

WIC LA BAULE 2008

BRAIN POWER, THE MAIN DRIVER FOR EUROPE'S GROWTH

Scoping Paper

"The human creativity is the ultimate economic resource!"



Source : Richard Florida

CONTENTS

Executive Summary	1
Introduction	3
Chapter 1. Creativity in Europe — the keys to growth	5
Chapter 2. Creativity to underpin business competitiveness	11
Chapter 3. The Knowledge Economy	19
Chapter 4. Creativity and Foreign Direct Investment.....	23
Chapter 5. Public policies and support for the knowledge economy	27

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EXECUTIVE SUMMARY

For a wide variety of reasons, the competitiveness of European countries and regions – as in other developed countries – needs to rest on the creativity of the men and companies established there.

Contrary to raw materials, the creativity of a population is theoretically an inexhaustible, renewable resource provided that its learning is promoted and its fulfilment is encouraged while rooting talent in the territory.

While it is possible to predict the long term demise of the theory whereby the global economy is a bipolar world in which developed countries create and innovate while developing countries produce even as the newly-affluent sections of their populations consume luxury products, the fact remains that Europe undeniably has a competitive edge in a number of sectors resting on strong creativity and recognised know-how that will need to be preserved and further developed in the face of the threats and opportunities represented by emerging countries.

In order to retrain this kind of competitive advantage, public authorities and the private sector will self-evidently need, each in their own area of competence, to pay attention to competitiveness factors including:

- ✓ the quality of human resources, including their varied nature and mobility and the smoothness of movements between different sections of personnel;
- ✓ the attractiveness of both individual regions and their universities for talent and RTD- and innovation-related activities;
- ✓ the financing of creative industries and the protection of intellectual property rights;
- ✓ harnessing and leveraging businesses' intangible assets, generally comprising their human, knowledge-based, process and customer capital and notably taking the form of patents, brand and design;
- ✓ the ability to mainstream new technology into traditional industries or to develop new uses for existing products in the absence of new market development opportunities;
- ✓ evolving competitiveness and product and service range renewal in creation-intensive sectors in which Europe has global industry leaders (luxury products, fashion, design, development tools, aerospace, etc.);
- ✓ leveraging creativity and talent as key regional marketing campaign arguments;
- ✓ the impact of NICT – and possibly web 2.0 – on the relocation/automation of creative functions such as design and technological innovation;
- ✓ developing new markets (alternative energy sources, wellness, eco-development, etc.) for which the ability to innovate will generate sizeable new market opportunities;
- ✓ implementing public and business support service policies that are suited to the needs and demands of companies conducting creative activities or rooting their future development in intangible capital;
- ✓ the role of universities in local development.

To assess regional performance in the knowledge-based economy, there would be a need to develop an overall regional index of knowledge supply reflecting both regional knowledge production and regional attractiveness for RTD and innovation activities and talent. In this context, it seems essential for developers and managers of clusters and competitiveness



centres to become aware of the impact of both the geographical disintegration of the business value chain and the disappearance of borders when it comes to the production and exploitation of knowledge. Such a realisation should lead to the development of transnational clusters and tools for interclustering.

INTRODUCTION

There are in theory no limits to the knowledge resources available to a country or region — in contrast to raw materials, for example — but optimum use of these resources requires an adequate cultural, educational, administrative, legal and tax framework. Structures must both favour and stimulate:

- creativity and the acquisition of creative capacities
- the spirit of enterprise and innovation
- the development of talent, and the ability to attract and retain talent
- cross-fertilization of expertise
- commercial applications of research results
- venture capital investment
- internationalization of thinking and planning
- markets and profits.

Only when these conditions are met can there be any real assurance that knowledge will generate new knowledge without exhausting the possibilities of the sectors concerned. In the future, the value of a region's overall knowledge offering may well be the crucial measure of its wealth¹. Can there be any lasting credence in the idea that the global economy is divided into two compartments, one consisting of developing countries offering competitive production bases founded on low wage costs, and the other of developed countries that are the focus of creativity, research, original design, innovation and quality?

This question is worth asking considering trends in developing countries, where:

- University education is seeing exponential growth.
- Public and private² investment in R&D and innovation is rising steadily.
- Attractiveness is on the rise for R&D centres of European and North American multinationals³.
- Local businesses are making increasing commitments to innovation, design, quality and branding.
- Local talents will sooner or later move on from imitation to innovation, and overcome the quality failings that emerged during the summer of 2007.
- At the same time, European competitiveness clusters and other focuses of expertise are too inward-looking due to a lack of strategy or an inadequate international presence.
- Entrepreneurs and professional are in some cases returning to their native countries, reversing the so-called brain drain.

The knowledge society can shift the balance in development opportunities. A number of studies and ranking s (e.g., from Shanghai Jiao Tong University and Business Week), show that China, India, South Korea and other developing countries have achieved high levels of excellence in scientific and technological training. Fortunately, innovation is for the moment not only a matter of ideas or creativity, but also of organization and market approach. In some sectors, customer-centred innovation is critically important to effective responses and anticipation of demand, as illustrated by examples including Apple's iPod, Zara, Renault's Logan and Starbucks.⁴ In this area, the businesses of the west will probably hold onto their

¹ See Alvin and Heidi Toffler, "Revolutionary Wealth" (Knopf, 2006)

² SAIC Motor Corp. has just invested €180 million in its research centre at Jiading (Shanghai)

³ According to some studies, 400 multinationals already have research and technology centres in China, compared with 77 in India. The city of Shanghai's website claims 150 research centres.

⁴ See Innovation Tribune, Blog Innovation and Entrepreneuriat, among others.

lead on rivals in developing countries for a few more years. This lead is apparent in Business Week's 2007 list of the World's 50 Most Innovative Companies⁵, of which the first 25 are:

- | | | |
|---------------------|-------------------------|------------------|
| 1. Apple | 10. Sony | 19. Intel |
| 2. Google | 11. Wal-Mart | 20. Amazon.com |
| 3. Toyota Motor | 12. Honda Motor | 21. Boeing |
| 4. GE | 13. Nokia | 22. Dell |
| 5. Microsoft | 14. Starbucks | 23. Genentech |
| 6. Procter & Gamble | 15. Target | 24. eBay |
| 7. 3 M | 16. BMW | 25. Cisco System |
| 8. Walt Disney Co. | 17. Samsung Electronics | |
| 9. IBM | 18. Virgin Group | |

Eighteen of these are US businesses, including eight based in California, compared with only four Asian and three European companies. Of the top 50, 35 are from the US (including 11 from California), eight from Europe⁶, six from Asia and one from Canada.

In the Asia-Pacific area, the Red Herring Asia 100 ranking of start-ups, most with a focus on new technologies, counts 44 companies from mainland China and Taiwan, 23 from South Korea, 13 from India, four each for Japan, Singapore, Malaysia and Australia, three from Vietnam and one from New Zealand.

⁵ Based on interviews with 2,468 CEOs.

⁶ By order in the ranking: Nokia (Finland), BMW (Germany), Virgin Group (UK) Ikea (Sweden), Daimler Benz (Germany), BP (UK) Philips (Netherlands) and Volkswagen (Germany).

CHAPTER 1 CREATIVITY IN EUROPE – THE KEYS TO GROWTH

1.1 The concept of an economy based on creativity

The keys to an economy founded on creativity are:

- research
- invention and innovation
- design
- NICT content
- intellectual property rights (patents, copyright, trademarks, proprietary processes)
- quality
- artistic production
- roll-out of new products and services
- the combination of complementary knowledge and technologies.

Another term for the same thing is thus the “immaterial economy”, which is an integral part of what some observers now call the economy of knowledge.

To contribute to this economy, the various forms of competency listed above must underpin the creation of added value and the competitive advantages of a business or region.

In 2002 already, Richard Florida⁷ demonstrated the correlation between the creativity of people in certain towns and regions, and the rates of economic growth observed there. This hypothesis appears well founded in both the US and Europe. However, so far it appears to have attracted less attention and had less impact on national policies than the concept of clusters and other competitiveness groupings.

Richard Florida also developed a Creativity Index based on four equally weighted factors: the “creative class” share of the workforce, the place of high-tech industries, innovation and diversity.

He describes the forms of activity involved as follows.

“The economic need for creativity has registered itself in the rise of a new class, which I call the Creative Class. Some 38 million Americans, 30 percent of all employed people, belong to this new class. I define the core of the Creative Class to include people in science and engineering, architecture and design, education, arts, music and entertainment, whose economic function is to create new ideas, new technology and/or new creative content. Around the core, the Creative Class also includes a broader group of creative professionals in business and finance, law, health care and related fields. These people engage in complex problem-solving that involves a great deal of independent judgement and requires high levels of education or human capital.”

Ranked on the basis of Richard Florida's Creativity Index, the top ten urban areas in the US are, by descending order: Austin, San Francisco, Seattle, Boston, Raleigh-Durham, Portland, Minneapolis, Washington, Baltimore, Sacramento and Denver.

In 2004, Florida and Irene Tinagli published a report entitled “Europe in the Creative Age”, rating countries on the basis of their Euro-Creativity Trend Index. The best performers on this account were Ireland, Finland, Portugal, Denmark, Spain, Greece, Sweden, Belgium and Austria. France came in 15th, just behind the UK.

⁷ in “The Rise of the Creative Class”

Some European researchers have objected that the criteria used for Florida's Creativity Index (diversity, technology, innovation and presence of the creative class, represented by "three Ts": tolerance, technology and talent) oversimplify the situation and have devised an alternative model⁸ with six criteria: smart living, smart mobility, a smart economy, smart people, a smart environment and smart governance. Applied to medium-size European cities (i.e., with populations of 100,000 to 500,000), this identifies those most open to creativity as Luxembourg (Luxembourg), Aarhus (Denmark) Turku (Finland) Aalborg (Denmark), Odense (Denmark), Tampere (Finland), Oulu (Finland), Eindhoven (Netherlands), Linz (Austria), Salzburg (Austria), Montpellier (France), Innsbruck (Austria), Graz (Austria), Nijmegen (Netherlands), Groningen (Netherlands), Ghent (Belgium), Ljubljana (Slovenia), Maastricht (Netherlands), Jönköping (Sweden) and Bruges (Belgium).

In the UK⁹, statistics are collected on Creative Industries, and in 2005 these showed that:

- 117,5000 business were concerned
- creative-industry exports amounted to £13 billion.

Creative industries are taken to include:

- advertising
- architecture
- art and antiques
- crafts
- design
- fashion
- video, film and photography
- music and theatre
- publishing
- software, electronic games and electronic publishing
- radio and TV

Among the publications that are excellent sources of information on R&D spending by European business, two in particular have drawn our attention:

- Monitoring Industrial Research: The 2006 EU Industrial R&D Investment Scoreboard (European Commission)
- The Top 750 UK and 1000 Global Companies by R&D Investment (Department of Trade and Industry, UK)

Based on data for the 2004 financial year, the European Commission's report ranks the top ten EU companies by R&D spending as follows:

1. Daimler Chrysler (Germany)
2. Siemens (Germany)
3. Volkswagen (Germany)
4. GlaxoSmithKline (UK)
5. Sanofi-Aventis (France)
6. Nokia (Finland)
7. Robert Bosch (Germany)
8. BMW (Germany)
9. AstraZeneca (UK)
10. Philips Electronics (Netherlands)

The top ten outside the EU were:

1. Pfizer (US)
2. Ford (US)
3. Toyota (Japan)
4. GM (US)
5. Microsoft (US)
6. Matsushita Electric (Japan)
7. IBM (US)
8. Johnson & Johnson (US)
9. Sony (Japan)
10. Intel (US)

Interestingly, South Korea's Samsung is ranked 11th, TSM of Taiwan 126th, Petrochina 139th, Petroleo Brasileiro 211th, and Ranbaxy Laboratories of India 444th.

⁸ Study conducted by the Delft University of Technology - www.smart-cities.eu

⁹ Source: Department for Culture, Media and Sports — Creative Industries Economic Estimates, Statistical Bulletin, September 2006.

The study also shows that R&D investment by the top 700 EU companies totalled €102,238 million compared with €212,785 million for the top 700 outside the EU.

Finally, it should be noted that the structure of spending in the EU, the US and Japan differs¹⁰ as shown in the table below.

	EU	Japan	USA
Experimental development	41.4 %	61.0 %	55.4 %
Basic research	23.1 %	12.6 %	18.5 %
Applied research	35.2 %	21.3 %	23.2 %
Not classified	0.0 %	5.1 %	3.0%

1.2 Europe's strengths and weaknesses

Generally speaking, Europe is competitive as regards creativity and technological innovation, but suffers from shortcomings as regards:

- commercialization and marketing of R&D results
- venture capital and other financing to enable start-ups to win a place on world markets quickly enough
- critical mass needed for start-ups to create new markets
- protection for intellectual property rights, in particular the European patent¹¹ and the repression of counterfeiting
- access to public-sector contracts for innovative products and services
- availability of talent in some sectors
- the presence of businesses with high growth potential (so-called gazelles)

Without any attempt at exhaustivity, examples of European creativity at work include development of the internet and of Linux¹² and Skype, but in such cases US businesses and, by the same token, US regions have been the first to benefit from the worldwide commercialization of these inventions.

Europe has some undeniable competitive advantages in sectors of creative industry that include:

- Luxury goods (perfumes, eyewear, watch-making, leather goods, etc.)
- Fashion (clothing, footwear, etc.)
- Automobile design and household furniture
- Tableware
- Software in some areas (3D CAD-CAM)
- High-speed rail
- Racing, sports and luxury cars
- Architecture
- Gastronomy
- Diesel engines
- Aerospace
- Design tools (software)
- Cultural tourism

¹⁰ Eurostat Statistics in Focus — R&D activities and costs — vol. 120/2007

¹¹ At the third World Investment Conference in La Baule (2005), Pascal Gagny, CEO of Apple EMEA, argued for the adoption of a system for filing patents in two languages only, one necessarily English

¹² Portland (Oregon, USA) is now home to the leading world cluster in open-source technologies

Competition in these sectors is driven by innovation rather than cost and by clear differentiation based on the lasting strength of brand image.

In France, businesses in the luxury-goods sector are represented by the Comité Colbert (www.comitecolbert.com), an association counting 70 members that defends values such as “the combination of tradition and modernity, craftsmanship and creativity, history and innovation.”

The key challenges for Europe’s creative industries will be to preserve the tradition and renown of European design, while standing up to new pressures from companies like Hyundai and Samsung deploying a concept defined in terms of “a global mind-set with local design capability”.¹³

In creative industries, competition also comes from original design manufacturers (ODM) in developing countries that design and produce products for large European and American firms. This is the case in particular for computers and telecom equipment, as exemplified by Taiwan’s HTC¹⁴ and TSMC, a world leader in semiconductors. General Motors provides another example, selling cars made by Daewoo under the Chevrolet name, and Chrysler is preparing to do the same by selling Cherry cars from China under the Dodge brand. Some businesses in developing countries are also moving to buy European and American brands to boost sales and win international recognition without the need to piece together their own distribution networks.

1.3 Europe and global leadership

It is worth remembering that a number of European regions and cities such as Paris and Milan are world leaders in sectors such as perfumes, tableware and jewellery, with local businesses shaping and anticipating world markets.

The Tama cluster in Japan, which specializes in household linen, provides an interesting example with its choice of designers from the Veneto region of northern Italy to help local businesses trade up to the top of the market and counter competition from low-cost imports.

Europe’s leadership in the luxury sector is borne out by the findings of an Ipsos Insight survey¹⁵ covering seven countries. Asked what brands they spontaneously associated with luxury, respondents named brands that were nearly all European, as shown in the table below.

	F	UK	E	I	D	USA	JPN
1.	Dior	Rolls Royce	Rolex	Ferrari	Rolex	Mercedes	Chanel
2.	Chanel	Harrod’s	Mercedes	Cartier	Ferrari	Lexus	Vuitton
3.	Vuitton	Hilton	Ferrari	Valentino	Mercedes	Hilton	Hermès
4.	Ferrari	Mercedes	Chanel	Armani	Porsche	BMW	Gucci
5.	Cartier	Gucci	Rolls Royce	Rolex	Cartier	Cadillac	Rolex

¹³ See Antoine Van Agtmael, “The Emerging Market Century”

¹⁴ In 2005, HTC reported sales of \$2.3 billion, compared with \$1.3 billion for Palm, and \$8.3 billion for TSML. ** VERIFIER SVP = TSMC ?**

¹⁵ See Les Echos, December 13, 2007. Sample of 1,000.

Other regions and countries have developed world-class champions in traditional sectors by investing in new technologies and their integration.

Thus, creative European businesses have become world leaders in, e.g., cellphones, healthcare, transport and food. It will be interesting to examine whether European innovators and creative talent will be able to cash in on emerging markets faced with challenges such as environmental protection and/or energy savings, or care for an aging population. Will eco-innovation prove a prerequisite of European businesses?

The question is all the more worth asking in that legal and administrative requirements restrict access to many national markets for innovative business models and products. This is the case in sectors such as renewable energy, low-cost air services, and low-cost mobile telephony, and specifications for bidding on public contracts are often unfavourable for innovation. Against this backdrop, it will be interesting to see over the medium term how effective is the "lead market"¹⁶ initiative taken by the European Union in December 2007 for the following six sectors: eHealth, protective textiles, sustainable construction, recycling, bio-based products, renewable energies.

In the market now emerging for renewable energy, Europe counts a number of market leaders, among them:¹⁷

- ✓ Thenergo (Belgium): bio-mass energy
- ✓ Vestas Wind Systems (Denmark): wind energy
- ✓ Schmack BioGas (Germany): bio-gas
- ✓ Pelamis Wave Power (UK): wave energy
- ✓ Offshore Wave Industry (UK): wave energy
- ✓ Qcells (Germany): solar energy
- ✓ Iberdrola Renewables (Spain): wind energy
- ✓ First Solar (Germany): solar energy
- ✓ Joint Venture Johnson Controls & SAFT (France): lithium-ion batteries for automobiles

The table below compares North America, Europe, the Middle East and Africa (collectively EMEA) and the Asia-Pacific area as regards the sectors of operation for the top 100 businesses in the Deloitte 500 ranking of high-growth businesses (2004 figures). This shows the dominance of the US in life sciences and Asia in semi-conductors.

Sector	North America	EMEA	Asia-Pacific
Software	38	42	32
Computers	6	3	5
Internet	14	12	11
Communications	14	15	15
Semi-conductors	6	4	27
Life sciences	22	13	4
Other	-	12	6

¹⁶ <http://ec.europa.eu/enterprise/leadmarket.htm>

¹⁷ CNCB, European Business — January-February 2008

1.4 The EU's capacity to export to China

According to China's National Statistics Bureau, China imported some 10,538 technologies in 2006 for a total amount of \$22 billion¹⁸. In 67% of cases, these contracts were based on royalties, and in 23% on licences. Europe was the leading source, accounting for 39.3%, followed by 23.8% for Japan and 19.2% for the US.

¹⁸ In 2005, Chinese businesses invested \$15.6 billion in research and development, with \$4.54 billion of this provided by public authorities.

CHAPTER 2 CREATIVITY TO UNDERPIN BUSINESS COMPETITIVENESS

2.1 From concept to market

The rankings cited in previous pages show a significant difference between the US and the European companies included, **whatever the basis of the ranking**.

However, the European companies do not appear to be less creative than the American companies. What does appear to be the case, is that Europeans find it more difficult to set up new, high-growth companies (so-called gazelles) and build global champions.

European businesses also appear to find it more difficult to translate innovation into goods and services. This was underlined in an article that appeared under the heading “Vinci: Gifted for innovation, but less for its dissemination” in Les Echos dated December 20, 2007. The article went on to say that “the group has been successful in getting innovations from its operational base (a patchwork of 2,500 subsidiaries, which offer employees prizes for innovative ideas) but less so in putting them to work at operational level.”

The many **studies** devoted to the subject show that Europe's difficulties in bringing ideas to market are mainly attributable to:

- universities' lack of interest in making commercial use of research findings
- the lack of a risk-friendly culture, resulting in a lack of entrepreneurship and innovative spirit
- the inadequate level of venture capital investments (\$45 billion in the US vs. €9 billion in Europe in 2006)
- incapacity to move on from incubation to acceleration. A comparison of the top 20 growth companies in Europe (as identified in the Europe's 500 ranking) and the top 20 in the US (Business 2.0 and Fortune 100) in 2006 shows that sales are significantly higher for the latter.

	EU	US Business 2.0	US Fortune 100
Sales under \$100 m	6	1	3
Sales from \$100 m to \$500 m	9	8	3
Sales over \$500 m	5	11	14

The difficulties encountered in accelerating growth are illustrated below by figures from the 2006 EuropaBio report¹⁹, showing that the pace of business starts is higher in Europe, but US businesses have easier access to financial markets. This enables them not only to grow more quickly but also to buy up European firms that remain stuck at the growth stage and are slow to reach maturity.

The figures for 2006 given below highlight the structural difficulties of bringing ideas to market in Europe, an area in which the case of biotechnologies is undoubtedly representative.

¹⁹ European Association for Bioindustries — Biotechnology in Europe 2006, A comparative study

Parameter	EU ²⁰	US
Number of businesses	2,163	1,991
Workforce	96,500	190,500
R&D spending (€ bn)	7.6	21.0
Sales (€ bn)	21.5	41.5
Investments ²¹ (€ bn)	5.0	14.4
Business starts	119	78

Even in cases where European companies are ranked as success stories, they offer significant differences from US businesses. Innovation expert Hervé Lebert highlights these in “Start-Up: Ce que nous pouvons encore apprendre de la Silicon Valley”²², which compares a sample of eleven US corporations (including Microsoft, Cisco, Google, Intel, Apple, Dell and others) with European businesses. On average, it took the US firms six years to seek stock-market listing, their market capitalization averaged \$97 billion and they employed 42,000 staff (2007 data). Companies in the European sample — SAP, Dassault Systèmes, Logitech, Business Objects, ARM Holding, Soitec, CSR, Automony and Gemplus — took nine years to list, had average market capitalization of \$10 billion and employed 7,200 people.

A number of businesses have set up special structures to overcome the difficulties of bringing ideas to market through a combination of innovation, business development and entrepreneurship. At Siemens²³, these are the Siemens Technology Accelerator (STA) in Munich and the Siemens Technology-to-Business Center in Berkeley. As the company points out “STA focuses on the external commercialization of technologies if Siemens' business units do not take over commercial ownership. This is mainly pursued through spin-off, sale or licensing. STA accompanies start-ups with professional advice and financing to help them get established. TTB specializes in nurturing radical innovations in Siemens' core business areas. Primarily originating from US academic research, these innovative ideas receive the initial financing, technical and business development to help them reach maturity for market entry.”

TTB (www.ttb.siemens.com) “has a unique approach for creating innovative businesses, involving four steps:

- ✓ identify innovative people and raw technologies outside Siemens, so-called “open market innovations”, and offer flexible ways to work with entrepreneurs or nascent start-up companies
- ✓ develop raw technologies into viable product innovations with the support of Siemens business domain expertise
- ✓ build prototypes of product innovations, and validate the business opportunities they represent using Siemens' marketing strength and customer base
- ✓ support Siemens business units to further develop prototypes into new Siemens products or to work with start-ups as suppliers, customers and partners.”

²⁰ Data for 18 Member States only

²¹ Venture capital, equity and debt

²² In French (“Start-ups: What Silicon Valley can still teach us”); sold online only (Amazon)

²³ www.siemensventurecapital.com/activity

Since its inception in 1999, TTB has proven that its model works, with a successful track record:

- ✓ 7 technology innovations have successfully become new Siemens products. For example, Scalance W and TD 200C
- ✓ 8 start-ups co-founded or seed-funded by TTB, received external financing. These companies continue to work with Siemens in various partner relationships."

There are naturally other ways to speed the market application of ideas and creativity. They include, among other alternatives, co-branding (e.g., the alliance of Philips and Douwe Egberts for Senseo coffee machines and Yoplait with Côte d'Or for chocolate mousse) or labelling with an internationally recognized brand (e.g., Porsche Design²⁴ products).

Co-branding of technology, design and textile fashions was in the spotlight at the 2008 Maison et Objets trade show in Paris at the initiative of Cluster R21TH25, with ten top designers demonstrating how creativity and design can be harnessed to differentiate and add value. Their presence confirmed that intellectual property is a source of innovation. Examples included textile garden houses designed by E. de Senneville for Texinov, striped sofas by Armorlux, and leather household accessories designed by Stella Cadente for Le Tanneur.

Over the past few years, businesses in central and eastern Europe have joined in, among them Slovenia's Gorenje²⁶ (household appliances) and Elan (skis); both have invested in quality, design and innovation to become competitive contenders in their fields. In Gorenje's case, this involved linking up with Pininfarina, Swarovski and Ora-Ito.

Yet another example of using design and innovative flair to reposition a business in higher added-value products comes from French electrical fittings specialist Legrand²⁷. Once functional, its ranges are now an essential component of interior design. It took the company €100 million to achieve this. As with fashion designers, Legrand now plans to launch new ranges every 18 months.

2.2 The weight of human resources

Creative flair and innovation — the capacity to transform an idea into products or services that are in demand on the market — are directly linked to the quality of human resources on hand. Today, key factors driving creativity are the exchange of ideas, multi-disciplinarity, and the mobility of human resources as reflected in labour flows. Long viewed as a handicap, Europe's wide range of diverse cultures could become a competitive advantage in a knowledge-based economy — but only on condition that barriers slowing the free circulation of people, talent and ideas be overcome. For a successful knowledge-based economy is only possible when a sufficient pool of highly skilled labour is available.

The importance of the human factor is underlined in the Deloitte 2007 Technology Fast 500 CEO survey results:

- 66% of the CEOs questioned considered that high-quality employees contributed most to their companies' growth

²⁴ www.porsche-design.com

²⁵ Les Echos, 25-26 January 2008

²⁶ L'Echo (B), 29 December 2007

²⁷ Les Echos, 7 February 2008

- 48% considered that finding, hiring and keeping qualified employees was their biggest operational challenge. Only 27% held this view in 2005.
- 55% expect to offshore talent in the next five years.

The authors of "The Global Brain"²⁸ lay out four approaches to innovation through the stimulation of creativity in the business and its environment. These are²⁹:

- The Orchestra Model: one dominant firm serves as the conductor, while other network members "complement and resonate with one another".
- The Creative Bazaar Model: The dominant firm identifies new ideas, products, and technologies, and uses its commercialization infrastructure to bring these innovations to market."
- The Jam Central Model (from a musical jam session): individual contributors from a business come together and improvise, with no hierarchy.
- The MOD (Modification) Station Model: A community of innovators exploits and adapts existing products or services to address new market or technological opportunities. Activities occur within a predefined innovation space and are governed by the community, not by a dominant firm.

2.3 Businesses fostering in-house creativity

Business such as Procter & Gamble, Henkel and 3M have won recognition for their in-house structures for the promotion of innovation based on incentives for the creativity of staff and, in some cases, customers.

Henkel³⁰, which derives up to 30% of sales from products launched less than three years ago, offered an innovation trophy to reward outside inventors in areas including design, applications and product concepts, at the same time calling on staff to make their own contributions. In just a few months, 81,300 ideas were put forward, with 4,200 of these chosen for more detailed consideration. It takes from six months to three years to bring an idea to market.

A recent Eurostat poll³¹ showed that staff members were the main source of knowledge for 47.4% of innovative European businesses, customers for 27.2% and suppliers for 23.8%. Universities were cited as the main source by only 3% and public research organizations by only 2%.

These findings are confirmed in the results of a survey of 765 CEOs conducted by IBM³², which shows employees to be the main source of innovative ideas for 40%, business partners for 35%, customers for 35%, consultants for 22%, professional associations, trade fairs and conferences for 17%, in-house R&D for 7.5% and universities for 6%.

2.4 Creativity and NICT (new information and communication technologies)

Today the excellent quality found in animated films, video games and even software training packages are ample proof that NICTs can contribute to creativity.

²⁸ Satish Nambisan and Mohanbir Sawhney, Wharton School Publishing, cited on www.atelier.fr (L'Aterlier Groupe BNP Paribas).

²⁹ <http://news.rpi.edu/update.do?artcenterkey=2361>

³⁰ La Tribune, 28 June 2007

³¹ Statistiques en bref — Sciences et Technologie, vol. 81/2007

³² The Global CEO Study 2006 (IBM). Cited in the Economist Special Report dated October 13, 2007.

Here it is worth taking a second look at developments that will allow profoundly creative functions such as design or technological innovation to be moved offshore or even automated. Initial applications of Web 2.0³³ are one example, with innovation marketplaces taking shape on the Internet in recent months. In a trend dubbed “crowdsourcing”, these markets have become a meeting place for business and web experts. As is often the case in this field, the market first emerged in the US following Eli Lilly’s creation of “Innocentive”, a 125,000-member network of independent scientists from 170 countries. Procter & Gamble, IBM, Boeing and Shell soon followed suit. In France, a Grenoble-based start-up called Crowdspirit gives inventors an opportunity to present their ideas to industrialists; in the US, Idea Crossing and Your Encore appear to be market leaders.

Such developments open doors to exciting new markets for companies that have embraced management techniques based on collaborative innovation.

2.5 Creativity in services

While services make up the preponderant sector in developed economies, innovation and creativity are more readily associated with manufacturing. Yet service-sector businesses, too, rely heavily on creativity to develop new services, enhance their current offerings and deploy new business models.

Over recent years, new information and communications technologies have been a major factor underpinning innovation in services. Examples are numerous, notably in finance (online banking and insurance), retailing (eBay, Amazon, online travel bookings), and information access (Google).

Creativity is also apparent in the deployment of new business models, which show that even manufacturing firms such as IBM, Apple, Nike and LVMH now derive a significant portion of their revenues from services.

In sectors such as finance, business consultancy and auditing, investments in human resources reflect firms’ commitment to staff creativity. A significant example of this commitment is also the fact that Ernst & Young spends 10% of its revenues on training.

In the assistance sector, both Europe Assistance and Mondial Assistance³⁴ have introduced a range of innovations. Example: a “concierge” department that finds personalized gifts, a home-accident alert service for independent seniors, assembly of Ikea flat-pack furniture (Italy), and intensive courses for recovering lost driver-permit points (Spain).

In other service sectors, innovation aims to create an “experience” rather than a simple purchase, e.g., Fortis Banque Mercedes’ show rooms, Giorgio Armani stores, Nespresso and Starbucks.

Another example of creativity at work is TV channel FTV.com, a theme station that focuses exclusively on fashion, designers and fashion shows organized in Europe. Companies from Nike to Swatch and Nutella have developed a “temporary store”³⁵ concept deployed in major commercial streets in the world’s capitals. Clearly an increasingly customized offer is the trend of the future: Fiat is mining this by offering over 500,000 combinations of the Fiat 500, while 3M has teamed up with Mini-BMW to launch personalized decorative films³⁶.

³³ Les Echos, 19/20 October 2007

³⁴ Le Journal de Dimanche, 3 February 2008

³⁵ La Tribune, 4 January 2008

³⁶ Les Echos, 8-9 February, 2008

2.6 Low-cost business models and creativity

Innovation in services is a matter of the business model employed, as illustrated by the new and often creative models deployed by Ryanair, Ikea, Easyjet, Lidl, Aldi and Dell.

It is also worth taking a closer look at the innovations that allow low-cost models to be applied to more traditional manufacturing sectors. Bosch³⁷ has made significant investments to develop components specifically designed for low-cost automobiles (with a price tag of \$2,000 to \$3,000), enabling it to supply a wide range of parts for the car Tata is putting on the Indian market for Rps 100,000. Bosch points out that this type of car requires economical technical solutions implemented with modern technology..

2.7 European competitiveness in the global economy by sector

A European Commission study published in November 2007³⁸ cites pharmaceuticals, machine tools and equipment, aerospace, non-metallic minerals, printing and publishing, and scientific instruments as the six sectors where EU industries (25-member EU) are most competitive.

According to the same study, the specialization of economies in competition with the EU is different: "In the US, aircraft and spacecraft, scientific instruments, and printing and publishing are the three sectors that exhibit the highest revealed comparative advantage. Japan is characterised by high performance in capital equipment, motor vehicles, and other instruments. As regards China and India, the sector specialisation profile is strongly oriented towards textiles and clothing and leather, and China's performance is also strong in radio and TV receivers, office machinery and telecommunications equipment."

As regards EU Member States, the report stresses the differences in specialization by sector relating to labour skills. "Luxembourg, Belgium, France and Ireland are specialised in activities which require high labour skills. Germany, the Netherlands and the UK present a fairly balanced profile, with no strong specialisation pattern. Denmark, Sweden and Finland are specialised in high-intermediate and low-intermediate labour skills. In Hungary, Italy and Portugal, the specialisation pattern is biased towards low-intermediate and low labour skills. The share of high-skill activities in the production structures of the Czech Republic, Estonia, Lithuania and Latvia is clearly below the EU average; their specialisation is in low and low-intermediate labour skills and, to a lesser degree, in high-intermediate skills. Spain, Greece, Austria, Slovakia, Poland and Slovenia belong to a group characterised by a strong specialisation in low and low-intermediate labour skills, and the higher labour skills are underrepresented in relative terms. For Malta, the strongest degree of specialisation is in low labour skills sectors, but the country also exhibits a high degree of specialisation in high-intermediate labour skills."

The report continues: "Unlike manufacturing, services industries in the EU are growing, on average, at lower rates than in other industrialised countries. This is linked to weaker productivity performance. In both the EU and other industrialised countries, employment in market services has continued to increase".

Finally, as regards exports, the report notes that "to a considerable extent, the EU's export structure mirrors the production structure of the EU manufacturing industry, although relative to the production structure, exports show a bias towards a greater content of labour skills. More than half of EU trade with low income countries is in products with low levels of

³⁷ Les Echos, 5 July 2007

³⁸ EU Industrial Structure 2007 — Challenges and Opportunities

labour skills. In EU trade with low-medium and upper-medium income countries, the largest proportion of EU exports are products involving high labour skills, although low labour skills products also account for a high share, 30% of the total trade with these countries. Relative to several other countries, the EU25 exhibits a balanced skills specialisation profile. India exhibits high specialisation in low skills and China shows a dual specialisation, in both high and low labour skills. The US and Japan are strongly specialised in high-intermediate labour skills. During the last five years, the EU trade balance in trade with high labour skill products has improved slightly".

The table below summarizes changes in the competitiveness by sector of the 27 EU Member States.

Change in specialisation between 1993 and 2003	
Country	Sector
Austria	- Insulated wire (-) - Food (-) - Radio and TV receivers (-) - Mineral oil refining (+) - Metal products (+)
Belgium	- Motor cars (-) - Insulated wire (-)
Czech Republic	- Mineral oil refining (-) - Radio and TV receivers (+) - Motor cars (+) - Electrical machinery (+) - Electronic valves and tubes (+)
Denmark	- Other instruments (+) - Electrical machinery (+) - Chemicals (+)
Finland	- Telecom equipment (+)
France	- Clothing (-) - Printing and publishing (-) - Shipbuilding (+) - Metal products (+)
Germany	- Electronic valves and tubes (+)
Greece	- Printing and publishing (+)
Hungary	- Scientific instruments (-) - Other instruments (-) - Leather and footwear (-) - Wood and wood products (-) - Radio and TV receivers (+) - Electrical machinery (+) - Railroad and other transport equipment (+) - Office machinery (+) - Electronic valves and tubes (+) - Motor cars (+)
Ireland	- Railroad and other transport equipment (-)
Italy	- Oil refining (-) - Telecom equipment (-) - Insulated wire (-) - Other instruments (+) - Shipbuilding (+)
Luxembourg	- Printing and publishing (+) - Scientific instruments (+)

Poland	<ul style="list-style-type: none"> - Oil refining (-) - Radio and TV receivers (+) - Pulp and paper (+) - Printing and publishing (+) - Rubber and plastic (+) - Furniture and other manufacturing (+)
Portugal	<ul style="list-style-type: none"> - Electronic valves and tubes (-) - Railroad and other transport equipment (+) - Office machinery (+) - Electrical machinery (+)
Slovakia	<ul style="list-style-type: none"> - Insulated wire (+) - Motor cars (+) - Electrical machinery (+)
Spain	<ul style="list-style-type: none"> - Office machinery (-) - Insulated wire (+) - Textiles (+) - Rubber and plastic (+)
Sweden	<ul style="list-style-type: none"> - Telecom equipment (-) - Aircraft and spacecraft (-)
UK	<ul style="list-style-type: none"> - Insulated wire (-) - Metal products (-) - Electronic valves and tubes (-) - Other instruments (-) - Railroad and other transport equipment (+)

(-) from specialisation to lack of specialisation

(+) from lack of specialisation to specialisation

Source: based on data from Groningen Growth and Development Centre, 60-Industry Database, September 2006,
<http://ggdc.net>

CHAPTER 3 THE KNOWLEDGE ECONOMY

3.1 “Immaterial” factors — the key to competitive edge

Creativity underpins the knowledge economy, and is itself based on intangible factors. A company's value, including its market capitalization, need not be linked to its physical production facilities. And today, immaterial assets including trademarks, innovative capacity, proximity to clients and patent rights are all sources of value creation. In short, immaterial factors are based primarily on the knowledge, innovative flair, research and market intelligence created and managed by a business or community, or available through its employees.

Recognition of this basic truth poses three types of challenge to government authorities:

- a) developing strategies, programmes and services to encourage businesses to invest in their immaterial capital
- b) investing to build up their own national or regional immaterial capital (e.g., marketing campaign by the province of Ontario)
- c) stimulating the creation, exploitation and internationalization of knowledge at regional level.

Generally speaking, a company's immaterial capital spans the concepts below:

- human capital
 - initial education and training of staff
 - support for continuing professional development of staff
 - a spirit and culture of innovation/creativity
 - capacity to resolve complex problems
- knowledge capital
 - RDT activities
 - patents and other types of intellectual property: trademarks, design, copyright, manufacturing secrets
 - innovative capacity (product, process and business model)
 - licenses and franchise agreements
 - software
 - experience
 - exploitation of knowledge
 - collaborative innovation in management
 - benchmarking
- process capital
 - engineering
 - governance
 - database management
 - compensation for innovative ideas
 - production and import quotas
 - relations with suppliers, sub-contractors and co-contractors
- clientele capital
 - marketing and distribution network
 - customer-related services
 - customer loyalty plans and/or client and supplier lists

A number of companies “dematerialize” their operations by not owning the real estate they occupy (e.g., Apple, Accor Hotels, Marriott, etc.). The capital this frees up is invested in branding, design, management, international marketing, intellectual property and know-how capable of creating value.

3.2 Universities and the knowledge economy

While partnerships between universities and business may appear challenging, universities clearly play an essential role in the development of knowledge, creativity and innovation, Public authorities and regional organizations such as development agencies and others supporting innovation need to make an increasingly important contribution as links between business and academia, thereby enhancing the technological capabilities of their regions.

Looking ahead, universities will play a leading role in the knowledge economy not only as centres of education and research, but also through their capacity to make commercial use of their research results. Naturally, they can also be involved in the promotion of other activities relating to creativity, as shown in the examples below.

Since 2005, the **University of Paris V** (France) has coordinated the activities of Créa-Université, a non-profit organization that aims to unite competencies and energy for the encouragement of creativity and innovative practices. The University offers a post-graduate program devoted to creativity and innovation in business.

In 1997, **Queen's University Belfast** (Northern Ireland) set up a Centre for Creative Industry dedicated to "understanding the organization of the creative process in knowledge-based societies" and identifying ways "creativity can be stimulated to result in successful innovation." There is a similar centre at Plymouth University.

In 2001, **Canada** allocated CAN\$4.8 million to the foundation of chairs of design engineering at five universities, each specialized in a specific field. Areas of specialization include in particular environmental and life-cycle engineering.

Partnerships between business and universities can be highly effective stimulants for the creativity of all participants. Thus IBM³⁹ has links to a number of universities to back innovation, as illustrated by cooperation with Stanford in the field of quantum mechanics for applications in ultra-light laptops, with MIT in the field of bioinformatics, , and with Mellon University for open-source software.

Some universities are clearly more effective than others in harnessing student creativity for business, as illustrated by the example of MIT⁴⁰, whose students have set up over 4,000 businesses employing 1.1 million people.

A university's attractiveness can make a key contribution to its creativity. Figures published in a report by the US organisation Opendoors⁴¹ indicate that American universities will have some 580,000 **FOREIGN OU TOTAL ? students in the 2007/2008 academic year, of which European account for only 30,000. The largest single group comes from India, which has 83,833 nationals studying in the US, followed by China with 67,723, South Korea with 62,392, and Japan with 35,282. Germany and the UK each send barely 8,500 students to the US. And of the 230,000 American students spending some part of their studies abroad, 32,000 are in the UK, 26,000 in Spain, and 21,800 in Italy, compared with 15,600 in France and 8,800 in China.

³⁹ Cf. Les Echos, 3 December 2007

⁴⁰ Impact of Innovation Study — www.mit.edu/newsoffice/founders

⁴¹ Cf. Les Echos, 19 December 2007

3.3 Protection of intellectual property

According to a Eurostat report⁴² published in July 2007, businesses with over ten employees in the 27-member EU rely principally on four kinds of protection for intellectual property:

- Registered trademarks: 33%
- Patent filing: 28%
- Registered design or registered model: 28%
- Copyright filing: 11%

There are, however, significant differences from one Member State to another and between businesses of different sizes across the EU.

European businesses suffer from the lack of a pan-European structure for patents, making it significantly costlier to protect intellectual property in Europe than in the US or Japan.

According to the European Patent Office, the cost is €30,000, including €11,500 for translation, in Europe, compared with €7,600 in the US and €10,600 in Japan. This excess cost is a striking example of a market failing that is attributable to the government sector. Note that the ratification of the London agreement on patents is set to change this situation.

According to 2007 patent filings in the US, the predominant players were IBM, with 3,143 patents; Samsung, with 2,725; Canon, with 1,987; Matsushita, with 1,941; and Intel, with 1,865. Of the 25 most active companies, thirteen are in Japan, seven in the US, two in Germany (Infineon and Siemens), two in South Korea, and one in Finland (Nokia). Yet patents only acquire value if they give rise to products.

⁴² Statistics in Focus — Science and Technology, vol. 91/2007



CHAPTER 4 CREATIVITY AND FOREIGN DIRECT INVESTMENT

4.1 FDI and R&D

According to a study by the Centre d'Analyse Stratégique⁴³, an organization attached to the French Prime Minister's office, the R&D centres of multinational firms are of three kinds:

- Centres for product adaptation to match the specificities of different national markets
- Global innovation centres with access to resources that are not necessarily available within the country
- "Radicalization" centres, acting as sub-contractors for parent firms to achieve savings through the recruitment of highly qualified staff at low wages.

The study shows that the subsidiaries of multinationals account for a growing proportion of total industrial R&D spending in many countries. This proportion ranges from 72.1% in Ireland to 4.3% in Japan, standing at 25.3% for France, 40.3% in the UK and 55.6% in Belgium. The report underscores the fact that the choice of a location for R&D operations depends on the quality of infrastructure, of education and professional training, of fundamental research and of public-private cooperation

The European Investment Monitor reports published by Ernst & Young over recent years show that Europe attracts a significant number of investments in areas including:

- Software 472 investment projects in 2006
 363 investment projects in 2005
- Research centres 10,181 jobs created in 2006 (172 projects)
 217 investment projects in 2004

The UK Trade and Investment agency has set itself the target of attracting foreign investors to set up 70 new research centres in 2008.

The presence of research centres representing multinational businesses varies from one country to the next. According to UNCTAD's 2005 World Investment Report⁴⁴, 58.8% of the multinational businesses investing most in R&D had at least one R&D facility in the US, while this was the case for 47.1% in the UK, 35.3% in China and France, 29.4% in Japan, 25% in India and 19.1% in Canada and Germany.

Other points worth noting are that Europe attracts American universities, which offer MBA programmes locally, and that the Guggenheim Museum now has offshoots in Bilbao, Berlin and Venice. This is a good indication that the organizations concerned are confident in the quality of local talent and in the European Union's interest in creativity.

⁴³ Internationalisation de la R&D des entreprises et attractivité de la France (Internationalisation of corporate R&D and the attractiveness of France)

⁴⁴ World Investment Report 2005, UNCTAD; p. 133

4.2 FDI and choice of R&D locations

Global Location Trends, published by IBM Global Business in October 2007, sums up the situation for R&D as follows:

Companies have traditionally been cautious about globalizing core functions such as R&D. However, notwithstanding such reservations, companies are increasingly looking for opportunities to expand R&D activities in foreign markets, in order to exploit talent pools available across the world. Traditionally, such investment has been focused on more mature economies, with well-developed innovation systems and high skill levels. However, a notable development in R&D investment is the increasing move Eastward, with India and China dominating the global ranking (although India's dominance is largely explained by investment in software development). In addition, other emerging economies, such as Romania and Vietnam, are increasingly viewed as attractive locations for R&D investment. This suggests that investors are also broadening the scope of search for the optimal location for R&D activities.

Relative to population size, Singapore is the leading country for job creation from R&D investment. Israel and Ireland are also successful at facilitating R&D job creation through foreign investment, being ranked second and third respectively. Interestingly, both of the two new member states to the European Union, Romania and Bulgaria, are in the global top ten.

Top ranking destination countries by estimated jobs in R&D — 2006

- | | |
|-------------------|--------------------------|
| 1. India | 11. Spain |
| 2. China | 12. Malaysia |
| 3. United Kingdom | 13. Czech Republic |
| 4. Unites States | 14. Germany |
| 5. Romania | 15. Austria |
| 6. Singapore | 16. Italy |
| 7. Israel | 17. Russian Federation |
| 8. France | 18. Brazil |
| 9. Viet Nam | 19. United Arab Emirates |
| 10. Ireland | 20. Bulgaria |

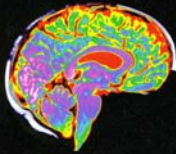

R&D jobs/100,000 population – 2006

- | | |
|--------------|-------------------------|
| 1. Singapore | 6. United Arab Emirates |
| 2. Israel | 7. Czech Republic |
| 3. Ireland | 8. United Kingdom |
| 4. Romania | 9. Bulgaria |
| 5. Austria | 10. India |

4.3 Creativity — a selling point for regional development

In an advertisement published in French business magazine L'Usine Nouvelle in October 2007, Ontario put creativity at the centre of its offering, describing brains as the Province's most valuable natural resource. The body text, shown below in French, goes on to say that "grey matter is a resource that is constantly renewable thanks to our 44 universities and institutes of higher education⁴⁵."

QUELLE EST DONC LA RESSOURCE NATURELLE LA PLUS PRECIEUSE DE L'ONTARIO? Depuis des décennies, le dynamisme industriel de l'Ontario lui a permis de faire émerger les talents et de se doter de la main-d'œuvre la plus qualifiée du G8. Avec 56 % de diplômés postsecondaires, c'est effectivement en Ontario que le niveau d'éducation est le plus élevé du monde industrialisé. D'ailleurs notre système éducatif arrive devant ceux du Japon et des États-Unis quand il s'agit de répondre aux besoins d'une économie concurrentielle. Notre compétitivité est effectivement avérée dans des domaines aussi divers que l'informatique, les télécoms, l'aérospatiale ou les biotechnologies. La matière grise est une ressource renouvelable grâce à nos 44 universités et établissements d'enseignement supérieur qui forment chaque année de nouveaux spécialistes en mathématiques, en ingénierie et en sciences. Venez en profiter ! L'Ontario, le meilleur endroit au monde pour les affaires.

ONTARIO
CANADA
2ontario.com/talents
00 800 4668 2746

⁴⁵ Advertisement issued in "L'Usine Nouvelle" n° 3073 dated 18/24.10.07



CHAPTER 5 PUBLIC POLICIES AND SUPPORT FOR THE KNOWLEDGE ECONOMY

5.1 Public policies and creativity

National and regional authorities can contribute to the emergence, preservation and reinforcement of the competitive advantages of businesses in creative industries through initiatives targeting:

- clusters and other competitive groupings
- venture capital funds specialized in financing for creative industries
- centres specialized in the promotion of intellectual property rights
- design centres
- technical centres
- business real estate
- business intelligence
- support for the registration of patents, commercialization of innovative ideas (proof of concept) and identification of unutilized entrepreneurial ideas (spin-offs)

Some examples of good practices adopted in European regions are given below.

- Seed capital funds for creative industries: London Development Agency (UK), Advantage West Midlands (UK), SEE Finance (UK), ICIC Cataluna (Spain)
- Design centres: Lyon (France)
- Centres for the commercialization of intellectual property: Wales (UK), Scottish Enterprise (UK)
- Clusters: Flanders (Belgium), Cholet (France), Cosmetics Valley (France), Pôle 16000 Images (France), West Midlands (UK), Jyväskylä (Finland)
- Business real estate: 12,000 sq.m. fashion and design centre to open in Paris in the first half of 2008.

In France ADEME, the Agency for the Environment and Energy, puts out calls for projects in the field of eco-design, encouraging R&D centres to make creative use of renewable materials in items for daily use., while at European level the European Association for Creativity and Innovation aims for a better understanding of innovation management , its acceptance and practice in Europe (www.eaci.net). EACI places special emphasis on cooperation and cross-fertilizing among universities, businesses, and teachers in the field of innovation and creativity.

5.2 The Cox report on the role of creativity and design for the UK economy

In the UK, a 2005 report entitled "Review of Creativity in Business: Building on UK Strengths"⁴⁶ underscored the importance of investing in creativity and design for SMEs keen on boosting productivity and performance. As the Cox report noted *"The intelligent application of creativity and design allows businesses of all sizes to access new, global markets by increasing the distinctiveness of products and services and competing on the basis of the added value of their unique appeal to consumers"*.

⁴⁶ Cox Report: http://www.hm-treasury.gov.uk/newsroom_and_speeches/press/2005/press_cox_05.CFM

The review focused on two broad areas: building a stronger relationship between businesses and creative professionals, and strengthening the links across university departments and with industry.

The review concludes that a lack of awareness and understanding of the role that greater creativity can play in business is a key barrier to SMEs making greater use of creative skills. It recommends a number of measures to tackle this:

- *raise the profile of the UK's creative capabilities through a national network of creativity and innovation centres;*
- *engage SMEs and demonstrate the practical benefits of applying creativity through the availability in each region of the Design for Business programme of support;*
- *increase the understanding of creativity and innovation in the boardroom by recruiting people with creative experience onto company boards;*
- *educate senior business people by including creativity on the syllabus of the Institute of Directors' Chartered Director programme; and*
- *use the broadcast media to encourage creativity and innovation.*

The review makes a number of specific recommendations to develop better linkages between creativity and other disciplines:

- *build cross-disciplinary capabilities in business, engineering, technology and creativity through new educational centres of excellence;*
- *establish closer links between universities and SMEs; and*
- *ensure that higher education courses better prepare students to work with, and understand, creative specialists.*

The report shows that the main – real or perceived barriers to use innovative design by SMEs are: cost, lack of in-house design or creative skills, lack of customer demand, manufacturing or development issues, access to external design or creative skills, ...

The report led to the creation of a first centre of excellence in London by the Royal College of Art, the engineering school of Imperial College London and Imperial Tanaka Business School. It is backed by an initial investment of £5.8 million.

5.3 The contribution of creativity to sector reconversion

Creativity and capacity for innovation within a region can be significant sources of new relative advantages where industrial sectors suffer from a loss of competitiveness. Examples include the strength of some French regions in technical textiles and that of some UK regions in areas relating to Formula 1 automobiles, where over 4,000 businesses are involved.

In some cases, innovation can keep production plants from closing down — albeit perhaps temporarily. The Seb plant in Is-sur-Tille (France) is an example: its existence reflects a policy of innovation on site⁴⁷.

In another example, Belgium's Noukies, specialized in plush toys for children, was losing ground until it developed a range of children's wear and a series of cartoons based on its star product, winning a new lease of life.

⁴⁷ Les Echos, 25.10.07

In the future, revamps of this type, based on the capacity to innovate, are set to become increasingly important in Europe as sales volumes for many industrial sectors in the developed world reach saturation point. Businesses will thus have no option but to differentiate their offer, either by creating high added-value products with higher profit margins, or by developing concepts based on well-being or unique experience to justify a higher price. In this case, innovative technology will need to call on creative flair in marketing, design, packaging and even distribution networks. Government authorities can help SMEs to develop effective industry watch services and programmes.

5.4 Public financing for creative industries

As indicated in the previous section, venture capital funds specializing in creative industries have been set up, mainly in the UK, where the sector also benefits from the support of specialized development agencies.

Creative London is one of these, providing support that includes advice, business incubation facilities help with access to financing, protection for intellectual property rights and access to production studios at attractive rates. The agency also manages a venture capital fund with £5 million for individual equity investments between a minimum of £70,000 and a maximum of £500,000. Its website home page delivers a clear message "Creative Industries shape London's Future. Ideas are Britain's fastest growing exports."

In the north of England, the Creative Investment Development Agency (CIDA) based in Huddersfield has provided professional services and other support for nearly 3,000 businesses, including 350 start-ups, since its launch in 2000. To this end, it has raised over €16 million in venture capital financing and now has an annual budget of €1.5 million, employing 18 people compared with just two at the beginning. CIDA also benefits from EU funds (ERDF and ESF).

In the Netherlands, the Dutch Creative Fund set up in 2006 offers support ranging from €20,000 to €40,000 to support business starts in creative sectors.

In France, a recent development worth noting was the successful listing of French film director Luc Besson's EuropaCorp production studio, raising €76.1 million in June 2007. In this area, a number of regions provide financial support for film and video industries.

5.5 Examples from outside Europe of public policies supporting creative industries

The government of **New Zealand**⁴⁸ has identified nine strategic sectors with critical importance for the future, among them creative industries, chosen for both their inherent growth potential and their capacity to favour innovation and thereby enhance productivity in other sectors. New Zealand's creative industries include film, television, music, design, fashion, clothing and textiles and digital content production.

The related strategy has three priorities:

- Interconnections, deepening global networks and foreign ties between key stakeholders
- Commercialisation to yield maximum returns for businesses
- Facilitation (assistance for businesses to build niche markets through innovative design and technology).

⁴⁸ Cf website of the New Zealand Ministry for Trade and Enterprise

A major project for the implementation of this strategy has been launched under the name Better by Design, which aims to "raise awareness of and expertise in design-led thinking among New Zealand companies and to help companies integrate design through all aspects of their business, beginning with leadership, strategy and research, through to functional and aesthetic design, branding, packaging and distribution" (cf. www.betterbydesign.org.nz).

In China, the 2007 **Shanghai** International City Creative Industry Forum, an annual event initiated in 2005, took as its title "Creative Industry, a New Engine for City Development."

The Forum draws support from the Creative Industry Centre and eight business parks dedicated to creative industries, as well as three business clusters in the city.

The goals defined on the occasion of the first Forum were

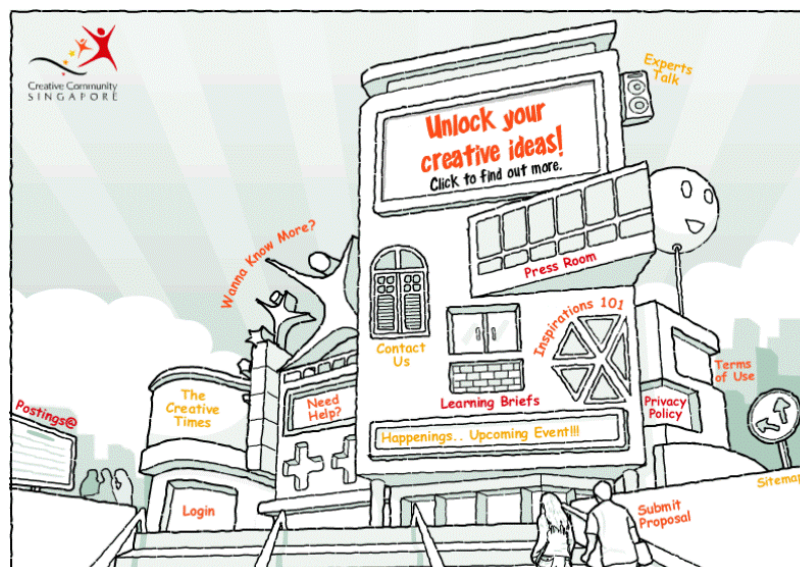
- to strengthen international link and to set up joint projects
- to aggressively pitch Shanghai around the world as "City of Design"
- how to commercialise creativity to industry
- to emphasise the intellectual property protection value.

In **Australia**, the government launched a programme in support of the digital-content sector in response to publication of a study of the creative industry conducted in 2002/2003.

Similarly, in 2005 **Singapore** launched its Creative Industry Development Strategy, defined as "a unique people-private-public collaborative platform providing various forms of support, including facilitation, co-branding, marketing and co-funding" (www.creativecommunity.sg)

This strategy is embodied in three core initiatives:

- Renaissance city 2.0
- Designsingapore
- Media 21



Source: Home page of "Creative Community Singapore": www.creativecommunity.sg

5.6 The search for a new public-policy model

Public policy needs to adopt a new model to effectively stimulate innovation, creativity, the development of knowledge and the marketing of new products and services.

Framework legislation and public strategies, even where they make added resources available, do not create jobs and growth – only businesses do. Pedro Arboleda of Monitor Group put this in a slightly different way when he said that “businesses, not regions, are competitive” and concluded that the “question for government is how to attract as many competitive firms as possible.” We would add that we believe the academic model of a triple helix is obsolete in that it does not recognize the overriding importance of private venture-capital investment in the development of businesses which have to be global players simply to exist.

It is vitally important for national and regional authorities to reshape their offering of service in support of business development to the new needs of businesses operating in the knowledge economy. The priorities are:

- access to capital
- reduction of administrative expense for the protection of intellectual property
- reducing time to market, in particular by making public procurement more open to innovative businesses or developing new forms of private-public cooperation
- incentives for cooperation between business and universities for applied industrial research
- facilitating the recruitment and retention of talent from other countries , as well as the return of expatriates
- support for the development of global networks allowing for the different phases in the innovation process, including design, production, marketing and financing

5.7 From manufacturing clusters to knowledge clusters

Current thinking on clusters centres on conglomeration effects associated with the concentration of a broad range of functions and knowledge relating to a given activity in a single area. Yet with the emergence of centres of excellence in an increasingly large number of countries and regions, multinational firms are tending to break up the geographical bases of their value chain, locating or relocating certain functions in regions offering the desired capacities and types of talent.

Authorities need to take their cue from this trend, and adapt support for regional clusters to match the new geographical breakdown of knowledge and competencies, forging new alliances between clusters in different countries and in complementary fields.

On this point, it is worth referring to the report of the Forrester Research consultancy (The Forrester Wave: National Innovation Network Q4 2006), which argues that the biggest failing of most innovation programmes is that they consider countries as closed systems, as if they each had to have their own innovative capacities. Counter to this view, Forrester advocates a global ecosystem of cooperative innovation bringing together countries, businesses, universities and other organizations. Within such a network, individual countries play specific roles in discovery, transformation, financing and intermediation according to their various capacities. They have to rid themselves of protectionist reflexes to make the most of their own strengths with the support of the complementary strengths of others. This is even more true of regions and clusters than of countries, since it is even harder for them to acquire critical mass at all key points along the value chain of innovation and market exploitation of new ideas.

The pertinence of these recommendations is backed up by another study, entitled "Innovation Networks: Global Progress Report 2006", which points out that *"across industries and regions, firms are abandoning vertically integrated innovation approaches in favour of innovation networks – global partner ecosystems that co-develop and co-market new products, services and business models – and reaping big benefits. CEOs can drive and accelerate innovation network adoption by developing a secure and scalable collaboration infrastructure and investing in new skills to broker and orchestrate cross-firm innovation partnerships."*

5.8 Free zones for research and innovation?

To get a better grip on production costs, many countries have developed industrial free zones. Why should European regions not develop free zones dedicated to research and innovation? Businesses and investors in these zones could be offered maximum fiscal benefits, including sales, to promote RDT activities, innovation and the marketing of research findings.

5.9 Regional knowledge resources – a global view

An index measuring overall knowledge resources could help evaluate regional performance in a knowledge-based economy. This could assess endogenous knowledge creation as well as a region's attractiveness for RDT, innovation and talent. Both promoters and managers of clusters and other competitiveness hubs would need to become aware of how the elimination of geographical constraints affects the value creation chain, as well as the impact on creation and knowledge exploitation of the disappearance of borders. This awareness would logically lead to the creation of transnational clusters and tools favouring inter-clustering.