The luxury industry and the knowledge-based economy

Prof. Dominique Foray

Chair in Economics and Management of Innovation
Ecole Polytechnique Fédérale de Lausanne

The *Europe 2020* strategy has taken over from the Lisbon Agenda the task of structuring and coordinating a certain number of initiatives and efforts aimed at a triple growth objective[1]:

- *smart growth* – that is, fuelled essentially by research, innovation and entrepreneurship;
- *sustainable growth*, using resources sparingly and based on an industrial fabric firmly rooted in European territory;
- *inclusive growth*, leading to an increase in highly qualified employment and the eradication of poverty throughout the Continent.

The luxury industry is especially well placed to contribute to *smart growth* in particular and thus represents an asset for the Europe of Knowledge targeted by the *Europe 2020* strategy. However this contribution remains unrecognised and the sector's innovative and progressive features are more often than not neglected, including by national and European political circles. The prejudices and ignorance distorting the perception of the "economic virtues" of this industry are deep-seated.

The Europe of Knowledge

The knowledge-based economy corresponds essentially, in each country, to the sector of production and service activities based on *knowledge-intensive activities*[2]. These are usually identified by combining indicators concerning knowledge production and management, such as research and development (R&D) expenditure, employment rate of qualified workers and intensity of use of new information technologies. Knowledge-intensive activities develop historically in sectors specialised in information processing, although they also appear in other production and service sectors. Their proliferation heralds the birth of the knowledge-based economy.

The development of knowledge-intensive activities in any particular sector is by no means a matter of chance – it is for the most part dictated by the innovation imperative. It involves meeting the need to generate a rapid rhythm of innovations with a view to continuously offering new products and services on the global scale. A vital component of knowledge-based economies is therefore innovation that has replaced price as basic rule of the game.

A technological base favouring the systematic search for innovations, certain competitive conditions (oligopolistic and global), and appropriate economic institutions are the principal factors that place innovation at the centre of the economic game in an increasing number of sectors of activity.

This tendency implies a prominent role of intellectual abilities – the ability to produce and mobilise knowledge of all kinds and learning abilities – as opposed to natural resources and physical factors in the determination of economic performances; a prominent role also of organisational forms and economic governance, encouraging change, as opposed to organisations more oriented towards static efficiency and cost minimisation.

These sectors in which innovation and creativity play a central role are backed by « knowledge ecologies »: all the organisations, institutions and professions that will determine the production and provision of knowledge, ideas and intellectual creations required by these sectors to sustain their innovation programmes.

R&D intensity, ICT use and employment rates of qualified workers are the customary markers for industries and services that are part of this economy. These activities will also frequently be characterised by vertical specialisation

[1] - *Europe 2020, a strategy for smart, sustainable and inclusive growth*, EC, Brussels, March 2010.
[2] - D. Foray, *The Economics of Knowledge:* The MIT Press, 2004.

phenomena: the entry of independent entrepreneurs, start-ups and small companies that will as it were play a role of scout and pioneer with regard to new potential innovation domains.

There is indisputably a group of sectors that form the heart of this economy: high-tech sectors (from optoelectronics to biotechnology), aeronautics and aerospace, new materials, logistics, financial services. The knowledge-based economy will benefit the rest of the economy via the innovations it generates, the accelerated progress of knowledge that it leads to and the different indirect effects it produces on the development of science, the valorisation of vocational training, human capital and other intangible resources of which it has great need[3].

Observing the knowledge economy in the luxury sector: an empirical issue

The difficulty of our approach lies in constructing an argumentation concerning the luxury sector as a whole, and the main question is thus to know what is the sector's unity as far as its place and contribution in relation to the Europe of Knowledge is concerned. This sector certainly has unity on different levels but does this unity also exist with regard to the issues of innovation and the knowledge economy?

The fact that the question can even be asked indicates that this unity is not immediately apparent. It will especially not be apparent to the eyes of anyone examining this industry using merely the standard indicators of the knowledge-based economy – R&D and patent intensity for example.

The remainder of this article will successively explore the sector's unity as far as the knowledge-based economy is concerned and then the different effects that the knowledge-based economy, as it develops in the luxury sector, can create for the benefit of society. A final argument regarding the sector's capacity to produce multiple innovation systems – quite a rare capacity in Europe – will conclude this essay.

1 – The economic unity of the luxury industry domains: an approach via the knowledge-based economy

The luxury sector, no doubt because it is very heterogeneous, is not organised into a homogeneous industry and thus struggles to defend a unique and strong position with regard to industrial policy. A dozen or so industries and services are generally considered to belong to the sector as they fulfill a small number of criteria defining their products; nonetheless the impression of heterogeneity remains. Despite the efforts of certain associations (the Comité Colbert in particular), it is not easy to perceive – beyond this heterogeneity – what constitutes the sector's unity in order to deduce from it some general industrial policy recommendations, applicable to all domains. This section attempts to establish this unity on the basis of a hypothesis, which is that of a close proximity existing between the sector's different domains and the fundamental characteristics of knowledge-based economies.

1¹ - A progressive industry

The luxury industry is a progressive industry, as defined by W. Baumol, a famous contemporary economist. Baumol in fact distinguishes two sorts of sectors[4]: the progressive sector and the non-progressive sector. The latter includes industries that are stagnating as far as productivity growth is concerned since the very essence of these activities stands in the way of this increase. The famous phrase "Mozart cannot be played quicker" illustrates well the intrinsically non-progressive nature of the living art sector (opera, symphony orchestra) simply linked with the existence of a sort of sacred space into which the quest for productivity gains cannot venture. This implies that the costs of this type of activity for society are constantly increasing (since if productivity stagnates, the cost of labour rises) ; consequently the choice of whether or not to have a living art sector constitutes a political decision, a social choice and may in many respects be considered a luxury for economies that can "afford it"!

The luxury industry is not a case in point; it is progressive in the sense that the technological and organisational changes that it adopts (and, in certain instances, initiates and develops) do not affect the identity of this industry – quite the contrary. There is no "sanctuary" that technological changes could not invade to obtain productivity and quality gains. Even the artistic crafts – where manual skills and know-how prevail – are significantly affected by the integration of new technologies and application of scientific knowledge[5].

By virtue of its progressiveness, the luxury industry does not pose any particular macroeconomic problems. In short, the luxury industry is not a luxury for society and therefore cannot be subjected to the same political decision-making procedures as a symphony orchestra or an opera. It is an economic activity that contributes in certain cases to the economic competitiveness of a country (France, Italy, Switzerland) and generates a whole series of positive external effects with regard to knowledge and innovation.

1² – An industry characterised by positional goods

Positional goods are goods whose value for those who possess them is linked with the perception of this value by others: *"positional goods are bought because of what they say about the person who buys them; they are a way for a person to establish or signal their status relative to people who do not own them"*[6]. Of course most of the goods produced by

[3] - The Green Paper on the Cultural and Creative Industries (CCIs) aims to position these industries in the *Europe 2020* strategy and demonstrate their prominent place in this Europe of Knowledge that is being built. The reason for which we consider an additional document specifically devoted to the luxury industries necessary is that the latter are not the same as CCIs. The luxury sector is situated at right angles so to speak to the CCIs. It is sustained by the products and creations of the latter but its area of economic activities is much vaster and industries or professions other than CCIs are also linked with the luxury sector (Green Paper, *Unlocking the potential of cultural and creative industries,* 2010).

[4] - R. Towse, *Baumol's Cost Disease: the Arts and other Victims,* Edward Elgar, 1997.

[5] - See C. Dumas, *Les métiers d'art, d'excellence et du luxe et les savoir-faire traditionnels: l'avenir entre nos mains,* Rapport au Premier Ministre, La Documentation Française, September 2009, pp. 23-25 and appendices.

[6] - www.economist.com, Economics A-Z, Positional goods.

the luxury industry cannot be defined solely by this characteristic: the value of the good is also closely linked with quality, authenticity and innovation. However the majority of these goods are characterised to a certain extent by this property, this aptitude to place the owner of the good in a certain social position, to set them apart. In other words, the consumer satisfaction (usage value) that these goods can generate is not only connected with the usefulness of the good and its quality but also the information they convey concerning the consumer's social position.

This property has important economic implications; it influences the consumer's willingness to pay – the person who is "impatient" to display a certain social position for example.

It is therefore important for the luxury industry to preserve this property in the case of most of these goods. And yet the positional good is in essence constantly threatened by its own success. Its performance, as a good generating social distinction, declines as it spreads. The positional good is subject to a two-sided dynamic: its appeal increases when certain people possess it but then diminishes when most people have acquired it. The general adoption of the good leads to the dissipation of its property of positional good, in other words reduces its value for those who were the first to own it.

This dynamic depends on two factors:
- the diffusion of cheap inferior « copies » can debase the social image of the original article by simple association;
- the simple fact that the original article conquers new market segments reduces its value as positional good; it is less effective for making a social distinction and conferring status.

If the notion of positional good seems important to us, it is because it is going to play a decisive role in the innovation dynamic. Several factors that drive the dynamic of innovation in the luxury sector are identified below.

1[3] – An industry distinguished by the centrality of innovation

The progressiveness of the luxury industry (above) is the result of creativity, innovation and the exploitation of new technological opportunities. This dynamism can be observed and measured by the innovation activity itself, competitive entry (entrepreneurship) and the growth of young radical innovators.

A real attempt to measure innovation within the luxury sector must be carried out. In fact the available data are scattered and partial. The Oslo Manual, which serves as a guide for most innovation surveys conducted nowadays, could make a good starting point. It must however be understood that the "standard" indicators and measurements (popularised by the OECD) are very appropriate for the assessment of certain types of innovations – those resulting from research and development and expressing a "technological change". They do not capture as well the myriad of innovations resulting from creative ideas, which concern the aesthetic quality of a product or the organisation of a service and are not directly determined by the dynamics of science and technology. The measurement of these innovations remains a considerable problem for statisticians.

The centrality of innovation is linked with three major factors: the form of the competition, the "positional" nature of the majority of products and services offered by the sector, and finally the professional composition of this industry.

• Monopolistic competition based on product differentiation

The characteristics of competition peculiar to this industry are important in order to understand its innovative nature. The latter happens to be in the virtuous competition situation, well described by the famous inverted U curve : "*In general, there is an inverted-U relationship between competition and innovation : firms have little incentive to innovate if they are not stimulated by competition, but too much competition discourages innovation as firms are not able to reap the benefits of their efforts. There is, therefore, an optimal degree of competition*"[7]. In this industry where there are neither too many firms (which would create conditions of pure and perfect competition, harmful to innovation) nor not enough (which would create equally unfavourable monopoly conditions), we find the characteristics of monopolistic competition, based on the differentiation of products and services and thus very favourable to innovation[8]. Each firm has its own clientele (residual demand). The size of these clienteles depends on the number of competitors on the market and the degree of product differentiation.

The industry is therefore characterised by certain economic structures – A- a mixture of fierce competition and monopoly and – B - a demand that ranges over the global economy – that act as a powerful stimulant to innovation. Innovation and creativity are thus the rules of the game[9] for creating and developing the distinctive features of the brand or product and also for fully exploiting the new technological opportunities offered for example by the information technologies or nanosciences.

• The role of "positional goods"

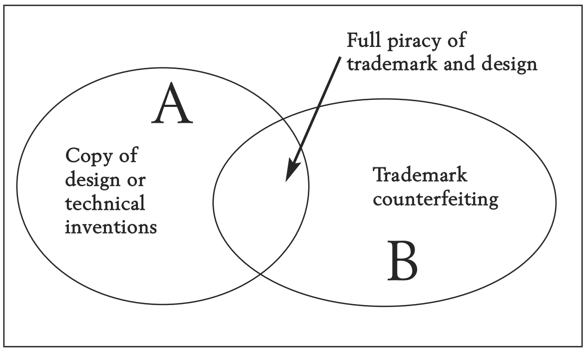
The positional nature of goods and services in the luxury sector is known and analysed in the literature (above). But the role of positional goods in stimulating innovation is less known.

Maintaining the positional virtues of a good can in fact be achieved by following three logics:
- preventing copying and imitation and thus protecting not only brands but also processes, design and product;

[7] - P. Aghion, "A primer on innovation and growth", *Bruegelpolicybrief*, 06, 2006.
[8] - W. Baumol, *The free market innovation machine*, Princeton University Press, 2002.
[9] - The Comité Colbert, *Le luxe, un atout de croissance pour l'Europe du XXI*e siècle, December 2008, p. 43.

- innovating and changing as soon as the good has been copied;
- limiting and selecting sales outlets (including internet)[10].

However, as in many other industries, intellectual property protection cannot be taken for granted. Here a distinction must be made between the protection of brands and that of concepts, design and processes:



(Reference: see footnote 12)

The legal and judicial mechanisms (patents, royalties) available to ensure intellectual property protection concerning processes and technical concepts (part A of the above Figure) are often not very appropriate for the "technologies" and methods of creativity implemented in certain domains. Their effectiveness is uncertain and their implementation costly. Out of necessity, these industries more often than not "make do" with a so-called "weak" intellectual property regime. In other words, the companies in these industries resort to formal intellectual property protection mechanisms only to a very limited extent to capture the profits from their innovations[11].

On the other hand, despite the fact that the luxury industry fights a relentless battle against brand piracy and the copying of designs and models (part B of the above figure), counterfeiting is an economic nuisance that cannot be completely eradicated.

Finally, the democratisation of goods and services initially reserved for customers of the luxury industry is a strong and desirable tendency (see paragraph 23 below). This trend broadens social access to products that exhibit some of the attributes of their luxury equivalents but are sold at much lower prices.

The equilibrium of the industry seeking to maintain the positional nature of these goods and thus unable to rely on a stringent intellectual property regime is then ensured by innovation and creativity. To guarantee that this good retains its property of positional good, it is necessary to constantly innovate since no real control can be exercised over its copy.

The luxury industry is a sector that relies on innovation and creativity in order to maintain the positional nature of its goods. This balance seems stable and favourable to the sector's growth as noted by Raustalia and Sprigman in their work on haute couture: *"More fashion goods are consumed in a low-IP world than would be consumed in a world of high IP protection precisely because copying rapidly reduces the status premium conveyed by new apparel and accessory designs, leading status-seekers to renew the hunt for the next new thing"*[12].

• Creative and innovative professions

Lastly, this industry is constructed on a base of professions strongly associated with innovation and creativity. The artistic crafts are of course based on conservation and the transmission of precious and traditional manual skills and know-how but they are also very permeable to new technologies[13] and are sometimes disrupted by the integration of new scientific knowledge[14]. Finally, the professions relating to "style", design and the aesthetic development of products have by definition a pronounced creative dimension.

The luxury industry is therefore the only place in which different innovation logics converge:
- science-driven innovation;
- innovation originating from purely artistic creativity;
- innovation originating from the development of traditional know-how.

1[4] – An industry "attached" to its industrial commons

Competitiveness and innovation in the luxury industry are heavily dependent on the collective capacities of the firms that supply all the materials, equipment and "components", in accordance with high quality standards. These collective capacities, embodied in know-how and skills networks, themselves implanted in territories, are referred to by Pisano and Shih (2009) as industrial commons: *"...a firm's own capabilities and also those of other companies that serve its industry, including suppliers of advanced materials, tools, production equipment, and components. We call these collective capabilities the industrial commons"*[15]. These collections of traditional and high-tech knowledge and know-how deeply embedded in local industrial fabrics thus form the foundations of the sector's innovation and competitiveness. The jewellery, fashion, shoe or fine leather goods industries offer good examples of the centrality of these industrial commons for the innovation and competitiveness of the sector[16]. When certain production segments start to be relocated, other links soon follow until product design is also relocated, and in the end, all the industrial commons leave a territory. Many industries have in this way undermined their firms' foundations of competitiveness and innovation by instigating this relocation of important production and then design segments, naively believing that this activity migration

[10] - The Comité Colbert, p. 45, see footnote 9 above.
[11] - See for example: W. Cohen, L. Florida and J. Walsh, *Appropriability conditions and why firms patent and why they do not in the manufacturing sector,* Mimeo, Carnegie Mellon, 1997.
[12] - K. Raustalia and C. Sprigman, "The Piracy Paradox: Innovation and Intellectual Property in Fashion Design", *Virginia Law Review,* 2006.
[13] - C. Dumas, p. 23, see footnote 5 above.
[14] - The Comité Colbert, Luxe et Innovation, 2005, p. 14.

process could be halted at any time, which is of course an illusion or manager's fantasy. In the face of this harmful and hopeless model, the luxury industry shows that it is possible to keep "industrial commons" at home, "home" in this case remaining largely European. Two characteristics explain this success: on the one hand, knowledge and know-how and skills networks are difficult to copy and transfer; on the other, the sector's economic model establishes innovation and quality – and not cost minimisation – as the rule of the game; this offers the possibility of favouring the excellence of suppliers and development of relationships based on mutual trust over a pure cost reduction strategy via relocation.

The luxury industry invents original industrial models for the preservation of these artistic crafts. A large company in the sector has thus acquired several prestigious houses offering highly specialised know-how and creations, without for all that claiming the exclusivity of the products of these houses. Economic and organisational support is provided (financing, human resources, communications, technologies) from which these different companies will benefit. This is a form of quasi-integration, allowing a rare and fragile supply to be secured, which does not for all that prevent competing companies from using this supply. The question of the production of "public goods *specific* to an industry" has always interested economists as, if they really are public goods, their *specificity* implies that there are no strong arguments for the State to assume responsibility for their production. It is therefore the task of the industry concerned to develop the institutions that will enable these public goods to be maintained. Romer had proposed an original model according to which all the companies in an industry contribute to the financing of these public goods, whilst being free to designate the beneficiary of the finance among the public goods considered (in our case, a particular house)[17]. Romer's mechanism, although original and interesting, is fragile however for many reasons (for example, what guarantee is there that everyone will pay?). The model invented by the large company referred to above seems much more robust and ingenious in our opinion.

1[5] – An industry at the cutting edge of innovation management

We have already emphasised the fact that the luxury industry has an interesting characteristic, which is its capacity to combine different innovation logics:

- science-driven innovation;
- innovation originating from artistic creativity;
- innovation originating from the development of traditional know-how.

It is rare to come across a sector in which these three logics are present and combine. In fact these logics involve the mobilisation of different assets and setting-up of particular forms of coordination. Artists, scientists and craftsmen must be managed at the same time and collaborative models created (incentives, organisation) in order that the frontiers separating these professions be challenged so that artistic, craft and scientific contributions become integrated, combine and materialise in the form of an innovation. For example, such and such a company in the sector will have to manage links with scientific universities, artistic environments and craft networks simultaneously.

Here more than anywhere else the innovation organisation model known *as open model* seems appropriate for finding elsewhere these heterogeneous and diversified resources – scientific knowledge, artistic talents and craft skills – that are deployed in very different worlds of production.

The luxury industry is also an activity in which researchers, designers and innovators occupy a significant place. Companies are therefore confronted with the problem of managing these independent professionals, full of initiative, committed, self-organised and extremely motivated. A sector based on creative knowledge seeks to attract in great numbers people who experiment and invent, take risks and accept or even desire unrestrained competition in the realms of talent and knowledge. But what happens when the values of imagination and creativity become standard demands of the working world? In this respect, the luxury industry is a laboratory that experiments with new forms of employment and human resource management, better adapted to these types of skills and professional careers[18].

1[6] – Corporate governance favouring the long term

Another common feature concerns corporate management and governance that are characterised by vision and long-term strategy. The latter have become relatively rare in the era of a market economy submitting to the commands of the financial sector when it comes to good corporate governance practices. *"It has always been the case that joint stock companies exposed shareowners to the moral hazard*[19] *that the management might pursue its self-interest over a horizon of a decade or two, rather than taking chances that would pay off in the long run – in blooming profits and a high share price. Now short-termism has been aggravated by the financial sector. Mutual funds have stooped to the practice of extorting from the CEO of a company in which they hold shares an agreement to focus on meeting earnings targets one quarter ahead; the CEO who focuses instead on innovation for the sake of the long term will find that the fund managers will dump the company's shares. Moreover, the pay of the mutual fund managers themselves, rather than being based on the price performance of the shares in which they invest, is based on the expansion of their shareholdings, no matter how badly they may perform in the future. It is extremely important, therefore, that institutional reforms be made that would align fund managers towards the long term and, for good measure,*

15 - G. Pisano et W. Shih, « Restoring American Competitiveness », *Harvard Business Review,* July-August 2009.
16 - Comité Colbert, p. 36, voir note 9, ci-dessus.
17 - P. Romer, "Implementing a national technology strategy with self-organizing industry investment boards", *Brookings Paper on Economic Activity: Microeconomics,* 2, 1993 ; voir aussi D. Foray, "On the provision of industry-specific public goods: revisiting a policy process", in *Science and Innovation*, Edward Elgar, 2003.
18 - Voir les travaux de P. M. Menger, *Portrait de l'artiste en travailleur,* La République des Idées, Seuil, 2002.
19 - Moral hazard: the principle that says that those who purchase insurance have a reduced incentive to avoid what they are insured against.

that would liberate the CEOs of businesses from the tyranny of quarterly earnings targets"[20].

It so happens that the luxury sector proposes another form of corporate governance, favouring long-term vision, released as it were from the tyranny of quarterly earnings targets. This long-term vision is the factor that lends coherence to the model of an industry based on innovation and the valorisation of intangible assets such as vocational training, research and knowledge and know-how networks.

1⁷ – First impression: a very special innovation economy

The luxury industry is an industry strongly oriented towards innovation (stimulated by a certain form of competition, the dynamics of positional goods and a unique combination of creative professions). Its performances are closely conditioned by its capacity to maintain and increase its investments in intangible capital (vocational training, research and creativity, knowledge and know-how) and certain key complementary assets (brand protection, international and selective distribution networks).

This innovation economy develops in order to meet the demand of strong competition based on the quality and distinction of products and services. It can consequently be predicted that this is an industry comprising high social return activities from the knowledge economy point of view.

2 – Social return

Beyond its direct contribution to employment and competitiveness in the regions and countries in which it develops, the luxury industry plays a pivotal role in the expansion of a knowledge-based economy thanks to the different types of "positive externalities" (mainly knowledge and innovation externalities) generated by its activity.

2¹ – Maintaining the knowledge and know-how of the artistic crafts

The luxury industry no doubt plays a role of perpetuator of certain artistic crafts. The question of the maintenance, preservation and transmission of practical knowledge and know-how relating to certain artistic crafts is a difficult one – as was well demonstrated by a recent official report written on the subject[21]. Rare professions, guardians of technical knowledge and precious know-how, they are threatened because they often depend on tiny markets. The small scale of the markets complicates all the problems regarding vocational training and human capital, financing of possible modernisation projects, etc. And yet, for the luxury industry, these artistic crafts often play the role of weakest link: their undermining or decline create a risk for the industry as a whole. Luxury industry companies therefore have a strategic interest in undertaking actions aimed at consolidating certain activities over the long term. Several strategies can be observed: integration or quasi-integration within the large companies of the sector; the setting-up of privileged partnerships based on long-term relationships and aimed at quality and authenticity rather than cost.

By maintaining dense subcontractor networks oriented towards and paid for high-quality goods and services, the luxury industry contributes to the perpetuation of memory capacity and transmission of traditional knowledge and know-how. The luxury industry enables this knowledge to be preserved in both time (memorisation and transmission) and space (territorialisation of this knowledge, which remains very difficult to relocate)[22].

This constitutes an essential contribution to the knowledge-based economy insofar as the *disinvention*, forgetting and loss of knowledge are real phenomena and costly in the long run, linked particularly with the tacit nature of this knowledge and know-how and the fragility of their ecosystem. What we are saying must be clearly understood: we are not saying that the luxury industry is principally a perpetuator of arts and professions; we are simply saying that by ensuring the preservation AND development of these professions, this industry is the prime contributor to the provision of this category of "local public goods".

2² – Triggering innovation *(knowledge spillovers)*

These are the most classic spillovers: much research and innovation carried out within a certain framework generates results and information that "spill out" of this framework to go and irrigate other sectors of activity. Intersectoral knowledge flows can be very powerful, according to the importance and general nature of the initial invention, the more or less closed or open nature of the appropriation strategies, and the capacities of other sectors to understand and exploit the invention originating from elsewhere.

Numerous examples tend to show that a multitude of innovations whose origin is apparent in a particular component of the luxury industry are adapted, transposed and reused in other industries.

2³ – Generating quality effects for society as a whole *(market spillovers)*

We can also perceive the existence of large *market spillovers:* the quality of the goods and services intended **for all** consumers and their variety are increased, without prices rising to the same extent, which implies an increase in wellbeing. These market spillovers are particularly due to the **democratisation of quality:** the luxury industry generates quality gains, which are then democratised thanks to mass consumption products, which incorporate these quality effects

[20] - D. Foray and E. Phelps, *The challenge of innovation in turbulent times: a report submitted to the Global Agenda Council*, 2010, World Economic Forum.
[21] - Report by C. Dumas, see footnote 5 above. See also N. Vulser, *« Maîtres d'art cherchent avenir »*, Le Monde, edition of 21 & 22 March 2010.
[22] - The Comité Colbert, p. 25, see footnote 9 above.

into their design. The great chefs obtain recipes, which then become accessible to everyone, from their culinary research carried out within companies belonging to the luxury industry. This democratisation of quality increases general wellbeing. Most services and many products of the luxury industry contribute to this effect.

The distribution of these quality effects towards growing fractions of society represents as it were the reverse side of the degradation of the positional virtues of goods and services. However this dual movement is virtuous when, on the one hand, it is tolerated (even initiated) by the luxury industry itself and therefore does not result from counterfeiting and, on the other, it stimulates innovation to regain the positional virtues of goods and services.

3 – The luxury industry between knowledge ecology and innovation systems

This last section aims to elaborate some avenues for further exploration with a view to formulating recommendations for the benefit of public, national and European authorities. For this we will use as basis an innovation policy analysis framework created within the *Knowledge for Growth* Group of Experts – a group of economists established by the European Commission that has worked with the European Commissioner for Research for four years on the theme of the Lisbon Strategy and that was co-chaired by the author of this article (with Commissioner J. Potocnik)[23].

3[1] – Knowledge ecology and innovation systems

We use the term knowledge ecology to refer to all the organisations, institutions and professions that determine the conditions for the existence of knowledge - its production, circulation and use. Innovation needs a knowledge ecology that is strong and diversified, receptive and permeable, in other words, capable of meeting the needs of innovative activities for new knowledge and human capital. However, knowledge ecology must not be confused with innovation. Within the same society, there may be a strong knowledge ecology and yet a certain inability to innovate. The Soviet Union is an excellent example of a country in which this concomitance was clearly apparent; any mediaeval craft guild can be studied to illustrate this point: a robust knowledge ecology but no innovation!

In other words, historically all societies have been able to develop knowledge ecologies – research and discovery capacities, educational institutions and knowledge management and transmission systems. Thanks to this, these societies have produced the pyramids, cathedrals and the sputnik! But they have only been innovative in an intermittent and sporadic fashion. The pyramids etc. are inventions, complex and magnificent technological objects, but not innovations in the sense of the implementation and commercialisation of ideas with a view to obtaining an economic rent, which is what an entrepreneur, but not an inventor, knows how to do!

Baumol expresses this well: *"Capitalism is unique in innovation, not in invention"*[24]! What makes it so successful on this level are not so much the new technologies as all the economic institutions that make innovation activity increasingly profitable and therefore attractive to potential entrepreneurs (and intrapreneurs).

Although every society therefore has a knowledge ecology, innovation systems must not be taken for granted ; they do not exist once and for all ; they emerge or do not emerge as a result of the interactions and connections that the components of a knowledge ecology create between themselves to resolve innovation problems. When the components are not linked, and do not interact, there is an ecology but no innovation system. *Smart growth* aims essentially at this objective: the construction of a European space (composed of industries and services) where a strong, diversified and receptive knowledge ecology would constitute the base of a multitude of innovation systems that would appear and then disappear as new innovation problems arise and are resolved.

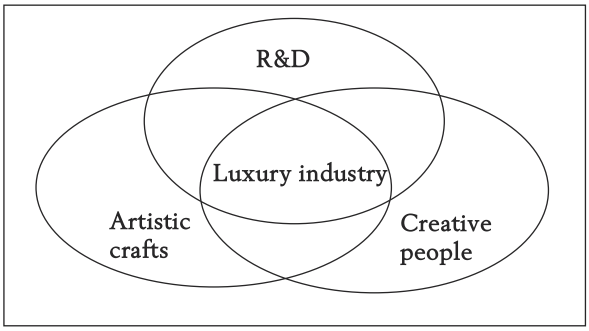
We can consequently distinguish two big problems concerning innovation policies: the first is that of ensuring the preservation and consolidation of knowledge ecologies that are rich, varied, receptive (or permeable to innovation problems posed by industrial and service companies) and well correlated with the large domains of sectoral specialisation of the economy in question. This first problem thus fundamentally concerns the viability, growth, quality and diversification of research and educational institutions and the "epistemic infrastructure".

The second problem is that of creating the economic conditions that maximise the chances of seeing multiple innovation systems form. This involves confronting the problems concerning incentives for and obstacles to innovation on the various (product, technology, labour and financial) markets.

3[2] – The luxury industry: an innovation maker

The originality of the luxury industry is that it is in fact backed by three different knowledge ecologies (corresponding to the three innovation logics already mentioned):

- the artistic crafts;
- creative activities in design and style;
- scientific research activities.



[23] - See for example: D. Foray, "Introduction", *in Knowledge for Growth: Prospects for science, technology, and innovation*, Report, European Commission, EUR 24047, 2009.

[24] - Baumol, 2009, see footnote 8.

The problem regarding the maintenance and development of these knowledge ecologies is not necessarily the responsibility of the luxury industry; only the first – the artistic crafts – must call for specific actions on the part of the luxury industry since, as already stated, the problem of the maintenance and renewal of human and technological capacities relating to the artistic crafts constitutes a sort of "weakest link" for the industry (a strategic but fragile ecology).

On the other hand, the connections and economic coordination that must be managed between the companies in the sector and the entities appropriate to these various ecologies may be very different: coordination is not carried out in the same way with a scientific laboratory, design studio or craftsman's workshop; competition is not organised in the same way in these different "worlds of production and circulation of knowledge". Certain companies in the luxury sector are therefore confronted with the formidable challenge of managing this diversity.

But we have already said that the main European problem lies in the creation of favourable conditions for the emergence of countless innovation systems, which will result from the connection between the different components of the knowledge ecologies. The problem here concerns the setting-up and functioning of the appropriate economic institutions. It is a general problem, characteristic of many European countries. Its solution is no doubt less likely to be found via targets aimed at persuading each country to increase its R&D expenditure than via a radical transformation of certain economic institutions relating particularly to competition and access to financial markets[25].

It can then be observed that certain industries, by virtue of their particular characteristics, are more successful than others at constructing these links and the conditions necessary for the emergence of innovation systems. The high-tech industry is of course a good example. The luxury industry possesses this same virtue: for many reasons (Section 1), this sector creates a particular chemistry encouraging the combination of multiple knowledge capacities for innovation. The properties that we have described (positional good, economic governance, maintenance of industrial base, form of competition) mean that this sector offers and develops a favourable economic space within which the elements of different knowledge ecologies converge in order to implement numerous innovation projects.

Europe 2020 strategy will not be possible without the contribution of those sectors that excel at identifying and valorising certain elements of the knowledge ecologies in order to mobilise them in innovation systems. It is important to identify these sectors in order to place them at the core of industrial policy and innovation. There is no doubt whatsoever that the luxury industry belongs to this category.

[25] - D. Foray and E. Phelps, 2010, see footnote 20