



## **Reader on Innovation**

views from France & Great Britain

### **A selection of Cordial Debate Prize / Prix Débat cordial 2010-2011 submissions**

The Franco British Comparative Project has created the Cordial debate prize for essays presented on its online platform, to promote the exchange of ideas among French & British scholars, alumni and students.

This award recognizes outstanding arguments short essay format--presented individually or as a team-- dealing with the following question:

**"This house believes that one of France or Britain  
has a superior system for promoting innovation"**

Le Franco-British Comparative Project a créé le prix du Débat Cordial, pour les essais soumis sur sa plateforme en ligne, afin de promouvoir l'échange d'idées entre universitaires, anciens élèves et étudiants français et britanniques.

Le prix récompense les essais courts, soumis individuellement ou en équipe, présentant l'argumentation la plus pertinente sur le thème suivant :

**« Nous défendons que des systèmes français ou britannique, l'un d'eux est le plus à même de promouvoir l'innovation ».**

Jury : • **Cedric Villani** Fields medal laureate • **Michel de Fabiani** Chairman of the Franco British Chamber of Commerce • **Lord Oxburgh** Former Chairman of the House of Lords Science & Technology Committee • **Declan McCavana** President of the French Debating Association and Professor at Ecole Polytechnique.

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## Essay by Nicolas Khadivi

Imperial College London Student

### *Introduction*

"Innovation" is defined as "the action or process of innovating", which in turns means "to make changes in something established, by introducing new methods, ideas or products" [1]. At country level, it has been long established that innovation and entrepreneurship were two of the most critical dimensions of economic change and that long-term economic growth results in a large part from innovation. Throughout the 20th century, many theories were developed by economists in order to promote innovation, and some of these theories were tested at large-scale by different governments in various countries. These theories acknowledged the crucial roles of research structures, both in universities and companies, as well as the link between corporations and the academic world, and incentive policies led by the state [2]. These three aspects of innovation promotion and their assessment enabled experts to establish an "innovation index", and various rankings of countries with the best policies for promoting innovation [3]. By scaling the question to a Franco-British perspective, we can now ask us the following question:

**"Which of France or Britain has a superior system for promoting innovation?"**

In a first part, we will discuss and draw comparisons between French and British policies for the promotion of research structures and investments in the education system. In a second part, we will discuss the corporate side of innovation that is research & development and the commercial applications of innovation. Finally, we will talk about incentive policies and the mechanisms that link the scientific and technological base of the country to the corporate world, those mechanisms that enable innovation to drive the economic growth of a country.

### *Part I*

As we said earlier, formation and research are at crucial to innovation, as the creation of new products and the discoveries of new technologies rely on the knowledge and the creativity of the people. The research structures are very different in France and in Britain, both having inherited from the various political systems and governments throughout the times.

The French structure for public research is somewhat unique in the Western world. It is based on two major systems managed by the Ministry for Higher Education and Research: research institutions such as the CNRS (French National Centre for Scientific Research) and higher education institutions.

Unlike the British and American structures, researchers are civil servants, and thus benefit from the different protections this status grants them. However, because of this status, salaries are usually low compared to foreign countries, causing some of the best researchers to accept better-paid positions in American or British universities (as a consequence of the brain drain).

The British research structure differentiates itself from the French system in the way that it is centred on the separation of ministries, financing institutions and execution of research. The DIUS (Department for Innovation, Universities and Skills) distributes the public research budget to the Research Councils and the Higher Education Funding Councils, who in turn finance research projects based on the results of the RAE (Research Assessment Exercise).

Various research assessment mechanisms can be found in France. In the CNRS for example, affiliated research laboratories are evaluated every four years, and researchers are assessed every two years. Unfortunately, these assessments usually have modest consequences resulting from the protection civil servant benefit from in France.

In contrast, the British RAE is responsible for the assessment of research in university faculties and departments around the UK, resulting in higher endowments for the best universities. Since research is executed almost exclusively in the universities, and as a consequence of the fact that researchers are not civil servants, universities are free to choose the salaries and finance research projects on their own budget (using the tuition fees for example).

Finally, since most of the research is done in public laboratories (usually resulting from a cooperation between various universities and research institutions such as the CNRS), most of the discoveries and academic papers are credited to these laboratories, causing French universities and Grandes Ecoles to have very low ranks in international academic rankings compared to British universities, despite their excellent academic level.

On the contrary, British universities have a long-standing reputation of excellence, and usually rival American university at the top of international rankings. This strong international reputation has two main reasons: history and research output. The historical longevity of the Ancient Universities (such as Cambridge and Oxford) combined to the importance of the United Kingdom during the industrial revolutions still play an important role today. Thus, the British universities are able to attract world-class scientists and students, who in turn play a major role in the excellence of the research output [4].

From the point of view of research, France is still behind the UK in terms of scientific publications and academic reputation worldwide. Where British universities are able to attract world-class scientists, the French fail to do so, mainly because of the fact that the State still plays an important role in scientific research, and because French academic institutions are unable to advertise their excellence to the world through academic rankings for example.

This results in a better structure for innovation in Britain, with universities competing against each other for excellence. This competition drives innovation in the way that investments are made in order to keep the brain drain and market scientific discoveries (through spin-off companies for example), Industry also plays an important role in collaborating with universities, as private funding now approximately equals public funding at 10 billion per year.

## ***Part II***

It has been established that within a globalised economy, a country's capacity to innovate is a major advantage it has become a way to measure a country's economic health.

After World War II, France's economy was one that focused on catching up with the countries that had the technological leadership, such as the United States. However, France has now reached this technological frontier and therefore needs to innovate in order to grow.

The INSEE (French National Institute for Statistics and Economic Studies) uses four economic indicators to measure the capacity of French companies to innovate: the level of productivity (GDP per head/GDP per working hour), the number of patents, the amount companies invested in R&D and finally, the technology transfers balance. Using these statistics, we can compare the capacity of British and French companies to innovate.

Firstly, the level of productivity is measured in two ways and gives different results. Our statistics are date from 2003 and can be found in [5]. The French economy shows better performance in terms of GDP/hour (+3% for France, -16% for the UK, relative to the US), however Britain has the advantage for GDP/head (-29% for France, -21% for the UK, still compared to the US). These statistics are in the average of OECD countries but show that, in general, the British economy produced more wealth than the French economy.

The capacity to innovate can also be measured by comparing the number of patents filed by each country at the European Patent Office. In this domain, France has the advantage over the UK, with 7,500 patent registrations against 5,300 for the UK (in 2001). Again, these two figures are in the average of OECD countries. However they enable us to reach two conclusions: France and the UK are behind in terms of patents, compared to the US, Japan, and especially Germany (23,000 patents

filed in 2001). This observation can be emphasised when looking at figures for ICT (Information and Communication Technologies), one of the most dynamic sectors of innovation [5].

Regarding R&D investments, we can reach conclusions similar to those we established for patents. France has a slight advantage of the UK in terms of percentage of GDP invested in R&D, however both countries remain far behind Sweden, Finland, Japan, South Korea and the United States. It is also interesting to notice that neither country has reached the Barcelona objective which aimed at 3% of GDP invested in R&D for 2010.

Finally, the last way of comparing the capacity to innovate of both countries is to analyse the balance of technological payments that is the commercial transactions relating to technology exports. In this domain, earned \$5.2 billion (14% of the R&D) and spent \$2.0 billion on technology transfer in 2003. These figures show a satisfactory score for France, but an excellent one for the UK, earning \$22 billion and spending \$9.6, with the balance reaching six times that of France at \$12.9 billion [5].

Although both countries show many similarities in terms of figures for corporate innovation, the UK still has a slight advantage over France, with a better level of productivity and an impressive capacity to export technology. However, the main conclusion we can reach from these figures is that both the UK and France are behind German, Japan and the United States in terms of technologies and corporate innovation.

### ***Part III***

We have previously discussed the roles of academia and industry in the promotion of innovation in France and Britain. In this final part, we can now discuss the mechanisms that link these two fields, and the application of innovation through links between universities and corporations, the existence of competitiveness clusters and governmental incentive policies.

In the 1980s, British universities established technology transfer centres in order to be able to market their discoveries. For example, in 1986, Imperial College a company dedicated to that purpose, called Imperial Innovations. Such companies link academia and industry and enable universities to benefit from their innovations by marketing them. Also, these technology transfer company play an important role in the creation of spin-off companies, and therefore contribute to the economic growth of Britain.

Such links rarely exist in France, therefore, many academic inventions are not transferred to the industry and universities do not benefit from their research. Various causes can explain this observation, the main one being the lack of links between public research laboratories (such as the CNRS), funders and companies. According to the French Ministry for the Economy, a better transfer of technologies would help France reach the 3% GDP investments in R&D.

Another crucial aspect of innovation was given by Michael E. Porter, a leading authority on competitiveness, and professor at Harvard Business School. He was the first person to define the notion of competitive clusters and acknowledge their importance in the promotion of innovation. Porter formally defines clusters as geographic concentrations of inter-connected companies, specialised suppliers, service providers, firms in related industries, and associated institutions (for example universities, standards agencies, and trade associations) in particular fields that compete but also co-operate [6].

The British policy for clusters is a regional one, i.e. each region is responsible for facilitating the development of clusters within its territory, mainly through the Regional Economic Strategies (RES), which provide a guideline not only for regional authorities, but for other economic organisations as well. Regional Development Agencies (RDA) are responsible for carrying out the RES, usually by funding projects, directly or indirectly. It is important to note that each RDA has a Science and Industry Council (SIC), which brings together business, university and public sector experts.

This policy has resulted in the creation of Science Parks, with at least one for each RDA. Also, each major area of scientific research has its own Science Park. The most famous of these is the



Cambridge Science Park, founded in 1972, which brings together the University of Cambridge and over 100 companies such as Philips, Toshiba or Qualcomm [7].

In contrast with the UK, the French policy is managed by the State, and more specifically by the Minister for the Economy. The development of clusters started in the 1970s, with Sophia-Antipolis (Nice) being the first one, and also one of the most successful ones. Sophia-Antipolis now houses almost 1500 companies, various public laboratories, more than 5000 students and also a branch of the intellectual property office [8].

However, apart from Sophia-Antipolis, few other projects were backed by the French governments until 2002. This is starting to change, as the government is now massively funding the 71 clusters that exist in the country (almost 1.5 billion from 2005 to 2008), with 50% of this funding going to 6 global clusters.

## ***Conclusion***

We have seen throughout this paper, that France and Britain have many differences in the way they promote innovation. While the French method is usually driven by the State, the British model enables various independent institutions to promote innovation by working together, with the State financing and supporting indirectly. Having analysed different aspects such as academic research, innovation in corporations, as well as the links between universities and industry, we have concluded that Britain's model for promoting innovation is superior to France's. However, we can qualify this opinion by observing that on an international scale, France and Britain are usually close to each other but far behind countries such as Germany. Therefore, we can wonder if a common European policy for innovation, with more cross-border initiatives would enable Europe to catch up with the United States and sustain its economic growth by promoting innovation.

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## Essay by Jean d'Andlau

Étudiant à Sciences Po Lille

**"This house believes that one of France or Britain has a superior system for promoting innovation"**

EN FRANÇAIS

On peut considérer qu'il existe deux types d'innovation : l'innovation sur le court terme et l'innovation sur le long terme. Cette essay analysera plus précisément l'innovation sur le long terme. En effet, c'est une politique innovation permanente et totale que mette en place des Etats comme la France et la Grande Bretagne. Il ne s'agit plus seulement d'acquérir un avantage compétitif mais de pérenniser cette compétitivité qui doit être durable. A ce niveau, l'innovation devient un pilier de la stratégie de croissance d'un Etat. Il se doit alors de mettre en place un système de veille et de partage de l'information, de protéger ses innovations grâce à sa stratégie de protection industrielle, et de créer une synergie partenariale avec d'autres Etats. L'innovation est à la fois un indicateur qualitatif et quantitatif, mesurable par des indicateurs concrets tels que l'éducation, les dépenses consacrées aux TIC mais aussi les investissements en recherche et développement ou encore au nombre de brevets déposés. Le tableau de bord de l'innovation européen établi par Bruxelles révèle que les écarts au sein de l'Union européenne se rétrécissent. La France et le Royaume-Uni, en position de suiveurs derrière les pays nordiques et l'Allemagne, ont vu leur écart en termes d'innovation régulièrement diminuer depuis quatre ans. Alors que les puissances émergentes, comme l'Inde et la Chine et de plus petits pays comme l'Australie et la Finlande attribuent près de la moitié de leur croissance à une politique d'innovation extrêmement audacieuse, qu'en ai-t-il de la France et la Grande Bretagne, deux pays durement touchés par la crise économiques et qui eux aussi associent croissance et innovation. Les problématiques de la recherche et l'innovation reflètent les sociétés et il est difficile d'envisager une simple transposition d'un model d'un pays a un autre. De plus, loin de la tache illusoire de comparer deux systèmes complexes dans les quatre pages autorisés, je propose d'exposer ici quelques points que j'ai personnellement pu expérimenter en tant qu'étudiant franco-britannique. En les développant, je mettrai en avant les forces et faiblesse des deux stratégies tout en proposant des solutions alternatives afin de les améliorer.

Tout d'abord quelques chiffres et une analyse du schéma français. En 2007, le président Sarkozy reconnaissait au début de son mandat que la France n'investissait pas assez dans la recherche et innovation, en particulier dans le domaine des TIC, il s'est engagé à augmenter le budget de l'enseignement supérieur de 50% en cinq ans, l'effort de recherche de 40% sur la même période et à concentrer nos efforts sur quatre à cinq priorités. Aujourd'hui, le financement budgétaire des entreprises sur crédits d'Etat reste à hauteur de 74 % de leurs ressources, et le financement sur projets qui représentait 3% des ressources publiques des opérateurs publics en 1997 est passé en 2007 à 11%, tendance amorcée depuis 2004. En outre, dans la même période, le financement des projets de recherche publique a considérablement augmenté (de l'ordre de 16 à 17 % des ressources du projet). L'effort national pour la R&D est estimé à 2,2 % du PIB. L'innovation s'inscrit en France dans une stratégie de relance. En effet, annoncé le 4 décembre dernier par Nicolas Sarkozy, le plan de relance économique de 26 milliards d'euros indique clairement que pour doper l'économie, le gouvernement mise avant tout sur l'investissement et l'innovation.

La France a un niveau de productivité très élevé, cependant, malgré une politique volontariste et un bon soutien aux secteurs innovants, l'impact sur la croissance reste limité par suite d'un sous-investissement en général et plus particulièrement dans les NTIC, essentielles à l'innovation. De plus une inconsistance et le changement chronique de la législation sensée soutenir les entreprise innovante reste un des principaux freins au développement d'industries de pointes sur le territoire national. Créé en 2004, le statut de Jeunes Entreprises innovantes (JEI) permet aux dites entreprises d'obtenir un certain nombre d'exonérations fiscales. Ce cadre bénéficie notamment aux entreprises très innovantes du secteur des hautes technologies, employant beaucoup de personnel de R&D très qualifié, aux salaires élevés, et aux charges sociales pour l'entreprise d'autant plus élevés. Cependant, dans le cadre de la suppression des niches fiscales, un assouplissement législatif des avantages est prévu dans l'article 78 du Projet de Loi de Finance 2011 et propose d'entamer largement ce statut de JEI, et supprimer ainsi les exonérations fiscales qui écrasent les

entreprises en création. Ce revirement de politique d'innovation permet de mettre en avant une des difficultés françaises : est-il possible d'entreprendre, d'innover, lorsque le cadre législatif et fiscal peut changer du jour en lendemain? En effet, le statut de JEI est ici remis en cause moins de 5 ans après sa création, or, pour fixer les idées et obtenir ses premiers résultats, une entreprise a besoin d'entre 10 et 15 ans. Si chaque jour, un entrepreneur ouvre son journal en se demandant quelle nouvelle règle fiscale ou du droit du travail a changé, peut-il planifier, prévoir, investir? L'Etat, censé être le gardant absolu du long terme, apparaît ici comme une entité gérée par des hommes politiques court-termistes. Cet Etat rajoute alors un élément d'incertitude pour les entrepreneurs, qui évoluent pourtant dans un environnement qui n'avait pas besoin d'être encore complexifié. Les aléas d'une fiscalité trop souvent changeante reste une des premiers frein à l'innovation en France.

En Grande Bretagne, la stratégie d'innovation se caractérise par un très grande nombre de programmes lancés et appuyés par les pouvoirs publics. Dès 2004, le gouvernement avait déjà lancé un « Cadre de financement sur dix ans pour la science et l'Innovation » (« 10-Year Science and Innovation Funding Framework ») avec pour objectif de porter la R&D en Grande-Bretagne à 2,5 % du PIB. Plus récemment a été établi le « Technology Strategy Board » (TSB) pour stimuler l'innovation dans le secteur commercial et identifier pour le gouvernement les domaines qui offrent le plus grand potentiel pour l'augmentation de la productivité. Des partenariats bilatéraux pour le transfert de connaissances (« Knowledge Transfer Partnerships ») ont été mis en place entre universités, entreprises, réseaux de transfert de connaissances nationaux et multinationaux pour sensibiliser aux comportements déontologiques et permettre des discussions sur des questions relatives à des secteurs spécifiques. Enfin, dans le domaine de l'emploi, des « Sector Skills Councils » ont été créés pour déterminer les besoins des entreprises dans tel ou tel secteur et s'assurer qu'elles peuvent disposer d'une main d'œuvre adéquate pour mener à bien l'innovation.

Contrairement au model français, la politique d'innovation britannique se caractérise donc par des projets établis par les pouvoirs publics avec une vision sur le long terme. Cependant, la principale faiblesse du model britannique reste les barrières et le manque de coopération entre universités et laboratoires, entreprises, secteur public et monde commercial. Une des pistes, pour tenter de remédier à cette situation est, de nommer dans les Conseils d'administration des universités des personnalités du monde des affaires, l'inverse est tout aussi important mais très peu d'universitaires ou de chercheurs prennent place, dans les Conseils d'administration des grandes entreprises. C'est cette incapacité à tisser des liens entre les universités et les grandes entreprises qui se tournent vers l'extérieur et ne s'intéressent pas à l'environnement des premières qui reste un des principaux un échec constaté de la stratégie d'innovation en Grande Bretagne. Ainsi un des défis les plus importants est d'établir des « passerelles », des contacts entre les différents acteurs : Etat, administration, région, entreprises, universités et laboratoires. De plus, alors que la France développe en ce moment même de nombreux pôles d'excellence dans le cadre du plan de relance, les financements en Grande-Bretagne restent encore trop concentrés sur quelques universités d'excellence, ce qui n'est pas nécessairement un avantage : 25 % du financement sont affectés à 4 universités, 8 % à 20 autres.

Pour conclure, rappelons qu'en matière d'innovation, il n'y a pas de solution toute faite. Un des aspects importants est la « polyvalence » et l'interdisciplinarité : il faut, en fin de compte, soutenir toutes les catégories de recherche et faire travailler ensemble tous les acteurs du processus. De même est-il souhaitable que soit développée une bonne communication en termes de fiscalité afin de permettre le développement d'une vision sur le long terme. Ainsi la France ce démarque par un fort investissement des pouvoirs publiques dans une grande diversité de pôles d'excellence contrairement à la Grande Bretagne qui doté d'un système plus rigide, s'axe sur un nombre restreint de centres pour assurer sa stratégie d'innovation ; alors même que la coopération interne de ce système reste limitée. Cependant, avec ses politiques développés sur le long terme, le modèle anglais doit servir d'inspiration aux politiques français, souvent trop enclins à calculer sur le court terme, voir de sacrifier le potentiel d'innovation, pourtant essentiel à la croissance, sur l'autel de l'austérité.

## Essay by Jonatan Thompson

Cambridge Alumnus, Sciences Po Student

"This house believes that Britain has a superior system for promoting innovation"

Innovation has become key catch-word in business and policy circles today. With connotations at once of alchemistic inspiration and no-nonsense productivity, it occupies the minds a growing number of private and public decision-makers, not least in Britain and France. Both former imperial powers, the two countries nowadays have to learn to live in a world of global capitalistic competition, where colonies and gunboats no longer provide the principal means to wealth and might.

The idea that innovation should be fostered by policy has taken hold in many areas: in education, in the civil service, and in private companies. Although there are big differences, innovation ideas are gaining ground on both sides of the Channel. Yet some aspects of innovation seem to be linked to cultural institutions which cannot be altered by political whim. There is also often disagreement about what the concept entails: although both the French and the British may agree to promote innovation, they may not, in fact, be promoting exactly the same thing.

The lone genius inventor?

Many people associate innovation with invention – the ingenious contraptions of Leonardo da Vinci spring to mind. If nurturing individual talent is the correct answer, then both France and Britain seem to have got it right. In both countries, the education system is fiercely meritocratic and singles out promising students in secondary school before propelling them upwards through highly selective elite universities. The contrasts are also large, however: while the French education system teaches students a wide range of sciences and liberal arts right up to the Baccalaureate, British teenagers go down a narrower path earlier on and are offered more soft choices like Theatre Studies and Music in A-levels, thus avoiding all having to ingest a heavy curriculum of political philosophy and classic literature like their French counterparts.

A further difference lies in the style of teaching: French lycées are tough places where students are graded in front of their classmates and teachers focus single-mindedly on pointing out their mistakes. British students, on the other hand, are more likely to be encouraged and tend to be graded less severely: the annual publishing of A-level results regularly leads to cries of grade inflation, with the polar opposite situation in France, where the top end of the 20-point scale remains unattainable. The French strictness wears students down, and the fear of unforgiving grading and classmate disapprobation discourages them from voicing original ideas. British students, in contrast, are known to be critical and even overconfident in the classroom. While much good can be said for the enlightened education of French students, their British counterparts are more likely to display a Da Vinci-like spark of independence.

The image of the lone genius inventor is, moreover, somewhat dubious in the innovation domain. We tend to remember individual innovators because the idea appeals to us instinctively, but from enlightenment philosophers to the developers of Google, the dissemination and challenging of ideas between individuals has been a greater source of innovative leaps. Recent years have produced a burgeoning literature on group thinking processes such as brainstorming and role play to stimulate innovation, which have been taken up and applied by many companies and organisations. In schools, the space set aside for sports and group activities in British education can help to bring out team players, while the more bookish French education often produces stars who prefer to go solo. Group activities, such as the 'TPE' project, have attained greater prominence in French education in recent years. Yet individual achievement still seems to be at the core of the ethos of the French education system. Great minds may think alike, but in Britain, they are more likely also to meet.

Turning ideas into reality – skills, resources, and the right conditions

So far, so good for the alchemistic notion of innovation as inspiration. However, while stimulating ideas and motivation are very good, they do not add value unless the right conditions and resources are present to execute them. Turning innovative ideas into added value requires both human and material capital. France, with its high-performance mathematics faculties and natural sciences



departments, as well as an excellent consortium of business and administration schools, every year turns out a large force of skilled and specialised graduates ready to take on demanding jobs without needing lengthy on-job training. Britain is different: undergraduate and much master-level education is mainly academic and does not train students for a specific career; indeed, a high number of students take up completely unrelated jobs after their studies. Meanwhile, the French system produces a cadre of highly skilled administrators and experts who become valuable human capital for companies looking to executive innovative projects.

Developing and implementing innovative ideas also requires financial capital. Like renaissance art needed patronage, modern innovation requires investment before it can start turning to net benefit. Financing experiments and marketing ideas requires sponsors willing to run risks on start-ups, the role of venture capital and angel funds. London's venture investment community is far ahead of its Parisian counterparts, according to Techcrunch, the online magazine. The French government has introduced its own investment programme to fund high-tech and online ventures such as Dailymotion, which have enjoyed some success, and the number of projects and investors active in France is increasing steadily, even through the downturn. For now, however, Britain remains a better destination for cutting-edge technological innovators looking for start-up funds.

Going beyond financing needs, the broader regulatory and competitive environment is also an important element in the equation. The British government attributes great importance to promoting innovation via regulation and education; an effort initiated by Labour and carried on by the current government. A notable example is the merger in 2009 of the former Department for Innovation, Universities and Skills with the Department for Business, Enterprise and Regulatory Reform, into once overarching structure. This year, new Prime Minister Cameron has called early on for a 'cultural shift' in Britain towards innovation and entrepreneurship. The efforts of top-down promotion have been less overt in France, but under Mr Sarkozy, significant measures have been taken, such as to expand the professional baccalaureate and help small and innovative enterprises set up shop more easily. Paris is a regional economic powerhouse, and its concentration of highly skilled labour and high quality infrastructure attracts innovative companies and encourages new ones to spring up. Yet as an environment for innovation, the Ile-de-France still lags behind the 'Silicon Fen', the cluster of small high-tech businesses located in Cambridge and the area surrounding it, which in 2009 was the destination for almost one tenth of European venture capital. As the presence of innovative companies tends to attract more, it seems that Britain will keep its lead over France in this respect, thanks to greater investment and an innovation-friendlier environment.

So, can we conclude that Britain's system for innovation is superior, on the whole, to that of France? The answer is, broadly speaking, yes, although to have the full picture we must also consider factors whose effects are harder to pinpoint – such as history and culture. Language may play a role: Walter Russell Mead argues that the sheer accessibility and flexibility of the English language might provide an ease and comfort for thinking out of the box, which the notoriously rigid French language does not. The status of lingua franca certainly doesn't do any harm either, and allows a British entrepreneur to work easily with people from most of the world. Yet, in spite of its disadvantages, France produces some of the best-trained graduates in the world, who increasingly speak several other European languages, in contrast to Britain, which does not. A high level of general education also means that France is more capable of diffusing and adopting innovative ideas across society.

But one buffer keeps innovation confined in both countries: a poorly managed post-imperialist multiculturalism. In Britain as well as in France, well-entrenched social elites dominate the best universities and jobs, while large parts of the populations are socially marginalised and outside the mainstream culture. Battling inequality for greater social mixité is an important challenge, necessary to encourage and educate new generation of innovators, and in this respect, both countries have much work to do.

## **Essay by Ilaria Mazzocco**

Central European University Student

"This house believes that one of France or Britain has a superior system for promoting innovation"

There is plenty of data on innovation, including indexes as well as a plethora of factors that can be used as proxies for innovation. Unfortunately, it is not necessarily reliable. This is not because of flaws in the way the data is processed, but rather because many of those indicators testify the presence of innovation, as opposed to a system that promotes innovation. The difference is not meaningless. One could argue that Britain has a higher rate of technological and scientific innovation because of the widespread use of English in international scientific publications. Thus, British scientists would have higher access to publications written abroad, including to research from other English-speaking countries, such as the USA, Canada or Australia. Better access and communication often results into more knowledge and hopefully innovation. Even if this were the case, it would not prove much of the current British system. At most it may prove that it is worthwhile to study English if you are a scientist. As a consequence, I propose to first look at some data and then carry out a comparative analysis to trace causes and possible explanations. The argument will be based around the comparison with countries whose system is deemed more and less friendly towards innovation.

The first measure of innovation in a country would be to look at patents. According to a report issued by Patent Technology Monitoring Team in the US Trademark and Patent Office, patents issued by the US government to French and British residents over the 1996-2009 period are roughly similar, (103771 UK to 103202 for France). When looking at registration in the home countries, Britain seems to have slightly more residents registering patents than France for the years 2004-2005, according to a World Intellectual Property Organization (WIPO) report. According to the same paper, though, there was a higher percentage of French residents registering patents abroad than British ones. Finally, since 1977 many have chosen to register patents at the EU office—which opened that year—rather than the national one. Thus this conclusively proves data from patent registration is non-conclusive.

A better way to measure innovation is then taking an aggregate measure of various indicators. This has already been done by the Boston Consulting Group (BCG) and the National Manufacturing Association of America. Their analysis includes a variety of elements, ranging from fiscal policy to R&D investment, state of education and investment indicators. This classification places Great Britain ahead of France. While this may prove the UK's superiority in promoting innovation, it will not be considered definitive by this paper. Aside from doubts which may arise from the index' methodology itself, the two countries' scores are not too far apart.

To better assess the two countries' systems, I propose to compare them to two other states. Taking into consideration only the G20 countries, we find South Korea and the US leading the BCG list. Given how different South Korea is culturally, socially and economically from either France or the Great Britain it will be left out of the comparison. The country with the lowest score was Brazil, preceded by a few other emerging economies. In these states weak rule of law and poor access to education are probably responsible for the poor result. They are also not comparable from a socio-economic point of view with either of the countries in our sample. Among the G20 countries, the lowest-scoring country that not classifiable as an emerging economy was Italy. As a consequence, I propose to compare the French and British systems to that of the US and Italy in order to assess best and worst practices.

### Analysis

Due to lack of time and space we will not delve into a deep comparative analysis. Only three sectors, deemed to be relatively important to foster innovation, will be taken into consideration.

Education is fundamental in shaping a dynamic and innovative work-force. As a consequence it will be the first aspect to be taken into consideration. The comparison is not hard to draw. While the British secondary education system is not too similar to the American one, it is less specialized than

the French one. French high schools are more similar to Italian ones. Both systems expect students to choose a specific track at a relatively early age. Choices made in high school are supposed to reflect future expectations. Thus, the track picked in secondary school is likely to affect one's University career. This is especially because the higher education system itself is highly specialized and does not encourage much trans-disciplinary exploration.

The American higher education system mirrors the British one under various aspects. They are more interdisciplinary and allow for more flexibility compared to both the French and Italian systems. The latter, unlike its French counterpart, is falling in disarray and is often accused of being corrupt. While French Universities are significantly better organized than Italian ones, they are not necessarily much better equipped when it comes to encouraging innovation.

What is expected to emerge from an educational system that rewards creativeness and encourages innovative ways of thinking is entrepreneurship. From a logical point of view high rates of entrepreneurship are likely to lead to more innovation. Thus, it is worth taking the time to compare rates of entrepreneurship and promotion thereof. To find data regarding entrepreneurship we can use two different indexes, the Global Entrepreneurship and Development Index (GEDI) for 2010 and the Global Entrepreneurship Monitor (GEM) for 2009. Both seemed to place the US ahead of all other countries as having higher rates of entrepreneurship and policies that encouraged entrepreneurs. The UK follows suit placing itself ahead of France. In particular it is worth noting that according to GEM there is a significantly higher rate of Early-stage entrepreneurial activity in Great Britain compared to France. Unsurprisingly Italy scored the lowest.

When looking at data regarding perception and expectations as compiled by GEM, it appears that France has one of the highest rates of "entrepreneurial intentions." This would seem that the lack of entrepreneurial activity is not due to a lack of potential, but because of systematic constraints. Among the problems encountered by French entrepreneurs there may be financial ones. According to the GEM report costs for starting businesses were the highest in Italy and the lowest in the US. The UK's costs, while higher than in the US, were significantly lower than in France. Yet, while French entrepreneurs may have good intentions, they may also lack the incentive. That may be due to the level of job security. France and Italy have relatively strict policies protecting workers and regulating employment. Unions are also more powerful in these countries than in the US and the United Kingdom. Unfortunately, although this may provide more security and social stability, particularly in times of economic growth, it does not encourage entrepreneurship or innovation.

The final comparison will concern an obvious difference between Italy and the USA: multiculturalism and immigration. While immigration can often be a socially disruptive phenomenon, it is also a bearer of innovation, under a variety of fronts. Aside from the long-term positive effects carried by cultural innovation and change, those born and educated abroad can also be vehicles of technological and scientific innovation. It is also often the case that immigrants are more likely to engage in entrepreneurial activities. Regardless of education those who are willing to leave their country and establish themselves abroad are more likely to have initiative and willing to take on calculated risk. Aversion to immigration is present both in the US and in Italy. Yet, there is a higher variety of background among those who move to the US. In particular, the US attracts many skilled workers. While some stay after having moved to America for schooling, others move there because of real and perceived advantages. This is also the case in Great Britain.

Among the four countries under scrutiny, the estimated net migration rate in 2010, according to the CIA factbook, is highest in the United States. The UK is the runner-up, and is followed not by France but Italy. Yet, it is true that there is a high rate of French citizens of foreign-born parents. France has been a multicultural country long before Italy. Nonetheless, while it is hard to measure integration and acceptance in society, it would also be hard to prove that those of foreign origin are particularly accepted in France. On the whole it does not seem out of line to draw the conclusion that Britain attracts more immigrants with a higher level of skills than France.

#### Conclusions

The paper proceeded by looking at the similarities and differences between Britain and France on the one hand and the US and Italy on the other. The American and Italian systems were considered respectively as models for best and worst practices. The comparative analysis led to the conclusion



that the British system, being the closest to the American one, is more innovation friendly. While France remains significantly stronger than Italy in enabling innovation, it lags behind the UK.

As a final note it should be mentioned that innovation alone is not necessarily a good indicator of social stability or economic growth. Nonetheless, a country that encourages innovation is more likely to have the instruments and know-how to face future changes in economics, politics and the environments with confidence.

## Essay by Simon Garcia

Sciences Po alumnus

### **Nous défendons que des systèmes français ou britannique, le système français est le plus à même de promouvoir l'innovation"**

La thèse peut surprendre. Elle peut même laisser un lecteur sceptique, qui reliera l'assertion par deux fois. C'est qu'affirmer que la France ferait structurellement mieux que son voisin Britannique va à l'encontre de toutes les évidences. N'est ce pas le «système» britannique, cette alliance historique du libéralisme économique avec le progrès des sciences, à l'époque des Adam Smith, Isaac Newton, James Watt et autres Edward Jenner, qui a mené à cette «grappe d'innovation» pour reprendre l'expression de Schumpeter, qu'a été la première révolution industrielle? N'est ce pas ce génie britannique qui a mené cette nation à la pointe de cette «Révolution» qui a mené le monde à la prospérité économique?

Certes, notre démonstration se doit de débiter par une concession de taille. C'est bien le triomphe des idées de la révolution britannique qui a historiquement amorcé ce mouvement de bouleversement des modes de production: révolution financière mise en évidence par les travaux de Fernand Braudel dans son *Civilisation matérielle et capitalisme* qui a mené à une accumulation sans précédent des capitaux, révolution politique qui a conduit à l'affirmation des droits individuels, notamment liés à la propriété et, last but not least, révolution économique avec le développement des thèses libre-échangistes promues par les classiques.

Mais tout ceci est histoire. France et Royaume-Uni ont connu de profonds bouleversements, tant politiques que sociaux. Et notre assertion, elle, se conjugue au présent. Notre thèse est qu'aujourd'hui, c'est la France qui est la mieux armée des deux nations pour relever les défis d'un modèle économique fondé sur l'innovation, qu'il s'agisse de son système juridique, éducatif, financier ou encore de son système institutionnel.

En ce qui concerne le système juridique d'abord, dont la stabilité est déterminante pour que s'amorce le processus d'innovation. Sur ce point, le modèle français vaut bien le britannique. Les droits individuels, notamment ceux de propriété intellectuelle, sont désormais reconnus et protégés au frontispice du système juridique français, dans la Déclaration des droits de l'homme et du citoyen.

En ce qui concerne le système financier ensuite. L'accumulation du capital nécessaire au processus d'innovation est désormais beaucoup mieux assurée par le système financier français. Pour être plus explicite, la robustesse dont ce dernier a fait preuve dans la crise récente contraste avec l'effondrement inattendu du système britannique. Ceux qui furent paradoxalement les champions de l'innovation financière ont surtout révélé ces deux dernières années la fragilité de leur modèle capitalistique, véritable château de cartes financier, mirage vaporeux de la dérégulation, bien peu à même de financer une activité réelle fondée sur la rentabilité de long-terme.

Le système universitaire est également un facteur déterminant. Il est acquis que l'innovation, au moins dans sa composante technologique, est favorisée par la présence d'une main d'œuvre hautement qualifiée, notamment en matière d'ingénierie et de recherche scientifique. Et de fait, sur l'ensemble des diplômes d'enseignement supérieur décernés, l'OCDE comptabilise 23% de diplômes en science et ingénierie au Royaume-Uni contre 28% en France. Il est également à noter que le Royaume-Uni se retrouve également devancé, de peu certes, par son voisin continental en termes de nombre de chercheurs pour mille emplois (8 au Royaume-Uni contre 8,4 en France)

Quant au système institutionnel, il nous fait, pour être complet, étudier l'un après l'autre le rôle des pouvoirs publics et le développement des réseaux d'innovations dans les deux pays. Mais là encore, les faits penchent en faveur du modèle français

Le rôle joué par les pouvoirs publics en France est en effet traditionnellement bien plus développé qu'en Angleterre. En matière d'innovation, l'heure n'est plus comme au XVIII<sup>e</sup> siècle à promouvoir un libre-échange en réaction à des conceptions mercantilistes erronées. Le processus d'innovation est un processus endogène : chaque innovation génère ce que les économistes appellent communément des externalités. De ce fait, l'heure est bien au contraire à un soutien renouvelé, ou plutôt à une incitation constante des pouvoirs publics au développement des activités innovantes.

Certes, au Royaume-Uni comme en France, le soutien à l'innovation privée prend plusieurs formes. Il peut s'agir de subventions ou d'aides fiscales à la Recherche-Développement (R&D), mais également d'incitations à une collaboration plus poussée entre recherche publique et entreprises. Néanmoins c'est encore une fois en France que les mécanismes incitatifs sont les plus soutenus. Ainsi le mécanisme français déjà trentenaire du Crédit-Impôt-Recherche (CIR) constitue-t-il un levier puissant d'incitation, a fortiori depuis sa réforme en profondeur à l'occasion du vote des lois de finance pour 2004 et surtout pour 2008. On estime ainsi que la montée en puissance de ce dispositif d'exonération temporaire complète d'impôt sur les sociétés et de cotisations sociales patronales, malgré son coût non négligeable, devrait porter l'effort national de R&D à 2,25-2,45% du PIB sur les cinq-dix prochaines années, certaines études économétriques allant jusqu'à estimer que ce dispositif devrait avoir un effet positif sur le PIB potentiel de 0,3% à 0,6% par an sur les quinze prochaines années. Certes, le Royaume-Uni dispose également d'un mécanisme incitatif, sous forme d'une déduction d'impôt sur les sociétés massif, mais son coût est particulièrement élevé.

Surtout, l'innovation a besoin d'investisseurs de long terme, ce que les américains appellent « deep pockets ». Et de toute éternité, les pouvoirs publics français ont su mieux que les britanniques jouer un rôle actif dans l'économie et notamment dans l'économie de la connaissance. L'importance de ce rôle se lit encore dans les statistiques de l'OCDE : Même si elle est en baisse, passant de 50% en 2000 à 39% en 2008, la part des dépenses brutes de R&D imputables à l'Etat en France reste largement au dessus de celles du Royaume-Uni, avec 31%. Il est également à souligner que la France a su associer les collectivités locales de son territoire aux problématiques de l'innovation, ce qui constitue également un vecteur non négligeable d'innovation dans l'ensemble des territoires du pays, et non pas seulement dans ses seules grandes métropoles. Mais la question de l'investissement en capital dans l'innovation est avant tout indissociable de la problématique du capital-risque. Avec l'agence Oséo et les mécanismes de business angels, à l'instar du mécanisme « Jeune Entreprise Innovante », la France a su mettre en place les structures nécessaires pour garantir le financement de son très important tissu de petites et moyennes entreprises innovantes.

Enfin, si les développements et rebondissements de la Révolution industrielle nous ont été d'un quelconque enseignement, c'est bien que l'innovation n'est pas un processus individuel indépendant de l'environnement dans lequel il s'inscrit. Elle est bien plus le fruit des multiples interactions entre les acteurs, et de coopérations entre activités complémentaires : mutualisation des moyens, développement de passerelles entre laboratoires, universités, entreprises. L'insertion adéquate des acteurs dans un réseau institutionnel favorable favorise le processus d'innovation. Là encore, force est de constater que la France est mieux outillée que le Royaume-Uni. Depuis quelques années, les logiques de « pôles de compétitivité », « clusters », « grappes d'entreprises » et autres « systèmes productifs locaux » ont connu un essor important en France et reçu un soutien renouvelé, ainsi qu'une reconnaissance juridique de la part des pouvoirs publics.

Systèmes politiques, financiers, éducatifs, institutionnels. Tous, semblent aller dans le même sens, celui d'une meilleure adaptation de la France au processus d'innovation. Si un doute pouvait encore subsister sur ce sujet, il suffirait alors de s'en remettre à l'irréfutable, à savoir la vérité des chiffres. Les principaux indicateurs de l'OCDE, dont les études en matière de stratégie d'innovation font autorité, sont univoques: la France investie nettement plus dans cette composante primordiale de l'innovation qu'est la R&D. Avec 2,1% du PIB investi en R&D (en termes de dépenses brutes ramenées au PIB pour l'année 2008), elle devance de loin sa voisine insulaire, qui ne consacre que 1,8% de son PIB au secteur, soit moins que la moyenne européenne. On pourrait objecter que la quantification économique des moyens alloués à l'innovation ne peut décemment laisser présumer de l'efficacité du système. Qu'en est-il concrètement des résultats ? A cet argument, il sera aisé de

souligner que les résultats sont aussi probants. Pour en rester à la vérité des indicateurs chiffrés, on remarquera simplement, avec l'OCDE, que la part de la France dans les brevets triadiques s'est élevée à 5% en 2007, contre 3% pour le Royaume-Uni.

La démonstration semble ainsi faite, et nos contradicteurs ne pourront rien y objecter, que c'est bien aujourd'hui le modèle français, sur tous les plans, qui s'avère le plus adapté à l'innovation. Mais cet argumentaire se veut néanmoins pondéré et pertinent. C'est pourquoi nous devons en finir en ouvrant des perspectives plus large, et dépasser la simple comparaison franco-britannique. Au-delà d'une évaluation relative de nos deux systèmes, propre très certainement à encourager l'émulation de chacun d'eux, c'est le système européen tout entier qui aujourd'hui doit être considéré en matière d'innovation. C'est bien la stratégie de Lisbonne, définie en 2000, reprise dans la nouvelle stratégie « Europe 2020 », qui invite désormais les Etats-membres à renforcer leurs efforts en matière de R&D à 3%. C'est donc bien à l'échelle du continent qu'un modèle, unique d'innovation est entrain de ce construire. Et force est néanmoins de constater que, malgré leurs bons résultats relatifs, surtout en ce qui concerne le modèle français, l'Europe semble très largement à la traine face aux deux autres grands pôles d'innovations que sont le Japon d'abord, et surtout les Etats-Unis d'Amérique. Mais ceci est un autre débat.