



# Pathways for Academic Impact: Biased Towards Commercialisation?

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There is little doubt that universities play an essential role in society. Hence, the UK Government invests over £3 billion into academic research on an annual basis. In order to justify this investment, it is key to better understand the various pathways leading to academic impact on wider society. Coverage of these pathways to date has been dominated by the commercialisation of academic research through mechanisms such as patents, licenses and spinouts [1]. However, this overlooks an important part of knowledge exchange (KE) and skill transfer activities by means of less-tangible routes, which may greatly impact and benefit society as well. National schemes have been set up by the Higher Education Funding Council for England (HEFCE) to promote and monitor the various KE activities [1,2]. Although these initiatives and surveys serve their purpose by generating valuable and encouraging findings, they often lack the level of detail needed to allow in-depth assessment of impact of academic research at an institutional or departmental level [3].

The reality is that academic commercialisation, often referred to as technology transfer (TT), faces many challenges that ultimately hinder its potential impact. Firstly, the drivers in academia and industry are intrinsically different [4]. Academia lies within the public sector and aims to provide public goods in the form of education and academic publications, whereas the private sector aims to develop and sell products or services to customers for profit. Finding the right equilibrium between teaching, publishing, filing patents and generating profit is therefore challenging. Moreover, it is not uncommon to encounter academics with a strong sense of academic freedom and purity, which can make them reluctant to engage with the private sector to commercialise their research [5]. Secondly, next to drivers, intellectual property ownership is another main barrier for academic commercialisation and university-industry collaborations [6]. It has been reported that some technology transfer offices (TTOs), which aim to facilitate TT within universities, have quite a monopolistic attitude towards intellectual property, spinout equity and revenue ownership, which does not encourage entrepreneurial students and researchers to commercialise their findings. In addition, although academics are usually good at identifying and solving complex problems, very few are equally skilled at entrepreneurship [3]. Finally, evidence suggests that most companies are customer and demand led, with only a fraction being purely research and discovery led [7], a company format which is the main driver behind academic spinouts.

In spite of these obstacles, there are numerous examples of successful TT activities in the UK, e.g. Cambridge Antibody Technology, a Cambridge University spinout.

However, these are the exceptions rather than the rule and do not represent the complete spectrum of academic activities that could lead to impact. In fact, evidence suggests that universities don't appear to be the main driver for intellectual property and technology in their local clusters. A recent study performed in the Cambridge cluster, one of the leading high-tech clusters in the world [8], suggests that as little as 3.5% of the local companies could be considered university spinouts [3]. This supports the argument that commercialisation activities should not be the main metric for assessing academic impact on society.

Above and beyond the commercialisation of academic discoveries, universities act as a source of highly skilled workers (student and researchers) for the various sectors and industries. The academic education and skill development provided by universities greatly impacts on wider society. The broader spectrum of academic KE activities (e.g. people-based, community-based and problem-solving-based activities) are therefore critical and often facilitated by both formal and informal interactions [2]. One of the main bottlenecks when aiming to assess academic impact, is monitoring and reporting the true breadth of KE activities effectively. This task is non-trivial because such activities occur in many different forms – financial and non-financial; contractual and non-contractual [9]. However, it is difficult to assess which of these forms have the greatest value to society as long as the majority of the monitored and reported KE activities are those of commercialisation nature [9]. Interestingly, evidence suggests that commercialisation activities only represent a small fraction (10%) of total academic KE activities, thereby failing to capture a significant part of academic engagement and impact [1,2]. These findings suggest a bias towards academic commercialisation when aiming to measure and assess impact on society. Incentivising academics to devote enough time to measuring and reporting all of their KE activities is a challenging task mainly because these are only the third stream of academic responsibilities, the first two being teaching and research [5].

Examples of university departments that have a particularly high impact through their breadth of KE activities do exist. The Computer Laboratory at the University of Cambridge is one of them. The Computer Lab's success in this area can be attributed to three initiatives [7]: (1) The Computer Lab Ring; (2) The Hall of Fame; and (3) The Computer Laboratory Supporters Club. Each of the above are complementary but with slightly different aims. The Computer Lab Ring provides an alumni service that maintains an active network between graduates and the department, thereby promoting KE. The Hall of Fame has a similar purpose, but focuses

specifically on entrepreneurial departmental members and alumni who co-founded startup companies. Their successes are celebrated by the department in different ways: a complete list of startup companies originating from The Computer Lab is provided in the department and on their website; annual dinners are organised for co-founding departmental members and alumni; annual awards for best company, product and publication of the year are given out by the department. Such celebrations are key in creating entrepreneurial role models for the next generation of students. Finally, The Computer Lab Supporters Club is a group of 68 private companies which financially support teaching and research in the department [9]. In exchange for their support, these companies receive exclusive recruitment opportunities for placements, internships, joint research projects and job vacancies. They also benefit from open access to departmental seminars and events, enabling them to build personal relationships with the departmental staff and students. All of these activities strongly promote the KE and therefore academic impact of this university department, a model which could easily be applied to other departments and other universities.

To conclude, the measure of academic impact has previously been dominated by commercialisation of academic discoveries, thereby failing to capture the complete spectrum of academic activities that lead to societal impact. In fact, universities do not appear to act as a significant source of intellectual property and technology for private companies [3]. It is therefore questionable to use commercialisation of academic discoveries as the main metric to measure impact. Instead, a broader view is needed when assessing knowledge exchange and measuring academic impact on society.

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## About the Author

Tim is interested in entrepreneurship and knowledge exchange. He is the Founder & CEO of Healx3, a Cambridge-based enterprise. He is also the Director of Knowledge Exchange at Innovation Forum, the Co-Founder of the Cambridge University Science and Policy Exchange (CUSPE) and a Junior Associate Fellow of the Centre for Science and Policy (CSaP). Prior to Healx3, Tim performed a secondment at the Department for Business, Innovation and Skills (BIS) on university-industry interactions. He obtained his PhD in the field of Biophysical Neuroscience at the University of Cambridge in 2013. Before moving to Cambridge, Tim obtained an MEng in Bio-Engineering from the University of Brussels.