

<b>Institution: University of Manchester</b>
<b>Unit of Assessment: 19 (Business and Management Studies)</b>
<b>Title of case study: Knowledge Intensive Business Services (KIBS) as Innovators and Catalysts of Innovation in ‘Systems of Innovation’</b>
<p><b>1. Summary of the impact</b></p> <p>Knowledge Intensive Business Services are a sub-set of business service firms that are now recognised as being especially innovative and dynamic and, more importantly, act as intermediaries and catalysers of innovation within wider ‘systems of innovation. As such, they largely complement the knowledge development and diffusion roles of universities and the public science base. Professor Ian Miles at the University of Manchester was the first to research Knowledge Intensive Business Services (KIBS) and their systemic roles, which have been recognised and adopted into industrial and innovation policies by the UK Government, the European Commission, the OECD, Tekes in Finland, and others.</p>
<p><b>2. Underpinning research</b></p> <p>In 1993, Miles (Associate/Executive Director, 1990-date) of the University of Manchester wrote a paper for the journal <i>Futures</i> on “Services in the New Industrial Economy” [1], in which he first identified the significance for innovation of a particular set of service firms, which he termed ‘Knowledge Intensive Business Services’ (KIBS). Specifically, Miles recognised the importance of these firms for the production, distribution and use of new knowledge, including through the co-production of knowledge with clients. The article led to a European Commission contract to further develop the concept, which Miles undertook with Manchester and Dutch colleagues (reporting in 1995).</p> <p>Miles and colleagues’ study recognised for the first time that, within the framework of the rising knowledge intensity of advanced economies, not only were some service industries especially knowledge-intensive and highly innovative, but that they also act as innovation intermediaries for their clients. This work was particularly significant and timely because previously studies and thinking related to the then emerging and soon to be highly influential concept of ‘systems of innovation’ were very largely confined to manufacturing activities, the production of technologies and technological knowledge, as well as the interactions between manufacturers and universities or manufacturers and public research laboratories (i.e., ‘the public science base’).</p> <p>Fundamentally, Miles and colleagues pioneering work saw KIBS are seen as providing a ‘second knowledge infrastructure’ (a phrase later coined by Pim den Hertog, a Dutch researcher and Miles collaborator, in 2000) – that is, a mechanism for the production and diffusion of knowledge in economies which largely, but not completely, complements the role of the public science base as the ‘first knowledge infrastructure’.</p> <p>Further studies on KIBS and closely related topics that were undertaken by University of Manchester staff include (inter alia): Windrum (Research Associate 1996-1998) and Tomlinson’s (Lecturer 1996-2000) study of the extent to which KIBS inter-act with other sectors of the economy [5]; Howells’ (Senior Research Fellow, Professor, Director 1996-2011) study of intermediation and the role of intermediaries in innovation [3]; and Tether (Senior Research Fellow 1996-2007, Professor 2011-date) and Tajar’s (Research Associate, 2004-2011) study of firms’ knowledge sourcing from consultants [4]. Ideas about KIBS as innovation intermediaries have become influential amongst innovation policymakers, because they highlight that policymakers should not only be concerned with the health of the science base, and the efficacy of science-industry interactions, but also the health of the ‘KIBS-sector’ and efficacy of their interactions between KIBS firms and their clients.</p> <p>In summary, therefore, Miles and subsequent University of Manchester work identified two important contributions that KIBS make to economic development: first, their direct contribution to growth by providing generally high quality employment, export earnings and innovation, and second (and more profoundly), their indirect contribution through their interactions with client sectors, and particularly how they help client firms to innovate within ‘systems of innovation’. As discussed below, these contributions are increasingly recognised in, and incorporated into,</p>

innovation and industrial policies.

### 3. References to the research

1. Ian Miles (1993) "Services in the New Industrial Economy" *Futures*, Vol. 25 No 6 pp 653-672. 235 Google Scholar Cites DOI: 10.1016/0016-3287(93)90106-4
2. Ian Miles, Nikos Kastrinos, Kieron Flanagan, Rob Bilderbeek, Pim den Hertog, Willem Huntink and Mark Bouman (1995) 'Knowledge-Intensive Business Services: Users, Carriers and Sources of Innovation', A report to DG13 SPRINT-EIMS, PREST University of Manchester and TNO Policy Research, Netherlands; March 1995 – Copy available on request
3. Jeremy Howells (2006) Intermediation and the role of intermediaries in innovation, *Research Policy*, 35, pp. 715–728. 577 Google Scholar Cites DOI: 10.1016/j.respol.2006.03.005
4. Bruce Tether and Abdelouahid Tajar (2008) 'Beyond Industry-University Links: Sourcing knowledge for innovation from consultants, private research organizations and the public science base', *Research Policy*, 37.6-7, pp 1079-1095. 145 Google Scholar Cites DOI: 10.1016/j.respol.2008.04.003
5. Paul Windrum and Mark Tomlinson (1999) Knowledge-intensive services and international competitiveness: A four country comparison, *Technology Analysis and Strategic Management*, 11.3, pp 391-408. 193 Google Scholar Cites – Copy available on request

[1] is a highly cited article in an international peer reviewed journal. [3] has extremely high Google Scholar Citations and like [4] is published in a peer reviewed journal. [5] is published in a peer reviewed journal with 178 cites.

### 4. Details of the impact

#### Context

In the early 1990s, when Miles first identified KIBS, innovation was essentially considered to be the preserve of manufacturing firms focused on technological product and process innovation (so called "TPP Innovation"). Around this time, the concept for national (and later sectoral and regional) "systems of innovation" was developed, which became highly significant in innovation policy. Systems of innovation highlighted the importance of institutions, interactions and interdependencies for innovation and economic development. Miles and colleagues' work highlighted the role of KIBS as important agents within systems of innovation, both as innovators and as innovation catalysts. Gradually, innovation policy has shifted from a focus on technological innovation, underpinned by R&D, to a wider concept, embracing innovation in, and through, services, including KIBS.

#### Pathways to Impact

Pathways to impact have been both direct and indirect, and here include:

- Undertaking commissioned research on behalf of policy-makers or policy-making bodies. For example, the original 1995 KIBS report was sponsored by the European Commission. Another relevant study involving Miles as a co-author was the "Study on Industrial Policy and Services" which reported in 2008.
- Acting as an expert advisor. For example, whilst at Manchester Jeremy Howells acted as an expert advisor to the OECD for their "Sectoral Case Studies in Innovation: Knowledge Intensive Service Activities (KISA)" study. This reported in 2006.
- Inspiring others. Many of Miles' studies were undertaken in collaboration with Manchester colleagues (e.g., Howells, Tether and Tomlinson) as well as with researchers in Europe. This led to the diffusion, exchange and development of ideas, adding weight to concepts, and pathways to influence policy-makers within the European Commission, OECD and national governments.
- Other research was undertaken in cooperation with "knowledge intensive business services". For example, Howells' paper on innovation intermediaries derives from an ESRC funded project (L700377003) that was undertaken in collaboration with two intermediaries – the Applied

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Industrial Research Trading Organization (AIRTO) and CERAM.

- Key concepts and findings have been presented to and discussed with policymakers.

### Reach and Significance

Although slightly different terminology is sometimes used, the significance of KIBS as innovators, and as influential actors in 'systems of innovation' is increasingly acknowledged by governments, the international bodies, such as the OECD, and incorporated into policy.

### UK Impact

Recently (September 2012), the UK government has introduced an industrial strategy [I] framed around three key sectors, including 'knowledge intensive traded services'. In keeping with a 'systems of innovation' approach, the policy emphasises both interdependencies amongst businesses and other actors (such as universities) within sectors and emphasises the critical role of innovation in driving competitiveness. "Knowledge intensive traded services" are specifically highlighted as being both a source UK comparative advantage with considerable potential for further growth, and as being a *"large enabling sector ... underpinning growth across a large part of the economy"* (p.33). These ideas are fundamentally those outlined in the 1995 report by Miles and colleagues and subsequently developed by Manchester researchers. Further confirmation of the impact on UK policy is provided in a statement from the Head of the Services Policy Unit at BIS [B]: *"In July of this year the Government published "Growth is Our Business: A Strategy for Professional and Business Services", the culmination of 6 years of effort to place KIBS at the heart of industrial strategy. The point I would make is that this major shift in policy (and developments summarised above) was underpinned by, and can be traced back to, the work of Ian Miles, and specifically to Tether and Howells."*

### International Impact

Further afield, in the European Commission, a 2009 Commission Staff Working Document (SEC(2009) 1195 final/2) [F], on the "Challenges for EU support to innovation in services" states that: *"KIBS firms play an important role in national innovation systems, through original innovations, [and] knowledge diffusion. ... KIBS are a driver of ... services innovation and an essential element of regional and national innovation systems."* (p. 20). Also notable is that the Commission included KIBS in its "Sectoral Innovation Watch" studies (2008-2010) alongside the other eight strategically important sectors (e.g., automotive, biotechnology, electrical/optical equipment, and space and aeronautics), and sponsored further research through its 6<sup>th</sup> Framework Programme (See Schricke et al., 2012 [J]). The EU's "European Competitiveness Report 2011" [H] also provides an extensive discussion on KIBS and their significance. A statement from a Policy Officer within Directorate General for Research and Innovation at the EC confirms [E]: *"The European Commission has enjoyed a long-standing, fruitful and stimulating collaboration with Professor Ian Miles and his colleagues at the University of Manchester, who we regard as experts in the field of service innovation and, more specifically, as thought-leaders on the role of 'Knowledge Intensive Business Services' in systems of innovation and economic development"*

The OECD prefers a derivation of KIBS, "knowledge intensive service activities" (KISA). An initial study on KISA was undertaken by the OECD in 2006. More recently a 2012 report by the OECD Working Group on Innovation and Technology Policy has recognised that *"in addition to being highly innovative themselves, [KISA] facilitate the innovative capacity of their clients" (p. 16), have "a crucial role to play in the innovation ecosystem", and have a "crucial role as catalysts in economic development" (p. 16). A statement from an OECD secretariat member [C] further confirms the significance of the Manchester work in development of OECD strategies: "More recently, Ian Miles' influence could be seen in the measurement work done as part of the OECD Innovation Strategy published in 2010. Now, however, I am observing, as a member of the OECD Secretariat, the preparation of the 2015-2016 Programme of Work and Budget and there the work of Professor Miles is shaping discourse on the role of service industries, and innovation in these industries, as part of understanding global value chains and also the planned work on the impact of inclusive innovation."*

Other national governments have also recognised KIBS strategic and catalysing role (e.g., Norway,

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Sweden, Finland,). In Finland, for example, VTT, Finland's Technology Research Centre is tasked with developing high-end technology solutions and innovation services, and a Research Professor [A] there has stated: *"Tekes is Finland's funding agency for technology and innovation. From 2006 to this year, Tekes has carried out a big innovation programme called SERVE. It is through this programme that awareness of KIBS and their roles has increased substantially in Finland. New KIBS companies have been established and also procurement of KIBS services within the public sector has increased. Again, these ideas have their roots in the early work of Ian Miles on KIBS."*

Furthermore, recognising the growing significance of services as reported by Miles' research, the German Federal Ministry of Education and Research introduced the "Innovation with Services" programme in 2008, aimed at funding the systematic development of new services. This programme has since been renewed, and the Federal Ministry of Education and Research will provide around € 70 million to it over the next five years. The Head of Department, Work Design and Services at the German Project Management agency, working for the German Ministry of Education and Research confirms the importance of Miles' work in this area [D] : *"At the German Federal Ministry of Education and Research our understanding of innovation in services, and more specifically the role played by 'knowledge intensive (business) services' has been greatly aided by the research undertaken by Professor Ian Miles and his colleagues at the University of Manchester"*

More generally, a United Nations report [G] (2011) has highlighted the key roles of KIBS in economic development. The research of Miles is cited several times within the report and is noted as an *"important contribution"* (p. 3) to the field.

#### 5. Sources to corroborate the impact

All sources are cross-referenced in section 4.

- A. Statement from Research Professor at VTT – Technical Research Centre of Finland
- B. Statement from Head of the Services Policy Unit at the Department for Business Innovation and Skills
- C. Statement from Professorial Fellow at the United Nations University and member of OECD secretariat engaged in revision of OECD Frascati Manual.
- D. Statement from Head of department Work-design and Services at the Project Management Agency working for the German Federal Ministry of Education and Research
- E. Statement from a Policy Officer within the Directorate General for Research and Innovation at the EC
- F. European Commission (2009) "Challenges for EU support to innovation in services – Fostering new markets and jobs through innovation", PRO INNO Europe Pa per no. 12, Commission Staff Working Document, SEC (2009) 1195 of 09.09.2009  
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[<http://www.unece.org/fileadmin/DAM/ceci/publications/icp3.pdf>]
- H. European Commission (2011) *European Competitiveness Report 2011*, Commission staff working document SEC(2011) 1188, prepared by Unit B4 "Economic Analysis and Impact Assessment", Enterprise & Industry DG.  
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- I. BIS (2012) Industrial Strategy: UK Sector Analysis, BIS Economics Paper No. 18, Department for Business Innovation and Skills, HM Government  
[<http://www.bis.gov.uk/assets/biscore/economics-and-statistics/docs/i/12-1140-industrial-strategy-uk-sector-analysis>]
- J. Schricke, E., Zenker, A. and Stahlecker, T. (2012) "Knowledge-intensive (business) services in Europe", report published by the European Commission  
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