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# Knowledge translation in tri-sectoral collaborations: An exploration of perceptions of academia, industry and healthcare collaborations in innovation adoption

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## ABSTRACT

With the aging population and increase in chronic disease conditions, innovation to transform treatment pathways and service delivery will be necessary. The innovation adoption process however, can take 15 years before widespread adoption occurs in most healthcare systems. Current UK government policies to increase the facilitation of innovation adoption are under way. The aim of this study is to explore perceptions of tri-sectoral collaborations in the healthcare sector. The data in the study are drawn from a cross-sectional survey conducted in 2015 of professionals in academia, industry and the healthcare sectors in England, focusing on Diabetes care. Academia and healthcare respondents had the least work experience outside of their sectors compared to the industry respondents. Healthcare and academia respondents rated the industry sector less trustworthy, unethical, having different goals and less understanding of the other sectors. Industry respondents had a more positive perspective towards potential collaborators. The results from the study demonstrate greater potential challenges to tri-sectoral collaborations and the government's knowledge translation policy, due to pre-conceived notions and lack of understanding of other sectors. The purely structural approach of establishing government mandated translational networks may be insufficient without active attempts to improve collaborative relationships. Mechanisms to facilitate trust building and collaboration are proposed.

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## 1. Introduction

The UK National Health Service (NHS) is recognised for its invention of treatments and products, however the adoption and

sustainability of inventions within the NHS has been relatively poor and many innovations fail to achieve widespread use [1]. Faced with a healthcare funding crisis to provide service and care to a growing, aging population, the technological deficit in the NHS remains apparent [2]. Innovation adoption has been a recent focus in English health policy to promote innovation and efficient knowledge translation to effectively adopt and sustain promising innovations across the healthcare sector. Recent English health policy has sought to address these gaps in translation [3] and consequently, government organised initiatives have established tri-sectoral collaborations between the academic, industrial and healthcare sectors, notably the Academic Health Science Networks (AHSNs). These have the potential to transform care delivery in the long-term through a more efficient process from laboratory to bedside. Investment in and development of tri-sectoral collaborations has grown in the UK, making them an important focus of attention. However, previous research has predominantly focused on bi-sectoral partnerships, such as between the university and the healthcare sectors [4,5]. This

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article addresses this research gap by exploring the perceptions of members of academia, industry and healthcare to collaborate in innovation adoption.

### 1.1. Knowledge translation policy and inter-sectoral collaboration initiatives in healthcare

The 2006 Cooksey report for the UK government examined a linear model from research to bedside and identified two translational gaps in the process, namely the translation of clinical and basic research to product development and the implementation of products to clinical practice [3]. In particular, government attention focused on the slow rate of delivery from proven efficacy to widespread adoption, taking up to 15 years [6]. There have been numerous attempts to address both these translational gaps through mandated policies to create translational networks with designated responsibilities to improve collaboration and innovation adoption by facilitating inter-sectoral partnerships.

Academic Health Science Centres (AHSCs) (and variants of it) were early examples of networks to partner academic institutions with healthcare providers to promote research, teaching and education. The formation of AHSCs is an international phenomenon and can be found in the Netherlands [7], US [8], Canada [9] and Australia [10] as well as the UK demonstrating the international significance of collaboration between sectors. In the context of the translational gap, AHSCs are focussed on the first translational gap from research to product development to encourage collaboration during the earlier translational research processes, however researchers suggest the organisational infrastructure to achieve the mission is unclear [8,11].

In the UK, government has issued a series of policies intended to address the slow uptake of innovation in healthcare, pointing out the potential for such adoption to actively contribute to wealth creation [1,12]. Significant changes were introduced into the NHS infrastructure through the “Health and Social Care Act 2012” [13] and bodies previously responsible for innovation in the healthcare system were abolished. The Innovation, Health and Wealth report [1] proposed novel networks to facilitate innovation and collaboration, such as the Collaborations for Leadership in Applied Health Research and Care (CLAHRCs) and Academic Health Science Networks (AHSNs). AHSNs were given flexibility and had no mandated governance structures. Drawing on models such as the ‘triple helix’ model [14] which emphasized that innovations in many sectors are increasingly co-produced, the government’s clear intention was that these newly created networks should enable inter-sectoral collaboration, including with the private sector. The strategic national importance of life sciences was at the forefront in these policies.

### 1.2. Knowledge translation and the potential complexities of tri-sectoral collaborations

A considerable body of recent research on innovation diffusion and knowledge mobilization in healthcare builds on prior research. Ferlie, Crilly, Jashapara and Peckham [15] offer a useful review of this research, which identifies the varied phases of the innovation process from the earlier phases of knowledge creation through phases of development to later processes of innovation adoption and diffusion. It is the attributes and dimensions of these latter phases of adoption and diffusion with which this article is concerned. Innovation diffusion involves the transfer of ideas and practices from one context to another, described as knowledge translation. What works well in one context may not work well in another. So, adaptation, knowledge sharing and knowledge translation are core elements of diffusion and transfer. Many

issues inherent in the diffusion and implementation of innovations relate to the capacity of the healthcare system to adapt and utilise knowledge. Thus knowledge mobilization is more than the dissemination of research evidence; it is the active implementation of knowledge into practice [16]. Knowledge translation “takes place within a complex system of interactions between researchers and knowledge users which may vary in intensity, complexity and level of engagement. . .” (pg. 46) [17]. Predominantly, research on innovation diffusion and knowledge translation in healthcare has focused within the health sector or on bi-partite collaboration between health and academia. The literature review from a recent study on AHSNs [18] reinforces this point. Our research project sought to explore a broader and more diverse set of collaborators in focusing on the perceptions of academia, industry and healthcare to collaboration in innovation adoption. Collaboration between individuals and groups from assorted backgrounds and experience presents challenges especially where as in this case, they have limited prior experience of working together. One prime challenge is the existence of epistemic boundaries between groups and within networks and this theme is discussed in the next section.

Epistemic cultures are ones in which similar values and socialization in groups means knowledge flows easily within the group [19,20]. However, these same knowledge bases create ‘epistemic boundaries’ between different professional groups through lack of understanding and differing interpretations of ideas [21,22]. Such epistemic boundaries lead to the non-spread of innovation due to a lack of collaboration between key parties [22]. Research thus underlines that collaboration is necessary for innovation diffusion. Studies of the CLAHRCs examined bi-sectoral collaboration and suggested professionals may experience ‘psychological conflicts to identity’ both on an individual and organisational level [23]. Bridging the epistemic boundaries requires a redistribution of power and the provision of knowledge outside of the professional network, and may face challenges for political and professional reasons [24–26]. Epistemic gaps were evident between clinical scientists and social scientists; emphasizing that inter-sectoral and inter-disciplinary collaboration adds greater complexity to processes of effective knowledge translation [27,28]. Smith and Ward [29] and Fitzgerald and Harvey [27] have argued for the co-production of priorities between collaborators taking into account organisational strategies as well as innovation objectives.

If research on bi-sectoral collaboration evidences that there are significant challenges in driving effective collaboration between diverse disciplines, differing organizations and sectors driven by profit and public motives, what responses are beneficial? Knowledge brokering emerges from research findings as one method to facilitate knowledge translation and overcome epistemic boundaries [30–33]. Knowledge brokers have the potential to combine knowledge management, capacity building and linkages between varied professional groups [34,35]. They aid knowledge transfer from one disciplinary group to another, and they can transform that knowledge from theory into practice through the range of activities in which they could be involved (i.e. identification and localisation of knowledge, redistribution and dissemination of knowledge and rescaling and transformation of knowledge) [36]. Knowledge brokers are potentially useful to bridge the knowledge gap, rather than relying on developing new skill sets to facilitate knowledge translational processes among the communities [37,38].

In this paper, we offer exploratory research to address the gap in the literature regarding tri-sectoral collaborative relationships, which include the private sector in the innovation adoption process. We present empirical results from a questionnaire among respondents in industry, academia and healthcare.

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