Panorama Services and ICT
short Version - Extracts
Introduction

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Contexts
► Summary
► World
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► PACA
► Inter-regional benchmark

Key elements of ICT in PACA (summary)
► Microelectronics
► Telecommunications
► Software and services
► Media

Activities related to ICT

17 key technologies in ICT in PACA
► Definition, summary
► PACA, world leader: Micro-electronics, optoelectronics, …
► Among the French leaders: Man-machine interface,…
► Technological building blocks in PACA: Robotics,…

Application sectors / markets
► Digital content, mobile communications, transmedia, games
► The environment, smart grids, risks, home automation, smart ICTies, e-ICTizenship, …
► Industries and services, smart devices, social technologies, food industry, defence, aeronautics, …
► Health P
► Tourism
► Transport / Logistics
► TICE / E-learning, digital environment at work, interactive digital blackboards, E-learning …
► Specialist trading / e-commerce

Crossovers / regional specialisms
► Public organisations and policies, future investment, financial aid, DAS, SCORAN, SDTAN, SRDE, SRI, …
► Clustering, PRIDES, professional associations, …
► Facilitators, incubators, technology parks, nursery units, advice, …
► Network infrastructures, fixed and mobile networks
► ICT events, national and international, trade shows, conferences

R&D and training
► Research & Development, public and private
► Training, initial and ongoing

Appendixes, technology parks, nursery units, advice, research contracting.
Introduction

Summary

- relative weighting of ICT activities in Provence-Alpes-Côte d'Azur

ICT

About 30,000 establishments* - 77,000 jobs potentially affected

* Establishment = business, structure or organisation

Core ICT
22,000 establishments
55,000 jobs

Activities closely related to ICT
7,500 establishments
22,500 jobs

(ICT industry in PACA)

Source: INSEE 2010 – Processed by MDER 2012
Introduction

Overview

 ► ICT is Information and Communication Technology. It includes new methods, media, technologies and uses which are developing worldwide, representing a market of 3,300 billion euros in 2013. One-third of this in telecommunication services, including more than 6 billion mobile phone subscriptions.

 ► This is also an impressive factor in the economy (5% of European and French GDP), and employment (1 million people in France; almost 55,000 in core business in PACA). In France 95% of businesses are on-line and 38 million ICTizens too.

 ► Many technologies, such as electronic components, secure telecommunications, on-board systems and digital content make France and the Provence-Alpes-Côte d'Azur region key areas for the development of ICT.

 ► In Provence-Alpes-Côte d'Azur, four main sectors stand out: microelectronics (9,000 jobs / 530 establishments), telecommunications (11,000 FTE staff / almost 1,300 firms), software & services (21,000 FTE staff / almost 8,400 firms) and media (13,000 FTE staff / almost 12,000 firms). These alone represent almost 55,000 jobs and more than 14 billion € in turnover, in the core business.

 ► Taken all together, ICT accounts for close to 77,000 jobs in 30,000 establishments, with, outside the core business, related activities (with 11,000 jobs and almost 7,000 establishments) and R&D (with almost 11,000 jobs and 400 establishments).

 ► On the seven key technologies of ICT, the region has a global profile. In eight others, it is among the French leaders. It also boasts transverse skills (robotics and intelligent manufacturing).

 ► Many markets have had their growth boosted by the new technologies. Through the diversity of its economy, the region is rightly home to a high number of sectors / markets where ICT plays a key role. This proximity between producers and consumers of ICT offers synergies on which the region must capitalise.

 ► Finally, we find a whole network for the development of ICT. This is a network of data (fixed and mobile), of people (clustering, particularly around SCS and PRIMI), of facilitators, of researchers (1,500 scientists in the public sector, 11,000 private), of laboratories (25 specialists, 37 related), of facilities (25) and of courses (500 courses, 10,000 students).

 ► So the region can pride itself on its ambition to develop businesses around digital technology, transmedia, broadband networks, smart devices, security, and cloud technology. Further opportunities may be in the offing, around the software industry, which runs across all the others. Very naturally aimed at uses, it can also envisage market opportunities in its main economic sectors.
Introduction

Ecosystem of ICT in PACA

ICT industries and regional clusters

- Microelectronics
- Telecommunications
- Software and services
- Media

OPTITEC
the south of France optics and photonics cluster

PRIDES
SCS
safe smart devices

PRIMI
Mediterranean transmedia cluster

Electronic components and nano-electronics

Terminals and interfaces

Systems

Networks and equipment

Software and software engineering

Applications

Digital content and services

Micro-electronics

Smart devices

Holistic security

Wireless technologies

On-board software and related processors

Portal, collaboration and unified communications

3D Technologies

Optoelectronics

Man-Machine Interface

Supercomputing

Mobile and optical broadband networks

Data enhancement and intelligence

Virtualisation and cloud computing

Scanning

Optoelectronics

Robotics

Microelectronics

Telecommunications

Software and services

Media

Optoelectronic applications

Digital content

Ecosystem of ICT in PACA

Developed apps (markets)

* Mobile applications, multimedia & games
** Electronics, Aeronautics, Security and the Food industry, ...
Summary

World
► The digital, Internet and mobile revolution affects the entire world population. It is already a considerable market, in constant growth despite the financial crisis, valued at 3,300 billion euros in 2013. Telecommunication services represent 1/3 of this market and software and computer services 22%. Software is far more important than hardware. The need of the world population for services and communications seems to be unlimited. Some figures are mind-boggling. For a world population of 7 billion people there are said to be almost 6 billion subscriptions to mobile phones.

► 1/3 of humanity was already connected to the internet by 2011. It is therefore the entire planet that has been affected by the digital revolution and not only the richest countries. The world distribution of this market is almost balanced with Europe and North America at 32 and 30% and Asia at 25%. Admittedly, Africa and the Middle East are still behind (5%). Some small countries, South Korea, Hong Kong and Scandinavia are at the cutting edge and take full advantage of the fact.

► This technological and economic revolution has also meant a profound change in social relationships: new uses of social networking sites. The population taking part in these networks is already 1.2 billion users in the world, of whom half, or 600 million, are said to connect each day.

Europe
► In Europe, ICT already represents 5% of GDP. It plays a decisive role, contributing to half of the rise in the overall productivity of the economy. All sectors are concerned: health, the environment, transport, tourism, industry, public administration and all the industries dealing with content. Europe, being more specialised in ICT services, must equip itself with infrastructures to create a single digital market, based on high-speed internet and inter-compatible applications. Especially since technology moves very fast, destroying the boundaries between digital equipment, making a large range of services accessible from any device.

► A few figures illustrate the boom of the digital in Europe: in 2011, 95% of businesses were connected to the internet, 74% of homes have a computer, each day, 65% of Europeans go online at least once.

France
► In our country the digital economy already represents more than a million jobs (2011) – and 450,000 new ones by 2015 – almost 250 billion euros of turnover, 5.2% of the GDP and 1/3 of private research. It also means 38 million surfers, a fourfold increase in 10 years.

► France’s strong points:
  - A leading position in electronic components, especially smart cards and contactless transactions (Gemalto, Tagsys) and microelectronics in general.
  - A benchmark country in telecommunications, with major international players (Orange, Alcatel-Lucent, Safran, Thalès).
  - A worldwide influence in digital content, particularly for 3D and virtual or enhanced reality.
  - Recognised expertise in complex onboard systems, among the most cutting-edge in the world.

► France also has good infrastructures, with 92% of businesses having broadband connections, far above the European average. Another characteristic feature is the high rate in the use of internet by businesses in their relations with public bodies (third highest in Europe for administrative formalities).
Summary

PACA

► PACA is in the forefront of this national landscape, second or third in nationwide comparisons. Firstly by the large number of jobs: 55,000 in core ICT (in 22,000 establishments) and/or 77,000 when related activities are taken into account (in 30,000 establishments).

► Just as significant are the sales generated, which came to more than 14 billion euros in 2010. Nevertheless, these figures are partial as they do not take account of the large businesses whose sales figures are not broken down by region. In fact, all the ICT sector makes a major contribution to the regional economy, and is surely one of the most essential.

► Another feature of the region is the importance of microelectronics, where PACA and Rhône-Alpes between them are home to 75% of the major French groups in the sector, and of software and services. The region is well represented in many of the segments of the ICT value chain “from the silicon to the users”. The industrial fabric consists of large, often international, businesses such as STMicroelectronics, Gemalto, Amadeus, Samsung, Intel, Atos and Bull, as well as a large range of SMEs and start-ups, particularly in software and transmedia. Microelectronics is even more concentrated. In the recent crisis, though the total number of jobs has fallen, the number of establishments is rising by a process of swarming, showing a capaICTy for adaptation that bodes well for the future.

► To the four strands of ICT in the region (microelectronics, telecommunications, software & services and media) should be added the research laboratories, specialist facilities and higher education. These too are major pillars of the regional ecosystem (CNRS, INRIA, Eurecom, LEAT, Centre Microélectronique de Provence, Supinfocom, Ingémédia, the STIC campus at Sophia Antipolis, and so forth.).

► All of these skills have helped the region to consolidate its position on the key technologies identified by the DGCIS. Out of the seventeen that relate to ICT, it holds world status in seven.

► Last but not least, the economic fabric of the region extends to many varied sectors of activity: environment, tourism, health, logistics, aeronautics, marine industries and the food industry form a range of promising markets, likely to be high consumers of ICT in the future.

► This shows how much the crossing and interweaving of these different components should thrive within a virtuous ecosystem, and create wealth. These challenges need to be continually taken up by collaborative and support structures, created by the economic players themselves (Arcsis, Same, Telecom Valley, Medinsoft) or on the initiative of the government and the Regional Council (in particular the Competitiveness cluster/Prides on Secure communication systems - SCS, but also Optitec (the South Optic and Photonic cluster) and PRIMI (the Mediterranean transmedia cluster).

► Geographically, half of the activity is found in the Bouches du Rhone (53% of jobs) and a third in the Alpes-Maritimes (31%). But the Var and the Vaucluse account for 15% of jobs. Though R&D is essentially located in the two big ICTies, the industrial fabric is more diffuse, mainly in their periphery but also around Avignon and Toulon.
PACA: Businesses and jobs

Sectors of importance

Employment: almost 55,000 jobs

- These businesses generate almost 55,000 jobs in the core businesses of ICT, and more than 75,000 in other activities related to ICT (manufacturing, sales, repairs) and R&D. Details of the NAF codes used p.4-5

<table>
<thead>
<tr>
<th>Domain</th>
<th>Establishments</th>
<th>FTE</th>
<th>Ratio of jobs to establishments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microelectronics</td>
<td>530</td>
<td>9,231</td>
<td>17.4</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>1,265</td>
<td>11,035</td>
<td>8.7</td>
</tr>
<tr>
<td>Software and services</td>
<td>8,398</td>
<td>20,965</td>
<td>2.5</td>
</tr>
<tr>
<td>Media</td>
<td>11,973</td>
<td>12,924</td>
<td>1.1</td>
</tr>
<tr>
<td>Other activities related to ICT</td>
<td>6,958</td>
<td>11,294</td>
<td>1.6</td>
</tr>
<tr>
<td>Scientific research and development</td>
<td>402</td>
<td>11,184</td>
<td>27.8</td>
</tr>
<tr>
<td>Total</td>
<td>29,526</td>
<td>76,633</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Source: INSEE (CLAP2010), processed by MDER

- The software and services sector employs most people (27% of jobs in all firms, 39% of jobs in core businesses).
- The media sector, with 17% of total employment (24% of jobs in core businesses) is the second largest. The small size of companies, essentially very small or small and medium-sized businesses with many one-man firms, may hide a larger number of jobs, because jobs in establishments of less than five employees are not measurable with accuracy.
- Telecommunications, with 14% of total employment, is the third largest ICT sector in terms of jobs, even though it is in slight decline.
- Finally, microelectronics which has been in decline in recent years, has seen its payroll shrinking and now represents only 12% of total employment (17% in the core businesses). Nevertheless, it is a sector with a high concentration of jobs (530 establishments for 9,231 jobs, making a ratio of more than 17:1).
- Related activities represent 27% of total employment. Some of them, with R&D activities, concentrate jobs which can be added to the different strands of core ICT business.

Source: INSEE (CLAP2010), processed by MDER
PACA: Companies and jobs

Leading sectors

Turnover: more than 14 billion € for the core business

► In 2010, the core business of the sector was worth more than 14 billion euros in turnover in PACA, and that only takes account of the largest 240 companies in the region, even if these results remain partial. (N.B: this excludes the main groups whose turnover cannot be analysed by region). This is a considerable amount, equivalent to tourist consumption in 2010, and represents 11% of the regional GDP.

► Service activities drive the sector:

- The telecommunications sector is the one with the highest turnover, almost 5 billion euros, despite the exclusion of the major operators (Bouygues Telecom, France Telecom/Orange, Free, SFR...) whose turnover cannot be analysed by region, and despite the progressive disappearance of telecommunication equipment manufacturers.

- Software and services are also in the same situation, with many big companies (IBM, Bull, Dassault Systems, etc.) whose turnover is recorded for the group as a whole and not their regional sites. As far as we can estimate, the sector is worth more than 3.4 billion euros.

► Microelectronics has an equivalent value of turnover, standing at almost 3.3 billion euros. Up until now it has been strongly directed at production, but is currently reorganising because of competition from Asia and aiming increasingly at "More than Moore" and design activities.

► Finally, the media total more than 2.8 billion euros in turnover (after excluding the groups whose turnover cannot be analysed by region). Note: this sector is generally composed of smaller businesses (very small to medium companies).

<table>
<thead>
<tr>
<th>Domain</th>
<th>2010 turnover except for large groups (in millions of euros)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microelectronics</td>
<td>3,298</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>4,968</td>
</tr>
<tr>
<td>Software and services</td>
<td>3,425</td>
</tr>
<tr>
<td>Media</td>
<td>2,804</td>
</tr>
<tr>
<td>Total</td>
<td>14,495</td>
</tr>
</tbody>
</table>

Source: INSEE (SIRENE 2010), reworked by MDER
PACA: Maps

Summary of the maps on the next two pages.

► If we locate the distribution of ICT businesses on a map of the region, it throws further light in addition to the statistical data:

- Greater Marseille includes all sectors, with software and media in the forefront, without under-estimating telecommunications and microelectronics. But ICT is also predominant in the region of Aix where software & services, not to mention media, are prominent.
- In addition to Marseille which naturally concentrates all sectors and Rousset, the historic heart of microelectronics, Vitrolles and the Aubagne/Gémenos area both deserve a mention.
- In a way that the figures barely reveal, the areas around Avignon and Toulon are far from negligible pockets, with media activities in Avignon and a notable diversity in Toulon.
- Finally, the ICT ecosystem reaches, to a slight and spasmodic extent, into the Durance valley as far as Gap.

► It is equally interesting to compare the two maps, Businesses and Research and Development.

► On the latter, the concentration of laboratories in Marseille and Nice Sophia Antipolis is very marked.

► R&D is more diffuse in the region of Aix, but with sites in Avignon and Toulon. We see that despite a heavy concentration of ICT businesses around Aix, the number of laboratories is smaller.

► Sophia Antipolis concentrates the most private laboratories and Marseille the largest number of cross-sector facilities.

► Specialist facilities are well distributed across an arc from Arles-Avignon to Nice-Sophia Antipolis, passing through the conurbations of Marseille and Toulon.
293 companies, among the largest (in number of employees) in the ICT sector in 2010

Microelectronics
Telecommunications
Software - Services
Media:
- Audiovisuel - Transménédias
- Édition - Presse
- Marketing - Publicité

NB: The businesses used in drawing this map are taken from the lists alongside the four sector maps (micro, telecoms, software and media), which can be consulted in their respective chapters.
Main people involved in R&D

Research and Development in ICT in PACA

120 establishments among the largests ones on the territory in 2010

NB: The list of laboratories and facilities used in compiling this map can be consulted together with this same map, in a separate chapter on page 213.
ICT Value chain

The PACA clusters involved in ICT are unusual in that they cover the entire value chain, “from the silicon to the users”, based on the four key sectors of ICT.

Definition of the seven elements of the value chain:

- **Electronic and nano-electronic components**: items intended to be assembled with others to perform one or more electronic functions.
- **Equipment, terminals and interfaces**: communications equipment, terminals and interfaces.
- **Systems**: processing information, and the ordering and management of information.
- **Networks and equipment**: communication networks and equipment enabling networks to function.
- **Software and software engineering**: development of computer software and systems engineering.
- **Applications**: development of ICT solutions as applied to uses and/or markets.
- **Digital content and services**: digital content developed using ICT and digital services.
Interregional benchmark

PACA: the second or third most important region in France for ICT (depending on the subjects)

In terms of jobs, PACA stands equal with the Rhône-Alpes region (60,000) with between 55,000 and 77,000 ICT jobs in PACA. And also, a great deal of synergy has developed through the two regions being neighbours.

<table>
<thead>
<tr>
<th></th>
<th>Ile-de-France</th>
<th>Rhône-Alpes</th>
<th>Provence-Alpes-Côte d’Azur</th>
<th>Brittany</th>
<th>Midi-Pyrénées</th>
<th>Nord-Pas-de-Calais</th>
<th>Aquitaine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Businesses</td>
<td>18,000</td>
<td>NC</td>
<td>10,887</td>
<td>650</td>
<td>3,000</td>
<td>1,466</td>
<td>3,713</td>
</tr>
<tr>
<td>ICT staff</td>
<td>423,000</td>
<td>60,000</td>
<td>From 55,000 (core) to 77,000 (related activities)</td>
<td>42,000</td>
<td>27,300</td>
<td>23,906</td>
<td>23,000</td>
</tr>
<tr>
<td>GDP 2010 (in millions €)</td>
<td>572,398</td>
<td>187,426</td>
<td>137,660</td>
<td>79,488</td>
<td>77,662</td>
<td>96,059</td>
<td>83,637</td>
</tr>
<tr>
<td>Students in higher education 2010-2011</td>
<td>618,786</td>
<td>247,166</td>
<td>157,049</td>
<td>110,669</td>
<td>156,587</td>
<td>107,481</td>
<td></td>
</tr>
<tr>
<td>Specific skills</td>
<td>All</td>
<td>Nano-technologies and onboard systems, digital leisure and software</td>
<td>Without-contact, Networks Mobiles, M2M, Identity, Security</td>
<td>Images 3D, networks landlines and mobiles, internet of the future</td>
<td>Aeronautics and aerospace</td>
<td>Security, Contactless, Virtual reality, Software trades</td>
<td>NC</td>
</tr>
</tbody>
</table>

Sources:
- PACA: INSEE Clap 2010, processed by MDER
- Midi Pyrénées: CCIR Midi-Pyrénées 2011
- Nord-Pas-de-Calais: Observatoire des TIC de Lille Métropole et du Nord-Pas-de-Calais
- Aquitaine: Tendances TIC 2010 – CCI Bordeaux
Key ICT sectors in PACA

Summary

The four key ICT sectors in PACA – microelectronics, telecommunications, software & services and media – represent almost 55,000 jobs and more than 14 billion € in turnover. Related activities are also developing (manufacturing, commerce and repair of ICT equipment / scientific research and development) and represent more than 22,000 jobs.

In general, ICT industries are in a state of flux:

- **Microelectronics**: 530 establishments, 9,200 FTE staff, 3.3 billion € of turnover in 2010. Despite the creation of some fifty businesses, employment numbers have fallen (a drop of 1,679 FTE between 2008 and 2010). Strong competition from Asian countries in manufacturing electronic products, and also the difficulty of finding outlets for components and cards, have weakened the sector. Nevertheless, it remains a well-structured industry, with major clients (Gemalto, STMicroelectronics…), a fabric of SMEs (ARM, Invia, IBS, Wysips, …) and a global competitiveness cluster bringing players together (SCS). It is also the sector with the highest ratio of jobs to establishments (17:1). In addition, the sector has major assets in the form of R&D (design and testing centres, laboratories etc.).

- **Telecommunications**: 1,300 establishments, 11,000 FTE staff. This is the sector that lost most jobs between 2008 and 2010 (- 2,465 FTE staff), despite an increase in the number of establishments (+ 79), mainly because of the fall in the manufacturing of communication equipment (-78%, or 1,979 fewer FTE staff); this activity is increasingly subcontracted to countries with cheap labour. Nevertheless, it remains a sector of great importance, with almost 5 billion € in turnover. The region is home to leaders in the sector (Gemalto, ST Ericsson, Alcatel Lucent, Samsung, etc.) and to large standardisation organisations (ETSI, W3C…). Around the SCS cluster and other PRIDES, a real development ecosystem has grown, especially around wireless technologies, smart devices and the security of communications and transactions.

- **The software and services** sector: 8,400 establishments, 21,000 FTE staff, 3.4 billion € in turnover. This is the leading ICT activity in PACA in terms of jobs, but also one of the few where jobs are increasing. Here there is a dense fabric of businesses, with firms like IBM, Intel, Bull, Dassault Systems, Amadeus, Thalès, Lefebvre software... but also networks of players like the Cluster / PRIDES SCS and its specialist component MedInSoft. Many opportunities are appearing, part-way between telecommunications and the media, in such activities as cloud computing, digital content and the challenges of mobility, security and traceability. The position of PACA on the communication backbone between Europe and Africa, and the position of local firms on these issues, offer good prospects for the sector. And finally the immense transversality of the sector offers major R&D potential.

- **The Media**: 12,000 establishments, 13,000 FTE staff, 2.8 billion € in turnover. The second largest ICT sector in terms of jobs, composed of numerous SMEs and VSEs. Though this activity seems to be in slight decline (- 722 FTE staff), it is in fact more dynamic than it appears, with a strong increase of the number of establishments (+ 4,626). The sector itself consists of three subdivisions: marketing and advertising (51% of staff), audiovisual (25%) and publishing and journalism (24%). The sector is represented by the SCS cluster (the technological part), but also and especially by the PRIDES PRIMI (Mediterranean transmedia cluster). The opportunities for development are digital content (particularly on mobiles), audiovisual, internet and transmedia. This sector is closely linked with those of software and services, and telecommunications. Finally, this subdivision has many facilities devoted to mobile telephony (e.g. PACA Mobile Center), virtual reality and 3D animation.

Activities related to ICT: Upstream and downstream of these four sectors, they represent the activities of manufacturing, selling and repairing ICT equipment, and also R&D, with the research centres of the main ICT businesses. These provide more than 22,000 jobs in more than 7,000 establishments.
Summary

The sectors of ICT represented by colours

► On a single diagram, we have distributed the four ICT subdivisions according to the jobs, and the number of times where R&D laboratories and the specialist facilities apply to them. We have also added courses and students.

► The use of colour gives a visual impression. Even if this is misleading, because the figures are not necessarily comparable, the overall picture emerges.

► What is apparent – it has to be said – is the importance of software in our region. It comes first everywhere, as if there were a continuity, a regular link, between the number of jobs, R&D, facilities and training. Some sort of balance.

► This balance – or rather this homogeneity – also seems to be general between the four subdivisions which form the core of ICT. There is no vacuum or surplus. The density of the colours is naturally more or less intense, but there are no elements too marked or disparate.

► The telecommunications sector may appear to be in decline, but the figures are misleading because facilities are numerous in that field, as are jobs.

► Microelectronics too appears well-organised: fewer jobs than the others but very much present in terms of laboratories and facilities, with courses that appear suited to the number of establishments of jobs. This may perhaps be the result of the corresponding clusters?

► Finally, the media hold a good position as regards businesses and jobs and also courses. They are not short of laboratories or specialist facilities.
Summary

► On the world scale, microelectronics develops in short cycles of growth and decline, but over the long term, the growth of activity is continuous. The world market for semi-conductors was 226.3 billion dollars in 2011.

► In France, this sector is worth more than 5.6 billion € in turnover and more than 27,000 direct jobs (70,000 indirect), whose main appliances are in automobiles, industry, defence, smart cards, etc.

► PACA and Rhône-Alpes between them are home to 75% of the biggest groups (with more than 100 staff) in the sector in France.

► PACA is a heavyweight in microelectronics on the national and European scale. It has undisputed assets of several kinds: major groups with substantial manufacturing capability and a fabric of SMEs well positioned in design..

► Almost 40% of the national production of semi-conductors: this amounts to more than 500 establishments providing around 9,000 jobs, half of them manufacturing components.

► The 60 largest businesses represent a combined turnover of 3.3 billion euros (2010). Of this 1 billion comes from STMicroelectronics and 0.8 billion from Gemalto. The groups in PACA make a large part of their turnover through their establishments in France and abroad..

► The world competitiveness cluster on Secure Communication Systems (SCS) covers the five themes that ensure the position of the region: connectivity, security, traceability, identity, mobility. These are based on firm foundations of contactless technologies, digital security of transactions and smart devices..

► The Bouches du Rhône (50% of the establishments) and the Alpes-Maritimes (25%) predominate, but the activity also spills over into the Var (16%) and the Vaucluse (7%).

► Finally, research and development and specialist facilities have strengthened local ties and the development of an ecosystem:
  - There are about fifteen laboratories, several of which (CNRS, INRIA, Eurecom and LEAT) cover a wide area of the ICT value chain.
  - About fifteen structures and specialist facilities are available to professionals, among them the CNRFID, PACA Mobile Center and many others.
  - In particular, CIM PACA, the ASTEP platform and the LSBB are at the leading edge of testing and the development of electronic solutions.

Source: L’Usine Nouvelle, « Le Sud-Est, place forte de la microélectronique », no. 3319, week of 21 to 27 February 2013
Microelectronics

Key sectors in ICT in PACA > Microelectronics > Maps of businesses

Maps of businesses
Main microelectronics establishments

Microelectronics in PACA

60 companies among the largest (in number of employees) in the ICT sector in 2010 - Out of 500 establishments and more.

Source: MDER 2012 - Données INSEE 2010

MDER – Panorama ICT – 2013
Microélectronique en PACA
60 entreprises parmi les principaux employeurs du secteur, en 2010

+ de 2 000 salariés
1 – STMICROELECTRONICS (Rousset)

de 500 à 1 999 salariés
2 – GEMALTO (Gémenos)
3 – LFOUNDRY (Rousset)
4 – SCHNEIDER AUTOMATION (Carros)

de 200 à 499 salariés
5 – ATMEL (Rousset)
6 – EGIDE (Bollène)
7 – MIRION TECHNOLOGIES (MGPI) (Lamanon)
8 – ST-ERICSSON (FRANCE) (Valbonne)

de 50 à 199 salariés
9 – ARTICLES DE LABORATOIRE DE PRECISION (Chorges)
10 – ASK (Valbonne)
11 – ATOS (Carros)
12 – CONTROLE MESURE REGULATION (Marseille)
13 – ENERGIE INDUSTRIE SERVICES (Saint-Paul-Les-Durance)
14 – HEWLETT-PACKARD Centre Compétence France (Blon)
15 – HONEYWELL (Vitrolles)
16 – INSIDE SECURE (Aix-en-Provence)
17 – ITECA SOCADEI (Aix-en-Provence)
18 – KONTRON MODULAR COMPUTERS (La Garde)
19 – NEOTION (Aubagne)
20 – ROCKWOOD WAFER RECLAIM (Gréasque)
21 – S.A.S SIERES ENVIRONNEMENT (Aix-en-Provence)
22 – SECALTO (Mougins)
23 – SECURITE COMMUNICATIONS (Mougins)
24 – SMART PACKAGING SOLUTIONS (Rousset)
25 – SYNERGIE CAD (Carros)
26 – TAGSYS (La Ciotat)
27 – VAULT-IC FRANCE (Rousset)
28 – VISHAY SA (Hyères)
29 – WIT (Saint-Laurent-du-Var)

< 50 salariés
30 – ALPES RECHERCHE ET DEVELOPPEMENT (Gap)
31 – AMESYS INTERNATIONAL (Aix-en-Provence)
32 – ARPEGE (La Ciotat)
33 – AUTOMATISME ET TECHNIQUES AVANCEES (Fuiwau)
34 – CONCEPT APPLIC ELECTROTHER (Marseille)
35 – ERM AUTOMATISMES INDUSTRIEL (Carpantras)
36 – IMET (Antibes)
37 – IRIS (Toulon)
38 – ITAS MEDITERRANEE (Gémenos)
39 – IBLUE INDUSTRIES (La Ciotat)
40 – KEZIA (Marseille)
41 – MATERIEL ELECTRIQUE ASCENSEURS (Carros)
42 – MONDRAONG ASSEMBLY (Orange)
43 – NEOS-TECHNOLOGIE (Gardanne)
44 – ONE TOO (Saint-Jeanet)
45 – OXYTRONIC (Aubagne)
46 – PETRAS (Pouillouses)
47 – POSITIF (Marseille)
48 – PROVENCALE D’AUTOMATION ET DE MECANIQUE (Saint-Rémy-de-Provence)
49 – PROVENCE ELECTRONIQUE CABLAGE (Morières-les-Avignon)
50 – SCALED CHIP (Valbonne)
51 – SIGNORETT TELECOM (Nico)
52 – SIMTRONIC (Aubagne)
53 – SOMELEC (Sérignan Du Comtat)
54 – STARCHIP (Meyrargues)
55 – STAYMATEL (Frejus)
56 – STE ELECTRONIC (Mouans-Sartoux)
57 – SYSTELCOM (Marseille)
58 – TOPPAN PHOTOMASKS FRANCE (Rousset)
59 – TOUTE L’ELECTRONIQUE DE LA MAISON (Villeneuve-Loubet)
60 – TOUTE L’ELECTRONIQUE DE LA MAISON (Vitrolles)

Source MDER 2012 – Données INSEE 2010
Telecommunications

Summary

► Telecommunications are naturally at the heart of the digital revolution. By 2016 it is expected that 10 billion terminals (mobile phones and tablets) will be connected.

► Faced with the explosion of mobiles and wireless technologies, the main challenges are the interoperability of networks and systems and the security of communications (transactions and data).

► The region is well placed in Europe. It is one of the few where there is a simultaneous concentration of skills in microelectronics, telecommunications and software, giving an ecosystem from the design to the user.

► Strong points: mobility (wireless networks, manufacturing of aids to navigation and geolocation, testing of mobile applications) and technologies around smart devices.

► The ecosystem operates around businesses and players assembled in clusters:

- Large businesses: Orange, Gemalto, Alcatel Lucent and ST Ericsson, as well as Samsung, Intel, Texas Instrument, Cassis International, Jaguar Network, etc.
- Standardisation organisations: ETSI and W3C Europe (based in Sophia Antipolis).
- Cross-sector R&D Centres (CNRS, INRIA, Eurecom, LEAT) and those specific to telecommunications (INLN, eRICS, I3S), as well as platforms and specialist facilities: CNRFID, the CIU and CNR health, PACA Mobile Center, Com4Innov, Plexus.

► The sector is the third largest in ICT in the number of jobs, with almost 11,000 FTE staff, including 7,000 for cable telecommunications, mostly the big operators (Bouygues Telecom, Free, Orange and SFR). More than a hundred establishments have more than twenty staff.

► The 800 businesses with their head office in the region employ almost 3,000 people.

► Even without the big national operators (whose turnover cannot be analysed by region), the economic weight is significant: 4.9 billion € of turnover in the main firms. This is the highest of the ICT sectors in the region.

► The size of the regional population (5 million inhabitants) and its strong concentration along the coast call for the deployment of very high speed networks, particularly mobiles (3G+/4G) and fixed lines (optical fibre).
Telecommunications

Maps of businesses

Main telecommunications establishments

Telecommunications in PACA
68 companies among the largest (in number of employees) in the Telecommunication sector in 2010.
Out of 1200 establishments.

Number of employees

< 50
50-199
200-499
> 500

Source: MDER 2012 - Données INSEE 2010
Maps of businesses

Main telecommunications establishments

Télécommunications en PACA
68 entreprises parmi les principaux employeurs du secteur, en 2010

+ de 2 000 salariés
1. FRANCE TELECOM (Marseille)

de 500 à 1 999 salariés
2. FRANCE TELECOM (Nice)
3. FRANCE TELECOM (Toulon)

de 200 à 499 salariés
4. EQUANT FRANCE SA (Vallonnet)
5. FRANCE TELECOM (Avignon)
6. FREEL (Marseille)

de 50 à 199 salariés
7. ACTIA SODEILEC (Le Puy-Sainte-Réparade)
8. AZUR TRAVAUX (Bignagues)
9. BOUYGUES TELECOM (Aix-en-Provence)
10. ENTREPRISE GLE ELECTRICITE NOEL BERANG (La Paroie-sur-Huveaune)
11. FAIRGAS RHÔNE-ALPES (Vienne)
12. FRANCE TELECOM (Draguignan)
13. FRANCE TELECOM (Digne-les-Bains)
14. FRANCE TELECOM (Gap)
15. FT MARINE (La-Seyne-sur-Mer)
16. FUTUR TELECOM (Marseille)
17. GMS (Cuviers)
18. GROUPE CIRCEC SA (Cavaillon)
19. HEBERT TELECOM (Avignon)
20. INEO DEFENSE (Vallonnet)
21. INEO INFRAEVI (Viroiles)
22. OSN SUD (Six-Fours-les-Plages)
23. PROVELEC SUD (Six-Fours-les-Plages)
24. SOBEC (Aix-en-Provence)
25. SOBEC (Aix-en-Provence)
26. SOCIETE FAIRGAS (Vallonnet)
27. SOGETREL (Cavaillon)
28. STE CONSTRUCTION ET ENTRETIEN RESEAUX (Manosque)
29. TDF (Marseille)

< 50 salariés
30. ACROPOLIS TELECOM (Aix-en-Provence)
31. ACTIA SODEILEC (Manosque)
32. ALCATEL-LUCENT ENTERPRISE (Vallonnet)
33. AT&T GLOBAL NETWORK SERVICES FRANCE SA (La Gaude)
34. AXIONE (Aix-en-Provence)
35. BILEO MARINE TECHNIQUE INDUSTRIE (Six-Fours-les-Plages)
36. CABLING SUD (Aix-en-Provence)
37. COMPLET S1S (Marseille)
38. ENT GEN TRAVAUX ELECTRIQUE SERRADORI C (Puget-sur-Argens)
39. ERT TECHNOLOGIES (Vallonnet)
40. GENERATION HAUT DEBIT (Aix-en-Provence)
41. GIORGI (Taillefer)
42. GMS (Nîmes)
43. GROUPE CIRCEC SA (Chateau-Arnoux-Saint-Auban)
44. GROUPE CIRCEC SA (Gémenos)
45. INABENSA FRANCE SAS (Vitrolles)
46. INEO INFRAEVI (Aix-en-Provence)
47. INEO RESEAUX SUD EST (Sisteron)
48. LA DETECTION ELECTRONIQUE FRANCAISE (Aix-en-Provence)
49. NUMERICABLE (Marseille)
50. Samsung (CAMBRIDGE SILICON RADIO) (Vallonnet)
51. SARL EUROTEL (Aubagne)
52. SCOR SYSTÈMES POUR FERROVIAIRE ET ENERG (Marseille)
53. SETU TELECOM (Carros)
54. SOBEC (Cavallion)
55. SOBEC (La Garde)
56. SOCIETE EXPLOITANT ELECTRIQUES (Les Arcs)
57. SOCIETE EXPLOIT ETABL C G FERRE (Sorgues)
58. SOCIETE FABRIC PRODUIT OPTEX (Savines-le-Lac)
59. SOCIETE TELEPHONIE ET ELECTRICITE (La Seyne-sur-Mer)
60. SOCIETE LEON BROQUER (Trets)
61. SOGETREL (Marseille)
62. SUD EST TELECOM (Mougins)
63. SUD TELECOM (Avignon)
64. TSM TELECONCEPTS (Mougins)
65. TELEMAQUE (Vallonnet)
66. TESSA (Vallauris)
67. TRAVAUX ELECTRIQUES DU MIDI (Manosque)
68. VIVENDI MOBILE ENTERTAINMENT (Marseille)

Source MDER 2012 – Données INSEE 2010
Summary

► Because of continual technological change, software too is in a constant state of flux. The need for applications software is enormous, so crucially important are the web and smart devices in the economy and society.

► France is well placed; the software sector already represents an economic weight equivalent to that of pharmacy or civil engineering – 40 billion euros.

► Provence-Alpes-Côte d’Azur: placed third nationally, with almost 21,000 jobs.

► Of the four ICT subdivisions in the region, this is by far the largest in the number of jobs and the only one where their number has increased.

► Our strong points: on-board software, apps or free software, cloud computing, security, traçabilité and mobility. These strengths are at the heart of the strategies of the regional ICT clusters and PRIDES.

► Another advantage, which cloud computing will put to good use, is that PACA (Marseille) is an important node in redirecting telecom networks (very high speed optical cables) between Europe and Africa. This will attract Data Centres and other data storage units.

► More than half the jobs are in consultancy in systems and computer software, and 26% in software publishing.

► More than 7,600 businesses have their head office in the region. This is evidence of a sector essentially composed of SMEs and VSEs.

► Software is the prerogative of the Alpes-Maritimes (47% of jobs) in Sophia Antipolis (Campus SophiaTech, centred on the STIC); almost equal is the Bouches-du-Rhône (45%). There are major groups like IBM, Intel, Dassault Systems, Bull and Amadeus.

► The turnover generated is believed to be more than 3.4 billion €, excluding the big groups whose turnover cannot be analysed by region.

► The CNRS, INRIA and Eurecom play a key role in R&D, as they do in microelectronics and telecoms. Note a dozen laboratories focussing on software engineering. Also worthy of notice, across several subdivisions, are specialist facilities like the CIU and CNR health, PACA Mobile Center, ProActive PACA Grid, the Software ICTy, etc.
Software and services

Maps of businesses

Main players in software and services

Software and services in PACA

78 companies among the largest (in number of employees) in the ICT sector in 2010 - Out of 4 200 establishments.

Number of employees

Source: MDER 2012 - Données INSEE 2010
Software and services

Maps of businesses

Main players in software and services

Logiciels et services en PACA
78 entreprises parmi les principaux employeurs du secteur, en 2010

+ de 2 000 salariés
1 - AMADEUS (Biot)

de 500 à 1 999 salariés
2 - ASTEK SUD EST (Vallbonne)
3 - CIC IDM FRANCE (La Gaude)
4 - THALES UNDERWATER SYSTEMS SAS (Vallbonne)

de 200 à 499 salariés
5 - ATOS INTEGRATION (Vallbonne)
6 - AUSY (Vallbonne)
7 - CMA SYSTEMES (Marseille)
8 - IT-CE (Aix-en-Provence)
9 - SAP LABS FRANCE (Mougins)
10 - SOCIETE POUR L’INFORMATIQUE INDUSTRIEL (Le Tholonet)
11 - SOCIETE POUR L’INFORMATIQUE INDUSTRIEL (Mougins)
12 - SOPRA GROUP (Aix-en-Provence)
13 - SUPRA UKUH (Vallbonne)

de 100 à 199 salariés
14 - APX (Meyreuil)
15 - ATOS INTEGRATION (Aix-en-Provence)
16 - BT SERVICES (Aix-en-Provence)
17 - BULL SAS (Marseille)
18 - CAPGEMINI TECHNOLOGY SERVICES (Nice)
19 - CAPGEMINI TECHNOLOGY SERVICES (Marseille)
20 - CIE IBM FRANCE (Marseille)
21 - DOCAPOST BPO (Biot)
22 - EURIWARE (Aix-en-Provence)
23 - GIF INFORMATIQUE (Biot)
24 - LOGICA FRANCE (Aix-en-Provence)
25 - LOGICA FRANCE (Vallbonne)
26 - NEOPOST ID (Cavallo)
27 - SA QUADRATUS (Aix-en-Provence)
28 - SEA TPI (La Ciotat)
29 - SOGETI FRANCE (Aix-en-Provence)
30 - SOMF MED ETU INFORMATIQUE (Marseille)
31 - STERIA (Aix-en-Provence)
32 - THALES SERVICES SAS (Aix-en-Provence)
33 - THALES SERVICES SAS (Vallbonne)
34 - WALL STREET SYSTEMS LABORATORIES SARL (Vallbonne)

de 50 à 99 salariés
35 - ACQUALIP (Aix-en-Provence)
36 - AMESYS CONSEIL (Aix-en-Provence)
37 - AMESYS CONSEIL (Vallbonne)
38 - ATOS INTEGRATION (Six Fours Les Plages)
39 - AUSY (Aix-en-Provence)
40 - BULL SAS (Vallbonne)
41 - BUONIORNO FRANCE (Marseille)
42 - C.B.A INFORMATIQUE LIBERALE (Avignon)
43 - CAGIE D’AUDIT INGENIERIE INFORMATIQUE (Marseille)
44 - CAP TRAITEMENT BANCAIRE (Vitrolles)
45 - CS SYSTEMES D’INFORMATION (La Garde)
46 - DASSAULT SYSTEMES PROVENCE (Aix-en-Provence)
47 - DIGINEST (Aix-en-Provence)
48 - DOCAPOST BPO (Vitrolles)
49 - EUROGIGIEL INGÉNIEUR (Aubagne)
50 - FORTINET (Biot)
51 - GFI INFORMATIQUE (Aix-en-Provence)
52 - INDEX EDUCATION (Marseille)
53 - INTERWAY (Vitrolles)
54 - IT&L@BS (Vallbonne)
55 - IT-CE (Toulon)
56 - LA CENTRALE DES MARCHES PRIVES (Aix-en-Provence)
57 - LASER SYMAG (Antibes)
58 - LAURALBA CONSEIL (Marseille)
59 - LEPFEBRE SOFTWARE (Marseille)
60 - MICRO KOLOR (Vitrolles)
61 - MIYOWA (Synchronos (Marseille)
62 - MULTIMEDIA SERVICE DISTRIBUTION (Nice)
63 - OSIATIS SYSTEMS (Vitrolles)
64 - REACTIS (Aix-en-Provence)
65 - SMART TV (La Ciotat)
66 - SOCIETE CONSTRUCTIONS MECANIQUES A.PON (Aubagne)
67 - SOPRA GROUP (Six Fours Les Plages)
68 - SUP (Nice)
69 - SYSTEREL (Aix-en-Provence)

< 50 salariés
76 - DASSAULT SYSTEMES (Biot)
77 - SPIE COMMUNICATIONS (Marseille)
78 - SPIE COMMUNICATIONS (Biot)

Source MDER 2012 – Données INSEE 2010
Maps of businesses

Maps of staff in establishments in software and services, 2009

Number of employees in Software companies and services in PACA in 2009

19,256 employees
(2.5 billion € in turnover)
Media

Summary

► The media are downstream in the ICT value chain. The chain provides digital applications, content and services for the audiovisual media, publishing and journalism and marketing and advertising activities.

► The sector is essentially composed of very small, small and medium-sized businesses, with almost as many establishments as jobs, around 12,000. It is a sector which spreads outside the region, since businesses with head offices in PACA employ 19,000 people.

► Though audiovisual makes up half the establishments, especially VSEs, it only represents 1/4 of the jobs. Marketing and advertising is more the prerogative of SMEs and alone provides half the jobs. Advertising accompanies the economic dynamism of the region and its businesses.

► Outside the large firms (e.g. France Télévision) whose turnover cannot be analysed by region, the biggest 60 represent a turnover of about 2.8 billion euros.

► This region is the second-biggest in France for film-making and the biggest location for foreign films.

► It has strong skills in enhanced and virtual reality, which places it at the cutting edge of 3D animation (mainly due to Supinfocom, in Arles, to the INRIA immersion platform, and to the Méditerranée Virtual Reality Centre) and enables it to develop the video games sector.

► The region is also turning towards transmedia and innovative content.

► A sector in flux: though it has lost jobs in recent years, very small businesses are being created endlessly. Note the importance of design activities which represent 1/3 of the media establishments. Further evidence of how creative a region PACA is.

► The position of the Bouches-du-Rhône is particularly strong with half of the jobs, as against ¼ in the Alpes Maritimes.

► R&D: many skills exist: the Information Science and Systems Laboratory (LSIS), Art, sciences and technologies for audiovisual research and multimedia (ASTRAM), and WEB Instrumented Man-Machine Interactions, Communities and SemanTIC (WIMMICS), the web itself being a scientific creation, SFR Agorantic (formerly UFR), the Telomedia platform of the UFR Ingémédia in Toulon, etc.
Maps of businesses

Main media establishments

Media in PACA

88 companies among the largest (in number of employees) in the Media sector in 2010...out of 12,000 establishments

Number of employees

- < 20
- 20-49
- 50-99
- 100-199
- > 200

- Audiovisual-Transmedia
- Edition-Presse
- Marketing-Publicité

Source: MDER 2012 - Données INSEE 2010
# Media in PACA

## Main media establishments

**Audiovisuel**

- **+ de 200 salariés**
  1. FRANCE TELEVISIONS (Marseille)
  2. SOC HARMONIA MUNDI (Arles)
  3. FRANCE TELEVISIONS (Antibes)
  4. PATHÉ (Marseille)
  5. PATHÉ (Nice)
  7. UGC CINÉ CITE (Marseille)

- **de 100 à 199 salariés**
  2. ACTES SUD (Arles)
  3. LA MARSEILLAISE (Marseille)
  2. N G CARDS (Aix-en-Provence)

- **de 50 à 99 salariés**
  3. CONCEPT MULTIMEDIA (Aix-en-Provence)
  4. EDITIONS JOCATOP (Martigues-Avignon)
  5. GROUPE EDITOR (Aix-en-Provence)
  6. LA PROVENCE (Aix-en-Provence)
  7. PANINI FRANCE (Saint-Laurent-du-Var)
  36. SALES PUBLICATIONS COMMERCIALES (Marseille)

- **de 20 à 49 salariés**
  8. CANNES TV (Cannes)
  9. FUJIFILM FRANCE (Boulogne)
  10. CHAPELIN MARSEILLE EN ABREGE LCM (Marseille)
  11. LE CEZANNE (Aix-en-Provence)
  12. LES CINEMAS DE SAINT RAPHAEL (Saint-Raphaël)
  13. MB TECH (Saint-Jean-le-Vieux)
  14. NICE TELEVISION (Nice)
  15. NORDSTYLE (Le Pontet)
  16. OM MEDIA (Marseille)
  17. PATHE (Avignon)
  18. RADIO TRAFIC FM RTFM (Mandelieu-la-Napoule)
  19. RADIO TRAFIC FM (Vedène)
  20. SAL LE CAPITOLO (Avignon)
  21. SOC NAL DE RADIODIFFUSION RADIO FRANCE (Aix-en-Provence)
  22. SOC NAL DE RADIODIFFUSION RADIO FRANCE (Avignon)
  23. SOC NAL DE RADIODIFFUSION RADIO FRANCE (Nice)

- **< 20 salariés**
  24. 2J PROCESS (Aix-en-Provence)
  25. 4 CAST (Saint-Laurent-du-Var)
  26. ACTION SYNTHESSE (Marseille)
  27. FRANCE TELEVISIONS (Nice)
  28. GERWIN (Aix-en-Provence)

## Edito - Presse

- **+ de 200 salariés**
  29. SOCIETE NICE MATIN (Nice)

- **de 100 à 199 salariés**
  30. ACTES SUD (Arles)
  31. LA MARSEILLAISE (Marseille)
  32. N G CARDS (Aix-en-Provence)

- **de 50 à 99 salariés**
  23. CONCEPT MULTIMEDIA (Aix-en-Provence)
  34. EDITIONS JOCATOP (Martigues-Avignon)
  35. GROUPE EDITOR (Aix-en-Provence)
  36. LA PROVENCE (Aix-en-Provence)
  37. PANINI FRANCE (Saint-Laurent-du-Var)
  38. SALES PUBLICATIONS COMMERCIALES (Marseille)
  39. SOCIETE NICE MATIN (Boulogne)

- **de 20 à 49 salariés**
  40. AGENCE FRANCE PRESSE (Marseille)
  41. ARCHIVES NATIONALES (Aix-en-Provence)
  42. BIBLIOTHEQUE NATIONALE DE FRANCE (Avignon)
  43. INFOS PRESSE (Aubagne)
  44. LA PROVENCE (Aix-en-Provence)
  45. LA PROVENCE (Avignon)
  46. LA DAUPHINE LIBERE (Gap)
  47. LE DAUPHINE LIBERE (Aubagne)
  48. MAGIC DESIGN PROJECT (Marseille)
  49. MC PRODUCTIONS (Toulon)

- **< 20 salariés**
  50. 20 MINUTES FRANCE (Marseille)
  54. COMPAGNIE MEDITERRANEE PRESSE COMMUNIC (Le Muy)
  55. COMPAGNIE MEDITERRANEE PRESSE COMMUNIC (Cannes)
  53. COMPAGNIE MEDITERRANEE D'EDITION (Aix-en-Provence)
  54. CONCEPT MULTIMEDIA (Marseille)
  55. CONCEPT MULTIMEDIA (Villeneuve-Loubet)
  56. CONCEPT MULTIMEDIA (La Valette-du-Var)
  57. CONCEPT MULTIMEDIA (Le Cannet)
  58. EDITIONS NEREISSIS (Marseille)
  59. SOC EDITIONS LANG PROV COTE D'AZUR (Toulon)
  60. SOCIETE IMPREES LANG PROV COTE D'AZUR (Avignon)

## Marketing - Publicite

- **+ de 200 salariés**
  61. ADREXO (Aix-en-Provence)
  62. ADREXO (Boulogne)
  63. ADREXO (Cannes)
  64. MANAGE CONSEIL (Mouans-Sartoux)
  65. PAGESJAUNES (Marseille)

- **de 100 à 199 salariés**
  66. ADREXO (Avignon)
  67. CUSTOM SOLUTIONS (Poussielles)
  68. EUROSPRUD PUBLICITE (Marseille)
  69. EUROSPRUD PUBLICITE (Nice)
  70. HIGH CO DATA (Aix-en-Provence)
  71. M.B.A PROMOTIONS (Aix-en-Provence)
  72. NOVACTON (Marseille)
  73. SARMENTS ET MISTELLES (Gémenos)
  74. SAS MEDIA PLUS COMMUNICATION (Saint-Laurent-du-Var)
  75. SUDANIM (Carpentras)

- **de 50 à 99 salariés**
  76. 3 A PROMOTION (Vitrolles)
  77. ACTION COM DEVELOPPEMENT (La Seyne-sur-Mer)
  78. ANIMEO (Marseille)
  79. IMMEDIA COMMUNICATION (Nice)
  80. PAGESJAUNES (Saint-Laurent-du-Var)
  81. PHARMATHERA (Toulon)
  82. PROMODIP (Cagnes-sur-Mer)
  83. SERVICE INNOVATION GROUP FRANCE (Aix-en-Provence)

- **de 20 à 49 salariés**
  84. ADREXO (Sainte-Tulle)
  85. CBS OUTDOOR (Marseille)
  86. CLEAR CHANNEL FRANCE (Villeneuve-Loubet)
  87. CLEAR CHANNEL FRANCE (Aubagne)
  88. EUROSPRUD PUBLICITE (La Valette-du-Var)

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Source: MDER 2012 - Données INSEE 2010
Activities related to ICT

Businesses and jobs

Key data

► Activities related to ICT represent more than 22,000 jobs in PACA in more than 7,000 establishments.

► These activities can be divided into 2 subdivisions:
  - Spin-off activities.
  - Activities leading to innovation.

► Spin-off activities from ICT fall into three categories and represent almost 12,000 jobs in almost 7,000 establishments:
  - Manufacturing of equipment using ICT: electro medical, optical and photographic.
  - Selling: wholesale and retail sales of equipment, components and hardware, as well as the services hiring out ICT equipment and the activities of call centres.
  - Repairing equipment.

► The sources of technological innovation in ICT activities:
  - Scientific R&D activities, which represent more than 11,000 jobs in 402 establishments; this is half of the jobs in activities related to ICT development.
Key technologies

Summary

The region is well-positioned on all key technologies

► PACA among the world leaders for 7 key technologies:
  - Microelectronics
  - Smart devices
  - Holistic security
  - Opto-electronics
  - Embedded software and related processors
  - 3D Technologies
  - Wireless network technologies

► PACA among the French leaders for 8 key technologies:
  - Virtualisation and cloud computing
  - Mobile and optical broadband networks
  - Data enhancement and data intelligence
  - Portals, collaboration and communications
  - Supercomputing
  - Engineering of complex systems and systems of systems
  - Man-Machine Interfaces
  - Scanning technologies

► The region also has skills used in other key technologies such as:
  - Robotics (engineering of complex systems and systems of systems, semantics and artificial intelligence)
  - Progressive/Intelligent Manufacturing (a developing logistics sector, an aerospace sector that is highly demanding)

► The region has key technologies at world level on six of the seven links in the ICT value chain.

Comments

► With its businesses, laboratories and facilities, it is among the leading regions in France and globally, on 15 of the 17 key ICT technologies, while having major technological building blocks for two other key technologies.

► A world position in the microelectronics sector where almost all the related technologies, particularly microelectronics, embedded software and opto-electronics (the last two being more on the margins of microelectronics).

► Telecommunications, particularly around smart devices and wireless networks, are impacted on by the key technologies, from the components to the users. This is because they need the latest components, embedded software and network technologies in order to create new products and services.

► Software and services, eminently cross-disciplinary, place PACA in the forefront of international trade. They have a significant impact on numerous key technologies such as components, networks, interfaces and computer management in general.

► The media are less directly influenced by the key technologies, even though they are relatively dependent on technologies developed in the other sectors. Note nevertheless that the region has software skills, indispensable for the development of transmedia, and also good skills in 3D technologies, interfaces and scanning.

► Here we can see the strong links between the technologies that are attracted to/by microelectronics, telecommunications and software on the one hand, and on the other hand between software and the media. The sectors are affected by many similar technologies, because of the crossovers existing between them.
Key technologies

Summary

ICT Sectors and regional Clusters

- Microelectronics
- Telecommunications
- Software and services
- Media

Clusters

- OPTITEC
  Pôle Optique et Photonique Sud
- SCS
  Secure communication systems
- PRIMI
  Mediterranean transmedia cluster

ICT Value chain in PACA

Electronic and nano-electronic components → Terminal equipment and interfaces → Systems → Networks and facilities → Software and software engineering → Applications → Digital content and services

- Micro-electronics
- Smart devices
- Holistic security
- Wireless network technologies
- Embedded software and related processors
- Applications
- 3D technologies
- Opto-electronics
- Man-Machine Interface
- Super computing
- Mobile and optical broadband networks
- Data enhancement and data intelligence
- Virtualisation and cloud computing
- Scanning
- Engineering of complex systems and systems of systems
- Robotics
- Intelligent manufacturing
- Portals, collaboration and unified communications
- Embedded software and related processors

Mastering key technologies

- PACA among the world leaders (7)
- PACA among the French leaders (8)
- Technological building blocks in PACA (2)

MDER – Panorama ICT – 2013
Key technologies

PACA, a world leader

The region is one of the world leaders in seven key technologies

Source: Key technologies 2015 - DGCIS, 2011
PACA, the leading French region among the French leaders in eight technologies

- Virtualisation and cloud computing
- Mobile and optical broadband networks
- Scanning technologies
- Supercomputing
- Man-Machine Interface
- Portals, collaboration and communications
- Engineering of complex systems and systems of systems
- Data enhancement and data intelligence

Source: Key technologies 2015 - DGCIS, 2011
PACA has the technological building blocks (software, complex systems, optics, onboard systems…) that are crucial to the proper development of the remaining two key technologies.
Introduction

Scope of work
► The ICT sectors can be grasped by understanding the businesses and the sectors (key sectors in ICT) and by the technological entry (17 key technologies). These two entries presented previously in this work..

► In complement to those presentations, we also offer a presentation of the markets, since ICT is resolutely inter-sector. And many regional businesses are present on these markets, emphasising the capaICTy of the region to develop applications.

► The fact is, the soaring use of ICT in every branch of the economy appears to be an irreversible world phenomenon. In theory, there is no direct correlation, in terms of location, between the manufacturing and the design of components or services in the ICT sectors (material or immaterial) and the markets where they are applied or used. The markets that consume most ICT products are not necessarily located where they are manufactured or designed. However, it is reasonable to imagine that the proximity of the one to the other may encourage a virtuous circle. The PACA region has indeed very developed sectors - which the competitiveness clusters/Prides enhance and reinforce in markets where ICT is a key factor for innovation and growth: digital content, industries and the services (aeronautics, marine industries, the food industry, life sciences...), health, tourism and logistics. In the region, producers and consumers are close neighbours, even if – and this is a weakness that the panorama reveals – the ICT value chain is not yet sufficiently user-orientated. One of the challenges of the regional ecosystem is in fact to move further from the silicon towards the uses. This part of the panorama underlines the many initiatives taken by ICT players to come closer to the markets via their users in the region.

► Bringing these markets into the ICT value chain and closer to some technologies, we can observe the role of PACA in developing these markets. The diagram on the next page illustrates the path through sectors/clusters / value chain / key technologies, that applies to different markets.
Overview of digital content in PACA

The content market is found on a large part of the value chain, particularly through the interface, security, mobile, enhancement, portal, virtualisation, 3D and digitisation technologies. There are many private and public players in the region.

Examples of players & structures in PACA

- Electronic components and nano-electronics
- Terminal equipment and interfaces
- Systems
- Networks and facilities
- Software and software engineering
- Applications
- Digital content and services

Value chain

Micro-electronics
Opto-electronics
Man-Machine Interface

Examples of players:
- ST Microelectronics, ST Ericsson, Thalès, Gemalto, Intel, Atmel, STd, ARD, ASK, ID Concept, Optitec, SCS, ...
- Texas Instrument, Thalès, Gemalto, Tagsys, Andelia, Orange Labs, CNRFID, INRIA, Mines ParisTech, ...
- Gemalto, Thalès, EADS, Alcatel-Lucent, Dassault, Sagem, SCS, ...
- Alcatel-Lucent, Gemalto, EADS, Thalès, Texas Instrument, Kwaitic, Sogetrel, Dassault, ...
- Stonetrip, Dassault, Capgemini, Atos Origin, Steria, Sopra Group, GF1, Parametric Technologies Corp, Nomad3D, ...
- Alcatel-Lucent, Gemalto, EADS, Thalès, Digital, Kuantic, Sogetrel, Dassault, ...
- PACA Mobile Center, Orange, Dassault, Alcatel-Lucent, Steria, Bull, ActiveEon, INRIA, PACA Grid, Safran Technologies, ...
- Stonetrip, Doremi Technologies, Zefyr, ICTyVox, Nvidia, Orange Labs, EADS, Thalès, Digitech, PRIMI, Supinfocom, Exkee, C4MProd, Action Synthèse, Studios Noni K, 3D Lized, Volfoni 3D, ...

Applications and services

- Examples of applications:
  - Suppliers of components for terminals
  - Mobile applications, interfaces, reception terminals and computer equipment designed for multimedia, ...
  - Security, identity, DRM, ...
  - Mobility, on-line games, cloud, ...
  - Mobile applications, open data, big data, ...
  - Mobile applications test centres, specific applications, remote access, collaborative portals, cloud, ...
  - Audiovisual, 3D animation, paperless processes, video games, location-specific internet, social networks, ...

Portals, unified collaboration and communications
Virtualisation and cloud computing
3D Technologies
Optoelectronics
Scanning
Overview of environment-related ICT in PACA

Environmental markets are found over a large part of the value chain, particularly via components, smart devices, network development, data enhancement, cloud computing and scanning. There are many private and public players in the region.
Industries and services

Overview of ICT related to industries and services in PACA

Industries and services are markets found over the whole of the value chain and many private and public players, particularly through components, smart devices, network development, data enhancement, cloud computing and scanning. There are many private and public players in the region.

Market of industries and services

<table>
<thead>
<tr>
<th>SCS</th>
<th>Clusters</th>
<th>PRIMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secure communication systems</td>
<td>Mediterranean transmedia centre</td>
<td></td>
</tr>
</tbody>
</table>

Examples of players & applications

- ST Microelectronics, ST Ericsson, Thalès, Gemalto, Intel, Atmel, Sizd, ARD, ASK, ID Concept, Optitec, Pôle SCS, …
- Eurocopter, Gemalto, Tagsys, Andélia, Kuantic, Orange Labs, Impika Sophia Conseil, SNECMA Moteurs, ECA, CNIM, Fremer, Diginext, Cybernetix, Moteurs Baudouin, Principié, CNRFID, INRIA, Mines ParisTech, …
- 3D technologies
- Virtualisation and cloud computing
- Intelligent manufacturing
- Robotics
- Scanning

Value chain

- Electronic and nano-electronic components
- Terminal equipment and interfaces
- Systems
- Networks and facilities
- Software and software engineering
- Applications
- Digital content and services

Examples of players & structures in PACA

- ST Microelectronics, Gemalto, Tagsys, Andélia, Kuantic, Orange Labs, Impika Sophia Conseil, SNECMA Moteurs, ECA, CNIM, Fremer, Diginext, Cybernetix, Moteurs Baudouin, Principié, CNRFID, INRIA, Mines ParisTech, …
- Micro-electronics
- Smart devices
- Opto-electronics
- Man-Machine Interface
- Supercomputing
- Wireless network technologies
- Embedded software and related processors
- Data enhancement and data intelligence
- Mobile and optical broadband networks
- Portals, unified collaboration and communications
- Virtualisation and cloud computing
- Intelligent manufacturing
- Robotics
- 3D technologies
- Components for equipment, captors for real-time monitoring…
- Traceability, food industry security, connectivity, mobility, interface …
- Security, identity, computing power, …
- New networks, products, services, uses, mobility, …
- Security, identity, simulation, software packages, Open data, Big Data, management, systems, …
- Design, cloud, heavy industry, …
- Paperless processes, digitalisation, animation, …

Examples of applications

- Security, identity, simulation, software packages, Open data, Big Data, management, systems, …
- Design, cloud, heavy industry, …
- Paperless processes, digitalisation, animation, …
Health

Overview of Health-related ICT in PACA

Health is a market which touches all of the value chain and many players, private and public, in PACA, particularly through components, smart devices, security, network development, supercomputing, and scanning.

There are many private and public players in the region.

Examples of players & structures in PACA:
- ST Microelectronics, ST Ericsson, Gemalto, Intel, Atmel, Sdi, Optitec, Pôle SCS, CUI Santé, CNR Santé, Tagsys, Inside Secure
- Gemalto, Tagsys, Cyber Campagne, CNRFID, INRIA, Mines ParisTech, Orange, Labs...
- Gemalto, Thalès, EADS, Alcatel-Lucent, Dassault, Sage, Sesin, Esphi, ...
- Alcatel-Lucent, Kuantic, Sogetrel, Orange, SFR, Bouygues, Free, Numéricable, Interway...
- Sesin, Esphi, Softway médical, CBA, icogem, Télévitalé, Médisys, Solucom, Dassault, Capgemini, Atos Origine, Steria, SopraGroup, IBM, Bull, INRIA...
- OIea Medical, Orange, Dassault, Alcatel-Lucent, Steria, Bull, CUI Santé, CNR Santé, INRIA, PACA Grid, PACA BioInfo, Telmaq...
- 2J Process, Dassault Systems, Orange Labs, EADS, Thalès, Digitel, PRIMI, SupInfocom, Parametric Technologies Corporation, Solar Games...
- STMicroelectronics, ST Ericsson, Gemalto, Intel, Atmel, Sdi, Optitec, Pôle SCS, CUI Santé, CNR Santé, Tagsys, Inside Secure
- Gemalto, Tagsys, Cyber Campagne, CNRFID, INRIA, Mines ParisTech, Orange, Labs...
- Gemalto, Thalès, EADS, Alcatel-Lucent, Dassault, Sage, Sesin, Esphi, ...
- Alcatel-Lucent, Kuantic, Sogetrel, Orange, SFR, Bouygues, Free, Numéricable, Interway...
- Sesin, Esphi, Softway médical, CBA, icogem, Télévitalé, Médisys, Solucom, Dassault, Capgemini, Atos Origine, Steria, SopraGroup, IBM, Bull, INRIA...
- OIea Medical, Orange, Dassault, Alcatel-Lucent, Steria, Bull, CUI Santé, CNR Santé, INRIA, PACA Grid, PACA BioInfo, Telmaq...
- 2J Process, Dassault Systems, Orange Labs, EADS, Thalès, Digitel, PRIMI, SupInfocom, Parametric Technologies Corporation, Solar Games...

Examples of applications:
- Miniaturised components, captors and equipment, bio-embedded systems...
- Traceability, security, equipment, rapid diagnosis...
- Security, identity, power of analysis...
- Remote processing, e-health, inaccessible areas...
- Software, data processing, medical imaging, supercomputing...
- Medical imaging, unified interfaces, electronic records, remote calculating, medical robots, "Letti" project, Alcotra project, home care, intelligent walking frame...
- Paperless processes, digitisation, animation, imaging...

Value chain

Technological expertise

Clusters

Secure communication systems

SCS

Eurobiomed

MDER – Panorama ICT – 2013
Overview of Tourism-related ICT in PACA

Tourism is a market which touches almost all of the value chain and many players, private and public, in PACA, particularly through components, the smart devices, network development, data enhancement, cloud computing and scanning. There are many private and public players in the region.
**Diagrammatic overview of ICT connected with transport and logistics in PACA**

Transport and logistics are the markets which involve the entire value chain with many public and private players in PACA, especially in components, smart devices, network development, embedded software and digitisation of content. There are many public and private players in the region.

**The transport and logistics market**

- **SCS Secure communication systems**
- **Clusters**
- **PACA Logistics Cluster**

**Value chain**

- Electronic and nano-electronic components
  - Micro-electronics
  - Opto-electronics
- Terminal equipment and interfaces
  - Smart devices
  - Man-Machine Interface
- Systems
  - Holistic protection
  - Wireless network technologies
  - Broadband mobile and optical networks
- Networks and equipment
  - Embedded software and similar processors
  - Data enhancement and data intelligence
- Software and software engineering
  - Applications
  - Virtualisation and cloud computing
  - Portal, collaboration and unified communications
  - Robotics
  - Digitisation of content

**Examples of players and organisations in PACA**

- ST Microelectronics, ST Ericsson, Thalès, Gemalto, Intel, Atmel, Std, ARD, ASK, ID Concept Optitec, Pôle SCS, 3D Technology
- Secure communication systems (Optitec, Pôle SCS)
- Avenir Développement Durable
- ST Microelectronics, Gemalto, Tagsys, Andelia, Kuantic CNRFID, INRIA, Mines ParisTech, Orange Labs, Avenir Développement Durable
- Avenir Développement Durable
- Avenir Développement Durable
- Amadeus, Vu Log, Dassault, Capgemini, Atos Origin, Steria, SopraGroup, Cegid, Ordrope, Ortec, Gfi Informatique, Avenir Développement Durable
- ASK, Orange, Dassault, Alcatel-Lucent, Steria, Bull, Avenir développement durable, Orange Labs, INRIA, PACA Grid
- Amadeus, Doremi Technologies, Dassault Systèmes, Orange Labs, EADS, Thalès, Digitech, PRIMI, SupInforcom, Parametric Technologies Corporation

**Examples of applications**

- Sensors for road safety and remote monitoring
- Traceability, safety, RFID/NF, mobility, man-machine interfaces, Breath alcohol ignition interlock device
- Communication and data
- New networks, location systems, mobility
- Software packages, data management (fuel oils, orders, vehicle fleets,....)
- Design, cloud computing, heavy loads, communication, optimising the supply chain, design validation tools and methods, remote monitoring, public transport, ticketing
- Paperless commerce, control, digitisation of content

MDER – Panorama ICT – 2013
ICT learning and E-learning are markets which involve a large part of the value chain with many public and private players in PACA, especially in man-machine interfaces, wireless network technologies and digitisation of content. There are many public and private players in the region.
Diagrammatic overview of ICT connected with e-commerce in PACA

E-commerce is a market which involves the entire value chain with many public and private players in PACA, especially in components, smart devices, the safety, network development, data enhancement, and digitisation of content. There are many public and private players in the region.

**Examples of players and organisations in PACA**

- ST Microelectronics, ST Ericsson, Texas instruments, Gemalto, Intel, Atmel, Stid, ARD, ASK, ID/Concept Optitec, Pôle SCS
- Gemalto, Tagsys, Andelia, Kuantic, CNRFP, INRIA, Mines ParisTech, Orange, Labs...
- ST Microelectronics, ST Ericsson, Texas instruments, Gemalto, Intel, Atmel, Stid, ARD, ASK, ID/Concept Optitec, Pôle SCS
- Gemalto, Bull, Amesys, telephone companies, banks...
- Operators of mobile and fixed networks (Orange, SFR, Bouygues, Free, Numéricable etc.)
- Amadeus, Dassault, Cappelmini, Allos Orgine, Steria, Supragroup, Cegid, Ordine, Ortec, GI Informatique, Ganned, LD Mobile, Oxatis, Next Performance, ...
- Orange, Dassault, Alcatel-Lucent, Steria, Bull, Companies involved in e-commerce (especially Internet pure players...)
- Telephone companies, banks...

**Examples of applications**

- "More Moore" and "More than Moore"
- Traceability, safety, RFID/NFC, mobility, interfaces, mobile payment...
- Secure connections
- Mobile commerce
- Software, data processing, Mobile commerce, software packages, Development of cross-platform applications
- Adexchanges, flashcodes, e-commerce, commercial websites
- Electronic invoicing, mobile payment

**Clusters**

- SCS Secure communication systems
- PRIMI Cluster Transmédia Méditerranée

**The e-commerce market**

- Terminal equipment and interfaces
- Networks and equipment
- Software and software engineering
- Applications
- Digital content and services
121 companies in e-commerce in PACA, including 66 “internet pure players” - companies which operate solely on the Internet.

These companies are taken from the list on the following page, which deals more broadly with businesses using the Internet.

► E-commerce companies can be found along the major transport routes, in or near the largest conurbations and also throughout the broadband Internet networks.

► It should be pointed out, however, that the position of some internet pure players is less dependent on these criteria.

► E-commerce is still only a supplement to conventional physical trading, at least for some products.

► The Internet offers clients their first experience of what products are available.
<table>
<thead>
<tr>
<th>List of regional companies in E-commerce</th>
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<tbody>
<tr>
<td>1 - ADREXO</td>
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<td>2 - BERANGERE PARFUM</td>
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<td>3 - BERCEAU MAGIQUE</td>
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<td>4 - BOUTIQUE PARFUMS</td>
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<td>5 - CAFECOTON</td>
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<td>6 - CENTRALE D'ACHAT UBALDI</td>
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<td>7 - CIS-PACA</td>
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<td>8 - COMPTOIR PHoceen de</td>
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<td>LA MACHINE A COUDRE</td>
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<td>9 - CRAMP</td>
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<td>10 - CUTE</td>
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<td>11 - DARWIN GROUP</td>
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<td>12 - DBS IMPRESSIONS</td>
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<td>13 - DISPOLIVE</td>
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<td>14 - DYNIR</td>
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<td>15 - EASYLOUNGE</td>
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<td>16 - EKPIA</td>
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<td>17 - ENTER WEB</td>
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<td>18 - ETAT PUR SAS</td>
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<td>19 - FANNY-CHAUSUURES</td>
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<td>20 - FF AUTOMOBILES</td>
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<td>21 - FRANCE ACCESSOIRES</td>
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<td>22 - FREERIDE ATTITUDE</td>
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<td>23 - GROUPE RETIF</td>
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<td>24 - I-DIAMANTS</td>
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<td>25 - INPRINT</td>
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<td>26 - INTERNITY</td>
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<td>27 - ISODIS - I.F.P.</td>
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<td>28 - KAPORAL 5</td>
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<td>29 - LABORATOIRE NATUR'AVIGNON</td>
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<td>30 - LES PETITES BOMBES</td>
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<td>31 - LITERIE-GEORGE</td>
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<td>32 - L'OCTICLANE</td>
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<td>33 - MAISON ET CHALET EN BOIS</td>
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<td>34 - MEUBLESBRENIER</td>
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Sources: MDER - FEVAD and FIANET data, 2011
The Regional Innovation Strategy - RIS
Master document for the development of innovation in PACA.

Four strategic foci bring ICT into a global sustainable development approach
► Consolidating the momentum of innovation through the PRIDES and Competitive clusters:
  - Providing resources for innovation in R&D.
  - Supporting the “end use” approach.
  - Encouraging intercluster cooperation.
  - Developing skills for stimulating the clusters.

► Supporting companies in their approach to innovation:
  - Consolidating the industrial base through innovation.
  - Strengthening the range of support to innovation networks.
  - Making resources, financing and skills available for innovation.
  - Creating a broader level of awareness of innovation among companies.

► Pursuing two separate major themes:
  - The Creative Economy: revealing the creative strength of our region.
  - The Sustainable Mediterranean: levers for global market positioning.

► Becoming part of a movement towards social and regional innovation:
  - Encouraging social responsibility in Companies.
  - Innovating through public policy.
  - Encouraging innovation by local areas.

Strategic business sectors - SBS
► 5 business sectors considered to be strategic arise from the regional innovation strategy - RIS.
► Issues connected with ICT can be found in all these SBSs.
► Diagram of the structure of innovation policy in PACA

5 Strategic business sectors - SBS
1/ Energy transition
2/ Intelligent Mobility
3/ Risks, safety, security
4/ Health and beauty
5/ Culture industries

Implemented by the 24 PRIDES, including 14 related to ICT

Creative Economy
Sustainable Mediterranean

From which we get 5 SBS

1 / Energy transition, energy efficiency of buildings
2 / Intelligent Mobility
3 / Risks, safety, security
4 / Health and beauty
5 / Culture industries

Source: Regional Council PACA, 2010 / 2012
**Strategic business sectors - SBS**

**SBS and markets of the major clusters**

- The ICT value chain covers the regional SBS, which are found in the foci of the various ICT benchmark clusters.

<table>
<thead>
<tr>
<th>ICT value chain</th>
<th>Regional SBS</th>
<th>SCS Foci</th>
<th>Optitec Foci</th>
<th>PRIMI Foci</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic components and nano-electronics</td>
<td>Energy transition / energy efficiency in buildings</td>
<td>Internet access</td>
<td>Environmental optics</td>
<td></td>
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<tr>
<td></td>
<td>Intelligent and sustainable mobility</td>
<td>Identity</td>
<td>Systems optics</td>
<td></td>
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<tr>
<td></td>
<td>Risks, safety, security</td>
<td>Mobility</td>
<td>Medical optics</td>
<td></td>
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<tr>
<td></td>
<td>Health and beauty</td>
<td>Traceability</td>
<td></td>
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<tr>
<td>Equipment, terminals and interfaces</td>
<td>Systems</td>
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<tr>
<td>Software and software engineering</td>
<td>Networks and equipment</td>
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<tr>
<td>Applications</td>
<td>Software and software engineering</td>
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<tr>
<td>Digital content and services</td>
<td>Applications</td>
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<tr>
<td></td>
<td>Culture, tourist and digital content industries</td>
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</tbody>
</table>

- Note: these links are not exclusive.
Strategic business sectors - SBS

SBS and markets for the major clusters

► Using the same model, we can see the markets for the ICT clusters in relation to the regional SBS and the ICT value chain.

<table>
<thead>
<tr>
<th>ICT value chain</th>
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<td>Equipment, terminals and interfaces Networks and equipment</td>
<td>Intelligent and sustainable mobility Risks, safety, security Health and beauty</td>
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<tr>
<td>Software and software engineering Applications Digital content and service</td>
<td>Culture, tourist and digital content industries</td>
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</tbody>
</table>
Regional clusters

Regional clusters for innovation and mutually supportive economic development—PRIDES

► A designation awarded by the Regional Council to 24 groupings of economic players in the region (companies—especially small and medium-sized companies—research laboratories and training centres), intended to foster shared actions in innovation, international development, optimising the use of new technologies, social and environmental responsibility and staff training.

► For some clusters, the designation “Competitive cluster” may be added to the above designation. Since late 2005, the Government has made this award to 71 French clusters, including 11 in PACA. Those involved in the area under consideration are: Capenergies, Water*, Eurobiomed, Mer PACA, Optitec, Pégase, PEIFL, Risks.

► If we take the 5 areas mentioned above, all the PRIDES are potentially linked with new technologies; indeed, one of the 5 areas is specifically optimising their use. Therefore only those PRIDES with a real connection to this theme are mentioned.

► Relative position, in the major markets and foci of the new technologies, of the 14 connected PRIDES.

► Note: 2 PRIDES are central in the new technologies: Secure communication systems - SCS (microelectronics, telecommunications, software and the technological areas connected with contents) and Regional Cluster for the Image, Multimedia and the Internet – PRIMI (audiovisual, cinema and transmedia).

► The 12 others are connected, either because of some of their foci, or as user of these technologies.

The PRIDES are shown here by their acronyms and/or shortened names. For the complete names, please refer to the following pages.
Regional clusters

Relative positions of the 14 PRIDES in the relevant foci and markets

<table>
<thead>
<tr>
<th>SCS</th>
<th>PRIMI</th>
<th>Pégase</th>
<th>Capenergies</th>
<th>Sea</th>
<th>Optitec</th>
<th>Eurobiomed</th>
<th>Risks</th>
<th>Culture and heritage industries</th>
<th>PEIFL</th>
<th>PACA Logistique</th>
<th>Artémis</th>
<th>Eco-Entreprises</th>
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</tbody>
</table>

The PRIDES are shown here by their acronyms and/or shortened names. For the complete names, please refer to the following pages.

Markets

- Contents
- Environment
- Industries
- Health
- Tourism
- Transport, logistics
- E-education
- E-commerce

MDER – Panorama ICT – 2013
Regional clusters

ICT Clusters: “from designing to marketing”

14 PRIDES connected with ICT

- **Upstream**: 3 PRIDES are ICT producers (SCS-PRIMI-OPTITEC).
- **Integrators**: half of the PRIDES integrate ICT into their own specific needs.
- **Downstream**: 12 of the 14 PRIDES are users of ICT. It is here that the specialisms of the regional ICT clusters are found.

**N.B:**
- **Only 2 clusters** (SCS and PRIM) are to be found from top to bottom of the sector.
- Given that most of the PRIDES are found downstream, **this is a good opportunity for their very small, small and medium-sized companies to intercluster.**
R&D and training

Introduction

Research and development has been highly developed in Provence-Alpes-Côte d’Azur: the region ranks third in France, with the major national research laboratories, as well as many dedicated facilities.

This makes the region a real force to be reckoned with in R&D with 25 mainstream laboratories, 37 other laboratories connected via their foci and 25 dedicated facilities.

This part of the document presents the principal major facts about research and development at the regional level, with also the work of the laboratories and facilities. This data is shown in relation to the ICT value chain, the sectors involved and the relevant markets.

The laboratories lead the region to have many skills throughout the ICT value chain. We find basic research laboratories, and applied research laboratories as well as analytical laboratories, testing laboratories, quality control laboratories etc. Some also have dedicated facilities for development or testing. These include 167 research teams, with 1,500 scientists.

The dedicated facilities are used for creating, testing and developing components and ICT applications, and may be directly or indirectly managed by state-owned research laboratories, private companies or Clusters and PRIDES.

The region ranks third in France for higher education, with more than 157,000 students, almost 8% of whom are studying ICT (more than 12,000).

In addition there are more than 600 courses designed to lead to jobs in and applications of these new technologies in several markets. This is a good illustration of the region’s intention to cover the sector “from silicon to user”.

Number of courses provided: the majority in “Software & services”, “Media”, and also crossover courses.

Area covered

Research and development

- Introduction and summary
- General data
- Technology transfer and contracted research
- Research laboratories
- Other research laboratories
- Dedicated facilities

Courses

- Summary
- Courses in PACA
Research and Development

SUMMARY
Research laboratories and dedicated facilities, in the key ICT sectors.

25 Research laboratories (see summary tables)
► 6 laboratories work within at least 3 ICT sectors: CNRIS, INRIA, EURECOM, LSIS, LEAT, I3S.
► The sectors which have the most laboratories are “Software & Services” and “Microelectronics” which have 15 and 14 laboratories respectively.
► The “Media” sector has also felt the influence of research by laboratories in the region, especially in the spheres of the Internet, image, animation and sound.
► Finally, the laboratories in the study are developing research in telecommunications, particularly in smart devices, the secure communication systems and mobile communications.

25 Dedicated facilities (see summary tables)
► Dedicated facilities can be found in all ICT sectors.
► The facilities for microelectronics and telecommunications, mean that all stages of production can be accommodated from design to user including integration and testing.
► Software is developed on different computers which need specific applications or which can share and develop the software.
► Finally, the media, are essentially at the end of the value chain in use, even though much research takes place in this sphere to develop the technology for this equipment, particularly in processing images and sound.

37 other cross-sector research laboratories (see summary tables)
► The work of these laboratories in areas such as mathematics, materials, astrophysics and optics, makes an essential contribution to the development of ICT.
► Other foci, such as health, the environment and marine related industries among others, have developed new ICT applications for different markets.
General data

Potential for promoting ICT in PACA
► 167 research teams, and almost 1,500 publicly-funded scientists, mainly in JRUs (Joint Research Units).

► Breakdown of ICT Research Units (in number of teams)

Total: 167 teams

► NB: the Joint Research Units account for 56% of all teams and 63% of the scientists.
► Also note the significant weight of INRIA (the National Institute for Computer Science and Control).

Breakdown of ICT Research Units (by number of staff)

Total: 1,488 scientists

Source: Valor PACA 2009
Research and Development

General data

Map of the major R&D structures and infrastructures
(NB: details of this map in the list of players on the next page)

► A marked concentration of laboratories in Marseille and Nice Sophia Antipolis.

► R&D is more scattered in the Aix region. However there are some establishments in Avignon and Toulon.

► Sophia Antipolis has a higher concentration of private laboratories and Marseille the largest number of peripheral establishments*.

► Dedicated facilities are well distributed along an arc which goes from Arles/Avignon to Nice/Sophia Antipolis, taking in Marseille and Toulon.

* Peripheral establishments: players whose research (not necessarily directly connected) nevertheless has an influence on the development of ICT.
### General data

List of main R&D structures and infrastructures

<table>
<thead>
<tr>
<th>Institut Carnot</th>
<th>Equipements dédiés (suite)</th>
<th>Structures transversales (multi-thématiques) (suite)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Institut Carnot (Aix-en-Provence)</td>
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<td>51. Média Pôle d’Arles (Arles)</td>
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<td>10. CINAM (Marseille)</td>
<td>52. PACA Mobile Center (Marseille)</td>
<td>93. OBSERVATOIRE DE LA CÔTE D’AZUR (Nice)</td>
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<td>11. CMP (Gardanne)</td>
<td>53. PACA-Biomed (Marseille)</td>
<td>94. COMMISSARIAT À L’ÉNERGIE ATOMIQUE (Saint-Paul-lez-Durance)</td>
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<td>12. CNRS (Sophia-Antipolis)</td>
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<td>60. Technopôle Cannes (Cannes)</td>
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<td>102. IMATH (Toulon)</td>
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<td>63. IRSTEA (Aix-en-Provence)</td>
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<td>22. INLN (Sophia-Antipolis)</td>
<td>64. FONDATION TOUR DU VALAT (Arles)</td>
<td>105. AMITIS (Valbonne)</td>
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<td>25. Institut Fresnel (Marseille)</td>
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<td>68. IFREMER (La Seyne-sur-Mer)</td>
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<td>110. IFREMER (La Seyne-sur-Mer) (NB: établissement public)</td>
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<td>34. LSIS (Marseille)</td>
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<td>35. WM/MICS (Sophia-Antipolis)</td>
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<td>36. ASTEP (Saint-Etienne-en-Dévoue)</td>
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<td>38. CIM PACA (Gardanne)</td>
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</table>
**Research and Development**

**Research laboratories**

**Summary table**

- Presentation of the major areas of work in the four main ICT sectors in PACA, performed in the 25 laboratories. Note: two of them (National Centre for Scientific Research and INRIA) work in all four sectors of the new technologies.
- “Microelectronics” and “Software & services” are the two sectors with the most coverage.

<table>
<thead>
<tr>
<th>ICT Laboratories</th>
<th>Microelectronics</th>
<th>Telecommunications</th>
<th>Software &amp; services</th>
<th>Media</th>
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<td><strong>9</strong></td>
<td><strong>15</strong></td>
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</table>
Research laboratories

Summary table

- Presentation of the major areas of work performed in the **25 laboratories within the ICT value chain** in PACA. Note, 2 of them (National Centre for Scientific Research and INRIA) work in all aspects of the value chain.

- “Microelectronics” and “Software & services” are the two sectors with the most coverage.

<table>
<thead>
<tr>
<th>Laboratories / Link</th>
<th>Electronic and nano-electronic components</th>
<th>Equipment, terminals and interfaces</th>
<th>Systems</th>
<th>Networks and facilities</th>
<th>Software and software engineering</th>
<th>Applications</th>
<th>Digital content and services</th>
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Other research laboratories

Summary table
► 37 “Other research laboratories” which make an additional contribution to ICT or their markets. Note, five of them (CIRM, Handibio, COBTEK, CSTB and INRIA) are involved in all four sectors of the new technologies.

► Presentation of the major areas of work performed in each of the other laboratories within the ICT value chain in PACA.

► “Microelectronics” and “Software & services” are the two sectors with the most coverage.

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Other research laboratories

Summary table

37 “Other research laboratories” which make an additional contribution to ICT or its markets.

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Presentation of the major areas of work performed in each of the additional laboratories within the ICT value chain in PACA. Note, only one of them (CIRM) is involved at all points of the value chain.

“Software and software engineering” and “Applications” are the two sectors with the most coverage.
## Dedicated facilities

### Summary table

- **25 facilities dedicated to the development of ICT**

- Presentation of the major areas of work performed by the **facilities within the four major ICT sectors** in PACA. Note, four of them (CIU Santé, CNR Santé, Comm4Innov™ and PACA Mobile Center) are involved in all four sectors of the new technologies.

- “Microelectronics”, “Telecommunications” and “Software & service” are the three sectors with the most coverage.

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Dedicated facilities

Summary table

► 25 facilities dedicated to the development of ICT

► Presentation of the major areas of work performed by the facilities within the ICT value chain in PACA. Note, two of them (CIU Santé, and PACA Mobile Center) are involved in nearly all areas of the value chain.

► “Electronic and nano-electronic components”, “Equipment, terminals and interfaces”, “Software and software engineering” and “Applications” are the three links with the most coverage.

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<th>Laboratories / Link</th>
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<td><strong>10</strong></td>
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</table>

MDER – Panorama ICT – 2013
Education and training

Summary

► With more than 157,000 students in 2011, PACA ranks 3rd in higher education in France (behind Ile-de-France and Rhône-Alpes). Almost 8% (or between 12,000 and 15,000, depending on the source) are following higher education courses in ICT.

► There are almost 7,000 teaching staff/research fellows in the four major regional universities, more than a hundred Research Units, 24 institutions offering postgraduate courses and 14 umbrella bodies.

► There are more than 600 courses connected with ICT, including almost 500 in the core business, mainly in Software & services and the Media. There are also cross-disciplinary courses which combine several ICT areas or which focus on target markets.

► The technology sectors account for a large share of higher education with 67% of both courses and the number of students.

► 167 Research Units (in all sectors).

Four major universities

► Université d’Avignon et des Pays de Vaucluse: 7,125 students, 357 research fellows and teaching staff, 14 laboratories. 

  Source: Université d’Avignon et des Pays de Vaucluse, 2012

► Aix-Marseille Université: almost 70,000 students.

  Source: Aix-Marseille Université – AMU, 2012

► Université du Sud Toulon Var: more than 9,300 students.

  Source: Université du Sud Toulon Var – USTV, 2012

► Université Nice Sophia-Antipolis: 25,821 students.

  Source: Université Nice-Sophia Antipolis – UNSA, 2012
Summary

► If we assume 20 as being the average number of students taking each course, we reach an estimate that **9,880 students are in the ICT core business** (including almost 7,000 in higher education) and up to **12,100** if we add in **students taking cross-disciplinary courses** (more than 8,000 higher education).

► ICT courses mainly follow the major trends in the sectors:
  - The “Software & services” and “Media” sectors offer the greatest number of courses.
  - Followed by microelectronics and finally telecommunications.

► Telecommunications appears to be going against its economic importance, but it is linked to the major players based in PACA. In addition, the telecommunications business provides many jobs in the service sector. But the courses for these are not part of this study.

► Finally, the **high number of cross-disciplinary courses in ICT** should be noted, since these also involve ICT applications connected with markets.

### Number of ICT courses in PACA

<table>
<thead>
<tr>
<th></th>
<th>Courses at all levels</th>
<th>Among which higher education courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microelectronics</td>
<td>103</td>
<td>51</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>54</td>
<td>29</td>
</tr>
<tr>
<td>Software &amp; services</td>
<td>172</td>
<td>139</td>
</tr>
<tr>
<td>Media</td>
<td>165</td>
<td>119</td>
</tr>
<tr>
<td>Subtotal</td>
<td>494</td>
<td>338</td>
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<tr>
<td>Cross-disciplinary</td>
<td>111</td>
<td>70</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>605</strong></td>
<td><strong>408</strong></td>
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</table>

### Number of students per ICT course in PACA

<table>
<thead>
<tr>
<th></th>
<th>Courses at all levels</th>
<th>Among which higher education courses</th>
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</thead>
<tbody>
<tr>
<td>Microelectronics</td>
<td>2,060</td>
<td>1,020</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>1,080</td>
<td>580</td>
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<tr>
<td>Software &amp; services</td>
<td>3,440</td>
<td>2,780</td>
</tr>
<tr>
<td>Media</td>
<td>3,300</td>
<td>2,380</td>
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<tr>
<td>Subtotal</td>
<td>9,880</td>
<td>6,760</td>
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<tr>
<td>Cross-disciplinary</td>
<td>2,220</td>
<td>1,400</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>12,100</strong></td>
<td><strong>8,160</strong></td>
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</table>
Summary

Breakdown (by subject area and level) of the 600 or so ICT courses in PACA

► 103 courses in Microelectronics
  ➢ 7 courses at the vocational training certificate/18+ school-leaving vocational diploma level
  ➢ 44 courses at Baccalaureate level (18+ school-leaving diploma)
  ➢ 27 two-year higher education courses
  ➢ 8 three-year degree (or equivalent) courses
  ➢ 7 post-graduate courses
  ➢ 9 engineering training courses
  ➢ 1 further training course

► 54 courses in Telecommunications
  ➢ 24 courses at Baccalaureate level (18+ school-leaving diploma)
  ➢ 15 two-year higher education courses
  ➢ 4 three-year degree (or equivalent) courses
  ➢ 4 post-graduate courses
  ➢ 5 engineering training courses
  ➢ 1 PhD course
  ➢ 1 Further training course

► 172 courses in Software and Services
  ➢ 33 courses at Baccalaureate level (18+ school-leaving diploma)
  ➢ 42 two-year higher education courses
  ➢ 38 three-year degree (or equivalent) courses
  ➢ 33 post-graduate courses (21 first-class honours courses)
  ➢ 17 engineering training courses
  ➢ 9 PhD courses

► 165 courses in Media
  ➢ 48 two-year higher education courses
  ➢ 36 three-year degree (or equivalent) courses
  ➢ 31 post-graduate courses
  ➢ 4 engineering training courses
  ➢ 46 further training courses

► And also 111 cross-disciplinary / cross-ICT courses
  ➢ 27 courses at Baccalaureate level (18+ school-leaving diploma)
  ➢ 6 two-year higher education courses
  ➢ 7 three-year degree (or equivalent) courses
  ➢ 20 post-graduate courses
  ➢ 21 engineering training courses
  ➢ 16 PhD courses
  ➢ 15 further training courses
Focus on sectors by département

 Apart from telecommunications, which have found their natural home in Alpes-Maritimes, most microelectronics and media courses are in the Bouches-du-Rhône. Software is more equally distributed.

MICROELECTRONICS

 Out of the hundred or so courses in this field, more than half (54) are in the Bouches-du-Rhône.

 The remaining courses are in Alpes-Maritimes (18), Var (14) and Vaucluse (12), with just a few in Hautes-Alpes (3) and Alpes-de-Haute-Provence (2).

 Higher education the only courses offered are in Bouches-du-Rhône (35, including twelve at Masters or Engineer level) and Alpes-Maritimes (9, including four at Masters or Engineer level).

TELECOMMUNICATIONS

 Out of about fifty courses, 65% are in Bouches-du-Rhône (20) and Alpes-Maritimes (15).

 The départements of Var (9) and Vaucluse (7) also offer courses in the field, as does Hautes-Alpes (2).

 Higher education: Alpes-Maritimes (11) and Bouches-du-Rhône (10) are the main départements, followed by Var (4) and Vaucluse (3).

 The only Masters, Engineer or PhD courses are in Alpes-Maritimes (6), Bouches-du-Rhône (2) and Var (2).

SOFTWARE & SERVICES

 Out of the 172 courses in the study, almost 78% are in Bouches-du-Rhône (76) and Alpes-Maritimes (58).

 The remainder are in Vaucluse (18) and Var (16), Hautes-Alpes (3) and Alpes-de-Haute-Provence (2).

 Higher education: there are 60 courses in Bouches-du-Rhône and 52 in Alpes-Maritimes, but there are also 14 in Vaucluse, 11 in Var and two in Hautes-Alpes.

 There are 26 Masters, Engineer or PhD courses in Bouches-du-Rhône, 25 in Alpes-Maritimes, six in Vaucluse and two in Var.

MEDIA

 There are 165 courses, all at post-18 level. Almost 70% of these courses are in Bouches-du-Rhône (113). Followed by Alpes-Maritimes (26), Var (16), Vaucluse (9) and Hautes-Alpes (1).

 There are 22 Masters or Engineer courses in Bouches-du-Rhône, six in Alpes-Maritimes, followed by Var (5), and Vaucluse (2).

CROSS-DISCIPLINARY COURSES

 There are 111 cross-disciplinary courses, with almost 75% in Bouches-du-Rhône (63) and Alpes-Maritimes (21).

 Var (18), Vaucluse (6), Hautes-Alpes (2) and Alpes-de-Haute-Provence (1) offer many courses.

 Higher education: 36 courses are offered in Bouches-du-Rhône, 19 in Alpes-Maritimes, Var (13), Vaucluse and Hautes-Alpes (1).

 There are 28 Masters or Engineer courses in Bouches-du-Rhône, 18 in Alpes-Maritimes, followed by Var (10), and Vaucluse (1).