networks. They acted as gatekeepers for access to knowledge, whether it came from external networks and oral sources, or their prolific reading of the latest technical literature. These gatekeepers were standout performers, holding significantly more patents and publishing more papers than colleagues, and they became major contributors to the overall performance of their laboratories. The suggestion was that this role should be valued and resourced, through 'such devices as paid attendance at professional meetings and liberal travel budgets.'[1]

The importance of boundary roles was further explored by Tushman in 1977, whose seminal paper explored just how critical boundary work can be to the innovation process. Tushman was very clear that the 'edge' of the firm was not the only boundary that mattered; moving knowledge between different work teams, departments or locations were all equally important and potentially challenging. Wherever specialization occurs, different norms, values, time frames and ways of coding or describing ideas will emerge, hindering the free flow of information.[2] To deal with this issue, organisations can create specific boundary roles, populated by individuals who can understand multiple 'languages', and who are good at scanning for information and interpreting it for new audiences.

As organisations become adept at absorbing valuable information, but also at sharing the right information or resources to build new collaborations, the formal boundary of the firm becomes less important from an innovation perspective. Breaking down the processes of knowledge absorption lets us identify where we should invest in either staff development, recruitment, or externally sourced innovation support, to improve our chances of benefitting from external expertise. Through well-developed work practices, we effectively redraw the innovation boundary of the firm to incorporate the individuals and organisations within our networks.

Ideas Into Action: Manage Your Boundary Work

Who is best positioned to find, evaluate, then connect to or acquire new ideas from outside of your firm? In some businesses the best person or people to do this might seem obvious, but not always. Identifying your most capable boundary spanners, building them into an effective working group, and making time for them to do this work can unlock new innovation opportunities. Importantly, remember that you operate at multiple boundaries, so don't assume that the 'traditional suspects' are best positioned to identify new business models or potentially disruptive new technologies. What is critical, though, is that boundary spanners need to know enough about the capabilities of your organisation, if they are to find external innovations that can be assimilated easily and fully exploited.

Unilever have developed into a world-class open innovator. Research carried out by Lancaster University sought to uncover some of the working practices of the UK-based Open Innovation team, and revealed an organisation that really understands how to structure their teams for effective boundary working. By recruiting individuals into open innovation roles who have strong

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[1] Allen, T. J., & Cohen, S. I. (1969). Information flow in research and development laboratories. *Administrative science quarterly*, 12-19.
[2] Tushman, M. L. (1977). Special boundary roles in the innovation process. *Administrative science quarterly*, 587-605.

internal networks and product knowledge, they ensure that when novel external solutions or opportunities are spotted, the strategic opportunity and likely fit can quickly be evaluated. At the same time, the open innovation team collaborates globally, and cuts across the many brands owned by the business, to ensure knowledge sharing at speed and scale. Finally, by having dedicated open innovation specialists, they can have many other people who don't have to worry about this. Whilst some people may say that spotting ideas and being creative are the responsibility of everyone, in reality, these can be hugely time-consuming, attention-grabbing activities that diminish productivity and learning in other parts of the business.

4.   OPEN CHALLENGES AND INNOVATION JOURNEYS

There are no rules about how you open up your boundaries and practice open innovation, but there are some great examples out there to help you think through the different opportunities open to you. We characterise two of the most popular ways of viewing and doing open innovation based on the simple notion of where the focus of 'open' lies. In some cases, the end-goal is clear, but the organisation is entirely open about where the innovation comes from, in which case they may set up an innovation challenge. In other cases, the organisation may have an embryonic idea, but is not quite sure what value it has, in what market, so they embark on a journey that draws in the support of others, to unlock the value of their innovation. We describe these two routes below:

Open Challenges

For many multinationals, open innovation is a way of seeking out specific forms of knowledge or innovation that they need, to augment their internal expertise or product lines. For example, Unilever sets out 12 'Challenges and Wants' on its global open innovation page[3], Tata lists 'Open Challenges' that aim to tackle 'the wicked challenges they face in the workplace'[4], and Accenture led a 'HumAInity Open Innovation Challenge' in 2020 to identify technologies 'addressing the complex relationship between mental well-being and artificial intelligence.'[5] In each case, these were large organisations with clear objectives, and with a desire to harness the creativity of a much wider pool of innovative thinkers than they have in-house.

For those without the resources to launch a major challenge on their own, there are dedicated platforms that enable you to post a challenge and access their communities of solution providers, as well as tapping into the growing gig economy of potential solution providers. These platforms span a huge variety of open innovation demands: for example, InnoCentive is currently listing awards of between $5k and $50k for a range of scientific and engineering challenges, ideaCONNECTION® had a 200 Euro challenge for the graphic designs for two stand up paddleboards, and the Scottish government funded platform has listed challenges from the likes of the European Space Agency, HS2, and the NHS as well as industrial challenges ranging from big-pharma to Twinings Tea![6]

> **Ideas Into Action: Innovation through projects**
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> If you want to make use of external expertise but do not want to engage in an extended collaboration, you need to break your innovation strategy down into projects, so you can make use of the gig economy. This highly disciplined approach to innovation requires careful thought about the components of product or process innovation, the capabilities required, and the best use of resources both internal and external to deliver each component. As well as forcing you to consider where your internal strengths lie, the clear mapping of anticipated outcomes enables a robust form of performance management that can be missing when innovation work is diffused across less directly accountable, internal staff. If such outsourcing is new to you,

[3] https://www.unilever.co.uk/about/innovation/open-innovation/ accessed on 30 December 2020.
[4] https://tatainnoverse.com/ accessed 30 December 2020.
[5] https://www.accenture.com/se-en/about/events/humainity-open-innovation-challenge accessed 30 December 2020.
[6] https://www.innocentive.com/
https://www.ideaconnection.com/challenges/
https://www.openinnovation.scot/find-a-challenge

experiment with small projects to build up you own scoping, specifying, recruiting and managing capabilities.

A boutique consulting firm specialising in virtual reality services started working with external gig economy experts to support their computer generated imagery (CGI) work. As the relationships with key workers developed, they were given management responsibility to oversee other team members. The head of innovation implemented a cost allocation model from the outset such that now, five years later, each element of their technology can be accurately linked to specific work teams, together with direct and indirect costs of development. This level of analysis allows more accurate product costing, but in addition they now have the ability to build accurate timelines and costings for even the most complex, multi-person, software development project.

Innovation Journeys

For SMEs that seek to develop their own ideas into valuable innovations, it is good to have an insight into how open innovation can support such a journey. Drawing on different experts, at the right moments, can accelerate ideas to market and increase their value. It is for these reasons that less experienced entrepreneurs may either employ innovation consultants to advise them, or locate their start-up inside an incubator or accelerator where dedicated support is available.

The impact that open innovation advisors can have is illustrated in the diagram below, taken from research that followed the journey of a single scientific idea, from lab to multi-billion dollar market.

An Open Innovation Journey[7]
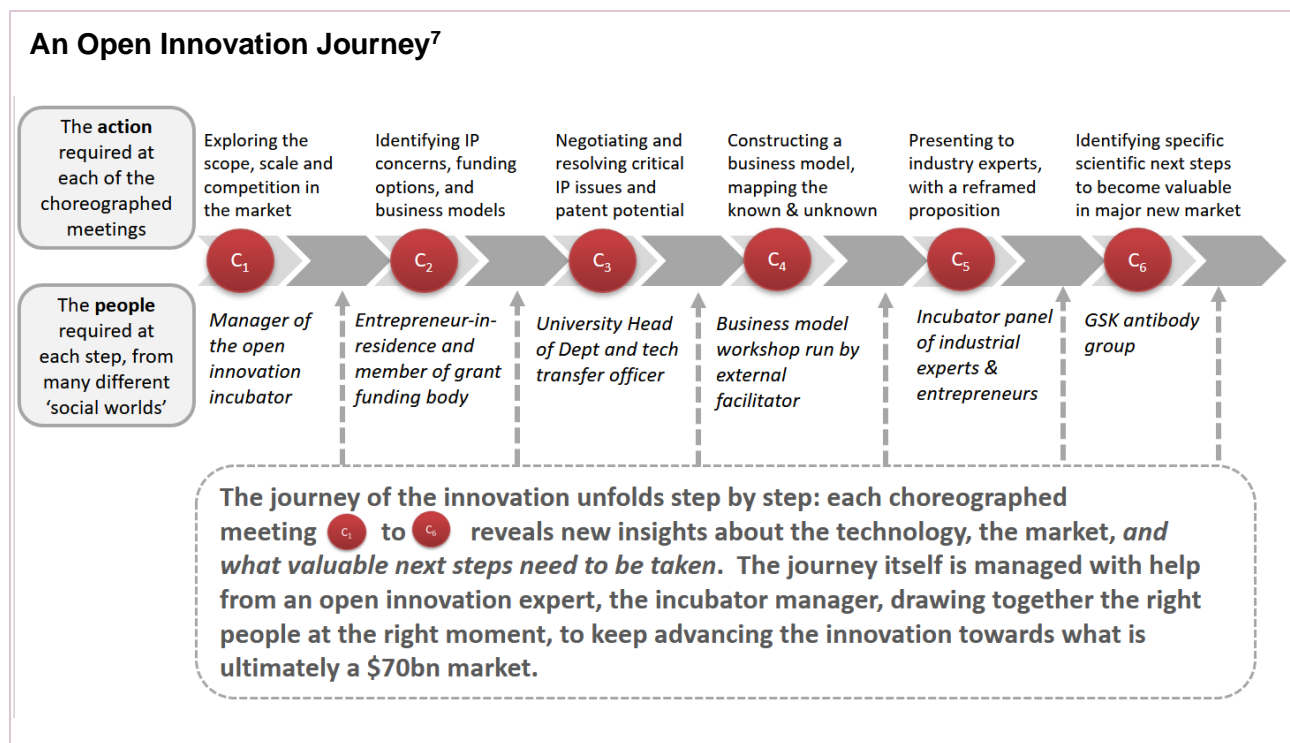
The manager of the incubator acted as a choreographer – setting out the steps of the innovation process, and identifying which partners were needed at which moment to advance towards the next step. For the finance professional, the challenge in such a setting is being able to accept and account for this unfolding pathway. Each step reveals the next, but the end is seldom visible from the start, so developing a performance management approach that supports productive exploration is important.

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[7] This diagram is adapted from: Mason, KJ, Fries I, M & Ford, CJ 2019, *Markets under the Microscope: Making Scientific Discoveries Valuable through Choreographed Contestations*, *Journal of Management Studies*, vol. 56, no. 5

## 5.	EVALUATION AND SUSTAINABILITY

With so many novel ideas, new relationships, and different ways of working all in this melting pot we call 'Open Innovation', it is useful to have a structured approach to the whole issue of performance management. Importantly, this puts the CFO and the wider data management and evaluation infrastructure of the firm right at the heart of any new open innovation venture.

All too often, open innovation is seen as a great experiment, or 'the right thing to do' by working with a wider community, or simply as the 'pet project' of a single powerful figure within a firm. Not enough emphasis is placed on finding the right ways to understand its contribution, evaluate its impact, and so decide how to account for its performance. This can leave open innovation projects or activities languishing when their initial champion moves on, simply because nobody worked out how to make them work within the accounting, evaluation and operating norms of the firm.

Research carried out by Lancaster University developed a three-level approach to addressing the performance management challenges of open innovation:

- **At the Strategic Level**, you identify which stakeholders expect to play what role in creating, and or capturing value from the initiative and over what time frames. From this you can build a collective understanding of who should be accountable for what – identifying what 'success' looks like and ensuring that everyone's notion of success is embedded in the project.

- **At the Structural level**, you need to determine what forms of data will be needed to evaluate both processes and outcomes as the project unfolds. One of the greatest challenges with open innovation is the very fact that value is captured across multiple organisations, in different ways, and at different times, making data capture, sharing, and synthesising a potentially challenging task. Matching your strategic performance and accountability goals to a robust data management plan, from the outset, will ensure that you know whether this is more than a 'pet project' based on strong beliefs alone.

- **At the Practice level**, it is important to recognise that people who are embedded in one set of performance management norms need time, training, and top-level support if they are to fully adopt and deploy new evaluation approaches. Such new ways of working may require new relationships, routines, ways of collating and ways of evaluating information. This aspect of open innovation can easily be underplayed, based on assumptions that once the systems are in place, they will simply be put to use in the ways intended by their creators. Feedback loops are also important, as staff learn how to use and interpret new forms of data and new tools of evaluation. This can help to ensure that data management approaches are incrementally improved, alongside the emergent processes they seek to support.

The ultimate sustainability of an open innovation initiative relies on its ability to convince people, other than the high-belief originators, of the value of this way of working. This requires considerable strategic and operational effort – working out what evidence is needed and how to collect it, given that open innovation can create value in unusual ways, different places, and across different timescales to other, more established ways of working.

In conclusion, open innovation may be the brainchild of others within the organisation, but the financial professionals need to be closely involved from the outset. Having a clear understanding of senior management beliefs, long term ambitions, and interim goals can help with the development of new evaluation approaches that support innovation. Building a robust process for gathering, analysing and sharing data – even if that data is mainly qualitative and speculative initially – may be critical in ensuring that good open innovation can secure long term investment and institutional buy-in.

Ideas Into Action: Evaluation of Open Innovation

As you embark on a new open innovation initiative, identify the multiple forms of evaluation that it will require and build consensus early about how evaluation will proceed. Initial strategic level

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discussions should reveal the key players in each organisation that need to be involved early, to establish the structures, data, and working practices that are going to be needed. It's important to regularly review the fit between the ambitions of the initiative and the performance management approach, and avoid being sidetracked either by doing more of what is easiest to measure (yet not core to your ambitions), or accidentally creating dysfunctional metrics that may throw a fledgling innovation process off track.

The Cabinet Office Open Innovation Team (OIT) set out to build new relationships across government departments and at the same time generate new links to individual academics and their institutions. The goal was to generate a rich network of shared expertise that could be used to inform UK government policy making. The evaluation reality they faced was challenging: individual academics often had different goals to the institutions they worked for, and individual policy makers had to deliver high quality advice that drew on multiple insights, so needed to be equipped to quickly evaluate then assimilate the work of academics. As well as building evaluative infrastructures to help with these individual-level challenges, the OIT needed to build up evidence of its over-arching impact in order to secure its own funding and sustainability. This required the development of performance management approaches that reflect the very different needs of the major stakeholders: a group of funding universities and senior leaders within the Cabinet Office. They also commissioned an external review, to evaluate the strategic, structural and practice level evolution of the team.[8]

ABOUT THE AUTHOR

Chris Ford is an academic, writer and entrepreneur. His career started at Deloitte in London, but he discovered a passion for mountain biking, established his own adventure travel business, and moved to East Africa. On his return to the UK in 2000, Chris established himself as one of the UK's leading authorities on outdoor leadership development, working with British and Scottish Cycling, and authoring over 50 articles on the subject. He completed an Executive MBA at Lancaster University, and he enjoyed it so much that he sold his business, and took up the offer to study for a PhD. Chris is now a Lecturer in Accounting and Management, a Cabinet Office Policy Fellow, Academic Advisor to the Institute for Outdoor Learning, and Academic board member of the ICAEW's Business and Management Faculty. His research into the performance of platforms, ecosystems and open innovation led to a prestigious prize for Best Innovation Paper from the British Academy of Management in 2018. His expertise in this domain has led to him working with policy makers and businesses on local, regional, and national levels.

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[8] A copy of this 2018 evaluation can be downloaded here:
https://eprints.lancs.ac.uk/id/eprint/149180/1/Full_report_Independent_evaluation_of_the_Cabinet_Office_Open_Innovation_Team_December_2018.pdf

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* Source: CAW, 2020 – Interbrand, Best Global Brands 2019

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