The Role of Sustainable Nanotechnology in Economic Development

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EDA’s mission is to lead the federal economic development agenda by promoting innovation and competitiveness, preparing American regions for growth and success in the worldwide economy.

EDA’s strategic investments enhance the competitiveness of America’s communities, spur innovation, and create jobs. EDA’s flexible programs leverage private-public investments, support “bottom-up” strategies, and build 21st century infrastructure.
Setting the Stage for Long-Term Prosperity

- Support development of technology-driven economic ecosystems
- Support place-based, locally driven initiatives
- Convene stakeholders
- Make strategic hard and soft infrastructure investments
- Promote a regional development and global competitiveness based on leveraging cluster assets
- Promote knowledge sharing across centers of excellence in economic development
Collaborative Regional Innovation – Projects that support the expansion and growth of innovation clusters based on a region’s existing competitive strengths.

Public/Private Partnerships – Projects that use both public- and private-sector resources and leverage complementary investments by other government/public entities and/or nonprofits.

National Strategic Priorities – Projects that encourage job growth and business expansion related to advanced and innovative manufacturing; information technology (e.g., broadband or smart grid) infrastructure; communities severely impacted by automotive industry restructuring; restoring or improving urban waters; natural disaster mitigation and resiliency; access to capital for small, medium-sized, and ethnically diverse enterprises; innovations in science and health care; or projects that advance science and research parks or other technology transfer or commercialization centers.
Global Competitiveness – Projects that support high-growth businesses and innovation-based entrepreneurs to expand and compete in global markets.

Environmentally-Sustainable Development – Projects that promote job creation and economic prosperity through enhancing environmental quality and developing and implementing green products, processes, places, and buildings as part of the green economy.
The Obvious: Resources are limited
The Not-so-obvious: Sustainability practices are better for individuals, businesses and communities
• Quality of life
• Global competitiveness
• Enhancing regional clusters
• Keeping capital and investments closer to home
• Fostering new networks of knowledge and creativity
• Fostering efficiency in resources and process
  o Jobs are harder to outsource
COMMERCIALIZING INNOVATION
Creating A Virtuous Cycle of Innovation

Research Parks and Nonlinear Feedback Model of Innovation

Basic Research → Quest for Basic Understanding

Applied Research

Development

Commercialization

New Unanticipated Applications

Potential Use

Development of Products

Feedback: Search for knowledge and discovery

Feedback: design and new products

Feedback: Market Signals / Technical Challenge

FEDERAL ROLE IN PROMOTING REGIONAL INNOVATION

Anatomy of an Economic Ecosystem

Enhance Regional Concentrations

Deploy Human Capital Aligned with Job Pools

Leverage Points for Sustainable and Inclusive Prosperity

Create Effective Public & Civic Culture & Institutions

Increase Spatial Efficiency

Develop Innovation-Enabling Infrastructure
Between 2001 and 2008 the number of discoveries, inventions, nanotechnology workers, R&D funding programs and markets all increase by an average of 25% annually.

Applications in:
- Computing and communication
- Healthcare
- Refining
- Power generation and storage
- Water purification
- Other

Estimated 6 million (2 million in U.S.) nanotechnology workers needed by 2020

Source: Nanotechnology Research Directions for Societal Needs in 2020 (Nano 2)
Sustainable Nanotechnology
The Economic Imperative

Source: Nanotechnology Research Directions for Societal Needs in 2020: summary of international study (Nano 2)
The $6 million annual competition funds Proof of Concept Centers and creates a network of experts to:

- Support innovators and researchers
- Spur sustainable startups, small businesses, and new ventures
- Expand access to capital to fuel growth
- Connect mentors and advisors to entrepreneurs
- Spark job creation
- Over the last three years, $19 million from EDA to 19 winners across the United States to create their own centers for innovation and entrepreneurship
- These centers have raised another $1-2 million from the private sector to support their efforts
The Jobs and Innovation Accelerator Challenge, a multi-agency competition, was launched to support the advancement of high-growth, regional industry clusters. Investments and technical assistance from federal agencies promote development in areas such as advanced manufacturing, information technology, aerospace and clean technology, in rural and urban regions in 21 states.

- Brings together universities, government and strategic partners
- Accelerate the formation of new, high-growth businesses to create high-quality, high-paying jobs
- Advance the commercialization of research
- Support the deployment of new processes, technologies, and products
- Enhance the capacity of small businesses, including disadvantaged businesses
- Increase exports and business interaction with international buyers and suppliers
- Develop the skilled workforce needed to support growing clusters
- Ensure diverse workforce participation in clusters through outreach, training and the creation of career pathways
EDA’S ROLE IN PROMOTING REGIONAL INNOVATION

i6 Grant Challenge Award

The Battery Innovation Center at Naval Surface Warfare Center Crane

Source: The Battery Innovation Center
The Triple Bottom Line Tool helps optimize investments for economic, environmental, and social impact – what’s referred to as the triple bottom line or TBL. Investors, economic development professionals, and decision-makers can use the TBL Tool to:

- **Design** economic development investments for maximum returns
- **Consider** an economic development investment’s impact on various factors
- **Compare** or **communicate** impacts of investment

www.tbltool.org
U.S. Cluster Mapping Tool

http://mvp.clustermapping.us
Regional Innovation Acceleration Network

The nation’s network of Venture Development Organizations (VDOs) turning innovations into companies with jobs to drive America's economy - SMARTER, FASTER, FORWARD

www.regionalinnovation.org
EDA Contacts

For more information on how EDA can assist your community, and to contact your Economic Development Representative please visit our website www.eda.gov.

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