

# Profit from Knowledge

A Strategy for London

I want London to stand out as a leading centre for scientific and technological innovation and Catalyst will help in promoting London as a place to carry out and exploit scientific research. Its work will enable us to attract businesses at the heart of technological development, which in turn will deliver greater economic growth in the capital.

Ken Livingstone  
Mayor of London

In London, we have the breakthroughs and the bankers, the innovators and the industrialists, but we need to be much better at bringing them together to take advantage of all the strengths in the capital. With Catalyst we will aim to revitalise this critically important bridge, and therefore enable business, industry and academia to mix freely.

Sir Richard Sykes  
Rector, Imperial College London

## Foreword

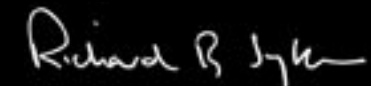
In the face of intense global competition, London's future prosperity will increasingly depend on developing a world class knowledge economy. In recognising this, businesses are refocusing their efforts towards high-value sectors while national and regional policy-makers stress the importance of scientific and research based innovation. In November 2005, the Mayor of London launched Catalyst: London's Science and Industry Council, to shape the future of the city's science, technology and design base and the role it plays in the capital's economic development.

The Council brings together 12 leaders from industry, academia and the public sector and is supported by the London Development Agency. Catalyst will build collaborative partnerships between London's businesses and knowledge base to drive an increase in R&D investment and productivity, and to promote the capital's science, technology and design expertise to a national and international audience. Harnessing this collective strength of businesses and the knowledge base will be essential if we are to make London a world class knowledge economy.

Following Catalyst's launch, the Council has explored how best to fulfil its over-arching remit and how we can address the specific priorities for London. This document sets out the strategic framework that will shape Catalyst's programme of activity over the next three years. It has been informed through discussions with business leaders in a wide range of sectors: Biotechnology, Pharmaceuticals and Healthcare, Design, Access to Finance, Engineering and Energy, ICT and Financial Services. Initial findings have subsequently been consulted with over a hundred businesses from the wider science, technology and design community. This is therefore a user-driven strategy, taking on board the expectations from industry and the knowledge base and laying out what is expected from them in return.

The priorities detailed in this document will influence the LDA's future interventions in science and technology. The programme of activity that follows this strategy will include new projects supported by resources and funding from the LDA, but equally important will be joint working between London's knowledge base and industry stakeholders.

This strategy is a first step and your views and comments are encouraged. Moreover, your involvement and active contribution to the work that follows will be vital if we are to ensure London competes at the very forefront of scientific, technological and design led innovation.



Sir Richard Sykes  
Chair of Catalyst  
London's Science & Industry Council

**Consider some of London's strengths:**

Home to the European headquarters of 65% of Fortune 500 companies

4,500 world-class researchers and leading academic R&D establishments

It's not a surprise then that industry and the knowledge base are already working together for mutual benefit.

**But the potential for more collaborative partnerships is even greater.**

Catalyst will ensure these opportunities are seized so that London can compete at the very forefront of scientific, technological and design led innovation.

Dominance in international finance together with rich and varied sources of finance to support technical innovation

Internationally renowned design capabilities and Europe's largest ICT sector

The greatest concentration of higher education institutions in Europe and four of UK's top six universities ranked by total research income

50 clinical research centres and a base for the world's top 12 pharmaceutical companies

# Catalyst in context

**London's strengths in Science, Technology and Design**

As the dynamics of the global economy continue to change, London needs to exploit the opportunities of emerging markets while differentiating itself from competing world cities. It faces these challenges from a position of strength. Ease of international travel, access to a skilled and diverse labour force, dominance in international finance and a concentration of high value multinational organisations all play a part in attracting investors to the capital.

London's strengths in science, technology and design also offer significant competitive advantage. The capital boasts 4,500 world-class researchers and renowned medical and clinical trial centres. Internationally recognised capabilities in product and industrial design complement centres of excellence in engineering and applied sciences. And London's academic excellence is underpinned by the greatest concentration of higher education institutions in Europe and four of UK's top six universities ranked by total research income.

**Unlocking the potential for London**

London however, like many parts of the UK, has still to take full advantage of these indigenous strengths in science, technology and design. Business R&D intensity remains low, and is declining when compared with international benchmarks, and the capital performs poorly in attracting new R&D based businesses.

National policy drivers, including recommendations in the DTI 10 Year Science & Innovation Framework, seek to address these problems by recognising the link between long term competitiveness and investment in R&D. At the regional level there is increased public-sector support for knowledge and technology transfer, science skills development and SME innovation support. Within this landscape of interventions targeting the science, technology and design base, Catalyst will have a specific role to play in London.

**By building collaborative partnerships between R&D intensive businesses and London's knowledge base, Catalyst will improve the productivity of existing R&D, and drive an increase in new corporate R&D investment.**

While many business-university collaborations already exist, the potential synergies of such partnerships are not exploited to London's full advantage. Catalyst will promote and build on exemplar projects, such as those highlighted in this strategy, so that start-ups and businesses are inspired to seize the potential of London's knowledge base offering. New initiatives will focus on mitigating the perceived business risks of collaborative partnerships so that deeper, richer interactions are formed for the benefit of both parties.

**Priority activities and expectations**

Catalyst's priorities for the next three years are detailed in the following pages and grouped into three key themes:

**A unified voice to champion London's science, technology and design agenda****Mobilising business demand for London's science, technology and design base expertise****Addressing strategic barriers to increased business R&D investment in London**

Specific projects will entail working with a diverse range of existing agencies in London. The message Catalyst will seek to reinforce throughout is clear: stakeholders across industry and the knowledge base need to play their part in mutually beneficial partnerships. In so doing, London can fully harness its strengths in science, technology and design to ensure future prosperity.

London offers ICT businesses Europe's largest end-user market: with a customer base ranging from major global players to large public sector contracts through to early adopter companies in specialist sectors. At the same time, the specialist IT research undertaken in London universities is in many cases directly aligned to the sector's needs and activities. Hosting the London 2012 Olympic Games, together with the capital's commitments to innovative healthcare provision and transport improvements, all provide opportunities where business-university partnerships can both showcase the significant advances in ICT, and work with partners to apply them in practise.

**Professor Michael Walker**

Group Director, Research and Development,  
Vodafone Group

The fastest growing and most competitive businesses recognise that design plays an essential role at each stage of the new product chain: from concept development, to R&D, through to sales and distribution. So Catalyst fully endorses the recommendations of the Cox review on creativity in business. We will support the Cox Implementation group in its efforts to set up of a National Centre for Design & Innovation in London, and to enhance inter-disciplinary centres of research and teaching in the capital.

**Sir Christopher Frayling**  
Rector, Royal College of Art

## A unified voice to lead London's science, technology and design agenda

**By drawing on the collective influence of high-profile R&D intensive businesses, policy makers and London's knowledge base experts, Catalyst will provide an authoritative strategic lead on how the capital's unique strengths in science, technology and design can be exploited.**

This will be an imperative in a landscape where government is introducing national initiatives to encourage a knowledge economy, and where regional public-sector agencies and academic institutions need to respond accordingly.

**Advocating London's science, technology and design priorities on national and international policy debates**

The breadth and depth of London's science and research base means that the capital's needs in this arena are often quite distinct to other parts of the UK. Catalyst will aim to ensure new regulatory and fiscal policies are suited to London's needs and will highlight how their implementation impacts on London's economy. A recent example where Catalyst's input should prove valuable is the Department of Health's proposals on the distribution of NHS R&D budgets.

**Working with public sector agencies and trade bodies to address London's science, technology and design agenda**

London has a range of organisations whose functional remit and sectoral interventions coincide with Catalyst's objectives. The Council will work with, amongst others, London Higher, Think London and the London Organising Committee for the Olympic Games, to ensure the strengths of the overall knowledge base are drawn upon, and sector specific priorities are addressed. Catalyst's support for the UKTI bid on London hosting the secretariat of the Innovative Medicine's Initiative is just one example of how working together for London's advantage could prove beneficial.

2006 has seen the launch of **BP's Technology Associate Programme**. This offers post-graduate researchers who have a deep specialism in areas of particular interest to BP the

opportunity to work in a cutting edge industrial environment and further develop their specialist skills. The programme is just one example of the potential of skills exchange initiatives between industry and London's academic knowledge base: It provides BP with the brightest sparks and post-graduates the chance to apply their skills and knowledge in a commercial environment.

The **Centre for the Analysis of Risk & Regulation** based at the **London School of Economics and Political Science** focuses on organisational and institutional settings for risk management and regulatory practices. **Deutsche Bank** was an early stage sponsor of the initiative when it was launched in 1999. The M.Sc in Management and Regulation and Risk, co-developed by LSE and Deutsche

Bank, has been very successful and provides an innovative model for collaboration between industry and universities in course design and graduate placements. The continued partnership of LSE and Deutsche Bank, and the associated advanced PhD fellowship programme, supports links between finance practice and research while contributing high-level quantitative skills to London's financial services sector.

## Catalyst will mobilise business demand for London's knowledge base expertise

The last decade has witnessed a decline in the research intensity of British businesses in comparison to international benchmarks. Recent studies however highlight industry's appetite to outsource R&D and locate it across geographical boundaries. Catalyst will aim to change the perception of industry regarding stronger links with London's knowledge base.

Promotion and sign-posting will navigate companies through the complexity and richness of the research offering. New skills exchange initiatives will aim to mitigate the perceived risks of business-university interactions.

**Promoting London as city of excellence in science, technology and design**  
London's international brand image does not fully portray the city's strengths in scientific research or technological and design led innovation, and the capital performs poorly in attracting new R&D based businesses that are seeking to relocate. Catalyst will work with partner agencies, such as London Unlimited, to increase the visibility of the science, technology and design base with the aim of attracting new businesses and making London the location of choice for R&D investment.

### Demonstrating the value of stronger links between business and academia

In a number of sectors, partnerships between higher education institutions and industry are crucial. Healthcare is prime example where the sustained success of many organisations depends on new academic research and breakthroughs. Catalyst will aim to raise the level of such collaborations across all of London's R&D based sectors. It will showcase success stories of business-university collaboration and signpost new start-ups and SMEs to the untapped potential of London's science, technology and design base.

### Encouraging the exchange of science talent between academia and business

London is home to a vast pool of expertise and experience in engineering, technology, design and life sciences employed in industry and academic institutions. The best type of knowledge transfer should enable cross fertilisation of this talent pool: ensuring new ideas are commercially exploited, stronger institutional links are established and business acumen is returned back into the knowledge base. Catalyst will encourage new talent exchange programmes, building on existing initiatives already in operation such as BP's Technology Associate Programme and Eisai Pharmaceutical's partnership with University College London.

### Enhancing cross-sectoral knowledge transfer activity between businesses and London's research base

A significant number of knowledge transfer schemes between businesses and specialist departments in London's higher education institutions are already in place. Businesses could however secure a competitive advantage by building more inter-disciplinary knowledge and technology transfer relationships. Catalyst will seek to build on initiatives such as Research Associates RCA which has proved successful in bringing together graduates from the Royal College of Arts with business development teams in the areas of commercial innovation and socially inclusive design.



In January 2006, **Amgen**, the world's largest biotechnology company, announced plans to create its **European Development Centre in London**. The new facility at Uxbridge Business Park, west London will almost double Amgen's current UK-based R&D capacity, creating new job opportunities in all aspects of drug development and confirming London and the UK as a major worldwide scientific hub for the company. Dr Jeremy Haigh, Amgen's European Head of R&D, stressed the important role teams at Think London and UK Trade and Investment played in securing this investment in the UK.

**Dexela Ltd** – a London based healthcare company developing 3D imaging methods for the early detection of breast cancer – received a **Grant for Research and Development** in 2005. In May 2006 it subsequently secured a first round £1.6m venture capital funding package to carry out further development and commercialisation of its imaging technology. The company attributes the R&D grant as being a significant factor in securing the VC funding – allowing it to build demonstrable value in the business so that it was not considered a classic, high risk R&D start-up by the VCs.

## Catalyst will address supply-side barriers to business R&D investment in London

**A diverse range of national and regional policy interventions and funding streams are in place to bolster overall investment in R&D. Discussions with business leaders have however highlighted a number of barriers to increased R&D investment that fall outside the remit of existing business support agencies in London.**

Catalyst will address these strategic barriers – spanning skills, investment and infrastructure – by securing appropriate funding from the LDA and working with appropriate delivery partners in each area.

**Deploying sector specific account managers to attract new businesses into London**

London has had some notable successes, for example Amgen, in securing high profile R&D investment. The offering to R&D intensive businesses in specialist sectors however, like Bioscience and Environmental technologies, still remains fragmented and difficult to navigate. Catalyst will introduce key account managers dedicated to specific R&D intensive sectors. Their task will not only cover identifying new businesses seeking to come to London, but also to rationalise and promote the breadth of public sector support available to them when they arrive.

**Building connectivity between funding streams for technical innovations and addressing the lack of on-going proof of concept funding**

London's higher education institutes are an important source of new innovations and business propositions. Investors however indicate that many of these proposals are not always well grounded at the proof of concept stage and are considered to be too high risk. Catalyst will endorse initiatives to bridge this funding gap, so that there is an equivalent university funding source to the Grant for R&D scheme for companies. Catalyst will also seek to improve the connectivity between the various sources of seed and start-up finance available for technical innovations to ensure new ideas are backed by the optimal type of funding and deal flows are improved.

**Addressing the accommodation requirements of applied and life science SMEs**

Science and engineering based SME's have specific needs for flexible laboratory and office space as they outgrow incubators, but the dynamics of London's property market mean the capacity for this type of accommodation is severely restricted. Catalyst will investigate a range of options on how best to address this accommodation need so that growing companies remain and invest in London.

**Placing Post Graduates researchers into schools and academies**

Industry consistently ranks access to skilled labour as a barrier to doing business in London but the number of school students taking up science subjects is continuing to fall. It is therefore critical to address the long terms skills issues now; adopting novel approaches that inspire school students to study science, technology and design in greater numbers. By placing post-graduate researchers into schools and, like the Centre of the Cell project at Queen Mary, University of London, inviting schools into universities, Catalyst will aim to improve the long term supply of London's science talent pool.

The London Development Agency endorses the scope and breath of Catalyst's vision and its strategic priorities are closely aligned to the LDA's economic development remit. Delivering on these priorities will realise the potential of London's science, technology and design expertise and help us provide business support, skills development and job creation for the wider benefit of all Londoners.

**Mary Reilly**  
Chair LDA

## What next

**Catalyst's programme of activity will run from 2006 to 2008, during which time we will be developing a range of interventions that directly address the strategic priorities detailed in this document.**

Sector specific initiatives will be championed by Catalyst's sector working-groups, and depending on their scope and nature, it may be appropriate to leverage existing areas of work within businesses, public sector agencies and higher education institutes. New longer term cross-sectoral projects will entail securing new funding and resources from the LDA's Science and Technology programme budget.

A number of early stage projects are already underway – including renewing proof of concept funding for university innovations, and ramping up the holistic promotion of London's science, design and technology base in the Mayor of London's work to exploit the opportunity of emerging markets.

Over the coming months the Council, in conjunction with the LDA, will also be undertaking an in-depth horizon scanning exercise to determine which emerging technologies and sectors should be considered for future policy and investment interventions.

Proactive collaboration between industry and the science, technology and design base will be central in delivering all of Catalyst's interventions, and your involvement as we take these forward will be vital.

**We'd like to hear from you if you are a business seeking to explore the expertise that London's science, technology and design base can offer. Equally, if you are a member of the research community already interacting successfully with businesses, we would like your input on how to ensure London's R&D is more productive.**

**Contact:** [catalyst@lda.gov.uk](mailto:catalyst@lda.gov.uk)

The Catalyst website has a downloadable copy of this strategy as well as details of Catalyst sub-groups, news and project updates and case studies, visit [www.london-catalyst.org.uk](http://www.london-catalyst.org.uk)

# Council Members

## Council Members

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## Contributing Organisations

3i  
Arrow Therapeutics  
Arup  
Association of the British Pharmaceutical Industry  
BP  
British Telecom  
Business Plan Services  
DEGW  
Design Council  
E- Synergy  
Engineering and Technology Board  
Enterprise IG  
Genzyme  
Goldman Sachs  
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GlaxoSmithKline  
Imperial College London  
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London Development Agency  
London First  
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London Investment Banking Association  
London Metropolitan University  
London Organizing Committee for the Olympic Games  
London School of Economics and Political Science  
London Seed Capital  
London Technology Network  
London Underground  
Medical Research Council  
Microsciences Ltd  
New York Economic Development Corporation  
Pentagram  
Pera UK  
Royal Bank of Scotland  
Royal Brompton and Harefield NHS Trust  
Royal College of Arts  
The London Technology Fund  
Top Technology Venture  
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