

Strategy plan

Cap Digital Business Cluster

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Foreword

This strategic plan is the result of a joint effort between the governing structure of Cap Digital and its members. It highlights the membership of key players from the digital content industry and articulates a collective approach that aims to make the Greater Paris Region one of the world leaders in digital content, developing the sector through internationally competitive industrial projects. This ambitious goal rests on our standards of research and technological excellence and new educational training, on promoting the creation of jobs and economic development so as to enhance the prosperity of the region while serving both knowledge and education. Our goal can only be achieved by bringing together the many players instrumental in innovation i.e. small and large companies, research bodies, funding organisations, and local and regional authorities, and industry associations.

It took the first two years for Cap Digital to find its position in the broader “new industrial world” context. During this time, the foundations were built and mandates confirmed. This document is rooted in the cluster’s initial milestones, difficulties, and acquired lessons.

We must cope with a rapidly evolving sector and changing technological and social environment and, at the same time, face “the digital challenges at the heart of society” as seen and experienced by our members and experts.

The terms “Long-term Vision, Vectors of Success, and Key Phases” describe the best possible outcome: the realization of our efforts to achieve the cluster’s full potential as well as that of the sector and the region, implying that we have met our objectives and carried out the necessary actions.

This text is not only intended for the governing structure, but for current and future members. We hope that everyone will find themselves in the project descriptions and long-term objectives, that they will proactively support our goals, and that this shared vision will shed light on our actions and priorities.

Challenges and Goals

A New Industrial World

The “new industrial world” on the horizon, the world of the digital society, will lead to a merging of the communication, information and knowledge societies.

The economics of the new global structure will be based on the intangible, with a re-shaping of the value chain, intangible assets (reputation, trade marks, rights and patents, partnerships, customer relationships and technological excellence) and human resources.

It is part of a vast movement towards more fluid international business marked by global technologies, global production and markets for increasingly global ideas and contents. The consequence is fast-moving innovation backed up by strong demand and fed by the integration of information from the science and technology sectors.

In the communications and contents sectors more than in other areas of business, these changes require action and forward planning from stakeholders. This is a sector with a constant influx of new players who quickly move onto the global stage. Existing large companies have to adapt rapidly and increase their flexibility; smaller players have to overcome any structural weaknesses through re-organisation.

The globalisation of contents (film, games, audiovisual, press, literature) and the increasing delocalisation of trade and services thanks to the Internet are creating major challenges for the European and French economies, faced with the dynamic approach and creativity of the American economy and the increasing strength of Asian countries.

Given the movement towards globalisation, being squeezed between fast technological changes in advanced countries and low labour costs in emerging countries poses the challenge of competitiveness through creation, innovation and organisation. In this respect, France and its spearhead, the Greater Paris region, have a number of advantages e.g. cultural heritage, expertise in education and research, a fabric of SMEs specialising in contents and large corporations that lead the way in the communications sector. However, there are also a number of drawbacks i.e. inadequate investment in research, limited innovation processes, inability to generate new stakeholders willing to work on the world stage and limited organisation within the sector itself.

In addition to their contribution to economic development, digital industries further design, thought, education and cultural influence. The sector’s economy draws on the vitality of the culture. On the other hand, however, increased industrial weakness in the sector would lead to a falloff in design excellence and in the influence of France and Europe.

The challenge facing members and partners of the Cap Digital business cluster is the need to take a proactive stance in changing this new industrial world rather than sitting back and letting others take the lead, and inventing new relationships between contents producers and clients or between the sector’s economy and its driving forces.

1. The Strategic Challenges of a Digital Society

The economic challenges of the digital sector come firstly from the sectors at the heart of the digital market – contents, communication, knowledge and related services. A number of factors have helped to shape and structure this new sector and bring about in-depth changes in the characteristics of its components:

- **Convergence:** the digitisation of data, contents and communications gives greater fluidity to their processing, association and circulation, thanks to communication networks and digital storage.
- **The ubiquitous landline and mobile telephony and very high broadband:** the new infrastructures, which comply with global standards, create superb business opportunities for new players. They have a profound impact on existing economic models and are the cause of many an economic upheaval.
- **Web 2.0:** it provides a powerful base on which to develop contents, communications or knowledge services singly or in combination. With very few obstacles in the initial stages, it is accessible to business start-ups and SMEs. Thanks to open tools, Web 2.0 makes new forms of cooperation between users and with producers much easier than before.
- **Long tail:** with the Internet, the diversification and de-structuring of broadcasting chains mean that micro-circulation and micro-services can cohabit in large numbers with “block buster” contents and mass access and discussion services.
- **Media convergence:** specialisation (channel, terminals, publishing, contents), which was an essential feature of the media industry in pre-digital days, is now less marked. Here, as in other economic sectors, transversal expertise is gaining ground, providing a structure for economic change in the sector.
- **Digital availability:** a wider range of communication media and the vast choice of applications and services accessible to consumers have created a paradigm shift towards the economy of abundance or attention.
- **Globalisation:** This means the development of a strongly multi-centred world, with increased power for a few large clusters in the digital sector and the continuation of strong leadership from California.

Faced with such changes, the global economic and industrial dynamic includes three main dimensions and the Cap Digital cluster is taking them all into account:

- industrial competitiveness;
- globalisation;
- creativity and design.

Industrial competitiveness

The leading names in the world of the Internet were created by students or researchers at major American universities. Innovation in the contents sector has always been supported by the use of the most up-to-date high-tech products and developments. Scientific and technological progress, and its availability in companies, plays a leading role in innovation, business start-ups and the global dynamic.

Industrial competitiveness is based on four main driving forces:

- R&D projects that bring structure to innovation and competitiveness;
- excellence and relevance of research laboratories;
- richness and vitality of innovation processes;
- dynamic creativity and growth within companies.

Having reached the present stage of digital development, there is now a need for a global cluster to cope with the major challenges posed in relation to each of these points.

Industrial challenges

The intangible aspects of digital content and service design sometimes give the impression that they are based on a factory-free economy but nothing could be further from the truth! Contents, animation, video games and virtual worlds all correspond to increasingly sophisticated, complex digital objects that require more and more space. They also require tools, methods, design and building processes, as well as high-tech deployment and use. On this depend corporate abilities to respond to market requirements in a competitive manner.

The building of audience access: channels, collections, sites, gateways and virtual worlds also depend on increasingly sophisticated forward planning and usage monitoring abilities so that the services and interfaces can be constantly adapted to capture audience attention.

The diversification of access channels poses new problems of ergonomics, fluidity and simplicity of use and requires the adaptation of contents, security and economic conditions.

Finally, together, they constitute a new field of communication and information services which have to be designed in terms of contents, interfaces, usefulness, attractiveness and profitability in increasingly complex value chains.

Eight major industrial challenges have been identified:

1. Online information, communication, contents and knowledge services supporting both multimedia and multimodal aspects;
2. Massive indexing of flow, web and asset contents;
3. Change of scale in terms of quality, complexity and speed for contents production tools and processes for the cinema, the audiovisual sector, games, the Internet and cross-media contents;
4. Tools used to analyse digital tracing and profiling for one-to-one distribution of services and the provision of enriched contents;
5. Ambient interfaces, and simple powerful tools and processes for interaction, large-scale cooperation and collective intelligence;
6. The systems, protocols, processes and uses of security;

7. Business models for the intangible and tangible digital sector, whether territorial or virtual, designed for the mass market or created for niche customers.
8. Creation and design of contents, worlds, services and digital terminals that provide increasing amounts of user space.

Challenges in research

At the point where information, communication, knowledge, human or social sciences and technology merge, we find scientific and technological research, meeting the technical needs of the sector and answering questions on the future direction of contents and services.

Twelve major scientific and technical challenges will face the digital sector over the next few years:

1. Artificial intelligence for games, animation and interaction engines;
2. Semantic gap;
3. Learning and adaptation;
4. Immersive, cognitive interfaces;
5. Procedural contents;
6. Capture and display of realistic scenes with movements, emotions etc.
7. Peer-to-peer services;
8. Cooperation and collective intelligence;
9. Merger and analysis of multimedia data and contents;
10. Automatic production and extraction of knowledge;
11. Changes in Man and the digital society;
12. Digital design;
13. Economic and legal model-building and regulation of the intangible.

Challenges in innovation

Incremental innovation is a process that aligns market requirements and available technologies and adds constraints such as creativity, marketing, economics and "time to market".

Disruptive innovation comes from long-term work on the technologies that pave the way for potential disruption or, on the contrary, form an incremental innovation process thanks to the "qualitative – quantitative effect." Three main difficulties in this process are:

1. Alignment of requirements and technologies that fail to recognise each other, within a time limit compatible with the constraints of each one;

2. Lack of testbeds enabling companies, especially SMEs, to test their innovations;
3. Lack of long-term research programmes to look into incremental sources of innovation.

Historically, leading companies have invested in innovation using only their own, in-house innovation process. However, over the past ten or more years, they have opened up to research laboratories, corporate start-ups and SMEs and spin-offs have become one of the means to the development of innovation. Innovative start-ups and SMEs are a powerful vector for innovation because of their reaction times. Research laboratories are central partners to disruptive innovation processes and frequent partners in the incremental innovation process.

The main challenges facing innovation are:

1. Construction and operation of a set of effective, open testbeds suitable for later development and adaptation as required;
2. Development of a set of conditions for technological intelligence and usage analysis, forward planning, and bringing together the relevant stakeholders. This breaks down structural and artificial barriers to cooperation and collaboration and encourages assistance with the construction and funding of projects;
3. Preparation and funding of research programmes and platforms on major locks and disruptions.

Challenges in business creation and growth

The ecology of the economic system depends on a fabric of large corporations and SMEs. Changes in the digital sector, on the other hand, changes have shorter time constants and a wider spread, leading to a large number of start-ups and, for some of them, rapid entry onto the global stage.

The main challenges in this sector are:

1. The creation of a fabric of medium-sized companies to become players capable of performing on the global stage and creating cluster effects. They will create critical masses, widen the spectrum of skills and expertise and increase the density of sources of employment;
2. Global leadership for companies in innovative sectors with strong potential.

Globalisation

The development of networks has accentuated the globalisation of markets, led by movements towards concentrations that target economies of scale and the extension of conditions and areas in which cultural products are used. Strong development in emerging countries has increased competition, posing a threat to existing positions.

The globalisation of contents and services is increasing, removing the structure of existing national markets and, in the long term, making the presence of our contents and service companies in the global marketplace inevitable.

Scientific and technological excellence combined with low-cost production capacities exist in all four corners of the globe. Digital innovation has no borders and public policies have had to integrate the new volatility of one part of their economic fabric with strong added value as well as the volatility of their key talents and expertise.

“Clusters” are appearing in various places throughout the world. The attractiveness of the concept (availability of funding and land, connectivity, qualified work force, and the complementary, cooperative nature of stakeholders) seems to be generally seen as a necessity.

The networking of the best clusters in the world creates a new space in which digital companies, laboratories and training agencies must make themselves known, differentiate themselves from others and establish partnerships.

Two dimensions are vital for the international competitiveness of companies in the digital sector:

- the competitiveness of the area in which they are based;
- the ability to go international in marketing and sales.

1.2.1 The challenges of territorial competitiveness

For territorial stakeholders within Cap Digital, the purpose of the cluster is to link and highlight the many advantages of the region as a whole and each of its component parts.

The main challenges in this respect are:

- to have an attractive legal and economic framework for design and production;
- to provide a critical mass of potential competitive or partner companies and to have science and technology parks to facilitate corporate start-ups or relocations;
- to provide a pool of qualified professional and research skills that are available and open to change;
- to provide efficient systems to assist in corporate start-ups and SME growth.

1.2.2 The challenge of the international market

The main challenges in this respect are:

- to set up a system to seek out and monitor markets and provide strategic analysis, working jointly with large corporations and SMEs;
- to network with companies and leading global clusters to measure our cluster against theirs, or even to establish a benchmark, leaving our cluster with strategic room to manoeuvre;
- to provide effective systems of support for companies wishing to enter the international arena, including technology and other intelligence, detection and services for new companies, especially SMEs.

Creativity and design

The first characteristic of the digital sector is the target “audience” for contents and communication viz. human senses and conscience through services; the organisation of individual and social lives and, through interface objects, the functionality and aesthetics of our everyday environment. Creativity or design then become a major part of the work in the digital field, bringing together a large number of concerns e.g. usefulness, feasibility, functionality, simplicity, aesthetics and sense.

A second characteristic of the digital sector, thanks to the spread of the Internet, is the simultaneous change in the landscape through which information and services are provided by a very large number of players. There is an oversupply of information and it is undergoing perpetual change. It is also strongly affected by innovation. Likewise, the position of users and clients has changed. A large number of them have become capable of producing or commenting on the information, enriching or modifying the services, taking the initiative and sharing expertise through networks. The prescription, comparison and sharing of experience are all playing an increasingly important role in consumer choices, partly replacing traditional media and contributing to user versatility.

The third characteristic of the digital sector is its regard for our past. It increases the accessibility of the past, our heritage and the present simultaneously, right across the globe, while working towards our future and stimulating our imaginations.

Does the knowledge society mean better access to all types of information, education and culture? The history and heritage of our civilisations are becoming all the more precious as changes occur with increasing speed and there are very real risks of forgetting, destroying and failing to maintain the past as differences undergo levelling and standardisation.

At the same time, some creators gain better access to their customers while teachers, museum curators, experts and scientists see changes in their roles and jobs as the best contents worldwide become available to the general public at large and the largest international players enter markets that are becoming increasingly competitive because knowledge is now central to value chains.

This vital, deep-seated change brings us face to face with three main groups of challenges relating to design, universal history and open access.

1.3.1 Challenges in digital design

There are two dimensions to this question – firstly, objects, interfaces, services and contents and, secondly, the types of collective interactions within design. This means that there are two major challenges:

- digital design must now take account of the specific dimensions of interfaces, languages, general availability, speed and the virtual nature of the digital world;
- collective, cooperative creativity within open or structured systems presents another challenge.

1.3.2 Challenges in universal digital memory

The universal digital memory is undergoing an exponential increase in volume. It is based on a range of different media because of technological progress and is becoming increasingly complex in conception and language. Two main challenges in this respect:

- the design of methods and tools to represent, handle and acquire knowledge;
- the organisation of storage and access for our heritage.

1.3.3 Challenges of open access

The speed at which change occurs in the digital sector produces a wide range of different terminals, interfaces, languages and practices and this, in turn, leads to problems of adaptation, appropriation and inequality in access to the digital world. Two main challenges requiring consideration are:

- the challenge of simplicity;
- the challenge of learning and education.

2. Vision and Goals

The setting up of the Cap Digital business cluster in 2005 brought players together, allowed for an innovative organisation and the building of structuring projects but also highlighted our strengths and weaknesses. In five years, what will Cap Digital have become and what contribution will it have made to changes in the digital contents sector and the economic situation of its members and the Greater Paris region as a whole, in the light of the new digital industrial world and its challenges?

Over the next few years, Cap Digital will be basing its actions on five major objectives:

- to build a global cluster for the creation, publication and circulation of digital contents and information-sharing vectors;
- to become a centre for innovation in the new fields of communication services and contents;
- to create a centre of excellence for research aimed at the digital sector;
- to help players in the cluster to progress, whether they are VSBs, SMEs, large companies or corporations with a national European and global dimension;
- to be a driving force to ensure that, as a country, France leads the way in digital expertise in the fields of design, access and exchange of contents and services.

2.1 Creating a global cluster for digital design, publication and content sharing

In 2004, the risk involved in setting up the Cap Digital business cluster was considered reasonable. It was based on an intuitive feeling about the emergence of the contents and digital services sector resulting from the convergence of the communication, culture and knowledge industries. The Cap Digital cluster in Greater Paris has been largely successful in its first phase, bringing together players in this new sector and involving them in the cluster's life and projects.

However, the construction of the digital contents sector is not yet complete and most of the leading French players (media, publishing houses, heritage, education etc.) have not yet really implemented all the necessary changes, whether they work in industry or institutions. Taking one component at a time, the cluster's R&D projects have paved the way for such changes as regards tools and methods but online contents providers are still few in number and consist of either small or medium-sized enterprises.

Before the cluster can become global, the stakeholders must make digital change part of their core strategy. They must take account of the arrival of new Internet and mobile media and prepare for the introduction of new types of contents linked to developments in the media sector and the spread of interactivity.

The cluster must also stimulate synergy between companies in the sector. This is a distinguishing feature of Cap Digital and a source of competitiveness, innovation and the creation of whole new markets.

Cap Digital's aim is to act as a driving force in this transformation, working with cluster members in three areas i.e. strategic planning, globalisation and structuring R&D projects.

2.1.1 Developing a strong international impact

At present, Cap Digital includes a number of global players – large international corporations, an SME that works on the global market and a research laboratory operating with international state-of-the-art equipment and projects. The cluster's work has already enabled it to establish links within Europe and with the rest of the world but international development remains out of reach for most small companies. Overall, although Cap Digital has obtained an initial reputation as a "digital cluster", it has not built up a critical mass; it is still too small to drive changes in the sector.

Over the next five years, Cap Digital's primary aim is to help most of its members to gain a foothold on the international market. Secondly, it will work to build up a critical mass and industrial density such that Greater Paris will become a digital cluster with a global dimension and a growth rate comparable to that of international competitors.

This challenge is based on the following:

- A global strategy for the cluster and its members, including business intelligence, market detection and the definition of priorities, leading to structuring projects.
- High-quality creativity and a concentration of talent in order to reach this level: imagination and originality must be central to the projects supported by the cluster, drawing on the scope and lively creativity of Paris and its region, and on its ability to attract talents.
- Even greater technological excellence to enable the best teams to develop their projects, find partnerships and outlets for innovation, obtain the funding and human resources required if they are to achieve their goals, emphasise the international reputation of their work and increase their attractiveness.
- Greater influence and a more global reputation for Cap Digital, through its presence at major global events and a communications and discussion policy involving all the players.

2.1.2 Being a proactive hub for our members' strategic goals

Cap Digital has become a place for discussion, a place in which to build awareness of the challenges that its members will have to face individually and together. However, the cluster does not yet have the tools required for comprehension and forward planning, the tools that would open a window onto the future. Although the cluster boasts high-quality expertise, particularly through its thematic committees, while its backing for projects is known to increase value chains and international discussions bring its

members prospects that go beyond national borders, the cluster now has to enter a new stage in its development.

In five years' time, Cap Digital must be seen by its members as a communal area in which to reflect on strategy and undertake forward planning.

It will have acquired a market search and recommendation process that draws on the expertise and wide-ranging actions of its members in the sector, based on active business intelligence, ordering surveys and missions, and capable of warning players in the sector about emerging issues and problems.

Its work, fed by knowledge of projects within Cap Digital and in other, competitor clusters, will provide valuable input for territorial, industrial and research strategies.

2.1.3 Structuring R&D projects to promote competitiveness and economic development

Structuring R&D projects are central to the strategy of a cluster. Quite apart from the innovation projects conceived by partners, they create a collective approach to key points in technological advances or in tools and methods for the design of contents and digital services. In fact, these structuring projects provide the groundwork for groups of competitive projects based on the results and expertise acquired.

During the first two years, Cap Digital has been the source of a dozen structuring projects which, in their design and implementation phases, involved large corporations, SMEs and research laboratories. These projects would not have seen the light of day without the cluster.

The aim is to set up a new series of second-generation structuring projects as part of the cluster's strategy, in response to the main industrial and technological challenges facing the digital sector. The cluster will continue to work on the digitisation of the various existing trades, be active in new media and new economic modes, and develop testbeds. Its leading projects will be designed to achieve the critical mass required to take the cluster's companies up among the leaders on the global stage.

Based on the cluster's collaborative "structuring projects", the vitality of the R&D laboratories, the in-depth knowledge of "uses" thanks to the observation and analysis systems set up or supported by the cluster, and an increased capacity for design and knowledge engineering, the projects will lead to numerous innovative wealth-producing services while at the same time helping to achieve real convergence between the various fields in a sector that is currently still very compartmentalised.

The projects will define an economic field that is legible in terms of industrial indicators such as investments, proactive innovation, business start-ups and growth rates, jobs generated and markets won.

2.2 Becoming an innovation cluster in the new fields of communication services and contents

Digital technologies, the sharp rise in the volume of contents, the development of places in which to combine and exchange contents, the existence of Web 2.0, the arrival of the semantic Web and the development of ubiquitous communications all

pave the way for a new revolution and, therefore, a new battle at global level – the battle for information, communication and contents services that will really mark the beginnings of the “knowledge society”.

The development of services will be one of the driving forces behind the development of digital and it will affect the communications and media sectors as well as all the other sectors in the economy e.g. culture, tourism, knowledge, health, the environment, official agencies, education, defence and transport.

2.2.1 Services for digital life

Information, communication and contents services are causing significant changes in practices and uses and are building what we propose to call “digital life”. They cover fields such as entertainment, culture, education, social activities, commercial practices, tourism, bureaucracy and they will shortly change the world of individual healthcare.

Digital life is therefore a major issue for society but it is also a significant economic challenge for our companies. Large American corporations such as Google and Microsoft are on the offensive, supported by the Internet’s ability to deliver information services throughout the world and based on the attractiveness of the search engines.

Digital life has a wide-ranging field of services. It is a new continent to be explored and there is every reason to think that it will be a new economic gold mine.

The field is also multi-scaled, ranging from services for a global audience down to services for local communities.

The design of digital services requires a combination of skills, from contents producers to distributors. They make use of the diversity of terminals and geo-location technologies. They raise quality and security issues and question conditions of payment. They demand innovation in marketing and sales models for business management and payment products e.g. profiling, advertising, peer-to-peer exchanges, micro-payment, grants, subscriptions etc.

The Cap Digital cluster has a number of key knowledge engineering players in the contents, publishing and communication sectors, specialising particularly in the entertainment and education sectors. The cluster must now widen its scope by attracting new players in digital life services and preparing structuring projects that will create a solid foundation for innovation and competitiveness in this area.

2.2.2 Circulating digital services

Digital technologies, the capture and processing of data and the resultant communicating interfaces are all sources of developments in many different sectors of activity e.g. culture, fashion, tourism, transport, defence etc.

Among the many potential fields of development to which the cluster might contribute, we have decided to concentrate on three.

Culture and creativity

Beyond the changes in the contents industries and industries resulting from convergence, the development of Cap Digital is a decisive advantage for those sectors of the economy linked to the digitisation of contents in Greater Paris and France as a whole, starting with culture, knowledge, fashion and tourism.

Thanks to the cluster's technological excellence and the skills of its companies, it should encourage universities, schools, museums, publishing houses, libraries, audio-visual companies, design businesses, tourism and heritage sites to make more use of digitisation, turning it into a key element in their development.

The major cultural institutions should join the cluster. Within it, they would find common ground on which to support and enrich their efforts in the fields of digitisation and digital distribution.

Universities and training agencies will find new ideas for enhancing their educational contents and services within Cap Digital, so that their teaching reaches and influences a wider audience.

All the sectors involved in design should see the cluster as a melting-pot of professionals and R&D, paving the way for partnerships and common projects.

The tourism sector should find numerous ideas within Cap Digital for innovations in the organisation and circulation of tourist contents and services.

All these players, if they were involved with the cluster in the development of innovative concepts, would gain greater strategic autonomy by decreasing their dependence on imported technologies.

In this way, members of the cluster would start to develop new markets that are of prime importance for them, with a major impact on the economies of the Greater Paris region and France as a whole.

Defence and security

At present, the digital contents industries are generally connected with opportunities in the consumer market. However, some of their developments are of a critical strategic nature, especially those which use knowledge engineering, 3D virtual representation, real time simulation and the conservation of heritage.

Cap Digital's aim is to develop dual contents design/processing technologies and, by doing so, to be a player in structuring projects within this field.

Moreover, information and disinformation are key elements in defence systems. Monitoring compliance with the laws of the virtual world of networks is becoming part of national and global security. Full understanding of information systems and conditions for distribution, authentication and validation, along with massive processing of multimedia and multimodal data are vital security areas in which players from the cluster will be very active.

Commerce, finance and communication

Knowledge engineering technologies are powerful levers in the processing of commercial and financial data. They are also important elements in risk assessments and decision-taking. Moreover, targeted marketing and communications also make use of these techniques. In partnership with the finance cluster in particular, and existing or future partners within the cluster, the players in Cap Digital propose to use their knowledge processing technologies to further these applications, especially by applying them to increasingly large amounts of data generated by electronic traces.

2.3 Creating a research and training cluster that is a centre of excellence for the digital sector

A global competitiveness cluster must be based on a centre of excellence in research and training at the highest global level. Training in high-tech skills and advances in research are key factors for disruptive innovations, business start-ups and competitiveness.

Greater Paris has many scientific and technological research establishments involved in R&D projects linked to our sector. It also has the lion's share of French human and social science teams involved in studying the spread and uses of digitisation. Their work is vital for understanding and forward planning.

The first phase in the construction of the Cap Digital cluster involved the Greater Paris region's driving forces in research in business cluster projects. In 2007, for example, it became the leading business cluster in terms of the number of projects backed by the national research agency (*Agence Nationale de la Recherche*). The research teams from the universities and engineering colleges in the cluster are also central to structuring projects, making Cap Digital the fourth most successful cluster in terms of the volume of financial backing obtained from central and local government.

However, there is still too little cooperation between R&D teams from industry and academia, both in terms of volume and in certain areas of research e.g. gaming and animation. The sector is still divided. The laboratories are still little-known to many companies and the relationships between researchers and innovators remain compartmentalised.

The cluster must work towards a new stage in the networking of research teams involved in its sector and it will encourage regular links with other members of the cluster, thereby shortening the distance between research and market and improving reaction times, quality and the relevance of the projects launched.

In addition to this, awareness of the needs for vocational training in technical fields, creativity and design is still inadequate and Cap Digital must work in both directions to build up a centre of excellence in research and training, two essentials for innovation.

2.3.1 Creating a research and training cluster that is a centre of excellence for the digital sector

Using establishments that are central to the cluster's business sector such as the Universities of Paris 6, Paris 8 and Paris 13 or the Telecom Institute, and combining their knowledge with input from research agencies such as CNRS, INRIA, CEA, MSH or other public university institutes and colleges such as Paris 7, ENS, GET, IRCAM, INA, EHESS and Centre Pompidou, Cap Digital's aim is to act as a catalyst for the creation of a powerful research cluster.

Such a cluster should federate research strengths and create a spearhead based on an advanced research centre e.g. "Institut cap digital" or "Cap digital labs".

The Cap Digital Institute should function like an open-plan institute, organising networks of research teams to work on advanced programmes that will rise to the challenges of the future. It should have the necessary resources to bring researchers together on projects and include essential research and test platforms.

2.3.2 Creating a comprehensive curriculum for training in digital sector jobs

The development of digital technology has led to changes in existing courses and a need for a whole new curriculum. At present, Greater Paris has a large number of higher-grade training courses for "digital" professions but recruitment is still a difficult issue for many of the sector's companies faced with this explosion in the curriculum. For educational and training bodies, the sector's needs remain unclear and the constantly-changing requirements are difficult to understand.

The cluster has given itself an objective in this respect i.e. to set up a training strategy based on potential economic requirements, full understanding of the latest technologies and insight into trades and developments. To achieve this, the strategy will be based mainly on professional associations and the universities or colleges that are central to the cluster's work.

Work to find interested parties, establish partnerships, meet with establishments and understand employers' requirements has already begun and will gather momentum. Initial and vocational training courses linked to contents industries will place greater emphasis on the digital dimension and digital-related courses will better integrate the specific characteristics of digital content. Greater importance will be placed on bridges and hybridisation between technologies, creativity, design, and human and social sciences, to meet the needs of innovative companies and offer attractive courses that pave the way for a changing future.

The aim is to achieve recognition for the area as a centre of excellence for high-tech skills, support economic activity and develop creativity.

2.4 Increasing corporate competitiveness

A business cluster is a means to economic competitiveness in the medium and long term. Its aim is to assist the start-up and growth of young companies, as well as the

development of SMEs and existing large corporations. It should also help companies to pinpoint their ambitions and provide them with support during their development on the national, European or international stages.

In this respect, Cap Digital should work on establishing networks for its partners in Greater Paris, providing an efficient and effective link between players, acting as a catalyst for innovation and building a marketplace for innovation.

2.4.1 Stimulating innovation in a structured, legible, regional ecosystem

Greater Paris is Europe's leading region, concentrating skills and talents in information and communication technologies. However, because of the region's size and diversity, the players are dispersed over a large area. Today, Cap Digital is already playing seeking out potential partners and encouraging networking, through its projects and leadership activities.

With the backing of local authorities (regional and county councils, district council and towns), Cap Digital's aim is to play its part in making Greater Paris an effective, legible ecosystem in the digital contents sector. The partnerships and projects that have already been launched, the tools and platforms being shared, the cultural melting-pot stimulated by the cluster and based on innovation through special events and network leadership, should strengthen the ties between complementary stakeholders who, in turn, will be more aware of their position and the challenges they share. In the light of the initial results obtained by the Cap Digital structuring projects that have already been funded, there is an obvious, and real, determination on the part of project leaders to maintain established relationships of mutual trust into the long term, to build new projects that follow on from the innovation that was a feature of previous schemes and to more closely federate existing teams.

This demand highlights Cap Digital's role as an innovation hub and, secondly, focuses on the power of the "bottom up" processes stimulated by the cluster in terms of creativity and efficiency.

Greater Paris must now step beyond its current image and become an even more attractive proposition for companies in the sector, whether multinationals or start-ups, forming an ecosystem that will create jobs and in which Cap Digital will be one of the melting-pots.

With this in mind, Cap Digital must be a catalyst for all the services to innovation present in the digital contents sector. To be successful, Cap Digital must be visible and legible, i.e. it must create a "one-stop shop" that will enable any company or laboratory in Greater Paris, France, Europe or elsewhere in the world to know who to contact and where to find the correct information and the right response to requirements.

Cap Digital must be known for its position and its ability to bring together some of the elements that give its actions their visibility. Just like the developments in large cities specialising in the digital sector, Cap Digital must be located in places that have tech-

nology enhancement platforms, usage platforms, project teams, laboratories and young innovative companies.

Cap Digital must be the structuring catalyst for one or more cities specialising in digital innovation, symbolic places for designers, researchers and industrial companies. Their future prosperity will come from the dynamic provided by the cluster.

Company founders and innovators will find invaluable assistance in their dealings with institutions and sources of public grants as well as in their search for funding and investment, human resources and available real estate.

Large corporations will gain better access to innovation and R&D pools.

The cluster will create partnerships, allowing for the emergence of ambitious, innovative projects thanks to the bringing together of players and the challenging use made of their complementary expertise.

2.4.2 Building an innovation marketplace

At present, countless innovators are in a difficult situation, whether or not they work within the Cap Digital cluster, because the sector is still in its infancy and there is a gap between the quality of their projects and the resources at their disposal to bring their projects into the spotlight and expand upon them. This being so, many projects end up in drawers and many R&D projects never become pre-competitive innovations because there is insufficient awareness of their existence and too few reliable outlets.

Moreover, latent requirements or expectations with regard to corporate innovation remain unsatisfied because of a lack of contact with research laboratories or innovative start-ups.

Cap Digital's aim is to create a real marketplace for innovation in the digital contents sector, significantly increasing the flows between supply and demand, between professionals, between innovators and research laboratories, and between major clients and innovators.

As far as technological innovation is concerned, such a marketplace provides a means of gaining support from common building blocks, finding complementary expertise within development communities and minimising reaction times.

In the area of service innovation, it is also a means of identifying the complementary nature of technologies and business models.

For structuring players, companies and investors, it establishes a formal footing for a wonderful pool of projects and skills.

2.5 Developing digital capabilities

An area's strength lies in its skills and its organisational abilities. Understanding the digital world is a prerequisite if France is to be among the leaders of the digital revolution.

The development of digital culture at all ages and at every level of society is therefore a major objective for the strategy implemented by players in this sector.

It impacts upon designers, users and decision-makers and, today, the impact is even more marked because the development of contents and services is giving users an increasingly large part to play. They are not only consumers; they are also co-designers.

The development of the digital culture at every level of society goes far beyond the work of a business cluster, of course, but Cap Digital can and must play a multi-faceted role in design and innovation, the development of cooperative intelligence technologies, usage testing, and training (the point described at length with regard to a previous objective).

2.5.1 Creativity and design

New technologies have caused disruption in artistic developments and, in its turn, artistic creation is a form of advanced research into innovation. The development of digital art is therefore seen by the cluster as one of the general elements in innovation.

Design combines a number of components e.g. creativity, technical innovation or innovative usage, aesthetics and sensual metamorphosis. The development of contents, services, terminals and digital objects (in their purpose or composition), should give pride of place to design and simplicity (which should both go together) to improve attractiveness, acceptability and ease of usage.

Included in Cap Digital's skills are ways to deal with creativity and design problems and the cluster has, as one of its objectives, a plan to develop projects in this field within the cluster and with the right partners.

2.5.2 Cooperative intelligence technologies

Cooperation between players (designers, users) is a powerful source of efficiency, innovation and production. Collective intelligence technologies (i.e. the production of knowledge, discussions and decision-making) and cooperative technologies (used to support effective interactions in terms of ergonomics and confidence) must be developed and made as widely available as possible.

Cap Digital now has new players specialising in this dynamic and it aims to be a pioneering cluster for the development of contents, knowledge and digital services.

2.5.3 Usage testing

Acquiring digital culture requires countless experiments and the ability to capitalise on these experiments through usage observation and analysis. The structuring "Digi-

tal Lab” project is currently being deployed through usage study platforms for mobile technology and is then used to test a digital urban district.

The testbed policy will be continued by the cluster, notably with a VHB service testbed. In the future, new diversified platforms will be installed, especially in sectors such as education, gaming, social networks, and nomad or geolocated services.

Cap Digital must also position itself as the federator and coordinator of “living labs” in the Greater Paris region, to increase European awareness of its actions and make them attractive propositions.