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# **ABSTRACT**

Transnational education is a growing trend in higher education that decouples learning from the location of the awarding institution. However, few studies of entrepreneurial universities have considered entrepreneurial universities in the context of the changing geographic landscape of education. This chapter examines the entrepreneurial dimensions of transnational education using empirical evidence from a transnational partnership between De Montfort University and Niels Brock Copenhagen Business College. The authors conclude that the commercialization of knowledge through transnational education requires processes and interactions that foster regional development and thus have implications for social and economic development.

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# INTRODUCTION

Since the early 1980s, theories of economic growth have recognized the importance of education, innovation, and human capital formation as critical factors responsible for the development of a country's economy and the sustenance of long-term economic growth (Pelinescu, 2015). As global economies have transitioned to knowledge economies there has been an increasing demand for knowledge production and dissemination, accelerated by the globalisation of markets and progress in information and communications technologies. Against this backdrop, the activities of universities have grown as their role in knowledge formation and dissemination has become central to economic and social development. An increasing demand for knowledge growth from industry and government has led to the proactive measures of the "entrepreneurial university" that seeks to take a more active role in influencing economic and social change (Clark, 1998). The entrepreneurial university now contributes to economic and social development through the spillovers created from its multiple missions of teaching, research, and entrepreneurial activities (Guerrero et al., 2015).

Research on entrepreneurial universities has sought to explain the motivation, behavior, and impact of these organizations from perspectives of both internal processes as well as external influences (D'este and Perkmann, 2011; Guerrero et al., 2015; O'shea et al., 2005; Clark, 2004). However, few studies of entrepreneurial universities have considered entrepreneurial universities in the context of the changing geographic landscape of education. Transnational education, a growing trend in higher education, decouples learning from the location of the awarding institution. According to Madge et al. (2015), the "transnational eduscape" is rapidly changing, evidenced by such developments as prioritisation of internationalisation in higher education institutions (HEIs), establishment of higher education (HE) partnerships, and the creation of branches and satellite campuses around the world.

The international branch campus is a form of transnational education that is owned, at least in part, by a foreign higher education institution; operated under the name of the foreign education institution; and provides on-site face-to face instruction leading to a degree awarded by the foreign education provider (Wilkings and Huisman, 2012; C-BERT, 2019). In 2016 there were approximately 250 international branch campuses serving 180,000 students around the world (Garrett et al., 2016). Some scholars view these arrangements as entrepreneurial activities offering financial, academic, and reputational advantages to universities (Shams and Huisman, 2012; Marginson, 2006; van Vught, 2008; Dunning and Lundan, 2008; McBurnie and Pollock, 2000). However, few studies have examined these activities to consider implications for regional development.

In what ways might transnational education, specifically in the creation of an international branch campus, demonstrate characteristics of entrepreneurship and regional development? In this chapter we examine this research question. A review of the literature is first presented in order to offer a framework for analysis. We then present evidence from a transnational partnership between De Montfort University and Niels Brock Copenhagen Business College using data collected through archival documents and direct observation in order to enhance our understanding of theoretical concepts and to examine those concepts within a natural setting (Zahra et al., 2014).

#### LITERATURE REVIEW

Knowledge based economies have driven industry, government, and universities to become increasingly interconnected as the boundaries that have traditionally divided them have been blurred and the traditional domain of each has become that of the other (Etzkowitz and Leydesdorff, 1995). Knowledge produced at universities is no longer for the sole purpose of education and research, but rather serves more pragmatic goals of making economic contributions to society. The benefits of commercialised knowledge spillovers in the form of spinouts, startups, patents, licenses, joint ventures, consultancy and contracts contribute to social and economic development (Meyer, 2003; Shane, 2004; Audretsch et al., 2012; Guerrero et al., 2015; Miller et al., 2018). These outputs are generally regarded to be the product of tacit knowledge production through university-industry research. As tacit knowledge is not easily transferred over long distances and cannot be purchased on the market, spillovers have been seen as localized effects that enhance regional competitiveness and entrepreneurial activity (Audretsch et al., 2012).

It has become increasingly common to assume that universities are automatic enablers of endogenous economic growth and a 'locus for knowledge intensive transitions' by virtue of their strong connections with industry and government in their different forms (e.g. Etzkowitz and Leyesdorff, 2000, p109). Yet, there is no *a priori* reason why knowledge transfer from university to local industry would be universal in form and frequency. A reasonable supposition is that whilst productive relations with stakeholders are a necessary precondition for knowledge transfer in its different forms, they are not a sufficient guarantee, given that different stakeholders have variable levels of knowledge and absorptive capacity, and also have markedly different attitudes toward collaboration. As a result, the possibilities for knowledge transfer leading to economic growth in a locality will be shaped by university and industry variations as well as the particular make-up of the ecosystem in which they are located (e.g. the interoperability and institutional thickness of an ecosystem, the credentials of different partners, the history of local leadership and collaboration, as well as the original knowledge form).

Asheim and Coenen (2005) distinguish between analytical knowledge bases and synthetic knowledge bases, which serve as indications of different mixes of tacit and codified knowledge, codification possibilities, qualifications and skills, required organisations and institutions involved, and specific competitive challenges from a globalising economy. The foundation of this distinction rests on competing understandings of knowledge and innovation. One view of knowledge emphasises its economic relevance and thus places value on codified knowledge that supports highly scientific "high-technology" industries (e.g. biotechnology and pharmaceuticals) and provides a competitive advantage in a knowledge economy. Here, an analytical knowledge base of deductive processes is necessary for the creation of new ideas and more radical innovations (Asheim and Coenen, 2005). Analytic knowledge as new scientific knowledge is predicated on formal R&D in universities and implies not only the dominance of codified knowledge due to patents and publications, but also formal R&D spaces (e.g. centres of excellence) and formal spinout arrangements with firms and external research organisations. In these scenarios, knowledge transfer will occur through specialist global pipelines, aided by the spatiality and the global reach of codified knowledge.

In contrast, a competing view of knowledge emphasises the value of learning over that of discovery and accepts the adaptation of existing knowledge as a significant component of knowledge production (Smith, 2000). Here, the knowledge economy is better described as a "learning economy" where innovation "may be brand new but are more often new combinations of existing elements" (Lundvall, 1994; Edquist, 1997, pg. 1). A synthetic knowledge base of inductive processes that rely on tacit knowledge,

application, and interactions with clients and suppliers is necessary for incremental innovation in existing products and processes, as well as those embedded in a locality (Asheim and Coenen, 2005). As such, the critical space for knowledge transfer moves from the formal centres of excellence on campus and global pipelines and communities of practice, to local social spaces, which enable interactive learning and the application of codified knowledge to real situations, and which is conveyed in the idea of knowledge transfer as proximity and propinquity (Boschma, 2005). Propitious spaces for synthetic knowledge transfer emerge from university-led networks, partnerships with local forms and sectors, and special initiatives through which knowledge transfer is enabled.

The notion of an "innovation system" usefully expresses the interaction and networks between public and private agents that allow for the rapid diffusion and exploitation of knowledge, skills and best practice, with activities of universities revolving around the common aspiration of learning. A university's advanced role in knowledge transfer in a local ecosystem, presented as a territorial innovation system in several discourses, is encapsulated in the different conceptual and empirical works on *inter alia* the Triple Helix (Etzkowitz, 1994; Leydesdorff and Etzkowitz, 1998), Economic Clusters (Porter, 1990; Fujita, 1988; Fujita and Thisse, 2013; Krugman, 1991), and Learning Regions (Morgan, 1997; Lundvall, 1994). Etzkowitz's (2003) Triple Helix model attempts to explain how entrepreneurial research universities function and how conditions for innovation in a knowledge-based society are improved. Key to the model are university-industry-government interactions where the university serves as a source of new knowledge and technology, government serves as a source of contractual relations that guarantee stable interactions, and industry serves as the locus of production.

Bringing these different aspects together it is apparent that the different commitments of universities along with their more recent commercial appetite for innovation as part of their so-called 'third mission' provides a framework for viewing the capabilities of the entrepreneurial university within a wider social-economic and political context or ecosystem (Molas-Gallart et al., 2002; Lebeau and Cochrane, 2015). As Scott (2013) explains, in a university context, the growing emphasis on applied research, consultancy, technology transfer and enterprise has accentuated the local such that knowledge and innovation is now seen as a crucial resource for achieving economic growth and collaboration and shared learning, the primary process by which this is realised at the local level.

#### **CASE ANALYSIS**

De Montfort University (DMU) is a public university located in Leicester, UK serving approximately 27,000 full and part-time students. Formerly named Leicester Polytechnic, the school historically offered apprentice training for local manufacturing, furniture, textile, engineering, and printing industries. The institution was granted university status in 1992 and changed its name to commemorate a local historical figure, Simon de Montfort, Earl of Leicester. Although the name and mission of the institution changed, the institutional memory of vocational training for local industry was maintained and has since manifest as a commitment to excellence in teaching and creating an impact on the outside world.

For example, the DMU Local initiative allows for local knowledge transfer to the 'Square Mile' area of Leicester, one of the most deprived areas of the city. Here DMU Local provides financial and academic space for students to provide teaching support in local schools, volunteering for local charities, as well as legal and business support to grow local businesses and boost local employment. There are a myriad of student volunteering and smaller-scale activities in the city of Leicester, as well as flagship

collaborative projects with stakeholders The more recent 'Local +' initiative is designed to encourage local knowledge transfer by providing staff-based resources (financial and secondments of researchers) to tackle new problems for the city (e.g. smart city, wellbeing, ageing population). The DMU Global initiative provides financial space for students to transfer their knowledge to overseas locations Programme activities include its international work with the United Nations on UN Sustainabilty Goals. Volunteer projects around the world include assisting asylum seekers, provide English language instruction, providing support to social enterprises, and building houses in deprived communities. Research ventures involving teams of faculty researchers, student-led start-ups, IP commercialisation, and collaborative arrangements with companies.

Innovative transnational education partnerships have also been a key activity of the university in expanding its impact. Partner schools around the world currently host international branch campuses in Singapore, India, Denmark, Hong Kong, and the Philippines. Students attending international branch campuses are enrolled at DMU and have access to facilities including online teaching and learning resources through virtual learning environments. Upon graduation they are awarded DMU degrees and certificates. This is in accordance with DMU's policy that these awards reflect achievement against established standards and are independent of location of mode of study.

The Master of Science in International Business and Management (MSc IBM), is a 1 ½ year full-time postgraduate study programme offered by Leicester Castle Business School at DMU in partnership with Niels Brock Copenhagen Business College (NB) located in Copenhagen, Denmark. The MSc IBM programme is a natural progression for undergraduate programme graduates as well as for other Danish and international students documenting equivalent qualifications and are particularly attractive to those wishing to pursue a career in general management or finance, human resource management, or corporate social responsibility in an international context.

The current partnership evolved from an existing relationship. From 1993 to 1997 students from 8 Danish business colleges participated in a Datamatician course held on the campus of DMU as well as on site with surrounding industrial partners in Leicester. Beginning in 1995, students studying Computer Science at NB who had also participated in the Datamatician course were accepted to the final year of the BSc (Hons) Computer Science and BSc (Hons) Software Engineering degree programmes at DMU. These activities yielded positive results over several years. In 1996, demand in the Danish market for business and computer science degree programmes led to discussions between NB and DMU's Business School and School of Computing Sciences to evaluate the suitability of a proposed franchise arrangement at the NB campus. This arrangement would benefit Niels Brock, a private institution, which under Danish regulations has the power to offer HE degree programmes but is prohibited from granting HE degrees. De Montfort University also recognised the recruitment potential from establishing a presence in Denmark. Other mutual benefits included the potential for staff exchanges, research, and joint consultancy work.

A top-up BA (Hons) in Business Administration was successfully introduced in 1999 as a franchise arrangement as defined in the DMU Code of Practice for Collaborative Provision. Under this arrangement Niels Brock, the partner institution, teaches modules developed and owned by DMU (in English). Other programmes, including the MSc IBM, were developed thereafter. The programme structure of the MSc IBM, specifically the sequencing of coursework, has been updated over time in order to foster student success. In addition, new degree offerings have been introduced at the NB campus over time. The partnership has expanded from the MSc IBM and a top-up Bachelor of Art (Hons) in Business Administration to include a Pre-Master Graduate Certificate in International Business and a new Bachelor of Science in Business Studies.

# University as a Source of New Knowledge and Technology

De Montfort University dedicates significant resources into building its analytical knowledge base through its strategy for achieving international research excellence through research centres, and with synthetic knowledge through a variety of knowledge-led activities. Its strategic goals prioritise peer acceptance of research novelty through inter alia awards, research income, and papers, as well as localised civic learning with stakeholders and through students. Aspects of its strategic goals currently include increasing research income, research workload of staff, and the percentage of internationally co-authored papers at the institution (DMU Strategic Plan, 2018). Twenty-eight research centres and institutes contribute to this strategic goal through the pursuit of research in such areas as wellbeing, infrastructure, creativity, economic growth, business, and civil society.

In addition, DMU is the source of new knowledge in the form of disembodied knowledge flows. Smith's (2000) distinction between "embodied" and "disembodied" flows of knowledge is useful in identifying the key components of the technology. Here we define technology as the processes, techniques, and methods used in the production of goods and services. According to this distinction, embodied flows of knowledge are incorporated into infrastructures while disembodied flows of knowledge involve the use of knowledge (Smith, 2000). The content of course modules represents disembodied knowledge designed by module leaders at DMU, each an expert designated by the faculty. Module Leaders at DMU are responsible for academic leadership, management, and assessment and work closely with Module Tutors at NB who are responsible for delivering modules in Copenhagen and supporting student learning. Embodied knowledge flows from DMU to NB also facilitate learning through educational technology such as web-based virtual learning environments that manage course module content and assessments.

# Government as a Source of Contractual Relations That Guarantee Stable Interactions

As a public institution, DMU receives funding from the government via the Office of Students (OfS). The OfS was established in 2018 as a regulating body to replace the Higher Education Funding Council for England (HEFCE) and the Office of Fair Access (OFFA). The OfS is sponsored by the Department for Education (DfE). The Quality Assurance Agency for Higher Education (QAA), responsible for the external evaluation of higher education institutions (HEIs) in the UK, is an independent body that collects and provides information to the OfS as to the quality conditions of HEIs in the UK. As autonomous institutions, HEIs in the UK are responsible for maintaining the quality of their programmes. The QAA produces and maintains the Quality Code for Higher Education that guides HEIs as to what they should be doing. Higher education institutions must meet the Quality Code standards in order to access funding, recruit international students, apply for degree awarding powers, or a university title. Evaluations are conducted every few years and provide guidance on such activities as admissions, assessment, curriculum, partnerships, student engagement, and concerns, complaints, and appeals.

The Danish Accreditation Institution, responsible for accrediting all higher education in Denmark, serves as the government body responsible for quality assurance in Denmark. However, as a private institution, NB has the authority to offer higher education programmes in Denmark but does ont have the authority to award degrees. Niels Brock's status as a private institution of higher education requires

that the Danish Evaluation Institute (EVA), evaluates the MSc IBM every 3 years. Evaluations assess the quality conditions of the programme along such criteria as purpose, vision, content, structure, teaching, assessment, access, expertise, facililities, fees, and internal quality assurance mechanisms. Evaluations are made publicly available and are used by the Danish Immigration Service to determine the eligibility of education institutions in making decisions concerning student visas.

# **Industry as the Locus of Production**

As an international branch campus, administrates the delivery of DMU's education programmes as a private enterprise, NB serves as an industry partner and is this the locus of production. De Montfort University's MSc IBM introduces a new educational offering to the host country that is otherwise not available and can be viewed as a product offering in Denmark's market for education. The MSc IBM is a British 3-semester university degree of 180 English credits, equivalent to 90 ECTS. A Master's degree awarded by a Danish HEI requires 120 credits. Therefore, the MSc IBM offers an alternative route for students seeking to earn academic credentials in a shorter amount of time. Other comparative differences offered by the MSc IBM include English language instruction, evaluation of assessments using the British marking scale, and the moderation of course marks by internal and external evaluators among others.

In the production of education programming, NB dedicates a larger proportion of its resources into developing a synthetic knowledge base, centered on its students. Historically the institution has defined its function as a provider of high-quality education, investing in its teaching resources with a focus on meeting the needs of its students. Instruction emphasises applied learning and is tailored to achieve that end. Innovation in this context comes in the creation of new teaching methods, community partnerships, and social spaces that are developed as a result of continuous interactions and feedback from students. Most students manage to find part time jobs and are thus able to apply their job experiences as empirical sites for testing business and management theories and models. This has been valuable for students undertaking their dissertation who choose to gather primary data. A recent faculty-student research project that evolved from a dissertation, for example, examined the influence of the recent General Data Protection Regulation law implemented by European Union (EU) on the organizational ecology of the software industry in Denmark.

#### DISCUSSION

Asheim and Coenen's (2005) work establishes notable differences between analytical and synthetic knowledge creation, which amounts to a higher and lower dependency on social contexts and different types of knowledge transfers spinouts from universities. While much of the national policy context privileges the analytic knowledge capabilities of prestige institutions, codified as intellectual property and patents, and embedded into global pipelines of excellence, it overlooks the more localised and applied knowledge transfer occurring in synthetic forms and through proximate social spaces, which is responsible for growing local economies. Examining these knowledge transfers alongside the location of entrepreneurialism yield different outputs, it is possible to detect 3 main types entrepreneurial activities in the transnational education partnership presented in this chapter:

- Global Commercialisation of Scientific Knowledge: The entrepreneurial university produces new knowledge in the manner described by Asheim and Coenen (2005), through analytic knowledge transfer where commercialisation occurs through such vehicles as IP commercialisation, transfer through global pipelines, and connecting communities of expertise.
- Local Commercialisation of Adapted Knowledge: The entrepreneurial university adapts existing knowledge in supporting commercialisation of ideas, bringing new ideas and services to local markets through such vehicles as student-led start-ups and collaboration with local institutions.
- Transnational Commercialisation of Applied Knowledge: The entrepreneurial university commercializes its educational programmes, bringing new education and training alternatives to the host country through the international branch campus partnership.

In characterizing regional innovation systems (broadly defined) Asheim and Coenen (2005) distinguish between territorially embedded regional innovation systems, regionally networked innovation systems, and regionalised national innovation systems. The key feature of territorially embedded innovation systems are firms and organisations that primarily utilise synthetic knowledge in localised activities and without much interaction with knowledge generating organisations. Firms and organisations that exist within regionally networked innovation systems are also active in localised activities, however they are strategic in their impacts on local infrastructure including cooperation with local organisations. Regionalised national innovation systems include firms and organisations who co-operate with actors from outside of the region in their innovation activities in attempts to create more radical innovations based on formal analytical knowledge. Based on this typology, it is clear that firms and organisations characterised by synthetic knowledge bases are more territorial in the innovation systems they belong to while those that are characterised by analytical knowledge bases belong to innovation systems that expand beyond regions. Regionally networked firms and organisations therefore have a mix of both analytical and synthetic knowledge bases.

#### CONCLUSION

In this chapter we examined the case of an international branch campus in order to better understand the entrepreneurial university. The case of the De Montfort University and Niels Brock partnership demonstrates the entrepreneurial dimensions of transnational education. In the partnership, DMU

*Table 1. Transnational education partnerships as a form of entrepreneurialism.* 

	Global Commercialisation of Scientific Knowledge-	Local Commercialisation of Adapted Knowledge	Transnational Commercialisation of Applied Knowledge
Knowledge Base	Analytic knowledge	Synthetic knowledge	Synthetic and analytic knowledge
Location of Entrepreneurialism	Regionalised national innovation systems	Territorially embedded regional innovation systems	Regionally networked innovation systems
Output	New discovery and radical innovation	New applications and incremental innovation	New product offering in the market for education and process innovation

serves as a source of new knowledge and technology, commercializing its capital stock of analytical and synthetic knowledge. Niels Bock administrates the delivery of DMU's educational programmes, serving as the industry partner and locus of production. British and Danish government bodies regulate contractual relations in the form of quality assurance, serving to stabilize interactions. The triple helix of university-government-industry interactions helps to produce the process innovation of the MSc IBM, located within a regionally networked innovation system. By examining the entrepreneurial dimensions of transnational education, this chapter has served to build a foundation for future studies to consider the motives, behaviors, impacts, and influences of entrepreneurial universities in a changing eduscape.

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