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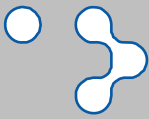
THE NANOTECH REPORT™

Investment Overview and Market
Research for Nanotechnology

4th Edition



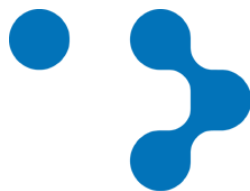
**Key Findings and
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The Nanotech Report, 4th Edition

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About Lux Research

Lux Research is the world's leading nanotechnology research and advisory firm. We help our clients make better decisions to profit from nanoscale science and technology, tapping into our analysts' unique expertise and unrivaled network. Our clients include top decision makers at large corporations, portfolio managers and analysts at leading financial institutions, CEOs of the most innovative start-ups, and visionary public policy makers.

We provide clients with data and advice to help them:

- Develop strategies to profit from nanotechnology commercialization
- Understand the impact of emerging nanotechnology innovations
- Allocate human and financial resources optimally
- Forecast nanotechnology trends and shifting dynamics
- Operate effectively within a changing regulatory environment
- Structure equitable deal terms
- Identify and evaluate partners and suppliers
- Create recognizable brands and establish market positioning
- Prioritize investment opportunities
- Pre-empt threats to existing portfolios
- Quantify how technology disruptions impact investments
- Recruit experienced staff and advisory boards

The Nanotech Report, 4th Edition, is just one of the many ways we help complex organizations exploit nanotechnology for competitive advantage. For more information, see www.luxresearchinc.com.

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Key Findings

- Nanotech continues to spark enthusiasm at the highest levels of industry and government. In the past six months, George W. Bush declared nanotechnology a priority in the State of the Union address; GE CEO Jeffrey Immelt called nanotech a top priority for his firm, on par with alternative energy; and P&G CEO Alan Lafley referred to nanotech as a “very fruitful area” for the consumer products giant.
- Public perception of nanotechnology is growing as media mentions of nanoscale science and engineering rise sharply. Nanotechnology was mentioned in 18,039 major English-language media articles in 2005, up 40% from 2004.
- Emerging nanotechnology was incorporated into more than \$30 billion in manufactured goods in 2005 – more than double the previous year. In 2014, we project that \$2.6 trillion in global manufactured goods will incorporate nanotech, or about 15% of total output.
- Governments, corporations, and venture capitalists spent \$9.6 billion on nanotechnology research and development (R&D) worldwide in 2005, up 10% from 2004.
- Governments worldwide spent \$4.6 billion on nanotechnology in 2005, up only 3% from 2004. Government funding has slowed as expenditure shifts from constructing new nanotech research facilities to operating ones already built. Of this spending:
 - \$1.7 billion (36%) was in North America, almost entirely accounted for by the U.S.
 - \$1.7 billion (36%) was in Asia, dominated by Japan
 - \$1.1 billion (26%) was in Western Europe, led by Germany
 - \$100 million was in the rest of the world
- Established corporations spent \$4.5 billion on nanotechnology R&D worldwide in 2005, up 18% from 2004. Of this spending:
 - \$1.9 billion (42%) was in North America
 - \$1.7 billion (38%) was in Asia
 - \$850 million (19%) was in Europe
 - \$70 million (2%) was in the rest of the world
- Nanotechnology venture capital (VC) funding reached \$497 million worldwide in 2005, or about 2% of total global VC flows, up 17% from 2004. Nanotech has seen a total of \$2.0 billion in cumulative VC across 258 deals to date. These findings are based on a new, comprehensive accounting of all institutional venture capital investments in nanotech start-ups since 1998. Breaking down this spending:
 - Deal sizes are up. Average deal size shot up to \$10.9 million in 2005 on large Series C and D for late-stage companies like Nanomix, Aspen Aerogels, and Nanosys.
 - Deal numbers are down. Although the number of deals fell 17% versus 2004 to 45, the average deal size increase ensured double-digit year-on-year nanotech VC growth.
 - Electronics wins. Electronics and IT deals lead with 40% of VC investment in 2004 and 2005, followed by life sciences as close second, and materials and nanotools as a distant third and fourth, respectively.
 - VC is highly concentrated. Of the 143 nanotechnology start-ups that have received institutional venture capital funding since 1998 (out of about 1,500 that operate globally), the top 10% account for 43% of cumulative funding.
- A total of 3,966 U.S. nanotechnology patents have been issued since 1985. Wars are brewing: Firms are preparing for legal battles and licensing deals over claims that they perceive to overlap, particularly in highly-contested fields like quantum dots and carbon nanotubes.
- 1,408 U.S. trademarks have been issued with the substring “nano” in them – dating back to 1965 – to a very wide variety of 640 companies. These trademarks are diffusely held – the #1 trademark holder, fabric treatment specialist Nano-Tex, holds only 25.
- Nano-enabled products on the market today, from ranging from antimicrobial refrigerators to nano-reformulated drugs, carry a weighted average price premium of 11% versus comparable conventional products.
- The launch of products incorporating nanotech is showing clear differentiation across sectors. Manufacturing and materials applications like composites and coatings are launching first, but taking a long time to diffuse; electronics and IT applications like advanced memory chips and displays are launching later, but likely to spread rapidly; and healthcare and life sciences applications like nanostructured medical devices and nanotherapeutics have the longest time-to-market due to sector-specific regulation.

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