

Nanoscale Science, Engineering and Technology (NSET) Work

Principal Investigator's Work Profiling Kit

Work Profiling is a tool used by nanoscale-oriented researchers for documenting vital information about their work.

Profiles of all NNI projects will be organized in a knowledge base and used to coordinate 2003 investment strategies among participating Federal Agencies.

KHi **Work Profiling** Version 4.8

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Description – Profiling Nanotechnology Work Results & Actions

What is the most valuable work that you do in order to advance the field and to accomplish your personal objectives?

Have you considered how you might find others who share your interests – or have insights and technologies that extend or amplify your innovations?

This Kit includes worksheets to help you articulate the essence of your nanoscale research and technology work:

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What are the advantages for managing profile information? There are several, significant advantages for managing this information.

- The National Nanotechnology Initiative (NNI) funding agencies can more fully accurately prioritize investments for 2003 and beyond.
- NNI stakeholders can deliberately manage the inherently interdisciplinary nature of nanotechnology work.
- Individual researchers/scientists/engineers will be able to easily identify others who do similar work.
- Others can be contacted as needed for problem solving and collaboration.
- In collaborative or community settings, new members are able to quickly understand the relationship between their individual role and the organization's / community's reason for existence.
- Individuals can rapidly modify Profiles and adapt to new discoveries or changing conditions inside and outside of the community.
- An organization or institution can effectively align collective actions and results.

How will you benefit from profiling your nanotechnology work? This exercise provides you with the opportunity to...

- Accurately describe and position your research so that all stakeholders have a clear understanding of your contribution and where it “fits” in the big picture.
- Pause, reflect, examine and understand the nature of your work.
- Establish a basis for articulating concise performance measurements in relation to your expected research findings or technology developments.
- Increase the level and quality of dialogue among your peers and others who will benefit from your work. The language of “results and actions” is a universal vocabulary. The goal

- is to create a common language... and to use this common language for tightly integrating vital information about NNI research.
- Discover interrelationships among work profiles of others who share similar interests.
 - Improve record keeping and indexing of your valuable inventions and discoveries.



Purpose – Profiling Nanotechnology Work Results & Actions

The purpose of this Kit is to help you with Profiling. By using the language of "results and actions," greater depth, breadth and clarity of expressing your important activities are achieved.



Performance Measurement – Profiling Nanotechnology Work Results & Actions

Acceptable performance of this process is indicated by sending a complete, accurate Profile of your essential work results and actions.



Estimate of Time – Profiling Nanotechnology Work Results & Actions

Typically, it takes at least **two hours** to thoughtfully complete a Profile.

Note your name and project information.



Guidance – Please note your name and project information.

Enter your name.

First Name, Last Name

Enter the name of your role / title.

Role / Position / Title

Enter the name of your company, research organization, or university department.

Organization Name

What is the name and identifier of your NNI project?

Project Name

Project Identifier

If we contact you in the future, please note your preferred communications medium.

**Telephone
Discussions**

Email Messages

**In-person
Discussions**

**Virtual Community
Forums**

Briefly describe your work.



Purpose – Briefly describe your Nanotechnology Work.

The purpose of this activity is to capture a general description of your work. Simply write about the work. You don't have to use complete sentences. And the order does not matter. There are no wrong answers here!



Guidance – Briefly describe your Nanotechnology Work.

- 1) Consider the work that you now perform.
 - a) In the space below, write down words and phrases that describe your work.
 - b) Note each new thought on a new line.
- 2) Here are some ways to think about it:
 - a) If you told someone about your work, what do you say?
 - b) If you were to provide a presentation to your peers, what are the things that should be mentioned?

My orientation (nanofabrication method) is...

Bottom-up (self-assemble or assemble atoms or molecules into nanostructures)

Top-down (carve out or add aggregates of molecules to produce nanoscale structures)

My scientific / technical field is... (Please circle one or note one below.)

**Atom-by-atom
manipulation**

Ion beam fabrication

**Micro-electro-
mechanical systems**

**Molecular-beam
epitaxy**

**Nano-imprint
lithography**

**Project electron
microscopy**

**Quantum-effect
electronics**

Spin electronics

Other scientific or technical field... (Please describe your field.)

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List your work results.



Description – List your nanotechnology work results.

In this task, list the results — what should be produced, delivered, or provided by your interaction and collaboration — whether performed regularly on a daily, weekly, monthly, or annual basis — as well as those that occur irregularly.

Think of each result as a bullet point. Usually, a work profile contains between five and seven primary results. The order in which the results are listed does not matter.



Definition – List your nanotechnology work results.

Result - what is produced, delivered, or provided by your work. A result may be material or immaterial (the product of your thinking). A result is the final outcome of work—it is like the output to a process. A work result contributes to the overall advancement of nanoscale science or engineering.



Examples – List your nanotechnology work results.

These are simply examples for your consideration! Please add your own, and express your results in any way that you see fit. Note that immaterial results (like advice, analyses, conclusions, etc., are depicted in black. Material/physical results (like agent detectors, chemical reactions, devices) are depicted in blue.

Advice	Enhancements	Inventions	Recommendations
Agent Detectors	Environments	Knowledge	Repairs
Analyses	Equipment	Learning resources	Reports
Appraisals	Estimations	Materials	Schedules
Assessments	Evaluations	Measurements	Services
Certifications	Examinations	Memos	Sequencing
Chemical Reactions	Experiments	Mesoscale Laws	Approaches
Communications	Files	Notes	Software
Computations	Goals	Objectives	Solutions
Conclusions	Guidance	Observations	Strategies
Contributions	Guidelines	Plans	Structures
Data	Hypotheses	Presentations	Support
Decisions	Ideas	Principles	Systems
Designs	Improvements	Processes	Technologies
Devices	Information	Programs	Tests
Diagnoses	Innovation	Projects	Theories
Diagnostics	Intellectual property	Proofs of Concept	Transcriptions
Documents	Interpretations	Proposals	...



Guidance – List your nanotechnology work results.

- 1) Review your work description (which was recorded in the “Briefly describe your work” task.)
- 2) Look for items that are results.
 - a) From a grammatical viewpoint, locate the “nouns” that you noted.
- 3) Enter each result on a separate line. Your list will probably contain between five and seven results. Each result is as a phrase or a single word.

List actions and resources for your critical results.



Definitions – List actions for your most-important results.

Actions produce, deliver, or provide desirable results. Actions are physical, intellectual and emotional human activities of varying complexity that you do to create an output—a result. Actions may be performed individually or collaboratively.



Examples – List actions for your most-important results.

Below is a list of examples. Thinking-oriented actions are noted in black and moving-oriented tasks are noted in blue.

Adapting	Detecting	Marking	Representing	Filling
Adjusting	Developing	Matching	Reproducing	Filtering
Advising	Diagnosing	Measuring	Resolving	Guiding
Analyzing	Enhancing	Modeling	Restoring	Lifting
Applying	Establishing	Modifying	Reviewing	Loading
Appraising	Estimating	Monitoring	Revising	Gathering
Assessing	Evaluating	Observing	Scheduling	Grouping
Calculating	Examining	Obtaining	Searching	Holding
Calibrating	Executing	Optimizing	Showing	Manipulating
Categorizing	Experimenting	Organizing	Solving	Merging
Changing	Exploring	Originating	Sorting	Mixing
Characterizing	Facilitating	Outlining	Submitting	Molding
Choosing	Finding	Planning	Tagging	Moving
Classifying	Fixing	Posting	Testing	Printing
Collecting	Formulating	Predicting	Translating	Probing
Compiling	Functionalizing	Preparing	Updating	Pulling
Computing	Hypothesizing	Presenting	Verifying	Pushing
Conducting	Identifying	Preventing	Visualizing	Raising
Confirming	Implementing	Prioritizing		Removing
Considering	Indexing	Probing	Aligning	Replacing
Consolidating	Informing	Programming	Altering	Scanning
Contrasting	Initiating	Publishing	Arranging	Sending
Converting	Inspecting	Questioning	Assembling	Setting
Coordinating	Integrating	Reasoning	Balancing	Sorting
Copying	Interpreting	Recommending	Carving	Stacking
Counting	Inventing	Reconciling	Constructing	Stamping
Creating	Investigating	Recording	Counting	Storing
Deciding	Issuing	Refining	Detaching	Transmuting
Describing	Judging	Reflecting	Embossing	Turning
Designating	Labeling	Repairing	Enabling	
Designing	Maintaining	Reporting	Fabricating	



Guidance – List actions for your critical results.

- 1) Review your list of results. Select your “critical” results.
- 2) For each important result, ask yourself: *What must I do to produce, deliver, or provide this result?*
 - a) State each action as a verb phrase: [action] + [to what...? for what...? with whom...?]

For this critical result...

I accomplish or intend to accomplish this result by...

For this critical result...

I accomplish or intend to accomplish this result by...

For this critical result...

I accomplish or intend to accomplish this result by...

Email this file (of completed worksheets) to Tina... by...