
Introduction

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In most developed and developing countries, it is the continuing responsibility of government to ensure the full use of results of a country's national investment in research and development. To this end such governments are called upon, where appropriate, to transfer federally or nationally owned or originated technology to the private sector. Technology transfer is thus a responsibility of each research entity and professional.

At all levels, stakeholders are tasked with ensuring that efforts to transfer technology are considered positively in research mission descriptions, management policies, and evaluation of performance. Additionally, researchers are often tasked to assess which original products, processes and services have potential application to commercial development. While the complexities, and corresponding benefits, of technology have increased over time, relatively little has been done in the development of focused methodologies that address emerging issues in knowledge and technology transfer, diffusion of innovation and technology commercialisation.

In this special issue, Mirjam Leloux and Aard Groen first introduce a novel approach for business valuation of technological inventions in their paper 'Estimating business value of academic research outcomes: towards a multi-dimensional approach', where they argue that the value of an invention not only depends on economic value but also on strategic, cultural or social value added to the applicant of the invention. They introduce an innovative methodology for estimating gross business value as a function over time of four dimensions of value, positioning the value of an academic technological invention within a three-dimensional model.

Authors Al-Mabrouk and Soar present a Delphi methodology useful for investigating key issues for successful technology transfer in developing countries from the perceptions of stakeholder groups in the Arabic countries, in a paper entitled 'Identification of key issues for successful technology transfer in the Arab countries: a Delphi study'.

In 'A recursive process for mapping and clustering technology literatures: case study in solid-state lighting' by Boyack, Tsao, Miksovic and Huey, the authors use a case study in solid-state lighting analysis to demonstrate the utility of refining fine-grained clusters

of industry-specific literature to identify the ‘hottest’ recent topics in both the scientific (articles) and technical (patents) literatures. Using bibliographic coupling methods, they provide a detailed analysis of trends by nation and continent, reported for the entire knowledge domain, as well as at the highest level of clustering.

In their paper ‘Using social networking methods for analysis of patent prior art: the peer-to-patent experiment’, Lorence, Jameson and colleagues examine a pilot project at the US Patent Office which uses social networking software as a means to facilitate discussion among groups of volunteer review experts. The ‘Peer-to-Patent’ project allows experts outside the patent office to upload prior art references, participate in discussion forums, rate other user submissions, and add research references to pending applications.

In their review article entitled ‘University licensing of intellectual property: revisiting the impact of Bayh-Dole’, Churchill, Lorence and colleagues look at the effectiveness of the Bayh-Dole Act of 1980, a US initiative designed to maximise returns on university-based, federally supported research and development by encouraging transfer of technology to commercial applications.

In a supporting commentary, Jameson, Lorence and colleagues explain how innovative business models and methods can be successfully used to provide needed biomedical technology transfer across disparate socioeconomic strata, where market failures have historically prevented medical supplies from reaching underdeveloped nations. Their innovative ‘fair profit/for profit’ model can serve as a licensing and valuation guide for those interested in providing health services to underserved groups.

The selections used here are provided as just a sampling of the available methods and models technology transfer managers, researchers and developers can use to address emerging issues in knowledge and technology transfer, diffusion of innovation and technology commercialisation in the complex global marketplace.