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Tech-ing it forward

Disruptive technologies will soon be the norm

In France, agriculturists are flying drones over their fields for a number of uses—from inspecting the crop for pest infestations to monitoring crop-growth for calibrating fertiliser inputs. Similarly, in Canada, there are many real estate agents who would vouch that drone photography/videography has helped clients make property-purchase/rental decisions. Drones, however, are just one of the many technologies that the latest *Economist Technology Quarterly* talks about, that are considered disruptive today but could be the norm in a few years. Consider, for example, printable microchips. For some years now, 3-D printing of solid objects using layers of material has been all the rage. World over, people are finding new things to print with the technology—a company in China has actually printed whole low-cost houses! But printing a house and printing, say, a functional mp3-player would be two completely different things, starting with how the latter would need an assembly of microchips that are manufactured at billion-dollar fabrication plants. Now, borrowing from the ink-based printing technology the humble photocopier uses, a team at the Palo Alto Research Centre in California, USA, has developed a way to print sheets of microchips that can run your digital appliances. So instead of an assembly-unit manned by bots and workers, a printer will be soon making microchips a few tens of nanometre long, wide, and thick. Being software-run, it is possible to tweak the process to print virtually any microchip, at a much lower cost. Tying this with 3-D printing is a revolution waiting to happen—even if you don't get to print your own smart-home right away, there is every likelihood that the components you need for it will get much cheaper and easier to procure.

If printable microchips is one exciting possibility coming to fruition today, artificial reefs that are helping conserve the marine ecosystem and nanodrugs that target their attack at the cancer site are two of the many others. However, the most significant potential from advances in technology—something that the *Economist Technology Quarterly* acknowledges with a cover story on grid-scale energy storage, (in batteries, that too!)—rests with the energy sector. Lockheed Martin, a US-based engineering major, has devised a way to harness fusion reactions for power generation, which had proved elusive so far, while Tesla, a US-based "energy innovation" company has come up with a luxury electronic car. It is almost a cliché to say technology is driving human future. In this backdrop, ways to hasten the march of technology—like the Science Exchange initiative, a marketplace for renting research equipment lying idle in the best laboratories around the globe—have become a necessity.