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THE FUTURE OF WORK -- TECHNOLOGY ON THE MARCH

Boosting Our Gray Matter

Bright idea or not, brain enhancements may become as available—and compulsory—as software updates

There's a famous scene in the sci-fi film *The Matrix* where the heroine, Trinity, learns to fly a helicopter by uploading instructions straight to her brain. Neuroscientists would love to master that trick so they could help patients suffering from brain injuries and diseases.

In fact, in animal experiments, scientists are already tackling all aspects of brain repair and enhancement, using electronic implants and biological techniques to boost memory and other functions. A few labs have even given human test subjects the ability to control a computer cursor with their thoughts.

There's no telling how today's research will change the world of work in 10 or 20 years' time. But once the tools and techniques are perfected, there's little question competitive individuals will get swept up in a race to expand their brain capacity. As that gets under way, it's destined to overturn today's paradigm of cubicled executives laboring on laptops, palm devices, and cell phones, besieged by constant software updates.

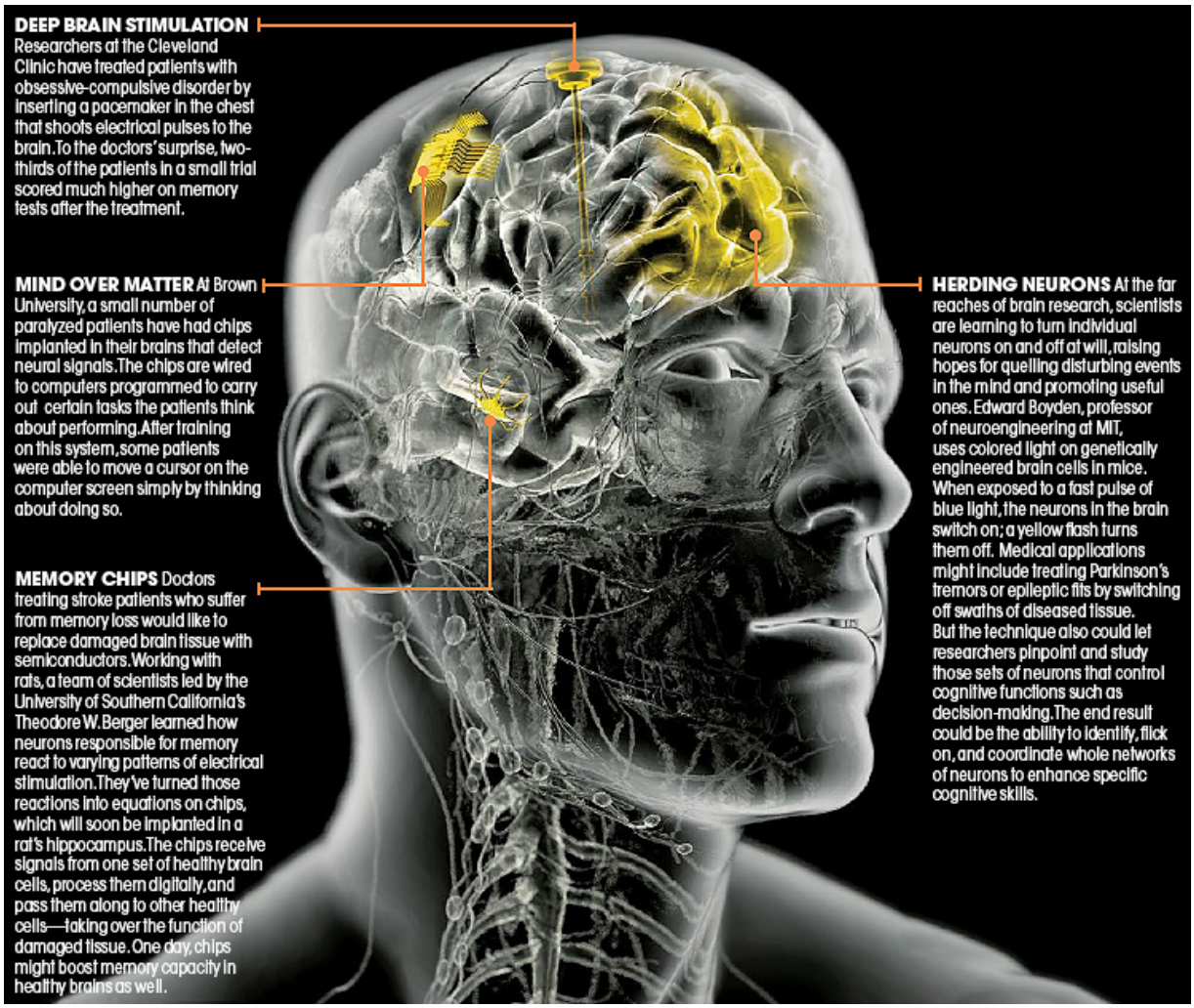
Perhaps the electronically augmented executive in 2025 will be able to absorb whole new fields of information by beaming it, *Matrix*-style, straight to circuits in his modified cortex. But even this scenario probably understates the workplace revolution that lies ahead. If you think Wi-Fi, BlackBerries, blogs, social networks, and Second Life are changing the way we work, wait until you see what enhanced cognitive equipment can do.

Medical scientists today spend little time dreaming about enhanced humans. They're too busy aiding the ill or injured, trying to reverse the ravages of Parkinson's disease or struggling to help patients cope with anxiety or depression. But where demand exists, supply follows. "Anything for therapeutic purposes has the potential to be used for the improvement of normal people," says Arthur L. Caplan, professor of medical ethics at the University of Pennsylvania.

This prospect raises some troublesome ethical issues. Many people are put off by the notion of physically bettering the brainthe root of thought, personality, individuality, and human nature itself. And some ethicists question the wisdom of handing new brain tools over to society so that privileged individuals can exploit them to get even further ahead of everyone else.

Other scientists don't see the harm. If the cost of advanced brain technologies drops quickly and the surgical risks become less dire, people may request brain chips as casually as they receive a shot of Botox. And if that enhances their performance, then customers and clients are bound to share in the benefits. "Don't we want our medical interns and pilots to have optimal brain function?" asks James J. Hughes, a professor of health policy at Trinity College in Hartford, Conn. "Wouldn't that be an obligation of the job?" It's a good question for our grandchildren to ponder, with their medically enhanced minds.

By Louise Lee



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