Chapter 18
Technology Transfer Projects in the UK:
An Analysis of University–Industry Collaboration

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ABSTRACT

This article examines how technology transfer has operated in university-company projects undertaken in small to medium sized enterprises via the UK Knowledge Transfer Partnership scheme. It adopts a qualitative case study approach, focusing on three companies drawn from an initial review of fourteen technology transfer projects. This provides the foundation for the development of a model of 12 key factors that underpinned successful outcomes in these projects. The fourteen projects are reviewed in terms of their impact on either process change, service improvement or product development, drawing upon the post-project assessments of the funding body and the developed model. Findings suggest that using new technology to innovate internal processes and services is likely to prove more successful than projects focusing on new product development. The model provides an analytical framework that will be of interest and value to academics and business practitioners looking to develop university-industry partnerships involving technology change and innovation.

INTRODUCTION

Since the turn of the century, technology transfer and innovation have played an increasingly important role in UK government policy for re-invigorating and supporting British industry, and technology transfer from third parties such as universities can act as a catalyst for achieving increased competitiveness, particularly for small to medium sized enterprises (SMEs). This paper examines how such technology transfer projects have been undertaken under the auspices of the UK Government's Knowledge Transfer Partnership (KTP) scheme. The research focuses on three technology transfer case studies to establish

DOI: 10.4018/978-1-5225-9273-0.ch018

the key factors that determined the success or failure of these projects, and to examine how new technologies were introduced to promote innovation in internal processes, in services to customers, and in new product development. The paper also looks at a wider range of KTP projects to assess the relative success of innovation in these three operational domains.

A lack of financial resources and basic technological capability can act as barriers to SMEs adopting new technologies, both for their in-house systems or in the incorporation of new technologies into their products or services provision (Guzzini & Iacobucci, 2017). Brychan (1999) underlined the importance of technology transfer networks for SMEs, particularly those where technology is transferred into an SME from an external source, and the term "open innovation" was first used by Chesbrough (2003) to denote the use of external resources as part of the research and development process for new technology. This gave impetus to the harnessing of external capabilities to achieve swifter and more effective results in the application of new technologies in industry. However, related research has often focused on larger companies, and "small and medium-sized enterprises are excluded from the mainstream discussion on open innovation" (Brunswicker & Vanhaverbeke, 2015, p.1241).

The focus of this paper is the operation of the KTP scheme to facilitate technology transfer in SMEs. In the following section, a brief overview of the KTP scheme is provided, followed by a review of relevant literature, models and concepts and positioning of two research questions. The research methodology is then outlined, and the selection of the case studies is discussed. The next section presents the three in-depth case studies, providing the basis for the identification of key factors that underpin successful technology transfer projects in this context. These are discussed in the penultimate section, which addresses the research questions. Finally, the conclusion pulls together the key themes of the paper and discusses the contribution and potential of the model.

THE KNOWLEDGE TRANSFER PARTNERSHIP SCHEME

In the same year that Chesbrough discussed and defined the open innovation concept, the UK Department of Trade and Industry (DTI) specified a range of products for promoting and enabling knowledge transfer and innovation, in particular to support technology transfer to SMEs (DTI, 2003). One of these products is the KTP scheme, which provides direct financial support for graduates to undertake specific technology transfer projects in firms of all sizes, but particularly in SMEs, which are defined in a European context as having less than 250 staff (European Commission).

Interest in technology transfer, and more generally knowledge transfer (KT), and its role in promoting economic growth and job creation has been growing for over two decades in the UK. Hardhill and Baines (2009, p. 82) noted that "since 1993 the promotion of knowledge transfer to maximise public investment has been a recurrent theme in UK policy documents", and the Lambert Review of Business-University Collaboration acknowledged the scale of public investment on teaching and research within the UK's universities, and formally endorsed the belief that "transferring the knowledge and skills between universities and business and the wider community increases the economic and social returns" (Lambert, 2003, p. 31). More recently, the Sainsbury Review of the UK Government's Science and Innovation Policies identified "knowledge transfer activity as an important way to make the most of publicly funded research and to increase innovation in business and public services" (Department for Innovation, Universities and Skills, 2007, p. 60). In particular, the review recommended greater government financial support for business facing universities and increasing the number of KTPs.