Chairmen’s Introduction

EPSRC’s two investments at Imperial College London, to the Built Environment Research Centre in 2003 and its successor the Innovation Studies Centre in 2008 have led to financial success for major enterprises and game-changing impacts on national and international policy, enhancing the UK’s reputation as a centre for innovation excellence and entrepreneurial leadership.

Led by David Gann, what these researchers did with their EPSRC funding of £8.9m was to raise a further £39m over 10 years. They delivered their mission on the built environment taking in Heathrow’s Terminal 5, the Olympic Stadium and London’s Crossrail link on the way. They grew an initial group of seven people to 70 people taking on projects which looked at open innovation, entrepreneurship, design-engineering and digital systems. Not content with the UK, group members influenced practice and policy in Australia, Ireland and India, and eventually into the European Commission’s future planning for innovation and their use of the Global Entrepreneurship and Development Index.

As we come to the end of this outstanding example of success for the EPSRC’s Programme of Innovative Manufacturing Research Centres (IMRCs), the future of the group within Imperial is secured, with a new generation of champions to ensure that the name and function will live on beyond the period of the initial grants.

Throughout the project there has been one single Advisory Board, which over 10 years has seen the contribution of 24 external members. Half the members brought business experience ranging from the founders of new businesses to directors of FTSE 100 companies; the other half brought academic and publishing experience from 10 internationally renowned research and teaching institutions on three continents. The unwavering focus of all the advisors has been on research excellence disseminated through publications, the teaching of undergraduate and graduate students, the continuing education of executives, and influencing public policy and resource allocation for public good.

We wish to strongly endorse the initiative taken by the EPSRC to provide a commitment over a 10 year period through their IMRC programme. At Imperial this established a stable platform to which the researchers themselves could commit and develop their research skills together, enhancing the excellence of their work. It facilitated the establishment of strong mutually beneficial relationships with outside parties in the private and public sectors, allowing the researchers to experience the excitement and motivation of being a part of an internationally successful team.

Richard Baldwin (Chairman 2003-2008) and Shahpur Patell (Chairman 2008-2013)
Director’s Introduction

When we began this project, back in 2003, none of the seven original team members could have imagined how significant this Centre would become – not just for Imperial College London, but for the raft of multinational firms, entrepreneurial small enterprises, government departments and public agencies we have influenced in the past 10 years.

Being able to embed our knowledge at the heart of practical innovation processes, whilst attracting serious attention as an academic unit, is to the credit of the excellent team of researchers, support staff and Advisory Board members that have been part of this amazing story.

When our grant was renewed in 2008 as the Innovation Studies Centre (ISC) we had already established important and continuing links with our industry partners – Laing O’Rourke, IBM, Arup, Atkins, QinetiQ, BP and many others – whom I would like to thank for their ongoing support, which has led to longstanding, mutually beneficial relationships.

Research seeded by the ISC also created opportunities for small business development and brought new innovations to market whilst supplying innovation and entrepreneurial evidence that contributed to the development of government policy in the UK and internationally.

Alongside these external impacts, our mission was to create a vibrant and respected academic research centre. ISC research has been regularly published in leading journals, received thousands of citations and was leveraged to win additional grants and major inter-disciplinary centres, now worth more than four times the original value of the ISC.

It has been an amazing 10 years and I am immensely proud of our achievements across so many sectors, countries and disciplines. It has been a team effort and a real pleasure to work with, and learn from, so many talented colleagues. We began with seven people in a small room at Imperial with one grant; we turned that into a thriving department, the cornerstone of research at Imperial College Business School, with 70 members of staff and a plethora of projects. The ISC is the foundation of all of this, and the establishment of the Department of Innovation and Entrepreneurship is its legacy, which, as we hoped, is respected for its internationally excellent research and evidence-based engagement with policy and practice.

David Gann
Director of the Innovation Studies Centre and Vice President Development and Innovation, Imperial College London.
About the Innovation Studies Centre

In 2003 Imperial College London was awarded £3.3m from the Engineering and Physical Sciences Research Council (EPSRC) to establish The Built Environment Innovation Centre (BEIC). Led by Professor David Gann with seven members of staff it focused primarily on innovation in the construction industry.

By 2008 it employed around 70 people and the research focus had broadened to include many sectors, so when the EPSRC awarded a further £5.5m BEIC became the Innovation Studies Centre (ISC).

The ISC focused on user-led product and service delivery and the development of tools to manage technological innovation, practically applying research to a broad range of science and engineering-based industries. With access to unique firm data, in 10 years its evidence-based research had a notable impact on its industry partners and government thinking, providing timely and tailored solutions to real-world problems.

A comprehensive analysis of the Innovation Studies Centre, its impacts and achievements is available to download from imperial.ac.uk/innovationstudies
Research Themes

With technological innovation at its heart, the ISC was organised into four core themes that examined the innovation process from knowledge creation to commercialisation.

- **Open & Distributed Innovation** looked at knowledge creation, exchange and combination in the development of new products and services, exploring practices for sourcing and sharing knowledge across organisational boundaries, and capturing value to improve innovative performance.

- **Business Model Innovation** considered how organisations differently configure organisational, product and services management. It examined how universities generate value for different stakeholders, how pharmaceutical companies manage open innovation models and how low carbon industries deploy energy technologies.

- **Systems, Services & Design** examined complex systems in infrastructure industries, particularly the delivery of ‘mega-projects’. It generated theoretical concepts and frameworks as well as practical tools to develop capabilities in design, systems integration and operational services that contribute to firm growth.

- **Diffusion of Innovation** explored the nature of innovation and commercialisation strategies in platform and ecosystem contexts, investigating strategies for corporate venturing, platform commercialisation, ecosystem creation, as well as their business models and systems of entrepreneurship.

Using these four themes, the ISC’s multi-disciplinary team examined how innovation happens, the management of technological and organisational change, and its social and economic consequences. Working closely with industry partners, policymakers and public institutions, the ISC created an innovation community co-producing knowledge that challenged established practices and developed tools and methodologies with practical benefits for UK business.
Research Impacts

A core mission of the ISC was to produce high-quality research, with peer reviewed academic projects and outputs published in leading journals and disseminated at conferences worldwide.


- **1,000** Over 1,000 citations for papers by Autio, George and Salter.

- **40,000** Received over 40,000 Google Scholar citations, 10,000 in 2012 alone.

- **400,000** Over 400,000 web-hits since 2009.

- **1** Won numerous prizes for papers, dissertations and work as reviewers, contributing to the academic community.

- **2** Gerry George appointed as editor of the prestigious Academy of Management Journal.

- **3** Hosted world-class conferences including the DRUID Society Conference, Global Entrepreneurship Monitor and a conference on Open Innovation united the leading researchers in the field to develop a Research Policy Special Issue.

- **Presented our work at hundreds of conferences** including the prestigious Academy of Management and DRUID Society, as well as giving keynote speeches at academic and industry events around the world.
### Partners – Industrial, Public Sector and International

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Company Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arup</td>
<td>Atkins</td>
</tr>
<tr>
<td>Laing O’Rourke</td>
<td>IBM</td>
</tr>
<tr>
<td>BP</td>
<td>Finmeccanica</td>
</tr>
<tr>
<td>QinetiQ</td>
<td>Pfizer</td>
</tr>
<tr>
<td>GlaxoSmithKlein</td>
<td>Crossrail</td>
</tr>
<tr>
<td>Olympic Delivery Authority</td>
<td>BAA</td>
</tr>
<tr>
<td>The UK Highways Agencies</td>
<td>BT</td>
</tr>
<tr>
<td>Nokia</td>
<td>Southern Housing Group</td>
</tr>
<tr>
<td>Toyota</td>
<td>EDF Energy</td>
</tr>
<tr>
<td>UK Power Networks</td>
<td>Ofgem</td>
</tr>
<tr>
<td>Kusuma Trust</td>
<td>Confederation of Indian Industry</td>
</tr>
<tr>
<td>i2India</td>
<td>Equistone Partners</td>
</tr>
<tr>
<td>Ernst &amp; Young</td>
<td>Intel</td>
</tr>
<tr>
<td>Vodafone</td>
<td>Microsoft</td>
</tr>
<tr>
<td>Trampoline Systems</td>
<td>Rijkswaterstaat</td>
</tr>
<tr>
<td>Grant Thornton</td>
<td>London Development Agency</td>
</tr>
</tbody>
</table>
Research Centres

The ISC grant was a platform to pursue other emerging research interests, and the team won further funding for a number of projects including several major interdisciplinary centres. Together they formed the Department of Innovation & Entrepreneurship at Imperial College Business School, with a team of internationally recognised academics.

In 10 years the ISC expanded from a single grant of £8 million, to an established and recognised department, winning over £39 million in additional funding, reaching across and beyond Imperial College London. These included:

**DESIGN LONDON, 2007-2012, £5.8 MILLION, HEFCE**

Design London, in collaboration with the Royal College of Art, supported design-led innovation by offering teaching, incubation and simulation opportunities for business. Working with the London Development Agency and Grant Thornton, it helped to launch several new products into the market, taught hundreds of postgraduate students and engaged with thousands of members of the public through its events programme.

**DIGITAL CITY EXCHANGE (DCE), 2011-2016, £5.9 MILLION, EPSRC**

DCE is a five-year cross-faculty research programme exploring ways to digitally link utilities and services within a city, enabling new technical and business opportunities. Working across Imperial College London and with IBM, Arup, TfL, National Grid and Sainsbury’s, DCE research will influence the planning and use of cities.

**HEALTH AND CARE INFRASTRUCTURE RESEARCH AND INNOVATION CENTRE (HaCIRIC), 2006-2013, £11.1 MILLION (FOR ALL PARTNERS IN TWO PHASES), EPSRC**

HaCIRIC was a collaboration with the universities of Loughborough, Reading and Salford focused on ways to shift care between different settings, often closer to home, whilst using innovative technological, infrastructure and organisational models. HaCIRIC was the largest programme of its kind in the world.
INNOVATION & PRODUCTIVITY GRAND CHALLENGE (IPGC) 2005-2009, £3.5 MILLION (FOR ALL PARTNERS), EPSRC

IPGC explored the contextual implications of networked, global and increasingly open innovation – where knowledge flows become as important as knowledge creation. IPGC was a consortium with the universities of Cambridge, Cranfield, Liverpool and Loughborough.

UK INNOVATION RESEARCH CENTRE (UK-IRC), 2009-2013, £2.3 MILLION (FOR ALL PARTNERS), ESRC, BIS, TSB, NESTA

UK-IRC in partnership with the University of Cambridge, sought to advance knowledge on innovation practices in relation to the policy and practitioner communities. Working closely with BIS and other policy units, the UK-IRC helped to broaden the evidence base for innovation decision-making.

Other Funders and Public Agencies

EPSRC
British Academy
ESRC
EU Commission
BIS
HEFCE
NESTA
Design Council
TSB

Leverage

Millions

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>£2.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>£14.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>£2.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>£21.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>£25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>£34.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>£39.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

imperial.ac.uk/innovationstudies
Capacity Building Impact

The ISC attracted leading scholars and helped to build an interactive team of doctoral, early career researchers and professorial appointments, many of whom have subsequently attained important academic, industry and policy positions.

The ISC provided a varied and interactive developmental programme for its staff and their research projects, including:

- The External Seminar Series, organised by a member of the postdoctoral community, welcoming around 20 European and North American speakers per year to present a paper and hold one-to-one peer support meetings.
- The Paper Development Workshop for early career researchers acting as a monthly peer review group for working papers.
- The PhD and Postdoc Reading Seminar, allowing group members to present an innovation theory and discuss how it can be applied to a specific research problem.

Peer Assist

The Peer Assist process was a mechanism to provide support and guidance to researchers developing new projects.

The workshop involved the academic team and at least two external experts including a practitioner, who considered proposals’ academic excellence, potential impact, relevance to the ISC mission and value for money.

The process accommodated the full range of project types, from short scoping studies to larger multi-year ventures that newly combine a broad range of skills and methods. Successful project proposals returned to the Peer Assist process at key milestones and on conclusion, ensuring the ongoing quality of ISC activities.

Feedback

- Initial Proposal Development
- Discussion and Comments from Colleagues
- Proposal Document
- Peer Assist Event
- Proposal Revision
- Project Launch
- Mid-term Project Review
- Final Report and Out Turn Peer Assist Review
Education Impact

ISC staff not only contributed to teaching at Imperial College Business School, but research findings directly influenced the content and development of courses, helping to shape the innovation and entrepreneurship component of programmes for students and industry partners.

Executive Education
ISC research developed practical solutions and tools relevant to industry needs. To implement them our team developed tailored training for employees ranging from senior executives to R&D and technology managers, project managers and senior clinicians. The partnership between the Business School and leading firms is mutually beneficial, supporting and extending the research agenda whilst offering a crucial opportunity to disseminate findings at the heart of some of the world’s most influential organisations, including:

- Laing O’Rourke
- The Royal Society
- Finmeccanica
- Arup
- IBM
- Total
- Telefonica
- Natural History Museum
- Mace
- McLaren
- Unilever
- Vodafone

Doctoral
The ISC offered a number of doctoral studentships for academic research, and PhD students were carefully selected, admitting the strongest candidates to engage with ISC research and develop valuable insights for the Centre.

Postgraduate
The ISC team used research evidence to realign postgraduate teaching programmes within Imperial College Business School, focusing on the core themes of innovation, entrepreneurship and design. In 2011 this resulted in the launch of a new programme emanating directly from ISC research – the MSc Innovation, Entrepreneurship & Management.

Undergraduate
ISC staff also taught students across Imperial’s Faculties through the Business for Professional Engineers and Scientists (BPES) programme offering business and management skill, as well as the Joint Honours and Intercalated BSc (Medicine with Management).

Over 1,800 Master’s students
Over 2,200 MBA students
Over 200 PhDs
Over 1,000 Undergraduates
CASE STUDIES

ISC research has been used widely by international firms, small businesses and policy-makers around the world. These case studies demonstrate the variety and reach of the ISC during its 10 year lifespan.
Case Study One

Managing Megaprojects:  
From Heathrow Terminal 5 to the Olympic Park and Crossrail

Problem

In 2003 the construction industry was unable to successfully capture and transfer knowledge between disparate projects and utilise it to improve firm performance.

ISC Research

Working with Laing O’Rourke and BAA on the construction of Heathrow Terminal 5, ISC researchers conducted interviews, carried out leader workshops and analysed company performance to see how knowledge was shared across projects. The research showed that firm behaviour had to change, and developed the Systems-Integration Model identifying six key processes to improve organisational performance, including the use of digital technologies to support design, and improved pre-production processes. This became a template which Laing O’Rourke used across its business, creating cleaner transitions from project to wider operational processes.

After successfully applying the model to Ascot Racecourse and the St Pancras Eurostar Terminal, it was then used in the construction of the London 2012 Olympic Park. Working with the Olympic Delivery Authority (ODA) and CLM (a consortium of Laing O’Rourke, CM2H Hill and Mace), ISC researchers conducted interviews and examined innovation processes across all phases of the construction from planning and design, to construction, testing and handover. An ISC research report, identifying the project’s successes, was included in the ODA’s Learning Legacy Programme.

Recognising this work, ISC researchers were then approached by Crossrail to conduct research on the management of innovation in megaprojects. Innovation has long been identified by industry and government reports as being a crucial mechanism for improving the UK’s performance at designing, constructing and operating infrastructure. However, managing innovation within the temporary and multi-stakeholder megaprojects that deliver this infrastructure requires significant departures from existing practice. The lack of research on this topic has traditionally made it difficult to know how best to adapt innovation management for this setting. Our research into this process played a central role in the development of Crossrail’s innovation strategy, which has now been rolled out across the programme.

“This long-term relationship has been fundamental and integral to the successful progress of Laing O’Rourke’s strategic agenda which is transforming the Group into an Engineering Enterprise.”

Paddy O’Rourke
Non-Executive Director, Laing O’Rourke

“[Imperial is] a unique university that is able to give me what I want to help me to deliver my megaprojects, and to help make the industry a better place.”

Andrew Wolstenholme
Chief Executive, Crossrail
Case Study Two

Managing Firm Knowledge with Arup and Atkins

Problem
Identifying where knowledge exists in large professional service firms is a challenge. Understanding where it is and how to harness it to develop creative solutions and capabilities is important for organisational competitiveness and client need.

ISC Research
Working with Arup, an international design engineering firm, ISC researchers analysed internal expertise and HR systems to see similarities of skill and capability. Using this data, they created a visual map, known as the Arup ‘brain’ showing where skill commonalities existed across the project base, thus creating significant cost and efficiency savings.

In addition, the researchers identified the types of skills brought into the business by younger employees since 2001, showing how the firm had evolved over time, as well as the areas of future capability. By frequently mapping and analysing their skills, ISC research demonstrated that firms like Arup can utilise alternative techniques to recognise and maximise its knowledge-base.

ISC researchers also studied the value of shared physical space for those in a common project and, by examining Arup’s R&D system, showed that pursuing new ideas is more valuable than improving pre-existing services. Consequently, ISC research has directly contributed to changes in Arup’s project evaluation and selection mechanisms to rectify its disproportionate focus on short-term impacts.

Similar projects were conducted with Atkins, a structural engineering and design specialist. The ISC recommended changes to the organisation that improved knowledge management and network processes that were subsequently adopted, helping to retain and transfer information between projects. This also offered the opportunity to exchange ideas between the two companies and create unique opportunities for inter-firm learning, facilitated by the ISC.

Knowledge management is a pertinent issue for innovative firms, and Imperial’s research has offered us valuable solutions to the problem. By deepening our understanding of firm resources, Imperial has shown us the extent of our talent pool, allowing Atkins to improve the development and absorption of ideas.

Alun Griffiths  
Group Director, Human Resources, Atkins

Our work with Imperial has been mutually rewarding, offering us timely solutions to ‘real-time’ issues, expanding our understanding of our own organisation and talent pool, as well as increasing our capacity to absorb and implement new ideas.

Jeremy Watson  
Director of Global Research, Arup
Case Study Three

Client-Centric Innovation with IBM

Problem
As IBM began to shift its business focus from being a product-driven business to supplying IT services, a dislocation emerged between market requirements and IBM's technological capacity.

ISC Research
The team conducted surveys, interviews and workshops with senior innovation staff and balanced this with IBM's patent records to understand client-relationships, and how effectively technology staff used open innovation practices to source external data and translate this into valuable outcomes for the firm that improve the effectiveness and sustainability of IBM.

The research identified two types of strategy in use; one favouring external connections and one with a larger internal network. This meant that staff in a knowledge-brokering role needed greater relative autonomy to manage their networks. As a result, the ISC team recommended the creation of a new role, the Client Technical Advisor (CTA), for staff working between IBM and its clients, facilitating knowledge-sharing across firm boundaries and promoting mutual innovation opportunities.

In 2009 IBM adopted this proposal and created 600 CTA roles worldwide focusing on client-centric innovation practices, whilst providing organisational and efficiency benefits for the parent firm. ISC researchers led Executive Education training to help CTAs to balance technical skill with an understanding of the market place and the principles of competition. Using ISC tools, models and frameworks to effectively manage their role, CTAs are able to identify opportunities, advocate solutions and facilitate their adoption within IBM.

IBM has also worked with Imperial on a number of other servitisation projects and ISC spin-out Centres including the UK Innovation Research Centre and Digital City Exchange.

"The partnership with Imperial College [London] has been so important to IBM... I know that interactions between the teams are highly valued in multiple IBM locations."

Irving Wladawsky-Berger
VP Emeritus, IBM Corporation

"Our relationship... has resulted in a deep and ongoing research and development activities which have been of exceptional benefit to IBM.... This ensures that Imperial's valuable results are quickly integrated to improve IBM's organisational and technological structure, ultimately leading to a more efficient and sustainable business."

Rashik Parmar
President, IBM Academy of Technology
Case Study Four

Shaping Innovation Policy

Problem
The Department for Business, Innovation & Skills (BIS) needed to find new and effective ways to translate academic research evidence into policies and programmes to enhance business and economic opportunities. Although the UK’s science-base is one of the best in the world, harnessing that knowledge and using it to promote successful innovation and corporate growth has been a major challenge for governments.

ISC Research
Based on his research profile and ISC projects on innovation theory, R&D measurement and policy analysis, Dr Keith Smith was invited to undertake a four year secondment to BIS as Head of Science and Innovation Analysis. He was responsible for managing the Science and Innovation Analysis team, providing advice to Ministers, Senior Officials, the Treasury and EU on how innovation happens and how it can be fostered through policy provision. Keith was part of the senior team responsible for determining the UK Science Budget and headed UK’s international policy liaison with the OECD and EU.

Drawing extensively on ISC research, a core part of Keith’s work was in preparing evidence and arguments for the 2011 Innovation and Research Strategy for Growth and its accompanying Economics Paper, which he co-authored, laying out the Government’s framework for promoting UK innovation, particularly by taking a more collaborative approach to university science and successful innovation.

This ISC work led to a spin-out project called the UK Innovation Research Centre (UK-IRC), a collaboration with the University of Cambridge, for research and exchange activities on innovation policy and practice. The aim of this was to engage with policymakers and practitioners to share knowledge between sectors.

ISC research has been used in UK and EU policy-making not just in determining particular initiatives but winning further resources to implement them in a period of general austerity.

““
The quality of analysis behind the strategy has been recognised as a great example of thought leadership and played an important part in helping us persuade the Treasury to agree to allocate more resources for this important area. I am personally tremendously grateful for the part you have played.

Martin Donnelly
Permanent Secretary,
BIS

““
As well as his expertise in innovation economics, Keith brings insight about the university research base that we fund and support.

Mark Beatson
Director of Analysis,
Science and Research Areas,
BIS
Case Study Five

The Global Entrepreneurship & Development Index (GEDI)

Problem

Understanding the value of entrepreneurship is vital for countries stuck in austerity and searching for economic growth. Previous measures have focused on outputs such as the creation of new businesses without regard to the quality, impact and longevity of these companies, and the context in which ventures emerge and thrive.

ISC Research

Based on ISC research into entrepreneurial capacity and profiling, the team co-developed a new tool that measures entrepreneurship combining data on the outputs of, and context around, entrepreneurial ventures. Working with the George Mason University and the Universities of Aston, Strathclyde and Pécs, this research has revealed the positive relationship between a country’s entrepreneurial capacity and economic development.

The Global Entrepreneurship & Development Index (GEDI) uses data from the Global Entrepreneurship Monitor (GEM), World Bank, World Economic Forum and the Heritage Foundation. With little previous theory linking entrepreneurship to macro-economic outcomes, GEDI has 14 ‘pillars’ that combine various elements around new ventures including regulatory quality, the financial sector and technology infrastructure to measure and rank the entrepreneurial profile of nations.

First launched in 2011, GEDI is annually recalculated and now covers over a hundred nations. Using the Index, policy-makers and scholars can identify the impediments – or ‘bottlenecks’ – to entrepreneurial success and develop targeted solutions. As well as developing a regional index for the EU, other versions of GEDI will shed light on the role of gender and age in entrepreneurial development.

GEDI is a major new international indicator and valuable marker of economic activity, with the capacity to analyse and report on global patterns of entrepreneurship.

“[T]he Global Entrepreneurship and Development Index really does give us insights into characteristics of entrepreneurship in the UK and it really does help us in BIS benchmark our performance.”

David Willetts
Minister for Universities and Science

“[GEDI] provides a systemic perspective towards entrepreneurship policies in EU regions [which] greatly enhances the utility of the GEDI data in policy analysis and design.”

Deputy Head of the Economic Analysis Unit for the Directorate General, EU Commission
Case Study Six

Design-Led Entrepreneurship

Problem
Managing and measuring the value of design and whether to risk the investment of valuable development time and money in this process is a key concern across sectors. How can firms quantify the value of design in creating innovative solutions and how can it be managed to best enhance firm competitiveness?

ISC Research
The ISC looked at the development and role of design in the innovation process, linking end-user need to product and service development. The research showed that effectively managing the intangible aspects of the design process and seeing it as a complementary asset for R&D can improve firm performance.

Sir George Cox was commissioned by the Treasury to examine creativity in UK business, and recommended the establishment of university centres of excellence. Consequently in 2007, with £5.8 million from HEFCE and NESTA, Imperial and the Royal College of Art launched a multidisciplinary collaboration, Design London, offering incubation and simulation opportunities for business. The incubator had an 80% success rate and led to a number of sustainable entrepreneurial ventures. Design London retained a 5%-20% stake in businesses, including:

- Made in Mind Folding Plug – This business transformed the traditional 3-pin plug into a portable collapsible unit. The product won a gold medal at the International Design Excellence Awards in 2009, and its creator was named Brit Designer of the Year in 2010.
- Robofold is a new manufacturing process using industrial robots to shape sheet metal, creating new shapes controlled by software enabling design and product planning.
- Zara Gorman developed flat-pack hats using unusual techniques and materials, including laser cutting, Perspex and wood. The business has attracted considerable international recognition, with Zara included in Italian Vogue’s 160 Emerging Designers to watch.

This research has been the basis for the practical implementation of design-led innovation processes increasing capacities across a range of small businesses and new ventures.

"One could hardly have wished for a better flagship than Design London…. Its significance goes well beyond its impact within its two parent organisations. The success – and growing reputation – of Design London is setting a model both for higher education and for interaction with business, more widely."

Sir George Cox
President of the Institute of Engineering Designers, author of the Cox Review

"Design London is training a generation of problem solvers…. Polymaths are being nurtured, ideas are being incubated and fledgling businesses are growing. I only wish it had been around when I started inventing things."

Sir James Dyson
Founder and Chief Engineer, Dyson

imperial.ac.uk/innovationstudies
Conclusion and legacy

In 10 years, the Innovation Studies Centre has evolved from a single research grant focused on the built environment employing seven people, to an entire department of associated projects and activities that are the vehicle for innovation and entrepreneurship research at one of the world’s best universities. The ISC laid the foundation for a productive group whose reach has extended not just across academia, through the delivery of highly cited journal publications and modernising teaching programmes, but through the development of industrial tools and models used in a range of leading firms, and into the development of government strategy.

The legacy of the Innovation Studies Centre will be in all these areas. First, the creation of the Department of Innovation & Entrepreneurship (I&E) taking forward the ISC’s working methods, capability development mechanisms and research expertise. From thousands of citations for its papers, to hundreds of thousands of web hits, the relevance of the work undertaken in the last 10 years will continue to propel the department forward.

Second, engagement with industry and the co-development of knowledge has been a key feature of the ISC process, ensuring the latest thinking is applied directly to the firm. Many industry collaborators have re-engaged with ISC spin-off ventures, making them part of the ongoing development of the I&E department.

Third, the development of indicators and tools for policy resulted in core advisory positions in the UK and EU. Supplying innovation and entrepreneurial data for governments, and thereby influencing policy direction, means the department will continue to be a major supplier of evidence-based research for policy development.

As the ISC and a number of its offspring projects come to an end, new opportunities and activities take their place, each founded, to some degree, in the original work of the ISC. From one sector, one region, EPSRC funds have resulted in major strategic realignment within Imperial College London, focusing on the benefits of innovation studies, giving it the means to deliver undeniable benefit for academic advancement, industry need and the UK economy.
A comprehensive analysis of the Innovation Studies Centre, its impacts and achievements is available to download from imperial.ac.uk/innovationstudies

Connect with us:

facebook.com/imperialbusiness
@imperialbiz
linkedin.com/company/Imperial-College-Business-School
imperial.ac.uk/business-school/gplus