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Brigitte Plateau,
Director of Grenoble
Computing Laboratory

Grenoble lines up its IT forces

With the start of the Grenoble Computing Laboratory (LIG) in 2007 Grenoble now has all it needs to become a key player in Europe. The top-notch laboratory, headed by Brigitte Plateau, is deploying a new approach to IT.

Why was the LIG started in January 2007?

We have brought together 470 researchers and various laboratories to form a single entity, the LIG. We did this for two reasons. The first is structural: we want to achieve global visibility. The second is scientific: computer science is not just a matter of algorithms, logic and programming languages. It also needs to integrate other approaches and pluridisciplinary working. We are not experimenting on cosmic rays but exploring everyday issues and their implications for society.

What is at stake in this change?

Computer science must learn to adapt to environments on different scales and integrate various languages. It must also evolve to become more autonomous, and we are consequently working on self-configuring mechanisms. Furthermore our applications must become upgradable, particularly as regards software. To rise to this triple challenge we have chosen to focus our efforts on the complementary nature of our approaches. We are working in four fields: infrastructures (from networks to datas) software, interaction (virtual reality, human-machine interfaces, speech, physical manipulation, vision, etc.), knowledge and learning processes.

How does Grenoble's computer science rate internationally?

A scientific community consists of several schools of thought, with global reach. Here a third of our doctorate students are from abroad. There is permanent exchange between Europe and North America. We are linked by various agreements to researchers in Japan, Vietnam and Singapore, and we are also working with PhD students from Brazil and Mexico. LIG is a partner in the Minalogic competitiveness centre, in Minatec and several regional clusters. We also enjoy the benefits of an environment that encourages industrial transfers, all of which helps to boost Grenoble-Isère's image abroad. It has a major impact on training too, on R&D and the emergence of start-ups based on LIG teams. Framework projects also contribute to our success. Under the Software and Smart Systems banner, a group of laboratories, including LIG, have just been certified by France's Institut Carnot, further proof of the value of computer science in Grenoble and our research partnerships.

Les partenariats industriels du LIG

BULL, HP, Sun, Xerox, IBM, STMicroelectronics, Gemplus, France Telecom R&D, EDF, Schneider Electric, Dassault, Toyota, Alcatel, Airbus, Total, Teamlog, Capgemini, Mandriva, Microsoft, Thales

Des start-up : Cabrilog, Blue Eye Video, Educafis, ProBayes, Icatiss, Scalagent

> FEATURE <

Job qualification and trade renewal in Grenoble-Isère

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Under this title, a study published by AEPI in March 2007 confirmed, with all the necessary figures, that the number of jobs was growing twice as fast in Grenoble-Isère than on average in the rest of France. Highly qualified jobs were enjoying spectacular growth, visible even abroad. Nor were the most innovative sectors developing at the expense of less well qualified jobs. The attractiveness of the Grenoble area was benefiting the whole of the Isère department, spreading prosperity more evenly across a diversified fabric of trades.



In the 1980s and 1990s², Grenoble-Isère experienced a rise in the number of jobs twice as high as the national average. But this certainly did not happen by chance. It was very much the result of a determined effort. For the last 30 years public investment in advanced technology sectors, backed by policies encouraging partnerships with research centres

and higher education, have attracted high-profile industrial projects to Grenoble-Isère and encouraged the influx of new business.

The conclusions of the AEPI study on the changing pattern of qualifications between 1982 and 1999² attest to this point. Rising employment levels start by benefiting the most highly qualified (43,000 more jobs over the relevant period), with much higher growth than elsewhere in France (80% more senior management posts, compared with a 62% increase in France; 139% more engineers, compared with an 87% increase nationally). The Grenoble urban area stands out for the technical specialization of its job market. It has the highest proportion of engineers in France (6.4%), ahead of Paris (6.1%) and Toulouse (5.8%). It ranks second for the proportion of senior executives, who account for 19.3% of all jobs, ahead of Toulouse (18.5%) but behind Paris (22.5%). Neighbouring Lyon is in fifth position with 15.8%.

The high level of qualification and technical specialization of industrial jobs reflects sustained growth in innovative sectors. These jobs play a decisive role in

the local economy. Such high standards mean firms have the capacity to innovate, designing, manufacturing and marketing new products, as well as constantly upgrading existing production processes. This makes it that much easier to adapt to long-term changes in the economy.

Some sectors have a ratchet effect that drives the whole economy. Information and communications technology accounts for 500 companies and more than 38,000 jobs in Grenoble-Isère. Major framework projects such as Minattec, Alliance-Crolles 2 or Minalogic have contributed to their development and consolidated Grenoble-Isère's leading position in France and its status as a major centre in Europe and the world at large.

Microelectronics and nanotechnology add up to 21,700 jobs, with a further 3,000 in public research. Computing and software technology employ 12,000 people, with 1,500 others working in public research. Some 5,700 students are doing courses directly related to these subjects, with 3,400 degrees awarded annually.

> UPDATES <

Tornier and Bioprofile merge



© Tornier

The shareholders of the two firms have decided to join forces and merge the orthopaedic products specialists.

René Tornier started his company after the second world war, building it up to become an international yardstick for the manufacture of joint replacements and surgical implants. It employs 425 people, of which 300 in Grenoble-Isère. In 2006 it reported \$100m sales, up 30% on the previous year. It is the world leader for shoulder joints, but also markets a range of products for hips, knees, elbows and ankles.

Bioprofile has been part of the US group Nexa since 2005. It controls the whole of the production process for pyrocarbon prostheses (a technology originally developed by France's Atomic Energy Commission at its Grenoble research centre) from design to manufacture and distribution. Bioprofile Nexa employs 70 people, including 25 in Grenoble, reporting \$10m sales in 2006, up 100% on the previous year. The two companies will be able to make the most of their complementary skills. They have both mastered innovative technologies – Bioprofile for pyrocarbons, Nexa for biomaterials – and Tornier has the experience and sales network of a market leader. They should consequently be well placed to extend their international reach and offering – in particular artificial hands and feet.



© AEPI - PATTOU F.

The number of senior executives, which is well above the national average in the Isère area and more particularly the Grenoble area (which accounts for 70% of all jobs in Isère), is undoubtedly a key factor in the local dynamic.

But the positive trend observed during the 1980s and 1990s has continued, picking up speed in recent years. Statistical analysis of a range of indicators for 1999 to 2006 reveals more solid growth. The Grenoble area has been gaining about 3,500 salaried jobs a year in the private sector, almost three times more than over the previous two decades (during which the annual gain was 1,300 jobs). This impressive performance is due to the drawing power of the various high-technology sectors and the changing face of certain trades.

The high-tech sectors, particularly electronics, are driving the job market. Companies such as STMicroelectronics, Soitec, MGE UPS and BD have increased their workforce in strategic activities (studies, R&D, marketing, purchasing, etc.). The 2000s consequently seem to be confirming the trend for more jobs for senior executives and intermediary professions in industry and business services. But unlike previous decades the drop in the number of less qualified jobs has stopped, and there has been a rise in the



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number of employees in retailing and consumer services.

On the other hand conventional industrial activities – paper, chemicals, metal working – which employ large numbers of workers, are still shedding jobs and finding it hard to compete on international markets.

By and large growth in highly qualified jobs has consequently not been achieved at the expense of less well qualified jobs, a feature specific to Grenoble-Isère. Unlike the dominant trend in France, over the last 20 years Grenoble-Isère has registered a substantial increase in the number of employees, compensating the decline in the number of industrial jobs.

Currently 22% of all jobs in Grenoble-Isère require no qualification. But these jobs are very different from their equivalent in the 1970s and 1980s. The pattern of poorly qualified jobs has changed a great deal, declining in industry and construction, expanding in consumer services and companies.

And such jobs have achieved stronger growth in Grenoble-Isère than elsewhere because a dynamic economy has eased the conversion. Forward-looking economic planning has clearly benefited the whole of the economy.

The job market now seems to be focusing on two growth sectors: very highly qualified jobs, and others demanding little or no qualification. Growing demand for the first category is creating jobs for the second group. It thus seems possible to reconcile the goal of attracting or training growing numbers of top grade executives and engineers with the objective of maintaining a healthy level of employment for unqualified workers. It is certainly our ambition as part of a balanced economy.

¹ *Les Cahiers de l'Isère*, n°16, AEPI, 68 pages, March 2007.

² Latest census data published (1982 and 1999) by France's National Institute for Statistics and Economic Studies (Insee).

> SPOTLIGHT <

Biopolis : for turnkey biotechnology

The Grenoble area, already well represented in biotechnology and healthcare, has just set up an organization to encourage the development of specialist firms. Biopolis aims to stimulate new enterprise in an innovative sector through technology transfer.

Among the challenges facing us, we need to understand and treat genetic and neurological diseases, find alternatives to fossil fuels, and improve agricultural yields and the quality of food. Such work demands a base to facilitate the emergence of new solutions.

Biopolis, recently opened in 2006, is a business incubator that welcomes budding entrepreneurs as their project nears maturity, and a business centre specially designed for bio-industries.

But Biopolis is much more than just a reception facility. It offers turnkey services

for emerging biotechnology firms. Each rental unit has a secure modular laboratory, fitted with microsystem workshops, biochemistry and molecular biology laboratories, and P2-grade facilities. Among the companies that have already moved in, Praxim, Koelis and EndoControl have the makings of a surgetics network, specializing in computer and robot aided medical interventions.

With Minatec, Europe's leading centre for micro and nanotechnology, which increasingly opens onto biotechnology, and the NanoBio innovation centre invol-



© UJF

ving universities, research centres and Grenoble's university teaching hospital, Biopolis can count on an environment conducive to synergy, with the certainty of the local authorities' unswerving support.

> TIME OF <

© Magasin
Patrick Blanc

Le Magasin, the place for contemporary art

Le Magasin is a large metal shed, typical of such structures designed by Gustave Eiffel. It was originally built for the 1900 universal exhibition in Paris, but was dismantled and reassembled in Grenoble to serve as a vast warehouse. The area around it gradually degenerated into an industrial wasteland and in 1986 the building was converted, under the supervision of architect Patrick Bouchain, to become one of France's two centres for contemporary art (Cnac). The term «Magasin», borrowed from Tatlin's 1916 exhibition of avant-garde art in Moscow, seemed an appropriate name for the venue, subsequently imitated by Stockholm and Bremen.

So welcome to the Magasin! Despite having 2,000 square metres of floor space there is nothing to sell here! Unlike conventional museums which purchase and exhibit works, the Magasin does not own a collection nor does it have a permanent exhibition. It only opens for its many temporary exhibitions. Focussing on the creation of contemporary art and its display, the Magasin is almost more interested in artists than art.

The central exhibition area, named La Rue, features an enormous glass roof covering 900 square metres, (70 metres long and 20 metres high) and is ideal for showing monumental installations. La Rue is emblematic of the overall project, to build bridges between art and society, and almost

as excessive as the big names who have exhibited their works here – Olaf Breuning, Daniel Buren, Jim Isermann, Paul Morrison and many more.

La Rue is a place for unbridled creative expression – original graffitis on building-site hoardings, a corrugated iron wave 13 metres high, a line of caravans, and even a series of suspended skeletons. Artists take over the space and shape it as they wish, taking full

advantage of its enormity to produce extra-extra-large-size art. Grenoble has made a name for itself pioneering technology, but the same mindset reaches beyond the limits of corporations and business, investing culture. Here too art is on the move.



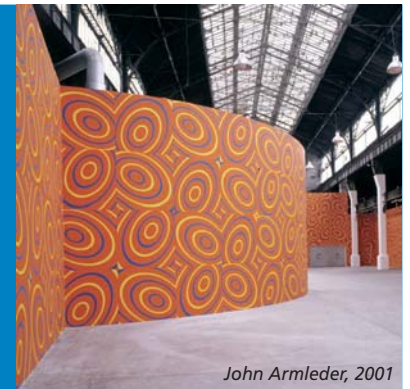
This summer

until 2 September,
Le Magasin will be hosting
three contemporary artists.

LATIFA ECHAKHCH will be occupying La Rue with an installation, entitled «Il m'a fallu tant de chemins pour parvenir jusqu'à toi» (I have explored so many trails just to reach you).

With «Negotiation of Purpose» Le Magasin retraces the work of the British artist GAVIN TURK whose work involves explicit references to his illustrious predecessors, from Magritte to Warhol, taking in Klein and Duchamp.

The American TROY BRAUNTUCH often associated with the Picture Generation, likes to distinguish the action of looking at a picture and the process of grasping its meaning. He will be here in Grenoble for his first monographic exhibition in France.



John Armleder, 2001

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AEPI is the Grenoble-Isère Economic Development Agency. It provides companies with all the information and assistance they require to set up business in Grenoble-Isère: economic data, offers of building land, offices and industrial premises, meetings with local decision-makers, help with overall project management, notably funding, available grants, etc. Come and contact us.

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