INNOVATION & COLLABORATION

- CLICK A SECTION TO GET STARTED -

> Innovation 101
> How and why firms innovate
> Collaboration in innovation
INNOVATION 101
There are many ways to define ‘innovation.’ For example ‘the successful implementation of new ideas’ (BIS), ‘Change that creates a new dimension of performance.’ (Peter Drucker), ‘New ideas that work’ (Nesta)

There are also wordy official definitions by organisations like the OECD that help us to collect uniform statistics and measure innovation.

Click the thumbnails to learn more:

There are three important concepts:

**A**

**INVENTION**

The creation of an idea to do or make something without verification that it works, or is commercially valuable

**B**

**INNOVATION**

A new product or process that has proven to be commercially (or socially) valuable

**C**

**DIFFUSION**

The spread of innovation throughout society that generates its full benefit
INNOVATION IS SO IMPORTANT BECAUSE LONG TERM ECONOMIC GROWTH DEPENDS ON IT

THERE ARE TWO SOURCES OF ECONOMIC GROWTH

A. More inputs

B. New ways to get more output from those inputs = INNOVATION

At some point, the only way to increase living standards is to innovate, by creating new products, services, technologies or processes.

In a global economy, innovation is what allows UK firms to be competitive.

The UK’s comparative advantage is disproportionately derived from R&D and innovation intensive sectors.

Nesta’s Innovation Index measures the contribution of innovation to UK economic growth. 63% of the UK’s economic growth between 2000 and 2008 was due to innovation.

Makeup of UK Economic Growth 2000-2008 (Percentage Points)

SOURCE: INNOVATION INDEX (NESTA)
Innovation policies of the past were profit oriented, and nationally focused. Today it is widely recognised that meeting challenges from climate change or water security, to caring for rapidly ageing populations, depends on innovation that seeks to generate social value at the same time.

Scientific and technological innovations have a better chance of scaling up and achieving global impact if they are developed from the outset in conjunction with social and business model innovations.

Grand challenges disregard national boundaries, meaning global collaboration in innovation and research is more important than ever.

The Gates Foundation’s Grand Challenges in Global Health is focused on overcoming persistent bottlenecks in creating new tools that can radically improve health in the developing world. $458 million has so far been awarded to partnerships in 33 countries. [www.grandchallenges.org](http://www.grandchallenges.org)

In the UK Nesta’s Centre for Challenge Prizes is collaborating with BIS, Innovate UK and others on a new multi-million pound prizes for innovation to tackle grand challenges like resistance to antibiotics and zero carbon flight. [www.nesta.org.uk](http://www.nesta.org.uk)
The performance of an innovation system depends not just on the strength of each actor but on the quality of the links between them.

For example, a firm’s ability to develop a new solar panel technology might depend on public investment in basic research, skills to develop the technology, access to finance for development, environmental regulation that creates market demand, standards that drive new levels of environmental performance, competition etc.

Effective science and innovation systems depend on a complex set of resources, institutions, conditions and interactions.

National innovation systems can be defined as:

“... the elements and relationships which interact in the production, diffusion and use of new, and economically useful, knowledge ... and are either located within or rooted inside the borders of a nation state.”

Lundvall, 1992

Oxford Photovoltaics is an Oxford University spin-out that has used Innovate UK grants to commercialise publicly funded research into low cost, transparent solar cells that can be printed on glass. Regulations on the carbon emissions of new buildings may help create a market for this new type of solar cell.

For more examples of SME success stories see the Innovate UK website.
There are various ways to visualise innovation systems. For example, from the point of view of functions and conditions:

**PUBLIC RESEARCH & KNOWLEDGE EXCHANGE**

**HUMAN CAPITAL**

**IT SERVICES & INFRASTRUCTURE**

**ACCESS TO FINANCE**

**MOBILISING RESOURCES**

**ENTREPRENEURSHIP**

**BUSINESS ENVIRONMENT**

**SELECTION**

**DEMAND**

Or from the point of view of institutions:

Main organisations shaping the Scottish innovation system:

<table>
<thead>
<tr>
<th>Category</th>
<th>Organisations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Public &amp; Private Business Operations</strong></td>
<td>Indigenous Medium &amp; Low R&amp;D Intensity Firms, Foreign Branch Plants, Indigenous High R&amp;D Intensity Firms, Foreign R&amp;D Programmes, Academic Spin-outs</td>
</tr>
<tr>
<td><strong>Institutes to Facilitate Technology Diffusion</strong></td>
<td>Sector Clusters, HEI Technology Companies, Science Parks Incubators, Innovation Relay Centres</td>
</tr>
<tr>
<td><strong>R&amp;D Performing Organisations</strong></td>
<td>Other Public R&amp;D, Foreign Business R&amp;D, HE &amp; Research Institutes, Locally Owned Business R&amp;D</td>
</tr>
<tr>
<td><strong>Facilitation &amp; Direction of R&amp;D</strong></td>
<td>Intermediary Technology Institutes, Scottish Executive, LEICS, SHIPC, Private Equity</td>
</tr>
<tr>
<td><strong>Formulation &amp; Operation of Policy</strong></td>
<td>Scottish Science Advisory Council, Scottish Enterprise, HE</td>
</tr>
<tr>
<td><strong>Policy Making Bodies</strong></td>
<td>Scottish Executive</td>
</tr>
<tr>
<td><strong>UK Policy Formulation &amp; Operation</strong></td>
<td>UK Govt Macro Regulation, Department of Trade &amp; Industry, Research Councils, OST, MOD</td>
</tr>
<tr>
<td><strong>NI UK Innovation Policy</strong></td>
<td>EU Structural Funds, DG Regional Policy, EU Commission, DG Enterprise, DG Framework Programme</td>
</tr>
<tr>
<td><strong>EU Policy &amp; Objectives</strong></td>
<td>EU Framework Programme</td>
</tr>
</tbody>
</table>


**Source:** The Scottish Innovation System: Actors, Roles and Actions (2006)
“INNOVATION POLICY” REFERS TO ALL PUBLIC INTERVENTIONS THAT SEEK TO SUPPORT THE GENERATION AND DIFFUSION OF INNOVATION.

It involves increasing the **SUPPLY** of resources for innovation:

**Examples:**
Through grants, subsidies, skills, entrepreneurs and research

But also influencing **DEMAND** to pull innovation through the system and influence markets

**Examples:**
Through regulation, standards and using government’s huge purchasing power.
## Innovation Policies Have Different Goals

<table>
<thead>
<tr>
<th>Goal</th>
<th>Examples</th>
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<tbody>
<tr>
<td>Increasing inputs to innovation</td>
<td>R&amp;D tax credits, grants for R&amp;D, public support for venture capital</td>
</tr>
<tr>
<td>Increasing non-financial capabilities (eg access to skills and expertise)</td>
<td>Support for exploiting IP, technical support services, skilled migration and mobility schemes</td>
</tr>
<tr>
<td>Enhancing connections and complementarities</td>
<td>Cluster policy, support for networks, collaborative R&amp;D programmes, support for intermediaries</td>
</tr>
<tr>
<td>Enhancing demand for innovation</td>
<td>Public procurement policies, pre-commercial procurement of R&amp;D</td>
</tr>
<tr>
<td>Improving framework conditions for innovation</td>
<td>Regulation, standards, business environment</td>
</tr>
<tr>
<td>Improving discourse and preparedness</td>
<td>Foresight and horizon scanning, technology roadmapping exercises</td>
</tr>
</tbody>
</table>
UK policies may attract R&D investments (e.g., low corporation tax) or talent from abroad (e.g., favorable immigration policy or targeted scholarships); or they may facilitate introduction of those technologies, business models or new practices that are generated abroad (e.g., ‘soft landing’ incubators or business support).

Programmes to foster international research collaboration produce new knowledge, but also build bridges and relationships that additional stakeholders may exploit. Funds for collaborative R&D help support partnerships between firms and universities internationally.

The host country policy environment affects export opportunities for innovative UK companies (e.g., protectionism & subsidies), the opportunity to co-develop products and take them to market (e.g., IPR regime & wider legal environment) and the ability of UK companies to access funding (e.g., requirement to conduct R&D locally or transfer technology).
INNOVATION TOOLKIT

A INNOVATION 101

B HOW AND WHY FIRMS INNOVATE

C COLLABORATION IN INNOVATION

HOW & WHY FIRMS INNOVATE
Innovation is risky and often expensive. The value of new ideas and intellectual property is only as great as the firm’s ability to exploit them.

The community innovation survey, conducted every two years across Europe, reaches over 28,000 UK firms, and shows us which factors influence innovative UK companies to invest in innovation.

The chart opposite shows the factors which influence a firm’s decision to innovate.
WE HAVE A GENERIC UNDERSTANDING OF HOW THE ‘INNOVATION PROCESS’ WORKS

SOURCE: GREENHALGH AND ROGERS (2010) INNOVATION, INTELLECTUAL PROPERTY AND ECONOMIC GROWTH
YET THIS ‘LINEAR’ MOVEMENT FROM BASIC RESEARCH TO THE MARKET DOESN’T CAPTURE THE RANGE OF WAYS IN WHICH INNOVATION TAKES PLACE

SERVICE INNOVATION

This isn’t just about the service industries. Service innovation takes place in many different sectors.

For example the business model innovation that emerged in Europe from the deregulation of European airspace in the 1990s resulted in low-cost carriers like Ryanair and EasyJet. While the core business remains passenger transportation, it transformed the European airline industry and the travel industry in general.

The application of ICT has led to disruptive service innovations across many different parts of the economy.

SOCIAL INNOVATION

This directly creates value for society in addition to the economy. It engages new actors, resources, systems and processes in areas from education and healthcare to climate change and financial inclusion.

Microfinance is regarded as one of the most important social innovations of a generation. Muhammad Yunus was awarded the Nobel peace prize in 2006 for his work with the Grameen Bank. With 2,500 branches, this microfinance bank provides credit to almost 8 million people, recovering over 98% of loans.
**Foreign direct investment (FDI)** occurs when overseas businesses invest in the UK, either by acquiring a British company or a stake in one, or by setting up a new subsidiary.

The UK’s 2014/15 Inward Investment Annual Report, published by UK Trade and Investment (UKTI), shows the UK has continued to strengthen its position as the leading European destination for foreign direct investment. The US and the Netherlands are the biggest inward investors into the UK.

Almost one in five private sector workers in the UK is employed by a foreign business; between 1997 and 2010, foreign-owned firms went from employing 11 per cent of the UK’s private sector workforce to employing 19 per cent.

Critics have argued that FDI, in the form of acquisitions, hollows out the UK’s productive capacity since foreign owners are more likely to shift high-value functions overseas and to neglect UK supply chains. However, survey evidence shows that foreign firms have a significant positive impact on the innovative capabilities of their suppliers in the UK.
The source of funding for innovation adapts as a start-up evolves, adjusting to changes in risk, capital needs and the relative due diligence cost, but in some stages finance may be too costly or simply not available.

Venture capital for innovation is concentrated in a few sectors like ICT and biotech, and is available to a very small proportion of innovative firms overall. Contracts to develop and supply products and solutions are a far more common route to growth.

Public sector spending by large departments such as health and defence is also an important driver. Innovate UK’s Small Business Research Initiative taps into the spending power of government departments to create opportunities for small, innovative companies to access R&D contracts.

**PUBLIC SUPPORT FOR ACCESS TO FINANCE INCLUDES:**

- Public venture capital schemes (public funds or co-investment models)
- Business angel network support
- Tax credits for investors in innovative companies (directly or through funds)
- Loan guarantees
- Grants (from R&D to innovation prototyping)

**SOURCE:** BRIDGING THE VALLEY OF DEATH PARLIAMENTARY REPORT, 2013
There has been a rise in alternative forms of finance for innovation like crowdfunding. The financial crisis spurred a range of new financial innovations. Models like crowdfunding and peer-to-peer funding are remarkable for their transparency and simplicity. This new ‘alternative finance’ movement uses technology to bring those with money to invest closer to those who need it, allowing investors to create diversified portfolios, avail of tax incentives and back growing businesses, all without the need of large traditional institutions.

For example, in 2013 Zovolt, a UK based startup, raised £90,000 through crowdfunding platform Crowdcube for its miniature wireless ECG/Heart Rate sensor, which is able to send data in real time to mobile devices.

Nesta research found that in 2013 alternative finance intermediaries facilitated almost half a billion pounds of business funding, through crowdfunding, peer-to-peer lending and invoice financing. While this is still a relatively small proportion of the overall funding for SMEs, it is growing fast.
COLLABORATION IN INNOVATION
Collaboration in innovation takes diverse forms. These relationships have different degrees of intensity and risk.

**Cooperation**
- Information sharing
- Informal
- Separate resources
- Low intensity
- Low risk

**Combination**
- Some joint planning
- Formalised partnership
- Communication channels
- Resource matching
- Medium intensity
- Low-medium risk

**Co-creation**
- Shared mission/goal
- Comprehensive joint planning
- New hybrid structure
- Pooled resources
- High risk
- Shared reward
GOVERNMENTS USE A RANGE OF METHODS TO SUPPORT COLLABORATION ON INNOVATION

<table>
<thead>
<tr>
<th></th>
<th>UK</th>
<th>EXAMPLES OF GOOD PRACTICE FROM ELSEWHERE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bilateral agreements</strong></td>
<td>RCUK has an extensive range of bilateral agreements on joint research funding calls. Innovate UK has begun to organise joint innovation calls.</td>
<td>While international agreements are often non-committal, Sweden’s innovation agency, Vinnova, is well known for the number of bilateral programmes that it runs.</td>
</tr>
<tr>
<td><strong>Multilateral agreements</strong></td>
<td>The goal of the Global Innovation Initiative, a British Council programme, is to strengthen global research through multilateral partnerships. The UK also participates in the EU’s Horizon 2020 programme.</td>
<td>Germany’s CLIENT project involves BRIC countries as well as South Africa and Vietnam in order to work together on environmental technologies and services.</td>
</tr>
<tr>
<td><strong>Researcher mobility schemes</strong></td>
<td>The UK has one of the most extensive lists of researcher mobility schemes in the EU. Examples include the Royal Society’s Newton International Fellowship and several research council schemes.</td>
<td>Sweden’s Advanced International Training programme, run by SIDA and VINNOVA, aims to promote innovation-led sustainable growth by funding inward mobility and training.</td>
</tr>
<tr>
<td><strong>Partnership programmes and initiatives</strong></td>
<td>One example of a UK innovation collaboration initiative is the Lancaster China Catalyst Programme, which aims to support the development of partnerships between UK and Chinese R&amp;D intensive companies.</td>
<td>The Initiative Entreprises Innovantes promotes partnerships between French SMEs and their counterparts in abroad.</td>
</tr>
<tr>
<td><strong>Foreign branches or subsidiaries</strong></td>
<td>The UK is well represented internationally by SIN, UKTI, Prosperity Officers and, in key countries, RCUK.</td>
<td>Austria, Denmark, Germany, Italy, the Netherlands, and Sweden all have S&amp;T attachés, mostly focused on the BRICS, the USA and Japan. Germany is notable for its international network of Max Planck and Fraunhofer research centres.</td>
</tr>
</tbody>
</table>

**SOURCE:** ADAPTED FROM EU COMMISSION REPORT ON INTERNATIONAL SCIENCE, TECHNOLOGY AND INNOVATION COOPERATION (2013)
The OECD defines a joint venture as:

“a contractual agreement between two or more parties for the purpose of executing a business undertaking in which the parties agree to share in the profits and losses of the enterprise as well as the capital formation and contribution of operating inputs or costs. It is similar to a partnership, but typically differs in that there is generally no intention of a continuing relationship beyond the original purpose.”

But there are many kinds of collaboration on innovation beyond joint ventures. As companies find increasingly flexible models of collaboration, strategic partnerships are common.

These entail some degree of strategic and operational coordination and may include things such as joint research and development (R&D), technology exchanges, exclusionary market and manufacturing rights, and co-marketing agreements.

**Why do companies seek partnerships and collaborations relating to innovation?**

- Access product and financial markets;
- Share costs of R&D;
- Share risk, reduce uncertainty;
- Access complementary resources and skills of partners, such as finance, complementary technologies;
- Benefit from research synergies or access facilities;
- Accelerate return on investments through more rapid diffusion of innovation;
- Co-opt competition;
- Attain legal and political advantages in host countries.
There are many ways in which public research can be transferred, exploited, and commercialised.

Knowledge flows and commercialisation channels are not unidirectional and often operate in simultaneous and complementary ways.

A recent survey by the UKIRC identifies the various channels through which knowledge flow between universities and businesses, and highlights the importance of ‘people interaction’ from conferences and advisory boards to student placements and invited lectures.

While 17% of the firms surveyed said their interaction with the university had been initiated by a Technology Transfer Office (TTO), this was the least common way to initiate a relationship.

Direct approaches and follow up to chance meetings at conferences were more common, highlighting the importance of building dense, informal networks between universities and businesses.

International league tables show the UK ranking highly for academic-industry collaboration.

**THE LAMBERT TOOLKIT**

Various toolkits have been developed to help universities and industries interact successfully. The Lambert Toolkit is widely recognised, and although less than 10% of university-business collaborations in the UK use a Lambert-style agreement, it is still seen as a useful template and starting point for good practice.
**CHANNELS OF KNOWLEDGE FLOW BETWEEN UNIVERSITY AND INDUSTRY ARE DIVERSE, WITH VARYING SIGNIFICANCE FOR INDUSTRY**

<table>
<thead>
<tr>
<th>CHANNEL</th>
<th>DESCRIPTION</th>
<th>INTERACTION INTENSITY?</th>
<th>INDUSTRY SIGNIFICANCE?</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBLISHING</td>
<td>Most traditional and widespread mode of knowledge transmission</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>CONFERENCES &amp; NETWORKING</td>
<td>Professional conferences, informal relations, casual contact and conversations are seen as among the most important channels by industry across sectors</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>COLLABORATIVE RESEARCH &amp; RESEARCH PARTNERSHIPS</td>
<td>Resources are jointly committed by academic researchers and private companies. Range from small scale projects to large scale strategic partnerships eg PPPs</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>CONTRACT RESEARCH</td>
<td>Commissioned by a private firm to pursue a solution to a problem of interest, involves creating new knowledge as per the specifications of the client. Usually more applied than collaborative research</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>ACADEMIC CONSULTING</td>
<td>Research or advisory services provided by researchers to industry clients. Often led by individuals and not institutionalised.</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>INDUSTRY HIRING, STUDENT PLACEMENT</td>
<td>Firms get access to talent pipeline but main benefits for universities (joint supervision of theses, internships collaborative research)</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>PATENTING &amp; LICENSING</td>
<td>Ranked among the least important channels by both industry and researchers. Despite policy focus, little transfer of tacit knowledge</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>PUBLIC RESEARCH SPINOFFS</td>
<td>Receives substantial attention, but in fact a rare form of entrepreneurship compared to alumni and student startups</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>PERSONNEL EXCHANGES</td>
<td>May take many forms, usually university or industry researchers spending time in alternate settings</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>STANDARDS</td>
<td>According to OECD research, at least as important a knowledge transfer channel as patents</td>
<td>Low</td>
<td>Medium</td>
</tr>
</tbody>
</table>

*Source: Commercialising Public Research, New Trends and Strategies, 2013, OECD*
**Dundee’s Biotechnology Cluster**

The division of signal transduction therapy, run by Sir Philip Cohen, is supported by the MRC and the University of Dundee, and attracts £2.7 million per year in funding. From 5 of the world’s largest pharmaceutical companies: AstraZeneca, Boehringer Ingelheim, GlaxosmithKline, Merck–Serono and Pfizer.

The companies share the right to exploit the technical know-how, kinase profiling service and unpublished results, but they pay for special services and to license the unit’s IP. Forty per cent of the funding for this collaboration goes to a service facility with 25 staff in a series of ‘backup’ teams that support the 14 research groups. This expert team can be accessed by the companies, providing reagents and chemicals which generate a further £4 million per company over the four-year period. The unit has successfully spawned a number of start-up companies, most of which remain in Dundee.

**Rolls–Royce, EPSRC and University Technology Centres**

Rolls–Royce has co-funded large amounts of engineering research alongside the EPSRC.

Their network of University Technology Centres provides stable funding partnerships with specific institutions, focused on research areas of interest to the company. Beyond this, they have participated in research collaborations such as the ADAM (advanced aeroengine materials) project, a five year collaboration between Rolls–Royce, QinetiQ and six universities, with funding from EPSRC and DTI (now BIS). This investigation into the behaviour of high-temperature materials contributed to major engine improvements that Rolls–Royce has put into production.
A growing number of platforms enable online collaborative development. Marblar is an online collaborative development platform that lets users generate commercial applications for scientific discoveries. It attracts patents from NASA and commercial support for product development from Samsung. Launched over a year ago, 30 patents have so far been curated on the site, resulting in thousands of product ideas. Open IDEO is a collaborative design platform.

Crowdsourcing solutions, involves defining an unsolved challenge or problems, and creating an online infrastructure through which the widest possible range of participants can submit solutions, be judged according to a set of strict criteria and be rewarded for their achievement. Online ideas marketplace Innocentive, a spin out from pharma firm Eli Lilly, has 250,000 registered solvers from 200 countries competing for over $35 million in prizes. The US government has created new legislation to allow government departments to solve innovation challenges with crowdsourced prizes.

Whether it's the 250 million strong global LinkedIn platform, or the Technology Strategy Board’s _connect platform for the UK innovation community, there are a growing range of professional networking platforms that help firms to identify expertise, deals and track industry specific knowledge. These loose networks are a complement to offline networking programmes and their potential is rarely fully realised.

Proprietary digital platforms associated with products, which provide an opportunity for third party commercial innovations, have revolutionised the mobile and digital services industry. For instance, while the direct contribution to profits of Apps sold in Apple’s App Store is not huge, the indirect contribution, through value added to iPhone and iPad products is enormous. There are now over 300,000 Apps on Google’s competitor Android platform, which have been downloaded over ten billion times. This model is likely to spread beyond the mobile industry.
Collaborating internationally exposes innovative companies to additional risks which require tailored mitigation strategies.

The risks that companies face when collaborating internationally can be categorised as:

- **Preventable risks** that result from poor preparation or ineffective operational practice. E.g. failing to apply for a patent; choosing the wrong partner. They may also result from having a poor understanding of the local culture or from language barriers.

- **Strategic risks** that companies take in the knowledge that they are likely to generate strategic or financial returns; e.g. conducting R&D in China exposes a company to the risks of a relatively weak legal system, but they also gain access to local resources and markets.

- **External risks** such as political and economic factors and natural disasters that cannot be controlled, but can sometimes be influenced.

Innovative companies face specific risks that are less relevant to other businesses:

- They are likely to require a higher risk tolerance, since the rapid and regular development of new products or services is key to their competitive advantage;

- They depend more than other industries on IP for their value and growth strategies.

The risks innovative companies face, and their mitigation strategies, vary depending on company size and technology:

- Small companies may not have the resources to undertake market research, build government relationships and defend their IP.

- Advanced technologies are more difficult to copy as they embody a large amount of knowledge which is not published in patents.
While patents and other formal rights are often thought of as the main ways to protect IP, businesses use a wide range of formal and informal approaches.

For example, trusted relationships are key to innovation collaborations and must be cultivated over time. In a recent survey 74% of firms surveyed said that cultivating commitment and loyalty is an effective way to protect IP, compared to just 51% for a patent.

### Intellectual Property is the ‘Grammar’ of Collaboration on Innovation, and There Are Many Different Routes to Protecting It

<table>
<thead>
<tr>
<th>Approach to Protection</th>
<th>Description</th>
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<tbody>
<tr>
<td>Patent</td>
<td>An invention which is a product or a process that provides a new way of doing something, or offers a new technical solution to a problem.</td>
</tr>
<tr>
<td>Design right</td>
<td>Design Right refers to the specific legal protection available to unregistered designs in the UK.</td>
</tr>
<tr>
<td>Trademark</td>
<td>A sign (logo/words that make a brand) which distinguishes goods and services from that of a competitor.</td>
</tr>
<tr>
<td>Copyright</td>
<td>Artistic and creative works</td>
</tr>
<tr>
<td>Secrecy/non-disclosure agreement</td>
<td>Inventions that haven’t been patented</td>
</tr>
<tr>
<td>Restricted access to information</td>
<td>Trade secrets that have not been registered for legal protection</td>
</tr>
<tr>
<td>Division of duties</td>
<td>Involves splitting stages of the production or research process between different partners or suppliers</td>
</tr>
<tr>
<td>Cultivating commitment &amp; loyalty</td>
<td>Allows partners to share information without fear of IP theft</td>
</tr>
<tr>
<td>Fast innovation cycle</td>
<td>Bringing products and services quickly to market reduces risk of being copied</td>
</tr>
<tr>
<td>Complex product design</td>
<td>Products that do not embody large amounts of advanced knowledge are relatively easy to copy and manufacturers often make them unnecessarily complex in order to mitigate this</td>
</tr>
</tbody>
</table>
LEARN MORE


Nesta Innovation Index. Available at: http://www.nesta.org.uk/project/innovation-index


Nesta (2013) 5 Hours a Day: systemic innovation for an ageing population. Available at: http://www.nesta.org.uk/publications/five-hours-day


The OECD-World Bank Innovation Policy Platform. Available at: https://www.innovationpolicyplatform.org/


Chesbrough (2006) Open Innovation: the new imperative to creating and profiting from technology. Available at: http://books.google.co.uk/books/about/Open_Innovation.html?id=OeLIH89YiMcC&redir_esc=y


Find a range of practical resources, research and publications here: http://www.nesta.org.uk/project/crowdfunding


Technopolis (2012) Overview of international science, technology and innovation cooperation between Member States and countries outside the EU and the development of a future monitoring mechanism. Available at: http://ec.europa.eu/research/iscp/pdf study_cooperation_countries_outside_the_eu.pdf


For more on this see the work of Professor Nicholas Vonortas at the Center for International Science and Technology Policy, George Washington University: http://elliott.gwu.edu/nicholas-s-vonortas


The Big Innovation Centre (2013) Collaborate to innovate: how businesses can work with universities to generate knowledge and drive innovation. Available at: http://www.biginnovationcentre.com/universities-and-innovation-centres

IPO: Types of IP. Available at: http://www.ipo.gov.uk/types.htm