

Impact case study (REF3)

Institution: Birkbeck College, University of London
Unit of Assessment: 17 - Business and Management
Title of case study: Developing a co-creation model for innovation in the UK and EU
Period when the underpinning research was undertaken: 2006-present
Period when the claimed impact occurred: 2014 to date
Is this case study continued from a case study submitted in 2014? N
<p>1. Summary of the impact Working with major policy institutions such as the Big Innovation Centre, Innovate UK, the UK Intellectual Property Office, and the European Commission, Andersen, Rossi and De Silva have reshaped national and international approaches to the ways in which businesses and universities can best work together. Their research on knowledge co-creation has been a catalyst for major policy reform in the UK and EU, shaping the delivery framework for the EU's €80 billion Horizon 2020 programme, supporting changes to the Lambert Toolkit and reform to the UK impact landscape, and underpinning the development of the UK's Catapult Centres (and the distribution of over £1 billion in government funding).</p>
<p>2. Underpinning research The research underpinning this case study focuses on knowledge co-creation, defined as the development of close working relationships between individuals associated with organisations across the innovation ecosystem (universities, businesses, government and civil society, knowledge intermediaries) and the exploitation of these relationships to simultaneously generate commercial and societal value. Co-creation is a multivalent approach to innovation and is often used to exploit opportunities or address strategies that a single organisation cannot encompass within its organisational boundaries or through a more linear structure of knowledge transfer or exchange.</p> <p>The work discussed here was initiated by Andersen's role co-ordinating workstreams in two major EU Framework Programmes: DIME (Dynamics of Markets and Institutions in Europe, 2005-11) and U-KNOW (Understanding the Relationship between Knowledge and Competitiveness in the Enlarging European Union, 2006-09). Both programmes focused on the influence of rules, norms and standards on knowledge exchange, and the research they generated highlighted the significance of co-creation as a pathway for simultaneously generating social and business value. This led to key stakeholders identifying the need to further our knowledge in this area, facilitating the collaborative research listed in Section 3.</p> <p>As an important milestone of associated further research, Andersen was recruited in 2012 by the European Commission into a high-level expert group convened to inform the development of a new European innovation strategy. The work of this group, which sat until 2014, was communicated to policymakers via meetings and discussions throughout its lifespan but is summarised in its final report [6], which explicitly recommended an approach that 'moves from bilateral transactions and collaborations towards networked, multi-collaborative innovation ecosystems'; that is to say, a 'co-creation' approach known as 'Open Innovation 2.0' [p.5].</p> <p>In addition to this work for the European Commission, Andersen, De Silva and Rossi have worked with Innovate UK, the UK Intellectual Property Office, and the OECD (amongst others), carrying out research with and for these key policymaking organisations. Practising the strategies that they describe, the researchers closely worked with academic, policy and practitioner stakeholders throughout the research process, which had led to scaling up of the impacts of their research. Research output were initially represented in the forms of policy briefs and practice-based reports, before being developed, refined and theoretically contextualised for publication in academic journals. In the meantime, the team continued to engage with stakeholders through roundtables, meetings, and other collaborative means to influence policy and institutional strategies conducive to co-creation. This strategy, which facilitated maximum policy, practice and academic impact, is evinced in the exemplar publications listed in Section 3.</p> <p>De Silva, Andersen and Rossi's research particularly contributes to furthering our understanding of unique dimensions of co-creation, its success criteria and the role of policy and practice on successful co-creation. Research for the Intellectual Property Office on the ways that businesses and</p>

universities work together in the UK [1] fed into academic papers on the role of relational practices in facilitating co-creation [2] and the impact of different entrepreneurial styles on the value generated by co-creation [3]. Another focus has been the role of technology and innovation centres in co-creation. In 2009, Andersen was involved in an international evaluation of the Danish GTS institutes ([A Step Beyond: International Evaluation of the GTS Institute System in Denmark](#)); this work was followed by a report for Innovate UK (*Catapult to Success*, 2013; see discussion in section 5) which informed the implementation of the UK Catapult Centres and was itself supported by further research [4], in which Andersen and De Silva collected interview and survey data from directors of technology and innovation centres across Europe to understand how the UK centres could learn from their long-established European counterparts as to how best to co-create value. This work produced an academic paper on the ways that intermediary organisations generate value through collaborative work [5] as well as contributing to a comparative study of ‘Triple Helix’ organisations across four European countries (Meyer et al., ‘Towards New Triple Helix Organisations?’, 2018).

3. References to the research

1. Andersen, B., De Silva, M., and Levy, C (2013) *Collaborate to innovate: How business can work with universities to generate knowledge and drive innovation*. A collaborative report funded by the Big Innovation Centre and Intellectual Property Office. **Research data from this work was used in papers [2] (quantitative) and [3] (qualitative; also incorporates new research)**.
2. De Silva, M., Rossi, F. (2018). The effect of firms’ relational capabilities on knowledge acquisition and co-creation with universities. *Technological Forecasting and Social Change*, 133, 72-84. DOI: <https://doi.org/10.1016/j.techfore.2018.03.004>.
3. De Silva, M. and Wright, M (2019). Entrepreneurial Co-creation: Societal Impact through Open Innovation. *R&D Management Journal*, 49:3, 318-342 DOI: <https://onlinelibrary.wiley.com/doi/10.1111/radm.12362>.
4. De Silva, M and Andersen, B (2015) *Technology and innovation centres contributing to Europe 2020: How to generate value through EU funding*. This report was undertaken for the Big Innovation Centre and Innovate UK. **Data gathered for this report was used in paper [5]**.
5. De Silva, M., Howells J., Meyer, M. (2018). Innovation intermediaries and collaboration: Knowledge-based practices and internal value creation. *Research Policy*, 47 (1), 70-87 DOI: <https://doi.org/10.1016/j.respol.2017.09.011>.
6. Debackere, K., Andersen, B., et al. (2014) *Boosting Open Innovation and Knowledge Transfer in the European Union*. Brussels: European Commission.

4. Details of the impact

Andersen, De Silva and Rossi’s work has acted as a catalyst in effecting a science and innovation policy change towards co-creation, which has in turn affected the innovation ecosystem at every level in both the UK and the EU: how budgets are written, how grants are delivered, how universities and businesses work together, and how the impact of university and public research and development is assessed.

Since 2011, both EU and UK governments have sought to reform university-business interactions, working to create a joined-up approach that works from technology readiness level 1 (basic research) to 9 (system launch and operations). In the UK particularly there has been a concerted effort to address a perceived gap in the innovation pipeline from academia: universities were seen as strong up to tech readiness level 3 but struggled to bridge the gap to market. Addressing this deficiency has meant a significant overhaul of the United Kingdom’s research and innovation infrastructure, with a move away from a linear model of research (first) → development (second) → market (third), to a more unified model that sees all the stages happening simultaneously; or to put it another way, a move from a technology transfer to a co-creation model, supported and informed by Andersen, De Silva, and Rossi’s research.

An important factor in ensuring Birkbeck researchers’ access to policymakers has been Andersen’s position of CEO at the Big Innovation Centre, an innovation hub to which she was recruited in 2011 and which became a fully independent entity (with Andersen as CEO) in July 2014. The government’s Innovation and Research Strategy for Growth was launched at the Centre in 2011, and Andersen and her colleagues have maintained a close relationship with both Innovate UK (the UK government’s arms-length innovation agency) and with members of government. Vince Cable, then Secretary of State for Business, Innovation and Skills, stated in 2015 that the Big Innovation Centre had made ‘a really important contribution to our thinking’; Jo Johnson, then Minister for Universities

and Science, asserted the following year that 'The work [the Big Innovation Centre is] doing is really important to our ability to succeed in many of the things we're doing as a government'; and Innovate UK CEO Ruth McKernan paid tribute at the same 2016 event to 'the contribution that Birgitte and her colleagues [had] made in developing and celebrating the culture of innovation' in the UK [A].

This connection has given Birkbeck researchers a clear path of access to UK policy stakeholders. Andersen has maintained a part-time position at Birkbeck throughout her time at the Big Innovation Centre and a strong collaborative relationship between the two bodies has been established.

Notably, Big Innovation Centre funding underpinned De Silva's initial research leader position at Birkbeck (2013-15). Ongoing research collaborations (with contracts in place until July 2023) have been established between Andersen, Rossi, De Silva, and the government agencies who routinely commission research from the Centre, including both Innovate UK and UKRI (Research Councils UK, which became UK Research & Innovation in 2018). Since UKRI covers research from technology readiness levels 0-3 and Innovate UK from levels 3-9, Birkbeck researchers have been able to influence UK innovation policy at every level.

Boosting Co-creation Approach in the EU: Andersen was rapporteur to a high-level expert group appointed by the European Commission in 2012 to provide advice on policies then being developed around open innovation and knowledge transfer in light of the 'Innovation Union' element of the Europe 2020 strategy. This work shaped the implementation of Horizon 2020, the world's largest research and innovation programme.

As rapporteur, Andersen had significant input into the work of this group, summarised in its final report [6]. Advocating the adoption of a 'co-creation' approach, the report outlined four steps towards making this possible: 1) putting open innovation and knowledge transfer in the spotlight; 2) embracing innovative businesses and growing new networks and hubs; 3) making universities more entrepreneurial; and 4) introducing smarter funding for innovation. These recommendations have been reflected in the implementation of the Open Innovation 2.0 policy introduced by the European Commission in 2013. The white paper launching the policy, which has governed research and innovation strategy within Europe since its introduction, highlights 'integrated collaboration' and 'co-created shared value' as key principles [B].

Notably, recommendations made within the report informed the criteria under which Horizon 2020 funding was allocated. Horizon 2020, which was launched at the Big Innovation Centre in London in June 2013, ran between 2014 and 2020 and was the world's largest ever research and innovation programme, underwriting the 'Innovation Union' initiative with a total of €80 billion over this period. The expert report [6] was commissioned specifically to inform the implementation of this programme and fed directly into the eligibility criteria established by the EU for the allocation of this funding: most notably, to the centrality of impact as a criterion for success. Under the new recommendations, one-third of the evaluation score for funding proposals was based on impact criteria, with applicants required to show both how they would achieve specific impacts but also how they would maximise its impact more generally.

Andersen's work has therefore influenced the allocation of all funding distributed under Horizon 2020. It is difficult to overstate the scale of this scheme. A five-year review published in 2019 found that Horizon 2020-funded projects had produced 62,000 peer-reviewed publications, more than 1,600 patent applications, and over 1.5 million one-to-one collaborations. [C]

The report [6]'s influence on research funding under Open Innovation 2.0 continues. A recommendation that the European Commission address the 'liquidity gap' in the European innovation infrastructure by developing new public-private funding partnerships (p.12) was realised in 2020 with the launch of the European Innovation Council Fund (EIC Fund), which provides grants of between €0.5 million and €15 million to 'breakthrough innovation companies' Europe-wide. 'This is the first time the European Commission will make such direct equity investments in companies.' [D] Initial investments total €680 million, but the EIC also partners with the SMEs in which it invests to seek further co-investment from the private sector.

Leading policy change for University-industry co-creation in the UK: Report [1] was jointly funded by Innovate UK and the UK Intellectual Property Office in order to provide information on how UK universities could most successfully collaborate with business in order to generate innovation. It was launched in July 2013 at the Triple Helix Conference, which was jointly hosted by Birkbeck, UCL

Enterprise and the Big Innovation Centre, co-sponsored by the UK research councils, and attracted 350 attendees from 22 countries across 7 continents, including the then universities minister, David Willetts. At the conference, De Silva presented the report to stakeholders across all three sectors and in the immediate aftermath, the IPO ran a public consultation collecting feedback on the research, which ran for three months.

Since this date, the report's recommendations have been reflected most notably in revisions to the Lambert Toolkit, which is provided by the Intellectual Property Office in order to facilitate the contract formation of emerging university-industry co-creation mechanisms; in the introduction of mechanisms to facilitate university-SME co-creation; and in changes to the role of university Technology Transfer Offices to reflect the characteristics that the research demonstrates to be most effective.

One key recommendation made in the report was that the IPO should review and update the Lambert toolkit. This provides universities and businesses with a series of example contracts that can be used to facilitate co-creation arrangements, and Andersen and De Silva argued that the toolkit required updating 'to facilitate negotiations related to new knowledge co-creation practices', creating contracts which allowed for greater flexibility and taking account of 'in-kind' contributions made by industrial partners ([1], p.45). The IPO followed this recommendation and in 2016 released Lambert 2.0, which has resulted in 'an increase in visitors' to the toolkit site [E]. De Silva was on the expert panel which advised on the details of this update. The revised agreements are now routinely used by universities across the UK to set the terms of their engagement with industrial and commercial partners. A small-scale IPO survey conducted in 2019 found that 83% of respondents (who came from universities, research institutions, and businesses) were aware of the toolkit and of those, 71% had used it. The most widely used element was agreement 4a, which gives both the institution and the collaborating body the right to use IP generated during the research for their purposes. This agreement was introduced in the 2016 update. [E]

The impact of this work has extended beyond the UK. Lambert Toolkit agreements are also used as the basis for co-creation agreements in projects which involve collaboration between institutions in the UK and those in China and Korea. In March 2018, the Brazilian Patent and Trademark Office announced the introduction of its own Lambert Toolkit, ['translated and adapted' from the British example](#), as part of a cooperation agreement with the UK Intellectual Property Office. And in December 2019, De Silva was part of a UK trade mission to India, where policymakers are using the revised Lambert toolkit as the basis to develop a similar tool.

Report [1] was also cited in Sir Andrew Witty's 2013 review of universities and growth [F], with reference to the difficulties encountered by SMEs in collaborating with universities. One of the recommendations made in [1] was that more consideration should be given to the benefit that SMEs could derive from the use of e.g. specialist facilities, an aspect of university-business collaboration that had previously been largely overlooked. In December 2013, the government invested £15 million in piloting University Enterprise Zones, which amongst their other purposes provided office and laboratory space to small businesses, ["to stimulate development of incubator or "grow-on" space for small businesses in locations that encourage businesses to interact with universities and to innovate"](#). The University Enterprise Zones are still operational, having received an additional £10 million of funding in 2019 (half of which came from the government and half from Research England) to fund up to 10 new Zones alongside the 5 initial pilots.

Witty [F] further recommended increasing HEIF funding to £250m a year: 'Otherwise we risk failing to provide some of our innovative SMEs – a vital engine of jobs and growth – with the knowledge exchange and support they need.' The importance of HEIF funding was both discussed in report [1] and showcased in Big Innovation Centre meetings and events, including a roundtable hosted by Andersen at the Centre in 2012 and attended by stakeholders including the Director General of Science and Research for the Department of Business, Innovation and Skills [G]. Based on Witty's recommendation, HEIF funding has been gradually increased by the government since 2017 to reach £250m in 2020/21. This represents a direct financial impact on universities: [a 2014 report](#) found that a £1 increase in HEFCE income allowed universities to generate an additional £6.30 through knowledge exchange activities.

A further impact from report [1], via both the Witty review and activities at the Big Innovation Centre can be seen in the weight given to impact in the REF. HEFCE supported the Big Innovation Centre with £40,000 a year of funding in 2012-13 and their Director of Research, Innovation and Skills – who led the development of the first REF, including its impact elements - participated in numerous

debates and workshops at the Centre during this period. [1] discussed the ways in which universities could be encouraged to support academics in business engagement activity, identifying that this activity needed to be afforded institutional value in the same way as teaching and research; it further identified the inclusion of impact criteria in the 2014 REF as presenting a 'relatively low-cost opportunity' to provide this incentive and recommended 'increasing [its] remit'. In line with this suggestion, Witty recommended in his report that the weighting given to impact be increased to 25% in the next REF, a change that has been implemented for REF 2021.

Building the first key performance indicators for the Catapult Centres: Responding to the 2010 Hauser report, the UK government in 2011 announced its intention to create what would eventually become known as Catapult Centres, a range of high-tech centres intended to stimulate co-creation and to encourage innovation in key areas of technology. Andersen was approached by Innovate UK to undertake a major study that would establish key performance indicators for the British centres. Co-sponsored by the Institute of Engineering and Technology and published as *Catapult to Success* in 2013, Andersen's research project reviewed examples from similar initiatives across Europe to explore best practice and to define a set of targets against which the Centres' performance could be measured.

The recommendations made in this report were subsequently adopted by Innovate UK in establishing both the funding model and the evaluation framework for Catapult Centres nationwide [H, p.33]. The successful implementation of this framework played a key part in the government's subsequent decision to add an additional £1 billion to their original £200 million investment in the scheme, cementing its place at the heart of the country's industrial strategy. (This amount was further augmented by a £500 million investment from the private sector.) The impact of these centres has been significant. Figures on the Catapult website for the period 2013-2020 identify 14,750 industry collaborations, 5,108 academic collaborations, 8,332 SMEs supported, over £1.3 billion of research and demonstration facilities under management, and a total of 4,713 people employed at Catapult Centres across the country [I]. Further research, also directly commissioned by Innovate UK, on opportunities for Catapult Centres in Europe [4] shaped the network's ongoing investment in and support for European collaborations [H]; the success of which is evinced in the 1,218 international projects cited by the Catapult site above.

5. Sources to corroborate the impact (indicative maximum of 10 references)

- A. Big Innovation Centre: impact testimonials from policymakers
- B. Curley, M. and Salmelin, B. (2013) *Open Innovation 2.0: A New Paradigm*. OISPG White Paper.
- C. European Union DG Research and Innovation Unit (2019), *Horizon 2020: Key Achievements and Impacts*. Brussels: European Union.
- D. European Innovation Council Fund, news article published 6 January 2021
https://ec.europa.eu/commission/presscorner/detail/en/ip_20_2530
- E. Testimonial from Intellectual Property Office
- F. *Encouraging a British Invention Revolution: Sir Andrew Witty's Review of Universities and Growth* (2013) London: Crown Copyright.
- G. 'Higher Education Institutions and the Innovation Ecosystem', 30 April 2012, event schedule
- H. Hauser, H. (2014) *Review of the Catapult Network*. London: Department for Business, Innovation and Skills.
- I. Catapult Centres, 'Our Impact Journey, 2013-2020' <https://catapult.org.uk/our-work/our-impact/>