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INSIDE TRACK

TECHNOLOGY FRANCE

'Valley' in the Alps

There are signs that France's incentives for its state scientists and researchers to think like entrepreneurs are starting to work, says Jo Johnson

France has often been criticised for failing to exploit the entrepreneurial potential of its scientists and researchers. The successes of French postwar industrial policy – in military and civilian aviation, nuclear and space programmes, telecommunications and weaponry – had their origins chiefly in research and development projects between the state and national champions of times past and present, such as France Telecom, Alcatel, Aerospatiale, Bull and Thomson.

The deficiencies of this approach have long been recognised, notwithstanding some well known, if costly, successes, such as the Minitel and the TGV. So, too, have the bureaucratic obstacles to technology transfer, financing and entrepreneurship.

But only recently – particularly with the introduction of the July 1999 law on innovation and research – has French industrial policy focused on encouraging entrepreneurialism within the state sector.

Grenoble, a technology hot-spot in the heart of the Rhône-Alpes region, provides evidence that the new approach is starting to pay off. Like other technology clusters in Europe, including Munich, Hamburg and Dresden in Germany, Sophia Antipolis in the south of France, Dublin in Ireland, Oulu in Finland and Cambridge in the UK, it likes to think of itself as "Europe's Silicon Valley".

Its high-technology origins date back to the late 19th century, when Aristide Berges, a local engineer, invented and installed the world's first hydro-electric turbine in Grenoble. His invention led to the city becoming a centre of education and research, with exceptionally close links between universities and manufacturers.

Further impetus came from wartime work by Louis Néel, the Nobel laureate,

on anti-ferromagnetic technology to protect the French navy against German mines. Mr Néel set up an institute for magnetism that became part of France's National Centre for Scientific Research (CNRS) and played a crucial role in attracting much of France's nuclear research programme to the region. He founded Grenoble's centre for nuclear studies in 1956 and contributed to the 1967 decision to install the city's Franco-German high-flux reactor.

Measured against criteria such as its proximity to universities; the presence of corporate role models; access to venture capital; quality of infrastructure; local entrepreneurial spirit; and availability of qualified staff, Grenoble scores well, even if it is perhaps not top of the list of contenders for the European Silicon Valley crown. A Boston Consulting Group report last year accorded that honour to Munich.

Grenoble's strengths include the Institut National Polytechnique de Grenoble and the Université Joseph Fourier; numerous world-leading research institutes, particularly in the field of microtechnology with Leti, a part of France's Atomic Energy Commission, and Tima, part of the CNRS. It also boasts the presence of technology giants such as Hewlett-Packard and STMicroelectronics and is close to Lyon, Turin and Geneva. As in California, the knowledge workers of Grenoble seem particularly keen on an outdoor lifestyle. The availability of skiing and mountaineering within 30 minutes of the city centre is an important attraction for employees.

The French state's ambitions for the city are clear. Last month, France's Atomic Energy Association, Grenoble's INPG technical university and the Rhône-Alpes region signed an agreement to establish a new mega-centre for micro- and nanotechnologies. Minatec, as it is to be called, will open in

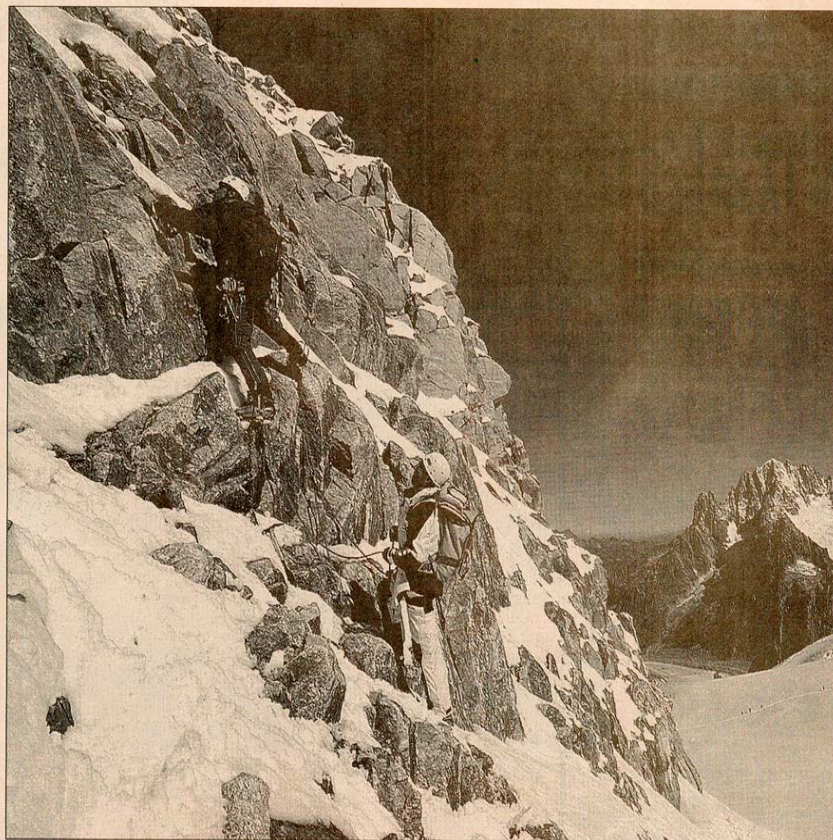
2004 and aims to become the leading European cluster for students, researchers and entrepreneurs in the field. These institutions are all undertaking a growing amount of research for private sector clients.

However, Grenoble has not capitalised on its research excellence to generate entrepreneurial spin-offs to the extent that its claim to being Europe's Silicon Valley would suggest. Only one Tima spin-off – Memscap – is publicly listed. Leti, too, can claim just one quoted spin-off, Soitec, although it played a part in the creation of one company in the 1970s that became the Franco-Italian STMicroelectronics (of which it still owns 11 per cent).

One aim of the 1999 law, introduced by Claude Allègre, then education minister, was to make it easier for entrepreneurs to capitalise on the intellectual property generated in French research institutes and universities. It permitted state-employed researchers to be seconded to start-ups with a guaranteed return to their old post for up to six years, and allowed them to take stakes (up to 15 per cent) in the companies themselves.

However, the freezing over of the technology start-up market and the retrenchment of Europe's venture capital community over the last year have so far obscured the potential of this law to improve the rate at which publicly funded research spills over into the real economy. Tima expects three of its spin-offs to go public in the next two years. And there are signs that the incentives for researchers to think more like entrepreneurs are starting to have an effect.

One example is Memscap, a leading operator in the €4bn (£2.4bn) micro-electromechanical systems (mems) technology segment, which was founded in 1997 by Jean-Michel Karam, a Tima researcher, listed on Euronext



High-flyers: the Rhône-Alpes region's outdoor attractions have helped Grenoble to attract and keep knowledge workers

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last March and is now worth about €135m. It owns 22 patents with a further 13 under deposition and employs about 240 people. "What Tima gave to Memscap is me, to be honest. I was well known in the field, had written many mems papers and set up mems conferences," says Mr Karam, a 32-year-old Grenobleis of Lebanese origin. "I got the principles out of my research at Tima but executed and patented them at Memscap."

Mr Karam has not hired other people from Tima – they did not have the commercial orientation he wanted, he says – but continues to employ its

researchers on contracts. Tima's director, Bernard Courtois, who supported Mr Karam's move into the private sector, has taken advantage of the new law to own 4 per cent of Memscap.

Mr Karam remains critical of some aspects of the new law: "If you're to get through the dark nights of being an entrepreneur, you can't have the security of a parachute back into your old research job," he says. "When I left Tima, I never thought I would go back and never accepted to discuss anything to do with Memscap at Tima."

Both Leti and Tima have made huge progress in increasing their usefulness

to the private sector. "We now derive 30 per cent of our revenues from the government and 70 per cent from private contracts," says Constant Axelrad of Leti, which has filed more than 100 patents every year since 1996. "Ten years ago the figures were the reverse."

Tima now derives 90 per cent of its revenues from private sector contracts. These figures show how seriously France takes the responsibility of finding practical applications for the intellectual capital its research institutes are generating. Generating entrepreneurial drive is now the state's next challenge.

