



University–industry engagement: The formation of the Knowledge Integration Community (KIC) model at the Cambridge-MIT Institute

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ABSTRACT

Many countries are seeking to strengthen global economic competitiveness by building a 'knowledge economy' capability. A popular approach is supporting university–industry knowledge exchange linkages. The purpose of this paper is to show how a model developed by the Cambridge-MIT Institute (CMI) for the UK offers a more effective approach to knowledge sharing, and to present the results from one of the first projects launched by CMI. CMI looked at the background literature and relevant government policy, benchmarked peer grant-making organisations, studied the Massachusetts Institute of Technology and Cambridge University institutions, and organized expert consultation through a strategic planning process including 27 stakeholder groups. Based on these inputs, CMI formulated its Knowledge Integration Community (KIC) model hypothesis. This paper describes the functional components, support mechanisms, organisational structure, review processes and mechanisms for knowledge exchange. Beginning in 2003, CMI built seven experimental KICs: five completely new, and two built up from existing, more traditional research projects. One of these is the Silent Aircraft KIC, which is presented as a case study. The paper makes an early analysis of the outcomes and additionalities of the KIC, and presents the lessons and future implications for the KIC. The paper concludes by describing the broader relevance of this approach for other institutions and countries, and suggests it is something other university-, government- and industry-based research institutions could embark upon.

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1. Introduction

The intensifying technology race is compelling countries to search for more effective ways of harnessing research done in elite institutions for commercial purposes. The Massachusetts Institute of Technology (MIT) has proven to be remarkably successful in collaborating with industry

and in developing a two-way flow of knowledge that helps to guide and augment university-based research and also facilitates the flow of technology, codified as well as tacit, from the university to the business sector. In order to refine the MIT approach and to transplant it to the UK, the British government in 2000 created the Cambridge-MIT Institute (CMI) and is using it as a vehicle to launch a Knowledge Integration Community (KIC) model to enhance the fruitfulness of university–industry links (UILs). The purpose of this paper is to show how the KIC model offers a comprehensive and effective approach to knowledge sharing and to present the results from one of the first projects launched by CMI.

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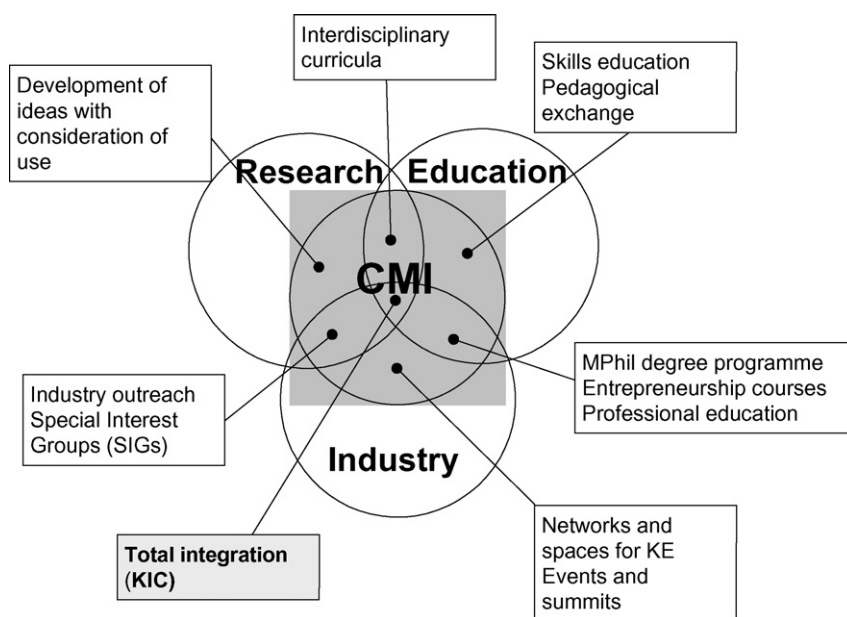


Fig. 1. CMI unites research, education and industry stakeholders in the economy through bold new initiatives in knowledge exchange (KE).

CMI was established in 2000 by the UK government to develop and implement innovative approaches for knowledge exchange (KE)¹ between the academic and industry sectors, thereby fulfilling its mission of enhancing competitiveness, productivity and entrepreneurship. It is an alliance between Cambridge University and MIT, which was funded with a grant of £65.1 m from Her Majesty's Treasury (HM Treasury or HMT), plus £16 m in additional funding from the UK private sector. The initial grant from HM Treasury was managed by the Department of Trade and Industry (now the Department for Business, Enterprise and Regulatory Reform).

The multidirectional process referred to herein as 'knowledge exchange', which goes beyond traditional, unidirectional 'knowledge transfer' from academia to industry, lies at the core of the CMI mission. This multidirectional approach differentiates CMI from other organisations such as Research Councils and DTI initiatives that focus on one-way outbound technology transfer. In seeking to achieve its goal of creating and implementing innovative approaches to knowledge exchange, CMI is supported by Government to operate at the centre of an alliance of stakeholders from the Research, Education and Industry communities (see Fig. 1).

To achieve its major objective of embedding knowledge exchange into its activities, CMI is working with novel approaches for enabling knowledge exchange among the research, education, industrial and government sectors. The KIC model, discussed in this paper, is the most mature

iteration of CMI's approach. These collaborative entities, comprising academic researchers and educators, industry participants and government policy makers, are brought together to identify and pursue joint solutions to common problems. These disparate groups, who would normally not have a common basis for interaction, collaborate under the platform of a KIC to develop a comprehensive and multifaceted solution addressing technological, economic and social issues. Other current CMI initiatives include specific education, commercialization, industry, regional and other projects. These activities are beyond the scope of this paper and are not addressed, except where they contribute to the KIC model.

Because the model we present here is conceptually intricate, our focus is on presenting a concrete example of how it works – a realistic perspective on CMI's experiment – rather than an all-encompassing study or a procedural manual for knowledge exchange. We have chosen to look hard at the formation and management processes rather than at numerous other issues surrounding university–industry interaction, such as intellectual property (IP) ownership and exploitation. This choice mirrors the focus of the interdisciplinary team at the time the model was created. CMI chose to let IP ownership and licensing be handled at the university level rather than setting up an alternate mechanism. We acknowledge the impacts of recent changes in UK law governing ownership of university-derived IP as an additional variable in our model, but for the present have left its study to others.

We illustrate the model with a modified case study that shows one example of its implementation: the Silent Aircraft Initiative (SAI). Our focus here is on the formation and start-up phase; when we gathered our data, the project had by no means reached a steady state. In subsequent studies we plan to present data on the full project lifecycle, and to that end CMI is gathering comprehensive survey data on

¹ CMI defines knowledge exchange as a two-way flow of information, primarily between academia and industry, in which the problems and market needs of the latter are the basis for defining the goals of research for the former. The fruits of this research are fed back in the form of solutions that can be implemented for the benefit of industry and the economy in general.

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