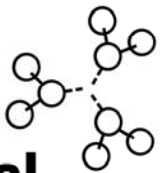


As Presented to

# The Nanomanufacturing & Dual-Use Commercialization Conference

Savannah, Ga. Nov. 3-5, 2008

Hosted By:



turning invention into reality

**National  
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Manufacturing  
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# Nano Valley Consortium

**The Public-Private  
Partnership  
For Nanotech Solutions**

Tracy Becker, NVC Executive Agent

Nov 4, 2008

Nanomanufacturing & Dual-Use Commercialization  
Conference

# NVC Presentation

## ● NVC Overview

- Vision
- Objectives
- Structure
- Operation

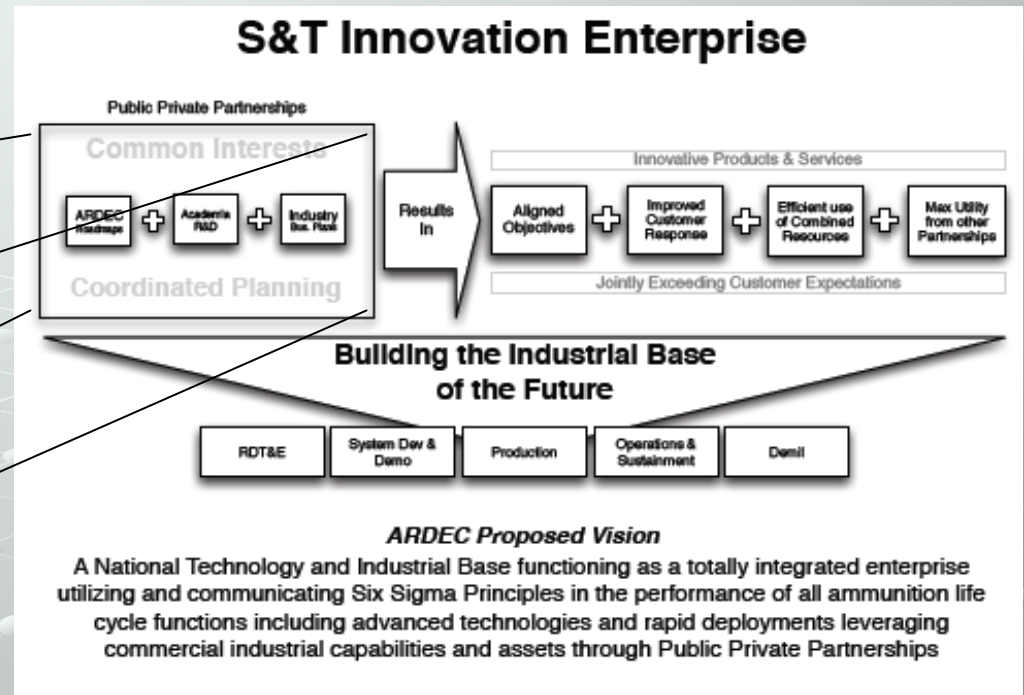
## ● NVC Funding Opportunities

- OTA
- Projected '09 Funding
- Criteria For Proposals
- Types of Projects

## ● Q & A Session

# NVC Overview

Formed to meet the requirements of ARDEC's "Public – Private Partnership"



- Operated as a Non-Traditional Contractor using a consortium model.
- Brings together the research and industrial assets needed
- Coordinates the planning and scheduling
- Tracks resource availability and identifies new resources
- Handles the administrative responsibilities

# NanoValley Vision

- **NanoValley is an association of commercial, academic, and government organizations, which functions through a framework allowing technology providers and users to efficiently come together to create technologies that are beneficial to military and non-military enterprises.**
- **An important characteristic of NVC is it's ability to independently select, prioritize, resource and manage projects. It is also able to pool resources including financial support from a variety of sources, including government funding agencies.**
- **In short, NVC member organizations cooperate to identify and bring project elements together to accomplish desired goals.**

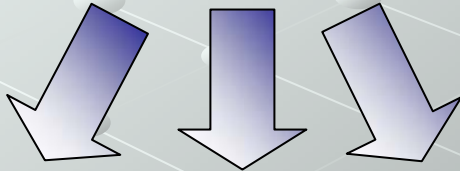
# Objectives of the Nano Valley Consortium

- Create an effective forum for technology development that will:
  - Facilitate the development and commercialization of nano-enhanced materials and devices for military and nonmilitary sectors.
    - Accelerate technology transfer
    - Develop manufacturing science
    - Pilot scale and semi-commercial scale manufacturing
    - Risk mitigation by leveraging resources

# Nano Valley Consortium Structure

Consortium Executive  
Committee

Member Organizations  
*Technology Providers*  
*Technology Users*

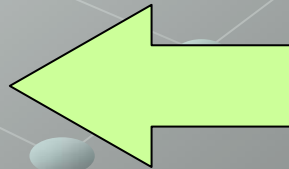


Technology Development  
Teams

- Simple structure used to coordinate and focus groups with similar technology interests

- Market Driven
- “Technology Pull”

ARDEC  
Representation  
Ensures Focus and  
Assures Success



# Consortium Executive Committee (CEC)

- NNMC will serve as the principle lead
  - Provides the “Executive Agent”
  - The EA Serves as the Point of Contact
- Board membership consists of 3-5 of the consortium member organizations – Advises the Executive Agent
- **Major Functions of the Executive Agent:**
  - Strategic planning for Consortium
    - Coordinates with ARDEC to prioritize projects
    - Advise ARDEC on recent trends in business
  - Screening process for ideas
    - Identify interested organizations for participation on Technology Development Teams
  - Marketing
    - Visiting generals, lobbying to technical personal, presentations to technical meetings, sponsorship of events/conferences, publications
  - Provide changes to governing guidelines

# Member Organizations

- Organizations entering into this consortium will have a desire and/or the means to market and advance nanotechnology
- Membership is open and subject to a nominal fee to cover consortium operating costs
- Two principle membership categories:
  - Technology providers
    - Academia
    - Government
    - Commercial businesses
  - Technology users/ Product developers
    - Government
    - Commercial businesses

# Technology Development Teams

- Team membership is based on:
  - An organization's ability and willingness to contribute
    - Resources
    - Capabilities
    - Expertise
  - Team structure:
    - Each team will have an ARDEC representative
      - Participates in technology development
      - Ensures military interests are adequately addressed
    - Each team will have the capability to develop the dual use potential of the technology opportunity
      - From within the consortium first, if it exists
      - Then acquired if not contained in the consortium
    - Each team will have a lead organization
      - As determined by level contribution to the development effort and agreement of the team members

# Concept of Operations

## ● Opportunities surface

- PM/Consortium member annual meeting

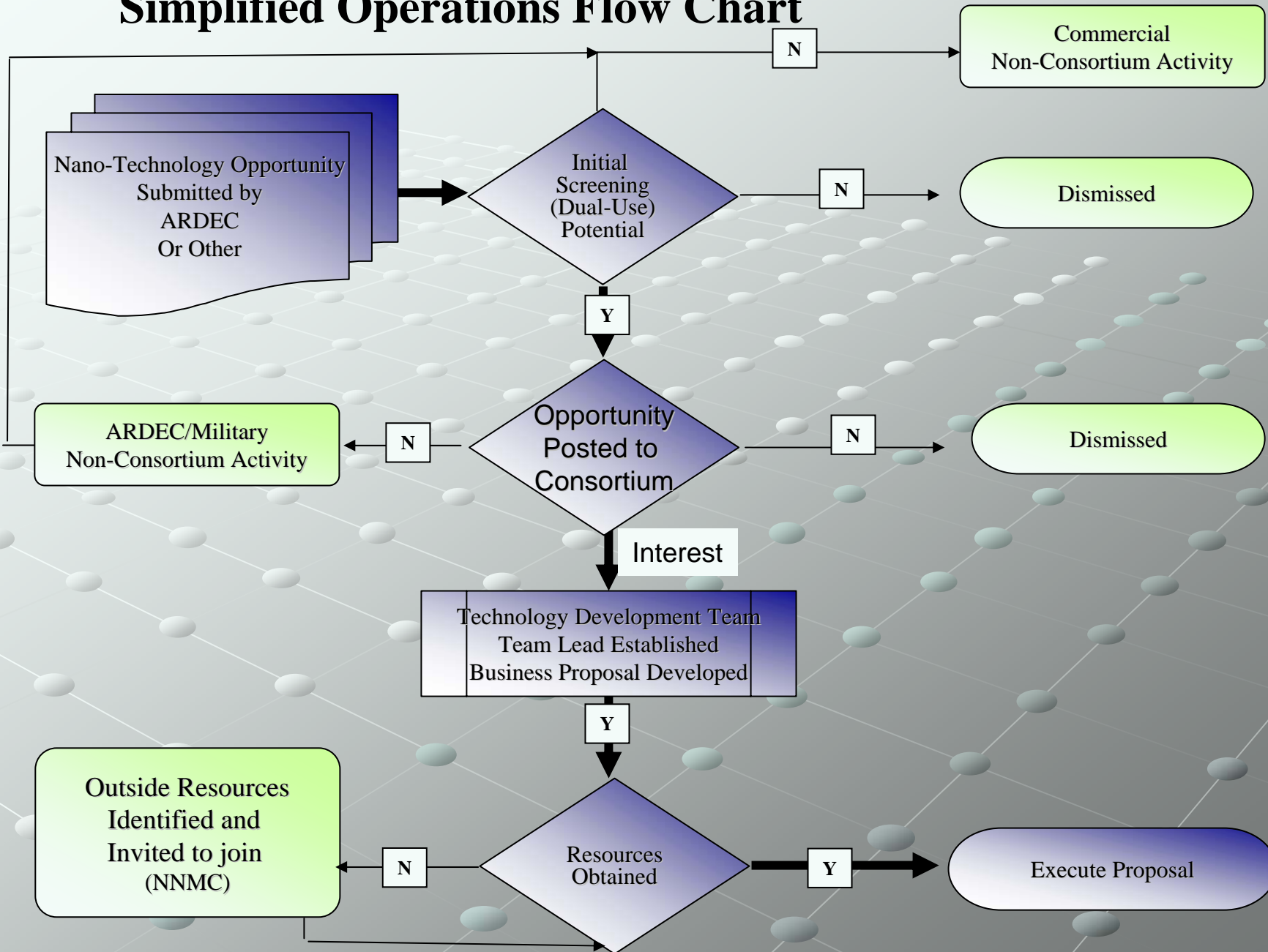
## ● Board posts technology opportunities:

- Technology providers (new technologies) Technology proposals are to be exclusive to the consortium for a period of time
- Technology users ( market driven needs)

## ● Member organizations review opportunities and elect to participate (or not)

- Members have access to technology and right of first refusal to participate
- Participation means willingness to invest and assume risk
  - Resources
  - Capabilities
  - Expertise

# Simplified Operations Flow Chart



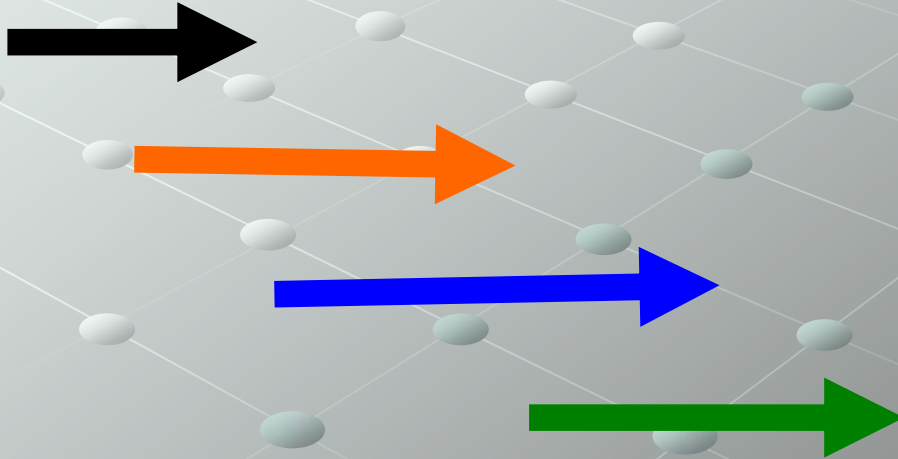
# Concept of Operations Continued

- Technology Development Team Lead selected as the organization willing to take on the largest investment and assume the largest amount of risk
- Team Lead has responsibility for:
  - Coordinate the Proposal Details
  - Determining if requirements can be met through existing participants or if additional capabilities or resources are necessary
    - Negotiate organization to organization agreements
  - Overall project management
    - cost, schedule, and performance
  - Intellectual Property Management
    - Responsibility to protect all team participants rights
    - License agreements
  - Liability Management
    - Hold Harmless Agreements (Everyone indemnifies everyone else)

# Effective Program Management



Reject the linear model of development



Leverage the increased resources to utilize an efficient model which capitalizes the strengths of the team members

# Critical Factors Necessary to Meet Vision

## ● Alignment

- Achieve a uniform purpose and vision between the Army, partner organizations, and other groups within the NVC & NNMC.

## ● Leadership

- Consortium leadership should provide consistency of purpose, and program facilitation.

## ● Strategic Planning

- The strategic plan should connect NVC's vision and goals not only with its programs, but also with all of its other stake holders.

## ● Resources

- Resource acquisition and sharing are necessary for successful program execution.

## ● Funding

- NVC will assist in obtaining funding for programs that support achievement of its vision and objectives.

## ● Marketing

- Marketing of NVC as a effective means of technology transition and commercialization.

# Metrics for Success

- Effective, Mutually Beneficial Program Execution
  - On-Time
  - On-Budget
  - On-Goal

Numerous, Simultaneous and Continuous

# Motivations to Join

## ● Academia:

- Opportunity to transition technology
- Leverage research investment funding
- Access to development resources

## ● Companies:

- Early access to technology
- Shared costs and risk
- More expedient route to market

## ● Government:

- Low cost access to technology
- Shared costs and risk
- More expedient route to testing & evaluation for fielding

A 3D grid of spheres on a light gray background. The spheres are arranged in a diamond-shaped lattice that recedes into the distance. The spheres are colored in a gradient from white to teal. The text "Funding Opportunities" is centered in the middle of the grid.

# Funding Opportunities

# Other Transaction Agreement

- a.k.a. OTA
- Establishes a pre-negotiated controlling contract with Government
- Designed for multiple simultaneous projects
- Accelerates individual proposal decisions/execution
- Greatly enhances Gov/Contractor Communications

# NVC's OTA

- OTA proposal has been submitted
- Favorably reviewed for technical merit and government benefit
- Has been assigned to a Contracts Officer for final negotiations and approval

# Projected '09 Funding

- Strategic Needs and Opportunities will be presented by ARDEC by the end of this calendar year
- NVC will advertise these opportunities – first to the consortium membership then to the public.
- A Request for Proposals will be advertised against these needs and opportunities
- Proposals meeting specific criteria and acceptable to the government will be pursued

# Preliminary Criteria

● Nanotechnology Enabled Materials and Devices showing a significant benefit

- Lighter .
- Stronger
- Cheaper
- Greener

Must show a true, significant advantage in solving a specific challenge to the warfighter

# Applied Science

- Intended to develop a useable material or device
- Expected to capitalize on completed innovations
- Develop the manufacturing science for production scale-up
- Some Basic Science, to solve a specific challenge, is foreseen

# Dual-Use

- Except for rapid response requests from the government, proposals shall have potential for military and non-military (commercial) application
- Seen as a major factor in the overall goal (increases ROI potential to consortium, decreases costs to government)
- Use of consortium mitigates risk

# Types of Projects

- Printed electronics with nano-enabled inks
  - Antennas
    - Fractal Printed Antennas
    - RFID receiving and “tag” antennas
  - Prototyping of Circuits
  - Flexible electronics applications
  - etc

Examples only: Not intended for Soliciting Proposals

# Types of Projects

## ● Nano-enabled Materials

- Inks for Drop-on-Demand printers
  - Metalized (Silver, Gold, Copper etc)
  - Dielectrics for semi-conductors
- Fabrics
- Blast & projectile resistant
- etc

Examples only: Not intended for Soliciting Proposals

# Types of Projects

## ● Equipment

- Material Handling
  - Precision Robotics
  - Roll-to-roll Manufacturing
- Inspection, Testing & Characterization
- Packaging Innovations
- etc

Examples only: Not intended for Soliciting Proposals

# Types of Projects

## ● Processes

- Manufacturing Science
  - Lean / 6 Sigma Programs
  - Flexible manufacturing lines
- Field deployable solutions
- Scalable
- etc

Examples only: Not intended for Soliciting Proposals

# Types of Projects

## ● Sensors

- Novel or replacement
  - Lighter, Cheaper, reliable
  - Less energy usage - reduce battery requirements
- Bio-Status of the warfighter
- Command & Control / situational awareness
- etc

Examples only: Not intended for Soliciting Proposals

# Types of Projects

## ● Your business core capabilities

- What is your companies core capabilities and how can that benefit a nanotech project for dual-use materials or devices?
- Does your business plan include the benefits of working in a consortium for a common goal?

Examples only: Not intended for Soliciting Proposals

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Thank you & we are  
looking forward to  
working with you!