

Institution: Lancaster University		
Unit of Assessment: 17, Business and Management Studies		
Title of case study: Accelerating innovation in bioscience and UK Government: transforming the management of innovation catalysts through business model co-development, marketization and evaluation		
Period when the underpinning research was undertaken: 2010 - 2020		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Chris Ford	Lecturer	2015- present
Katy Mason	Professor	2006- present
Martin Spring	Professor	2004- present
Martin Friesl	Professor	2009- present
Roger Whitham	Lecturer	2013- present
Period when the claimed impact occurred: 2014 - 2020		
Is this case study continued from a case study submitted in 2014? N		
<p>1. Summary of the impact</p> <p>Lancaster University Management School (LUMS) research transformed how innovation catalysts guided individual entrepreneurs and organisations through their innovation journey. Extant research recognised catalysts as places of innovation. Ford and Mason's engaged research went further, showing how catalyst managers can enhance the catalyst offering, shape innovation processes and practices, and create evaluations that ensure long-term viability and investment. Catalysts transformed through this research achieved significant impacts: the Stevenage Bioscience Catalyst (SBC) drew in GBP1.6 billion of innovation investments across >40 bioscience companies and created the world's 3rd largest cell and gene therapy cluster. The Cabinet Office Open Innovation Team (OIT) generated GBP235 million of policy investments in technology and health, delivered policy-shaping insight across 62 projects and 12 government departments, and enabled by LUMS evaluations it has become a permanent part of UK Government, shaping both engagement and innovation.</p>		
<p>2. Underpinning research</p> <p>LUMS research advanced understanding of how innovation catalysts are managed and developed. The research has shown how catalyst management teams (typically 6-10 people) can, despite their small size, deliver exponential impact across a sector. Ford and Mason identified the catalysing practices that connect and develop novel ideas with markets to rapidly develop and commercialise innovations, growing the knowledge and business networks of innovators in a managed process of marketization. Catalysing practices manifest differently across domains: in bioscience, they connect scientific discoveries with funding, market expertise and business know-how, curating relationships critical for the advancement and marketization of science; in government, these practices connect policymakers with academic experts from multiple disciplines to shape thinking and drive evidence-led policymaking. This research addressed three essential areas of concern for catalyst managers across 3 interlinked research phases:</p> <ol style="list-style-type: none"> 1) how can catalyst managers co-develop their business model to offer value to their entrepreneurs, scientists, and policymaker clients? 2) how can catalyst managers develop effective marketization processes to bring together emerging ideas and markets to generate value? 3) how do managers evaluate, legitimise, and sustain their catalysing practices? <p>Phase 1: Co-developing business models</p> <p>Phase 1 identified the practices of managers seeking to catalyse the development of new market offerings by: <i>co-developing</i> their business model and market offerings with partners and service users; and <i>integrating resources</i> to generate value.</p> <p>In 2010, Mason's 18-month engaged ethnographic inquiry, using 54 video diaries [R1] and 102 archive documents [R2] (with Spring), revealed the fine-grained, collaborative management practices involved in developing and delivering innovative market offerings [R1] and co-developing the business model <i>with</i> key individuals from organisations [R2].</p>		

Business model co-development practices produce new understandings of what matters in a particular market. People and workplaces shape new market offerings, generate value by co-developing a shared strategic direction and ongoing evaluation of innovation actions [R1]. In 2012, Ford and Friesl's 10-month ethnography of an innovative collaboration shed new light on the interplay between the evolution of purpose and the integration of distributed resources. As resources are acquired to achieve initial goals, they reveal new possibilities for value creation. This reshapes purpose, generating more ambitious goals [R3]

Phase 2: Developing effective marketization processes

A marketization process is the central element of a catalyst's offering to its clients. Phase 2 identified the practices catalyst managers can adopt, to advance science towards markets. Insights from [R1] and [R2] were used to design an engaged-research project with SBC: to develop a new marketization process for bioscience innovations. Ford, Mason and Friesl conducted 47 in-depth interviews and 15 user-engagement observations with catalyst managers and bioscience entrepreneurs to understand what they needed from the catalyst. They ran 3 innovation workshops, sharing the findings and co-developing SBCs business model with others as the work progressed. The research insights helped SBC to develop a process that repeatedly exposed emergent bioscience innovations to the right, strategically selected experts (IP lawyers, other bioscience entrepreneurs, and specialist scientists from 'big pharma') at the right time [R4], changing the market and the innovation in relation to each other. They conceptualised these exposures as 'choreographed contestations' [R5]. They enabled entrepreneurs to work out their next innovative steps [R5], for example, revealing a GBP70 billion global market for a scientific discovery, originally thought to be GBP8 billion, enabling the entrepreneur to rethink and adapt their scientific and market orientation.

Phase 3: Evaluating, legitimising, and sustaining catalysing practices

Catalysts face a significant evaluation challenge because they generate value for dispersed groups of stakeholders. Phase 3 research revealed the approaches to evaluation and legitimisation developed by catalysts to secure long-term funding and sustainability. The work with SBC led to an invitation to work with the Cabinet Office OIT in 2016. Two years of engaged, ethnographic research (encompassing 52 in-depth interviews, 4 weeks shadowing, 18 user-engagement observations and 6 workshops for the OIT), revealed the boundary-spanning practices required to facilitate and co-ordinate multiple collaborations across academic and government departments and agencies. Ford, Mason and Whitham used participatory design theory to co-develop a multidisciplinary intervention with the OIT [R6]. The research revealed a co-design process for visual evaluation tools. The extended research engagement with Cabinet Office enabled an in-depth evaluation of the OIT [R7] for senior officials and investors.

3. References to the research

- [R1] **Mason, K.** (2012). Market Sensing and Situated Dialogic Action Research (with a Video Camera), *Management Learning*, 43(4), 405-25. <https://doi.org/10.1177/1350507612442047> (23 citations Google Scholar)
- [R2] **Mason, K. & Spring, M.** (2011). The Sites and Practices of Business Models, *Industrial Marketing Management*, 40(6), 1032-41. <https://doi.org/10.1016/j.indmarman.2011.06.032> (365 citations Google scholar)
- [R3] **Ford, C. J., & Friesl, M.** (2019). Abseiling from The Shard: The Cognitive Foundations of Capability Development in Temporary Organizations. *European Management Review* 16(3), 507-523. <https://doi.org/10.1111/emre.12295>
- [R4] **Mason, K., Friesl, M. & Ford, C.** (2017). Managing to Make Markets: Marketization and the Conceptualization Work of Strategic Nets in the Life Science Sector. *Industrial Marketing Management*. 67, 52-69. <https://doi.org/10.1016/j.indmarman.2017.07.001> (25 citations Google scholar)
- [R5] **Mason, K., Friesl, M. and Ford, C.** (2019). Markets under the Microscope: Making Scientific Discoveries Valuable through Choreographed Contestations. *Journal of Management Studies*, 56(5), 966-999. <https://doi.org/10.1111/joms.12426> (Best Paper Award; British Academy of Management) ESRC NEMODE Grant.

- [R6] **Whitham, R., Perez, D., Mason K. and Ford C.** (2019). Realising the Value of Open Innovation in Policymaking: Equipping Entrepreneurs for Valuation Work. *The Design Journal*, 22(13), 189-201. <https://doi.org/10.1080/14606925.2019.1595857>
- [R7] **Ford, C. J., & Mason, K.** (2018). *The Open Innovation Team: An Independent Evaluation of a Cabinet Office Initiative*. Lancaster University.

4. Details of the impact

LUMS research has played a critical role in the success of two catalyst organisations: the SBC and the OIT. Through extended engagements, Ford and Mason have brought LUMS research to bear on their business models, marketization processes, and the evaluations used to secure the sustainability of these catalysts. These organisations achieved significant, far-reaching impacts in their respective domains. What follows describes: 1) the impacts generated by these catalysts; 2) the impacts of LUMS research in shaping and sustaining each of these two catalysts.

1) The impacts of SBC and OIT

SBC: Created with a GBP50 million investment from government, private and third sector bioscience organisations in 2011, SBC set out to advance the marketization of science in the UK [S1]. In 2014 SBC deployed LUMS research [R1, R2, R3] to co-develop the concept of ‘science-centred’ business models for science incubation, predicated on new understandings of how to connect science with markets [S1, S2]. As SBC evolved and improved its ways of working, the articulation of its unique catalyst offer, and the value of its business model, it took on an increasingly significant role in developing the largest cluster of bioscience R&D in the UK [S3(a,b)]. This cluster represents 34% of registered UK biotech firms, which attracted GBP2.2 billion investment in 2018, a 65% increase between 2016 and 2018 [S3(c)]. This successful catalyst has:

- Drawn investment of GBP1.6 billion into bioscience through transformed funding practices [S3(a)];
- Accelerated innovation across its >40 bioscience start-up tenants, preparing them to enter multi-billion-dollar global markets [S3(a), R5];
- Generated an additional GBP55 million of UK government investment to create the Cell and Gene Therapy Catapult Manufacturing Unit on its campus [S3(d)];
- Created the 3rd largest global hub for cell and gene therapy innovation [S3(b)].

SBC’s success also influenced the BioIncubator Forum, which has been responsible for catalysing half of all life science start-ups in the UK between 2015 and 2020 [S3(e), S1]. *“As Chair of the UK BioIncubator Forum, I shared SBC’s learning about science-centred business models with our 24 members... Your research with SBC on the science-centred approach offers a powerful representation of how we should support emerging science”* then Business Development Director, SBC [S1].

OIT: The OIT was launched in 2016, initially as a 2-year pilot that was extended following the LUMS Evaluation [R7], [S4]; Its mandate was to improve collaborative, evidence-led policy innovation, funded by approximately GBP2.7 million of investment over 5 years: *“I am sometimes a little frustrated that we don’t make better use of academics.... We clearly have an immense pool of academic talent on our doorstep and, while there are many excellent examples of collaboration, it often feels like we could be doing more”*, then Cabinet Secretary, Head of the UK Civil Service [S5].

In 2016 the OIT deployed LUMS research [R1, R2, R3] to co-develop the concept of an evidence-centred business model, predicated on new understandings of how to connect academic research and expertise with policy-making initiatives. This work enabled the OIT to integrate expertise from across government and academia to develop their offer, and create a UK-wide academic-policy network, curated by them, that has:

- delivered 62 policy-projects across 12 government departments [S4] (typically UK govt. has 250 policies in play at any one time, across 23 ministerial departments, as described in this [Government blog](#)),
- devised the GovTech Catalyst (a GBP20 million policy investment) [S4, S6],
- informed the National Leadership Centre’s UK-wide offer for senior officials [S4, S7],

- shaped the 2017 Green Paper '*Children and Young People's Mental Health Provision*', which led to GBP215 million additional investment in adolescent mental health, supporting Mental Health Schools Training, and creation of a GBP15 million - GBP20 million per annum fund to create and train a 'Designated Senior Lead for Mental Health' in all schools in England [S4, S6, S8],
- created a Covid (C-19) 800+ expert database for 12+ government departments [S4, S6],
- produced C-19 reports to Cabinet Office and the Foreign Office [S4, S6],
- organised C-19 Academic Seminars with audiences of between 80 to 120 policy makers. [S4, S6].

The OIT's work has been recognised for changing both engagement culture and innovation culture across government and academia; winning the 'Cabinet Office Innovator Award' in 2017, and the President's Medal from the British Academy of Management in 2019, "*By drawing on your research and your support we have created a powerful exemplar within Whitehall, not only in terms of motivating others to deepen collaboration with academics, but also shaping their understandings of what is possible through business model innovation*", Head of OIT [S4].

2) The role of LUMS research in shaping SBC and OIT

SBC: LUMS research enabled SBC to develop its new catalyst offering for entrepreneurs, advancing the speed, success and value of bioscience innovation in the UK. LUMS research showed SBC how to co-develop their business model and integrate distributed resources [R1, R2, R3]. Rather than developing their business model in isolation, SBC learned to work with bioscience investors, scientific-entrepreneurs and big pharma to co-develop a place, process and >4,000 strong community for catalysing innovation [R5], [S1, S2]. SBC co-created novel ways to integrate capabilities [R3] from their growing network to make scarce resources and expertise accessible, supporting the marketization of science at critical moments in the innovation journey. Through research to understand the form and function of the complex strategic nets within which SBC is embedded [R4, R5], Ford and Mason enabled the emergence of collaborative practices that built a deeper understanding of individual and system-level needs and goals, creating strong support for this catalysing process. "*Your intensive work with our team at this stage was critical in shaping much of our thinking on business model evolution, and specifically how we use our resources effectively*", then Business Development Director, SBC [S1].

LUMS research [R2, R4, R5] became a central plank of the legitimacy work of SBC [S1, S2]. Ford's conceptualisation and articulation of SBC's value proposition, [presented at the SBC/GSK 2016 Open Innovation Summit](#), framed the evaluative practices required to support and legitimise SBC's business model [S2]. Critically, these new evaluations protected emergent catalysing practices from being subject to dysfunctional, destructive, traditional metrics, "*Incubators have been evaluated badly for years, using the wrong metrics, which can kill innovation. Your research created the clearest articulation of our business model, revealing how we create value, and enabled us to push back against those metrics, and ensure that we were evaluated in the right way, protecting our business model and our new ways of working*", founding CEO, SBC [S2].

The LUMS catalyst research continued to shape managerial thought and action at SBC. In 2019 Mason was commissioned by the Chief Operating Officer of SBC to draw together research insights and deliver a detailed review of '*Incubation, Acceleration and Commercialisation at Stevenage Bioscience Catalyst*' for the SBC board.

OIT: LUMS research enabled the Cabinet Office OIT to co-develop its catalyst business model and offering for academics and policymakers, advancing the speed, success and value of evidence-based policymaking across Whitehall [R1, R2, R3]. This research enabled the OIT to identify and manage the early-stage challenges of incorporating multiple agendas and ways of working into their new organisation structures and practice, transforming their offer. Later, the OIT continued to draw on this work to help address the need for sustainability through funding diversification and scale up, through the incorporation of new partners, "*Your guidance over the course of the pilot was extremely valuable and heavily*

influenced my thinking on how to grow the team and its impact...Your work on business model co-development and the co-ordination of multiple agendas and resources to support the scale up of an organisation has been of great value”, Head of OIT [S4].

The theory of ‘choreographed contestations’ developed through Ford and Mason’s prior research [R5] helped the OIT to shape and articulate their processes and to valorise novel management practices. Rather than focusing on single engagement events, the OIT learnt how to co-ordinate extended, evolving relationships across government departments, higher education institutions and research agencies to co-develop an increasingly in-demand catalysing process offer [R4, R5] [S4]. *“You helped me make the transition from an early-stage start-up with few staff, a small number of projects, a limited understanding of our offer and an underdeveloped approach to managing our model, into an established Whitehall team with lots of interesting projects, 10 permanent staff, a clear offer to customers and a well thought out strategy for phase two that will see us grow to 20 staff in 2021/22”, Head of OIT [S4].*

Ford and Mason’s 2016 appointment as Cabinet Office Policy Fellows, specifically to support the OIT’s development, enabled them to apply their research (with Whitham). Together, in 2018 they developed critical management tools [R6, R7] [S9] with OIT, combining multiple forms of expertise from a complex network of academics, PhD students, research councils, and policy-writing officials. They enabled a continuous process of reflection and adaptation that responded to the emerging market for ideas within Whitehall. This developed the OIT’s ability to conceptualise and deliver timely, impactful policy innovations across government. *“Your ongoing evaluation work enabled us to continually review and refine our practice. The robustness of this evaluation was instrumental in enabling us to create and communicate a valuable offer, and secure reinvestment”, Head of OIT [S4].*

A research-based review and evaluation of the OIT [R7] provided a critical reflection on the work of this team, identifying 21 recommendations for action. Drawing on the full body of LUMS research noted above, the review was delivered to Cabinet Office by Ford and Mason. This report played a critical role in ensuring the future of the OIT [S4], validating the development pathway for this increasingly important part of UK Government, *“I remain very supportive of this effort and it’s great it’s done so well. For the next phase, we need to implement the recommendations of the independent review”, Chief Executive of the UK Civil Service [S10].*

5. Sources to corroborate the impact

- [S1] Letter from Business Development Director, SBC (now a Director at Biocity), 2020.
- [S2] Letter from Founding CEO, SBC (now Chairman of Discovery Park), 2020.
- [S3] SBC-related information: a) SBC, 2020 b) Cell and Gene Therapy Catapult 1, 2020, c) [Biotech review by Instinctif](#), 2020, d) Cell and Gene Therapy Catapult 2, 2015, e) UK BioIncubator Forum LinkedIn group page, 2020.
- [S4] Letter from Head of the Cabinet Office Open Innovation Team, 2020.
- [S5] Civil Service Official Blogs: [Cabinet Secretary and Head of the UK Civil Service explains the importance of the OIT’s work](#), 2018.
- [S6] Open Innovation Team impact reports: a) Pilot Phase Review (published summer 2018, pp, 15-17), b) Update from OIT to Partner Institutions (published Sept 2020, p. 11)
- [S7] National Leadership Centre web page describing [2020 work programme with the OIT](#).
- [S8] Green paper evidence: a) [Government Response to the Consultation on Transforming Children and Young People’s Mental Health Provision: a Green Paper and Next Steps](#), 2018, b) [Answer to written question to the Secretary of State for Health](#), 2017.
- [S9] [Cabinet Office Open valuation toolkit](#), 2018.
- [S10] Email from: Private Secretary to the Chief Executive of the Civil Service & Cabinet Office Permanent Secretary, April 2019.