Growth
The great innovation debate
Fears that innovation is slowing are exaggerated, but governments need to help it along
Jan 12th 2013 | From the print edition

WITH the pace of technological change making heads spin, we tend to think of our age as the most innovative ever. We have smartphones and supercomputers, big data and nanotechnologies, gene therapy and stem-cell transplants. Governments, universities and firms together spend around $1.4 trillion a year on R&D, more than ever before.

Yet nobody recently has come up with an invention half as useful as that depicted on our cover. With its clean lines and intuitive user interface, the humble loo transformed the lives of billions of people. And it wasn’t just modern sanitation that sprang from late-19th and early-20th-century brains: they produced cars, planes, the telephone, radio and antibiotics.

Modern science has failed to make anything like the same impact, and this is why a growing band of thinkers claim that the pace of innovation has slowed (see article). Interestingly, the gloomsters include not just academics such as Robert Gordon, the American economist who offered the toilet test of uninventiveness, but also entrepreneurs such as Peter Thiel, a venture capitalist behind Facebook.

If the pessimists are right, the implications are huge. Economies can generate growth by adding more stuff: more workers, investment and education. But sustained increases in output per person, which are necessary to raise incomes and welfare, entail using the stuff we already have in better ways—innovating, in other words. If the rate at which we innovate, and spread that innovation, slows down, so too, other things being equal, will our growth rate.

Doom, gloom and productivity figures
Ever since Malthus forecast that we would all starve, human ingenuity has proved the prophets of doom wrong. But these days the impact of innovation does indeed seem to be tailing off. Life expectancy in America, for instance, has risen more slowly since 1980 than in the early 20th century. The speed of travel, in the rich world at least, is often slower now than it was a generation earlier, after rocketing a century or so ago. According to Mr Gordon, productivity also supports the pessimists’ case: it took off in
the mid-19th century, accelerated in the early 20th century and held up pretty well until the early 1970s. It then dipped sharply, ticked up in late 1990s with computerisation and dipped again in the mid-2000s.

Yet that pattern is not as conclusively gloomy as the doomsayers claim. Life expectancy is still improving, even in the rich world (see article). The productivity gains after electrification came not smoothly, but in spurts; and the drop-off since 2004 probably has more to do with the economic crisis than with underlying lack of invention. Moreover, it is too early to write off the innovative impact of the present age.

This generation’s contribution to technological progress lies mostly in information technology (IT). Rather as electrification changed everything by allowing energy to be used far from where it was generated, computing and communications technologies transform lives and businesses by allowing people to make calculations and connections far beyond their unaided capacity. But as with electricity, companies will take time to learn how to use them, so it will probably be many decades before their full impact is felt.

Computing power is already contributing to dramatic advances far beyond the field of IT. Three-dimensional printing may cause a new industrial revolution. Autonomous vehicles, like the driverless cars produced by Google, could be common on streets within a decade. The performance of human prosthetics is rapidly catching up with that of natural limbs.

And although it is too soon to judge how big a deal these inventions will turn out to be, globalisation should make this a fruitful period for innovation. Many more brains are at work now than were 100 years ago: American and European inventors have been joined in the race to produce cool new stuff by Japanese, Brazilian, Indian and Chinese ones (see article).

**Spend a penny—or two**

So there are good reasons for thinking that the 21st century’s innovative juices will flow fast. But there are also reasons to watch out for impediments. The biggest danger is government.

When government was smaller, innovation was easier. Industrialists could introduce new processes or change a product’s design without a man from the ministry claiming some regulation had been broken. It is a good thing that these days pharmaceuticals are stringently tested and factory emissions controlled. But officialdom tends to write far more rules than are necessary for the public good; and thickets of red tape strangle innovation. Even many regulations designed to help innovation are not working well. The West’s intellectual-property system, for instance, is a mess, because it grants too many patents of dubious merit.

The state has also notably failed to open itself up to innovation. Productivity is mostly stagnant in the public sector. Unions have often managed to prevent governments even publishing the performance indicators which, elsewhere, have encouraged managers to innovate. There is vast scope for IT to boost productivity in health care and education, if only those sectors were more open to change.

The rapid growth in the rich world before the 1970s was encouraged by public spending on infrastructure (including in sewage systems) and basic research: the computer, the internet and the green revolution in food technology all sprang out of science, where there was no immediate commercial aim. Wars provide the sharpest example of the innovative power of government spending: astounding new developments in drone and prosthetic technology—let alone the jet engine—are a bittersweet testament to that. Even in these straitened times, money should still be found for basic research into areas such as carbon capture and storage.

For governments that do these things well—get out of the way of entrepreneurs, reform their public sectors and invest wisely—the rewards could be huge. The risk that innovation may slow is a real one, but can be avoided. Whether it happens or not is, like most aspects of mankind’s fate, up to him.