

### Consulting on industry and product-technology roadmapping, technology futures, and business and technology strategy.

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#### Roadmaps and Roadmapping

Roadmapping enables a team to plan and execute a path to achieve their objectives, just as a roadmap enables a traveler to decide among alternative routes to reach a destination. Roadmaps link strategy to future actions and explicitly incorporate a plan for needed capabilities and technologies to be in place at the right times. *Product-Technology Roadmaps* link market and competitive strategy to product plans to technology strategy – with quantitative targets and plans for achieving objectives. *Industry Roadmaps* provide a shared industry vision and the path for the industry to achieve that vision. *Science and Technology Roadmaps* chart a course for science-driven technologies. *Capability Roadmaps*, a new roadmap format, help service organizations create plans for future capabilities and technologies to meet their clients' needs.

A facilitated roadmapping process directs a team to set their strategy based on the most important market/customer needs and to determine linked product drivers, product feature evolution, and technology plans. The roadmap includes future actions needed to implement the strategy along with the key risks. The roadmap serves as a guide during their journey, allowing the team to recognize and act on events that require a change in direction. The roadmap also communicates the plan to decision makers, customers, suppliers and other stakeholders. In an organization, roadmaps provide the basis for integrated management of product and technology portfolios. Our capabilities:

- Lead teams to develop roadmaps using proven, facilitated processes.
  - Train teams in effective roadmapping skills and techniques in case-based settings.
  - Design and implement roadmap-based portfolio management and technology strategy processes.
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#### Technology Futures

Beyond the time scale of Roadmaps (usually a few product cycles) the capability for directing strategic technology investments is dramatically improved by characterizing sustained trends of enabling technologies and identifying potentially disruptive innovations. For example, in computers and communications, long-term advances in semiconductors and optics have allowed far more accurate forecasts of technology innovations compared to fields where trends were not recognized or did not exist. Accurate forecasting of technology innovations requires characterizing technology advances, connecting key enabling technologies to potential applications, and quantitative assessment of driving forces. Our capabilities:

- Identify and assess the implications of technology trends and disruptions, and develop priorities for investment.
  - Develop quantitative technology forecasts using market and technology experience curves, learning curves, and technology adoption analytics.
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#### Strategy

With a view of the future based on identified trends and needs, strategies for technology enabled markets are based on solid intelligence and analyses. Our capabilities:

- Market and technology based strategy consulting and development
  - Competitive and strategic intelligence, including roadmaps for competitors
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#### Qualifications

Richard E. Albright, Ph.D. brings more than 25 years of experience in technology planning, strategy development, systems engineering and product development to clients in industry and government. He was previously Director, Technology Strategy and Assessment at Bell Laboratories. Dr. Albright chaired the Roadmapping Task Force of MATI (Management of Accelerated Technology Innovation), a leading industry/academic consortium identifying and developing best practices in technology management.

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### Recent Publications and Presentations

*Roadmapping Convergence*, on roadmapping for converging technologies: nanotechnology, biotechnology, information technology, cognitive science. In Managing Nano-Bio-Info-Cogno Innovations: Converging Technologies in Society, W. S. Bainbridge and M. C. Roco, eds., Springer, 2006.

*Product and Technology Mapping Tools for Planning and Portfolio Decision Making*, with Beebe Nelson, PDMA Toolbook for New Product Development II, John Wiley & Sons, October, 2004

*Roadmapping New and Converging Technologies for Commercial Success*, International Manufacturing Technology Show (IMTS) 2004 Manufacturing Conference, Society of Manufacturing Engineers, Chicago, IL September 8, 2004.

*A Unifying Architecture for Roadmaps Frames a Value Scorecard*, IEEE International Engineering Management Conference, Albany, NY, November 2-4, 2003.

*Roadmapping in the Corporation*, with Thomas Kappel, Research and Technology Management, Vol. 46 No. 2, pgs 31 – 40, March – April 2003.

*Roadmapping for Global Platform Products*, Product Development and Management Association Visions Magazine, Vol. 26 No. 4, pgs. 19 – 22, October, 2002.

*A Roadmapping Perspective: Science-Driven Technologies*, Global Advanced Technologies Innovation Consortium (GATIC) Workshop, Zurich, September 26, 2002.

*Roadmapping: The Right Technologies at the Right Time*, International Manufacturing Technology Show (IMTS) 2002 Manufacturing Conference, Society of Manufacturing Engineers, Chicago, IL September 4, 2002.

*What Can Past Technology Forecasts Tell Us About the Future?*, Technological Forecasting and Social Change, Vol. 69 No. 5, pgs. 443 – 464, June, 2002.

*Long Term Planning: Roadmapping and Portfolio Process*, Pragmatic Portfolio Management for Product Development, PDMA and IIR, Scottsdale, AZ, February, 2002.

*Roadmaps for Global Platform Products*, Developing and Launching Global Products, PDMA New York, February 6, 2002

*Roadmaps and Roadmapping at the Front End*, Bringing the Fuzzy Front End into Focus, IIR, Ft. Lauderdale FL, December 3-5, 2001

*What Can Past Technology Forecasts Tell Us About the Future?*, International Symposium on Forecasting, Pine Mountain, GA, June 2001. To appear in Technological Forecasting and Social Change.

*Linking Business Strategy and Technology Planning*, Portfolio Management for New Product Development, PDMA and IIR, Ft. Lauderdale FL, January 2001.

*Roadmaps and Roadmapping, Linking Business Strategy and Technology Planning*, Sixth Annual Cambridge Technology Management Symposium, Cambridge, UK, July 2000.

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