

price controls, akin to those in force in most nations outside the United States.

In heading off these challenges, the industry has several ingrained advantages. It is widely and rightly seen as an important engine for innovation, and therefore for US economic strength, and it can muster a formidable coalition of allies, ranging from doctors and patient groups to medical schools and the cities that host them.

But it also has some disadvantages — most notably its track record of aligning itself more closely than any other major industry, save oil, with the Republican Party. According to the *Wall Street Journal*, 69% of the industry's political contributions in last year's midterm election went to Republican candidates. It was seen as a necessary bet, given the industry's fear of tighter regulation, but it turns out not to have been a prudent one.

That, coupled with continuing public discontent about healthcare costs in the United States, has put the industry firmly on the back foot this spring. It is underperforming in the stock market, where there is a sense that the heady growth that the pharmaceutical sector

enjoyed in the 1990s is not going to be revisited.

The industry's response to all of this has yet to take shape. It is trying to align its public image more closely with that of its biotechnology component (innovative, science-based, responsive to patient needs) and it has tried to introduce some self-regulation, in areas such as direct-to-consumer advertising. At the same time, the changes at Pfizer and similar developments elsewhere point to at least the possibility of a major consolidation of research and development activity to fit straightened circumstances (see *Nature* **445**, 13; 2007).

In terms of science and innovation, the pharmaceutical industry's best days ought to be ahead of it. The sequencing of the human genome and parallel developments in cell biology and immunology should greatly increase the potential for developing effective therapeutics, including ones matched to individuals' genetic make-ups. But the industry has some tricky terrain to navigate before these days arrive — and it is by no means clear that today's big-name companies will be around to enjoy them. ■

The safety catch

The United States' domestic security agency has yet to make best use of science and technology.

The US Department of Homeland Security (DHS) came into being in less than auspicious circumstances, as President Bush and Congress each sought to appear responsive to the terrorist attacks of 11 September 2001 by establishing a government department charged with securing the homeland.

When the department finally emerged in the spring of 2003, its composition reflected a series of unsatisfactory political compromises. The crown jewels of the state's security apparatus — the FBI and the CIA — were left alone, and the DHS emerged as a hodgepodge of the rest, ranging from the coast guard to the president's own security detail.

In an effort to ensure that the new department would channel the best of science and technology into its homeland-security mission, it was equipped with its very own science and technology directorate. It was hoped that the directorate would lend an up-to-date, cutting-edge flavour to the new department, reflecting the hope, widespread in the United States, that science and technology could be effectively harnessed to fend off terrorist attacks.

But relatively little of the counterterrorism work done by the department involves high technology. Although opportunities exist to use technology to improve performance at the margins, much of the work is about the efficient application of simple techniques. Patrolling the borders requires little more than a pick-up truck and a pair of binoculars; managing immigration paperwork plays to the skills of adept clerical staff, not turtlenecked hackers; and patrolling a coastline can be done as well in a 1950s-era cutter as it can in a hovercraft.

Add to the mix the fact that the new department's 'gang of seven' independent agencies often don't get along, and it is no surprise that the directorate has struggled to establish direction. As reported on

page 516, it has always lacked a clear mission and, in the absence of one, has instead undertaken a variety of odd jobs for these component agencies, such as monitoring cities for biological agents and developing an anti-missile system for commercial aircraft. It has never been effectively managed, delivering reports to Congress late or not at all, and failing to account adequately for its spending.

Jay Cohen, who was appointed as undersecretary for science and technology at the DHS last August, is charged with reversing this track record. Cohen's vision for the directorate is a pragmatic one, concentrating on the development or acquisition of the technologies that the department needs to do its job. He accepts nonetheless that basic scientific research has a role in the directorate.

Cohen's first nine months on the job have shown some promise. He has succeeded in bringing to the table representatives from the gang of seven to talk about what technologies they could actually use. Their needs are fairly basic — the immigration service, for example, would like better database software to manage its files — but they provide a framework that can lend some badly needed direction to the staff and grantees of the science and technology directorate.

It remains to be seen whether the directorate can deliver. The DHS is deeply fragmented, some would say dysfunctional, as its notoriously weak response to 2005's Hurricane Katrina demonstrated. And the science and technology directorate's performance has so failed to impress Congress that its budget was slashed by a quarter, to \$848 million, this year. Morale has been low, and the directorate has failed, in its first years of existence, to forge strong staff leadership or a clear identity.

Cohen seems to be full of ideas and verve — but the fact remains that he is running a small appendage on an unwieldy department. As long as the DHS itself remains adrift, it is hard to envisage how its science and technology directorate can excel. ■

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