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Nanotechnology Will Change Everything

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Nanotechnology will continue to (slowly) accelerate along a road that will *change everything!*

As we continue to learn more about, and get better at bending billionths-of-a-meter size particles (which can be individual atoms and molecules themselves) to our will, we're going to find ourselves doing things and building things and using things in the same way, and at the same scale, that Nature has been doing since the beginning of time.

For a few examples of nano-research ongoing during 2005 that may well lead to early end results (most in the labs this year, commercializing beyond 2005), consider:

- Multi-terabit non-volatile memory that will change how we use and store data; and computers so fast that today's will seem like turtles.
- Bottom-up manufacturing, using techniques such as self-assembly, that will be more efficient and environmentally friendly than today's crude top-down methods.
- Materials that are custom made to the attributes needed for a specific application, such as incredibly light and superconductive wires ten-times stronger than steel; nano-sized semiconductors; more efficient solar cells; and wall paint that can illuminate a room.
- Nano-combustives, where nano-sized particles of reactants have a far greater surface area than conventionally sized particles and so burn far faster, generating more power for rocket fuel and explosives.
- Voluminous breakthroughs in biology and genetics and proteomics and medical sciences that will result in designing drugs by intent rather than through today's hit-and-miss processes; individually personalized drugs that will increase efficacy and reduce side effects; and perhaps the injection of tiny molecular "machines" that are not nano "Roto-Rooter" mechanical monsters, but are tiny drug-carrying spheres that use proteins to seek out and kill individual cancer cells or dissolve plaque.
- And far more than we can, today, possibly imagine.

If this seems an improbable journey, look back ten years and see if you could have predicted the very real economic and social impacts that advances in just a few areas have brought: faster, cheaper, and pervasive computers; pervasive and higher-speed networks, especially the Internet with its traditional capabilities and recently-popular VoIP services that are changing the very nature of "telephone companies;" instant access to information (the Web and Email) that have radically changed how people shop, communicate for business and pleasure, and even get their "news;" or

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how Bloggers are rapidly changing the face of traditional journalism and transforming the "Fourth Estate."

Now, try to look forward ten, or even five years, to predict the results of our harnessing the most basic ways that everything in our world, and we, are built. If today seemed unimaginable ten years ago, then the world of ten years from now (since breakthroughs are now happening exponentially faster) is elusive indeed.

We can't (and shouldn't) stop such progress, but we are going to have to live with the results of massive transformation.

Nanotechnology *will* change everything.

Don't Blink!

This essay is original and was specifically prepared for publication at Future Brief. A brief biography of Jeff Harrow can be found at our main [Commentary](#) page. Other essays written by Jeff Harrow can be found at his [web site](#). Jeff receives e-mail at jeff@theharrowgroup.com. Other websites are welcome to link to this essay, with proper credit given to Future Brief and Mr. Harrow. This page will remain posted on the Internet indefinitely at this web address to provide a stable page for those linking to it.